Construction Safety Manual

Prepared by:
Lovell Safety Management Co., LLC
Construction Safety Manual

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Construction Site Safety Manual
INTRODUCTION

The objective of this Construction Safety Management Manual is to provide our employees with a "corporate blueprint" of the basic elements of an occupational safety and health program. It also enables ELMIRA STRUCTURES, INC. to comply with appropriate federal, state and local laws and regulations.

The basic elements of the ELMIRA STRUCTURES, INC. occupational safety and health program meet several goals:

- To prevent accidents.
- To reduce workers compensation costs.
- To reduce job site down time due to accidents.
- To meet our legal duties.
- To provide our employees with a safe and healthful workplace, free from recognized hazards.

To be successful in such a program, ELMIRA STRUCTURES, INC. must encourage the support and compliance of employees. This manual includes materials to assist in gaining employee participation and support, such as safety committee and job site safety talks. Employees must be made aware of their responsibilities regarding worksite safety through the use of notices, rules and regulations, and guidelines, which appear in this manual.

All ELMIRA STRUCTURES, INC. employees are required to comply with the Company’s Safety and Health Program. Employees regardless of title who do not comply will be subject to disciplinary action.

____________________    __________________________________
President      Signature                                           Date
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Corporate Management Policy Statement

The personal safety and health of each ELMIRA STRUCTURES, INC. employee is of primary importance. We believe that our employees are our most important assets and that their safety at the worksite is our greatest responsibility. The prevention of occupationally induced injuries and illnesses is of such consequence that it will be given precedence over operating productivity whenever necessary. Management will provide all mechanical and physical facilities required for the personal safety and health of each of our employees.

To be successful, such a program must embody the proper attitude toward injury and illness prevention on the part of corporate management, supervisors, and employees. It also requires cooperation in all safety and health matters, not only between corporate management, supervisor and employees, but also between each employee and their fellow workers.

Our concern for safety and health of all human beings is daily, even hourly. We expect every person who conducts the affairs of our company, no matter in what capacity they function, to accept this concern and its responsibility. Employees are expected to use the safety equipment provided. Rules of conduct and rules of safety and health must be observed. Safety equipment cannot be abused or destroyed.

Cooperation between our employees and management in the observance of this policy will insure safe-working conditions, will help result in accident-free performance and will work to our mutual advantage. It will also assist in reducing workers' compensation costs (direct costs) and reduce job site down time, material loss and regulatory agency fines (indirect costs).

Management has the authority to procure the necessary resources to execute the objectives of our company's safety and health program. We will hold managers, supervisors and employees accountable for meeting their responsibilities so those essential tasks will be performed.
PROJECT SITE SPECIFIC SAFETY PROGRAM

A. Purpose Of The Plan

The purpose of this section of the Construction Safety and Health Plan is to establish practices and procedures to protect ELMIRA STRUCTURES, INC. personnel and others during construction on this site.

B. Applicability

The provisions of the plan are mandatory for contractors and subcontractors engaged in any on-site construction activities. The following section must be referred when performing a specific task.

C. Site Description

1. Site Description and Task

   - Installation of elevator
   - Installation of internal stairs
   - Rehabilitation of internal spaces
   - Room construction

D. Corporate Management

   Company Project Manager
   Company Safety Officer
   Company Hazard Communication Coordinator

E. Site Management

   Project Superintendent
   Assistant Superintendent

   Safety Coordinators:
   Site Safety Coordinator
Alt Site Safety Coordinator

“    “         “             “             “

F. Site Risk Evaluation

A preliminary risk evaluation was performed on:

- Fall hazards possible from open sided floors
- Fall hazards possible from improper use of ladders
- Respiratory hazards due to dust levels during demolition
- Noise exposure due to reverberation caused by the use of pavement breakers (jack hammers), pavement sanders
- Fires from sparks during welding & cutting
- Electrical shock from operation of electrical tools
- Walking and working surfaces, slips, trips and falls
- Concrete and masonry hazards
- Slips, trips and falls from improper illumination
- Work on scaffolding
- Overhead hazards
- Housekeeping
G. Emergency Information

Emergency Contacts

In the event of an emergency requiring immediate medical assistance the following actions must be initiated:

- **Minor cuts, bruises and burns**
  
  Utilize the on site first aid kit to self-administer first aid

- **Injuries requiring emergency medical assistance**
  
  Locate the nearest telephone and contact the New York City Emergency Medical Services, Telephone Number 911

- **Emergency Phone Number Poster**
  
  The following page is to be completed, copied, and prominently posted throughout the workplace.
In case of an Emergency – Fire, Medical, etc. get to a public phone and CALL 911.

It is wise to know the following alternate local emergency telephone numbers and locations:

**POLICE:**

Precinct No. _______ Telephone: __________________

Address: _______________________________________

**HOSPITAL:**

Name: ____________________________________________

Telephone Number: ____________________________

Name: _____________________________________________

Address: ___________________________________________

**FIRE:**

Station Number:_______ Tele. Number: ____________

Address:________________________________________

**Note:** Employees must provide the exact location of the accident extent and nature of injury (if any) and type of assistance required. An employee should also be told to wait at the location to direct the emergency responders to the site.
H. Site Safety Work Plan

Unless instructed otherwise the site General Superintendent is responsible for the compliance with the following:

1. Designation of Site Safety Coordinator

2. Record Keeping Responsibilities

3. First Aid/Bloodborne Pathogens

4. Demolition

5. Fall Protection
   - Guardrails (top rail, mid rail, toe boards)
   - Scaffolds
   - Ladders
   - Personal Fall Arrest Systems

6. Responsibility for Asbestos Determination and Abatement

7. Responsibility for Lead Determination and Abatement

8. Personal Protective Equipment
   - Hard Hats
   - Gloves
   - Safety Glasses/Goggles
   - Work Boots/Shoes
   - Safety Harness, Lanyards and Life Lines

9. Fire Protection and Prevention
   - Fire Extinguishers
   - Storage and Use of Flammable and Combustible Liquids
   - Trash Disposal

10. Material Handling, Storage Use and Disposal
11. Tools - Hand Power

12. Welding and Cutting
   - Storage and Use of Oxygen and Acetylene Tanks
   - Hot work permits
   - Fire Protection
   - Fire Watch

13. Electrical
   - Grounding of electrical equipment
   - Care and use of electrical extension cords
   - Ground Fault Circuit Interrupters

14. Heavy Equipment/Hoists and related rigging equipment

15. Respiratory Protection Program

16. Housekeeping
   - Cleaning
   - Refuse disposal

I. Safety Committee Meetings (Monthly)

Unless indicated otherwise the site Superintendent will be responsible for compliance with the following:

- Evaluation of Program
- Address Safety Recommendations/Hazards
- Review and Discuss Upcoming Construction
- Review and discuss safety inspections
- Review and discuss accidents, injuries and incidents
J. Toolbox Safety Talks

All employees will attend a weekly toolbox safety talk at which pertinent safety issues and job side hazards will be discussed.

The safety talks will:

- Be limited to fifteen (15) minutes
- Cover current safety issues
- Allow for questions
- Require attendance be taken
- Be conducted by the Safety Coordinators
CORPORATE MANAGEMENT SAFETY RESPONSIBILITIES

The ELMIRA STRUCTURES, INC. Corporate Safety Officer and Job Site Superintendent is responsible to:

1. Eliminate potential hazards by providing appropriate safeguards, personal protective equipment and safe work tasks.

2. Provide necessary personal protective equipment and enforce its use and care.

3. Provide effective training, which is required by the "standards", as a minimum for the employees.


5. Make copies of all safety and health programs available for employees to review.

6. Review, consider for approval, and execute appropriate action on safety policies.

7. Insure a high level of productivity and safety performance and hold project management staff accountable.

8. Acquire the Material Safety Data Sheets (MSDS) for all hazardous substances used at the site.

9. Assign an individual(s) [COMPETENT PERSON] the authority for the implementation of the safety program at each worksite.

10. Insure compliance with all safety and health rules and regulations by company employees and sub-contractors.

11. Insure the protection of the public and building occupants for any potential safety, health and fire hazards.
COMPANY HAZARD COMMUNICATION COORDINATOR

The ELMIRA STRUCTURES, INC. “Hazard Communication Coordinator” is responsible to insure the Companies Hazard Communication Program complies with the OSHA Hazard Communication Standard 29 CFR 1926.59 (1910.1200) including but not necessarily limited to the following:

- Maintenance of the company’s written hazard communication policies
- Insuring the proper labeling of all hazardous substances
- Preparing a chemical inventory for the Company office and each specific job site
- Acquiring and maintaining the Material Safety Data (MSD) Sheets including the Company’s master copy of all worksite copies
- Prior to the start of work at a specific job site, insuring the specific MSD sheets are available for each hazardous substance
- Notifying all ELMIRA STRUCTURES, INC. subcontractor’s of their requirements to comply with the OSHA Hazard Communication Standard and supplying the material safety data sheets (MSD sheets).
- Insuring each ELMIRA STRUCTURES, INC. employee receives the appropriate Hazard Communication training
- Maintaining all appropriate records required by the OSHA and/or state Right to Know Law standards
- Insuring employees receive prompt replies to their requests for information of chemical hazards they may be exposed to within the workplace
COMPANY SAFETY OFFICER RESPONSIBILITIES

1. Monitor supervisory management and employee activity to ensure that the ELMIRA STRUCTURES, INC. programs are carried out in a timely manner.

2. Coordinate safety information between projects to assure that all projects will benefit from each other’s efforts and experiences.

3. Coordinate all safety activities including job site inspections, and distribution of safety materials.

4. Perform job site inspections periodically and follow up corrective actions.

5. Maintain all accident records and complete all required OSHA forms.

6. Analyze accident records and show trends.

7. Promote safety education on all levels.

8. Periodically review safety rules and standards with employees to confirm that the company is meeting its goals and objectives.

9. Review with supervisors how to handle emergency procedures at each job site location.

10. Confirm that all required signs are posted, and bulletin boards are maintained in clear and legible condition.

11. Confirm job site compliance with all applicable federal, state, and local regulations.

12. Provide a regular report to upper management on the results of the safety program.
SITE SUPERINTENDENT/SUPERVISOR RESPONSIBILITIES

The Site Superintendent is expected to read and sign the following sheets, which lists the job site activities and behavior for which they are responsible, and then sign the signature sheet. ELMIRA STRUCTURES, INC. has a legal obligation to provide a job site safety program, and may be held legally liable for injuries or fatalities that occur to our employees, the employees of our clients, other contractors and/or members of the general public. It is in your best interest and ours to carefully follow the safety rules and procedures that have been adopted as our safety policy.

Not only does accident prevention reduce human suffering and loss, it is also good management. Safety goes hand in hand with efficient job site operations and cost control which are an important part of your responsibilities. It is your primary responsibility to our organization and to your fellow workers.

Your annual Performance Evaluation will reflect your involvement in safety and health activities, especially accident prevention and training. As an ELMIRA STRUCTURES, INC. supervisor you are responsible to:

1. Know safety rules and work practices that apply to the work you supervise. Take action to confirm that all employees in your charge understand the safety rules that apply to them. Always take immediate action to correct safety rule violations. Unsafe acts or procedures cannot be tolerated.

2. Prevent bad work habits from developing. You are responsible to make daily observations of employees to Insure that they perform their work safely, and continue this observation regularly once safe working habits are established.

3. Take action to correct or control hazardous conditions within your work areas. If it is beyond your control, remove the employee until the condition is safe. Eliminate unsafe conditions and prevent an accident.

4. Encourage workers to report unsafe conditions or procedures. Listen to your workers and don't take their safety complaints lightly. No job should proceed when a question of safety remains unanswered. Seek advice from your project manager when necessary.
5. Set a good example. Demonstrate safety in your own work habits and personal conduct. Always wear personal protective equipment in areas where personal protective equipment is required.

6. Train your employees on the proper safety procedures to follow, including the use of additional safeguards such as machine guards and personal protective equipment.

7. Investigate and analyze every accident, however slight, that occurs to any of your employees. Control the causes of minor incidents to help avoid future crippling accidents.

8. Complete and file a report on each and every incident and accident that occurs at your job site. If you have question or require reporting forms, contact your project manager.

9. Conduct monthly safety committee.

10. Make safety suggestions.

11. Take an active part and participate in safety meetings.

12. Insure compliance with these rules as well as other federal and/or state laws or regulations. Non-compliance may be legal violations subject to civil and/or criminal penalties.

13. Insure that safety coordinators conduct the weekly Toolbox safety talks.

14. Insure compliance with the safety policies and procedures by employees and contractors.

15. Insure the protection of the public and building occupants from any potential safety, health and fire hazard.
JOB SITE SAFETY COORDINATOR RESPONSIBILITIES

The Job Site Safety Coordinator will:

- Conduct a job site safety inspection each day prior to the start of each shift.
- Report any unsafe or unhealthy conditions to the superintendent if they cannot be easily corrected.
- Insure Company employees and contractor employees are working safely.
- Insure Company employees and contractor employees are using the appropriate personal protective equipment.
- Inspect for any potential fire hazards.
- Insure that all reasonable efforts are taken to maintain a clean, orderly, safe workplace.
EMPLOYEE RESPONSIBILITIES

ELMIRA STRUCTURES, INC. employees must actively participate in the safety program and take responsibility for their own safety and health. In accordance with the Company’s safety policy ELMIRA STRUCTURES, INC. employees have the responsibility for compliance with but not necessarily limited to the following:

1. Whenever you are involved in an accident (incident) that results in personal injury or property damage, no matter how slight, the accident (incident) must be reported to your supervisor or other management personnel prior to the end of the work shift.

2. If required, get first aid promptly.

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

4. 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 supervisor.

5. 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.

6. 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 supervisor.

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

8. Do not engage in horse play; avoid distracting others; be courteous to fellow workers.

9. 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. Excessively worn or damaged tools must be removed from the job site.

10. 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.

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

12. Additional appropriate disciplinary action will be taken for the following offenses:

A. Fighting - no matter what the cause.

B. Insubordinate conduct or refusal to follow directions.

C. False statements, such as injury claims.

D. Other inappropriate behavior including, but not limited to, failure to obey safety rules.

E. Threats of violence against any person or property

F. Theft of property, either personal, Company, or clients

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

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

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

16. Hard hats and eye protection shall be worn at all times.

17. Read, understand and follow the guidelines set forth in the material safety data sheets (MSDS) pertaining to your work.
18. Compliance with safety and health rules and regulations is a condition of employment.

19. Jewelry or other conductive metals may not be worn while working on or near exposed electrical circuits.

20. Employees are not permitted to use equipment, e.g., tools, ladders, scaffolds, etc. belonging to another contractor or building owner without prior approval of the site superintendent.

21. Access to the elevators and stairways may not be obstructed.

22. Smoking is not permitted in the building.

23. Work may be performed in occupied areas where either students or the public may be present or passing through. ELMIRA STRUCTURES, INC. employees and subcontractors must take every precaution to protect the students and public from injury. If in doubt about anything contact the site superintendent immediately.
DISCIPLINARY POLICY PROCEDURES

All employees are expected to comply with job site rules and regulations, and to follow established operating procedures set forth by this company. Violations will not be tolerated and the superintendent/supervisor will be held accountable for the conduct of their employees.

Superintendents and supervisors are required to take action when a violation is observed. Immediate action to control or eliminate a hazard is required.

In the event a violation is observed, the following procedures have been established to place an employee on notice.

<table>
<thead>
<tr>
<th>Notice*</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Offense</td>
<td>A written warning addressed to the employee and a copy placed in the employee’s file referencing the violation and warning, including date and time.</td>
</tr>
<tr>
<td>Second Offense</td>
<td>A written warning addressed to the employee with reference to the violation including date and time of the occurrence. A copy of this warning will be given to the employee, the union shop steward, and another copy will be placed in the employee’s file.</td>
</tr>
<tr>
<td>Third Offense</td>
<td>A written warning similar to the second notice will be prepared and distributed in the same manner. This warning will be followed by a meeting with the employee, union shop steward, supervisor and/or project manager and senior management to determine whether the employee will be suspended without pay or terminated depending upon the nature of the violation.</td>
</tr>
</tbody>
</table>
Fourth Offense Termination.

* Within any consecutive 12 month period.
* This policy is in effect unless there is a policy in our labor/management agreement.

Note: This program can be effectively implemented by discussing the procedures of the program in a safety toolbox meeting. The above procedure has been prepared so that there is no question about how violations of safety rules, regulations, and procedures will be handled by management and so that employees will know what to expect if they do not comply with the established rules, regulations, and procedures. Management’s knowledge of unsafe behavior and lack of appropriate documented discipline may be a violation of federal and state laws or regulations.
EMPLOYEE DISCIPLINARY ACTION FORM

Project: _____________________________ Shop: __________________________

Day: ______________________  Date:__________________  Time: _______

Employee Name: __________________________________________________

Superintendent: ____________________________________________________

Supervisor:________________________________________________________

1st Violation
Description:  
__________________________________________________________________  
__________________________________________________________________  
__________________________________________________________________  
__________________________________________________________________

Employee Signature: _______________________________________________

2nd Violation
Description:  
__________________________________________________________________  
__________________________________________________________________  
__________________________________________________________________

Employee Signature: _______________________________________________

3rd Violation
Description:  
__________________________________________________________________  
__________________________________________________________________  
__________________________________________________________________

Employee Signature: _______________________________________________

4th Violation: TERMINATION!

WITHIN A 12 MONTH PERIOD
NEW EMPLOYEE TRAINING

All new employees will be trained by a member of the management staff prior to starting work. The "New Employee Safety Orientation Checklist" shall be used by trainers (managers, superintendents, supervisors, safety directors) as a reminder of the items that must be reviewed with the employee. All items must be initialed or identified as not applicable. The checklist must be signed by the employee and the management representative after the orientation is complete.

A copy of this form will be held at the job site and a duplicate forwarded to the project manager at the home office and kept in the employee's personnel file.
NEW EMPLOYEE SAFETY ORIENTATION CHECKLIST

Instructions To Management: Initial each item as you discuss it with the employees. This checklist must be completed before the employee starts work.

<table>
<thead>
<tr>
<th>Item</th>
<th>Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Employee received Company Safety Program</td>
<td>__________</td>
</tr>
<tr>
<td>2. Review:</td>
<td></td>
</tr>
<tr>
<td>☐ Safety and Health Policy</td>
<td>__________</td>
</tr>
<tr>
<td>☐ Employee General Safety and Health Rules</td>
<td>__________</td>
</tr>
<tr>
<td>☐ Disciplinary Policy and Procedures</td>
<td>__________</td>
</tr>
<tr>
<td>3. Instruct:</td>
<td></td>
</tr>
<tr>
<td>☐ How to report unsafe conditions</td>
<td>__________</td>
</tr>
<tr>
<td>☐ What to do in the event of an injury on the job</td>
<td>__________</td>
</tr>
<tr>
<td>☐ State when and where safety Toolbox meetings are</td>
<td>__________</td>
</tr>
<tr>
<td>☐ Hard hats, work boots, safety glasses/goggles mandatory</td>
<td>__________</td>
</tr>
<tr>
<td>(Personal protective equipment is not negotiable)</td>
<td></td>
</tr>
<tr>
<td>☐ Explain Fire Evacuation/Emergency Plan</td>
<td>__________</td>
</tr>
<tr>
<td>☐ Proper lifting techniques and importance of back fitness</td>
<td>__________</td>
</tr>
<tr>
<td>☐ Review OSHA Hazard Communication Policy and provide training</td>
<td>__________</td>
</tr>
<tr>
<td>☐ The location of the MSD sheets</td>
<td>__________</td>
</tr>
<tr>
<td>4. Other (Please List)</td>
<td></td>
</tr>
</tbody>
</table>

I acknowledge that information on the above subjects was furnished to me during my orientation and that I understand this information

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

Employee Signature __________________________ Management Signature __________________________

Date: __________________________ Date: __________________________
COMPETENT PERSON DESIGNATION

It is the responsibility of top management to appoint an individual as a competent person 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 on a project.
COMPETENT PERSON LIST

A “competent person” must inspect the job site on a routine basis but must pay particular attention when activities involve those items listed below:

1926.20 General safety and health provisions
1926.32 Definitions
1926.53 Ionizing radiation
1926.62 Lead
1926.101 Hearing protection
1926.103 Respiratory protection
1926.251 Rigging equipment for material handling
1926.354 Welding, cutting, and heating in way of preservative coatings
1926.404 Wiring design and protection
1926.500 Fall Protection
1926.451 Scaffolding
1926.502 Definitions applicable to fall protection
1926.550 Cranes and derricks
1926.650 Scope, application, and definitions applicable to excavations
1926.651 General requirements
1926.652 Requirements for protective systems
1926 Subpart P App A Soil classification
1926 Subpart P App B Sloping and benching
1926.705 Requirements for lift-slab operations
1926.752 Bolting, riveting, fitting-up, and plumbing-up
1926.800 Underground construction
1926.803 Compressed air
1926.850 Preparatory operations - demolition
1926.859 Mechanical demolition
1926.900 Blasting and use of explosives
1926.1053 Ladders
1926.1060 Training requirements - stairways & ladders
1926.1101 Asbestos
1926.1127 Cadmium
Memo

To:
From:
CC:
Date:
Re: Competent Safety Person

Via this memo, we appoint ________________________________
as our “Competent Safety Person” according to the provisions of 29 CFR 1926 in the area(s) of: ________________________________

He/she has the authority to correct all hazards or to remove workers from the hazardous exposure if the hazards cannot be immediately corrected.

______________________________
Signature of Project Manager
SAFETY COMMITTEE

The development and implementation of a safety committee is an excellent technique in the monitoring of the ELMIRA STRUCTURES, INC. safety program. It will create accountability throughout the entire company.

Membership: Membership will consist of representatives from top management, one or more project managers, superintendents, supervisors, shop steward and/or key employee.

Meetings/Minutes: The safety committee should meet on a pre-scheduled monthly basis, at a regular time and place. Minutes from these meetings must be kept on file for review by management, and insurance representatives. The agenda for the safety committee meetings will include items that relate to the safety and health of site employees. Safety committee minutes will be distributed to ELMIRA STRUCTURES, INC. management, job site management and safety staff.

Committee Goals: The committee is expected to provide solutions to worksite safety and health problems. To do so, the committee must be aware of problems, serve as a channel of information from employees to management, and make positive recommendations for corrective action.
SAFETY COMMITTEE MEETING AGENDA

Topics for discussion and action at safety meetings will include:

1. Review accident investigation reports and determine if appropriate corrective action was taken to prevent similar occurrences in the future. If not, recommendations will be submitted to management for their consideration and subsequent action.

2. Prepare and review company safety and health rules and procedures for the purpose of keeping the safety and health program up to date and effective.

3. Review potential hazards that are reported and recommend to management ways and means to control or eliminate hazards that could lead to accidents or property damage.

4. Promote safety and health activities.

5. Review the need for employee training and education and make recommendations to management.

6. Make periodic over-sight job site inspections to Insure that hazards are not being overlooked by the superintendent or foreman, and to Insure that corrective action is adequate and taken in a timely manner.

7. Review accident statistics for the purpose of identifying high accident job sites, potential problems, trends, etc. Based on findings, make recommendations to management.
To: ______________________________________    Date:  _____________

The ELMIRA STRUCTURES, INC. safety committee is a valuable asset to help us provide a safe and healthful place to work. Its effectiveness depends on the knowledge, experience, cooperation and level of commitment of each safety committee member. ELMIRA STRUCTURES, INC. has made the following appointments to this committee and request that the Chairman calls its first meeting within thirty (30) days in accordance with the enclosed listing of responsibilities of the committee.

________________________________________________  Chairman
________________________________________________  Secretary
________________________________________________  
________________________________________________  
________________________________________________  
________________________________________________  
________________________________________________  

The above appointments take effect immediately, and will remain in effect until changed in writing.

Name:

Title:
SAFETY COMMITTEE MINUTES

Meeting Date: ______________ Minutes Prepared by:_____________________

Members Present: ____________________________________________________

Members Excused:_____________________________________________________

Members Absent: _____________________________________________________

Next Meeting Date: ______________ Location: ___________________________

<table>
<thead>
<tr>
<th>Topic</th>
<th>Summary of Discussion</th>
<th>Action Required/Assigned To</th>
<th>Due Date</th>
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</table>

cc:

To be returned to Chairperson when “Action” is completed.

ACCIDENT INVESTIGATION

Each job site construction manager/superintendent and supervisor will make a documented report of every incident, even those without injury, within twenty-four
(24) hours of the occurrence. 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 OSHA within eight (8) hours of the incident.

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.

Job site construction managers/superintendents and supervisors will be trained in accident investigation techniques.

- Accident investigation is a management function that must be executed at the site construction managers/superintendent/supervisor level.

- All accidents/incidents must be investigated regardless of the extent of the injury or damage.

- Employees must never be allowed to fill out their own accident investigation report.

- Focus must be fact-finding not fault finding.

- Site construction manager/superintendents and supervisors must identify the unsafe act or unsafe condition.

- Site construction managers/superintendents, supervisors and employees should provide recommendations for corrective action, bring it to top management's attention and assure that it is acted upon.

- Site construction managers/superintendent and supervisors will be provided with accident investigation forms, which must remain on site.

  The following forms will assist with accident investigations.
ACCIDENT INVESTIGATION TECHNIQUES

The following is a list of key points to be used as a guide during the investigation of an accident/incident.

A. The Investigative Process

1. Analysis for cause
2. A plan of action to eliminate causes
3. Fix responsibility for the elimination of hazards that contributed to the accident
4. See that the plan is carried out

B. Determining Unsafe Conditions and Acts

1. Observation
2. Inquiry
3. Review of past records
4. Surveys

C. Five-Step Interviewing Method

1. Remind employee of the investigation's purpose (Fact finding not fault finding)
2. Ask employee to give their complete version
3. Ask questions to fill the gaps
4. Check your understanding of the accident
5. Discuss how to prevent a reoccurrence

D. Key Points for Witness Interviewing

1. Interview witnesses promptly and separately
2. Reassure witness of investigation's purpose (Fact finding not fault finding)
3. Get witness' version with minimal interruption
4. Direct specific questions to clarify and fill in
5. Summarize your understanding of what the witness related
E. Other Points for Witness Interviewing

1. Don't say anything to blame or threaten the employee
2. Don't badger the witness or give him/her a bad time
3. Don't resort to sarcasm, skepticism or accusations
4. Handle all discrepancies with tact
5. Let the witness feel that he/she is a partner in the investigation
6. Don't try to write down what a witness says when he/she is trying to explain
ACCIDENT INVESTIGATION TECHNIQUES

Preparation

⇒ Equipment
⇒ Forms
⇒ Administrative matters

Investigations

* Opening - nature, purpose, scope
* Walk-through
* Closing

Write Up

* Standards
* Recommendations
* Conclusions
RECORDKEEPING

Records must be maintained and kept up to date by the construction manager/superintendent at each job site and/or home office. If there is no superintendent, then this responsibility lies with the site supervisor. These records must be available for review at all times. The following records must be maintained.

1. Supervisor’s Investigation and Record of Incident
2. OSHA LOG (form 200)*
3. Self Inspections
4. Log of Toolbox Talks (include names and signatures of employees present)
5. Equipment Preventive Maintenance
6. Hazard Communication Compliance Plan
7. Material Safety Data Sheets
8. Chemical Inventory List
9. Minutes of Safety Committee Meetings
10. OSHA Training Requirements Records
11. OSHA Poster Explaining Employee Rights
12. Accident Forms - Medical Records
13. Corporate Safety Program (Site Specific)
14. Emergency Phone Number List
15. Lead Program Compliance Plan
16. Hearing Conservation Program
17. Others (list each as may be required at specific site)
18. ______________________________________
   ______________________________________
   ______________________________________

*LOG MUST BE POSTED IN EACH JOB SITE DURING THE MONTH OF FEBRUARY*
OSHA has clarified their position with respect to multi-employer work sites by identifying four different types of employers.

**Exposing employers** - those whose employees are exposed to hazards.

**Creating employers** - those who actually create hazards

**Controlling employers** - those who have the authority to Insure that hazards are corrected

**Correcting employers** - those who are specifically responsible for correcting hazards

In order to issue a citation for a worksite hazard to one of these types of employers, OSHA must prove that the employer had knowledge of the hazardous condition, or could have had such knowledge with the exercise of reasonable diligence.

As always, prevention is the first step in avoiding OSHA sanctions. It is imperative that our sub-contractors understand the rules and potential liabilities related to OSHA's multi-employer worksite clause. ELMIRA STRUCTURES, INC. developed and will enforce a stated policy requiring our subcontractors to comply with OSHA standards.

This standard is included in our contractual agreements with subcontractors and they must provide the following:

1. Certificate of Insurance
2. Hazard Communication Plan
   ◦ Chemical Inventory List
   ◦ Site specific material safety data sheets
3. Site Specific Safety Program

The following forms will assist in monitoring subcontract compliance with the ELMIRA STRUCTURES, INC. safety policies and procedures.
SAFETY MEMORANDUM

Subcontractor Name: ________________________________________________

Date: ____________________________

Safety Violation Description:

__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________

General Contractor Signature: ________________________________________

Date: ____________________________

Subcontractor Signature: __________________________________________

Date: ____________________________
SAMPLE LETTER TO SUBCONTRACTORS

Re: Job site Safety & Health

Gentlemen/Ladies:

The personal safety and health of each employee and worker on ELMIRA STRUCTURES, INC. projects are of primary importance. The prevention of occupationally induced injuries and illnesses is of such consequence that it must be given precedence over operating productivity whenever possible. To the greatest degree possible, each individual contractor must provide all mechanical and physical facilities required for their employee’s safety and health.

Therefore, if your Company does not comply with our Field Management concerning safety, the following will occur:

First Violation: Written Notice

Second Violation: We will withhold your monthly payments until infraction is corrected.

Third Violation: Your Company will jeopardize possible future subcontracts with the ELMIRA STRUCTURES, INC.

NOTE: If any violation is deemed to be of eminent danger the job will be stopped immediately. If the contractor cannot/will not rectify the situation promptly ELMIRA STRUCTURES, INC. will make the correction and bill the contractor for all costs including labor and materials.

If you have any questions and/or comments please contact the undersigned.

Very truly yours,

Project Manager
POLICIES AND PROCEDURES FOR CONTRACTOR COORDINATION

1. It is the ELMIRA STRUCTURES, INC.’s policy that all persons on our job site are entitled to information regarding the chemicals to which they are exposed in their work areas and that ELMIRA STRUCTURES, INC. employees are entitled to information regarding the chemicals to which they may be exposed as the result of the work processes of other contractors.

2. The Hazard Communication Coordinator or his/her job site designee is responsible for the coordination of information between ELMIRA STRUCTURES, INC. and any other contractors concerning all aspects of this Hazard Communication Program.

3. When the Hazard Communication Coordinator or job site designee is informed that contractors will be on our site, he/she will advise them in person of:
   - any chemical hazards that may be encountered in the normal course of their work on the site
   - the labeling system;
   - the protective measures required
   - the safe handling system
   - the protective measures required
   - the safe handling procedures necessary
   - the emergency alarm system(s)
   - the location and availability of our material safety data sheets

4. Each contractor bringing chemicals on site, must provide the Colonial Roofing Co., Inc. Hazard Communication Coordinator with:
   - the appropriate hazard information on these substances
   - labels used
   - the precautionary measures to be taken in working with those chemicals
   - to where on the job site the contractor will maintain a chemical inventory list and appropriate MSDS file
5. The Hazard Communication Coordinator is also responsible for providing information to any relevant parties about any potentially hazardous substances ELMIRA STRUCTURES, INC. employees may bring into any job site at which we may work as contractors/subcontractors.

6. The Hazard Communication Coordinator or job site designee will use the checklist, which follows to implement the above policy.
MULTI-EMPLOYER SITE
PRE-JOB HAZCOM CHECKLIST

Date: _____________________________________________________________

Contractor: __________________________________ Phone: ____________________

Main Office Contact (Name): __________________________________________

On Site Contact (Name): _____________________________________________

Answer ALL Questions:

Where will Contractor’s work be performed? _____________________________
__________________________________________________________________

How will contractor’s workers enter and leave premises? ________________
__________________________________________________________________

We have discussed with the contractor our:

_________ HazCom Plan    __________ Labeling System
_________ HazCom Plan Location    __________ Signs
_________ MSDS File    __________ Alarm System

Has the contractor worked at this facility before:  □ Yes  □ No

What hazards will contractor employees be exposed to?

__________________________________________________________________

Multi-Employer Site Pre-Job Hazcom Checklist cont’d.

What personal protective equipment will contractor need?
□ gloves (type) ____________________________________________________
respirators with cartridges for ____________________________________________
☐ air-line respirators for ______________________________________________
☐ hard hats    ☐ safety glasses    ☐ splash goggles    ☐ face shields
☐ aprons      ☐ dust suits       ☐ escape packs       ☐ ear plugs
☐ ear muffs    ☐ other __________________________

List special equipment contractor will need:

☐ ventilation     ☐ special disposal methods     ☐ other _________________

What hazardous materials will the contractor bring onto the worksite?  (Indicate type and quantity) __________________________________________________
_________________________________________________________________

Where on site are contractor's MSDS's available? _________________________________
_________________________________________________________________

Does the contractor have a HazCom Plan?  ☐ Yes    ☐ No

If yes, where is it located? ____________________________________________________

If yes, is a chemical inventory list included  ☐ Yes    ☐ No

Do any of the hazardous materials the contractor will being onsite present a danger to our employees or facility?  ☐ Yes    ☐ No

If yes, what protective measures will be taken to prevent an unwanted incident?

Explain:_________________________________________________________________
_________________________________________________________________

Signed:_______________________________________  Date:__________________
(Hazard Communication Coordinator)

Signed:_________________________________________________________________
(Signature of Contractor)
TOOLBOX MEETINGS

Toolbox talks of five (5) to ten (10) minutes must be held by the site construction manager/superintendent and/or supervisor each week. Employees never receive too much training, and therefore ELMIRA STRUCTURES, INC. relies upon job site management to provide ongoing and continuous employee training.

The subject of each training talk must be chosen to relate to the type of work that is being performed.

Some examples include:

- The use of safety glasses when using circular saws, grinders, table saws, radial arm saws, jack hammers, power actuated tools, etc.

- The proper set up and use of ladders.

- Hard hats and why they are necessary.

- A discussion of a recent accident and its cause(s).

- A discussion of an old accident.

- The use of heavy protective devices while working with equipment and/or machinery which produce high levels of noise e.g. pavement breakers and air compressors.

- Fall protection devices when working at heights in excess of six (6) feet.

- A discussion of disciplinary procedures for failure to comply with safety policies

A log of Toolbox Talks must be kept in accordance with the form that follows. One copy must be kept by job site management and the other kept on the file in the home office by job site location.
JOB SITE SAFETY MEETING REPORT

Job Location: ____________________________________________________________

Meeting Date: _______________   Number of Employees Present _____________

Names of Subcontractors Present: _________________________________________

_______________________________________________________________________

Others Present: __________________________________________________________

Topics Discussed:
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________

Remember - An employee will better understand and retain a safety message if you both show and tell the person. Lead by Example.

Signature                  Position                                    Date

In attendance at this meeting were (Print Name Below):
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________

cc: Main Office - Original
    Field
ELMIRA STRUCTURES, INC. will provide first aid supplies for use at each work location. All personnel are to know the location and procedures to follow in case of an emergency.

1. Report all injuries immediately, no matter how minor, to your immediate supervisor and/or the job site office.

2. Emergency phone numbers for fire, police and ambulance will be posted.

3. Please note that if any employee renders first aid or uses a first aid kit to assist a co-worker (although such action is not required by anyone’s duties) we would view this activity as a "Good Samaritan" act. Note: First aid kits are to be approved by a licensed medical doctor. The first aid kit must be inspected monthly to insure it is adequately stocked.

4. If there is a potential for death or serious physical harm (ie: stoppage of breathing and/or severe bleeding) and appropriate medical attention is not available within 3-4 minutes, then ELMIRA STRUCTURES, INC. will be required to have a trained first aider on each shift.
MEMORANDUM

To: All Employees

From:

Subject: Assisting Co-Workers In Medical Emergencies

Date:

The policy of this organization is that we do not require, as part of any employee's duties, any employee to assist a co-worker in a medical emergency. Since appropriate medical assistance is available within a reasonable time by calling the emergency phone number posted at the job-site, employees are not required to assist co-workers.

The use of the First Aid Kits that may be available within our organization are for self-help. That is, an employee who is injured may use the materials in the first aid kit for self-administration.

Please note that if an employee uses a first aid kit to assist a co-worker (although such action is not required by anyone's duties) we would view this activity as a "Good Samaritan" act.
CHECKLIST FOR REVIEWING BLOODBORNE PATHOGENS PROGRAMS FOR PROTECTION OF COLLATERAL DUTY FIRST AIDERS

NOTE: This form is required to be filled out only when an ELMIRA STRUCTURES, INC. employee is assigned to be the job site first-aider.

☐ Has the Hepatitis B Vaccination series (HBV) been offered?

☐ If the company wishes to offer the HBV on a post first aid incident basis, do they meet all requirements?

☐ Have the requirements of Paragraph (d) of the standard been met? (This includes among other things: PPE, Waste Disposal and Cleanup).

☐ Was an exposure determination performed?

☐ Do they have complete training and medical records?

☐ Does the facility have a written exposure control plan?

☐ Have the proper follow up procedures been established for exposure incidents?

Refer to 29 CFR 1910.

<table>
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<tr>
<th>Name of First Aider(s)</th>
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</table>
SITE CONSTRUCTION MANAGERS/SUPERINTENDENT/SUPERVISOR SELF-INSPECTION

It is ELMIRA STRUCTURES, INC.’s policy to reduce and eliminate job site conditions, which can lead to employee injury, illness or property damage. Self-inspection is one way to provide a safe workplace for our employees.

Site construction managers/superintendents and supervisors are required to make daily visual inspections of their work areas and to test all equipment safety devices prior to the start of the work shift. Corrective action must be taken immediately if any hazards exist or if any safety devices are not functioning properly. If the equipment can not be repaired before being used so that it is safe to use, then it must be tagged “Defective - DO NO USE” and removed from service.

Site construction managers/superintendents (or other assigned management representatives) are required to complete a weekly inspection of the work site using the "General Inspection Form" furnished by ELMIRA STRUCTURES, INC. All work areas including office areas will be inspected using this form. If any hazardous conditions are noted, corrective action must be taken. If the corrective action is beyond our authority and/or capability, keep all employees away from the hazardous condition until it is corrected or controlled. Notify the project manager in writing to request assistance if corrective action cannot be satisfactorily completed by on site staff. Superintendents are expected to follow up on reported hazards to make sure they have been effectively eliminated or controlled.

All completed forms, signed and dated by the superintendent, where indicated, must be turned into the home office on or before the last workday of each week.

Lack of appropriate inspections as well as falsification of inspection forms is a violation of company procedure and may be a civil and/or criminal violation of federal and/or state laws and/or regulations.
**DAILY JOB SITE SAFETY CHECKLIST**

Job Location: _______________________________  Job #: __________________
Signed By: _________________________________________________________
Date: ________________  Performed by: ___________________________________

A = Acceptable  U = Unacceptable  NA = Not Applicable

I understand that falsification of this document may be a violation of federal, state and local laws.

The completed form must be turned into the home office by the end of each week.

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<tr>
<th>Description</th>
<th>Status</th>
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<tbody>
<tr>
<td><strong>ADMINISTRATIVE</strong></td>
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<tr>
<td>1. Job site safety &amp; health poster displayed</td>
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<tr>
<td>2. OSHA log maintained</td>
<td></td>
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<td>3. Emergency phone list posted</td>
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<tr>
<td><strong>EMPLOYEE TRAINING</strong></td>
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<tr>
<td>1. All employees received Hazard Identification Training</td>
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<td>2. All employees trained in HazCom</td>
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<tr>
<td>3. All employees trained in Appropriate Fire Fighting Response</td>
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<tr>
<td>4. All employees trained in Evacuation procedures</td>
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<tr>
<td>5. Lockout/Tagout procedures for appropriate employees</td>
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<td>6. Confined Space training for appropriate employees</td>
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<td>7. Stairway and ladder training</td>
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<td>8. Lead training</td>
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<td>9. Asbestos training</td>
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<td>10. Equipment Operator training</td>
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<td>11. Hazard specific training</td>
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<tr>
<td>12. Fall protection training</td>
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### Daily Job Site Safety Checklist (continued)

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<th>Description</th>
<th>Status</th>
<th>Date Abated</th>
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</table>

#### SAFETY MEETINGS
1. Held weekly
2. Signed by all in attendance
3. Cover topics pertaining to specific job site

#### HAZARD COMMUNICATION
1. Written program on site
2. Chemical inventory list posted
3. MSDS sheets on file
4. All drums & containers labeled
5. Employees trained

#### ELECTRICAL
1. GFCI in place
2. Electric Cords Inspected - No splices in cord
3. Electric power/equipment tools inspected and grounded

#### PERSONAL PROTECTIVE EQUIPMENT
1. Hard hats
2. Work area protection, signage, and reflective vests working near traffic
3. Eye protection - Chipping, burning, grinding etc.
4. Ear protection
5. Personal flotation devices & life rings working near water
6. Gloves used
7. Proper work shoes (No sneakers or open toe shoes)
8. Fall protection, harness, lanyards, lifelines

#### TOOLS
1. Tool casings in safe condition
2. Wiring for all power tools in safe condition
3. Electric tools grounded (unless double insulated or battery operated)
4. Extension cords grounded and in safe condition
5. Hand tools in safe condition
Daily Job Site Safety Checklist (continued)

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<thead>
<tr>
<th>Description</th>
<th>Status</th>
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<tr>
<td><strong>TOOLS (continued)</strong></td>
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<tr>
<td>6. Tools stored in designated location</td>
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<tr>
<td>7. Ladders free of cracks &amp; damage (job made ladders properly constructed)</td>
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<tr>
<td><strong>CONFINED SPACE</strong></td>
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<tr>
<td>1. Air monitoring</td>
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<td></td>
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<tr>
<td>2. Power ventilation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Stand by/Rescue trained person</td>
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<tr>
<td>4. Equipment &amp; electrical lockout/tagout</td>
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<td></td>
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<tr>
<td><strong>TRENCHING &amp; EXCAVATION</strong></td>
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<tr>
<td>1. Sheetig or proper sloping over 5 feet</td>
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<td></td>
</tr>
<tr>
<td>2. Ladder every 25 feet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Utility company notified if necessary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Air Monitored in trench</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Excavated material stored minimum 2 feet from trench</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SCAFFOLDING OVER 10 FEET</strong></td>
<td></td>
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<tr>
<td>1. Top, midrail &amp; toeboards</td>
<td></td>
<td></td>
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<tr>
<td>2. Mudsills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Supported on solid base</td>
<td></td>
<td></td>
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<tr>
<td>4. Cross bracing properly installed</td>
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<td></td>
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<td>5. Fully planked and proper overlay</td>
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<tr>
<td><strong>LADDERS</strong></td>
<td></td>
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<tr>
<td>1. Extended 36 inches above landing</td>
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<td></td>
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<tr>
<td>2. Secured - Tied Off</td>
<td></td>
<td></td>
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<tr>
<td>3. Solid Rungs and side rails - No cracks in rungs or side rails</td>
<td></td>
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<tr>
<td>4. Proper angle - ¼ working length of ladder</td>
<td></td>
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<tr>
<td>5. Provided at breaks in elevations 19” or more</td>
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### Daily Job Site Safety Checklist (continued)

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<tr>
<th>Description</th>
<th>Status</th>
<th>Date Abated</th>
</tr>
</thead>
</table>

#### LADDERS (continued)
6. Properly noted for expected work load (medium/heavy duty minimum)
7. Wood ladders are not covered with paint to prevent inspection prior to use

#### CRANES
1. Fire extinguisher in cab
2. Boom angle indicators working properly
3. Load capacity charts in cab
4. Instructions & warnings posted
5. Annual inspections on site
6. Hand signal chart in visible view of rigger
7. 2 Feet radius barricade around swing radius of crane

#### MACHINERY
1. Point of operation guards in place
2. Pulley belt assemblies guarded
3. Gear assemblies guarded
4. Shafts guarded
5. Are there any oil leaks
6. Two hand controls working properly
7. Is electric wiring in safe condition & grounded
8. Lockout policy & tag procedures used

#### WELDING EQUIPMENT AND OPERATIONS
1. Oxygen & Acetylene welding equipment equipped with flash arrestors
2. Compressed gas cylinders secured upright & capped when in storage
3. Cylinders mounted on a cart or secured in an upright position
4. Is Oxygen separated from flammables and combustibles by at least 20' or a 5' high non-combustible wall when stored

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**Daily Job Site Safety Checklist (continued)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Status</th>
<th>Date Abated</th>
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</thead>
</table>
### WELDING EQUIPMENT AND OPERATIONS (continued)

5. Gas hoses and gauges in safe condition
6. Proper eye protection available and used
7. Gage pressure at zero “0” PSI when not attended and in use
8. Portable fire extinguisher immediately available during welding, cutting and burning

### FIRE PROTECTION

1. Extinguisher charged and accessible (serviced in accordance with federal, state and city standards).
2. Extinguisher inspected monthly by a competent person
3. If available, standpipes, hoses, sprinkler heads and valves in safe condition and accessible
4. Stairs clear and in safe condition
5. Hollow pan stairways filled
6. Exits and exit paths clearly marked
7. Flammables properly stored (gasoline, paint, solvents, acetylene, propane tanks, etc.)
8. Evacuation plan as required by OSHA available

### HOUSEKEEPING

1. Aisles, stairs & floor free of obstructions
2. Materials supplies stored and piled in designated areas
3. Regular removal of trash & debris
4. Are all work areas lighted
5. Work areas neat and orderly
6. Access to all exits free of obstructions

### FALL PROTECTION

1. Perimeter Protection
2. Top, midrail & toeboard, nets and or static lines
3. Full arrest systems (harness) on all employees exposed to falls from heights of six (6) or more feet
4. Floor openings properly protected

### Daily Job Site Safety Checklist (continued)

### MATERIAL HANDLING EQUIPMENT

1. Carts in safe condition
2. Cart wheels free and rolling smoothly
3. Hoist opening equipped with removable railing
4. Hoist cables and hooks inspected
5. Materials secured stacked
6. Employees trained and/or certified to operate equipment

### RESPIRATORY PROTECTION
1. Respirators selected on the basis of hazards (specific substance and concentration) to which the worker is exposed
2. Exposure assessment performed to Insure maximum use concentration of a respirator is not exceeded
3. Employees instructed and trained in proper use of respirators
4. Respirators regularly cleaned and disinfected
5. Respirators stored in a clean and sanitary location
6. Respirators inspected during cleaning for worn or deteriorated parts
7. Determine if employees are physically able to perform the work and use the respiratory equipment. Determined by a physician

*It is very important to understand that you are responsible for all “items” and sections of 29 CFR 1926.*
**MANAGEMENT AUDIT CHECKLIST**

Job Location: ____________________________  Job #: __________________
Signed By: _______________________________________________________
Date: ________________ Performed by: ________________________________

I understand that falsification of this document may be a violation of federal, state and local laws.

The completed form must be turned into the home office by the last workday of each month.

<table>
<thead>
<tr>
<th>A. MANAGEMENT COMMITMENT AND LEADERSHIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Policy statement: goals established, issued and communicated to employees</td>
</tr>
<tr>
<td>2. Program reviewed annually</td>
</tr>
<tr>
<td>3. Participation in safety meetings, inspections, agenda items in meetings</td>
</tr>
<tr>
<td>4. Commitment of resources is adequate</td>
</tr>
<tr>
<td>5. Safety rules and procedures incorporated into the site operations</td>
</tr>
<tr>
<td>6. Management observes safety rules</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. ASSIGNMENT OF RESPONSIBILITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Safety designee (competent person) on site, knowledgeable and accountable</td>
</tr>
<tr>
<td>2. Supervisors safety and health responsibilities understood</td>
</tr>
<tr>
<td>3. Employees adhere to safety rules</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C. IDENTIFICATION AND CONTROL OF HAZARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Periodic site safety inspection program involves supervisors</td>
</tr>
<tr>
<td>2. Prevention controls in place (PPE, maintenance, engineering controls, etc.)</td>
</tr>
<tr>
<td>3. Action taken to address hazards</td>
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</tbody>
</table>

Yes | No |
Management Audit Checklist (continued)

<table>
<thead>
<tr>
<th>C. IDENTIFICATION AND CONTROL OF HAZARDS (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Safety committee where appropriate</td>
</tr>
<tr>
<td>5. Technical references available (safety policies, OSHA standards)</td>
</tr>
<tr>
<td>6. Enforcement procedures by management</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D. TRAINING AND EDUCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Supervisors provided with basic training</td>
</tr>
<tr>
<td>2. Specialized training provided when needed</td>
</tr>
<tr>
<td>3. Employee training program exists, is ongoing and is effective</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>E. RECORDKEEPING AND HAZARD ANALYSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Records maintained of employee illnesses, injuries, and posted</td>
</tr>
<tr>
<td>2. Accident investigations performed, determine causes and proposed corrective action</td>
</tr>
<tr>
<td>3. Injuries, near misses and illnesses are evaluated for trends, similar causes and corrective action initiated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>F. FIRST AID AND MEDICAL ASSISTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. First aid supplies and medical services available</td>
</tr>
<tr>
<td>2. Employees informed of medical results</td>
</tr>
<tr>
<td>3. Emergency procedures and training where necessary</td>
</tr>
</tbody>
</table>

To determine the effectiveness of ELMIRA STRUCTURES, INC.’s safety and health program, our safety director will complete the self-evaluation recommended by OSHA. This information will be rated by the corporate office and kept on file. The site superintendent/supervisor will be provided with a copy and are expected to correct any deficiencies.

Remember that an OSHA inspection can result in a review of deficiencies, and where conditions warrant, a citation for one or more of the above standards. Our company requires periodic completion of the self-evaluation.
ASBESTOS IN CONSTRUCTION (29 CFR 1926.58 & .1101)

The following highlights OSHA’s Asbestos Construction Standard.

The OSHA Standard for Construction Workers Exposed to Asbestos is in effect. This standard, promulgated, is designed to protect construction workers against exposure to asbestos while on the job. It represents a very comprehensive standard that provides numerous details regarding exposure levels, methods of compliance, protective clothing, and employee training, among others.

The Standard applies to all occupational exposures to asbestos in all construction work in which asbestos, in any amount, is present in an occupationally related context. "Construction work" is defined as work involving construction, alteration, and/or repair, including plumbing, electrical work, and demolition.

If an employee suspects the existence of asbestos he/she should immediately inform the site superintendent. The site superintendent will contact the ELMIRA STRUCTURES, INC. office and request an evacuation by “a Certified Industrial Hygienist”. Work in that specific area will be rescheduled until after the evaluation is completed.
FALL PROTECTION

ELMIRA STRUCTURES, INC. is committed to protecting our employees from falls and fall hazards. In order to achieve this, we will implement the appropriate policies and work practice to prevent employees from falling off, onto, or through openings in working and walking surfaces, and to protect them from falling objects.

A competent person will conduct an evaluation of the types of fall hazards the employee will encounter on the job site. Then a plan of action will be developed and implemented when employees encounter fall hazards at height of 6 (six) feet or above.

On August 9, 1994, OSHA published its fall protection standards for construction activities that call for “100% fall protection.” These standards will affect all construction industry, public sector and hospital employers engaged in construction activities. This company will utilize the OSHA Fall Protection Standard to protect our employees.

The new standards, which went into effect on February 6, 1995, were published as Subpart M of 29 CFR 1926 (Construction Standards). They regulate fall protection systems and procedures, intended to prevent employees from falling off, onto or through working levels, and to protect them from falling objects.

The revised standards maintain and/or strengthen OSHA’s existing requirements for fall protection. Key points of the standards include:

⇒ Consistent protection is required for a uniform threshold height of six (6) feet. Fall protection can generally be provided through the use of guardrail systems, safety net systems, or personal fall arrest systems. Employers who can demonstrate that is not feasible to use these systems, or that these systems would create a greater hazard, must develop and implement a plan that specifies alternative equivalent fall-protection measures.

⇒ The use of body belts as part of a personal fall arrest system is prohibited, as of January 1, 1998. In addition, only locking-type snap hooks will be permitted as of the same date for use in personal fall arrest systems and positioning systems.

⇒ The standards provide employers with various options to implement fall protection. The sample plans outline the elements that must be addressed in any fall protection plan and these plans can be modified for site-specific conditions.

Section 1926.50l specifies areas and operations where fall protection systems (FPS) are required. All FPS must conform to the criteria and work practices set forth in 1926.502. While its provisions offer multiple options for fall protection, systems are specified in certain cases. For example, only guardrail systems are permitted to be used for employee
ELMIRA STRUCTURES, INC. is responsible for obtaining information about potential workplace fall hazards and for taking appropriate action to protect our employees. In addition, the standards mandate that general contractors must "apprise themselves of which safety efforts their specialty subcontractors have chosen to make in completing their assignments."

ELMIRA STRUCTURES, INC. subcontractors are responsible for knowing which protective measure has been recommended. In multi-employer work sites, contractors must keep each other informed of existing hazards, or ones that will be created, so each company can take appropriate safety precautions.

The promulgation of the fall protection standards with the goal of providing "100 percent fall protection" is expected to create increasingly effective safety methods, from the design stage through project completion. ELMIRA STRUCTURES, INC. will constantly re-examine our use of “traditional methods” of fall protection and, when possible, update them by incorporating improved fall protection technology and design concepts.

OSHA mandates that we meet all requirements of the fall protection standards before work begins on a job site.

Section 1926.502 of the standard provides details of guardrail systems, safety net systems, personal fall arrest systems, positioning device systems, warning line systems, controlled access zones, safety monitoring systems, covers for holes in floors, roofs and other walking/working surfaces and protection from falling objects.

OSHA places the burden of proof on employers to establish the appropriateness of utilizing a fall protection plan, rather than FPS listed in the standards.

Section 1926.503 supplements and clarifies the training requirements of the fall protection standards. ELMIRA STRUCTURES, INC. and our subcontractors are required to provide a training program for employees exposed to fall hazards, so they will know how to recognize and avoid them.

ELMIRA STRUCTURES, INC. and our subcontractors are required to keep a written certification record of training that contains the names of all employees trained the dates of training, and the signature of either the training instructor, or the employer. There is also a provision for retraining when the employer believes that the trainee does not have an adequate understanding of fall protection, or the skill to utilize FPS.
To Insure compliance, it is recommended that our supervisors take the following steps:

⇒ Review a copy of the attached fall protection standard.
⇒ Plan each job and work task with a goal of 100 percent fall protection.
⇒ Insure that all employees are appropriately trained in fall protection.
⇒ Discipline employees who violate 100 percent fall protection rules.

To effectively develop and implement a fall protection program the following guidelines can be used by management and field staff.

**FALL PROTECTION GUIDELINES**

29 CFR 1926.500
Subpart M - Fall Protection

**1926.500 - Scope, Application & Definition**

⇒ Set forth requirements and criteria for 100% fall protection in construction workplaces at six (6) feet heights under 29 CFR 1926

⇒ Exception - Does not apply when employees are making an inspection, investigation, or assessment of workplace conditions prior to the actual start of construction work or after all construction work has been completed.

**1926.501**
1926.501(b) Sets forth those workplaces, conditions, operations and circumstances for which fall protection shall be provided *Except*

⇒ Subpart L (Scaffolds)
⇒ Subpart N (Cranes & Derricks)
⇒ Subpart R (Steel Erection)
⇒ Subpart V (Electrical Transmission & Distribution)
⇒ Subpart X (Stairways & Ladders)
*Subparts 502 & 503 - Apply*
1926.501 - Duty To Have Fall Protection

1926.501(a) General

1926.502(b) Unprotected Sides and Edges At Heights six (6) Feet And Above

⇒ Leading Edges
⇒ Hoist Areas
⇒ Holes
⇒ Form Work & Reinforcing Steel
⇒ Ramps, Runways and Other Walkways
⇒ Excavations
⇒ Dangerous Equipment
⇒ Overhand Bricklaying and Related Work
⇒ Roofing Work on Low-Slope Roofs
⇒ Steep Roofs
⇒ Precast Concrete Erection
⇒ Residential Construction
⇒ Wall Openings
⇒ Walking/Working Surfaces Not Otherwise Addressed

1926.501(c) Protection From Falling Objects

⇒ Toeboards, Screens
⇒ Canopy Structure
⇒ Barricade

1926.502 - Fall Protection Criteria & Practices

1926.502(a) General

⇒ ELMIRA STRUCTURES, INC. or it’s subcontractors will provide and install all fall protection systems required by this subpart for employees at heights of six (6) feet and above.

⇒ ELMIRA STRUCTURES, INC. or it’s subcontractors will comply with all pertinent requirements of this subpart before the employees begin the work that necessitates fall protection.

1926.502(b) Guardrailing Systems
1926.502(c) Safety Net Systems
1926.502(d) Personal Fall Arrest Systems
1926.502(e) Positioning Device Systems
1926.502(f) Warning Line Systems (Low Slope Roofs)
1926.502(g) Controlled Access Zones
1926.502(h) Safety Monitoring Systems
    (Low Slope Roofs)
1926.502(i) Covers

1926.502(j) Protection From Falling Objects
1926.502(k) Fall Protection Plan

1926.503 - Training Requirements

1926.503(a) Training Program

⇒ Employee Exposed to Fall Hazards
⇒ Training Conducted by Competent Person

1926.503(b) Certification of Training For Employees

⇒ Written Certification Records
⇒ Maintain Training Certification Records

1926.503(c) Retraining

⇒ Changes in Workplace, Training Obsolete
⇒ Inadequacies discovered in Training of Affected Employees
RESPIRATORY PROTECTION PROGRAM (29 CFR 1926.103)

If it is determined that the use of respiratory protection is required on this job site the superintendent should immediately notify the project manager. The project manager will seek the proper professional assistance to determine the exact type required for the job conditions.

The following are highlights of **OSHA's Requirements For A Minimal Respirator Program**:

1. Written standard operating procedures (SOP) governing the selection and use of respirators must be established.

2. Respirators must be selected on the basis of hazards to which the worker is exposed.

3. The employee must be instructed and trained in the proper use of respirators and their limitations.

4. Where practicable, the respirator must be assigned to individual workers for their exclusive use.

5. Respirators must be regularly cleaned and disinfected. Those used by more than one worker must be thoroughly cleaned and disinfected after each use.

6. Respirators must be stored in a convenient, clean, and sanitary location.

7. Respirators used routinely must be inspected during cleaning. Worn or deteriorated parts must be replaced. Respirators for emergency use, such as self-contained breathing devices, must be thoroughly inspected at least once a month and after each use.

8. Appropriate surveillance of work area conditions and degrees of employee exposure or stress must be maintained.

9. There must be regular inspections and evaluations to determine the continued effectiveness of the program.

10. Persons must not be assigned to tasks requiring use of respirators unless it has been determined that they are physically able to perform the work and use the equipment. A local physician must determine what health and physical conditions are pertinent. The respirator user's medical status must
be reviewed periodically (for instance, annually).

11. Approved or accepted respirators must be used when they are available.

ELMIRA STRUCTURES, INC. or its subcontractors will supply the necessary respiratory protection to protect employees from potential respiratory hazards.

Superintendents/Supervisors will contact the Project Manager to request guidance in the selection and use of respiratory protection.
PERSONAL PROTECTIVE EQUIPMENT

General Requirements

ELMIRA STRUCTURES, INC. and its subcontractors must assess each specific job site to determine if hazards are present, or likely to be present, which necessitate the use of personal protective equipment (PPE). If such hazards are present, or likely to be present, ELMIRA STRUCTURES, INC. and its subcontractors must select, and have each affected employee use, the type of PPE that will protect against the identified hazards. PPE must properly fit each affected employee, ELMIRA STRUCTURES, INC. and its subcontractors must verify the hazard assessment in writing. (See PPE Hazard Assessment Form).

Damaged or defective PPE shall not be used.

ELMIRA STRUCTURES, INC. and its subcontractors must provide training to each employee required to use PPE. Training will include when PPE is necessary, what PPE is necessary, how to wear PPE, the proper care, maintenance, useful life, and disposal of the PPE. ELMIRA STRUCTURES, INC. and its subcontractors must certify in writing that the employee has received and understood the training.

Eye and Face Protection

Employees must use appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation. Requirements for side protection, prescription lenses and identification of the manufacturer are spelled out in the OSHA Standard 29 CFR 1926.1020.

Head Protection

Employees must wear protective helmets when working in areas where there is a potential for injury to the head from impact, falling, or flying objects. Protective helmets designed to reduce electrical shock hazard shall be worn by each such affected employee when near exposed electrical conductors which could contract the head (OSHA Standard 29 CFR 1926.100).
Foot Protection

Employees must wear protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and where employees' feet are exposed to electrical hazards. (OSHA Standard 29 CFR 1926.96).

Hand Protection

ELMIRA STRUCTURES, INC. and its subcontractors must select and require employees to use appropriate hand protection when employees' hands are exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns and harmful temperature extremes. The selection of the appropriate hand protection must be based upon an evaluation of the performance characteristics of the hand protection relative to the tasks to be performed, conditions present, duration of use and the hazards and potential hazards identified.

Hearing Protection

Where the possibility exists that employees may be exposed to noise levels in excess of an eight (8) hour time weighted average (TWZ) of 80 dB(A), they must wear hearing protection devices, eg. Ear plugs or ear muffs (OSHA Standard 29 CFR 1926.52 & 1926.101).
1. **Policy Statement**

Any employee caught possessing or using drugs or coming to work under the influence of drugs will be discharged with prejudice or severely disciplined.

Any employee who uses drugs on the job or works under the influence of drugs endangers himself/herself and other workers. This company will not tolerate drug use on the job.

Drug use is the direct cause of thousands of deaths every year. Drug use causes permanent brain damage and birth defects and usually leads to addiction. Intravenous drug use transmits AIDS, which is incurable and invariably fatal, as well as other serious diseases.

Possession of drugs, no matter how small an amount, is a crime, punishable by incarceration. Sales of drugs or possession of a significant quantity of drugs is a felony.

2. **List of Tested Drugs**

Where job conditions require it or when a client makes a condition of the contract ELMIRA STRUCTURES, INC. will be testing its employees: at these times, the company will be testing the firm's employees for the following drugs:

A. **Cocaine**

Cocaine is one of the most powerfully addictive of the drugs of abuse. Most clinicians estimate that approximately 10% of the people who begin to use the drug "recreationally" will go on to serious, heavy use. An individual cannot predict or control the extent to which he or she will use the drug.

B. **Amphetamines**

Amphetamines can result in a variety of psychological difficulties including confusion, depression, anxiety and paranoia. Physical symptoms include muscle tension, nausea, blurred vision, and faintness, chills or sweating.
C. **Opiates**

Opiates is an illegal and highly addictive narcotic. The reported symptoms and signs of opiate use include euphoria, drowsiness, respiratory depression, constricted pupils and nausea. Withdrawal symptoms include watery eyes, runny nose, yawning, loss of appetite, tremors, panic, chills, sweating, nausea, muscle cramps and insomnia. Elevations in blood pressure, pulse, respiratory rate and temperature occur as withdrawal progresses.

D. **Marijuana**

Marijuana is the most widespread and frequently used illicit psychoactive drug in the nation. A substantial majority of heavy marijuana users will go on to the other illicit drugs.

E. **PCP**

Phencyclidine (PCP) is a hallucinogenic drug - i.e. one that provides profound alterations in sensation, mood, and consciousness that may involve the senses of hearing, touch, smell, or taste, as well as visual experiences that depart from reality. PCP is toxic when consumed at a high dose.

F. **Alcohol**

The most prevalent drug used in the country today.

3. **Types of Testing**

A. **Pre-employment Testing**

A pre-employment drug test must be conducted when either an individual is hired for a covered position or when a current employee is first transferred from a non-covered to a covered position.

B. **Random Testing**

All covered employees will be placed in a random selection pool. On a monthly basis, a computerized random selection program will draw a group of employee numbers. The total in each month's group will be sufficient to generate a testing rate of 50% of covered employees over the course of one year. The tests will be conducted at the company medical facilities.
The following describes the sequence for the random selection process. This process takes place on a monthly basis:

⇒ A random selection of employees is made from the entire pool by the company.

⇒ The list of employees selected is given to the manager at the operations collection facility, then the operator schedules testing on a monthly basis.

C. *Post-Accident Testing*

Whenever the company determines that any employee's performance may have contributed to any accident or cannot be completely discounted as a contribution factor to any accident, we will test for drugs. The employee will be tested as soon as possible, but not later than 12 hours after the accident.

An example "accident" on a gas pipeline or LNG facility is defined as follows:

a. An event that involves a release of gas from a pipeline or of liquified natural gas or gas from the LNG facility and

   (i) a death, or personal injury necessitating inpatient hospitalization; or

   (ii) estimated property damage, including cost of gas lost or the operator or others, or both, of $50,000 or more; or

b. An event that results in an emergency shutdown of an LNG facility; or

c. An event that is significant, in the judgment of company, even though it did not meet the criteria of paragraphs (1) and (2).

D. *Reasonable Cause Testing*

Whenever the company suspects that an employee's work performance (in covered jobs) or on the job behavior may have been affected in any way by drugs, or that an employee has otherwise violated this policy, the company will require the employee to submit to a test for drugs.
Part 199 requires that the company test an employee when there is a reasonable cause to believe the employee is using a prohibited drug.

a. *Specific contemporaneous* physical, behavioral or performance indicators of probable drug use must be observed and documented.

b. Two of the employee’s supervisors must substantiate and concur in the decision to test and at least one supervisor must have received EAP (Employee Assistance Program) awareness training for detecting symptoms of drug use.

E. *Post-Rehabilitation*

Persons who return to duty as employees after completion of rehabilitation must be given unannounced drug tests on a random basis.

Once an employee is confirmed positive, he/she is referred to the company's chemical substance abuse (CSA) section by the Medical Review Officer (MRO) for counseling and subsequent treatment. Such employees are automatically covered by the EAP. An employee who fails a drug test may not return to duty until he/she has undergone satisfactory rehabilitation, passed a drug test and been approved for duty by the MRO.

F. *Retesting*

1. An employee has the right to request the retest of his/her sample that was determined MRO positive. To insure sample retention, the laboratory will be contracted on all positive results and requested to hold the sample. The request must be in writing, the MRO, within 60 days of receipt of the final test result from the MRO.

2. An employee has the right to specify retesting by the MRO and must indicate that in the written request.

3. If the employee selects testing at a lab other than the company contracted lab, the company contracted lab will receive a portion of the sample and will follow approved chain of custody procedures in transferring the specimen for retesting.
4. Once an employee returns to work, he/she will require follow-up testing every six weeks but no longer than thirty weeks of drug testing. All of the follow-up drug testing will be in accordance with DOT procedures.

5. It is possible that some drug metabolites may deteriorate during the required storage period. For this reason, the results of retests will be reported positive using alternative analytical methodologies and corroborate the original positive result when detected levels of the drug are below the company established limit, but equal or greater than the sensitivity of the assay.

6. Collection Site:

7. Testing Laboratory:

8. Medical Review Officer:

G. Primary Responsibilities of the MRO

1. Receive and review test results from the laboratory.

2. Notify the employee of a confirmed positive test result.

3. Review and interpret each confirmed positive test result.

4. Provide an opportunity for each employee to discuss positive test results.

5. Review employee's medical history as appropriate.

6. Discuss and determine if there is any need for a retest.

7. Notify employee all retests will be paid by the company.

8. Review medical records as appropriate.

9. Notify the employee he/she has an option to choose his own certified lab.

11. Notify employer of verified positive results.

12. Make return to work or decision to hire recommendations.

13. Insure the chain of custody is intact.

14. If there is a legitimate medical reason for a confirmed positive drug test the MRO takes no further action.

15. If there is no legitimate medical reason for a confirmed positive test, the MRO refers the individual tested to an employee assistance program, a personnel officer or an administrative officer for action in accordance with the operators anti-drug program.

If the record from the collection site or the lab raises doubts about the handling or analysis of a sample, the MRO may deem the evidence insufficient and conclude that the test results are negative. IT IS IMPERATIVE THAT NO EMPLOYEE, APPLICANT, OR CONTRACTOR SUFFER UNWARRANTED ACCUSATIONS BECAUSE OF PROCEDURAL ERRORS.

H. Protection of Information

The results of drug test will remain part of the employee's confidential medical record. The medical review officer is custodian of these records. The employee's department shall be informed only of the following:

1. The date, location and person or entity performing the test.

2. Whether the findings was "positive" or "negative".
ELMIRA STRUCTURES, INC.

EMPLOYEE FIELD SAFETY AND HEALTH STANDARDS

ELMIRA STRUCTURES, INC. is responsible for the safety and health protection of all employees/visitors on this job site. You, as an employee, share that same responsibility as a condition of employment.

To avoid employee injuries and illnesses, avoid property damage and to prevent financial loss to both the employee and the company, ELMIRA STRUCTURES, INC. insures that all work on the job site is performed in a safe manner, AND IN CONFORMANCE WITH ALL APPICABLE FEDERAL, STATE, LOCAL AND CUSTOMER SAFETY AND HEALTH REGULATIONS AND STANDARDS, AS WELL AS ACCEPTED SAFE PRACTICES OF THE CONSTRUCTION INDUSTRIES.

This material highlights some of the requirements of the regulations and standards referenced above. Observance of safety and health responsibilities and procedures is required and expected of all personnel. Willful or careless neglect of your responsibilities will be sufficient grounds for disciplinary action ranging from verbal reprimand to immediate dismissal.

Below is a list of safety regulations that must be adhered to and will be enforced. This only highlights some major areas and is not intended to be all inclusive.

1. INJURIES/ILLNESSES

1.1 All injuries/illnesses or suspected injuries, no matter how slight, must be reported immediately to your supervisor.

1.2 Tell your supervisor if you have any physical handicap, impairments or fears that would prevent you from performing a job or which may result in an injury to yourself or others. Diabetes, impaired eyesight or hearing, back or heart trouble, hernia, aversions to height or confinement are considered to be physical impairments.

1.3 Usage of any medication that may affect your alertness or well being on the work site must be reported to your supervisor.
2. PERSONAL PROTECTIVE EQUIPMENT

2.1 Eye protection is required 100% of the time except for Iron Workers who are walking on structural steel. Once the work starts, eye protection must be worn.

2.2 Hard hats are required 100% of the time while in the working environment.

2.3 When using welding equipment, use appropriate safety equipment for the job, such as eye protection (safety glasses are required under the welding helmet) gloves and proper clothing, etc.

2.4 Proper eye protection is required when tacking (there is no difference between tacking and actual welding).

2.5 When grinding, employees must use face shields with eye protection.

2.6 Employees are to be tied off when working above six (6) feet; working on man lifts, scaffolds and extension ladders; working adjacent to open-sided floors not properly protected; or as required by any other regulation.

2.7 Personal protection equipment is to be inspected daily and replaced if found defective.

2.8 Employees are expected to report to work properly dressed, this includes the following:

2.8.1 Adequate foot wear - No canvas shoes, tennis shoes, open toe shoes or street loafers, ankles must be protected

2.8.2 Adequate hand protection - If work conditions warrant. Management will provide hand protection if required by a specific condition or customer request (for example, when welding or handling chemicals).

2.8.3 Appropriate outer clothing for the job is required
3. **GENERAL**

3.1 Weekly “Toolbox Talks” are conducted on a scheduled basis on every job. Attendance to these meetings and sign-in is mandatory.

3.2 Possession and/or use of alcohol or other substances, including the unauthorized use of prescription drugs, or being under the influence of any of the items mentioned above, is prohibited on the job site.

3.3 Horseplay, gambling, fighting, disrespect or disobedience of a supervisor or equivalent person and possession of weapons or firearms, is strictly prohibited on the job site.

3.4 Do not enter an area that might be a confined space without first checking with your supervisor. Confined spaces can contain an environment that is explosive, lacking in oxygen, contaminated by fumes or have restricted limited space for movement.

3.5 Do not use compressed air to blow dust off clothing, other employees or to clean around any work area.

3.6 Only authorized and properly trained personnel are permitted to operate equipment, vehicles, electrical switches and similar equipment. If you are unsure about anything, ask your immediate supervisor.

3.7 Do not attempt to repair or tamper with equipment that is not functioning properly.

3.8 Misuses of tools, equipment, circumventing safety devices or manufacturers’ recommendations can result in injury and is prohibited. Do not use makeshift tools or equipment to perform the job.

3.9 Maintain good housekeeping at all times. Keep waste, debris and rubbish cleaned up. Deposit waste and debris in proper containers. All trash must be removed from the site by the end of the workday.
3.10 All personal hand tools shall be checked before use and if found 
defective, must be removed from the job site immediately. All 
company hand tools shall be checked before use and if found 
defective, they must be returned to the crib (supervisor) immediately.

3.11 Employees shall inspect slings before using and if found defective, 
advise their supervisor or return the defective part to the crib.

4. ELECTRICAL

4.1 When anyone is required to work on or in close proximity to electrical 
equipment or circuits, appropriate tagging will be affixed to identify all 
controls deactivating the circuit, and the circuit shall be locked out.

4.2 All small electrical tools must have a 3-prong ground plugs or be 
properly identified as double-insulated.

4.3 Employees shall inspect, all powered hand tools, electrical cords and 
related equipment before use and return any defective equipment to 
the crib.

4.4 When connecting or disconnecting electrical machines wired directly, 
an electrician must be obtained to perform the work.

4.5 Electrical extension cords must be in good condition with the ground 
pin in tact.

4.6 A Ground Fault Circuit Investigator (GFCI) must be used when using 
an electrical extension cord.

5. FIRE PROTECTION

5.1 Do not smoke in areas marked ‘NO SMOKING” or near 
flammable or combustible materials.

5.2 All fire protection and emergency equipment is to be plainly marked 
and must be kept free of obstruction for emergency use.

5.3 Insure proper precautions are taken when welding or cutting, be sure 
required permits are obtained, proper fire extinguishers are available 
and designate a watch person if necessary.
6. GUARDRAILS CABLES

6.1 Guardrails and cables (or adequate protection) are to be installed immediately in order to provide fall protection when working on elevated platforms, or over holes in floor where a fall hazard exists greater than six (6) feet.

6.2 Employees will not be permitted to walk through, climb on or work in any area that does not have proper fall protection provided, or is barricaded off for safety reasons.

6.3 Employees shall insure all floor holes or openings are covered or properly marked before leaving them unattended.

6.4 Cables/guardrails or covers that are removed to allow equipment or employees access are to be replaced immediately. This is to be done whether our employee or another company’s employee has removed the guardrail; cable or cover.

6.5 All excavations more than four (4) feet in depth must be barricaded to protect pedestrians and vehicles. Evacuations must be shored-up or properly sloped to prevent cave-ins.

7. LADDERS, SCAFFOLDS, ROPES

7.1 Inspect weekly all ladders, scaffolds and ropes for damage before use. Do not use unsafe ladders (employee shall inspect prior to use).

7.2 Safety rubber shoes must be used on extension ladders. If top section of ladder is removed to be used as a lower section, safety rubber shoes must be installed and used.

7.3 Extension ladders are to be tied off when in use.

7.4 Step ladders are to be used in accordance to manufacturers’ instructions.

7.5 Job site fabricated ladders are to be constructed to conform to appropriate regulations. Do not use re-rod to make temporary ladders.

7.6 To provide adequate hand holds, ladders must extend a minimum of three (3) feet above the landing surface.
7.7 Scaffolding assembly and disassembly will be accomplished only under the direct supervision of a qualified employee.

7.8 A qualified employee will inspect scaffolding before use.

7.9 All ropes or lines will be inspected before use.

8. **OXYGEN/ACETYLENE CYLINDERS**

8.1 Cylinders are to be stored in a secure, upright position with the protective caps in place.

8.2 Oxygen is to be stored away from other fuel, gasses, and flammables or combustibles, by twenty (20) feet or a one-hour fire barrier.

8.3 Regulators and hoses are to be removed at the end of the shift and properly stored, replace caps on cylinders.

8.4 Inspect all welding equipment for damage before use, inform your supervisor immediately if any defective equipment is found.

8.5 Cylinders shall not be hoisted by means of magnets or wire rope slings used as chokers. Only an approved means of hoisting may be used.

9. **VEHICLES, TRANSPORTATION AND POWERED EQUIPMENT**

9.1 Jumping on or off of equipment or vehicles, either moving or stationary is strictly prohibited.

9.2 Passengers may only ride on vehicles designed for transport of extra personnel.

9.3 Riding loads, slings, the ball, crane hooks or other material hoisting equipment is strictly prohibited.

9.4 All equipment is to be inspected by the Operator before each days use.

9.5 Only trained and authorized personnel may operate equipment.

9.6 Anyone operating an auto pickup, van, etc. must have a valid state driver’s license.

9.7 Open top trailer header bar must have a pin in place before the tarp is
installed. If the header bar is removed from the trailer for unloading, it is our responsibility to insure that the header bar retainer pin is securely in place before the trailer is released from the job site.

9.8 Only qualified and trained employees shall be assigned to install, adjust and operate laser equipment. Proof of operator qualifications must be in his/her possession at all times.

If you have any questions regarding any safety or health related concerns while working for ELMIRA STRUCTURES, INC. on this job site, ask your immediate supervisor, he/she will provide you with the information.

If for some reason you feel that you are not getting an adequate response to a concern, contact the Project Manager/Safety Officer at the corporate office at:

ELMIRA STRUCTURES, INC.
66 Philo Road West – Elmira, NY 14903
📞 Phone: (607) 739-8800   📨 Fax: (607) 796-0374
Roofing
In case of an Emergency – Fire, Medical, etc. get to a public phone and CALL 911.

Whenever you arrive at a new job site, make sure someone knows the location and phone number of the area hospitals and emergency centers.

Fire Dept. ________________________________
Police ________________________________
Doctor ________________________________
Ambulance ________________________________
Hospital ________________________________
Insurance ________________________________
Company Office ________________________________
Supervisor ________________________________
Others ________________________________
INTRODUCTION

You’re a roofer, which is a good trade and one of the most important. You must be proud of your work.

Working safely is part of your job, whether you’re climbing a ladder, handling materials, or working with hot materials. A good roofer is a safe roofer. Because safety is part of your job, this safety manual has been developed to help you do a good job. If you follow the recommendations of this manual, your work will be easier, more enjoyable, and more profitable both for you and your company. Working safely, must become a habit.

This manual highlights the major practices and conditions that lead to accidents in the roofing industry. Above all, you have to use your head to be safe. Make every effort to spot an accident developing and prevent it. Roofing can be a dangerous trade. Work hard to make it safe.
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Think Safety

- Use Safe practices.
- Ask your supervisor or superintendent for help if you don’t understand something.
- Don’t take chances or use dangerous shortcuts.
- Watch out for the safety of other workers and the public.
- Help new employees learn safe work practices.
- Plan your work ahead to prevent accidents.
- Keep your mind on the job.
- Be in good physical condition before starting work.
- All injuries must be reported immediately and treated.
- No drinking of alcoholic beverages, drug use, fighting, or horseplay will be allowed on the job.
Employee Responsibilities

All ELMIRA STRUCTURES, INC. employees must conduct themselves in a manner that reflects favorably on yourself, your employer, and your industry at all times. Care must always be taken to avoid exposing the public to any danger from hoisting, fire, or tripping. Children are a particular hazard because they are often attracted to construction sites during the day and after hours. Every effort must be taken to protect them from injury or illness by:

- Taking every effort to insure fumes, odors, etc. do not enter the buildings
- Securing the lid and spigot on the kettle at night
- Locking or securing trucks and hoisting equipment
- Removing the ladder to prevent access to the roof
- Removing or securing chemicals, adhesives, solvents, and flammables.

A worker who is not safety conscious endangers himself and everyone around him. A worker who leave tools, equipment, and materials around the edge of the roof is inviting someone to trip and fall off. A worker who treats hot substances as though it were water is likely to splash himself and others. You may be sincerely sorry if you cause someone a painful burn from hot substances, but what are you going to do if one of your fellow roofers takes a big fall because of your carelessness?

Think about it.
Work Clothing

Proper clothing is your first line of defense against personal injury.

- A long-sleeved shirt buttoned at the cuff and within one button of the collar.
- Properly fitting pants without cuffs.
- High-top shoes or boots with thick rubber or composite soles.
- Gloves with a snug-fitting cuff.
- Rubber gloves when working with chemicals, solvents, or adhesives.
- Goggles or a face shield where required.
- A full face shield for kettle use.
- Hard hats when there is a hazard above.
- A respirator, when required.
- Do not wear rings on fingers.
- Do not wear earphones, you will not be alert to verbal warnings or requests for help from other workers.
Eye Protection

The loss of eyesight is something that people dread. You can minimize the risk of an eye injury by wearing eye or face protection.

- Hot substances, chemicals, power tools, and flying nails are the biggest hazards to the eyes. Wear eye protection whenever these hazards are present.

- Full face shields and eye goggles must be carefully adjusted for comfort.

- Eye protection must be kept clean and available when not in use.

- Do not exchange your eye protection with another worker until the equipment has been thoroughly sterilized.

- Kettle operators must wear full-face shield protection. For additional safety, goggles are recommended to be worn under the shield. Screens must be used when necessary to reduce fogging of the face shield.

- Operators of roof cutting, spudding, tear-off, and roof vacuum equipment must wear goggles.

- Make sure other employees around you are not exposed to eye hazards.

- Learn basic first aid treatment for eye injury.

- Eye protection doesn’t do you any good unless you use it. **Use It!**

- Report eye injuries immediately so prompt medical care can be obtained.
Set Up Safe

Safety must always be on your mind! Many hazardous conditions will be eliminated when you set up safely and if you **think safely**.

- Select a location where the ground is firm, reasonably level, and free of debris.
- Make sure the hoisting area is clear of wires and overhead obstructions.
- Maintain proper clearance, a minimum distance of **ten (10) feet** from all electrical wires. Notify the electric company so that overhead wires can be covered, if necessary (work closer than **ten (10) feet**).
- Minimize the danger to the building, the public and students from kettle fires, ruptured hot lines, and hoisting; by using barricades, flashing lights, and signs where necessary.
- Locate equipment where fumes and dust will not be drawn into fresh air intakes and windows of nearby buildings.
- Be careful not to injure yourself or others while you are unloading heavy and bulky roofing equipment and materials. Ask for help.
- Check to be sure that you have a first aid kit and fully charged fire extinguishers. Know their locations.
- Find out where the nearest hospital, infirmary, or ambulance service is located. Post the telephone numbers where you will be able to find them fast.
Hoisting Safety

Inspect the hoist daily. Look for frayed cables, broken welds, bent struts, or faulty mechanical parts. Make sure all guards are in place.

- Check the counterbalance before operating a hoist.
- Construction materials must not be used for counterweights.
- Don’t exceed the rated capacity of your hoist.
- Rig loads with proper slings and safety hooks.
- Never ride on a hoist or conveyor.
- Never hoist a load over anyone’s head - workers on the ground must stand clear and see that others do not walk under a suspended load.
- Erect guardrails and warning lines to isolate the hoisting area.
- Watch your fingers and clothing around hoist and conveyor mechanisms.
- Don’t leave lines hanging loose at night.
- Protect yourself by using a harness safety line, lifeline, and/or properly constructed guardrail while installing, using, and dismantling a hoist.
- The hoist operator must make sure that the proper protection is used and that the area around the hoist is neither slippery nor has material scattered around.
- When hoisting material an employee **MUST** control the load by use of a tag line.
- Hoisted material must not be allowed to make contact with the building, scaffolds, ladders, employees, public or students.
- Keep debris away from hoisting area – keep it neat.
- Do not assume that your equipment is in the same condition as when you last left the job.
Ladder Safety

NEVER USE A DAMAGED, DEFECTIVE LADDER

- Inspect the ladder for splits and missing or damaged rungs or hardware.
- Do not use defective ladders; report them to your supervisor.
- Every ladder must be tied at the top and firmly placed at the bottom.
- Side rails must extend a minimum of three (3) feet above the roof edge.
- Whenever possible, ladders must be placed so that the distance from its foot to the wall is one-quarter the height to the roof edge. (Count the rungs – they’re about a foot apart.)
- Always face the ladder when you are using it and maintain a firm grip.
- Never have more than one person on a ladder at a time.
- Keep ladders a minimum of ten (10) feet away from power lines.
- Extension ladders must be overlapped a minimum of three (3) rungs. Be sure the hardware is fully engaged and the rope line properly secured.
- Don’t climb a makeshift arrangements; get a ladder.
- Ladders are to be used exclusively for the transportation of people.
- Maintain three-(3) point contact at all times (two hands one foot, one hand two feet).
- Do not carry materials up or down ladders, hoist it up or down.
Deck Safety

- On new work, be sure the deck is properly secured -- not just laid in place. On reroof work, check for deterioration of the deck before you start loading it with men, materials and equipment.

- Openings must be covered or protected with guardrails.

- Covers must be strong enough to bear the load of men and equipment.

- Covers must be marked with the word or words "Danger – Hole".

- The cover must be secured in some way to prevent its being accidentally bumped off the hole by foot traffic or equipment.

- Do not remove covers without the okay of your supervisor.

- Immediately recover holes when roofing or flashing work is complete.

- Be especially careful when removing covers; many roofers have picked up a cover and then walked in the hole.

- Stand plywood covers on edge before removing to better see the hazard.

- Frost, snow, and rain can make a deck or glazed roof surface very slippery. Proceed with caution!

- Before tearing off a deteriorated roof, check the underside of the deck to detect dangerous areas.
Housekeeping

A professional roofing crew has a neat and orderly job site. Such crews take pride in their work and invariably have fewer accidents.

- Materials must be neatly stacked and placed out of the way.
- Tools and equipment must be put away after use and must not be stored near the edge of the roof.
- Block the wheels on rolling equipment.
- Trash and scrap are fire hazards and must be collected and disposed of immediately.
- The kettleman must give particular attention to the orderliness of the kettle area. Neatly fold and stack your tins, pick up debris, keep the materials stacked and organized, and see that propane cylinders are tied upright.
- Tarps and other covers must be adequately secured to prevent them from blowing in the wind. Materials used to secure the tarps must be heavy enough to insure they will not be moved even in the strongest wind.
Materials Handling

Here are some tips for proper material handling.

- Lift with your legs – not your back – and keep your head up.
- Get help when lifting heavy or bulky loads.
- Be sure you have a clear path when you are moving materials. Check for roof curbs, piled materials, or equipment that may be in your way.
- Don’t pile materials too close to the edge of the roof. Don’t overload the deck or drop heavy loads on the deck.
- Handling hot substances is very dangerous. Avoid walking on hot substances. Don’t let hot substances fall into the building.
- Be especially careful when handling material near the roof edge. Use personal fall protection.
- When moving materials through occupied areas or across sidewalks have another employee keep watch for the public and/or students.
Solvents and Adhesives

Job-Site Use and Storage

- Always use adhesives in open or well-ventilated areas. If existing ventilation is poor, utilize fans or other means to provide positive circulation in order to reduce workers’ and building occupants exposure to unacceptable limits.

- Store only enough solvent-bearing adhesives on the roof for the day’s use. **Never** leave adhesives on the roof overnight. Store remaining materials on the ground at least fifty (50) feet from the building in a controlled area or in a locked and enclosed trailer. Manufacturer-supplied adhesives must be stored in their original containers.

- Only organic cleaning solvents in **safety cans** may be used. Storage on the roof must not exceed one day’s supply.

- Clothes or shop rags used for cleaning must be removed from the roof nightly to prevent spontaneous combustion.

- Smoking must not be prohibited within fifty feet of any organic solvents used in cleaning or adhesive application. The supervisor or superintendent must post **No Smoking** signs were necessary.

- Roofers must be aware of other trades in the work area. Acetylene or electric welders and equipment producing open flames may ignite solvent vapors.

- Adequate fire extinguishers must be readily accessible, (within ten (10) feet), at all times.
Solvents and Adhesives

Warehouse Storage

- Identify all adhesives and organic solvents that they contain.

- A separate, isolated, and secured flammable liquid storage cabinet must be allocated for storage of adhesives and organic solvents. Post No Smoking signs.

- Flammable materials must not be stored near building exists.

- A portable ABC fire extinguisher must be located within ten (10) feet.

- Non compatible chemical must not be stored within twenty (20) feet of adhesives and organic solvents.

- Material containers must be handled individually and with extreme care.

- Immediately dispose of all empty pails and containers.
Tools and Equipment

Proper use of equipment and tools will make your job safer and more efficient. Know your equipment and its uses.

- Inspect tools and equipment to make sure that they are in proper working order.
- Tools must be kept clean.
- Always be sure that guards are in place and operative.
- Be sure all electrical tools are grounded before using them.
- Ask how to use a piece of equipment or a tool is you are unfamiliar with it.
- Use the machine or tool designed for the job.
- Don’t force the tool.
- Shut off gasoline-powered equipment before refueling. Refuel away from heat or spark producing operations.
- Use U.L. - listed manufacturers containers or safety cans for all flammables.
- Always turn off a machine you are repairing or cleaning them.
- Tag defective tools, electrical cords, and equipment “Defective – DO NO USE” for repair.
- Use caution when using sharp tools.
- Damaged, spliced, ungrounded electrical extension cords may not be used.
- Always use a Ground Fault Circuit Interrupter (GFCI) on all 110-volt receptacles and extension cords.
Filling an Empty Tanker (Top Fill)

- Wear a face shield and gloves when filling a tank.

- Never fire the burners of a tank that is being filled. An overflow is possible that could spill into the burners, causing a serious fire and burns.

- Make absolutely sure that there is not water in the tank before you start to fill. Water can cause foaming and, if enough water is present, it can turn to steam, causing the material to spew out of the manhole.

- Always allow enough room in the tank for the expansion of the material being heated.

- When filling an already heated empty tank, allow enough time for the flues to cool down before filling again. If the flues are hot, a flash fire could occur.

- It is a good practice to stand away from the manhole when filling. Always open the manhole on a hot tank from behind the manhole. If a flash occurs, the lid will deflect the flame away from your body.

- Do not fill a tank with material that exceeds the manufacturer’s suggested maximum temperature. A flash fire or explosion could occur.

- Make sure all manhole covers are closed and secured before moving the tank.
Vehicle Safety

Common sense rules of good driving apply to roofing trucks in the same way that they do to your family car. Don’t follow too close, stay within the speed limit, be alert at all times, watch your mirrors, expect the unexpected, and drive defensively. There are some special rules you must follow with roofing trucks.

- The operator of the vehicle must have a valid driver’s license.
- Check all safety equipment before operating the vehicle eg. lights, brakes, windshield wipers, signals, etc.
- Check the load before you drive to ensure that it is evenly distributed. Make sure that heavy pieces of equipment are tied down, that propane tank are upright and secure, and that flammable liquids are covered and tied down.
- Check your kettle or whatever you may be towing. Are the hitches on the truck and kettle in good shape and securely closed? Do you have safety chains attached? Is the kettle so full that it may spill when cornering or stopping? Are you clearly visible from behind, and can your brake and clearance lights be seen?
- Remember that the truck cannot stop as quickly with the kettle in tow as it can normally. Allow an extra margin of distance for a slower stop.
- The fire extinguisher must be fully charged and carried in the cab of the truck, together with the first aid kit.
- Most roofing trucks have a large blind spot behind them; so don’t back up without an observer outside the truck. Be sure that the back-up alarm functions properly.
- When pulling on or off a sidewalk on school property an observer must be outside the vehicle controlling pedestrian traffic.
Warning Systems

- When starting a job, check the roof and set up protective barriers around roof openings and the immediate work area.

- When mechanical equipment is being used, the warning line must be no less than six (6) feet from the roof edge, parallel to the equipment and ten (10) feet from the edge when equipment is perpendicular.

- There must be a worker present at all times to warn the operator when he/she nears the edge of the roof or opening.

- The warning line must be between thirty-four (34) and thirty-nine (39) inches high from the roof surface.

- The line must be flagged at six (6) foot intervals.

- The stanchions must be able to resist a force of sixteen (16) pounds applied horizontally thirty (30) inches above the roof surface.

- A minimum four (4)-foot wide OSHA standard guardrail must be placed on each side of the outlet where materials are being pumped or hoisted to the roof.

- If a guardrail is not present, employees must use personal fall protection.

- Follow OSHA regulations 1926.500(g)
Sloped-roof Protection

Personal protective equipment, harness, lifeline and lanyard and extra caution are necessary to protect yourself from falls from a sloped roof.

For slopes of 4:12 to 8:12:

- Each guard must be used, consisting of planks supported by metal brackets.
- Each plank must be supported by a minimum of three brackets with a seven-foot (7) maximum space between brackets.
- For wood and composition shingles, a 2 x 6 plank supported by roofing brackets must be erected at the eave and below the area where men are working.
- For a slate, tile, or asbestos shingle roof 2 x 10 planks supported by roofing brackets must be erected at the eave and below the area where men are working.

For roofs steeper than 8:12:

- Safety lines or a forty-two-inch high barrier at the eaves must be provided.
Waterproofing Below Grade

Working on below-grade waterproofing and working in confined areas present some safety problems not normally associated with regular roofing operations.

- Always wear a hard hat for protection from falling objects.
- Make sure the trench is properly shored and clean of debris.
- Be aware of other trades working around you.
- If proper ventilation is not available, appropriate respiratory equipment must be worn.
- Make sure there are proper exits, ladders, ramps, etc. from the work place in case of an emergency.
- Special precautions must be taken if working with flammable materials.
- OSHA’s Permit required confined Space entry standard 29 CFR 1926.146 must be complied with when working conditions require it.
- OSHA’s Excavation standard 29 CFR 1926.650-652 must be complied with when working conditions require it.
Kettles and Tankers

Safe Operating Procedures

- Be sure you are wearing protective clothing.
- Before firing a kettle, check hoses, gauges, fuel tanks, burners, and other equipment for defects. Make sure the lid fits tightly.
- Have a fully charged fire extinguisher handy (within ten (10) feet).
- Know how to put out a kettle fire.
- Follow instructions for firing your burner. Don’t ignite the burner within twenty (20) feet of fuel or flammable material.
- Be sure tubes are covered with bitumen before igniting burners.
- Crack open the fill lid to relieve pressure when heating a cold tanker.
- Have a safe place to put a burner when you remove it from the kettle.
- Remember, the flame is hard to see on a bright day.
- Avoid splashing when loading or drawing off hot substances.
- Turn off the burners and engine before refueling. Let burners cool.
- Secure the burners, lid, draw-off cock, and fuel at night.
- In residential areas, the draw-off cock and lid must be closed and locked.
- Disconnect the kettle from the vehicle before firing.
Kettle Fires

THE SAFETY OF EMPLOYEES AND THE PUBLIC IS OUR FIRST CONCERN

When a kettle fire occurs:

STAY CALM, CLOSE THE LID, TURN OFF THE FUEL SUPPLY AT THE TANK, AND CALL FOR HELP!

- The best way to put out a kettle fire is to close the lid. Splash water at the edge of kettle lid (about a cup at a time) until the fire is out. Just a small amount of water in the kettle will create steam and smother the fire. A small amount of water will normally put out the fire on top of the kettle.

- You should check daily that the kettle lid fits tightly. Even with a tight lid, some kettle fires are stubborn.

- Often the outside of the kettle with catch fire if it has become heavily coated with bitumen.

- If fire spreads from the top of the kettle, a fire extinguisher must be used.

A fire extinguisher must always be located within ten (10) feet of the kettle. A dry-chemical extinguisher rated at least 20BC is best for most kettle fires.
Portable Fire Extinguishers

There are four basic types of fire extinguishers:

**Water** - pressurized and pump can types

**Foam** - trade name “Light Water”

**Carbon dioxide**

**Dry chemical** - multipurpose ordinary types

The multipurpose dry-chemical fire extinguisher is the most effective in extinguishing roofing-related fires. Although foam and carbon dioxide types can be used on most fires, they are not as effective as the dry-chemical type.

All fire extinguishers must be inspected monthly by a responsible person and records maintained indicating the inspection date and who performed it. In addition, all extinguishers must be serviced by qualified personnel on a yearly basis.

Fire extinguishers have operating instructions listed on the nameplate; you must familiarize yourself with them.

It is each worker’s responsibility to know the location of the fire extinguishers on the job site.

All employees must be trained in the proper use of portable fire extinguishers.
Torch-Applied Modified Bitumen Membranes

(Safety Procedures for the Application)

It is important to follow all safety regulations pertaining to the application of torch-applied modified bitumen membrane systems in order to prevent fire. These include:

- Before proceeding with the job, check all local fire codes.
- All L P gas cylinders must be tied or chained in an upright position. Propane tanks placed within twenty (20) feet of torches must be protected by a heat shield.
- Do not use torches within ten (10) feet of combustible material.
- Use extra care at facilities where combustible and/or flammable fumes are exhausted.
- Have dry chemical or foam fire extinguishers available for every work area; be sure that everyone is trained to use them.
- Inspect hoses, valves, gauges, connections, fitting, and torch heads before beginning work.
- Only use flint or electronic lighters to ignite torches; never use matches or disposable lighters.
- Never point torches at anyone, leave lighted torches unattended, or bypass triggers or regulators on torching equipment.
- Close the valve on the propane container when the burner is turned off in order to allow the propane to burn out of the hoses.
- The supervisor must walk the roof at least one-half (1/2) hour at the end of each day’s work to check for smoldering fires.
- Review and adhere to the manufacturer’s safety guidelines and procedures.
Liquid Propane Gas (LPG) Cylinders

- Maintain cylinders according to the supplier’s instructions.

- Cylinders must be marked Flammable Gas.

- When storing, using, or transporting cylinders, keep them fastened securely in an upright position and be sure that the container valve is closed with a safety cap or collar in place.

- Cylinders must not be dropped or allowed to strike each other.

- Cylinders must be moved by means of hand truck. If it is absolutely necessary to move them by hand, roll them on the bottom edge, never lay them down and roll them on their sides or drag them.

- Don’t hoist cylinders to roof areas by lashing them together or by attaching lines to valves or to collars at the top.

- Make sure the pressure regulator is in good condition, immediately remove and replace damaged pressure regulators.

- Check the pressure regulator prior to use and adjust accordingly.

- Check the hose prior to use for cuts, cracks, or worn places. Remove and replace damaged hoses immediately if any of these are present.

- Use a heat shield to protect containers when they are mounted on a kettle.

- Always consider cylinders to contain fuel gas and handle them accordingly. Accidents have resulted when containers under partial pressure were thought to be empty.

- When not in use, turn off the fuel supply at the tank.

- When in use, keep 100-lb. tanks at least ten (10) feet away from the kettle.

- Keep all bulk propane and storage tanks at least twenty-five (25) feet away from the kettle or tanker.

- One Co² fire extinguisher is required for every torch used.
- Be careful not to overfill propane tanks, especially in hot weather.
- Check local fire regulations.
Burns!

Roofers become so accustomed to working with hot substances that they forget that they are handling a molten material heated to over 400 degrees. Treat hot substances with respect.

- Always wear protective clothing.
- Be sure not to overfill containers so that the hot substances can splash.
- Learn the proper way to pick up a bucket that is stuck to the roof. Carefully pry it loose, don’t jerk it loose!
- Open valves and drain cocks slowly. Be careful on windy days since hot substances can blow around.
- Be sure that all equipment for handling hot substances is in good condition. Use buckets and pails equipped with safe handles. Check the connections and provide adequate support for pipe lines carrying hot substances.
- Avoid walking on hot substances- it’s slippery and can cause a fall and a burn.
- Remember to spin out your mops at night and “fan” them out in the open air onto noncombustible material. Mops can burst into flames from spontaneous combustion long after you’ve left the job. Store them away from combustible materials. Remove them from the roof.
- On sloped surfaces, carry buckets of hot substances by hand on the downhill side.
- See the next page for treatment of burns.
Asphalt Burns

- Have an adequate supply of water on the job while hot material is being applied.
- Cool the burned area with water.
- Do not put ointment or salve on second- and third-degree burns.
- Cooling with water on the burned skin must be continued only until the bitumen has hardened.
- Do not attempt to remove bitumen or clothing from the burned area.
- Keep burned arms and legs elevated higher than the heart.
- Make sure the injured person’s airway remains open and breathing is normal.
- Watch for shock.
- Get the injured person to a hospital immediately.
General Directions for Giving First Aid

Employees are not required to give medical treatment to injured employees, however, you may still provide assistance. Accidents or injuries require immediate first aid. **Immediately call for medical help.** Following are some basic guidelines. If possible, avoid direct contact with blood.

**Burns**
- Treat all burns by the gentle application of cold (not ice) water.
- Do not put ointment or salve on second-and third-degree burns.
- Do not try to pull charred clothing from burns.
- Keep burned arms and legs elevated higher than the heart.
- Make sure airway remains open.
- Burn victims, naturally, are fearful. Give comfort and aid and reassure them that help is on the way. Watch for shock symptoms.
- Get to a hospital.

**Fractures**
- Do not move the patient, unless they are in a dangerous area.
- Keep the compound fracture area clean. Stop the bleeding and watch out for shock. Do not try to set the bone. Cover the fracture wound after checking the bleeding.
- Splint broken bones if you have to move the patient.
- Extend splints past limb joints.
- Do not splint so tightly that the circulation is cut off.
### Shock

<table>
<thead>
<tr>
<th>What to look for</th>
<th>What to do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dull, lackluster, dilated pupils, pale or bluish face, clammy cold skin</td>
<td>Place patient flat on back</td>
</tr>
<tr>
<td>Shallow, irregular, labored breathing. Rapid or weak pulse (throat).</td>
<td>Raise head and shoulders</td>
</tr>
<tr>
<td>Nausea, vomiting, thirst anxiety, sunken eyes, vacant expression</td>
<td>Raise feet 6 to 12 inches (lower if it causes pain)</td>
</tr>
<tr>
<td>Collapse</td>
<td>Reassure patient</td>
</tr>
<tr>
<td><strong>If serious bleeding or open wound</strong></td>
<td>Control with pressure on wound pressure points or with tourniquet, if necessary.</td>
</tr>
<tr>
<td>Head or neck injury</td>
<td>Keep body flat</td>
</tr>
<tr>
<td>Bad wounds – lower face, jaw</td>
<td>Place body on side to drain</td>
</tr>
<tr>
<td>Stomach or chest injury</td>
<td>Place body on back, no liquids</td>
</tr>
</tbody>
</table>

**Get to a hospital**
## Shock

<table>
<thead>
<tr>
<th>What to look for</th>
<th>What to do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dehydration due to thirst, nausea, dysentery etc.</td>
<td><strong>Small amount (sips)</strong> of water but only if no internal wound or injury and help is more than 6 hours away.</td>
</tr>
<tr>
<td>Extreme fear, loss of control, panic</td>
<td>Reassure patient that help is coming. Make as comfortable as possible. Calm and soothe.</td>
</tr>
</tbody>
</table>

**Get to a hospital**
Sudden Illness and Emergencies
Microsurgery Procedures

With the advances in microsurgery, it is possible to reattach amputated parts of the body, such as fingers and toes, provided the following procedures are followed.

- Wrap the amputated part in a clean damp cloth and place it in a plastic bag in a cool spot (in icewater, a refrigerator, or a cooler).
- Wrap the victim’s wound in a clean cloth or bandage.
- Place the wounded area (arm, leg, foot, hand, etc.) in an upraised position. Do not try to place a tourniquet on the wound.
- Keep the victim warm with a coat or blanket and get immediate medical attention.
Cardiopulmonary Resuscitation (CPR)

Place victim flat on his/her back on a hard surface.

1. **If unconscious, open airway.**
   Head-tilt/chin-lift.

2. **If not breathing begin rescue breathing.**
   Give 2 full breaths. If airway is blocked, reposition head and try again to give breaths. If still blocked, perform abdominal thrusts. (Heimlich maneuver)

3. **Check cartoid pulse.**

4. **If there is no pulse, begin chest compressions.**
   Depress sternum 1 ½ to 2 inches. Perform 15 compressions (rate: 80 - 100 per minute) to every 2 full breaths.

Continue uninterrupted until advanced life support is available.
Personal Hygiene/Health

Hygiene must be an important part of all top-quality roofing personnel’s daily routines, both at the job site and off. Failure to practice good hygiene can result in lost time and productivity and appears to carry over into sloppy work habits.

The following suggestions must be practiced to provide maximum health benefits.

- Always remove material residue from your skin, including under and around fingernails and hair, immediately following work or prior to eating or smoking.

- At night, after removing material residues, a shower must be taken with an antiseptic soap; shampoo your hair, and use a non-antiperspirant deodorant.

- Use creams or lotions on your skin to prevent rashes, burns, or chapping when working in the sun or wind or when working with irritating materials.

- Change your clothing, including underwear, on a daily basis, and thoroughly launder them before reusing.

- Avoid bringing dirty clothing into your home. It is best to change first.

- Keep your shoes dry, and use clean socks daily.

- Clean or change liners in hard hats on a regular basis, and if you use sweat bands, rinse them in clean water each day before wearing.

- Any safety equipment, such as face masks, respirators, goggles, or ear plugs should, be kept in clean and in good working condition.

- Don’t trade or lend your personal safety equipment to others.

- Change filters in respirators daily, replacing the filter with the proper element.

- Drinking water has to be changed daily; make sure that the container is cleaned daily and has no breaks or spills in the inner skin.

- Don’t drink from the same cup that others drink from.
- Food consumed at the job site must be prepared daily, stored in an insulated lunch box, and sealed in bags, jars, or sacks.

- Liquids consumed at the job site must be in a clean container and be nonalcoholic.

- Do not warm food and drink on the hot kettles or tanker. The fumes from the bitumen, asphalt and other substances can contaminate the food and drink causing serious illness.

- Clean up garbage and residue from the job site daily, and place items in a proper container.

- Get plenty of rest at night when working the next day.

- If you get sick, stay home until you’re well, and consult a doctor if necessary.
SAFETY CHECKLIST

As part of ELMIRA STRUCTURES, INC. project team on this job site, each individual is required to have a basic knowledge of safety practices and hazard avoidance. Upon completion of the Site Safety Orientation session, please review the information below and complete the checklist. If there are any responses on which you check “NO”, further training in those areas may be indicated.

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I have been advised of the Personal Protective Equipment required on this job site, and agree to use it properly.</td>
</tr>
<tr>
<td>2.</td>
<td>I understand that under the regulations established by the Occupational Safety and Health Act (OSHA) that I cannot remove or destroy safeguards or devices on equipment.</td>
</tr>
<tr>
<td>3.</td>
<td>I have been instructed of my rights under OSHA, to work in an environment free from recognized hazards.</td>
</tr>
<tr>
<td>4.</td>
<td>I have been advised of the appropriate clothing for the job site.</td>
</tr>
<tr>
<td>5.</td>
<td>I know how to use the tools and equipment that I may be required to operate. It has been explained that defective tools and equipment must be tagged, reported, and removed.</td>
</tr>
<tr>
<td>6.</td>
<td>I have been trained on proper lifting; bent knees, straight back, firm grasp, load close to body, and use leg muscles. I will seek help for loads too large, or use a material handling device.</td>
</tr>
<tr>
<td>7.</td>
<td>I understand what “lock-out” means for equipment when it is under repair or service, and I will observe these procedures. Unless I receive thorough training, I will not be involved in locking-out equipment.</td>
</tr>
<tr>
<td>8.</td>
<td>I will not adjust or repair equipment or machinery unless authorized to do so.</td>
</tr>
</tbody>
</table>
## Safety Checklist (continued)

<p>| | | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>9.</td>
<td>I have been instructed on housekeeping rules, proper storage of equipment and materials, and cleanup procedures. I understand that a clean work area is a safe work area.</td>
<td>YES</td>
</tr>
<tr>
<td>10.</td>
<td>I understand the smoking regulations on this job site and will do so only in authorized areas and dispose of cigarettes in proper receptacles.</td>
<td>YES</td>
</tr>
<tr>
<td>11.</td>
<td>I have been informed of the OSHA Hazard Communication/&quot;Right to Know&quot; law, and the specific hazards of any chemicals to which I may be exposed.</td>
<td>YES</td>
</tr>
<tr>
<td>12.</td>
<td>I have been informed of the location of all material safety data sheets (MSDS)</td>
<td>YES</td>
</tr>
<tr>
<td>13.</td>
<td>Emergency procedures have been explained and I have been advised on where fire extinguishers and first aid kits are located.</td>
<td>YES</td>
</tr>
<tr>
<td>14.</td>
<td>It has been explained that I should leave the area immediately if there is a chemical spill or the job site must be evacuated for emergencies.</td>
<td>YES</td>
</tr>
<tr>
<td>15.</td>
<td>The accident reporting requirements have been explained to me.</td>
<td>YES</td>
</tr>
<tr>
<td>16.</td>
<td>I understand and will follow the substance abuse policy.</td>
<td>YES</td>
</tr>
<tr>
<td>17.</td>
<td>I have been instructed on how to handle a situation if any unsafe condition arises on the job, or if I am requested to perform a job that I am not qualified or trained to perform. If unsure of a particular situation, I will contact my supervisor.</td>
<td>YES</td>
</tr>
<tr>
<td>18.</td>
<td>I have received my copy of ELMIRA STRUCTURES, INC. Safety Materials and agree to conduct myself in a safe and appropriate manner in accordance with Colonial Roofing Inc., Co. policies at all times on the job and on site property.</td>
<td>YES</td>
</tr>
</tbody>
</table>

Name: ________________________________  Signed: _______________________
(Print)

Date: ___________________________              Job Number:  _____________________

Job Site: _______________________________________________________________
SECURITY

Adequate safeguards and administrative procedures shall be established and maintained, as required, in order to protect all buildings, materials and equipment against loss or theft, in accordance with all applicable security regulations and requirements.

Each ELMIRA STRUCTURES, INC. Site Construction Manager/Superintendent/Supervisor shall be personally responsible for the security of the worksite (as directed by the contract/building owner), materials, equipment, etc. on the job site.

Security fencing shall not be altered, removed or relocated without written permission.
PROTECTION OF THE PUBLIC & BUILDING OCCUPANTS

Every possible effort will be taken to protect the general public and the building occupants from injury and illness.

ELMIRA STRUCTURES, INC. employees and its subcontractors will provide assistance and guidance to the public and building occupants to help direct them from potentially hazardous work areas. Flaggers, caution signs, barricades, warning lines, traffic cones, fencing, etc. will be used when and where necessary to direct the public and building occupants from hazardous work areas.

Except in an emergency, the public and building occupants should not be permitted to pass through the work area. However, ELMIRA STRUCTURES, INC. employees and its subcontractors should be courteous to these individuals when encouraging them to leave the area.
ENVIRONMENTAL PROTECTION

All Site Construction Managers/Superintendents shall become familiar and comply with R.C.R.A., DEC, DEP and E.P.A. requirements, along with other specified methods for controlling environmental problems, preventing pollution and protecting the worker and the environment, as outlined by federal, state and local regulations. Hazardous substances shall be handled, used, stored and disposed of, in accordance with the manufacturers’ instructions and/or according to federal, state and local regulations.
EMPLOYEE SITE SAFETY & HEALTH ORIENTATION CHECKLIST

Instructions to Management: Initial each item as you discuss it with the employees. This checklist must be completed before the employee starts work at each site.

Location: ________________________________________________________________________________

Job Number: _____________________________             Date: _______________________

<table>
<thead>
<tr>
<th>Item</th>
<th>Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Employee received Company Safety Program</td>
<td>_________</td>
</tr>
<tr>
<td>2. Review:</td>
<td></td>
</tr>
<tr>
<td>• Safety and Health Policy</td>
<td>_________</td>
</tr>
<tr>
<td>• Employee General Safety and Health Rules</td>
<td>_________</td>
</tr>
<tr>
<td>• Disciplinary Policy and Procedures</td>
<td>_________</td>
</tr>
<tr>
<td>3. Instruct:</td>
<td></td>
</tr>
<tr>
<td>• Housekeeping</td>
<td>_________</td>
</tr>
<tr>
<td>• How to report unsafe conditions</td>
<td>_________</td>
</tr>
<tr>
<td>• What to do in the event of an injury on the job</td>
<td>_________</td>
</tr>
<tr>
<td>• State when and where safety Toolbox meetings are held</td>
<td>_________</td>
</tr>
<tr>
<td>• Hard hats, work boots, safety glasses/goggles PPE is mandatory</td>
<td>_________</td>
</tr>
<tr>
<td>• Explain Fire Evacuation/Emergency Plan</td>
<td>_________</td>
</tr>
<tr>
<td>• Proper lifting techniques and importance of back fitness</td>
<td>_________</td>
</tr>
<tr>
<td>• Review OSHA Hazard Communication Policy</td>
<td>_________</td>
</tr>
<tr>
<td>• Hazardous substances MSD sheets training</td>
<td>_________</td>
</tr>
<tr>
<td>• Fall Protection requirements</td>
<td>_________</td>
</tr>
<tr>
<td>• Fall Protection training</td>
<td>_________</td>
</tr>
<tr>
<td>4. Other (Please list)</td>
<td></td>
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<td></td>
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</tbody>
</table>

I acknowledge that information on the above subjects was furnished to me during my site orientation and that I understand this information

EMPLOYEE: _____________________________ MANAGEMENT: _____________________________

Print Name _____________________________ Print Name _____________________________

Signature _____________________________ Signature _____________________________

Date _____________________________ Date _____________________________
Certification of Understanding

I have read the attached policies and understand that cooperation between employees and management will insure safe-working conditions, will help result in accident-free performance and will work to our mutual advantage.

Corporate Management

as of Date: ____________________________

Print Name

Signature

Safety Director

as of Date: ____________________________

Print Name

Signature

Superintendent/Supervisor

as of Date: ____________________________

Print Name

Signature

Employee

as of Date: ____________________________

Print Name

Signature
For the above project, we will be observing the following Safety Manual and Procedures.

A. General

1. Each occupational injury or illness occurring at the Project, which results in a recordable case, will be thoroughly investigated by us and monitored by the Project Safety Coordinator. In addition, certain first aid cases, which indicate a potential for serious injury, will also be investigated.

B. Investigative Team

1. a. Our representative (s)

   b. Construction Manager Project Safety Coordinator or Safety Engineer

   c. School Construction Authority Safety Engineer

   d. Insurance Company Representatives

C. Investigation

1. General

   a. The purpose of any accident investigation is to identify all possible contributing causes so that future incidents, similar in nature, can be prevented and to determine all the facts which may have a bearing on legal liability. Investigations shall be directed toward fact-finding, not fault finding.

   b. The investigation shall begin as soon as possible after the necessary notifications has been accomplished. We will submit a written “Accident Investigation” to the Project Safety Coordinator.
2. Conducting the Investigation

   a. When possible, we will discuss the accident with the injured employee.

   b. We will discuss the accident with other employees who may have seen the accidental.

   c. We will carefully consider the following points:

      (1) What was the injured employee doing prior to, and at the time of, the accident? Was this in pursuit of his regular duties?

      (2) Was the employee properly instructed as to the manner in which to perform his duties? Did he/she do the work in accordance with instructions?

      (3) Does the injured employee differ physically or mentally from other employees doing the same type of work?

      (4) Did any other employee contribute to this accident?

      (5) Was the equipment or machinery, which the injured employee was using, in good condition? Was it properly guarded? Was it suited for the purpose for which it was being used?

      (6) Was ample and sufficiently lighted work space provided?

      (7) Were proper housekeeping conditions maintained?

      (8) How is the same type of work done by other employees?

      (9) Is there a safer way in which this work could be done?

      (10) Was the injured in good health when reporting for work on the day of the accident?
3. Witnesses

   a. All personnel associated with the operation and other eye witnesses to the accident shall be interviewed and written statements taken.

   b. The information obtained during these interviews shall be limited to direct knowledge of what was observed. Opinions and hearsay information does not represent factual findings!

   c. Each individual interviewed shall be requested to sign a statement of his/her recorded sequence of events that lead up to and include the accident.

   d. The following information shall be obtained from each individual interviewed:

      (1) Name, employing contractor, employee number, address and occupation or trade.

      (2) Date, time and place of interview.

      (3) Where the person being interviewed was at the time of the accident.

      (4) A complete narrative of what the witness knows of the accident.

      (5) What operational activity or other events were taking place prior to and at the time of accident.

      (6) What materials (lumber, concrete, steel, etc.), equipment (tools, cranes, scaffolding, etc.) were involved. This would also include all possible contributing factors, personal and physical, whether they are directly or indirectly related to the accident.

      (7) What facts may have caused the accident? Answers shall be as objective as possible, including all unsafe conditions and/or unsafe acts.

      (8) Was there a pre-existing known and/or reported unsafe condition or actions associated with the accident. If so, when
was it reported, to whom and was there any action taken at that time?

e. Upon conclusion of the interview, review the statement with the witness and attempt to clear up possible discrepancies. The statement shall then be dated, signed and witnessed by a third party.

4. Evidence

a. It is in the best interest of all parties that all physical evidence not be disturbed or tampered with, regardless of the circumstances involved.

b. All efforts shall be made to secure the area of the accident as soon as possible after the occurrence to prevent any alteration of the scene prior to the investigation.

c. If any equipment, tools and/or materials are involved with the accident, they shall, after marking location, be removed from service and placed in safekeeping. If this proves to be impractical, the area in which the accident occurred will be cordoned off and security personnel shall be posted to keep all unauthorized personnel out of the area.

d. The secured area shall only be reopened upon approval from the Construction Manager, Project Safety Coordinator or SCA Safety Engineer.

5. Photographs, Drawings and Diagrams

a. Sufficient photographs shall be taken as soon as possible after the accident by the Project Safety Coordinator or his designee since conditions rapidly change. Each photograph shall be properly labeled with the following information:

   a1. Description and location of principal item (s).
   a2. Positions/directions in which the photographs were taken.
a3. Dates and time.

a4. Name of photographer.

b. The investigator shall endeavor to provide a series of shots which supply a maximum of useful information and which will enable the viewer to understand how the accident occurred.

c. Several photographs shall be taken employing a general view. The camera shall be utilized clockwise until at least four general view photographs have been taken.

d. A set of views shall be selected to show the relationship of the accident to surrounding structures or articles. This may be suggestive of action immediately preceding the accident.

e. As the scene is examined, various objects will appear to have relation to the injury. Tools, blood stains and similar items shall be photographed before they are moved or cleaned up. Two photographs are needed for a significant object which is less than 12” in length. The first should be at close range to obtain a fairly large image of the article. Also, the use of a ruler laid alongside of the object shows exact measurement of object. The second photograph shall be taken with the camera approximately 6’ from object in order to bring the background in view and show the object in perspective.

f. Any contiguous areas which may have been used by victim shall be considered part of the scene of the accident. The nature of the accident will determine the extent to which the environs need to be photographed for a fuller understanding of the events that led to the accident.

g. The camera shall be carefully placed to profile a perspective which is both normal and informative. The incorrect selection of photographic angle often results in a distorted and false impression of the scene. This must be avoided as we want to represent only factual information.

h. It is sometimes desirable to illustrate the statement of a witness by means of "posed" photograph. In this way, the inadequacies of verbal testimony can be graphically remedied. To accomplish a posed photograph, a person with the same general physical appearance shall be used. Naturally, he/she shall be placed in same spot and positions as directed by the witness. Marks or pointers shall be used to clarify important aspects of the photograph. For example, chalk can be used
to show body position of victim. Prior to such a procedure, however, photographs shall be made of the untouched scene to obviate any objection to the photograph in court on the grounds that it does not purport to show the original scene.

i. Drawings and Diagrams shall be marked up and/or sketches prepared to indicate the location of the accident. All measurements of time, distance, size, weight, etc., shall be accurate. In the event of unknowns (speed, distance, weight, etc.), every attempt must be made to closely approximate the same with tables, formulas or calculations which shall be kept as part of the accident investigation.

6. Accident Report Format

a. The investigative report shall be completed as soon as possible. An accurate, detailed narrative description of the operation being performed at the time of the incident is of extreme importance. It is important to remember that a minor miscalculation of movement may have been the generating force that triggered sequence of events, which resulted in the accident.

b. Investigative reports shall reveal the following:

(1) What happened?

(2) When did it happen?

(3) Where did it happen?

(4) Why did it happen?

(5) Who did it happen to?
c. A sequence of all pertinent facts by the time of their occurrence shall be embodied in the report.

(1) Time - activity prior to accident.

(2) Time - occurrence.

(3) Times - emergency notification of first aid, safety, ambulance, etc.

(4) Times - arrival at scene of first aid team, ambulance, etc.

(5) Time - initial treatment or rescue efforts began.

(6) Time - arrival of ambulance at medical facility, medical treatment, surgery, etc.

7. Summary

a. At the conclusion of a major accident investigation, a meeting will be held at the work site of the incident to assure the cause has been determined and proper corrective action has been initiated.

b. The following personnel will attend this meeting:

   (1) Our safety representative

   (2) Construction Manager/Safety Coordinator and/or Safety Engineer

   (3) School Construction Authority Safety Engineer

   (4) Insurance Company Representatives

c. If all the facts surrounding an accident have been determined, it should not be difficult to decide what action is necessary to prevent other employees with similar duties or exposure to the same conditions from having the same type of accident.
CONSTRUCTION SAFETY MANUAL

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Sections

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   • Corporate Management Policy
   • Corporate Safety Responsibility
   • Superintendent Safety Responsibility
   • Superintendent/Foreman Responsibility
   • Employee Responsibility

2.0 Disciplinary Policy Procedures
   • Employee Disciplinary Action Form

3.0 New Employee Training
   • New Employee Safety Orientation Checklist

4.0 Competent Person Designation
   • Competent Person Memorandum
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7.0 Recordkeeping (OSHA 300 Log)

9.0 Toolbox Meetings
   • Jobsite Safety Meeting Report

10.0 First Aid Requirements
    • Policy Statement

11.0 Superintendents/Foreman Self Inspections

12.0 Management Audit Checklist

13.0 Project Site Specific Safety Program

14.0 Drug and Alcohol Policies
15.0 Hazards Specific Policies - Attached
   • Power Tools
   • Electrical Safety
   • Fall Protection
   • Residential Fall Protection
   • Scaffolds
   • Ladders/Stairways
   • Trenching/Excavation
   • Confine Space Entry
   • Cranes/Rigging
   • Fire Protection/Evacuation
   • Welding
   • Material Handling
   • Respiratory Protection
   • PPE
   • Steel Erection
   • Lead
   • Occupational Health
   • Hazard Communication

   Attachments - Lovell Safety Tool Box Safety Talks.

16.0 Incident Investigation Forms
   • Supervisor’s Investigation & Report of Incident
   • Accident Report
1.0 CORPORATE MANAGEMENT POLICY STATEMENT

The personal safety and health of each employee of our organization is of primary importance. We believe that our employees are our most important assets and that their safety at the worksite is our greatest responsibility. The prevention of occupationally induced injuries and illnesses is of such consequence that it will be given precedence over operating productivity whenever necessary. Management will provide all mechanical and physical facilities required for the personal safety and health of each of its employees.

To be successful, such a program must embody the proper attitude toward injury and illness prevention on the part of corporate management, supervisors, and employees. It also requires cooperation in all safety and health matters, not only between corporate management, supervisor and employees, but also between each employee and their fellow workers.

Our concern for safety and health of all human beings is daily, even hourly. We expect every person who conducts the affairs of our company, no matter in what capacity they function, to accept this concern and its responsibility. Employees are expected to use the safety equipment provided. Rules of conduct and rules of safety and health must be observed. Safety equipment cannot be abused or destroyed.

Cooperation between our employees and management in the observance of this policy will ensure safe-working conditions, will help result in accident-free performance and will work to our mutual advantage. It will also assist in reducing workers' compensation costs (direct costs) and reduce jobsite down time, material loss and regulatory agency fines (indirect costs).

Management has the authority to procure the necessary resources to execute the objectives of our company's safety and health program. We will hold managers, supervisors and employees accountable for meeting their responsibilities so that essential tasks will be performed.
Corporate Management Safety Responsibilities

1. Eliminate potential hazards by providing appropriate safeguards, personal protective equipment and safe work tasks.

2. Provide necessary personal protective equipment and enforce its use and care.

3. Provide effective training, which is required by the "standards", as a minimum for the employees.

4. Become familiar and comply with applicable OSHA standards (29 CFR 1910, General Industry, and 1926, Construction) and make copies of medical records as well as all safety and health programs available for employees to review.

5. Review, consider for approval, and execute appropriate action on safety policies developed by safety committees or safety director.

6. Ensure a high level of productivity and safety performance and hold project management staff accountable.

7. Assign an individual(s) [competent person] the authority for the implementation of the safety program at each worksite.
Safety Director Responsibilities

1. Monitor supervisory management and employee activity to ensure that the corporate programs are carried out in a timely manner.

2. Shall coordinate safety information between projects/shops to assure that all projects will benefit from each other’s efforts.

3. Coordinate all safety activities including jobsite inspections, and distribution of safety materials. Perform jobsite inspections periodically and follow up corrective actions.

4. Maintain all accident records and complete all required OSHA forms.

5. Analyze accident records and show trends.

6. Promote safety education on all levels.

7. Periodically review safety rules and standards with employees to confirm that the company is meeting its goals and objectives.

8. Review with supervisors how to handle emergency procedures at each jobsite location.

9. Confirm that all required signs are posted, and bulletin boards are maintained in clear and legible condition.

10. Confirm employer is enforcing compliance with all applicable federal, state, and local regulations.

11. Provide a regular report to upper management on the results of the safety program.
Superintendent/Foreman Responsibilities

1. Know safety rules and work practices that apply to the work you supervise. Take action to confirm that all employees in your charge understand the safety rules that apply to them. Always take immediate action to correct safety rule violations. Unsafe acts or procedures cannot be tolerated.

2. Prevent bad work habits from developing. You are responsible to make daily observations of employees to ensure that they perform their work safely, and continue this observation regularly once safe working habits are established.

3. Take action to correct or control hazardous conditions within your work areas. If it is beyond your control, remove the employee until the condition is safe. Eliminate unsafe conditions and prevent an accident.

4. Encourage workers to report unsafe conditions or procedures. Listen to your workers and don’t take their safety complaints lightly. No job should proceed when a question of safety remains unanswered. Seek advice from your project manager when necessary.

5. Set a good example. Demonstrate safety in your own work habits and personal conduct. Always wear personal protective equipment in areas where personal protective equipment is required.

6. Train your employees on the proper safety procedures to follow, including the use of additional safeguards such as machine guards and personal protective equipment.

7. Investigate and analyze every accident, however slight, that occurs to any of your employees. Control the causes of minor incidents to help avoid future crippling accidents.

8. Complete and file a report on each and every incident and accident that occurs at your jobsite. If you have question or require reporting forms, contact your project manager.

9. Conduct weekly safety toolbox meetings.

10. Make safety suggestions.

11. Serve on safety committee, if requested.

12. Take an active part and participate in safety meetings.

13. Non-compliance of these rules as well as other federal and/or state laws or regulations may be legal violations subject to civil and/or criminal penalties.
**Employee Responsibilities**

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 to the end of the work shift. 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.

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 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.
I have read the above policies and understand that cooperation between employees and management will ensure safe-working conditions, will help result in injury free performance and will work to our mutual advantage.

**Corporate Management**

as of: ________________ by: ________________

______________________________

**Safety Director**

as of: ________________ by: ________________

______________________________

**Superintendent/Foreman**

as of: ________________ by: ________________

______________________________

**Employee**

as of: ________________ by: ________________

______________________________
2.0  DISCIPLINARY POLICY PROCEDURES

All employees are expected to comply with jobsite rules and regulations, and to follow established operating procedures set forth by this company. Violations will not be tolerated and superintendent/foreman will be held accountable for the conduct of their employees.

Superintendents and foremen are required to take action when a violation is observed. Immediate action to control or eliminate a hazard is required.

In the event a violation is observed, the following procedures have been established to place an employee on notice.

<table>
<thead>
<tr>
<th>Notice*</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Offense</td>
<td>A written warning addressed to the employee and a copy placed in the employee's file referencing the violation and warning, including date and time.</td>
</tr>
<tr>
<td>Second Offense</td>
<td>A written warning addressed to the employee with reference to the violation including date and time of the occurrence. A copy of this warning will be given to the employee, the union shop steward, and another copy will be placed in the employee's file.</td>
</tr>
<tr>
<td>Third Offense</td>
<td>A written warning similar to the second notice will be prepared and distributed in the same manner. This warning will be followed by a meeting with the employee, union shop steward, foreman and/or project manager and senior management to determine whether the employee will be suspended without pay or terminated depending upon the nature of the violation.</td>
</tr>
<tr>
<td>Fourth Offense</td>
<td>Termination.</td>
</tr>
</tbody>
</table>

* Within any consecutive 12 month period.
* This policy is in effect unless there is a policy in our labor/management agreement.

The above procedure has been prepared so that there is no question about how violations of rules, regulations, and procedures will be handled by management and so that employees will know what to expect if they do not comply with the established rules, regulations, and procedures. Management knowledge of unsafe behavior and lack or appropriate documented discipline may be a violation of federal, state laws and regulations.
Employee Disciplinary Action Form

Project: _______________________________  Shop: _______________________________

Employee Name: _______________________________  Date: ________________

Superintendent: _______________________________  Day: ________________

Foreman: _______________________________  Time: ________________

1st Violation

Description: ______________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________

Employee Signature: ___________________________________________________

2nd Violation

Description: ______________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________

Employee Signature: ___________________________________________________

3rd Violation

Description: ______________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________

Employee Signature: ___________________________________________________

4th Violation: TERMINATION!

WITHIN A 12 MONTH PERIOD

ELMIRA STRUCTURES, INC.
3.0. **NEW EMPLOYEE TRAINING**

All new employees will be trained by a member of the management staff prior to starting work. The "New Employee Safety Orientation Checklist" shall be used by trainers (managers, superintendents, foremen, safety directors) as a reminder of the items that must be reviewed with the employee. All items must be initialed or identified as not applicable. The checklist must be signed by the employee and the management representative after the orientation is complete.

This form will be given to the project manager or home office and kept in the employee's personnel file.
# New Employee Safety Orientation Checklist

Instructions To Management: Initial each item as you discuss it with the employees. This checklist must be completed before the employee starts work.

<table>
<thead>
<tr>
<th>Item</th>
<th>Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Employee received Company Safety Program</td>
<td>__________</td>
</tr>
<tr>
<td>2. Review:</td>
<td>__________</td>
</tr>
<tr>
<td>· Safety and Health Policy</td>
<td>__________</td>
</tr>
<tr>
<td>· Employee General Safety and Health Rules</td>
<td>__________</td>
</tr>
<tr>
<td>· Disciplinary Policy and Procedures</td>
<td>__________</td>
</tr>
<tr>
<td>3. Instruct:</td>
<td>__________</td>
</tr>
<tr>
<td>· How to report unsafe conditions</td>
<td>__________</td>
</tr>
<tr>
<td>· What to do in the event of an injury on the job</td>
<td>__________</td>
</tr>
<tr>
<td>· State when and where safety tool box meetings are</td>
<td>__________</td>
</tr>
<tr>
<td>· Hardhats, work boots, safety glasses/goggles mandatory</td>
<td>__________</td>
</tr>
<tr>
<td>(Personal protective equipment is not negotiable)</td>
<td>__________</td>
</tr>
<tr>
<td>· Explain Fire Evacuation/Emergency Plan</td>
<td>__________</td>
</tr>
<tr>
<td>· Proper lifting techniques and importance of back fitness</td>
<td>__________</td>
</tr>
<tr>
<td>· Review OSHA Hazard Communication Policy and provide training</td>
<td>__________</td>
</tr>
<tr>
<td>4. Other (Please List)</td>
<td>__________</td>
</tr>
<tr>
<td></td>
<td>__________</td>
</tr>
</tbody>
</table>

I acknowledge that information on the above subjects was furnished to me during my orientation and that I understand this information.

Employee Signature                                       Management Signature
________________________________________________________________________

Date                                             Date
4.0 COMPETENT PERSON DESIGNATION

It is the responsibility of top management to appoint an individual as a competent person 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 on a project.
Competent Person List

1926.20 General safety and health provisions
1926.32 Definitions
1926.53 Ionizing radiation
1926.62 Lead
1926.101 Hearing protection
1926.103 Respiratory protection
1926.251 Rigging equipment for material handling
1926.354 Welding, cutting, and heating in way of preservative
1926.404 Wiring design and protection
1926.451 Scaffolding
1926.502 Definitions applicable to fall protection
1926.550 Cranes and derricks
1926.650 Scope, application, and definitions applicable to excavations
1926.651 General requirements
1926.652 Requirements for protective systems
1926 Subpart P App A Soil classification
1926 Subpart P App B Sloping and benching
1926.705 Requirements for lift-slab operations
1926.752 Bolting, riveting, fitting-up, and plumbing-up
1926.800 Underground construction
1926.803 Compressed air
1926.850 Preparatory operations - demolition
1926.859 Mechanical demolition
1926.900 Blasting and use of explosives
1926.1053 Ladders
1926.1060 Training requirements - stairways & ladders
1926.1101 Asbestos
1926.1127 Cadmium


Competent Person Memorandum

TO:
FROM:
DATE:
SUBJECT: Competent Safety Person

Via this memo, we appoint ________________________________ as our "Competent Safety Person" according to the provisions of 29 CFR 1926 in the area(s) of:

______________________________________________________________.

He/she has the authority to correct all hazards or to remove workers from the hazardous exposure if the hazards cannot be immediately corrected.

__________________________________________
Signature of Owner/Manager
Osha Competent Person

Project:

Date:

Trade:

Company Name: Elmira Structures, Inc.

Address: 66 Philo Road West  
Elmira, NY 14903

Telephone #  
Office: (607) 739-8800  
Cell: (607) 738-2997

Onsite Site Safety Representative / Competent Person; The following person has been designated as the on site safety representative for the above named company. The named individual hereby declares that they possess the education and experience necessary to enable him/her to recognize safety hazards and has the authority to take prompt corrective measures for their scope of work on this project.

Name: Boyd Graham

Signature:
6.0 ACCIDENT INVESTIGATION

Each superintendent and foreman will make a documented report of every incident, even those without injury, within twenty-four (24) hours of the occurrence. 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 OSHA within eight hours of the incident.

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.

Superintendents and foremen will be trained in accident investigation techniques.

- Accident investigation is a management function that must be executed at the superintendent/foreman level.
- 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.
- Superintendents and foremen should provide recommendations for corrective action, bring it to top management's attention and assure that it is acted upon.
- Superintendent/foreman will be provided with an accident investigation kit, which must remain on site.

The forms at the end of this document will assist with incident investigations.
7.0 RECORDKEEPING

Records must be maintained and kept up to date by the superintendent at each jobsite and/or home office. If there is no superintendent, then this responsibility lies with the foreman. These records must be available for review at all times. The following records must be maintained.

1. Supervisor's Investigation and Record of Incident
2. OSHA LOG (form 300) [http://www.osha.gov/recordkeeping/RKforms.html]
3. Self Inspections
4. Log of Tool Box Talks (include names and signatures of employees present)
5. Equipment Preventive Maintenance
6. Hazard Communication Compliance Plan
7. Material Safety Data Sheets
8. Chemical Inventory List
9. OSHA Training Requirements Records
10. OSHA Poster Explaining Employee Rights [http://www.osha.gov/Publications/poster.html]
11. Accident Forms - Medical Records
12. Corporate Safety Program
13. Emergency Phone Number List
9.0 TOOL BOX MEETINGS

Tool box talks of 5 to 10 minutes must be held by superintendents and/or foreman each week. Employees never receive too much training, and therefore our company relies upon jobsite management to provide ongoing and continuous employee training.

The subject to each training talk should be chosen to relate to the type of work that is being performed.

Some examples include:

- The use of safety glasses when using circular saws, grinders, table saws, radial arm saws, jack hammers, power actuated tools, etc.
- The proper set up and use of ladders.
- Hard hats and why they are necessary.
- A discussion of a recent accident and its cause(s).
- A discussion of an old accident.
- A discussion of disciplinary procedures for failure to comply with safety policies

A log of Tool Box Talks must be kept in accordance with the form that follows. One copy should be kept by jobsite management and the other kept on the file in the home office by jobsite location.
Jobsite Safety Meeting Report

Job Location: ________________________________________________________________

Meeting Date: ___________________________ Number of Employees Present __________

Names of Subcontractors Present: ______________________________________________

Others Present: _______________________________________________________________

Topics Discussed: _______________________________________________________________

_____________________________________________________________________________

_____________________________________________________________________________

_____________________________________________________________________________

_____________________________________________________________________________

Remember - An employee will better understand and retain a safety message if you both show and
tell the person. Lead by Example.

_____________________________________________________________________________

Signature                        Position                        Date

In attendance at this meeting were:

_____________________________________________________________________________

_____________________________________________________________________________

_____________________________________________________________________________

_____________________________________________________________________________

cc: Main Office - Original Field

ELMIRA STRUCTURES, INC.
10.0  FIRST AID

Our company will provide first aid supplies at each work location and all personnel are to know procedures to follow in case of an emergency.

1. Report all injuries immediately, no matter how minor, to your foreman and/or jobsite office.

2. Emergency phone numbers for fire, police and ambulance will be posted.

3. Please note that if any employee renders first aid or uses a first aid kit to assist a co-worker (although such action is not required by anyone’s duties) we would view this activity as a "Good Samaritan" act. Note: First aid kits are to be approved by a licensed medical doctor.
To: All Employees

From:

Subject: Assisting Co-Workers In Medical Emergencies

The policy of this organization is that we do not expect, as part of any employee's duties, to assist a co-worker in a medical emergency. Since appropriate medical assistance is available within a reasonable time by calling the phone number posted at the job-site, employees are not required to assist co-workers.

The use of the First Aid Kits that may be available within our organization are for self-help. That is, an employee who is injured may use the materials in the first aid kit for self-administration.

Please note that if an employee uses a first aid kit to assist a co-worker (although such action is not required by anyone's duties) we would view this activity as a "Good Samaritan" act.
11.0 SUPERINTENDENT/FOREMEN SELF-INSPECTION

It is our policy to reduce and eliminate hazard exposures that can lead to employee injury or property damage. Self-inspection is one way to provide a safe workplace for our employees.

Superintendents and foremen are required to make daily visual inspections of their work areas and to test all equipment safety devices prior to the start of the work shift. Corrective action must be provided immediately if any hazards exist rear if any safety devices are not functioning properly. If the equipment can not be repaired before being used so that it is safe to use, then it must be removed from service.
DAILY JOBSITE SAFETY CHECKLIST

Job Location: ______________________ Job #: ____________________
Signed By: ____________________________ Date: ________________
Date: ________________ Performed by: ____________________

A = Acceptable  U = Unacceptable  NA = Not Applicable

I understand that falsification of this document may be a violation of federal, state and local laws.

The completed form should be turned into the home office by the end of each week.

<table>
<thead>
<tr>
<th>Description</th>
<th>Status Date Abated</th>
</tr>
</thead>
</table>

ADMINISTRATIVE

1. Jobsite Safety & Health Poster Displayed
2. OSHA Log Maintained
3. Emergency Phone List Posted

EMPLOYEE TRAINING

1. All Employees Received Hazard Identification Training
2. All Employees Trained In HazCom
3. All Employees Trained In Appropriate Fire Fighting Response
4. All Employees Trained in Evacuation Procedures
5. Lockout/Tagout Procedures For Appropriate Employees
6. Confined Space Training For Appropriate Employees
7. Stairway And Ladder Training
8. Fall Protection Training
9. Equipment Operator Training
10. Hazard Specific Training (LEAD, ASBESTOS, ETC.)

SAFETY MEETINGS

1. Held Weekly
2. Signed By All In Attendance
3. Cover Topics Pertaining To Your Job
<table>
<thead>
<tr>
<th>Description</th>
<th>Status</th>
<th>Date Abated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HAZARD COMMUNICATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Written Program On Site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Chemical Inventory List Posted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. MSDS Sheets On File</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. All Drums &amp; Containers Labeled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Employees Trained</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ELECTRICAL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. GFCI In Place</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Electric Cords Inspected - No Splices In Cord</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Electric Power Tools Inspected</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PERSONAL PROTECTIVE EQUIPMENT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Hard Hats</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Work Area Protection, Signage, and Reflective Vests Working Near Traffic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Ear Protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Personal Flotation Devices &amp; Life Rings Working Near Water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Gloves Used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Proper Work Shoes (No Sneakers or Open Toe Shoes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOOLS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Tool Casings In Safe Condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Wiring For All Power Tools In Safe Condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Electric Tools Grounded (Unless Double Insulated)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Extension Cords Grounded And In Safe Condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Hands Tools In Safe Condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Tools Stored In Designated Location</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Ladders Free Of Cracks &amp; Damage</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CONFINED SPACE

1. Air Monitoring
2. Power Ventilation
3. Stand By/Rescue Trained Person
4. Equipment & Electrical Lockout/Tagout

TRENCHING & EXCAVATION

1. Sheeting Or Proper Sloping Over 5 Feet
2. Ladder Every 25 Feet
3. Utility Company Notified If Necessary
4. Air Monitored In Trench
5. Excavated Material Stored Min. 2 Feet From Trench

SCAFFOLDING OVER 10 FEET

1. Top, Midrail & Toe boards
2. Mudsills
3. Supported On Solid Base
4. Cross Bracing Properly Installed
5. Fully Planked & Proper Overlay

LADDERS

1. Extended 36 Inches Above Landing
2. Secured - Tied Off
3. Solid Rungs - No Cracks In Rungs
4. Proper Angle - 1/4 Working Length Of Ladder
5. Provided At Breaks In Elevations 19" Or More

CRANES

1. Fire Extinguisher In Cab
2. Boom Angle Indicators Working Properly
3. Load Capacity Charts In Cab
4. Instructions & Warnings Posted
5. Annual Inspections On Site
6. Hand Signal Chart In Visible View Of Rigger
7. 2 Feet Radius Barricade Around Swing Radius Of Crane

ELMIRA STRUCTURES, INC.
<table>
<thead>
<tr>
<th>Description</th>
<th>Status</th>
<th>Date Abated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MACHINERY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Point Of Operation Guards In Place</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Pulley Belt Assemblies Guarded</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Gear Assemblies Guarded</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Shafts Guarded</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Are There Any Oil Leaks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Two Hand Controls Working Properly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Is Electric Wiring In Safe Condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Lockout Policy &amp; Tag Procedures Used</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>WELDING EQUIPMENT AND OPERATIONS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Oxygen &amp; Acetylene Welding Equipment Equipped With Flash Arrestors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Compressed Gas Cylinders Secured Upright &amp; Capped When In Storage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Cylinders Mounted On A Card Or Secured In An Upright Position</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Is Oxygen Separated From Flammables And Combustibles By At Least 20' Or A 5' High Non-Combustible Wall When Stored</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Gas Hoses And Gauges In Safe Condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Proper Eye Protection Available And Used</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FIRE PROTECTION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Extinguishers Charged And Accessible</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. If Available, Standpipes, Hoses, Sprinkler Heads And Valves In Safe Condition And Accessible</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Stairs Clear And In Safe Condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Hollow Pan Stairways Filled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Exits And Exit Paths Clearly Marked</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Flammables Properly Stored (Gasoline, Paint Solvents, Acetylene, Propane Tanks, Etc.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Evacuation Plan As Required By OSHA Available</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
HOUSEKEEPING

1. Aisles, Stairs & Floor Free Of Obstructions
2. Materials Supplies Stored And Piled In Designated Areas
3. Regular Removal Of Trash & Debris
4. Are All Work Areas Lighted
5. Work Areas Neat & Orderly

FALL PROTECTION

1. Perimeter Protection
2. Top, Midrail & Toe board, Nets &/Or Static Lines
3. Full Arrest Systems (Harness) On All Employees Exposed To Falls
4. Floor Openings Properly Protected

MATERIAL HANDLING EQUIPMENT

1. Carts In Safe Condition
2. Cart Wheels Free & Rolling Smoothly
3. Hoist Opening Equipped With Removable Railing
4. Hoist Cables & Hooks Inspected
5. Materials Secured Stacked
6. Employees Trained &/Or Certified To Operate Equipment

RESPIRATORY PROTECTION

1. Respirators selected on the basis of hazards (specific substance and concentration) to which the worker is exposed.
2. Exposure assessment performed to ensure maximum use concentration of a respirator is not exceeded.
3. Employees instructed and trained in proper use of respirators.
4. Respirators regularly cleaned and disinfected.
5. Respirators stored in a clean and sanitary location.
6. Respirators inspected during cleaning for worn or deteriorated parts.
7. Determine if employees are physically able to perform the work and use the respiratory equipment. Determined by a physician.

It is very important to understand that you are responsible for all "items" and sections of 29 CFR 1926.
A. Management Commitment and Leadership

1. Policy statement: goals established, issued and communicated to employees
   - Yes  No
2. Program reviewed annually
   - Yes  No
3. Participation in safety meetings, inspections, agenda items in meetings
   - Yes  No
4. Commitment of resources is adequate
   - Yes  No
5. Safety rules and procedures incorporated into the site operations
   - Yes  No
6. Management observes safety rules
   - Yes  No

B. Assignment of Responsibilities

1. Safety designee on site, knowledgeable and accountable
   - Yes  No
2. Supervisors (including foremen) safety and health responsibilities understood
   - Yes  No
3. Employees adhere to safety rules
   - Yes  No

C. Identification and Control of Hazards

1. Periodic site safety inspection program involves supervisors
   - Yes  No
2. Prevention controls in place (PPE, maintenance, and engineering controls, etc.)
   - Yes  No
3. Action taken to address hazards
   - Yes  No
4. Safety committee where appropriate
   - Yes  No
5. Technical references available
   - Yes  No
6. Enforcement procedures by management
   - Yes  No

D. Training and Education

1. Supervisors provided with basic training
   - Yes  No
2. Specialized training provided when needed
   - Yes  No
3. Employee training program exists, is ongoing and is effective
   - Yes  No

E. Recordkeeping and Hazard Analysis

1. Records maintained of employee illnesses, injuries, and posted
   - Yes  No
2. Accident investigations performed, determine causes and proposed corrective action
   - Yes  No
3. Injuries, near misses and illnesses are evaluated for trends, similar causes and corrective action initiated
   - Yes  No
F. **First Aid and medical Assistance**

1. First aid supplies and medical services available
2. Employees informed of medical results
3. Emergency procedures and training where necessary

To determine the effectiveness of our company’s safety and health program, our safety director will complete the self-evaluation recommended by OSHA. This information will be rated by the home office and kept on file. Superintendent/foremen will be provided with a copy and are expected to correct any deficiencies.

Remember, the OSHA inspection can result in a review of deficiencies, and where conditions warrant, a citation for one or more of the above standards. Annual completion of the self-evaluation is required by our company.
The owner, construction manager or general contractor will conduct a pre-bid meeting to discuss and explain the project site safety program. This program should include at minimum the following:

A. **Purpose Of The Plan**

   The purpose of this Construction Safety and Health Plan is to establish practices and procedures to protect construction personnel and others during construction on the site.

B. **Applicability**

   The provisions of the plan are mandatory for contractors and subcontractors engaged in any on-site construction activities.

C. **Site Description**

   1. Proposed Project
   2. Site Description and History
   3. Risk Evaluation

D. **Emergency Information**

   1. Emergency Contacts
      - Police
      - Fire
      - Ambulance

E. **Site Safety Work Plan**

   1. Designation of Site Safety Coordinator
   2. Recordkeeping Responsibilities
   3. First Aid/Bloodborne Pathogens
   4. Excavation/Trenching
   5. Demolition
   6. Responsibility for Fall Protection
      - Guard Rails (top rail, mid rail, toe boards)
      - Scaffolds
      - Ladders
      - Safety Nets
7. Responsibility for Lead Determination and Abatement

8. Personal Protective Equipment
   - Hard Hats
   - Gloves
   - Safety Glasses/Goggles
   - Work Boots
   - Safety Belts and Lanyards

9. Fire Protection and Prevention
   - Fire Extinguishers
   - Storage and Use of Flammable and Combustible Liquids

10. Material Handling, Storage Use and Disposal

11. Tools - Hand Power

12. Welding and Cutting
   - Storage and Use of Oxygen and Acetylene Tanks

13. Electrical
   - Ground Fault Circuit Interrupters

14. Heavy Equipment/Fork Lifts

15. Respiratory Protection Program

F. Safety Committee Meetings (Monthly)
   - Evaluation of Program
   - Address Safety Recommendations/Hazards
   - Review and Discuss Upcoming Construction
14.0  DRUG AND ALCOHOL PROGRAM

Policy Statement

Any employee caught possessing or using drugs or coming to work under the influence of drugs will be discharged with prejudice or severely disciplined.

Any employee who uses drugs on the job or works under the influence of drugs endangers himself/herself and other workers. This company will not tolerate drug use on the job.

Drug use is the direct cause of thousands of deaths every year. Drug use causes permanent brain damage and birth defects and usually leads to addiction. Intravenous drug use transmits AIDS, which is incurable and invariably fatal, as well as other serious diseases.

Possession of drugs, no matter how small an amount, is a crime, punishable by incarceration. Sales of drugs or possession of a significant quantity of drugs is a felony.
15.0 HAZARD SPECIFIC POLICIES

To further ensure the safety of our employees and ensure compliance with specific requirements that may be mandated under local, state or federal regulations, ELMIRA STRUCTURES, INC. has attached the following safety and health plans, designed to address specific hazards in the workplace. These plans will be updated periodically as indicated by law and changes in the operation:

ADD NEW (UPDATE LOVELL HAZARD SPECIFIC POLICIES)

- FALL PROTECTION
- RESIDENTIAL FALL PROTECTION
- LADDERS / STAIRWAYS
- TRENCHING / EXCAVATION
- ELECTRICAL SAFETY
- CRANES AND RIGGING
- SCAFFOLDS
- WELDING
- RESPIRATORY PROTECTION
- POWER TOOLS
- PPE
- HAZARD COMMUNICATION
- MATERIAL HANDLING
- OCCUPATIONAL HEALTH

ATTACHMENTS

- LOVELL SAFETY TOOL BOX SAFETY TALKS
<table>
<thead>
<tr>
<th>NAME OF INJURED (Last Name, First Name)</th>
<th>S.S.#:</th>
<th>D.O.B.:</th>
<th>SEX: M ☐ F ☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS:</td>
<td>CITY/ZIP CODE</td>
<td>HOME PHONE #:</td>
<td></td>
</tr>
<tr>
<td>DEPT.:</td>
<td>JOB TITLE:</td>
<td>WORK LOCATION:</td>
<td></td>
</tr>
<tr>
<td>WHEN</td>
<td>Date and Time of Incident: / / ☐ AM ☐ PM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Date reported to supervisor: / / If delayed, Why?</td>
<td></td>
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</tr>
<tr>
<td>DESCRIPTION OF INCIDENT</td>
<td>Detail what employee was doing (i.e. - at risk behavior) and/or what physical objects (machines, equipment), materials (chemical vapor, inhalant) (i.e. - unsafe conditions) were involved:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Was employee doing something other than required duties: ☐ NO ☐ YES If yes, explain:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHAT</td>
<td>State body parts injured:</td>
<td></td>
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<tr>
<td></td>
<td>Was treatment beyond first aid required? ☐ YES ☐ NO If yes, explain:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fatality: ☐ YES ☐ NO When: ___________  Lost Time ☐ YES ☐ NO</td>
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<tr>
<td>WHERE</td>
<td>Exact location where incident occurred:</td>
<td></td>
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<tr>
<td></td>
<td>Was ambulance transport necessary? ☐ YES ☐ NO To what facility?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WITNESSES</td>
<td>(Last Name, First Name / Title/TEL. #:)</td>
<td></td>
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</tr>
<tr>
<td>WHY</td>
<td>Comment on the causes of this incident:</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
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<tr>
<td>PREVENTION</td>
<td>What should be done and by whom to prevent recurrence of this type of incident?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>What action are you taking to see that this is done?</td>
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<tr>
<td></td>
<td>SUPERVISOR/MANAGER’S Signature/Dept.</td>
<td></td>
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</tr>
<tr>
<td>Phone # ___________________________ Date of this report: ____________</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Employee Signature __________________________ Date <em><strong>/</strong></em>/____________</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments: ________________________________________________________________________</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

SUPERVISOR - DO NOT WRITE BELOW THIS LINE
Date Report Received by Safety Manager ____________________________
Date forwarded to HR ________________________________________________________________________
C-2 Completed ________________________________________________________________________
Lovell Notified ________________________________________________________________________

LOVELL NOTIFIED ________________________________________________________________________
LOVELL SAFETY MANAGEMENT CO., LLC; 125 MAIDEN LANE, NYC 10038

SUPERVISOR’S INVESTIGATION & REPORT OF INCIDENT

# of Days Lost: ________________________________________________________________________
OSHA LOG #: ________________________________________________________________________
OSHA notified? (fatality, 3 hospitalizations): ___

☐ CHECK HERE IF CONTINUED ON ADDITIONAL PAGES
ACCIDENT REPORT
To Be Completed at Accident Scene

General Instructions
1. STOP at the scene as quickly as possible.
2. Protect the scene. Use warning devices. Get help from bystanders. Turn off all engines. No smoking. Guard against fire. Check for fuel or cargo leaks.
3. Assist injured persons. Don’t move them unless absolutely necessary. Summon ambulance if needed.
4. Get help. Use near by phone or send reliable passerby. Notify terminal, police and insurance company as instructed. Give location and nature of accident accurately.
5. Identify yourself and company. Show license, registration and insurance card on request.
6. BE COURTEOUS. Make no statement about accident except to police or company and insurance company representative.
7. Fill out and check all applicable information on this form BEFORE YOU LEAVE THE SCENE.

A. DATE, TIME, PLACE
Date_________________ Time_________________ AM______ PM______
In_________________ (City or Town) (County) (State)
On_________________ (Street or Highway)
At_________________ (Street Address or Intersection)
Distance and Direction from:_________________

OPEN COUNTRY  BUSINESS-SHOPPING  RESIDENTIAL

Your Veh. (#1) Direction of Travel:

☐ Not at Intersection ☐ Bridge-
☐ Overpass ☐ Underpass ☐ Private
☐ Street Intersection ☐ Drive or Alley ☐ Other
☐ Underpass ☐ Crosswalk ☐ Other:
☐ Traffic Control ☐ Stop Sign ☐ Yield
☐ Light ☐ Pedestrian (indicate type)

B. ACCIDENT SCENE
Instructions for Accident Diagram
Fill dotted lines to correspond with road at accident site. Show position of all vehicles, pedestrians etc. as follows:

Your vehicle 1
Other vehicle(s) 2 number successively. Pedestrian Traffic Signal Traffic Sign [ ] (indicate type)

C. OTHER VEHICLES
Driver Veh. #2
Address_________________
Driver’s License No.

Other Veh. #3
Address_________________

Other Occupants:
A. Name_________________ Address_________________

B. Name_________________ Address_________________

Owner (if not the driver):
A. Name_________________ Address_________________

Vehicle:
Make & Model_________________
Tag # and State_________________
Insurance Co._______________ Policy #_________________

Injuries:
Name & Injury_________________
Where taken_________________
Insurance Co._______________ Policy #_________________

Driver Veh. #3
Address_________________

Driver’s License No.

Other Occupants:
A. Name_________________ Address_________________

B. Name_________________ Address_________________

Owner (if not the driver):
A. Name_________________ Address_________________

Vehicle:
Make & Model_________________
Manufacturing-Industrial

☐ Open
(Describe)______________________________________
_______________________________________
_______________________________________
_______________________________________
_______________________________________
_______________________________________
_______________________________________
_______________________________________

ELMIRA STRUCTURES, INC.
D. PEDESTRIAN ACTION
DESCRIBE

_______________________________________
_______________________________________
_______________________________________
_______________________________________
_______________________________________

E. WITNESS
Persons seeing the accident will be of service to our driver by giving their names and addresses.

NAME_______________________________________
__________________________
ADDRESS__________________________
Phone__________________________
NAME_______________________________________
__________________________
ADDRESS__________________________
Phone__________________________

F. PROPERTY DAMAGE
Describe damage to other vehicle:

_______________________________________
_______________________________________
_______________________________________
_______________________________________

Cargo Damage:

_______________________________________
_______________________________________
_______________________________________
_______________________________________

Other Property Damage:_______________________________________

License number and descriptions of first vehicles at scene.

_______________________________________
_______________________________________
_______________________________________
_______________________________________

I. WHAT HAPPENED
At what distance did you first see danger? _____Ft. How fast were you going? _____MPH
What was your speed going? _____MPH
How far did you go after impact? _____Ft.

Describe in your own words the circumstances of the accident:

_______________________________________
_______________________________________
_______________________________________
_______________________________________

Tag # and State_______________________________________
Insurance Co. __________________________Policy #__________________________

INJURIES:
Name & Injury_______________________________________
Where taken_______________________________________
Insurance Co. __________________________Policy #__________________________

G. PROPERTY DAMAGE
Describe damage to your vehicle:

_______________________________________
_______________________________________
_______________________________________
_______________________________________

Cargo Damage:

_______________________________________
_______________________________________
_______________________________________
_______________________________________

Other Property Damage:_______________________________________

License number and descriptions of first vehicles at scene.

_______________________________________
_______________________________________
_______________________________________
_______________________________________

NOTE: This report should be handwritten at scene. Turned into Branch, signed and sent to Fleet
F. ROADWAY CONDITIONS AND CONTROLS

☐ Not Divided ☐ Divided ☐ Limited Access
☐ No. of Lanes 2 3 4 5 6

__________________________
(Specify)

Weather ___________   Condition of road

☐ Dry
☐ Wet
☐ Snow
☐ Traffic
☐ Other

Smooth

Time _______________

Management within 24 hours.

Driver __________________________
________________________ Signature

ELMIRA STRUCTURES, INC.
EMERGENCY EVACUATION PLAN

CONSTRUCTION SAFETY POLICY
# TABLE OF CONTENTS

**Sections**

1.0 Policy

2.0 Purpose

3.0 Objective

4.0 Emergency Phone Numbers

5.0 Initial Notification Procedures

6.0 List of Fire Team Members

7.0 Emergency Coordinator Responsibilities

8.0 Warden Responsibilities

9.0 Deputy Responsibilities

10.0 Searcher Responsibilities

11.0 Assembly Locations List

12.0 Building/Site Evacuation Maps
1.0 POLICY

The policy of ELMIRA STRUCTURES, INC. is that every employee’s primary responsibility is to safely evacuate the worksite in case of an emergency, such as fire, chemical spills, release and leaks. No employee is expected to contain any form of emergency. This is the responsibility of trained professionals.

We recognize that employees may have received training in the use of portable fire extinguishers and some may have First Aid/CPR training.

If an employee chooses to use the skills they have they should always remember their own safety is the top priority.

2.0 PURPOSE

To establish a method of systematic, safe and orderly evacuation of an area, construction site or building of its occupants in case of fire or other emergency, in the least possible time to a safe area or by the nearest safe means of egress; also the use of such available fire appliance (including sounding of alarms) as may have been provided for the controlling or extinguishing of fire and the safeguarding of human life. Maintaining unobstructed egress is crucial given the changing physical environment on construction sites. As such, our plan will be reevaluated at periodic intervals to ensure that safe egress is maintained at all times. Supervisors will be responsible for ensuring that exit doors, pathways, and stairwells are never blocked or obstructed during construction activities.

3.0 OBJECTIVE

To provide proper education as a part of continuing employees indoctrination and through a continuing written program for all employees to assure the prompt reporting of fire, the response to fire alarms as designated and the immediate initiation of fire safety procedures to safeguard life and contain fire until the arrival of the fire department.
### 4.0  EMERGENCY ELMIRA STRUCTURES PHONE NUMBERS

<table>
<thead>
<tr>
<th>Service</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Department</td>
<td>911</td>
</tr>
<tr>
<td>Police Department</td>
<td>911</td>
</tr>
<tr>
<td>First Aid Squad</td>
<td>911</td>
</tr>
<tr>
<td>Chemung County Health Department</td>
<td>607-737-2028</td>
</tr>
<tr>
<td>Poison Control Center</td>
<td>800-962-1253</td>
</tr>
<tr>
<td>CHEMTREC</td>
<td>800-424-9300</td>
</tr>
</tbody>
</table>

**New York State Electric & Gas (NYSEG)**

<table>
<thead>
<tr>
<th>Service</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical emergency</td>
<td>800-572-1131</td>
</tr>
<tr>
<td>Natural gas emergency</td>
<td>800-572-1121</td>
</tr>
</tbody>
</table>
5.0 INITIAL NOTIFICATION PROCEDURES

1. Employee observes an emergency eg. Fire, medical, spill etc.

2. If a supervisor is immediately available notify him/her.

3. The supervisor, or the employee if a supervisor is not present, should go to the nearest phone and call 911.

4. He/she notifies the proper emergency response team and immediately leaves the building if an evacuation was initiated.

5. In the event of an emergency not requiring an evacuation (eg. Medical) the building manager will notify the proper emergency response personnel (first aid squad).

6. For weekend and off-shift operation, the supervisor on duty will take full responsibility for this plan.
6.0 ELMIRA STRUCTURES, INC. EMERGENCY EVACUATION TEAM MEMBERS

Day Shift

Emergency Coordinator

Warden

Deputy Warden

Searchers
  Male
  Female

Night Shift

Emergency Coordinator

Warden

Deputy Warden

Searchers
  Male
  Female
7.0 EMERGENCY COORDINATOR RESPONSIBILITIES

1. Select qualified individuals for Emergency Response Team Members.

2. Be familiar with ELMIRA STRUCTURES, INC. Emergency Response Plan.

3. Organize, train and supervise Emergency Response Team Members.

4. Assure fire and evacuation drills are conducted.

5. In the event of a fire, report to the Security Command Post to supervise, coordinate and insure:
   
   a. That the fire department has been notified of any fire or fire alarm.

   b. That evacuation procedures are followed.

   c. That all wardens have completed their jobs and that all staff are accounted for.

6. Assure that fire protection systems are inspected and maintained.

7. Update Emergency Response Plan as required.
8.0  **WARDEN RESPONSIBILITIES**

1. Ensure that evacuation is done calmly and efficiently.

2. Function as liaison to emergency response personnel.

3. Listen carefully to all PA announcements.

4. If instructed by PA announcement, exit the building and go to the assigned assembly area.

5. Take the plant map with you when you leave the building.

6. Once you are at your assigned assembly area, deputies will provide you with a list of missing employees.

7. Wardens should provide this list of missing employees to emergency response personnel eg. Fire, Police.

*NOTE: It is the responsibility of each warden to train deputies to act as wardens in the event of his/her absence, and deputies should decide the order of reassignment of duties to avoid confusion that may result from the absence of one or more team members.*
9.0 DEPUTY RESPONSIBILITIES

1. When PA announcement is heard, take your roster and proceed to your designed emergency exit.

2. Remain at emergency exit and assist with the evacuation by reminding staff to: remain calm, hold on to banister, do not run, etc.

3. Exit building and proceed to your assigned assembly area.

4. Once you are at your assigned area, keep people calm, take a roll call and compare to your roster.

5. If your companion deputy is out that day, take a roll call for their area as well. Ring twice, if you get no answer, assume you must contact their searcher for a complete roll call.

6. Compile one list of missing employees and hand to Warden.

Note: Be prepared to assume the responsibility of Warden in the event that the Warden is absent
10.0 SEARCHER RESPONSIBILITIES

1. Each searcher has been assigned to a designated area.

2. Know your area! Make sure you know where all offices, conference and storerooms are. Don’t forget bathrooms.

3. When alarm announcement sounds, call other searchers to make sure they are present.


5. Do not go back for anyone or anything!!!!!
11.0 ASSEMBLY LOCATIONS

PRIMARY:

SECONDARY:

If the primary location is unattainable the Warden should designate another location immediately nearby. A suggested location would be:

No one is to leave the area unless told to do so by the warden!!!!!!

12.0 BUILDING/SITE EVACUATION MAPS

A floor plan, representative of the majority of the floor designs of the entire building, shall show all Exits and routs of egress for all building occupants. These floor plans shall be available throughout the building at Exits and Elevator lobbies, at the main entrance and in this Response Plan.
FALL PROTECTION POLICY

CONSTRUCTION SAFETY POLICY
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1.0 POLICY, RESPONSIBILITIES, PURPOSE and OVERVIEW

POLICY

ELMIRA STRUCTURES, INC. is dedicated to the safety of its employees. Fall hazards are a major concern in our industry. All employees will wear the proper fall protection equipment where OSHA safety standards mandate, where fixed methods of fall protection are inadequate, or where the job supervisor deems it necessary.

RESPONSIBILITIES

The Competent Person will ensure that all equipment meets required specifications for the intended application. He also will ensure that all personnel required to use fall protection equipment have been medically qualified and trained in the proper use of the equipment.

Supervisors will ensure that fall protection systems are used where required. The supervisor will inspect fall protection equipment on a weekly basis. Employees will use fall protection equipment as instructed. Equipment will be inspected before each use.

PURPOSE

The purpose of the policy is to prevent injury to ELMIRA STRUCTURES, INC. employees caused by falling off, onto or through walking and working surfaces and to protect employees from falling objects. The correct implementation and use of the program will also ensure ELMIRA STRUCTURES, INC. compliance with the Occupational Safety and Health Administration’s (OSHA), Subpart M - Fall Protection

SCOPE

This procedure shall apply to all personnel whose activities expose them to a potential of a fall of 6 feet or higher.

EMPLOYEE QUALIFICATION

Employees who are required to wear fall protection equipment will be medically qualified. The medical review will consist of an interview with the employee regarding information about his medical history that would affect his ability to wear fall protection equipment.

INSTALLATION AND USE OF EQUIPMENT

All equipment will be installed and used in accordance with OSHA standards and the manufacturer’s instructions. The installation and use of equipment will be inspected and approved by a competent person. All equipment will be used only for the application for which it was designed.
FALL PROTECTION EMERGENCIES

Potential fall emergencies will be evaluated. The supervisor before each job will conduct an equipment inventory where fall protection is required. The supervisor will ensure that fall protection equipment or tools are available for post-fall recovery (ladders, scaffolds, man-lifts etc.), emergency phone numbers are posted, and first-aid equipment and personnel are prepared to respond to a fall emergency.

TRAINING

Employees will receive annual training on the use of fall protection. Training will include information on the use of fall protection equipment, inspection, installation and maintenance, OSHA Safety Standards, and company procedures. Training will consist of toolbox talks and hands-on demonstrations.

2.0 GUARDRAIL SYSTEMS

ELMIRA STRUCTURES, INC. shall provide for the prompt installation of guardrails, covers, gates, bars, platforms, nets and enclosures as required by OSHA regulations and or local codes and ordinances at the following locations:

1. Perimeters of open floors.
2. Elevator and mechanical shafts.
3. Stairwells and stairways
4. Floor holes and openings.
5. Wall openings.
6. Hoist and elevators.
7. Excavation and trench openings.

Installation and Maintenance

1. The Competent Person shall plan ahead for the prompt installation and maintenance of guarding as required in these regulations.

2. The Competent Person shall assign responsibilities for the installation and maintenance of guarding to the appropriate parties and enforce their compliance with these regulations.

3. The Competent Person shall provide for daily inspection of all areas where guarding is in place or may be required. He shall place particular emphasis on areas of high activity or rapidly changing conditions where the need for installation and maintenance may be most critical, and issue instructions for prompt corrections to guarding deficiencies found.
4. The Competent Person shall see that the design and installation of guarding is readily adaptable to the type of work to be performed in the guarded areas. The guarding shall facilitate removal and replacement where required, be readily maintainable, and provide maximum protection for employees engaged in the work.

5. Where guarding must be removed to facilitate the work in progress, the guarding shall be replaced in original condition upon completion of the work and the unguarded area shall not be left unattended until the guarding is replaced. The Competent Person shall enforce this requirement with the responsible parties.

Guarding Requirements

1. Every open sided floor, balcony, mezzanine, platform or work surface 6 feet or more above adjacent floor or ground level shall be guarded by a standard guardrail.

2. Every floor opening measuring more than 1 inch in its least dimension in any floor, roof or platform shall be guarded by a cover or a standard guardrail.

3. Every stairway opening, ladder way opening or ladder way platform shall be guarded on all exposed sides by a standard guardrail.

4. Every opening for manholes, pits, hatches, trapdoors, chutes, and skylights shall be guarded by a cover or standard guardrail.

5. Every wall opening from which there is a drop of more than 4 feet, and the bottom of the opening is less than 3 feet above the floor shall be guarded by a standard guardrail. Where the bottom of the opening is less than 4 inches above the floor, a toe board is required.

6. Every extension platform outside an open floor or wall opening shall be guarded on all open sides by a standard guardrail.

7. Every ramp or runway 4 feet or more above the floor or ground level shall be guarded on all open sides by a standard guardrail.

8. The above guarding requirements are applicable to the completed sides and openings of decks and concrete formwork of all types. Perimeter guarding of formwork shall be installed as completed sides of the formwork are developed.

9. On temporary planked floors or temporary metal-decked floors, the periphery of the floor shall be guarded by a single safety railing of 1/2-inch wire rope cable or equivalent, installed approximately 42 inches above the floor. Perimeter cable shall be installed as completed sides of the floor are developed.
10. Temporary planked or temporary metal decked floors shall be covered over the entire surface. All unused openings shall be covered with plank or metal deck secured against accidental displacement.

11. The uncompleted or leading edge of any temporary floor whether of planking, metal deck or concrete formwork shall not be left unguarded or unattended for extended periods of time due to delay or interruption of the completed installation. In such cases, access to the open end of the floor shall be closed to employees by wire rope cable or barricading off the floor at least 10 feet back from the open end of the floor.

12. Where subcontractors install guarding on floors under their control, such guarding may be left in place to service the long-term needs for guarding of the project, providing that it meets all of the requirements of this Section of the Manual.

GUARDING SPECIFICATIONS:

1. A standard guardrail shall consist of a top rail approximately 42 inches high, intermediate rail halfway between the floor and top rail, toe board, and posts.

2. For wood railings, the posts shall be of at least 2 inch by 4-inch stock spaced not to exceed 8 feet; the top rail shall be of at least 2 inch by 4-inch stock; the intermediate rail shall be of at least 1-inch stock.

3. A standard toe board shall be 4 inches minimum height, and shall be securely fastened in place with not more than 1/4-inch clearance above floor level. It may be of any substantial material, either solid or with openings not more than over 1 inch in greatest dimension.

4. For pipe railings, posts, top and intermediate railings shall be at least 1 1/4 inches in diameter with posts spaced not more than 8 feet on center.
5. For structural steel railings, posts, top and intermediate railings shall be of 2 inch by 2 inch by 3/8 inch angles or other metal shapes of equivalent bending strength, with posts spaced not more than 8 feet on center.

6. For wire rope cable railing, top and intermediate railings shall be of 1/2-inch cable or equivalent. Posts are not required providing that both rails do not sag more than 3 inches between attachment points and are capable of withstanding a load of 200 pounds applied in any direction at any point on the rails, with a minimum of deflection.

7. A stair railing and handrail shall be constructed similar to a guardrail but the vertical height shall be not more than 34 inches or less than 30 inches from the top of the riser.

8. The anchoring of posts, framing, and attachments for members of railings of all types shall be of such construction that the completed structures shall be capable of withstanding a load of 200 pounds applied in any direction at any point on the top rail, with a minimum of deflection.

9. The use of fiber or synthetic rope for guardrails is prohibited.

10. Covers for floor holes and openings shall be capable of supporting the maximum intended load and so installed as to prevent accidental displacement.

11. Covers shall be of 3/4-inch plywood, 2 inch planking or equivalent. Covers may be secured by nailing to the floor or by installation of cleats to prevent accidental displacement.

---

All covers must be painted a distinctive color or marked with the word “HOLE” or “COVER.”
3.0 PERSONAL FALL ARREST SYSTEMS

1. Lifelines, safety harnesses and lanyards shall be used only for employees’ safeguarding. When any of these are actually subject to in service loading (as distinguished from static load testing). They shall be immediately removed from service and shall not be used again for employee safeguarding.

2. Lifelines shall be secured above the point of operation to an anchorage or structural member capable of supporting a minimum dead weight of 5,000 pounds.

3. Lifelines used in areas where the lifeline may be subjected to cutting or abrasion shall be of 7/8" wire core manila rope or equivalent. For all other lifeline applications, a minimum of 3/4 manila or equivalent with a minimum breaking strength 5,000 pounds shall be used.

4. Safety lanyards shall be a minimum of ½” nylon or equivalent man made material with maximum length for a fall of no greater than 6’. The lanyard shall have a breaking strength of 5,000 pounds.

5. All safety harness and lanyard hardware shall be drop forged or pressed steel. Surfaces shall be smooth and free of sharp edges.

6. All safety harnesses and lanyard hardware, except rivets, shall be capable of withstanding a tensile loading of 5,000 pounds without cracking, breaking or taking a permanent deformation.

7. All lifelines, Harnesses, Lanyards and associated hardware shall be inspected after each use for wear and possible damage due to use. Additionally, periodic inspection of lifelines, Harnesses, lanyards and associated hardware kept in storage shall be done to ensure that they have not been subject to damage, deterioration due to storage conditions and other factors that may reduce their strength characteristics. An inspection report form shall be maintained on all safety lifelines, Harnesses and, lanyards and show the date inspected, the condition of the equipment, the serial number for each piece and the date the equipment was purchased plus the date that the equipment was initially put into service.
1) Tie-off Point  
2) Lifeline  
3) Rope Grab  
4) Shock-Absorbing Lanyard  
5) Cross-Arm Strap  
6) Retractable Lifeline  
7) Full Body Harness  
8) Restraining Belt  
9) Restraining Lanyard  
10) Carabineer
Swing falls can actually increase fall distance.
4.0 SAFETY NETS

1. Safety nets shall be installed as close as practical under the walking/working surface but in no case more than 30 ft. below such level where the use of guard rails, ladders, scaffolds, catch platforms, temporary floors, safety lines, or safety belts is impractical to guard against fall hazards.

2. Shall extend outward from the outermost projection of the work surface as follows:

   When the vertical distance from working surface is less than 5 feet the minimum required horizontal distance of outer edge of the net surface shall be 8 Feet. When the vertical distance from working surface is more than 5 feet and less than 10 feet the minimum required horizontal distance of outer edge of the net surface shall be 10 Feet. When the vertical distance from working surface is more than 10 feet the minimum required horizontal distance of outer edge of the net surface shall be 13 Feet.

3. Safety nets shall be installed with sufficient clearance to prevent contact with surface or structures below Safety net and installations shall be capable of absorbing impact force equal to 400 lbs. bag of sand.

4. A drop test shall be performed at the Initial installation and before being used as fall protection system, wherever relocated, after major repair and at 6-month intervals when left in place. The drop test shall consist of a 400 lbs. bag of sand dropped from the highest walking/working surface, but not less than 42 inches above that level.

5. Safety nets shall be inspected at least once a week for wear, damage and deterioration or after any occurrence that could affect the nets integrity. Defective components shall be removed from service.

6. Material, scrap, pieces, equipment and tools, which have fallen into net, shall be removed as soon as possible at least before the next work shift.

7. Safety net mesh opening shall not exceed 36 square inches not to be longer than 6" on any side, and the opening, measured center-to-center of mesh ropes or webbing, shall not be longer than 6 inches. All mesh crossings shall be secured to prevent enlargement of the mesh opening.

8. Each Safety net shall have border rope for webbing with a minimum breaking strength of 5,000 lbs.

9. Connections between safety net panels shall be as strong as integral components and shall be spaced not more than 6" apart.
5.0 FALL PROTECTION PLAN

When ELMIRA STRUCTURES, INC. engaged in leading edge work, precast concrete construction work and residential construction work and can demonstrate that it is infeasible or creates a greater hazard to use conventional fall protection systems, they will develop and follow a fall protection plan. Attached are sample fall protection plans developed for precast concrete construction and residential work that can be tailored to be site specific for use on precast concrete or residential jobsites. This sample plan will be modified to be used for other work involving leading edge work. The sample plan outlines the elements that must be addressed in any fall protection plan. The reasons outlined in this sample fall protection plan are for illustrative purposes only and are not necessarily a valid, acceptable rationale (unless the conditions at the job site are the same as those covered by these sample plans) for not using conventional fall protection systems for a particular precast concrete or residential construction worksite. The sample plans will provide guidance to ELMIRA STRUCTURES, INC. on the type of information that is required to be discussed in fall protection plans.

6.0 TRAINING PROGRAM

1. ELMIRA STRUCTURES, INC. shall provide a training program for each employee who might be exposed to fall hazards. The program shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to be followed in order to minimize these hazards.

2. ELMIRA STRUCTURES, INC. shall assure that each employee has been trained, as necessary, by a competent person qualified in the following areas:

   (i) The nature of fall hazards in the work area;
   (ii) The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used;
   (iii) The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used;
   (iv) The role of each employee in the safety monitoring system when this system is used;
   (v) The limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs;
   (vi) The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection; and
   (vii) The role of employees in fall protection plans;
   (viii) The standards contained in this subpart.
Certification of Training

1. ELMIRA STRUCTURES, INC. shall verify compliance with paragraph (a) of this section by preparing a written certification record. The written certification record shall contain the name or other identity of the employee trained, the date(s) of the training, and the signature of the person who conducted the training or the signature of the employer. If the employer relies on training conducted by another employer or completed prior to the effective date of this section, the certification record shall indicate the date the employer determined the prior training was adequate rather than the date of actual training.

2. The latest training certification shall be maintained.

Retraining

When ELMIRA STRUCTURES, INC. has reason to believe that any affected employee who has already been trained does not have the understanding and skill required by paragraph (a) of this section, the employer shall retrain each such employee. Circumstances where retraining is required include, but are not limited to, situations where:

1. Changes in the workplace render previous training obsolete; or

2. Changes in the types of fall protection systems or equipment to be used render previous training obsolete; or

3. Inadequacies in an affected employee's knowledge or use of fall protection systems or equipment indicate that the employee has not retained the requisite understanding or skill.

7.0 ENFORCEMENT

This Fall Protection policy, like all safety policies, will be enforced in the same manner as other employee rules. The enforcement and disciplinary steps regarding company rule infractions are detailed in the ELMIRA STRUCTURES, INC. employee policy manual. A summary of these steps are as follows:

8.0 DEFINITIONS

Anchorage: means a secure point of attachment for lifelines, lanyards or deceleration devices. "Body belt (safety belt)" means a strap with means both for securing it about the waist and for attaching it to a lanyard, lifeline, or deceleration device.
**Body harness**: means straps which may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist, chest and shoulders with means for attaching it to other components of a personal fall arrest system.

**Buckle**: means any device for holding the body belt or body harness closed around the employee’s body.

**Connector**: means a device, which is used to couple (connect) parts of the personal fall arrest system and positioning device systems together. It may be an independent component of the system, such as a carabiner, or it may be an integral component of part of the system (such as a buckle or dee-ring sewn into a body belt or body harness, or a snap-hook spliced or sewn to a lanyard or self-retracting lanyard).

**Controlled access zone (CAZ)**: means an area in which certain work (e.g., overhand bricklaying) may take place without the use of guardrail systems, personal fall arrest systems, or safety net systems and access to the zone is controlled.

**Dangerous equipment**: means equipment (such as pickling or galvanizing tanks, degreasing units, machinery, electrical equipment, and other units) which, as a result of form or function may be hazardous to employees who fall onto or into such equipment.

**Deceleration device**: means any mechanism, such as a rope grab, rip-stitch lanyard, specially-woven lanyard, tearing or deforming lanyards, automatic self-retracting lifelines/lanyards, etc., which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.

**Deceleration distance**: means the additional vertical distance a falling employee travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which the deceleration device begins to operate. It is measured as the distance between the location of an employee’s body belt or body harness attachment point at the moment of activation (at the onset of fall arrest forces) of the deceleration device during a fall, and the location of that attachment point after the employee comes to a full stop.

**Equivalent**: means alternative designs, materials, or methods to protect against a hazard which the employer can demonstrate will provide an equal or greater degree of safety for employees than the methods, materials or designs specified in the standard.

**Failure**: means load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

**Free fall**: means the act of falling before a personal fall arrest system begins to apply force to arrest the fall.
Free fall distance: means the vertical displacement of the fall arrest attachment point on the employee’s body belt or body harness between onset of the fall and just before the system begins to apply force to arrest the fall. This distance excludes deceleration distance, and lifeline/lanyard elongation, but includes any deceleration device slide distance or self-retracting lifeline/lanyard extension before they operate and fall arrest forces occur.

Guardrail system: means a barrier erected to prevent employees from falling to lower levels.

Hole: means a gap or void 2 inches (5.1 cm) or more in its least dimension, in a floor, roof, or other walking/working surface.

Infeasible: means that it is impossible to perform the construction work using a conventional fall protection system (i.e., guardrail system, safety net system, or personal fall arrest system) or that it is technologically impossible to use anyone of these systems to provide fall protection.

Lanyard: means a flexible line of rope, wire rope, or strap which generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline, or anchorage.

Leading edge: means the edge of a floor, roof, or formwork for a floor or other walking/working surface (such as the deck) which changes location as additional floor, roof, decking, or formwork sections are placed, formed, or constructed. A leading edge is considered to be an "unprotected side and edge" during periods when it is not actively and continuously under construction.

Lifeline: means a component consisting of a flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline), or for connection to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.

Low-slope roof: means a roof having a slope less than or equal to 4 in 12 (vertical to horizontal).

Lower levels: means those areas or surfaces to which an employee can fall. Such areas or surfaces include, but are not limited to, ground levels, floors, platforms, ramps, runways, excavations, pits, tanks, material, water, equipment, structures, or portions thereof.

Mechanical equipment: means motor or human propelled wheeled equipment used for roofing work, except wheelbarrows and mop carts.

Opening: means a gap or void 30 inches (76 cm) or more high and 18 inches (48 cm) or more wide, in a wall or partition, through which employees can fall to a lower level.
Overhand bricklaying and related work: means the process of laying bricks and masonry units such that the surface of the wall to be jointed is on the opposite side of the wall from the mason, requiring the mason to lean over the wall to complete the work. Related work includes mason tending and electrical installation incorporated into the brick wall during the overhand bricklaying process.

Personal fall arrest system: means a system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body belt or body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these. As of January 1, 1998, the use of a body belt for fall arrest is prohibited.

Positioning device system: means a body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning.

Rope grab: means a deceleration device, which travels on a lifeline and automatically, by friction, engages the lifeline and locks so as to arrest the fall of an employee. A rope grab usually employs the principle of inertial locking, cam/level locking, or both.

Roof: means the exterior surface on the top of a building. This does not include floors or formwork, which, because a building has not been completed, temporarily become the top surface of a building.

Roofing work: means the hoisting, storage, application, and removal of roofing materials and equipment, including related insulation, sheet metal, and vapor barrier work, but not including the construction of the roof deck.

Safety-monitoring system: means a safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.

Self-retracting lifeline/lanyard: means a deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which, after onset of a fall, automatically locks the drum and arrests the fall.

Snaphook: means a connector comprised of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object. Snaphooks are generally one of two types:

1. The locking type with a self-closing, self-locking keeper which remains closed and locked until unlocked and pressed open for connection or disconnection; or
(2) The non-locking type with a self-closing keeper which remains closed until pressed open for connection or disconnection. As of January 1, 1998, the use of a non-locking Snaphook as part of personal fall arrest systems and positioning device systems is prohibited.

**Steep roof**: means a roof having a slope greater than 4 in 12 (vertical to horizontal).

**Toeboard**: means a low protective barrier that will prevent the fall of materials and equipment to lower levels and provide protection from falls for personnel.

**Unprotected sides and edges**: means any side or edge (except at entrances to points of access) of a walking/working surface, e.g., floor, roof, ramp, or runway where there is no wall or guardrail system at least 39 inches (1.0 m) high.

**Walking/working surface**: means any surface, whether horizontal or vertical on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runways, formwork and concrete reinforcing steel but not including ladders, vehicles, or trailers, on which employees must be located in order to perform their job duties.

**Warning line system**: means a barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge, and which designates an area in which roofing work may take place without the use of guardrail, body belt, or safety net systems to protect employees in the area.

**Work area**: means that portion of a walking/working surface where job duties are being performed.
FALL PROTECTION HAZARD ASSESSMENT FORM

Fall Protection Hazard Assessment Form

Agency: ___________________________ Location: ___________________________
Jobsite: ___________________________________________________________________
Type of work performed: ___________________________________________________________________
__________________________________________________________________________________
__________________________________________________________________________________
__________________________________________________________________________________
Type of area/activity:

☐ Unprotected sides or edges ☐ Leading edge(s)
☐ Hoist areas ☐ Roofing work on low-sloped roofs
☐ Holes ☐ Roofing work on steep roofs
☐ Formwork or reinforcing steel ☐ Precast concrete erection
☐ Excavations ☐ Ramp, runways and walkways
☐ Residential construction activities ☐ Wall opening(s)
☐ Dangerous equipment ☐ Walking/Working surfaces not
☐ Overhead bricklaying otherwise addressed

How frequently is the work performed (i.e. daily, weekly)?
__________________________________________________________________________________

Does the job/activity require vertical and/or horizontal movement? Yes
__________________________________________________________________________________

No ____ If yes, describe_______________________________________________________________
                                                                                      __________________________________________________________
                                                                                      __________________________________________________________

Number of workers exposed to a fall hazard:
__________________________________________________________________________________

ELMIRA STRUCTURES, INC.
Type of surface (i.e. flat/sloping roof):
________________________________________________________________________
________________________________________________________________________

Approximate distance from the surface to lower levels:
________________________________________________________________________

Is the edge of the building or walking/working surface currently protected by a guardrail system or parapet wall? Yes ____ No _____ If yes, is the guardrail system/parapet wall adequate? Yes_____ No ______ If no, describe
________________________________________________________________________

Can the fall hazard(s) be eliminated by alternative work methods or engineering controls? Yes ______ No ______ If yes, explain
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

If the fall hazard(s) cannot be eliminated, what type of fall protection system is required/recommended?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Is there a need for anchorage points? Yes _____ No _____ If yes, how many points are needed?
________________________________________________________________________

In addition to fall hazards, could workers be exposed to any of the following hazards? Yes _____ No _____ (Check all hazards that apply)

- Hot objects/sparks
- Chemical hazards
- Electrical hazards
- Abrasive surfaces
- Moving equipment
- Uneven surfaces
- Slippery/oily surfaces
- Adverse weather conditions

If yes, describe each hazard:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Could any of the above hazards affect the selection/use of fall protection systems? Yes _____ No _____ If yes, describe
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

What safety precautions should be taken to protect workers from these additional hazards?
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Assessed By: ________________________________
Date: ________________________________
Title: ________________________________
Work Phone: ________________________________
OSHA COMPETENT PERSON DECLARATION FORM

OSHA COMPETENT PERSON

Project: 

Date: 

Trade: 

Company Name: Elmira Structures, Inc.

Address: 66 Philo Road West

Elmira, New York 14903

Telephone #: Office: 607-739-8800

Cell/ Pager: 607-738-2997

On Site Safety Representative/ Competent Person: The following person has been designated as the in site safety representative for the above named company. The named individual hereby declares that they possess the education and experience necessary to enable him/her to recognize safety hazards as well as the authority to take actions to correct those conditions related to their scope of work and limited to work under their control.

Name: Boyd Graham

Signature: 

ELMIRA STRUCTURES, INC.
Appendix A

SITE SPECIFIC FALL PROTECTION PLAN
FOR RESIDENTIAL CONSTRUCTION
This Fall Protection Plan is specific for the following project:

Location of Job

Erecting Company

Date Plan Prepared or Modified

Plan Prepared By

Plan Approved By

Plan Supervised By

STATEMENT OF COMPANY POLICY

ELMIRA STRUCTURES, INC. is dedicated to the protection of its employees from on-the-job injuries. All employees of ELMIRA STRUCTURES, INC. have the responsibility to work safely on the job. The purpose of the plan is to supplement our existing safety and health program and to ensure that every employee who works for ELMIRA STRUCTURES, INC. recognizes workplace fall hazards and takes the appropriate measures to address those hazards.

This Fall Protection Plan addresses the use of conventional fall protection at a number of areas on the project, as well as identifies specific activities that require non-conventional means of fall protection. During the construction of residential buildings under 48 feet in height, it is sometimes infeasible or it creates a greater hazard to use conventional fall protection systems at specific areas or for specific tasks. The areas or tasks may include, but are not limited to:

a. Setting and bracing of roof trusses and rafters;
b. Installation of floor sheathing and joists;
c. Roof sheathing operations; and
d. Erecting exterior walls.

In these cases, conventional fall protection systems may not be the safest choice for builders. This plan is designed to enable employers and employees to recognize the fall hazards associated with this job and to establish the safest 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 will strictly adhere to them except when doing so would expose the employee to a greater hazard. If, in the employee's opinion, this is the case, the employee is to notify the competent person of their concern and have the concern addressed before proceeding.

It is the responsibility of competent person to implement this Fall Protection Plan. Continual observational safety checks of work operations and the enforcement of the safety policy and procedures shall be regularly enforced. The crew supervisor or foreman is responsible for correcting any unsafe practices or conditions immediately.

It is the responsibility of the employer to ensure that all employees understand and adhere to the procedures of this plan and to follow the instructions of the crew supervisor. It is also the responsibility of the employee to bring to management’s attention any unsafe or hazardous conditions or practices that may cause injury to either themselves or any other employees. Any changes to the Fall Protection Plan must be approved by a qualified person.

**FALL PROTECTION SYSTEMS TO BE USED ON THIS JOB**

Installation of roof trusses/rafters, exterior wall erection, roof sheathing, floor sheathing and joist/truss activities will be conducted by employees who are specifically trained to do this type of work and are trained to recognize the fall hazards. The nature of such work normally exposes the employee to the fall hazard for a short period of time. This Plan details how ELMIRA STRUCTURES, INC. will minimize these hazards.

**CONTROLLED ACCESS ZONES**

When using the Plan to implement the fall protection options available, workers must be protected through limited access to high hazard locations. Before any non-conventional fall protection systems are used as part of the work plan, a controlled access zone (CAZ) shall be clearly defined by the competent person as an area where a recognized hazard exists. The demarcation of the CAZ shall be communicated by the competent person in a recognized manner, either through signs, wires, tapes, ropes or chains.

ELMIRA STRUCTURES, INC. shall take the following steps to ensure that the CAZ is clearly marked or controlled by the competent person:

- All access to the CAZ must be restricted to authorized entrants;
- All workers who are permitted in the CAZ shall be listed in the appropriate sections of the Plan (or be visibly identifiable by the competent person) prior to implementation;
- The competent person shall ensure that all protective elements of the CAZ be implemented prior to the beginning of work.
INSTALLATION PROCEDURES FOR ROOF TRUSS AND RAFTER ERECTION

During the erection and bracing of roof trusses/rafters, conventional fall protection may present a greater hazard to workers. On this job, safety nets, guardrails and personal fall arrest systems will not provide adequate fall protection because the nets will cause the walls to collapse, while there are no suitable attachment or anchorage points for guardrails or personal fall arrest systems.

On this job, requiring workers to use a ladder for the entire installation process will cause a greater hazard because the worker must stand on the ladder with his back or side to the front of the ladder. While erecting the truss or rafter the worker will need both hands to maneuver the truss and therefore cannot hold onto the ladder. In addition, ladders cannot be adequately protected from movement while trusses are being maneuvered into place. Many workers may experience additional fatigue because of the increase in overhead work with heavy materials, which can also lead to a greater hazard.

Exterior scaffolds cannot be utilized on this job because the ground, after recent backfilling, cannot support the scaffolding. In most cases, the erection and dismantling of the scaffold would expose workers to a greater fall hazard than erection of the trusses/rafters.

On all walls eight feet or less, workers will install interior scaffolds along the interior wall below the location where the trusses/rafters will be erected. "Sawhorse" scaffolds constructed of 46 inch sawhorses and 2x10 planks will often allow workers to be elevated high enough to allow for the erection of trusses and rafters without working on the top plate of the wall.

In structures that have walls higher than eight feet and where the use of scaffolds and ladders would create a greater hazard, safe working procedures will be utilized when working on the top plate and will be monitored by the crew supervisor. During all stages of truss/rafter erection the stability of the trusses/rafters will be ensured at all times.

ELMIRA STRUCTURES, INC. shall take the following steps to protect workers who are exposed to fall hazards while working from the top plate installing trusses/rafters:

- Only the following trained workers will be allowed to work on the top plate during roof truss or rafter installation:
  
  (List Names Here)

- Workers shall have no other duties to perform during truss/rafter erection procedures;
- All trusses/rafters will be adequately braced before any worker can use the truss/rafter as a support;
- Workers will remain on the top plate using the previously stabilized truss/rafter as a support while other trusses/rafters are being erected;
- Workers will leave the area of the secured trusses only when it is necessary to secure another truss/rafter;
- The first two trusses/rafters will be set from ladders leaning on side walls at points where the walls can support the weight of the ladder; and
- A worker will climb onto the interior top plate via a ladder to secure the peaks of the first two trusses/rafters being set.

The workers responsible for detaching trusses from cranes and/or securing trusses at the peaks traditionally are positioned at the peak of the trusses/rafters. There are also situations where workers securing rafters to ridge beams will be positioned on top of the ridge beam.

ELMIRA STRUCTURES, INC. shall take the following steps to protect workers who are exposed to fall hazards while securing trusses/rafters at the peak of the trusses/ridge beam:

Only the following trained workers will be allowed to work at the peak during roof truss or rafter installation:

Once truss or rafter installation begins, workers not involved in that activity shall not stand or walk below or adjacent to the roof opening or exterior walls in any area where they could be struck by falling objects;

Workers shall have no other duties than securing/bracing the trusses/ridge beam;

Workers positioned at the peaks or in the webs of trusses or on top of the ridge beam shall work from a stable position, either by sitting on a "ridge seat" or other equivalent surface that provides additional stability or by positioning themselves in previously stabilized trusses/rafters and leaning into and reaching through the trusses/rafters;

Workers shall not remain on or in the peak/ridge any longer than necessary to safely complete the task.

**ROOF SHEATHING OPERATIONS**

Workers typically install roof sheathing after all trusses/rafters and any permanent truss bracing is in place. Roof structures are unstable until some sheathing is installed, so workers installing roof sheathing cannot be protected from fall hazards by conventional fall protection systems until it is determined that the roofing system can be used as an anchorage point. At that point, employees shall be protected by a personal fall arrest system.

Trusses/rafters are subject to collapse if a worker falls while attached to a single truss with a belt/harness. Nets could also cause collapse, and there is no place to attach guardrails.

All workers will ensure that they have secure footing before they attempt to walk on the sheathing, including cleaning shoes/boots of mud or other slip hazards.

To minimize the time workers must be exposed to a fall hazard, materials will be staged to allow for the quickest installation of sheathing.
ELMIRA STRUCTURES, INC. shall take the following steps to protect workers who are exposed to fall hazards while installing roof sheathing:

- Once roof sheathing installation begins, workers not involved in that activity shall not stand or walk below or adjacent to the roof opening or exterior walls in any area where they could be struck by falling objects;

- The competent person shall determine the limits of this area, which shall be clearly communicated to workers prior to placement of the first piece of roof sheathing;

- The competent person may order work on the roof to be suspended for brief periods as necessary to allow other workers to pass through such areas when this would not create a greater hazard;

- Only qualified workers shall install roof sheathing;

- The bottom row of roof sheathing may be installed by workers standing in truss webs;

- After the bottom row of roof sheathing is installed, a slide guard extending the width of the roof shall be securely attached to the roof. Slide guards are to be constructed of no less than nominal 4" height capable of limiting the uncontrolled slide of workers. Workers should install the slide guard while standing in truss webs and leaning over the sheathing;

- Additional rows of roof sheathing may be installed by workers positioned on previously installed rows of sheathing. A slide guard can be used to assist workers in retaining their footing during successive sheathing operations; and

- Additional slide guards shall be securely attached to the roof at intervals not to exceed 13 feet as successive rows of sheathing are installed. For roofs with pitches in excess of 9-in-12, slide guards will be installed at four-foot intervals.

- When wet weather (rain, snow, or sleet) are present, roof sheathing operations shall be suspended unless safe footing can be assured for those workers installing sheathing.

- When strong winds (above 40 miles per hour) are present, roof sheathing operations are to be suspended unless wind breakers are erected.
INSTALLATION OF FLOOR JOISTS AND SHEATHING

During the installation of floor sheathing/joists (leading edge construction), the following steps shall be taken to protect workers:

Only the following trained workers will be allowed to install floor joists or sheathing:

(List Names Here)

- Materials for the operations shall be conveniently staged to allow for easy access to workers;
- The first floor joists or trusses will be rolled into position and secured either from the ground, ladders or sawhorse scaffolds;
- Each successive floor joist or truss will be rolled into place and secured from a platform created from a sheet of plywood laid over the previously secured floor joists or trusses;
- Except for the first row of sheathing which will be installed from ladders or the ground, workers shall work from the established deck; and
- Any workers not assisting in the leading edge construction while leading edges still exist (e.g. cutting the decking for the installers) shall not be permitted within six feet of the leading edge under construction.

ERECPTION OF EXTERIOR WALLS

During the construction and erection of exterior walls, employers shall take the following steps to protect workers:

- Only the following trained workers will be allowed to erect exterior walls:
- A painted line six feet from the perimeter will be clearly marked prior to any wall erection activities to warn of the approaching unprotected edge;
- Materials for operations shall be conveniently staged to minimize fall hazards; and
- Workers constructing exterior walls shall complete as much cutting of materials and other preparation as possible away from the edge of the deck.

ENFORCEMENT

Constant awareness of and respect for fall hazards, and compliance with all safety rules are considered conditions of employment. The crew supervisor or foreman, as well as individuals in the Safety and Personnel Department, reserve the right to issue disciplinary warnings to employees, up to and including termination, for failure to follow the guidelines of this program.
ACCIDENT INVESTIGATIONS

All accidents that result in injury to workers, regardless of their nature, shall be investigated and reported. It is an integral part of any safety program that documentation take place as soon as possible so that the cause and means of prevention can be identified to prevent a reoccurrence.

In the event that an employee falls or there is some other related, serious incident occurring, this plan shall be reviewed to determine if additional practices, procedures, or training need to be implemented to prevent similar types of falls or incidents from occurring.

CHANGES TO PLAN

Any changes to the plan will be approved by (name of the qualified person). This plan shall be reviewed by a qualified person as the job progresses to determine if additional practices, procedures or training needs to be implemented by the competent person to improve or provide additional fall protection. Workers shall be notified and trained, if necessary, in the new procedures. A copy of this plan and all approved changes shall be maintained at the jobsite.
Appendix B

SITE SPECIFIC FALL PROTECTION PLAN
FOR PRECAST/PRESTRESS CONCRETE STRUCTURES
This Fall Protection Plan is specific for the following project:

Location of Job

Erecting Company

Date Plan Prepared or Modified

Plan Prepared By

Plan Approved By

Plan Supervised By

STATEMENT OF COMPANY POLICY

ELMIRA STRUCTURES, INC. is dedicated to the protection of its employees from on-the-job injuries. All employees of ELMIRA STRUCTURES, INC. have the responsibility to work safely on the job. The purpose of this plan is: (a) To supplement our standard safety policy by providing safety standards specifically designed to cover fall protection on this job and; (b) to ensure that each employee is trained and made aware of the safety provisions which are to be implemented by this plan prior to the start of erection.

This Fall Protection Plan addresses the use of other than conventional fall protection at a number of areas on the project, as well as identifying specific activities that require non-conventional means of fall protection. These areas include:

a. Connecting activity (point of erection).
b. Leading edge work.
c. Unprotected sides or edge.
d. Grouting.

This plan is designed to enable employers and 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. If, in the employee’s opinion, this is the case, the employee is to notify the foreman of the concern and the concern addressed before proceeding.
Safety policy and procedure on any one project cannot be administered, implemented, monitored and enforced by any one individual. The total objective of a safe, accident free work environment can only be accomplished by a dedicated, concerted effort by every individual involved with the project from management down to the last employee. Each employee must understand their value to the company; the costs of accidents, both monetary, physical, and emotional; the objective of the safety policy and procedures; the safety rules that apply to the safety policy and procedures; and what their individual role is in administering, implementing, monitoring, and compliance of their safety policy and procedures. This allows for a more personal approach to compliance through planning, training, understanding and cooperative effort, rather than by strict enforcement. If for any reason an unsafe act persists, strict enforcement will be implemented.

It is the responsibility of the competent person to implement this Fall Protection Plan. The Competent Person is responsible for continual observational safety checks of their work operations and to enforce the safety policy and procedures. The foreman also is responsible to correct any unsafe acts or conditions immediately. It is the responsibility of the employee to understand and adhere to the procedures of this plan and to follow the instructions of the foreman. It is also the responsibility of the employee to bring to management's attention any unsafe or hazardous conditions or acts that may cause injury to either themselves or any other employees. Any changes to this Fall Protection Plan must be approved by a Qualified Person.

**FALL PROTECTION SYSTEMS TO BE USED ON THIS PROJECT**

Where conventional fall protection is infeasible or creates a greater hazard at the leading edge and during initial connecting activity, we plan to do this work using a safety monitoring system and expose only a minimum number of employees for the time necessary to actually accomplish the job. The maximum number of workers to be monitored by one safety monitor is six (6). We are designating the following trained employees as designated erectors and they are permitted to enter the controlled access zones and work without the use of conventional fall protection.

Safety monitor:

Designated erector:

Designated erector:

Designated erector:

Designated erector:

Designated erector:

Designated erector:
The safety monitor shall be identified by wearing an orange hard hat. The designated erectors will be identified by one of the following methods:

1. They will wear a blue colored arm band, or
2. They will wear a blue colored hard hat, or
3. They will wear a blue colored vest.

Only individuals with the appropriate experience, skills, and training will be authorized as designated erectors. All employees that will be working as designated erectors under the safety monitoring system shall have been trained and instructed in the following areas:

1. Recognition of the fall hazards in the work area (at the leading edge and when making initial connections-point of erection).
2. Avoidance of fall hazards using established work practices which have been made known to the employees.
3. Recognition of unsafe practices or working conditions that could lead to a fall, such as windy conditions.
4. The function, use, and operation of safety monitoring systems, guardrail systems, body belt/harness systems, control zones and other protection to be used.
5. The correct procedure for erecting, maintaining, disassembling and inspecting the system(s) to be used.
6. Knowledge of construction sequence or the erection plan.

A conference will take place prior to starting work involving all members of the erection crew, crane crew and supervisors of any other concerned contractors. This conference will be conducted by the precast concrete erection supervisor in charge of the project. During the pre-work conference, erection procedures and sequences pertinent to this job will be thoroughly discussed and safety practices to be used throughout the project will be specified. Further, all personnel will be informed that the controlled access zones are off limits to all personnel other than those designated erectors specifically trained to work in that area.
SAFETY MONITORING SYSTEM

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. Not allow other responsibilities to encumber monitoring. If the safety monitor becomes too encumbered with other responsibilities, the monitor shall (1) stop the erection process; and (2) turn over other responsibilities to a designated erector; or (3) turn over the safety monitoring function to another designated, competent person. 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.
CONTROL ZONE SYSTEM

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:

1. When used to control access to areas where leading edge and other operations are taking place the controlled access zone shall be defined by a control line or by any other means that restricts access. When control lines are used, they shall be erected not less than 6 feet (1.8 m) nor more than 60 feet (18 m) or half the length of the member being erected, whichever is less, from the leading edge.

2. 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.

3. The control line shall be connected on each side to a guardrail system or wall.

4. Control lines shall consist of ropes, wires, tapes, or equivalent materials, and supporting stanchions as follows:

5. Each line shall be flagged or otherwise clearly marked at not more than 6-foot (1.8 m) intervals with high-visibility material.

6. Each line shall be rigged and supported in such a way that its lowest point (including sag) is not less than 39 inches (1 m) from the walking/working surface and its highest point is not more than 45 inches (1.3 m) from the walking/working surface.

7. Each line shall have a minimum breaking strength of 200 pounds (.88 kN).

HOLES

All openings greater than 12 in. x 12 in. will have perimeter guarding or covering. All predetermined holes will have the plywood covers made in the precasters' yard and shipped with the member to the jobsite. Prior to cutting holes on the job, proper protection for the hole must be provided to protect the workers. Perimeter guarding or covers will not be removed without the approval of the erection foreman.

Precast concrete column erection through the existing deck requires that many holes be provided through this deck. These are to be covered and protected. Except for the opening being currently used to erect a column, all opening protection is to be left undisturbed. The opening being uncovered to erect a column will become part of the point of erection and will be addressed as part of this Fall Protection Plan. This uncovering is to be done at the erection foreman's direction and will only occur immediately prior to "feeding" the column through the opening. Once the end of the column is through the slab opening, there will no longer exist a fall hazard at this location.
IMPLEMENTATION OF FALL PROTECTION PLAN

The structure being erected is a multistory total precast concrete building consisting of columns, beams, wall panels and hollow core slabs and double tee floor and roof members.

The following is a list of the products and erection situations on this job:

COLUMNS

For columns 10 ft to 36 ft long, employees disconnecting crane hooks from columns will work from a ladder and wear a body belt/harness with lanyard and be tied off when both hands are needed to disconnect. For tying off, a vertical lifeline will be connected to the lifting eye at the top of the column, prior to lifting, to be used with a manually operated or mobile rope grab. For columns too high for the use of a ladder, 36 ft and higher, an added cable will be used to reduce the height of the disconnecting point so that a ladder can be used. This cable will be left in place until a point in erection that it can be removed safely. In some cases, columns will be unhooked from the crane by using an erection tube or shackle with a pull pin which is released from the ground after the column is stabilized. The column will be adequately connected and/or braced to safely support the weight of a ladder with an employee on it.

INVERTED TEE BEAMS

Employees erecting inverted tee beams, at a height of 6 to 40 ft, will erect the beam, make initial connections, and final alignment from a ladder. If the employee needs to reach over the side of the beam to bar or make an adjustment to the alignment of the beam, they will mount the beam and be tied off to the lifting device in the beam after ensuring the load has been stabilized on its bearing. To disconnect the crane from the beam an employee will stand a ladder against the beam. Because the use of ladders is not practical at heights above 40 ft, beams will be initially placed with the use of tag lines and their final alignment made by a person on a manlift or similar employee positioning systems.
SPANDREL BEAMS

Spandrel beams at the exterior of the building will be aligned as closely as possible with the use of tag lines with the final placement of the spandrel beam made from a ladder at the open end of the structure. A ladder will be used to make the initial connections and a ladder will be used to disconnect the crane. The other end of the beam will be placed by the designated erector from the double tee deck under the observation of the safety monitor.

The beams will be adequately connected and/or braced to safely support the weight of a ladder with an employee on it.

FLOOR AND ROOF MEMBERS

During installation of the precast concrete floor and/or roof members, the work deck continuously increases in area as more and more units are being erected and positioned. Thus, the unprotected floor/roof perimeter is constantly modified with the leading edge changing location as each member is installed. The fall protection for workers at the leading edge shall be assured by properly constructed and maintained control zone lines not more than 60 ft away from the leading edge supplemented by a safety monitoring system to ensure the safety of all designated erectors working within the area defined by the control zone lines.

The hollow core slabs erected on the masonry portion of the building will be erected and grouted using the safety monitoring system. Grout will be placed in the space between the end of the slab and face shell of the concrete masonry by dumping from a wheelbarrow. The grout in the keyways between the slabs will be dumped from a wheelbarrow and then spread with long handled tools, allowing the worker to stand erect facing toward the unprotected edge and back from any work deck edge.

Whenever possible, the designated erectors will approach the incoming member at the leading edge only after it is below waist height so that the member itself provides protection against falls.

Except for the situations described below, when the arriving floor or roof member is within 2 to 3 inches of its final position, the designated erectors can then proceed to their position of erection at each end of the member under the control of the safety monitor. Crane hooks will be unhooked from double tee members by designated erectors under the direction and supervision of the safety monitor.

Designated erectors, while waiting for the next floor or roof member, will be constantly under the control of the safety monitor for fall protection and are directed to stay a minimum of six (6) ft from the edge. In the event a designated erector must move from one end of a member, which has just been placed at the leading edge, they must first move away from the leading edge a minimum of six (6) ft and then progress to the other end while maintaining the minimum distance of six (6) ft at all times.
Erection of double tees, where conditions require bearing of one end into a closed pocket and the other end on a beam ledge, restricting the tee legs from going directly into the pockets, require special considerations. The tee legs that are to bear in the closed pocket must hang lower than those at the beam bearing. The double tee will be "two-lined" in order to elevate one end higher than the other to allow for the low end to be ducked into the closed pocket using the following procedure.

The double tee will be rigged with a standard four-way spreader off of the main load line. An additional choker will be attached to the married point of the two-legged spreader at the end of the tee that is to be elevated. The double tee will be hoisted with the main load line and swung into a position as close as possible to the tee’s final bearing elevation. When the tee is in this position and stabilized, the whip line load block will be lowered to just above the tee deck. At this time, two erectors will walk out on the suspended tee deck at midspan of the tee member and pull the load block to the end of the tee to be elevated and attach the additional choker to the load block. The possibility of entanglement with the crane lines and other obstacles during this two lining process while raising and lowering the crane block on that second line could be hazardous to an encumbered employee. Therefore, the designated erectors will not tie off during any part of this process. While the designated erectors are on the double tee, the safety monitoring system will be used. After attaching the choker, the two erectors then step back on the previously erected tee deck and signal the crane operator to hoist the load with the whip line to the elevation that will allow for enough clearance to let the low end tee legs slide into the pockets when the main load line is lowered. The erector, who is handling the lowered end of the tee at the closed pocket bearing, will step out on the suspended tee. An erection bar will then be placed between the end of the tee leg and the inside face of the pocketed spandrel member. The tee is barred away from the pocketed member to reduce the friction and lateral force against the pocketed member. As the tee is being lowered, the other erector remains on the tee which was previously erected to handle the other end. At this point the tee is slowly lowered by the crane to a point where the tee legs can freely slide into the pockets. The erector working the lowered end of the tee must keep pressure on the bar between the tee and the face of the pocketed spandrel member to very gradually let the tee legs slide into the pocket to its proper bearing dimension. The tee is then slowly lowered into its final erected position.

The designated erector should be allowed onto the suspended double tee, otherwise there is no control over the horizontal movement of the double tee and this movement could knock the spandrel off of its bearing or the column out of plumb. The control necessary to prevent hitting the spandrel can only be done safely from the top of the double tee being erected.

Loadbearing Wall Panels: The erection of the loadbearing wall panels on the elevated decks requires the use of a safety monitor and a controlled access zone that is a minimum of 25 ft and a maximum of 1/2 the length of the wall panels away from the unprotected edge, so that designated erectors can move freely and unencumbered when receiving the panels. Bracing, if required for stability, will be installed by ladder. After the braces are secured, the crane will be disconnected from the wall by using a ladder. The wall to wall connections will also be performed from a ladder.
Non-Loadbearing Panels (Cladding): The locating of survey lines, panel layout and other installation prerequisites (prewelding, etc.) for non-loadbearing panels (cladding) will not commence until floor perimeter and floor openings have been protected. In some areas, it is necessary because of panel configuration to remove the perimeter protection as the cladding is being installed. Removal of perimeter protection will be performed on a bay to bay basis, just ahead of cladding erection to minimize temporarily unprotected floor edges. Those workers within 6 ft of the edge, receiving and positioning the cladding when the perimeter protection is removed shall be tied off.

**DETAILING**

Employees exposed to falls of six (6) feet or more to lower levels, who are not actively engaged in leading edge work or connecting activity, such as welding, bolting, cutting, bracing, guying, patching, painting or other operations, and who are working less than six (6) ft from an unprotected edge will be tied off at all times or guardrails will be installed. Employees engaged in these activities but who are more than six (6) ft from an unprotected edge as defined by the control zone lines, do not require fall protection but a warning line or control lines must be erected to remind employees they are approaching an area where fall protection is required.

**CONVENTIONAL FALL PROTECTION CONSIDERED FOR THE POINT OF ERECTION OR LEADING EDGE ERECTION OPERATIONS**

**A. PERSONAL FALL ARREST SYSTEMS**

In this particular erection sequence and procedure, personal fall arrest systems requiring body belt/harness systems, lifelines and lanyards will not reduce possible hazards to workers and will create offsetting hazards during their usage at the leading edge of precast/prestressed concrete construction.

Leading edge erection and initial connections are conducted by employees who are specifically trained to do this type of work and are trained to recognize the fall hazards. The nature of such work normally exposes the employee to the fall hazard for a short period of time and installation of fall protection systems for a short duration is not feasible because it exposes the installers of the system to the same fall hazard, but for a longer period of time.

1. It is necessary that the employee be able to move freely without encumbrance in order to guide the sections of precast concrete into their final position without having lifelines attached which will restrict the employee’s ability to move about at the point of erection.
2. A typical procedure requires 2 or more workers to maneuver around each other as a concrete member is positioned to fit into the structure. If they are each attached to a lifeline, part of their attention must be diverted from their main task of positioning a member weighing several tons to the task of avoiding entanglements of their lifelines or avoiding tripping over lanyards. Therefore, if these workers are attached to lanyards, more fall potential would result than from not using such a device.

In this specific erection sequence and procedure, retractable lifelines do not solve the problem of two workers becoming tangled. In fact, such a tangle could prevent the lifeline from retracting as the worker moved, thus potentially exposing the worker to a fall greater than 6 ft. Also, a worker crossing over the lifeline of another worker can create a hazard because the movement of one person can unbalance the other. In the event of a fall by one person there is a likelihood that the other person will be caused to fall as well. In addition, if contamination such as grout (during hollow core grouting) enters the retractable housing it can cause excessive wear and damage to the device and could clog the retracting mechanism as the lanyard is dragged across the deck. Obstructing the cable orifice can defeat the device's shock absorbing function, produce cable slack and damage, and adversely affect cable extraction and retraction.

3. Employees tied to a lifeline can be trapped and crushed by moving structural members if the employee becomes restrained by the lanyard or retractable lifeline and cannot get out of the path of the moving load. The sudden movement of a precast concrete member being raised by a crane can be caused by a number of factors. When this happens, a connector may immediately have to move a considerable distance to avoid injury. If a tied off body belt/harness is being used, the connector could be trapped. Therefore, there is a greater risk of injury if the connector is tied to the structure for this specific erection sequence and procedure.

When necessary to move away from a retractable device, the worker cannot move at a rate greater than the device locking speed typically 3.5 to 4.5 ft/sec. When moving toward the device it is necessary to move at a rate which does not permit cable slack to build up. This slack may cause cable retraction acceleration and cause a worker to lose their balance by applying a higher than normal jerking force on the body when the cable suddenly becomes taut after building up momentum. This slack can also cause damage to the internal spring-loaded drum, uneven coiling of cable on the drum, and possible cable damage.
The factors causing sudden movements for this location include:

(a) Cranes
(1) Operator error.
(2) Site conditions (soft or unstable ground).
(3) Mechanical failure.
(4) Structural failure.
(5) Rigging failure.
(6) Crane signal/radio communication failure.

(b) Weather Conditions
(1) Wind (strong wind/sudden gusting) - particularly a problem with
    the large surface areas of precast concrete members.
(2) Snow/rain (visibility).
(3) Fog (visibility).
(4) Cold - causing slowed reactions or mechanical problems.

(c) Structure/Product Conditions.
(1) Lifting Eye failure.
(2) Bearing failure or slippage.
(3) Structure shifting.
(4) Bracing failure.
(5) Product failure.

(d) Human Error.
(1) Incorrect tag line procedure.
(2) Tag line hang-up.
(3) Incorrect or misunderstood crane signals.
(4) Misjudged elevation of member.
(5) Misjudged speed of member.
(6) Misjudged angle of member.

4. Anchorages or special attachment points could be cast into the precast concrete members if sufficient preplanning and consideration of erectors’ position is done before the members are cast. Any hole or other attachment must be approved by the engineer who designed the member. It is possible that some design restrictions will not allow a member to be weakened by an additional hole; however, it is anticipated that such situations would be the exception, not the rule. Attachment points, other than on the deck surface, will require removal and/or patching. In order to remove and/or patch these points, requires the employee to be exposed to an additional fall hazard at an unprotected perimeter. The fact that attachment points could be available anywhere on the structure does not eliminate the hazards of using these points for tying off as discussed above. A logical point for tying off on double tees would be using the lifting loops, except that they must be cut off to eliminate a tripping hazard at an appropriate time.
5. Providing attachment at a point above the walking/working surface would also create fall exposures for employees installing their devices. Final positioning of a precast concrete member requires it to be moved in such a way that it must pass through the area that would be occupied by the lifeline and the lanyards attached to the point above. Resulting entanglements of lifelines and lanyards on a moving member could pull employees from the work surface. Also, the structure is being created and, in most cases, there is no structure above the members being placed.

(a) Temporary structural supports, installed to provide attaching points for lifelines limit the space which is essential for orderly positioning, alignment and placement of the precast concrete members. To keep the lanyards a reasonable and manageable length, lifeline supports would necessarily need to be in proximity to the positioning process. A sudden shift of the precast concrete member being positioned because of wind pressure or crane movement could make it strike the temporary supporting structure, moving it suddenly and causing tied off employees to fall.

(b) The time in manhours which would be expended in placing and maintaining temporary structural supports for lifeline attaching points could exceed the expended manhours involved in placing the precast concrete members. No protection could be provided for the employees erecting the temporary structural supports and these supports would have to be moved for each successive step in the construction process, thus greatly increasing the employee’s exposure to the fall hazard.

(c) The use of a cable strung horizontally between two columns to provide tie off lines for erecting or walking a beam for connecting work is not feasible and creates a greater hazard on this multi-story building for the following reasons:

   (1) If a connector is to use such a line, it must be installed between the two columns. To perform this installation requires an erector to have more fall exposure time attaching the cable to the columns than would be spent to make the beam to column connection itself.
(2) If such a line is to be installed so that an erector can walk along a beam, it must be overhead or below him. For example, if a connector must walk along a 24 in. wide beam, the presence of a line next to the connector at waist level, attached directly to the columns, would prevent the connector from centering their weight over the beam and balancing themselves. Installing the line above the connector might be possible on the first level of a two-story column; however, the column may extend only a few feet above the floor level at the second level or be flush with the floor level. Attaching the line to the side of the beam could be a solution; however, it would require the connector to attach the lanyard below foot level which would most likely extend a fall farther than 6 ft.

(3) When lines are strung over every beam, it becomes more and more difficult for the crane operator to lower a precast concrete member into position without the member becoming fouled. Should the member become entangled, it could easily dislodge the line from a column. If a worker is tied to it at the time, a fall could be caused.

6. The ANSI A10.14-1991 American National Standard for Construction and Demolition Operations - Requirements for Safety Belts, Harnesses, Lanyards and Lifelines for Construction and Demolition Use, states that the anchor point of a lanyard or deceleration device should, if possible, be located above the wearer's belt or harness attachment. ANSI A10.14 also states that a suitable anchorage point is one which is located as high as possible to prevent contact with an obstruction below should the worker fall. Most manufacturers also warn in the user's handbook that the safety block/retractable lifeline must be positioned above the D-ring (above the work space of the intended user) and OSHA recommends that fall arrest and restraint equipment be used in accordance with the manufacturer's instructions.

Attachment of a retractable device to a horizontal cable near floor level or using the inserts in the floor or roof members may result in increased free fall due to the dorsal D-ring of the full-body harness riding higher than the attachment point of the snaphook to the cable or insert (e.g., 6 foot tall worker with a dorsal D-ring at 5 feet above the floor or surface, reduces the working length to only one foot, by placing the anchorage five feet away from the fall hazard). In addition, impact loads may exceed maximum fall arrest forces (MAF) because the fall arrest D-ring would be 4 to 5 feet higher than the safety block/retractable lifeline anchored to the walking-working surface; and the potential for swing hazards is increased. Manufacturers also require that workers not work at a level where the point of snaphook attachment to the body harness is above the device because this will increase the free fall distance and the deceleration distance and will cause higher forces on the body in the event of an accidental fall.
Manufacturers recommend an anchorage for the retractable lifeline which is immovably fixed in space and is independent of the user’s support systems. A moveable anchorage is one which can be moved around (such as equipment or wheeled vehicles) or which can deflect substantially under shock loading (such as a horizontal cable or very flexible beam). In the case of a very flexible anchorage, a shock load applied to the anchorage during fall arrest can cause oscillation of the flexible anchorage such that the retractable brake mechanism may undergo one or more cycles of locking/unlocking/locking (ratchet effect) until the anchorage deflection is dampened. Therefore, use of a moveable anchorage involves critical engineering and safety factors and should only be considered after fixed anchorage has been determined to be not feasible.

Horizontal cables used as an anchorage present an additional hazard due to amplification of the horizontal component of maximum arrest force (of a fall) transmitted to the points where the horizontal cable is attached to the structure. This amplification is due to the angle of sag of a horizontal cable and is most severe for small angles of sag. For a cable sag angle of 2 degrees the horizontal force on the points of cable attachment can be amplified by a factor of 15.

It is also necessary to install the retractable device vertically overhead to minimize swing falls. If an object is in the worker’s swing path (or that of the cable) hazardous situations exist: (1) due to the swing, horizontal speed of the user may be high enough to cause injury when an obstacle in the swing fall path is struck by either the user or the cable; (2) the total vertical fall distance of the user may be much greater than if the user had fallen only vertically without a swing fall path.

With retractable lines, overconfidence may cause the worker to engage in inappropriate behavior, such as approaching the perimeter of a floor or roof at a distance appreciably greater than the shortest distance between the anchorage point and the leading edge. Though the retractable lifeline may arrest a worker’s fall before he or she has fallen a few feet, the lifeline may drag along the edge of the floor or beam and swing the worker like a pendulum until the line has moved to a position where the distance between the anchorage point and floor edge is the shortest distance between those two points. Accompanying this pendulum swing is a lowering of the worker, with the attendant danger that he or she may violently impact the floor or some obstruction below.

The risk of a cable breaking is increased if a lifeline is dragged sideways across the rough surface or edge of a concrete member at the same moment that the lifeline is being subjected to a maximum impact loading during a fall. The typical 3/16 in. cable in a retractable lifeline has a breaking strength of from 3000 to 3700 lbs.

The competent person, who can take into account the specialized operations being performed on this project, should determine when and where a designated erector cannot use a personal fall arrest system.
B. SAFETY NET SYSTEMS

The nature of this particular precast concrete erection worksite precludes the safe use of safety nets where point of erection or leading edge work must take place.

1. To install safety nets in the interior high bay of the single story portion of the building poses rigging attachment problems. Structural members do not exist to which supporting devices for nets can be attached in the area where protection is required. As the erection operation advances, the location of point of erection or leading edge work changes constantly as each member is attached to the structure. Due to this constant change it is not feasible to set net sections and build separate structures to support the nets.

2. The nature of the erection process for the precast concrete members is such that an installed net would protect workers as they position and secure only one structural member. After each member is stabilized the net would have to be moved to a new location (this could mean a move of 8 to 10 ft or the possibility of a move to a different level or area of the structure) to protect workers placing the next piece in the construction sequence. The result would be the installation and dismantling of safety nets repeatedly throughout the normal work day. As the time necessary to install a net, test, and remove it is significantly greater than the time necessary to position and secure a precast concrete member, the exposure time for the worker installing the safety net would be far longer than for the workers whom the net is intended to protect. The time exposure repeats itself each time the nets and supporting hardware must be moved laterally or upward to provide protection at the point of erection or leading edge.

3. Strict interpretation of 1926.502(c) requires that operations shall not be undertaken until the net is in place and has been tested. With the point of erection constantly changing, the time necessary to install and test a safety net significantly exceeds the time necessary to position and secure the concrete member.

4. Use of safety nets on exposed perimeter wall openings and opensided floors, causes attachment points to be left in architectural concrete which must be patched and filled with matching material after the net supporting hardware is removed. In order to patch these openings, additional numbers of employees must be suspended by swing stages, boatswain chairs or other devices, thereby increasing the amount of fall exposure time to employees.

5. Installed safety nets pose an additional hazard at the perimeter of the erected structure where limited space is available in which members can be turned after being lifted from the ground by the crane. There would be a high probability that the member being lifted could become entangled in net hardware, cables, etc.
6. The use of safety nets where structural wall panels are being erected would prevent movement of panels to point of installation. To be effective, nets would necessarily have to provide protection across the area where structural supporting wall panels would be set and plumbed before roof units could be placed.

7. Use of a tower crane for the erection of the high rise portion of the structure poses a particular hazard in that the crane operator cannot see or judge the proximity of the load in relation to the structure or nets. If the signaler is looking through nets and supporting structural devices while giving instructions to the crane operator, it is not possible to judge precise relationships between the load and the structure itself or to nets and supporting structural devices. This could cause the load to become entangled in the net or hit the structure causing potential damage.

C. GUARDRAIL SYSTEMS

On this particular worksite, guardrails, barricades, ropes, cables or other perimeter guarding devices or methods on the erection floor will pose problems to safe erection procedures. Typically, a floor or roof is erected by placing 4 to 10 ft wide structural members next to one another and welding or grouting them together. The perimeter of a floor and roof changes each time a new member is placed into position. It is unreasonable and virtually impossible to erect guardrails and toe boards at the ever changing leading edge of a floor or roof.

1. To position a member safely it is necessary to remove all obstructions extending above the floor level near the point of erection. Such a procedure allows workers to swing a new member across the erected surface as necessary to position it properly without worrying about knocking material off of this surface.

Hollow core slab erection on the masonry wall requires installation of the perimeter protection where the masonry wall has to be constructed. This means the guardrail is installed then subsequently removed to continue the masonry construction. The erector will be exposed to a fall hazard for a longer period of time while installing and removing perimeter protection than while erecting the slabs.

In hollow core work, as in other precast concrete erection, others are not typically on the work deck until the precast concrete erection is complete. The deck is not complete until the leveling, aligning, and grouting of the joints is done. It is normal practice to keep others off the deck until at least the next day after the installation is complete to allow the grout to harden.
2. There is no permanent boundary until all structural members have been placed in the floor or roof. At the leading edge, workers are operating at the temporary edge of the structure as they work to position the next member in the sequence. Compliance with the standard would require a guardrail and toe board be installed along this edge. However, the presence of such a device would prevent a new member from being swung over the erected surface low enough to allow workers to control it safely during the positioning process. Further, these employees would have to work through the guardrail to align the new member and connect it to the structure. The guardrail would not protect an employee who must lean through it to do the necessary work, rather it would hinder the employee to such a degree that a greater hazard is created than if the guardrail were absent.

3. Guardrail requirements pose a hazard at the leading edge of installed floor or roof sections by creating the possibility of employees being caught between guardrails and suspended loads. The lack of a clear work area in which to guide the suspended load into position for placement and welding of members into the existing structure creates still further hazards.

4. Where erection processes require precast concrete stairways or openings to be installed as an integral part of the overall erection process, it must also be recognized that guardrails or handrails must not project above the surface of the erection floor. Such guardrails should be terminated at the level of the erection floor to avoid placing hazardous obstacles in the path of a member being positioned.

**OTHER FALL PROTECTION MEASURES CONSIDERED FOR THIS JOB**

The following is a list and explanation of other fall protection measures available and an explanation of limitations for use on this particular jobsite. If during the course of erecting the building the employee sees an area that could be erected more safely by the use of these fall protection measures, the foreman should be notified.

A. **SCAFFOLDS ARE NOT USED BECAUSE:**

1. The leading edge of the building is constantly changing and the scaffolding would have to be moved at very frequent intervals. Employees erecting and dismantling the scaffolding would be exposed to fall hazards for a greater length of time than they would by merely erecting the precast concrete member.

2. A scaffold tower could interfere with the safe swinging of a load by the crane.

3. Power lines, terrain and site do not allow for the safe use of scaffolding.

ELMIRA STRUCTURES, INC.
B. VEHICLE MOUNTED PLATFORMS ARE NOT USED BECAUSE:

1. A vehicle mounted platform will not reach areas on the deck that are erected over other levels.
2. The leading edge of the building is usually over a lower level of the building and this lower level will not support the weight of a vehicle mounted platform.
3. A vehicle mounted platform could interfere with the safe swinging of a load by the crane, either by the crane swinging the load over or into the equipment.
4. Power lines and surrounding site work do not allow for the safe use of a vehicle mounted platform.

C. CRANE SUSPENDED PERSONNEL PLATFORMS ARE NOT USED BECAUSE:

1. A second crane close enough to suspend any employee in the working and erecting area could interfere with the safe swinging of a load by the crane hoisting the product to be erected.
2. Power lines and surrounding site work do not allow for the safe use of a second crane on the job.

ENFORCEMENT

Constant awareness of and respect for fall hazards, and compliance with all safety rules are considered conditions of employment. The jobsite Superintendent, as well as individuals in the Safety and Personnel Department, reserve the right to issue disciplinary warnings to employees, up to and including termination, for failure to follow the guidelines of this program.

ACCIDENT INVESTIGATIONS

All accidents that result in injury to workers, regardless of their nature, shall be investigated and reported. It is an integral part of any safety program that documentation take place as soon as possible so that the cause and means of prevention can be identified to prevent a recurrence.

In the event that an employee falls or there is some other related, serious incident occurring, this plan shall be reviewed to determine if additional practices, procedures, or training need to be implemented to prevent similar types of falls or incidents from occurring.
CHANGES TO PLAN

Any changes to the plan will be approved by (name of the qualified person). This plan shall be reviewed by a qualified person as the job progresses to determine if additional practices, procedures or training needs to be implemented by the competent person to improve or provide additional fall protection. Workers shall be notified and trained, if necessary, in the new procedures. A copy of this plan and all approved changes shall be maintained at the jobsite.
HAZARD COMMUNICATION PLAN

CONSTRUCTION SAFETY POLICY
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2.0 Hazard Communication Policy
3.0 Employees Rights Under the OSHA Standard
4.0 Policies and Procedures for Hazard Determination
5.0 Policies and Procedures for Our Chemical Inventory List
6.0 Policies and Procedures for Material Safety Data Sheets
7.0 How to Use an MSDS
8.0 Policies and Procedures for Container Warning Labels
9.0 Policies and Procedures for Non-Routine Work Tasks
10.0 Policies and Procedure for Contractor Coordination
1.0 HAZARD COMMUNICATION PLAN

Organization's Name:

Elmira Structures, Inc.

Headquartered at:

66 Philo Road West, Elmira, New York  14903

The Plan is maintained at:

66 Philo Road West, Elmira, New York  14903

Hazard Communication Coordinator:

Boyd Graham

Title:  Field Superintendent

Telephone Number:  (607) 738-2997

Date Plan Issued:  

Date Reviewed:  1.  

2.  

3.  

4.  

5.  

6.  

2.0 HAZARD COMMUNICATION POLICY

Policy

Employees are our organization’s most important assets their safety and health our greatest responsibility.

It is the policy of this organization that every employee is entitled to work in a safe and healthful environment.

When employees enter our employ, they have a right to know the hazardous chemicals with which they work or to which they could be exposed, and the measures they can take to avoid injury or illness when working with these chemicals. We provide information and training in order to reduce the possibility of accidental exposure and to comply with the OSHA Hazard Communication Standard.

Purpose

The Occupational Safety and Health Administration Hazard Communication Standard (29 CFR 1926.59) requires that all employers develop and implement a "written hazard communication program". Our program, as put together in our HazCom plan document, is designed to implement the OSHA Hazard Communication Standard requirements in this organization.

OSHA’s primary intent in issuing this standard is to ensure that employees will receive as much information as needed concerning the hazards in their workplace. In our organization, this information will be presented to our employees prior to starting work, when changing jobs, which change the hazardous substances to which they are exposed, or when new hazards are introduced into their work area.
The purpose of this program is to ensure that:

☐ All employees are aware of our Hazard Communication Compliance Plan and to ensure that it is available to all employees, their designated representatives, and OSHA.

☐ All hazardous chemicals used in the workplace are labeled and that a list of chemicals is maintained.

☐ Material Safety Data Sheets (MSDS) are available for all hazardous chemicals.

☐ Employees receive information and training so that they are informed of the requirements of the standard and trained about hazards in their workplace.

☐ All persons involved in non-routine work tasks are informed of the hazards of such tasks.

☐ Contractors and their employees are informed of hazards before performing work in our facility/jobsite, that sub-contractors inform us of any hazardous materials brought into our jobsite/facility, and that we have procedures in place so that we can become aware of hazards we may encounter on job sites to which we may send employees.

Issued: _________________________

Date

Signature: ________________________________

Title: ________________________________
3.0 **EMPLOYEE RIGHTS UNDER THE OSHA STANDARD**

The purpose of the OSHA Hazard Communication Standard is to ensure that you understand the hazards of the chemicals with which you work and know how to safely use those chemicals. Under this standard you are given the following rights:

1. The right to have access to the company’s written hazard communication program.

2. The right to request and receive information on the hazardous substances to which you are exposed.

3. The right to be informed and trained about the hazardous chemicals used in your work area and the methods you can take to protect yourself from the hazards of those chemicals.

4. The right to know the methods and means to recognize the presence or release of a hazardous chemical in the work area.

5. The right to file a complaint with OSHA if you believe that you have been discriminated against by exercising your rights under this standard. An employee complaint to OSHA may trigger an OSHA inspection of the facility.

Our company program has been developed in an effort to create as safe a workplace as possible. We ask for your cooperation in order to achieve this mutual objective.

______________________________

Hazard Communication Coordinator
4.0 POLICIES AND PROCEDURES FOR HAZARD DETERMINATION

1. It is our organization’s policy to rely on the MSDS' s we receive with the products from manufacturers, importers or distributors for information concerning the hazardous chemicals with which we work.

2. Should hazard determination be needed because we generate a chemical for which we have no MSDS, we will either obtain an MSDS from a qualified supplier or have the hazard determination conducted by a qualified outside source.

5.0 POLICIES AND PROCEDURES FOR OUR CHEMICAL INVENTORY LIST

1. Our company will maintain an inventory of all hazardous or potentially hazardous chemicals used at any and all of our facilities.

2. Our chemical inventory list will be organized by [company, department, site, other __________________________ (cross out those that do not apply)].

3. Our chemical inventory list will be maintained as part of the written plan in each area.

4. The HCC will maintain a master chemical inventory list of all hazardous materials found at our facility.

5. Updating our chemical inventory list(s) will be done in the following way: [Select method A or B and cross out the other]

   A. The Hazard Communications Coordinator is responsible for insuring that the Chemical Inventory List(s) is(are) complete and up-to-date.
When a new chemical or a new MSDS is received,

a. The receiver will notify the Hazard Communication Coordinator who will put it on the master list and will notify the area supervisor to put it on the local list.

b. If a chemical is received locally, the area supervisor will put it on his/her list and immediately inform the Hazard Communication Coordinator so he/she can put it on the master list.

B. The Hazard Communication Coordinator is responsible for insuring that the Chemical Inventory List(s) is(are) up-to-date. The Hazard Communication Coordinator will monitor to verify compliance.

When a new chemical or a new MSDS is received,

a. The receiver will notify the work area supervisor who will add it to the list as necessary.

b. If the material is received centrally for later use, the area supervisor will put it on the list when it arrives in the area.

Note: Our Hazard Communication Coordinator will be aware that, while solid products such as wood pieces, steel beams and welding rods are typically exempt from the standard, they become covered by the standard once they are worked on (cut, welded, etc.). If these actions are to be performed on any materials, the HCC will make sure that they appear on the CIL and that MSDSs are secured for them.
6.0 POLICIES AND PROCEDURES FOR MATERIAL SAFETY DATA SHEETS

1. Maintaining our company's MSDSs is the responsibility of the Hazard Communication Coordinator.

2. Our MSDSs are maintained at:

3. Any employee wishing to see an MSDS should contact___________________________. The employee will be asked to complete a request form, a copy of which is included in the HazCom Plan (optional). That MSDS will be made available to the employee within the work shift unless we have been unable to obtain it from the supplier.

   In the event that an MSDS is not available, a "Material Safety Data Sheet Request Follow Up Memo" should be prepared in duplicate and one copy will be given to the employee requesting the MSDS and the second copy, signed by the employee, should be kept on file (optional).

Obtaining MSDSs

4. All purchase orders should include a requirement that an MSDS be sent to the HCC.

5. It is the responsibility of the receiver of the material to insure that each hazardous material is delivered with or preceded by an MSDS.

6. In the event the first chemical shipment is not preceded or accompanied by an MSDS, the receiver will notify the Hazard Communication Coordinator who will notify the supplier/manufacturer by sending a "Material Safety Data Sheet (MSDS) Supplier Request" letter to the supplier of the chemical.

7. A "Material Safety Data Sheet 2nd Request" letter should be sent to the supplier if an MSDS is not received within 15 days.

8. If the MSDS is not received within the next 15 days, a "Material Safety Data Sheet Letter of Complaint" should be forwarded to OSHA requesting assistance in obtaining the MSDS. A copy of the OSHA complaint letter should be mailed to the supplier.

9. Copies of these communications will be maintained by the Hazard Communication Coordinator.
Internal Distribution of MSDSs

When an MSDS is received by the HCC, he/she will:

A. See if an identical one is on file

If yes, discard the new one

If no, and no MSDS exists on file for the product:

1. Stamp date received.
2. Complete transmittal form and attach
4. Send copies to user(s) for files.

If no, and the new MSDS is a revision of a previous MSDS

1. Stamp date received.
2. Complete transmittal form highlighting the change(s), and attach.
3. Place the MSDS in MSDS file with "old" MSDS. When all supplies of "old" inventory are exhausted, remove old MSDS from file and place it in a storage file.
4. Send copies of new MSDS to area supervisor for files. (User should return "old" MSDS to HCC)

B. If MSDS received by the area supervisor, he/she will make a copy for his/her file and send original to HCC for filing in central file.

C. Area supervisor will use information from the transmittal form (or MSDS) to insure the CIL is up to date.
7.0 HOW TO USE AN MSDS

Manufacturers and suppliers are required to provide MSDSs to their customers. OSHA requires that the contents of MSDSs be based on the results of specific testing procedures designed to determine the toxic and hazardous characteristics of each material.

We use the MSDSs to get information about the properties of the chemicals we work with and how these chemicals can be used safely.

Although the standard does not require a specific MSDS format, a commonly used one is that of OSHA Form 174, a sample of which follows.

An MSDS is usually broken down into 8, 9, 10 or more sections. The number of sections in an MSDS has no effect on the quality of the data therein.

Additionally, the different sections of an MSDS may be arranged in any sequence desired by the manufacturer.

In any case, the basic format that an MSDS will take is demonstrated by the model MSDS form used by OSHA. A discussion of this format follows.

Section I identifies the material, giving its chemical and trade names. It also lists the name of the manufacturer as well as an emergency telephone.

Section II lists all of the hazardous components of the material and their percent composition. It also gives the Permissible Exposure Limit (PEL) and/or Threshold Limit Values (TLV) for each component. The PEL is a value which indicates the maximum exposure an employee may have to the component. PELs are based on amounts intended to protect a working person from the harmful effects of chemical exposure over the course of a working lifetime.

Section III, the physical data section, provides detailed information on the physical properties of the material. For example, vapor pressure indicates how rapidly the material evaporates. Vapor density is an indication of whether a gas or vapor is lighter or heavier than air. This allows you to be aware of places in which it might collect. Information, which will help identify the substance by observing its appearance and odor, is also provided in this section.
Section IV deals with fire and explosion hazard data. This section discusses how to extinguish fires and explains any special fire fighting procedures. The flash point is the temperature at which the liquid will give off sufficient vapors to ignite in the presence of an ignition source. The lower the flash point, the easier it is to ignite the liquid. The flammability limits are the lower and upper levels of vapor concentration that will burn. Below the Lower Explosive Limit (LEL) there is not enough vapor to continue burning. Above the Upper Explosive Limit (UEL) there is too much vapor in the air for combustion with oxygen to take place. In order for a fire or explosion to occur, the concentration of vapors or gas in the air must be between the two limits.

Section V, the reactivity data section, provides information on appropriate precautions regarding materials which decompose dangerously or which are hazardous if allowed to mix with other chemicals. It will describe what conditions (such as high temperature or sudden shock) should be avoided, how the material should be stored, and shelf life.

Section VI provides health hazard information and informs you of the signs or symptoms of overexposure. Emergency first aid procedures can be found in this section. It will also indicate the usual route of entry of the chemical into the body and whether or not the material is a carcinogen.

Section VII details the proper procedures and precautions to take in the event of a spill or leak of the chemical. Information on the proper disposal of the material is provided here. This section also indicates additional precautions to take when handling or storing the material.

Section VIII provides information on the types of personal protective equipment, such as respirators, safety glasses and gloves, and engineering controls to be utilized in the presence of the material.

This information is included in the plan in order to assist individuals who must or wish to read an MSDS. For additional help or information, employees should contact our Hazard Communication Coordinator.
## MATERIAL SAFETY DATA SHEET

### SECTION 1

- [ ]
- [ ]
- [ ]

### SECTION 2: HAZARDOUS INGREDIENTS IDENTITY INFORMATION

- [ ]
- [ ]
- [ ]

### SECTION 3: PHYSICAL CHEMICAL CHARACTERISTICS

- [ ]
- [ ]
- [ ]

### SECTION 4: FIRE AND EXPLOSION HAZARD DATA

- [ ]
- [ ]
- [ ]

### SECTION 5: REACTIVITY DATA

- [ ]
- [ ]
- [ ]

### SECTION 6: HEALTH HAZARD DATA

- [ ]
- [ ]
- [ ]

### SECTION 7: PRECAUTIONS FOR SAFE HANDLING AND USE

- [ ]
- [ ]
- [ ]

### SECTION 8: CONTROL MEASURES

- [ ]
- [ ]
- [ ]

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ELMIRA STRUCTURES, INC.
8.0 POLICIES AND PROCEDURES FOR CONTAINER WARNING LABELS

1. It is the policy of this company to retain and use the labels affixed by the manufacturer or supplier to the chemical container. These labels must include:

☐ Identity (name) of the hazardous chemical.
☐ Name and Address of the manufacturer, importer or other responsible party.
☐ Appropriate hazard warning to include: health hazards, physical hazards, target organs and effects and personal protective equipment required.

2. It is the responsibility of the receiver of the materials to insure that all hazardous material containers delivered to this workplace have appropriate labels. In the event a container is not labeled, the receiver of the material will notify the Hazard Communication Coordinator who will request a proper label from the manufacturer.

Note: Suppliers of solid metal materials which may emit hazardous substances when worked upon are required to supply labels with the first shipment of that material.

3. When materials are transferred from labeled containers to secondary in-house containers, the in-house containers must be labeled. It is the responsibility of the Hazard Communication Coordinator or his/her designee to create the label and insure that it is affixed to the container.

4. To create the label, the responsible individual will:
   a. Copy the name of the hazardous material as noted on the original "shipping" label
   b. List any of the physical or health hazards and any of the target organs noted below, and/or any synonyms as found on the label.

<table>
<thead>
<tr>
<th>Physical Hazards</th>
<th>Health Hazards</th>
<th>Target Organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combustible</td>
<td>Carcinogen</td>
<td>Blood</td>
</tr>
<tr>
<td>Compressed gas</td>
<td>Corrosive</td>
<td>Cardiovascular system</td>
</tr>
<tr>
<td>Explosive</td>
<td>Irritant</td>
<td>Central nervous system</td>
</tr>
<tr>
<td>Flammable</td>
<td>Mutagen</td>
<td>Eyes</td>
</tr>
<tr>
<td>Organic Peroxide</td>
<td>Sensitizer</td>
<td>Kidneys</td>
</tr>
<tr>
<td>Oxidizer</td>
<td>Teratogen</td>
<td>Liver</td>
</tr>
<tr>
<td>Pyrophoric</td>
<td>Toxic/Poison</td>
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<td>Reactive/Unstable</td>
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<td>Reproductive system</td>
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<td>Water reactive</td>
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<td>Skin</td>
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5. For processes using in-house stationary containers, such as dip tanks and plating tanks, signs or placards may be used in lieu of labels as long as the signs and
placards meet the labeling requirements. Operating procedures, process sheets, batch tickets, and other written materials can be used as substitutes for individual container labels on stationary process equipment. However, these written materials must contain the same information as required on the labels and must be readily accessible to the employees. Pipes and piping systems do not have to be labeled, however, hazard information must be available in the MSDS files.

6. The Hazard Communication Coordinator is responsible for reviewing and updating label information when new and significant information is found. This information should be extracted from revised MSDSs provided by the manufacturer.

An example of a manufacturer’s label and of an appropriate in-house label can be found in the Appendix.

9.0 POLICIES AND PROCEDURES FOR NON-ROUTINE WORK TASKS

1. On occasion, it is necessary for employees to perform jobs which they do not perform on a routine basis and that may involve potential exposure to hazardous chemicals (e.g. carbon monoxide).

2. Under such circumstances, it is the responsibility of the supervisor to determine the hazards which are present or may be created by the task. The supervisor is responsible for communicating this information to the employee. The supervisor will also make sure that any special equipment (e.g., portable ventilation system) and/or personal protective equipment is available and used to perform the work safely. This is especially important when employees enter confined space. OSHA standard 1910.146 details the requirements for entry into confined spaces.

3. The supervisor should contact the Hazard Communication Coordinator for assistance if he/she has any difficulty with item 2 above.
10.0  POLICIES AND PROCEDURE FOR CONTRACTOR COORDINATION

1. It is our policy that our employees, regardless of where they work, are entitled to information regarding the chemicals to which they are exposed in their work areas and that our employees are entitled to information regarding the chemicals to which they may be exposed as the result of the work processes of other contractors.

2. The Hazard Communication Coordinator or his/her designee is responsible for the coordination of information between our organization and any other contractors concerning all aspects of this Hazard Communication Program.

3. When the Hazard Communication Coordinator or designee is informed that contractors will be on our site, he/she will advise them in person of: any chemical hazards that may be encountered in the normal course of their work on the site; our labeling system; the protective measures required; the safe handling procedures necessary; and our emergency alarm system(s). In addition, the Hazard Communication Coordinator or designee will notify these individuals of the location and availability of our material safety data sheets.

4. Each contractor bringing chemicals on-site must provide our Hazard Communication Coordinator with the appropriate hazard information on these substances, including labels used and the precautionary measures to be taken in working with those chemicals. The contractors must also inform the Hazard Communication Coordinator or designee the location on our site the contractor will maintain a chemical inventory list and appropriate MSDS file.

5. The Hazard Communication Coordinator is also responsible for providing information to any relevant parties about any potentially hazardous substances we may bring on to any job site at which we may work as contractors.

6. The Hazard Communication Coordinator or designee will use the checklist, which follows to implement the above policy.
11.0 POLICIES AND PROCEDURES FOR TRAINING

1. This company will use a combination of videotape, written and verbal materials to instruct and inform employees. Training will be conducted, as required by the Standard, when:

- A new employee is hired.
- An employee changes jobs to one that exposes him/her to a hazard(s) for which he/she has not been trained.
- A new hazard (not necessarily a new material) is introduced into an employee’s workplace or when new information becomes available about a substance already in use in the workplace.

2. All employees having actual or potential exposure to hazardous chemicals will receive training.

3. The training will be conducted by the HCC or work site supervisor. The Hazard Communication Coordinator will monitor the training to insure compliance with our policies. The Hazard Communication Coordinator will maintain documented records regarding all relevant training delivered in this organization.

4. The topics to be covered in our information and training program include:

- Any operations in employees, work areas where hazardous chemicals are present.*
- The details of our written hazard communication program including the location and availability of our written program, chemical inventory list(s) and MSDS file.*
- Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area.
- Information about the hazardous properties of chemicals used in the workplace.
The measures employees can take to protect themselves from any chemical or physical hazards, including information on work practices, emergency procedures and personal protective equipment required by the employer.*

An explanation of how employees can obtain and use the appropriate hazard information on the labels and in the MSDSs.

Discussion of our in-house labeling system.*

Discussion of our procedures for non-routine work tasks.*

*Note: In the event that employees come to us with certification that they have received Hazard Communication training (e.g. provided by a union or an outside consultant) they will still be trained by our organization in the items indicated by asterisks above since such information is specific to the work performed at our company.
12.0  HAZARD COMMUNICATION TRAINING LOG

Date: ____________________________

Site: ____________________________

Instructor: ________________________

I have been informed of the requirements of the OSHA Hazard Communication Standard and I have received training from my employer.

<table>
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<tr>
<th>Employee Name (Print)</th>
<th>Social Security #</th>
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MOBILE CRANES, TOWER CRANES AND DERRICKS
CODE RULE 23
SUBPART 23-8

CONSTRUCTION SAFETY POLICY
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1.0 STABILITY AND STRENGTH

Mobile cranes, tower cranes and derricks used in construction, demolition and excavation operations will be so constructed, placed and operated as to be stable. No component or part of any such crane or the manufacturer or builder will stress derrick beyond its rated capacity as determined.

2.0 INSPECTION

Every mobile crane, tower crane and derrick will be thoroughly inspected by a competent, designated employee or authorized agent of the owner or lessee of such mobile crane, tower crane or derrick at intervals not exceeding one month. Such inspections will include but not be limited to all blocks, shackles, sheaves, wire rope, connectors, the various devices on the mast or boom, hooks, controls and braking mechanisms.

A written, dated and signed record of each such inspection will be completed by the competent, designated employee or authorized agent who made the inspection on an inspection form provided by the commissioner. The most recent record of inspection of a mobile crane, tower crane or derrick will be posted inside the cab of such crane or derrick and filed in an office on the job.

Every mobile crane, tower crane and derrick will be inspected before being erected or operated for the first time on any job.

Adjustments and repairs to mobile cranes, tower cranes and derricks will be made only by competent, designated persons.

A preventive maintenance program will be established for each mobile crane, tower crane and derrick based on the manufacturer's recommendations.

3.0 FOOTINGS

A firm footing will be provided for every mobile crane, tower crane and derrick.
4.0 HOISTING MECHANISM BRAKES AND LOCKING DEVICES

Every power-operated mobile crane, tower crane and derrick will be provided with hoisting mechanism brakes capable of sustaining at least one and one-half times the maximum rated load on a single part line. Hand or foot operated brakes will be provided with a substantial locking device to lock any such brake in engagement. Pedals of foot-operated brakes will be constructed so that the operators' feet cannot easily slip off. Non-slip pedal surfaces are acceptable for this purpose.

Power-controlled lowering devices, when provided, will be capable of handling rated loads and speeds in order to provide precision lowering and reduce demands on the brake loads.

EXCEPTION

This paragraph does not apply to any mobile crane provided with a clamshell or dragline used in excavation operations.

Electrically-driven mobile cranes, tower cranes and derricks will be provided with devices which will automatically hold the loads in cases of power failure.

5.0 LOAD HANDLING

Mobile cranes, tower cranes and derricks will not be loaded beyond their rated capacities.

Hoisting ropes for concrete buckets used with mobile cranes, tower cranes or derricks will be provided with safety hooks or closed shackles.

Where slings are used to hoist material of long length, spreader bars will be used to space and keep the sling legs in proper balance.

Reinforcing rods, conduit and lumber, when of uneven lengths as well as column clamps and similar items, which cannot be easily secured, to form safe drafts or loads will be hoisted in boxes. Each such box will be substantially constructed and supported from its four corners by individual lengths of wire rope having spliced or clipped loops for attachment to the load line. The construction and suspension of each such box will be capable of holding at least four times the load for which it is intended.

In steel erection, when a load is suspended from a mobile crane, tower crane or derrick at two or more points with slings, the eyes of the lifting legs of the slings will be shackled together and this shackle or the eyes of the shackled slings will be placed on the hook. Alternatively, the eyes of the lifting legs may be shackled directly to the hoisting block, ball or balance beam. The eyes may be placed on the lifting hook without shackles if the hook is of the safety type.

No more than one load will be suspended from the same load line of a mobile crane, tower crane or derrick at one time.
6.0 HOISTING THE LOAD

Before starting to hoist with a mobile crane, tower crane or derrick the following inspection for unsafe conditions will be made:

The hoisting rope will be free from kinks.

Multiple part lines will not be twisted around each other.

The hook will be brought over the load in such manner and location as to prevent the load from swinging when hoisting is started.

The load is well secured and properly balanced in the sling or lifting device before it is lifted more than a few inches.

If there is a slack rope condition, it will be determined that the hosting rope is properly seated on the drum and in the sheaves.

During the hoisting operation the following conditions must be met:

There will be no sudden acceleration or deceleration of the moving load unless required by emergency conditions.

The load will not contact any obstruction.

The side loading of booms on mobile cranes, tower cranes and derricks will be limited to freely suspended loads.

Mobile cranes, tower cranes and derricks will not be used for dragging loads sideways.

Mobile cranes, tower cranes and derricks will not hoist, lower, swing or travel while any person is located on the load or hook.

Mobile cranes, tower cranes and derricks will not hoist or carry any load over and above any person except as otherwise provided in this Part (rule).

The operator of any mobile crane, tower crane or derrick will not leave his position at the controls while any load is suspended nor will any person be permitted to work or pass under a stationary suspended load.
7.0 LIMITATIONS ON MODIFICATIONS OF MOBILE CRANES, TOWER CRANES OR DERRICKS

No load bearing component or part of any mobile crane, tower crane or power-driven derrick will be replaced by another component or part nor will any mobile crane, tower crane or derrick be modified by the addition thereto or the removal there from of any load-bearing component or part unless such replacement or modification will be as certified by either the manufacturer or builder of such crane or derrick or by a professional engineer licensed to practice in the State of New York.

8.0 CAST IRON

Cast iron will not be used for members or parts of any mobile crane, tower crane or derrick subject to tension or torsion except for brake and clutch drums.

9.0 GUARDING MOVING PARTS

Exposed moving components or parts of mobile cranes, tower cranes and derricks such as gears, set screws, projection keys, chains, and chain sprockets and reciprocating parts which might constitute a hazard under normal operating conditions, will be guarded and such guards will be securely fastened in place.

10.0 PROTECTION FROM THE ELEMENTS

Friction brakes and clutches of mobile cranes, tower cranes and derricks will be provided with adequate protection from the elements.

11.0 WIRE ROPES

Rope Safety Factors

Wire rope provided for use on any mobile crane, tower crane or derrick will be in compliance with the safety factor requirements listed as follows:

For supporting rated loads (including boom suspensions):

The safety factor for live or running ropes that wind on drums or pass over sheaves will be not less than 3.5.

The safety factor for boom pendants or standing ropes will be not less than 3.0.

For supporting the boom and working attachments at recommended travel or transit positions and boom lengths:

The safety factor for live or running ropes will be not less than 3.5. The safety factor for boom pendants and standing ropes will be not less than 3.0.
For supporting the boom under recommended boom erection conditions:

The safety factor for live or running ropes will be not less than 3.0.
The safety factor for boom pendants or standing ropes will be not less than 2.5.

**Hoisting Rope**

When the hook of the hoist of any mobile crane, tower crane or derrick is resting on the ground or equivalent elevation at least two full wraps of the hoisting rope will remain on the drum of such crane or derrick.

**Replacement Rope**

Replacement ropes for any mobile crane, tower crane or derrick will be at least the equivalent in strength and grade as the original ropes furnished by the manufacturer or builder of such crane or derrick.

**Eye Splices**

Eye splices will be made in an acceptable manner and rope thimbles will be used in the eye.

**U-bolt Clips**

U-bolt clips will have the U-bolt section on the dead or short end, and the saddle on the live or long end of the rope. Spacing and number of clips will be in accordance with manufacturer's recommendation. Clips will be of drop forged steel. When a newly installed rope has been in operation for at least one hour, all nuts on the clip bolts will be re-tightened and they will be re-checked for tightness at monthly intervals thereafter.

12.0 **ROPE INSPECTION**

**Daily**

All running ropes in continuous service on a mobile crane, tower crane or derrick will be visually inspected at least once every working day.

**Monthly**

All ropes in use on a mobile crane, tower crane or derrick will be thoroughly inspected by a competent, designated person at least once a month. Any rope damage or deterioration, which might result in appreciable loss of original rope strength will be noted and a determination will be made by the designated person as to whether, continued use of such damaged or deteriorated rope constitutes a hazard.
13.0 LUBRICATION

Sheave Bearings

All sheave bearings on mobile cranes, tower cranes and derricks will be regularly lubricated according to the recommendations of the manufacturers or builders of such cranes or derricks.

Moving Parts

All moving parts of mobile cranes, tower cranes and derricks for which lubrication is specified, including ropes and chains, will be regularly lubricated. Lubricating systems will be frequently checked for proper delivery of the lubricant. Lubricating points will be accessible without moving guards or other parts.

14.0 OPERATION NEAR POWER LINES

The operation of any mobile crane, tower crane or derrick near or around any power line or power facility will be done only in accordance with the provisions of Subpart 23-1.

15.0 USE OF MOBILE CRANES IN CONCRETE WORK

In building construction where concrete is raised by mobile cranes, such loads raised to elevations more than 150 feet will be deposited or discharged only in hoppers or other appropriate facilities, which are so located as to permit operation of the boom of any such crane at a minimum load radius.

INSPECTIONS

A mobile crane which is moved from one job site to another without dismantling beyond the folding of the boom and such additional dismantling as may be necessary for that purpose is not required to be inspected before being first erected or operated on each job site to which it is moved, providing the monthly inspections are performed on schedule.

The inspection and repair of mobile crane booms will be made only when such booms are lowered and adequately supported.

16.0 FOOTINGS AND OUTRIGGERS

Footings. A firm footing will be provided for every mobile crane. Where such firm footing is not naturally available, substantial timbers, cribbing or other structural members sufficient to distribute the load so as not to exceed the safe bearing capacity of the underlying material will provide it
17.0 **OUTRIGGERS**

Means will be provided to hold all outriggers of mobile cranes in their retracted positions while such cranes are traveling and in their extended positions when blocked for hoisting.

Where used on mobile cranes, power-operated jacks will be provided with means to prevent loss of jack support under load.

Each outrigger on a mobile crane will be visible from its actuating location.

Means will be provided to securely fasten outrigger floats to the outriggers when in use.

18.0 **HOISTING THE LOAD**

Before hoisting a load the person directing the lift will see that the mobile crane is level and, where necessary, blocked.

Before hoisting any load at a new job site, the boom of a mobile crane will be test operated to its maximum height.

Loads lifted by mobile cranes will be raised vertically so as to avoid swinging during hoisting except when the capacity chart permits such operations. A tag or restraint line will be used when rotation or swinging of any load being hoisted by a mobile crane may create a hazard.

When a mobile crane is operated at a fixed radius, the boom-hoist pawl or other positive locking device will be engaged.

19.0 **MOBILE CRANE TRAVEL**

A mobile crane traveling to or from one job site to another or traveling on a street or highway will not carry any jibs, attachments, buckets or other devices or material attached in any way to the boom whether the boom is in the folded position or not.

**EXCEPTION**

A hydraulic crane where the jib is permanently hinged to the boom or any crane where the manufacturer authorizes that the design of such crane guarantees the safe transport of the jib or other attachments.

20.0 **COUNTERWEIGHTS FOR MOBILE CRANES**

Counterweights will be provided for and used on mobile cranes as specified by the manufacturers or builders of such cranes or by professional engineers licensed to practice in the State of New York. A mobile crane will not be operated without the full amount of ballast or counterweight in place. Mobile cranes that do not have the ballast or counterweight attached may be operated temporarily with special care when handling light loads. The ballast or counterweight in place on any mobile crane will not exceed the manufacturer or builder’s specifications.
21.0 MOBILE CRANE CONSTRUCTION

Booms. Boom sections and jibs of every mobile crane will be constructed of suitable steel and will be used only for the purposes recommended by the manufacturer or builder of such mobile crane.

The boom of any mobile crane will not be raised from the level of the surface on which the crane rests other than by the use of its own hoisting capabilities. Boom stops will be provided on mobile cranes to prevent overtopping.

Any boom extension used on a mobile crane, which is not provided, by the manufacturer or a professional engineer licensed to practice in the State of New York will design builder of the crane.

22.0 BRAKING MECHANISM

Every mobile crane will be provided with the following:

Adequate braking mechanism for the boom hoist.

Swing lock or swing brake capable of preventing rotation.

Brake or other equivalent device adequate to bring the mobile crane to a stop together with a means of locking such mobile crane so as to hold it stationary.

23.0 MOBILE CRANE CAPACITY CHARTS

The stability of mobile cranes will be influenced by such factors as freely suspended loads, track, wind or ground conditions, condition and inflation of tires, boom lengths and proper operating speeds for existing conditions. All such factors will be taken into account in determining mobile crane stability.

24.0 MOBILE CRANE CAPACITY CHART REQUIRED

Every mobile crane will be provided with a capacity chart, which will be posted and maintained clearly legible in the cab of the crane visible to the crane operator from his operating position. Such chart will set forth the safe loads which may be hoisted by such crane at various lengths of boom at various boom angles and radial distances. Where outriggers are provided, such safe loads will be set forth on the capacity chart with and without the use of the outriggers.

Such chart will also indicate whether or not such handling accessories as hooks, blocks and slings are included.

Unless furnished by the manufacturer or builder of the mobile crane, the required capacity chart will be prepared and certified by a professional engineer licensed to practice in the State of New York.

ELMIRA STRUCTURES, INC.
25.0 **BOOM ANGLE INDICATOR**

Every mobile crane having either a boom exceeding 40 feet in length or a maximum rated capacity exceeding 15 tons will be provided with an approved boom angle indicator. Such boom angle indicator will indicate the boom angle in degrees and will be clearly visible to the mobile crane operator from his operating position at all times. Such boom angle indicator will emit a visible or audible warning signal whenever the boom angle is unsafe. Exception: Boom angle indicators are not required to be operative when such mobile cranes are used for excavation work with clamshells or dragline buckets.

26.0 **UNAUTHORIZED OPERATION**

The operator’s cab of every mobile crane will be kept locked whenever the operator is not present. No unauthorized person will enter the cab of or remain immediately adjacent to any mobile crane in operation. Ignition locks, locking bars or other equivalent devices will be provided to prevent unauthorized operation of mobile cranes.

27.0 **OPERATION OF A MOBILE CRANE WITH A DEMOLITION BALL.**

The operation of a mobile crane with a demolition ball will be subject to the following provisions:

The weight of any demolition ball will not exceed 50 percent of the safe load capacity of the boom length used at its lowest angle of operation.

During operation with a demolition ball the swing of the boom will not exceed 30 degrees from the centerline, front to back, of the crane mounting.

The windows of such crane cabs will be constructed of shatterproof glass or will be protected by adequate metal screens.

The load line and the attachment of the demolition ball to the load line will be inspected at least twice daily.

Track-mounted mobile cranes without outriggers will not be used with a demolition ball.
28.0 TOWER CRANE ERECTION

Every tower crane used in construction will be erected in accordance with the manufacturer’s recommendations and under the supervision of a competent, designated person experienced in tower crane erection.

Prior to the erection of any tower crane the ability of the supporting system, including slabs, foundations and the underlying soil to support the loads intended will be certified by a professional engineer licensed to practice in the State of New York.

Tower cranes will be erected so that the jibs and counterweights can swing 360 degrees without striking any building, structure or any other object.

Prior to initial use, a newly erected tower crane will undergo a static overload test in the direction of least stability. Such test will consist of suspending a load at the rated load and at the maximum radius for a period of at least one hour.

29.0 TOWER CRANE CAPACITY CHART

Every tower crane will be provided with a capacity chart, which will be posted and maintained legible in the cab of the crane clearly visible to the operator from his operating position. Where a remote control stand is used a duplicate of such capacity chart will be affixed to such control stand. Such capacity chart will be furnished by the manufacturer of the crane and will include a full and complete range of crane load ratings at all stated operating radii for each allowable speed and for each recommended counterweight loading.

30.0 TOWER CRANE CONSTRUCTION

Limit switches will be sealed against unauthorized tampering will be provided to limit trolley travel at either end of the jib, to limit load block upward motion to prevent two blocking and to limit the load being lifted to no more than 110 percent of the rated load.

31.0 CABS AND REMOTE CONTROL STATIONS

Tower crane cabs and remote control stations for such cranes will be protected from falling objects and material and from the elements) Cab windows will be constructed of transparent safety glazing material and will provide clear visibility in all directions. Cabs and remote control stations for tower cranes will be heated to a temperature of at least 60 degrees Fahrenheit during cold weather whenever occupied. Cabs and remote control stations for tower cranes will be adequately ventilated.

Accessibility. Adequate and safe means of access to and egress from the cabs and machinery platforms of tower cranes will be provided. Where it is necessary to inspect the jib attachments located on the jib of any tower crane, a foot walk with suitable handrails will be provided for such inspections.
32.0 **BRAKES**

In addition to the hoisting brakes required by this Subpart, tower cranes will be provided with the following:

**Slewing Brake**

Every tower crane will be provided with a brake having adequate holding power in either direction to prevent movement of the jib when desired during normal crane operation. Such brake will be capable of being set in the holding position and kept there without attention from the operator.

**Trolley Brake**

The trolley of every tower crane will be provided with an automatic brake or device capable of stopping movement of the trolley in case of trolley rope breakage.

33.0 **ELECTRICAL EQUIPMENT**

All electrical equipment of tower cranes will be grounded. All tower cranes will be provided with lightning protection. All controls of tower cranes will be of the dead man type. In the event of power failure, all tower crane brakes will be set automatically.

**Climbing Jacks**

Where climbing jacks are provided for tower cranes such jacks must be equipped with over-pressure relief valves, pressure gages and check valves designed to retain pressure in case of hydraulic line failure.

**Wind Velocity Device**

Every tower crane will be provided with a device for measuring wind velocity. The sensing portion of every such device will be mounted on the highest point of the crane while the readout of every such device will be located in the cab or remote control station of the tower crane.

34.0 **COUNTERWEIGHTS**

Counterweights used on tower cranes will be in accordance with the manufacturers' recommendations. Counterweights will be securely fastened to the counter jib to prevent pieces from being accidentally dislodged.
35.0 INSPECTION AND MAINTENANCE

Tower cranes will be inspected and maintained in accordance with the manufacturers' recommendations.

36.0 OPERATION OF TOWER CRANES

Operators. Only persons who are qualified will operate tower cranes.

Tower cranes will not be operated when the wind speed is at any time greater than 30 miles per hour. Tower cranes will not be raised to new operating levels when the wind speed exceeds 20 miles per hour.

Operation without counterweight prohibited. No tower crane will be operated without the full amount of ballast or counterweight in place as specified by the manufacturer or builder of the crane or by a professional engineer licensed to practice in the State of New York.

37.0 SPECIAL PROVISIONS FOR DERRICKS

Bracing Of Foot Blocks

The foot blocks of every derrick will be securely supported and firmly anchored against movement in any direction.

Guys

The top of any guy derrick mast more than 25 feet in height will be steadied by not less than six wire rope guys so spaced as to make the angles between adjacent guys approximately equal.

Anchoring. Guys will be attached to strong permanent construction or to substantial "dead men" securely anchored in the ground.

Breast-type Derricks

Breast-type derricks will be guyed from both the front and rear. Where front guys are not possible because of derrick operation, provisions will be made to prevent such derricks from tipping over backward. Breast-type derricks, which are operated by hand power will have handgrips securely and positively fastened to the shaft and a ratchet and pawl will be provided which will hold any load.
38.0 **DERRICK CONSTRUCTION**

**Materials**

The mast, boom, frame and similar parts of a derrick will be constructed of suitable steel or of selected wood of proper strength and durability.

**Mast fittings**

On derricks, which have booms larger than the masts, the gudgeon pins, mast, tops and goosenecks will be securely fastened to the tops of the masts to prevent such parts from pulling out when the booms are raised.

39.0 **DERRICK CAPACITY CHARTS**

A capacity chart will be provided for every derrick and such chart will be posted conspicuously on the job site. Unless furnished by the manufacturer or builder of the derrick, the capacity chart will be prepared and certified by professional engineer licensed to practice in the State of New York.

A derrick will not lift any load that exceeds the relevant maximum specified on its capacity chart.

**Derrick Booms Raising**

The boom of any derrick will not be raised from the level of the surface on which the derrick rests other than by the use of its own hoisting capabilities. The design, construction and length of the boom will be such that there is no undue stress imposed on the derrick structure or mechanism during such raising operations.

40.0 **SPECIAL PROVISIONS FOR CRANE OPERATORS**

**Finding of Fact**

The board finds that the trade or occupation of operating cranes of the type described in this section, in construction, demolition and excavation work involves such elements of danger to the lives, health and safety of persons employed in such trade or occupation as to require special regulations for their protection and for the protection of other employees and the public in that such cranes may fall over, collapse, contact electric power lines, dislodge material and cause such material to fall or fail to support intended loads and convey them safely, unless such cranes are operated by persons of proper ability, judgment and diligence.
Limited Application of this Section

This section applies only to mobile cranes having a manufacturers' maximum rated capacity exceeding five tons or a boom exceeding forty feet in length and to all tower cranes operating in construction, demolition and excavation work. The word crane as used in this section refers to tower cranes and to such mobile cranes of the following type: a mobile, carrier-mounted, power-operated hoisting machine utilizing hoisting rope and a power-operated boom which moves laterally by rotation of the machine on the carrier.

Certificate Of Competence Required

No person, whether the owner or otherwise, will operate a crane in the State of New York unless such person is a certified crane operator by reason of the fact that:

The person holds a valid certificate of competence issued by the commissioner to operate a crane; or the person is at least 21 years of age and holds a valid license issued by the Federal government, a State government or by any political subdivision.

Is at least 21 years of age and is employed only to test or repair a crane and is operating it for such purpose while under the direct supervision of a certified crane operator; or under the direct supervision of a person employed by the Federal government, the State or a political subdivision, agency or authority of the State and his assigned duties include the operation of a crane; an apprentice or learner who is at least 18 years of age and who has the permission of the owner or lessee of a crane to take instruction in its operation and is operating such crane under the direct supervision of a certified crane operator or under the direct supervision of a person employed by the Federal government, the State or a political subdivision, agency or authority of the State and whose assigned duties include the operation of a crane.

Application Forms And Photographs

An application for a certificate of competence or for a renewal thereof will be made on forms provided by the commissioner. Upon notice from the commissioner to an applicant that a certificate of competence or a renewal thereof will be issued to him, the applicant must forward photographs of himself in such numbers and sizes as the commissioner will prescribe, and such photographs must have been taken within 30 days of the request for such photographs.

Physical Conditions

No person suffering from a physical handicap or illness, such as epilepsy, heart disease, or an uncorrected defect in vision or hearing that might diminish his The commissioner will certify competence.
Experience Required

An applicant for a certificate of competence must be at least 21 years of age and must have had practical experience in the operation of cranes for at least three years and, in addition, have a practical knowledge of crane maintenance.

Examine Board

The commissioner may appoint an examining board, which will consist of at least three members, at least one of who will be a crane operator who holds a valid certificate of competence issued by the commissioner, and at least one of whom will be a representative of crane owners. The members of the examining board will serve at the pleasure of the commissioner and their duties will include:

1. The examination of applicants and their qualifications, and the making of recommendations to the commissioner with respect to the experience and competence of the applicants.

2. The holding of hearings regarding appeals following denials of certificates.

3. The holding of hearings prior to determinations of the commissioner to suspend or revoke certificates, or to refuse to issue renewals of certificates.

4. The reporting of findings and recommendations to the commissioner with respect to such hearings.

5. The acts and proceedings of the examining board will be in accordance with regulations issued by the commissioner.

41.0 GENERAL EXAMINATION

Each applicant for a certificate of competence will, and each applicant for a renewal thereof may, be required by the commissioner to take an appropriate general examination.

Operating Examination

An applicant who passes the general examination will also be required to take a practical examination in crane operation, except that the commissioner may waive this requirement with respect to an applicant for a renewal of a certificate of competence.

Contents of Certificate

Each certificate of competence issued will include the name and address of the certified crane operator, a brief description of him for the purpose of identification and his photograph.
Term of Certificate

Each certificate of competence or renewal thereof will be valid for three years from the date issued, unless its term is extended by the commissioner or unless it is sooner suspended or revoked. The commissioner may extend the term of any certificate of competence as he may find necessary to relieve a certified operator of unnecessary hardship.

Carrying Certificate

Each certified crane operator will carry his certificate on his person when operating any crane and failure to produce the certificate upon request by the commissioner will be presumptive evidence that the operator is not certified.

Renewals

An application for renewal of a crane operator's certificate of competence will be made within one year from the expiration date of the certificate sought to be renewed, except that the commissioner may extend the time to make such application to prevent any undue hardship to a certified crane operator.

Suspension, Revocation, Refusal To Renew, Denials Of Certificates, Hearings

The commissioner may, upon notice to the interested parties and after a hearing before the examining board, suspend or revoke a certificate of competence upon finding that the certified operator has failed to comply with an order of the commissioner or that the certified operator is not a person of proper competence, judgment or ability in relation to the operation of cranes, or for other good cause shown.

Prior to a determination by the commissioner not to renew a certificate of competence, the commissioner will require a hearing before the examining board upon notice to the interested parties.

An applicant whose application for a certificate has been denied by the commissioner may, upon his written request made to the commissioner within 30 days after the mailing or personal delivery to him of a notice of such denial, have a hearing before the examining board.

Such hearing will be held by the examining board, which will make its recommendations to the commissioner within three days after such hearing has been concluded. A written notice of the commissioner's decision, containing the reasons therefore, will be promptly given to the certified operator or applicant, as the case may be, and to any interested parties who appeared at the hearing. Every such hearing will be held in accordance with such regulations as the commissioner may establish.
CRANE/DERRICK/HOIST/CONVEYOR PERMIT

REQUESTED BY: 

(Name – Title – Company)

LOCATION: 

BUILDING: 

AREA: 

(Indicate columns, rooms, dimensions, etc.)

WORK TO BE DONE:


DATE/TIME: 

BY WHOM: 

APPROPRIATION OR PROJECT:


(Reqester Signature) 

(Date)

LIST OF PERSONAL PROTECTIVE EQUIPMENT AND SAFETY PRECAUTIONS REQUIRED (BARRICADING, ETC.):


COMPLETED CRANE SAFETY CHEKLIST ON NEXT PAGE:  ☐ YES  ☐ NO

EVACUATION OF AREA AND/OR BUILDING AS REQUIRED:  ☐ YES  ☐ NO

APPROVED BY:

(Manager, Facilities Engineering or representative) 

(Date)

SAFETY APPROVAL BY:

(Safety Signature) 

(Date)

THIS PERMIT MUST BE POSTED AT THE WORK AREA AND SENT TO THE SAFETY DEPT. UPON COMPLETION.
CRANE/DERRICK/HOIST/CONVEYOR SAFETY CHECKLIST

Inspection/Maintenance checks performed prior to use? □ YES □ NO
Condition of all crane components and rigging material checked? □ YES □ NO
Condition of all crane components and rigging material acceptable? □ YES □ NO
Swing of crane over an occupied building requiring evacuation? □ YES □ NO
Any potential interferences with utilities? □ YES □ NO
Signal person present to ensure proper distances from overhead power lines? □ YES □ NO
Tag line required? □ YES □ NO
Present ground/soil conditions assessed (include lifts near excavations) to support weight of crane? □ YES □ NO
Present ground/soil conditions assessed are acceptable? □ YES □ NO
Appropriate cribbing used? □ YES □ NO
Weight load from crane’s outriggers evenly distributed? □ YES □ NO
Determination made on whether a single point or multiple point pick/lift is necessary? □ YES □ NO
Crane and components (load capacity) sufficiently rated for proposed load? □ YES □ NO
Rated load capacities, operating speeds, special hazard warnings, and specific hand signal diagram visible to operator? □ YES □ NO
Counter weight or other moving parts adequately guarded? □ YES □ NO
Roadways, sidewalks and area of crane operation blocked or barricaded and clearly marked? □ YES □ NO
Safety pins installed on outriggers (if applicable)? □ YES □ NO

Operator(s) has certification in use of the lifting equipment on his/her person or available for review? □ YES □ NO
Are radios available and operational during lift (for out of sight load drops) by both the operator and drop point person(s)? □ YES □ NO
Notified Facility Representative? □ YES □ NO

_____________________________ _____________________
(Qualified Operator’s Signature)                                          (Date)

NOTE TO SAFETY & IH DEPARTMENT:
• Check daily log sheets/Check load capacity sheets
• Discussion of inclement weather if necessary (wind gusts, etc.)
OCCUPATIONAL HEALTH HAZARDS

CONSTRUCTION SAFETY POLICY

CAUTION

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ELMIRA STRUCTURES, INC.
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1.0 LEAD IN CONSTRUCTION

Overview

The purpose of the Lead in Construction Standard is to protect the work force from illnesses associated with exposure to lead aerosols. Due to environmental protection laws which prohibit the emission of lead dust to the general atmosphere and to communities, the industry has been forced to contain lead dust as well as protect employees. Consequently, the exposure to lead experienced to our employees can reach levels which can be injurious to health.

The standard specifies methods which can reduce and control the employee exposure so that ill health effects are less likely to occur. The requirements of the standard are summarized.

Scope And Application

The Lead in Construction Standard applies to all occupational exposures to lead and all construction work in which lead, in any amount, is present in an occupationally related context. Construction work is defined as work involving construction, alteration, and/or repair, including painting and decorating. Maintenance activities which may expose employees to lead are also covered by the standard.

Workers at the highest risk of lead exposure are those involved in:

- Abrasive blasting
- Welding, cutting and burning on steel structures

Exposure Limits

The action level is the employee exposure, without regard to the use of respirators, to an airborne concentration of a 30 micrograms per cubic meter of air (30 ug/M3), calculated as an 8 hour time weighted average (TWA). If the action level is exceeded, several provisions of the standard must be implemented which includes periodic exposure monitoring, biological monitoring, and employee training. For example, any employees exposed above the action level for more than 30 days must be included in a periodic medical surveillance program.

The permissible exposure limit (PEL) requires that employers take steps to reduce the exposures to lead below 50 ug/M3 averaged over an 8-hour day. OSHA is aware that current engineering controls at lead activity sites cannot guarantee compliance with this objective. Therefore, respiratory protection can be used to supplement engineering controls.
Worker Protections

ELMIRA STRUCTURES, INC. is responsible for developing and/or maintaining a worker protection program. Worker protection program for employees exposed to lead above the PEL includes:

- Hazard determination, including exposure assessment
- Medical Surveillance and provisions for medical removal
- Engineering and work practice controls
- Job-specific compliance programs
- Respiratory protection
- Protective clothing and equipment
- Housekeeping
- Hygiene facilities and practices
- Signs
- Employee information and training
- Recordkeeping

Elements Of A Compliance Program

For each job where employee exposure exceeds the PEL, ELMIRA STRUCTURES, INC. will establish and implement a written compliance program to reduce employee exposure to the PEL or below. The compliance program provides for frequent and regular inspections of jobsites, materials, and equipment by a competent person. Written programs, which must be reviewed and updated at least every six months, include:

- A description of each activity in which lead is emitted (such as equipment used, materials involved, controls in place, crew size, operating procedures, and maintenance practices)
- The means to be used to achieve compliance and engineering plans and studies used to determine the engineering controls selected where they are required
- Information on the technology considered to meet the PEL
- Air monitoring data that documents the source of lead emissions
- A detailed schedule for implementing the program, including copies of documentation
- A work practice program
- An administrative control schedule, if applicable
- Arrangements made among contractors on multi-contractor sites to inform employees of potential lead exposure
Hazard Assessment

ELMIRA STRUCTURES, INC. is required to conduct an initial employee exposure assessment to determine employees are exposed to lead at or above action level based on:

- Any information, observation, or calculation that indicates employee exposure to lead.
- Any previous measurements of airborne lead
- Any employee complaints of symptoms attributable to lead exposure

Objective data and historical measurements of lead will be used to satisfy the standard’s initial monitoring requirements.

If lead exposure is determined a full lead safety program will be established in accordance with OSHA regulations.

2.0 SILICA

Overview

Crystalline silica is a ubiquitous substance that is the basic component of sand, quartz and granite rock. Quartz is the second most common mineral in the earth’s crust. Quartz is readily found in both sedimentary and igneous rocks. Quartz content can vary greatly among different rock types. For example, granite contains 10-40% quartz, shales have 22% quartz, and sandstones are composed of 70% quartz.

Silica is a general term for a compound silicon dioxide (SiO₂). The most important forms of crystalline silica in terms of health hazards are quartz, cristobalite, and tridymite.

Exposure Monitoring

Air monitoring is necessary to measure worker exposure to respirable crystalline silica and to select appropriate engineering controls and respiratory protection. Air monitoring is also done to determine the effectiveness of controls and if improvement is needed in those controls.

The air sampling methodology for determining the employee exposure to respirable silica dust is fairly complicated with many pitfalls that can compromise the results. To ensure that proper monitoring protocols are followed, an environmental health and safety professional such as an Industrial Hygienist should conduct the air monitoring. The samples taken by the Industrial Hygienist should be analyzed by an AIHA (American Industrial Hygiene Association) approved laboratory. AIHA laboratories are subjected to a scrupulous accreditation process that ensures good quality control.
OSHA requires personal monitoring. This means that the employee wears the air-sampling device. Area sampling can be useful, however, it is not truly indicative of employee exposure.

Generally, an 8 hour time weighted average exposure should be determined for each employee on the basis of one or more breathing zone air samples reflecting a full shift exposure for each shift, for each job classification, and in each work area. However, it is not necessary to monitor every worker exposed to silica dust. A representative fraction of employees can be sampled for their exposure. The industrial hygienist will be familiar with the various sampling strategies and should discuss the advantages and limitations of these methods.

Employees must be notified of the air sampling results within 15 days of their receipt. These results must be carefully reviewed as they may suggest a change in control measures. The industrial hygienist should provide recommendations for silica dust exposure control. The recommendations and the findings of these surveys should be discussed with the employees.

Because there is no substance specific standard for crystalline silica dust, there is no established monitoring frequency. However, if exposures above the permissible exposure limits are determined, it is generally a good practice to perform monitoring at least on a quarterly frequency. Further, additional monitoring should occur whenever there is a change in raw material, equipment, personnel, work practices, or finished product that may result in an additional exposure of employees to respirable silica dust above the calculated permissible exposure limit.

PERSONAL PROTECTIVE EQUIPMENT, HOUSEKEEPING & HYGIENE PRACTICES

Personal Protective Equipment

Personal protective equipment must be provided and consist of appropriate protection for eyes, face, head, extremities, hand, foot, hearing, and the full body. Workers should be provided with disposable or washable work clothes at the jobsite. Workers are to change into clean clothing before leaving the worksite.

Housekeeping

All exposed surfaces should be maintained free of accumulations of silica dust. Dry sweeping and the use compressed air for cleaning surfaces should be strictly prohibited. Surfaces and equipment can be cleaned using wet methods or by vacuuming with a vacuum equipped with a HEPA (high efficiency particulate air) filter.
Hygiene Practices

Hand washing and shower facilities must be provided. Employees should be instructed to shower, if possible, and change into clean clothes before leaving the worksite to prevent contamination of cars, homes, and other work areas. Therefore, there should be clean/dirty change areas with provisions for storing clean clothing. Work clothes cannot be cleaned by blowing or shaking. Instead, they should be vacuumed before removal with a HEPA filter.

To prevent ingestion of crystalline silica, there should be separate eating/lunch facilities that are away from areas of exposure. Food drinks, tobacco products, and unapplied cosmetics should not be used in work areas.

To prevent silica dust exposures from leaving the worksite, employees should be instructed to park their cars where they would not be contaminated with silica or other hazardous substances such as lead.

Respiratory Protection

Respirators are not intended as a permanent means of preventing or minimizing exposure to airborne contaminants. Instead, effective control measures such as substitution of less hazardous substances, automation, use of enclosed systems, local exhaust ventilation, wet methods, and safe work practices should be utilized to minimize exposure to crystalline silica. These methods should be the primary means of protecting workers. However, when controls cannot keep the exposure below the OSHA permissible exposure limits, the control measures should be supplemented with the usage of respirators. Refer to the section on respiratory protection for further guidelines.

Employee Information & Training

The training of employees is required by the Safety Training and Education Standard (1926.21) and the Hazard Communication Standard (1926.59 and 1926.1200). The information and training program should include the following:

- Information concerning the potential physical and health hazards, and adverse health effects of crystalline silica.
- Material safety data sheets for silica masonry products, alternative abrasives, and other hazardous materials.
- Instruction of each employee in the recognition and avoidance of unsafe conditions concerning crystalline silica.
- Discussion about the importance of substitution, engineering controls, work practices, and personal hygiene in reducing crystalline silica exposure.
- Instructions about the proper use and care of personal protective equipment including respiratory protection.
- Details of the Hazard Communication and crystalline silica programs including information on labeling and material safety data sheets.
- Instructions about the purpose and set up of regulated areas marking the boundaries of work areas containing silica.

All employee training should be provided on an annual frequency.

ELMIRA STRUCTURES, INC.
3.0 ASBESTOS

Overview

Asbestos is a name given to a group of minerals which occur naturally as masses of long silky fibers. Asbestos is known for its unique properties of being resistant to abrasion, inert to acids and alkaline solutions, and stable in high temperatures. Because of these attributes asbestos was widely used in construction.

There are three main types of asbestos fibers:

1. Chrysolite (White Asbestos)
2. Amosite (Brown Asbestos)
3. Crocidolite (Blue Asbestos)

There are also three other types of asbestos fibers: Anthophyrite, Tremolite and Actinolite, which are found as contaminants in Asbestos Containing Materials (ACM).

ACM which can be crumbled, pulverized, or reduced to powder by hand pressure is known as friable asbestos. When friable ACM is damaged or disturbed it releases fibers into the air. Airborne asbestos fibers are small, odorless and tasteless. They range in size from .1 to .10 microns in length. Because asbestos fibers are small and light, they can be suspended in the air for long periods of time. People whose work brings them into contact with asbestos may inhale fibers.

The inhalation of asbestos fibers by workers can cause serious diseases of the lungs and other organs that may not appear until years after the exposure has occurred.

OSHA Standards

The Occupational Safety and Health Administration (OSHA) has the following three standards to protect workers from exposure to asbestos in the workplace. ELMIRA STRUCTURES, INC. follows the guidelines established in 29CFR 1926.1101, which covers construction work, including alteration, repair, renovation, and demolition of structures containing asbestos.

The standards for the construction industries classify the hazards of asbestos work activities and prescribe particular requirements for each classification:

- **Class I** is the most potentially hazardous class of asbestos jobs and involves the removal of thermal system insulation and sprayed-on or troweled-on surfacing asbestos-containing materials or presumed asbestos-containing material.
- **Class II** includes the removal of other types of asbestos-containing materials that are not thermal system insulation, such as resilient flooring and roofing materials containing asbestos.

- **Class III** focuses on repair and maintenance operations where asbestos-containing or presumed asbestos-containing materials are disturbed.

- **Class IV** pertains to custodial activities where employees clean up asbestos-containing waste and debris.

**Permissible Exposure Limits**

Employee exposure to asbestos must not exceed 0.1 fiber per cubic centimeter (f/cc) of air, averaged over an 8-hour work shift. Short term exposure must also be limited to not more than 1f/cc, averaged over 30 minutes. Rotation of employees to achieve compliance with either permissible exposure limit (PEL) is prohibited.

In construction, unless you are able to demonstrate that employee exposures will be below the PELs, you are generally required to conduct daily monitoring for workers in Class I and Class II regulated areas.

**Compliance Methods**

ELMIRA STRUCTURES, INC. must control exposures to or below the PEL’s using engineering controls and work practices to the extent feasible. Where feasible engineering controls and work practices do not ensure worker protection at the exposure levels, you must reduce employees exposures to the lowest levels achievable and then supplement them with respiratory protection to meet the PEL’s.

ELMIRA STRUCTURES, INC. must also establish decontamination areas and hygiene practices for employees exposed above a PEL. In addition, employees may not smoke in work areas that might expose them to asbestos.

**Training**

ELMIRA STRUCTURES, INC. must provide training for employees exposed above a PEL and for employees involved in each identified work classification. The specific training requirements depend on the particular class of work being performed. Asbestos awareness training must be provided to all employees who perform housekeeping operations covered by the standard.

ELMIRA STRUCTURES, INC. must also provide medical examinations for workers who, for 30 or more days per year, engage in Class I, II, or III work or experience exposure above the PEL.
Record Keeping

ELMIRA STRUCTURES, INC. must keep accurate records of the following:

- All measurements taken to monitor employee exposure to asbestos, for 30 years.
- Medical records, including physicians written opinions for the duration of the employee’s employment plus 30 years.
- Training records for one year beyond the last date of employment.

4.0 NOISE

Construction workers are among the most affected by industrial noise. The types of workers at risk include:

- Users of impact equipment and tools (e.g., piling hammers, concrete breakers, manual hammers).
- Users of explosives (e.g., blasting, cartridge tools).
- Users of pneumatically powered equipment.
- Operators of plant powered by internal combustion engines.
- Bystanders in the vicinity of the plant.
- Operators and bystanders in enclosed spaces where there are noisy activities or a concentration of plant.
- Service and equipment maintenance personnel.

It is very important for ELMIRA STRUCTURES, INC. to adopt a preventive management program aimed at the reduction of workers’ noise exposures. The best ways to achieve this reduction are to employ quiet work practices (like quiet piling systems) and use quiet construction equipment (like silenced compressors). When quieter alternatives are not available, consideration will be given to a site layout to arrange noisy processes away from workers not involved in their operation. Portable barriers can be used around static equipment like generators and concrete pumps.

To achieve better results, noise control aspects will be included in all four stages of any construction project: client’s specifications, tenderer’s proposal, site planning and construction phase.

Client’s Specifications

A client should include noise control requirements for both occupational and environmental noise early in the planning stage for a new project. The desired noise control requirements may be included in a client specification list. This can help to avoid unexpected and often very expensive noise control during the construction phase. It allows us to plan how to overcome noise problems in advance.
The client’s specifications may include the following categories:

Specified noise exposure levels during the construction phase, as per legislative requirements or company policy

- Use of quiet/ silenced equipment
- Adoption of quiet alternative techniques
- Use of noise control measures like silencers, barriers, enclosures
- Erection of warning signs identifying noise hazard areas
- Time restrictions
- Provision of personal hearing protectors and training

**ELMIRA STRUCTURES, INC. PLAN**

Following the client’s specifications, ELMIRA STRUCTURES, INC. PLANS should cover all the specified categories and formulate a noise control policy and a noise control plan to be included in the site specific safety management plan.

The noise control plan may be a set of actions required to achieve the noise control policy and to reduce noise exposure. It may also include information on how ELMIRA STRUCTURES, INC. is planning to meet its obligations, like:

- List of equipment to be used - with noise levels at operator position and/or at 1 m.
- Methods undertaken to lower noise exposure, eg maintenance, barriers, enclosures.
- Restricted hours, rotation of workers in noisy places, special time arrangements like noisy work done after hours.
- Identification of noisy equipment and processes by signs.
- Site induction for employees and contractors to include noise levels, noise controls and correct use and maintenance of personal hearing protectors.
- Selection and provision of appropriate personal hearing protectors.
- Audiometric tests.

**Planning of site activities**

The main contractor should plan to coordinate subcontractors so that the activities of one do not unnecessarily expose employees of another to noise hazards. It is good practice to nominate one person as the noise coordinator for all noisy activities. Site planning should include:

- Preparation of guidance to workers on noise hazards and measures to be taken to reduce noise exposure.
- Preparation of schedules of noisy plant and exposure estimates for each phase of work.
- Laying out the site to separate noisy activities from quieter ones, eg concentrate compressors, pumps and generators in screened-off areas or away from the work to be carried out; workshops, stores etc away from noisy activities.

**ELMIRA STRUCTURES, INC.**
• Scheduling noisy activities to take place when the minimum number of other nearby workers are present (but noise out of hours needs to be carefully planned to avoid neighbourhood annoyance).
• Rostering workers to minimise exposure times.
• Ensuring that workers are well trained, instructed and supervised in noise matters and responsibilities including correct use and maintenance of personal hearing protectors.

Construction Phase

Once the construction work is in progress, it is essential to monitor the implementation of the noise control plan. This could be carried out by the client or the main contractor and could include the following:

• Checking if equipment brought onto site complies with specifications. This could be done by obtaining information available from suppliers or by noise assessments.
• Reducing noise from identified noise sources by exchanging equipment and/or processes for a quieter alternative or by engineering control methods to quieten the existing one.
• Ensuring that all plant is properly maintained eg all noise control measures like silencers and enclosures are intact.
• Monitoring work schedules to check that noisy work is carried out as specified, away from other workers, outside hours, etc.
• Monitoring if noisy areas are identified and well marked so employees and contractors can avoid entering them unnecessarily.
• Monitoring whether training and hearing tests have been carried out and if personal hearing protectors are adequate and are being worn and maintained correctly.
• Ensuring that the cause of any hearing loss shown up by audiometry is investigated.
• Utilising safety toolbox meetings to provide feedback on effectiveness of noise control measures and personal hearing protectors to employees and employers.
• Posting on safety notice boards results of noise assessments conducted and additional noise information.
CHECKLIST FOR SILICA EXPOSURE

1. Is there silica in the workplace that can be released into the workplace air?  
   Yes___  No___

2. If "yes", have you made a written determination that states whether any employee may be exposed to airborne concentrations of silica?  
   Yes___  No___

3. If "yes" to 2, does the written determination include at least the following:
   a. Any information, observations, or calculations that would indicate employee exposure?  
      Yes___  No___
   b. If employees are exposed to toxic material, statement that exposure is at or above the Permissible Exposure Limit for crystalline quartz?  
      Yes___  No___
   c. Any employee complaints of symptoms attributable to exposures? If "yes", go to symptoms list.  
      Yes___  No___
   d. Date of determination, work being performed, location within the worksite, identification of employees possibly exposed?  
      Yes___  No___
   e. Any concentration measurements (area or personal) taken?  
      Yes___  No___
   f. Any comments from medical examinations that may point to possible exposures?  
      Yes___  No___

4. Is there any reasonable possibility of any employee being exposed above the Permissible Exposure Limit according to the written determination?  
   Yes___  No___

5. If "yes", have you measured the exposure of the employee (s) most likely to have the greatest exposure (maximum risk employees)?  
   Yes___  No___

6. If "no", have you repeated Step 2 and succeeding steps each time there has been a change in production, process, or control measures that could result in an increase in airborne concentrations of any material in Step 2?  
   Yes___  No___
7. If any exposure measurement indicates exposure above the Permissible Exposure Limit, have you:
   a. Identified all employees so exposed?    Yes___   No___
   b. Sampled those employees so identified?   Yes___   No___
   c. Classified all employees according to noncompliance exposure, possible overexposure, or compliance exposure?   Yes___   No___

8. Have you taken the following actions, depending on employee classification:
   a. Resampled employees with noncompliance exposures within 1 month and decided whether controls are to be instituted?      Yes___   No___
   b. Resampled employees with possible overexposures within 2 months and reclassified them if appropriate? Yes___   No___
   c. Resampled employees with compliance exposures every 2 months (or if changes occurred in the operation) and reclassified them if appropriate?  Yes___   No___

9. Have employees with exposures exceeding Federal standards been informed?      Yes___   No___

10. Have all employee exposure measurements been properly recorded and filed?   Yes___   No___

11. Have you instituted appropriate controls for those exposed employees needing them? Yes___   No___
Name of Business:

________________________________________________________________________

Date of Inspection:

________________________________________________________________________

Area Inspected:

________________________________________________________________________

Signature of Inspector:

________________________________________________________________________

1. Have you identified the presence, location, and quantity of all asbestos-containing materials in the work place? [1910.1001(j)]

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

2. Have employees been informed of all asbestos-containing materials in their respective work areas? [1910.1001(j)]

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

3. Have identifying signs and labels been attached or posted so all employees know to avoid these materials? [1910.1001(j)(3)]

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

4. Are all materials suspected of containing asbestos in facilities constructed before 1981 handled as if they do contain asbestos until proven otherwise? [1910.1001(j)(1)]

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
5. Have employees and contract employers and their employees (including housekeeping personnel) received initial awareness or worker training as well as annual refresher training appropriate to their work assignments and is the training material available for employees and regulators to inspect? [1910.1001(j)]

6. Are regulated areas established and demarcated, and is access restricted appropriately? [1910.1001(e)(1), (e)(2), and (e)(3)]

7. Is drinking, smoking, chewing gum or tobacco, and application of cosmetics prohibited in the regulated area? [1910.1001(e)(5)]

8. Is smoking prohibited in all work areas? [1910.1001(e)(5), (i)(4)]


10. Are workers provided with protective work clothing and equipment appropriate to the work assignment, and are workers provided with clean clothing and equipment at least weekly? [1910.1001(h)(3)(i)]

11. Are workers provided with a clean room and shower facilities appropriate to the work being performed, and is the change room separated from the storage area where potentially contaminated clothing and equipment are kept? [1910.1001(i)]

12. Is all potentially asbestos-contaminated clothing that needs to be laundered containerized, labeled, handled, and transported appropriately and is anyone handling or laundering it fully informed of the potential hazards? [1910.1001(h)(2)(iv), (h)(3)(v)]

ELMIRA STRUCTURES, INC.
13. Is a positive-pressure, air-filtered lunchroom provided, and are employees required to wash their hands and face before eating and smoking? [1910.1001(i)(3)(ii)]

14. Is employee exposure to asbestos over 0.1 fibers per cubic centimeter (f/cc) of air on an 8-hour, time-weighted average (TWA) prevented? [1910.1001(c)(1)]

15. Is employee exposure to asbestos over 1.0 f/cc for a 30 minute excursion limit (EL) prevented? [1910.1001(c)(2)]

16. Is employee exposure over 0.5 f/cc TWA and 2.5 f/cc EL prevented in the following job descriptions? [1910.1001(f)(1)(iii)]
   - Coupling cutoff in primary asbestos-cement pipe manufacturing
   - Sanding in primary and secondary asbestos-cement sheet manufacturing
   - Grinding in primary and secondary friction product manufacturing
   - Carding and spinning in dry textile processes
   - Grinding and sanding in primary plastics manufacturing

17. Are representative employees monitored for TWA and EL at least every 6 months? [1910.1001(d)(3)]

18. Is a written program to reduce employee exposure below the TWA and EL in place, and is the program reviewed and updated as necessary? [1910.1001(f)(2)(i)]

19. Is asbestos handled, mixed, applied, removed, cut, scored, or otherwise worked in a wet state sufficient to reduce employee exposure below the TWA and EL? [1910.1001(f)(1)(vi)]
20. Are engineering controls used to reduce employee asbestos exposure to the lowest achievable levels and is local exhaust ventilation designed, constructed, installed, and maintained in accordance with ANSI Z9.2-1979? [1910.1001(f)(1)(iv)]

21. Are all hand-operated and machine-operated tools that could produce or release asbestos fibers equipped with local exhaust ventilation? [1910.1001(f)(1)(v)]

22. Are respirators used during installation or implementation of: [1910.1001(g)(1)]
   - engineering and work practice controls,
   - work such as maintenance and repair activities where engineering and work practice controls are infeasible,
   - all operations where engineering and work practice controls are not yet sufficient to reduce exposures below the TWA and EL, and
   - during emergencies?

23. Are appropriate respirators used in regulated areas? [1910.1001(e)(4)]

24. Are asbestos-containing cements, mortars, coatings, grouts, plaster, and similar materials removed from containers while either wet, ventilated, or enclosed? [1910.1001(f)(1)(viii)]

25. Is using compressed air to remove asbestos prohibited unless it is done in a containment that will capture all dust? [1910.1001(f)(1)(ix)]


ELMIRA STRUCTURES, INC.
PERMIT REQUIRED
CONFINED SPACE
ENTRY POLICY

CONSTRUCTION SAFETY POLICY
# TABLE OF CONTENTS

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1.0 POLICY

It is the policy of ELMIRA STRUCTURES, INC. to protect the health and welfare of all employees whose work assignments may require entering or working in permit-required confined spaces. Only persons with appropriate aptitudes and physical competence shall be employed in confined space work. Training of selected persons to carry out confined space work shall include:

- Emergency entry and exit procedures
- Use of appropriate respiratory protective equipment
- First aid, including Cardio-Pulmonary Resuscitation (CPR)
- Lock Out and Isolation procedures
- The use of safety equipment
- Rescue drills
- Fire protection
- Communications
- Aspects essential for maintaining the safety of the breathing environment
- Recognition of any hazards specific to the operation/activity.

2.0 PURPOSE

To establish the policy and procedures regarding management and employee response and actions while working in confined spaces. Working in confined spaces can lead to injury or even death if adequate precautions are not taken. Only trained persons may enter or work in confined spaces.

Confined spaces can include storage tanks, process vessels, boilers, excavations, silos, storage bins, pits, and pipes, sewers, tunnels, vaults and shafts. Any place of work where the atmosphere is liable to be contaminated at any time by dust, fumes, mist, vapor, gas or other harmful substance, or is liable at any time to be oxygen deficient is defined as a permit required confined space. When any work area is not subject to good natural ventilation, people can be readily exposed to harmful vapors. They can then suffer lack of oxygen, and collapse as a result. People entering the same space to rescue colleagues may become the next victims.
ELMIRA STRUCTURES, INC. will ensure that our employees are protected from the potential hazards involved in entering confined spaces. We will make every effort to comply with the OSHA Permit-Required Confined Space Standard (CFR 1910.146) and to exceed those requirements when necessary to ensure the safety of our workers. In the construction industry confined spaces can develop and be eliminated during the various phases of construction. It is crucial that supervisors and lead persons recognize what is a confined space and when such a space becomes a permit required confined space.

For the purposes of this program the following definitions will apply:

- **Confined Space** - A confined space has limited or restricted means of entry or exit, is large enough for an employee to enter and perform assigned work, and is not designed for continuous occupancy by the employee. These spaces may include, but are not limited to, underground vaults, manholes, tanks, storage bins, pit areas, vessels, and silos.

- **Permit-Required Confined Space** - A "permit-required confined space" is one that meets the definition of a confined space and has one or more of these characteristics:
  1. Contains or has the potential to contain a hazardous atmosphere
  2. Contains a material that has the potential for engulfing an entrant
  3. Has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section
  4. Contains any other recognized serious safety or health hazards.

### 3.0 DEFINITIONS

a. **Acceptable entry conditions** means the conditions that must exist in a permit space to allow entry and to ensure that employees involved with a permit-required confined space entry can safely enter into and work within the space.

b. **Attendant** means an individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the employer's permit space program.

c. **Authorized entrant** means an employee who is authorized by the employer to enter a permit space.

d. **Blanking or blinding** means the absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.
e. Confined space means that:

- It is large enough and so configured that an employee can bodily enter and perform assigned work; and
- Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and
- Is not designed for continuous employee occupancy.

f. Double block and bleed means the closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

g. Emergency means any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit space that could endanger entrants.

h. Engulfment means the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

i. Entry means the action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant’s body breaks the plane of an opening into the space.

j. Entry permit (permit) means the written or printed document that is provided by the employer to allow and control entry into a permit space and that contains the information specified in paragraph (g) of this section.

k. Entry supervisor means the person (such as the employer, foreman, or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this section.

NOTE: An entry supervisor also may serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required by this section for each role he or she fills. Also, the duties of entry supervisor may be passed from one individual to another during the course of an entry operation.
1. **Hazardous atmosphere** means an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

   1. Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);
   
   2. Airborne combustible dust at a concentration that meets or exceeds its LFL;
   
   NOTE: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet or less.

   3. Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;
   
   NOTE: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this provision.

   4. Any other atmospheric condition that is immediately dangerous to life or health.
   
   NOTE: For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information such as Material Safety Data Sheets that comply with the Hazard Communication Standard, §1910.1200, published information and internal documents can provide guidance in establishing acceptable atmospheric conditions.

m. **Host employer** means any employer who arranges to have the employees of another employer (contractor) perform work for them. Our Company is the host employer for the on-site Operations Maintenance Contractor who may also be a host employer.

n. **Hot work permit** means the employer’s written authorization to perform operations (for example, riveting, welding, cutting, burning, and heating) capable of providing a source of ignition.

o. **Immediately dangerous to life or health** (IDLH) means any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual’s ability to escape unaided from a permit space.
NOTE: Some materials - hydrogen fluoride gas and cadmium vapor, for example - may produce immediate transient effects that, even if severe, may pass without medical attention, but are followed by sudden, possible fatal collapse 12 - 72 hours after exposure. The victim "feels normal" from recovery from transient effects until collapse. Such materials in hazardous quantities are considered to be "immediately" dangerous to life or health.

p. Inerting means the displacement of the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.

NOTE: This procedure produces an IDLH oxygen-deficient atmosphere.

q. Isolation means the process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.

r. Line breaking means the intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

s. Non-permit confined space 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.

t. Oxygen-deficient atmosphere means an atmosphere containing less than 19.5 percent oxygen by volume.

u. Oxygen-enriched atmosphere means an atmosphere containing more than 23.5 percent oxygen by volume.
v. Permit-required confined space (permit space) means a confined space that has one or more of the following characteristics:

1. Contains or has a potential to contain a hazardous atmosphere.

2. Contains a material that has the potential for engulfing an entrant;

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

4. Contains any other recognized serious safety or health hazard.

w. Permit-required confined space program (permit space program) means the employer's overall program for controlling, and, where appropriate, for protecting employees from, permit space hazards and for regulating employee entry into permit spaces.

x. Permit system means the employer's written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.

y. Prohibited condition means any condition in a permit space that is not allowed by the permit during the period when entry is authorized.

z. Rescue service means the personnel designated to rescue employees from permit spaces.

aa. Retrieval system means the equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.

ab. Testing means the process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.

NOTE: Testing enables employers both to devise and implement adequate control measures for the protection of authorized entrants and to determine if acceptable entry conditions are present immediately prior to, and during, entry.
4.0 REFERENCES

American National Standards Institute "Safety Requirements for Working in Tanks and other Confined Spaces".

NIOSH "Criteria for a Recommended Standard…Working in Confined Spaces."

U.S. Department of Labor, OSHA regulations, 29 CFR 1910.146, " Permit-Required Confined Spaces."

5.0 IDENTIFICATION AND EVALUATION OF CONFINED SPACES

An inspection of the Company’s premises has identified the following spaces as confined spaces and permit-required confined spaces:

A. Confined Spaces  (Insert a list of all spaces below meeting the definition of a confined space)

B. Permit-Required Confined Spaces:  (Insert a list of all spaces below that meet the definition of a permit-required confined space)

All Permit-Required Confined Spaces have been marked with warning signs reading:

"Danger - Permit-Required Confined Space - Authorized Entrants Only".

6.0 PROCEDURE

Work involving entry to a confined space must be planned. An assessment of likely hazards should be made prior to commencing the work. Precautions must be taken to avoid exposure to harmful substances or oxygen deficient atmospheres. Some thought should also be given to handling possible emergencies.
7.0 ENTRY INTO PERMIT-REQUIRED CONFINED SPACES

Prior to entry into any permit-required confined space, the employee’s supervisor will issue a permit that specifies the location, type, and duration of the work to be done, and the date. The permit will certify that all existing hazards have been evaluated by the supervisor and that necessary protective measures have been taken for the safety of workers. It will provide documentation of the atmospheric testing that has been done. It will assign entry and attendant duties to specific persons.

Before issuing an entry permit, the employee’s supervisor will be responsible for the following:

- Identify all hazards and potential hazards associated with the confined space, such as the danger of explosion, asphyxiation, toxic gases/fumes, engulfment or entrapment, electrical or mechanical hazards, etc.

- Isolate the space from potential hazards, if possible, to provide for safe entry.

- Purge, inert, flush, ventilate to eliminate atmospheric hazards.

- Provide external barriers and warning signs.

- Perform pre-entry oxygen, flammable gas and toxicity air tests. All test results are to be recorded on the entry permit. If potential hazards cannot be isolated, continuous monitoring is required. If potential hazards can be isolated, periodic monitoring is required.

- Provide at least one trained attendant outside of each confined space that will be entered.

- Ensure that rescue and emergency services and equipment are in place as noted in this policy.

- Ensure that all required equipment is provided, maintained and properly used. This includes air monitoring equipment, forced air ventilation equipment, communications equipment, personal protective equipment (PPE), lighting, external barriers and warning signs, ladders, and rescue equipment.

If hazardous conditions are detected during entry, employees will immediately leave the space and the supervisor will determine the cause of the hazardous atmosphere and take corrective actions before allowing re-entry.
8.0 RESCUE & EMERGENCY SERVICES

If proper protective measures are taken to eliminate and control any possible hazards in the confined space (i.e., ventilation, purging, monitoring, lock out/tag out, etc.), rescue operations should not be necessary. Nonetheless, the Company will be prepared for the worst-case scenario.

An attendant for the confined space will have access to a telephone and know the proper procedure for alerting the proper personnel in the event of an emergency, including the fire department, paramedics, police, and others as necessary.

Provisions will be made and equipment provided to ensure timely extraction of an unconscious or injured worker from the confined space. This will include a body harness with a lifeline attached to a tripod and rescue winch. Under no circumstances is the attendant to enter the space to effect rescue; rescue operations must be left to trained personnel.

9.0 TRAINING

Employees involved with permit-required confined space work will be trained to assure the knowledge, understanding, and skills necessary for the safe performance of their duties. Foremen will be trained in the identification and evaluation of confined space hazards and in the proper precautions to be taken to assure safe entry and work in confined spaces. Employees entering confined spaces will be trained in the hazards and potential hazards involved and how to protect themselves from those hazards. They will be trained to never enter a confined space until a permit is issued and they have been authorized to enter by the foreman. Attendants will be trained in their duties and responsibilities and the actions to be taken in the event of an emergency.

Employees will receive a written certification following their training to document that they have been properly trained in their respective duties and the hazards and safety precautions involved in confined space entry.
10. CONTRACTORS

a. When the Company arranges to have employees of another employer (contractor) perform work that involves permit space entry, the host employer shall:

1. Inform the contractor that the workplace contains permit spaces and that permit space entry is allowed only through compliance with a permit space program meeting the OSHA regulations;

2. Apprise the contractor of the elements, including the hazards identified and the host employer’s experience with the space, that make the space in question a permit space;

3. Apprise the contractor of any precautions or procedures that the host employer has implemented for the protection of employees in or near permit spaces where contractor personnel will be working;

4. Coordinate entry operations with all contractors (including on-site contractors), when any combination of host employer personnel and/or contractor personnel will be working in or near permit spaces, as required by paragraph (f-8); and

5. Debrief the contractor at the conclusion of the entry operations regarding the permit space program followed and regarding any hazards confronted or created in permit spaces during entry operations.

b. In addition to complying with the permit space requirements that apply to all employers, each contractor who is retained to perform permit space entry operations shall:

1. Obtain any available information regarding permit space hazards and entry operations from the host employer;

2. Coordinate entry operations with the host employer, when both host employer personnel and contractor personnel will be working in or near permit spaces, as required; and

3. Inform the host employer of the permit space program that the contractor will follow and of any hazards confronted or created in permit spaces, either through a debriefing or during the entry operation.
**CONFINED SPACE ENTRY PERMIT**

Date and Time Issued: __________ Date and Time Expires: __________

Job site/Space I.D.: __________ Job Supervisor: ______________________

Equipment to be worked on: __________ Work to be performed: _________

Stand-by personnel: __________ ______________ ______________

<p>| | | |</p>
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<tbody>
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</tbody>
</table>

1. Atmospheric Checks: 
   - Time
   - Oxygen ________%
   - Explosive ________% L.F.L.
   - Toxic ________PPM

2. Tester’s signature: _____________________________

3. Source isolation (No Entry): N/A Yes No
   - Pumps or lines blinded, disconnected, or blocked
     - ( ) ( ) ( )

4. Ventilation Modification: N/A Yes No
   - Mechanical
     - ( ) ( ) ( )
   - Natural Ventilation only
     - ( ) ( ) ( )

5. Atmospheric check after isolation and Ventilation:
   - Oxygen ________% > 19.5 %
   - Explosive ________% L.F.L. < 10 %
   - Toxic ________PPM < 10 PPM H(2)S
   - Time __________
   - Testers signature: _____________________________

6. Communication procedures: ________________________________
   _______________________________________________________
   _______________________________________________________

7. Rescue procedures: ______________________________________
   _______________________________________________________
8. Entry, standby, and back up persons: Yes No
   Successfully completed required training? ( ) ( )
   Is it current? ( ) ( )

9. Equipment: N/A Yes No
   Direct reading gas monitor - tested ( ) ( ) ( )
   Safety harnesses and lifelines for entry and standby persons ( ) ( ) ( )
   Hoisting equipment ( ) ( ) ( )
   Powered communications ( ) ( ) ( )
   SCBA’s for entry and standby persons ( ) ( ) ( )
   Protective Clothing ( ) ( ) ( )
   All electric equipment listed Class I, Division I, Group D and Non-sparking tools ( ) ( ) ( )

10. Periodic atmospheric tests:
    Oxygen ___% Time ___ Oxygen ___% Time ___
    Oxygen ___% Time ___ Oxygen ___% Time ___
    Explosive ___% Time ___ Explosive ___% Time ___
    Explosive ___% Time ___ Explosive ___% Time ___
    Toxic ___% Time ___ Toxic ___% Time ___
    Toxic ___% Time ___ Toxic ___% Time ___

We have reviewed the work authorized by this permit and the information contained here-in. Written instructions and safety procedures have been received and are understood. Entry cannot be approved if any squares are marked in the "No" column. This permit is not valid unless all appropriate items are completed.
Permit Prepared By:
(Supervisor)______________________________________________

Approved By: (Unit Supervisor)________________________________

Reviewed By (Cs Operations Personnel):
__________________   ____________________________________
(printed name)                               (signature)

This permit is to be kept at the job site. Return job site copy to Safety Office following job completion.

Copies:   White Original (Safety Office) -- Yellow (Unit Supervisor) -- Hard (Job site).
### Confined Space Entry Permit

**Permit Valid for 8 Hours Only. All copies of permit will remain at job site until job is completed.**

**Date:** _____  
**Site Location and Description:** __________________________

**Purpose of Entry:** ______________________________________

**Supervisor(s) in charge of crews**  
**Type of Crew**  
**Phone #**

---

**Communication Procedures:** __________________________

**Rescue Procedures (Phone numbers at bottom):**

---

*Bold denotes minimum requirements to be completed and reviewed prior to entry.*

<table>
<thead>
<tr>
<th>Requirements Completed</th>
<th>Date</th>
<th>Time</th>
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</thead>
<tbody>
<tr>
<td>Lock Out/De-energize/Try-out</td>
<td>____</td>
<td>____</td>
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<tr>
<td>Line(s) Broken-Capped-Blanked</td>
<td>____</td>
<td>____</td>
</tr>
<tr>
<td>Purge-Flush and Vent</td>
<td>____</td>
<td>____</td>
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<tr>
<td>Ventilation</td>
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<td>____</td>
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<tr>
<td>Secure Area (Post and Flag)</td>
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<td>____</td>
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<tr>
<td>Breathing Apparatus</td>
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<td>____</td>
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<tr>
<td>Resuscitator - Inhalator</td>
<td>____</td>
<td>____</td>
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<tr>
<td>Standby Safety Personnel</td>
<td>____</td>
<td>____</td>
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<tr>
<td>Full Body Harness w/&quot;D&quot; ring</td>
<td>____</td>
<td>____</td>
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<tr>
<td>Emergency Escape Retrieval Equip</td>
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<td>____</td>
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<tr>
<td>Lifelines</td>
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<td>____</td>
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<tr>
<td>Fire Extinguishers</td>
<td>____</td>
<td>____</td>
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<tr>
<td>Lighting (Explosive Proof)</td>
<td>____</td>
<td>____</td>
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<tr>
<td>Protective Clothing</td>
<td>____</td>
<td>____</td>
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<tr>
<td>Respirator(s) (Air Purifying)</td>
<td>____</td>
<td>____</td>
</tr>
<tr>
<td>Burning and Welding Permit</td>
<td>____</td>
<td>____</td>
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</tbody>
</table>

**Note:** Items that do not apply above, enter N/A in the blank.
Permissible __________________________________________________________________________

TEST(S) TO BE TAKEN  Entry Level

PERCENT OF OXYGEN  19.5% to 23.5% ____________________________________________

LOWER FLAMMABLE LIMIT Under 10% ____________________________________________

CARBON MONOXIDE + 35 PPM ____________________________________________

Aromatic Hydrocarbon + 1 PPM * 5PPM ____________________________________________

Hydrogen Cyanide (Skin) * 4PPM ____________________________________________

Hydrogen Sulfide + 10 PPM * 15PPM ____________________________________________

Sulfur Dioxide + 2 PPM * 5PPM ____________________________________________

Ammonia * 35PPM ____________________________________________

* Short-term exposure limit: Employee can work in the area up to 15 minutes.
+ 8 hr. Time Weighted Avg.: Employee can work in area 8 hrs (longer with appropriate respiratory protection).

REMARKS:________________________________________________________________________

GAS TESTER NAME  INSTRUMENT (S)  MODEL SERIAL /OR &
CHECK #  # USED  &/OR TYPE  UNIT #

________________________  ____________________  ___________  ___________

________________________  ____________________  ___________  ___________
15.0 Permit Required Confined Space Survey - 29 CFR 1910.146

**HAZARD ANALYSIS CHECKLIST**

**PERMIT REQUIRED CONFINED SPACE SURVEY - 29 CFR 1910.146**

<table>
<thead>
<tr>
<th>SECTION I DESCRIPTION &amp; LOCATION</th>
<th>DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS &amp; SPACE NAME:</td>
<td></td>
</tr>
<tr>
<td>DESCRIPTION:</td>
<td></td>
</tr>
<tr>
<td>☐ Sub-Basement ☐ Ceiling ☐ Vault with Manhole ☐ Mud Drum/Tank ☐ Boiler ☐ Other</td>
<td></td>
</tr>
<tr>
<td>LOCATION: ☐ On Site ☐ Off Site</td>
<td></td>
</tr>
<tr>
<td>GIVE SPECIFICS:</td>
<td></td>
</tr>
</tbody>
</table>

**Section II Confined Space Recognition**

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Is the space large enough so an employee can enter and perform work?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Does the space have limited or restricted means for entry and exit?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Is the space designed for occupancy?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If the answers to Items 1 and 2 are yes and Item 3 is no, then you have identified the space as a confined space. If this criteria has not been met, then the space is not considered a confined space and no further action is needed. Continue to Section 3 if a confined space has been identified to determine if it is a permit-required confined space.

**SECTION III DOES THE SPACE CONTAIN OR POTENTIALLY CONTAIN:**

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pipes which bring chemicals into it?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Any lines under pressure servicing the space?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Mechanical equipment?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### SECTION III  DOES THE SPACE CONTAIN OR POTENTIALLY CONTAIN:

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. A hazardous atmosphere?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Chemicals or chemical residues?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Flammable/combustible substances?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Decomposing organic matter?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Materials that can trap or potentially trap, engulf, or drown an entrant?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Rusted or corroded interior surfaces?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Converging walls, sloped floors or floors tapered to smaller cross-sections which could trap or asphyxiate an entrant (entrapment hazard)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Contain thermal hazards (e.g. Extreme hot or cold)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Excessive noise levels which could interfere with communication with an attendant?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Dust which at 5 feet or less may obscure vision?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Any slip, trip, or fall hazards?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Any corrosives which could irritate the eyes?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: If the above potential hazards are contained, controlled or properly guarded prior to entry, the space may be classified as a non permit confined space, however personal monitoring should still be used.

### SECTION IV  EITHER PRIOR TO ENTRY OR WHILE THE ENTRANT IS IN THE SPACE:

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Does the space have poor natural ventilation which would allow an atmospheric hazard to develop?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Is air monitoring necessary to ensure the space is safe for entry due to a potential hazardous atmosphere?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Is mechanical ventilation needed to maintain a safe environment?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Will there be any operations conducted near the space opening which could present a hazard to entrants?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Will there be any hazards from falling objects?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Are cleaning solvents or paints going to be used in the space?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Is welding, cutting, brazing, riveting, scraping, or sanding going to be performed?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Is electrical equipment required to be used in the space?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Are there any conditions which could prevent an entrant performing self rescue?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Will there be any substances used in the space which may have acute hazards?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Will entry be made into a diked area where the dike is 5 feet or more in height?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Are residues going to be scraped off the interior surfaces of the vessel?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Are non-sparking tools required to remove the residues?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Will the space restrict mobility to the extent that it could trap an entrant?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Is respiratory protection required because of a hazardous atmosphere?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Will the space present a hazard other than those noted above which would make it a permit space?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** IF THE HAZARDS LISTED IN SECTION 3 AND 4 ABOVE ARE TOTALLY ELIMINATED OR CONTROLLED PRIOR TO ENTRY, THE SPACE MAY BE DOWN GRADED TO A NON-PERMIT CONFINED SPACE.

ELMIRA STRUCTURES, INC.
PERSONAL
PROTECTIVE
EQUIPMENT

CONSTRUCTION SAFETY POLICY
# TABLE OF CONTENTS

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2.0  Responsibilities

3.0  Program Components

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    4.1  Description and Use of Eye/Face Protectors
    4.2  Head Protection
    4.3  Foot Protection
    4.4  Hand Protection

5.0  Eye and Face Protection Selection Chart
1.0 INTRODUCTION

The objective of the **Personal Protective Equipment (PPE) Program** is to protect employees from the risk of injury by creating a barrier against workplace hazards. Personal protective equipment is not a substitute for good engineering or administrative controls or good work practices, but should be used in conjunction with these controls to ensure the safety and health of employees. Personal protective equipment will be provided, used, and maintained when it has been determined that its use is required and that such use will lessen the likelihood of occupational injury and/or illness.

This program addresses eye, face, head, foot, and hand protection. Separate programs exist for respiratory and hearing protection since the need for participation in these programs is established through industrial hygiene monitoring.

- ELMIRA STRUCTURES, INC. ’s Personal Protective Equipment Program includes:
- Responsibilities of supervisors, employees, and the safety coordinator.
- Hazard assessment and PPE selection
- Employee training
- Recordkeeping requirements

2.0 RESPONSIBILITIES

**Supervisors**

- Supervisors have the primary responsibility for implementation of the PPE Program in their work area. This involves:
- Providing appropriate PPE and making it available to employees.
- Ensuring employees are trained on the proper use, care, and cleaning of PPE.
- Maintaining records on PPE assignments and training.
- Supervising staff to ensure that the PPE Program elements are followed and that employees properly use and care for PPE.
- Seeking assistance from safety coordinator to evaluate hazards.
- Notifying safety coordinator when new hazards are introduced or when processes are added or changed.
- Ensuring defective or damaged equipment is immediately replaced.
Employees

- The PPE user is responsible for following the requirements of the PPE Program. This involves:
  - Wearing PPE as required.
  - Attending required training sessions.
  - Caring for, cleaning, and maintaining PPE as required.
  - Informing the supervisor of the need to repair or replace PPE.

Safety Coordinator

The Safety Coordinator is responsible for the development, implementation, and administration of the PPE Program. This involves:

- Conducting workplace hazard assessments to determine the presence of hazards, which necessitate the use of PPE.
- Conducting periodic workplace reassessments as requested by supervisors and/or as determined by the Safety Coordinator.
- Maintaining records on hazard assessments.
- Providing training and technical assistance to supervisors on the proper use, care, and cleaning of approved PPE.
- Providing guidance to the supervisor for the selection and purchase of approved PPE.
- Periodically reevaluating the suitability of previously selected PPE.
- Reviewing, updating, and evaluating the overall effectiveness of the PPE Program.

3.0 PROGRAM COMPONENTS

Hazard Assessment and Equipment Selection

OSHA requires employers to conduct inspections of all workplaces to determine the need for personal protective equipment (PPE) and to help in selecting the proper PPE for each task performed. For each work site, a certificate must be completed which lists the findings of the inspection and the specific protective equipment needed. These duties will be distributed between the Safety Coordinator and supervisors.

The Safety Coordinator, in conjunction with Supervisors, will conduct a walk-through survey of each work area to identify sources of hazards, including impact, penetration, compression, chemical, heat, dust, electrical sources, material handling, and light radiation. Each survey will be documented using the
Hazard Assessment Certification Form (Appendix B), which identifies the workplace surveyed, the person conducting the survey, findings of potential hazards, and date of the survey.

Once the hazards of a workplace have been identified, the Safety Coordinator will determine the suitability of the PPE presently available and as necessary select new or additional equipment which ensures a level of protection greater than the minimum required to protect the employees from the hazards. Care will be taken to recognize the possibility of multiple and simultaneous exposure to a variety of hazards. Adequate protection against the highest level of each of the hazards will be provided or recommended for purchase.

**Protective Devices**

All personal protective clothing and equipment will be of safe design and construction for the work to be performed and shall be maintained in a sanitary and reliable condition. Only those items of protective clothing and equipment that meet NIOSH or ANSI (American National Standards Institute) standards will be procured or accepted for use. Newly purchased PPE must conform to the updated ANSI standards which have been incorporated into the OSHA PPE regulations, as follows:

- **a. Eye and Face Protection ANSI Z87.1-1989**
- **b. Head Protection ANSI Z89.1-1986**
- **c. Foot Protection ANSI Z41.1-1991**
- **d. Hand Protection** there are no ANSI standards for gloves, however, selection must be based on the performance characteristics of the glove in relation to the tasks to be performed.

Careful consideration will be given to comfort and fit of PPE in order to ensure that it will be used. Protective devices are generally available in a variety of sizes. Care should be taken to ensure that the right size is selected.

**Eye and Face**

Prevention of eye injuries requires that all persons who may be in eye hazard areas wear protective eyewear. This includes employees, visitors, researchers, contractors, or others passing through an identified eye hazard area. To provide protection for these personnel, Supervisors of such areas shall procure a sufficient quantity of goggles and/or plastic eye protectors which afford the maximum amount of protection possible. If these personnel wear personal glasses, they shall be provided with a suitable eye protector to wear over them.
Suitable protectors shall be used when employees are exposed to hazards from flying particles, molten metal, acids or caustic liquids, chemical liquids, gases, or vapors, bioaerosols, or potentially injurious light radiation.

- Wearers of contact lenses must also wear appropriate eye and face protection devices in a hazardous environment.
- Side protectors shall be used when there is a hazard from flying objects.
- Goggles and face shields shall be used when there is a hazard from chemical splash.
- Face shields shall only be worn over primary eye protection (safety glasses or goggles).
- For employees who wear prescription lenses, eye protectors shall either incorporate the prescription in the design or fit properly over the prescription lenses.
- Protectors shall be marked to identify the manufacturer.
- Equipment fitted with appropriate filter lenses shall be used to protect against light radiation. Tinted and shaded lenses are not filter lenses unless they are marked or identified as such.

**Prescription Safety Eyewear**

OSHA regulations require that each affected employee who wears prescription lenses while engaged in operations that involve eye hazards shall wear eye protection that incorporates the prescription in its design, or shall wear eye protection that can be worn over the prescription lenses (goggles, faceshields) without disturbing the proper position of the prescription lenses or the protective lenses. Personnel requiring prescription safety glasses must contact the Office of Health and Safety to have their request for prescription safety glasses processed.

**Emergency Eyewash Facilities**

Emergency eyewash facilities meeting the requirements of ANSI Z358.1 will be provided in all areas where the eyes of any employee may be exposed to corrosive materials. All such emergency facilities will be located where they are easily accessible in an emergency.
Head Protection

Head protection will be furnished to, and used by, all employees and contractors working in areas where there exists a potential for head injury due to low clearances or being struck by objects overhead. Head protection is also required to be worn by engineers, inspectors, and visitors in such areas. Bump caps/skull guards will be issued and worn for protection against scalp lacerations from contact with sharp objects. However, they will not be worn as substitutes for safety caps/hats because they do not afford protection from high impact forces or penetration by falling objects.

Foot Protection

Safety shoes shall be worn in the shops, loading docks, maintenance shop, wash areas, and other areas as determined by the Safety Coordinator. All safety footwear shall comply with ANSI Z41-1991, "American National Standard for Personal Protection - Protective Footwear."

Safety shoes or boots with impact protection are required to be worn in work areas where carrying or handling materials such as packages, objects, parts or heavy tools, which could be dropped; and for other activities where objects might fall onto the feet. Safety shoes or boots with compression protection are required for work activities involving skid trucks (manual materials handling cars) or other activities in which materials or equipment could potentially roll over an employee’s feet. Safety shoes or boots with puncture protection are required where sharp objects such as nails, wire, tacks, screws, large staples, scrap metal etc., could be stepped on by employees causing a foot injury.

Hand Protection

Suitable gloves shall be worn when hazards from chemicals, cuts, lacerations, abrasions, punctures, burns, biologicals, and harmful temperature extremes are present. Glove selection shall be based on performance characteristics of the gloves, conditions, durations of use, and hazards present. One type of glove will not work in all situations.

The first consideration in the selection of gloves for use against chemicals is to determine, if possible, the exact nature of the substances to be encountered. Read instructions and warnings on chemical container labels and MSDSs before working with any chemical. Recommended glove types are often listed in the section for personal protective equipment.
All glove materials are eventually permeated by chemicals. However, they can be used safely for limited time periods if specific use and other characteristics (i.e., thickness and permeation rate and time) are known. The Safety Coordinator can assist in determining the specific type of glove material that should be worn for a particular chemical.

Cleaning and Maintenance

It is important that all PPE be kept clean and properly maintained. Cleaning is particularly important for eye and face protection where dirty or fogged lenses could impair vision. PPE should be inspected, cleaned, and maintained at regular intervals so that the PPE provides the requisite protection. Personal protective equipment shall not be shared between employees until it has been properly cleaned and sanitized. PPE will be distributed for individual use whenever possible.

It is also important to ensure that contaminated PPE which cannot be decontaminated is disposed of in a manner that protects employees from exposure to hazards.

Training

Any worker required to wear PPE shall receive training in the proper use and care of PPE. Periodic retraining shall be offered by OHS to both the employees and the supervisors, as needed. The training shall include, but not necessarily be limited to, the following subjects:

- When PPE is necessary to be worn.
- What PPE is necessary
- How to properly don, doff, adjust, and wear PPE.
- The limitations of the PPE.
- The proper care, maintenance, useful life and disposal of the PPE.

After the training, the employees shall demonstrate that they understand the components of the PPE Program and how to use PPE properly, or they shall be retrained.

Recordkeeping

Written records shall be kept of the names of persons trained, the type of training provided, and the dates when training occurred. The Supervisor shall maintain their employees’ training records for at least 3 years. The Safety Coordinator shall maintain the Hazard Assessment Certification Form for each work site evaluated for at least 3 years.
4.0 GENERAL GUIDELINES FOR CHOOSING PERSONAL PROTECTIVE EQUIPMENT

4.1 Description and Use of Eye/Face Protectors

Safety Glasses. Protective eyeglasses are made with safety frames, tempered glass or plastic lenses, temples and side shields which provide eye protection from moderate impact and particles encountered in job tasks such as carpentry, woodworking, grinding, scaling, etc. Safety glasses are also available in prescription form for those persons who need corrective lenses.

Single Lens Goggles. Vinyl framed goggles of soft pliable body design provides adequate eye protection from many hazards. These goggles are available with clear or tinted lenses, perforated, port vented, or non-vented frames. Single lens goggles provide similar protection to spectacles and may be worn in combination with spectacles or corrective lenses to insure protection along with proper vision.

Welders/Chippers Goggles. These goggles are available in rigid and soft frames to accommodate single or two eyepiece lenses.

Welder’s goggles provide protection from sparking, scaling, or splashing metals and harmful light rays. Lenses are impact resistant and are available in graduated shades of filtration.

Chippers/Grinders goggles provide eye protection from flying particles. The dual protective eye cups house impact resistant clear lenses with individual cover plates.

Face Shields. These normally consist of an adjustable headgear and face shield of tinted/transparent acetate or polycarbonate materials, or wire screen. Face shields are available in various sizes, tensile strength, impact/heat resistance and light ray filtering capacity. Face shields will be used in operations when the entire face needs protection and should be worn to protect eyes and face against flying particles, metal sparks, and chemical/biological splash.

Welding Shields. These shield assemblies consist of vulcanized fiber or glass fiber body, a ratchet/button type adjustable headgear or cap attachment and a filter and cover plate holder. These shields will be provided to protect workers’ eyes and face from infrared or radiant light burns, flying sparks, metal spatter and slag chips encountered during welding, brazing, soldering, resistance welding, bare or shielded electric arc welding and oxyacetylene welding and cutting operations.
4.2 Head Protection

Head injuries are caused by falling or flying objects, or by bumping the head against a fixed object. Head protectors, in the form or protective hats, must resist penetration and absorb the shock of a blow. The shell of the protective hat is hard enough to resist the blow and the headband and crown straps keep the shell away from the wearer’s skull. Protective hats can also protect against electrical shock.

Protective hats are made in the following types and classes:

Type I - Helmets with a full brim.

Type 2 - Brimless helmets with a peak extending forward from the crown.

Class A - General service, limited voltage. Intended for protection against impact hazards. Used in mining, construction, and manufacturing.

Class B - Utility service, high voltage. Used by electrical workers.

Class C - Special service, no voltage protection. Designed for lightweight comfort and impact protection. Used in certain construction, manufacturing, refineries, and where there is a possibility of bumping the head against a fixed object.

4.3 Foot Protection

There are many types and styles of protective footwear and it’s important to realize that a particular job may require additional protection other than listed here. Footwear that meets established safety standards will have an American National Standards Institute (ANSI) label inside each shoe.

Steel-Reinforced Safety Shoes. These shoes are designed to protect feet from common machinery hazards such as falling or rolling objects, cuts, and punctures. The entire toe box and insole are reinforced with steel, and the instep is protected by steel, aluminum, or plastic materials. Safety shoes are also designed to insulate against temperature extremes and may be equipped with special soles to guard against slip, chemicals, and/or electrical hazards.
Safety Boots. Safety boots offer more protection when splash or spark hazards (chemicals, molten materials) are present:

When working with corrosives, caustics, cutting oils, and petroleum products, neoprene or nitrile boots are often required to prevent penetration.

Foundry or "Gaiter" style boots feature quick-release fasteners or elasticized insets to allow speedy removal should any hazardous substances get into the boot itself.

When working with electricity, special electrical hazard boots are available and are designed with no conductive materials other than the steel toe (which is properly insulated).

4.4 Hand Protection

Skin contact is a potential source of exposure to toxic materials; it is important that the proper steps be taken to prevent such contact. Most accidents involving hands and arms can be classified under four main hazard categories: chemicals, abrasions, cutting, and heat. There are gloves available that can protect workers from any of these individual hazards or any combination thereof.

Gloves should be replaced periodically, depending on frequency of use and permeability to the substance(s) handled. Gloves overtly contaminated should be rinsed and then carefully removed after use.

Gloves should also be worn whenever it is necessary to handle rough or sharp-edged objects, and very hot or very cold materials. The type of glove materials to be used in these situations includes leather, welder’s gloves, aluminum-backed gloves, and other types of insulated glove materials.

Careful attention must be given to protecting your hands when working with tools and machinery. Power tools and machinery must have guards installed or incorporated into their design that prevent the hands from contacting the point of operation, power train, or other moving parts. To protect hands from injury due to contact with moving parts, it is important to:

Ensure that guards are always in place and used.

Always lock-out machines or tools and disconnect the power before making repairs.
Treat a machine without a guard as inoperative; and

Do not wear gloves around moving machinery, such as drill presses, mills, lathes, and grinders.

The following is a guide to the most common types of protective work gloves and the types of hazards they can guard against:

Disposable Gloves. Disposable gloves, usually made of light-weight plastic, can help guard against mild irritants.

Fabric Gloves. Made of cotton or fabric blends are generally used to improve grip when handling slippery objects. They also help insulate hands from mild heat or cold.

Leather Gloves. These gloves are used to guard against injuries from sparks or scraping against rough surfaces. They are also used in combination with an insulated liner when working with electricity.

Metal Mesh Gloves. These gloves are used to protect hands from accidental cuts and scratches. Persons working with cutting tools or other sharp instruments use them most commonly.

Aluminized Gloves. Gloves made of aluminized fabric are designed to insulate hands from intense heat. These gloves are most commonly used by persons working molten materials.

Chemical Resistance Gloves. These gloves may be made of rubber, neoprene, polyvinyl alcohol or vinyl, etc. The gloves protect hands from corrosives, oils, and solvents. The following table is provided as a guide to the different types of glove materials and the chemicals they can be used against. When selecting chemical resistance gloves, be sure to consult the manufacturers’ recommendations, especially if the gloved hand will be immersed in the chemical.
### 5.0 EYE AND FACE PROTECTION SELECTION CHART

<table>
<thead>
<tr>
<th>Source</th>
<th>Assessment of Hazard</th>
<th>Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMPACT - Chipping, grinding, machining, drilling, chiseling, riveting, sanding, etc.</td>
<td>Flying fragments, objects, large chips, particles, sand, dirt, etc.</td>
<td>Spectacles with side protection, goggles, face shields. For severe exposure, use face shield over primary eye protection.</td>
</tr>
<tr>
<td>CHEMICALS - Acid and chemicals handling</td>
<td>Splash Irritating mists</td>
<td>Goggles, eyecup and cover types. For severe exposure, use face shield over primary eye protection Special-purpose goggles.</td>
</tr>
<tr>
<td>DUST - Woodworking, buffing, general dusty conditions</td>
<td>Nuisance dust</td>
<td>Goggles, eyecup and cover types.</td>
</tr>
<tr>
<td>LIGHT and/or RADIATION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Welding – electric arc</td>
<td>Optical radiation</td>
<td>Welding helmets or welding shields. Typical shades: 10-14</td>
</tr>
<tr>
<td>Welding – gas</td>
<td>Optical radiation</td>
<td>Welding goggles or welding face shield. Typical shades: gas welding 4-8, cutting 3-6, brazing 3-4</td>
</tr>
<tr>
<td>Cutting, torch brazing, torch soldering</td>
<td>Optical radiation</td>
<td>Spectacles or welding face shield. Typical shades: 1.5-3</td>
</tr>
<tr>
<td>Glare</td>
<td>Poor Vision</td>
<td>Spectacles with shaded or special-purpose lenses, as suitable.</td>
</tr>
</tbody>
</table>
# HAZARD ASSESSMENT CERTIFICATION FORM

<table>
<thead>
<tr>
<th>Date:</th>
<th>Location:</th>
</tr>
</thead>
</table>

Assessment Conducted By:

Specific Tasks Performed at this Location:

## Hazard Assessment and Selection of Personal Protective Equipment

### Overhead Hazards

Hazards to consider include:
- Suspended loads that could fall
- Overhead beams or loads that could be hit against
- Energized wires or equipment that could be hit against
- Employees work at elevated site who could drop objects on others below
- Sharp objects or corners at head level

Hazards Identified:

<table>
<thead>
<tr>
<th>__________________________________________________________________________</th>
<th>__________________________________________________________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>__________________________________________________________________________</td>
<td>__________________________________________________________________________</td>
</tr>
<tr>
<td>__________________________________________________________________________</td>
<td>__________________________________________________________________________</td>
</tr>
</tbody>
</table>

### Head Protection

<table>
<thead>
<tr>
<th>Hard Hat:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>If yes, type:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Type A (impact and penetration resistance, plus low-voltage electrical insulation).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Type B (impact and penetration resistance, plus high-voltage electrical insulation).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Type C (impact and penetration resistance).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Eye and Face Hazards**

- Hazards to consider include:
- Chemical splashes
- Dust
- Smoke and fumes
- Welding operations
- Lasers/optical radiation
- Bioaerosols
- Projectiles

<table>
<thead>
<tr>
<th>Hazards Identified:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Eye Protection**

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety glasses or goggles</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>Face Shield</td>
<td>___</td>
<td>___</td>
</tr>
</tbody>
</table>
Hand Hazards

- Hazards to consider include:
  - Chemicals
  - Sharp edges, splinters, etc.
  - Temperature extremes
  - Biological agents
  - Exposed electrical wires
  - Sharp tools, machine parts, etc.
  - Material handling

Hazards Identified:

_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________

Hand Protection

<table>
<thead>
<tr>
<th>Gloves:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical resistant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature resistant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abrasion resistant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (Explain)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Foot Hazards

- Hazards to consider include:
- Heavy materials handled by employees
- Sharp edges or points (puncture risk)
- Exposed electrical wires
- Unusually slippery conditions
- Wet conditions
- Construction/demolition

**Hazards Identified:**

<table>
<thead>
<tr>
<th>Safety shoes:</th>
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<th>No</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
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<tr>
<td>Toe protection</td>
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<tr>
<td>Metatarsal protection</td>
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<tr>
<td>Puncture resistant</td>
<td>___</td>
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<tr>
<td>Electrical insulation</td>
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<tr>
<td>Other (Explain)</td>
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<tr>
<td>Hazard</td>
<td>Recommended Protection</td>
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</tbody>
</table>

I certify that the above inspection was performed to the best of my knowledge and ability, based on the hazards present on _________________.

_____________________
(Signature)
Respiratory Protection Program

CONSTRUCTION SAFETY POLICY

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1.0. RESPIRATORY PROTECTION POLICY

The purpose of this section is to outline this organization’s policies and procedures for proper use and care of respiratory protection.

ELMIRA STRUCTURES, INC. desires to protect its employees from airborne hazards that may be detrimental to their safety and health. It is recognized that respirators are only a substitute for controlling or preventing individual exposure to hazardous agents. Engineering and administrative controls, process changes, substitution, and/or other methods are preferred means of protecting employees. However, the use of respiratory protection will be required to protect an employee’s health where implementation of engineering and administrative controls as well as process changes are infeasible.

This respiratory protection program will apply to:

• All personnel using respiratory protection;

• All situations that respiratory protection is being utilized or may be considered; and

• All types of respiratory protection equipment issued by this organization.

Protection of employees from potential inhalation hazards with respiratory protection will be required when:

• Effective engineering and administrative controls are not present, are infeasible, or cannot adequately protect employees.

• Feasible engineering controls are being investigated and/or installed.

• Employees are working in an atmosphere that has:
  
  i. Unknown airborne contaminants or an unknown concentration of airborne contaminants;

  ii. Been determined to be immediately dangerous to life or health (IDLH); or

  iii. The potential to become IDLH.

• Required by a regulatory agency.
Each employee is responsible for his or her own health and safety. This organization, in complying with the respiratory protection program required by OSHA, will provide employees with the necessary tools, equipment and training to maintain employees' exposures as low as reasonably achievable. We sincerely urge all employees involved in this respiratory protection program to abide by the policies described in this compliance plan. This program is designed to protect the health of our workers, by meeting the requirements of the OSHA Respiratory Protection Standard. Only NIOSH/MSHA approved respirators shall be issued to our employees.

Signature

Title

Date

2.0 INDUSTRIAL HYGIENE ASSESSMENT

A. General

Unless mandated by specific OSHA standards or enforcement policies, no respirator will be issued unless an industrial hygiene survey of the workplace has been conducted. If personal air monitoring has been performed, the results will be reviewed and analyzed by an industrial hygienist to determine their validity and reliability.

An industrial hygienist shall identify and evaluate the areas of the facility where hazardous chemicals are being used or stored. Hazard assessment shall include:

- Identification and review of the chemicals in use and their hazards.
- Assessment of the potential for exposures.
B. Exposure Monitoring

Personal air monitoring will be performed by an industrial hygienist or by a properly trained industrial hygiene technician.

Personal air monitoring will be conducted for hazardous substances when:
- required by OSHA standards
- airborne concentrations of hazardous substances are suspected to be above the permissible exposure limit, the short-term exposure limit, the ceiling limit, or the excursion limit as defined in Subpart Z of the OSHA General Industry Standards.

3.0 OPERATIONS, ACTIVITIES AND JOB FUNCTIONS REQUIRING RESPIRATORY PROTECTION

The decision to provide respiratory protection to personnel will be based upon:
- The identified contaminant(s).
- The results of personal air monitoring.
- The monitored activities.
- The applicable exposure limits.
- The job functions/activities requiring the use of respiratory protection.

4.0 RESPIRATOR SELECTION

The guidelines outlined in this section provide assistance in the selection of appropriate respiratory protection. NIOSH certified respirators will be provided to employees to protect their health due to the nature of the work environment or work activity.

A. Hazard Assessment

The selection and classification of a respirator is dependent upon the characteristics of the inhalation hazard. These characteristics are:
- The atmospheric oxygen concentration
- A contaminant's physical state, toxicity, and airborne concentration
- The presence of other contaminants or stress factors in the work environment that may affect employee exposure
- Worker exposure time and susceptibility
Respiratory hazards may be classified as:

- Gas or vapor contaminants
- Particulate contaminants (dust, mist, fumes or fibers)
- Oxygen deficiency
- Atmospheres immediately dangerous to life and health (IDLH)
- Bioaerosols
- Unknown

Each classification requires a different type of respiratory protection.

The selection and use of respiratory protection is dependent upon the:

- Nature of the hazard
- Intended use and limitations of the respiratory protection selected
- Movement and work rate limitations
- Emergency escape time and distance requirements
- Training requirements

Other considerations for determining the appropriate respiratory protection are cartridge sorbent efficiencies, odor warning properties, eye irritation potential, protection factor of the respirator, lower flammability limit, and conditions which are immediately dangerous to life and health.

B. TYPES OF RESPIRATORY PROTECTION

There are two broad classes of respiratory protection equipment: air purifying respirator (APRs) and supplied air respirators (SARs).

1. Air Purifying Respirators (APRs)

Air purifying respirators with the proper cartridges and/or filters protect workers from gases, vapors, particulates, and bioaerosols. This type of respirator should only be used if:

- The airborne concentration of the contaminant has not exceeded the maximum use concentration recommended for the respirator;
- Oxygen is present in amounts 19.5% or greater; and
- The atmosphere is not immediately dangerous to life and health (IDLH).

In general, air-purifying respirators can be used if:

- The air contaminant is known;
- The airborne concentration of the contaminant is known;
- The air purifying element provides adequate protection from the air contaminant based on manufacturer’s literature; and
- The air contaminant has good warning properties.
A full or half facepiece respirator with single or double cartridges contains a filtering media that traps and/or reacts with airborne contaminants to remove them from the air. The cartridges are discarded after a single use or several uses depending upon the type and concentration of the airborne contaminant. Cartridge types available include organic vapor, combination organic vapor/acid gases, formaldehyde or ammonia.

These respirator cartridges also may be combined with prefilters for protection from particulates.

**TYPE N OR GAS MASK**

A type N or gas mask is a full face APR with a canister to provide a longer duration of protection because of the increased size of the canister. The canister contains a filter media that either traps and/or reacts with contaminants to remove them from the inhaled air.

**POWERED AIR PURIFYING RESPIRATORS (PAPR)**

A powered air purifying respirator is a full or half facepiece respirator connected to a belt mounted battery pack which drives a fan motor that forces air through a disposable cartridge to a mask or helmet. The canister contains a filtering media that either traps and/or reacts with airborne contaminants to remove them from the air.

2. **Supplied Air Respirators (Sar)**

Supplied air respirators consist of a facepiece connected to a device that provides a separate supply of breathable air. SARs are generally used for comfort or when the maximum use concentration (MUC) of an APR is exceeded. Air supplied to SARs must meet the Compressed Gas Association's standard for Grade D air. Pure oxygen is not to be used as breathing air for SARs. In those situations where entry must be made into oxygen deficient environments, atmospheres which are immediately dangerous to life or health (IDLH) or unknown atmospheres, a full face SAR with a five minute escape bottle or a self contained breathing apparatus (SCBA) must be used. Situations that may require the use of a SAR are:

- Entry into confined spaces
- Entry into an area where the airborne contaminant concentration may exceed the MUC of APRs
- Hazardous waste sites
• Hazardous substance spills or releases
• Employer requirement for specific atmospheric supplying respiratory protection, e.g., walk-in paint spray booth
• Entry into potentially IDLH or unknown atmospheres

Three types of SARs are:

• **Type A** - a facepiece attached to a hose and blower
• **Type B** - a facepiece attached to a hose
• **Type C** - a facepiece attached to compressed breathing air cylinders or air compressor by a hose

There are three methods of supplying breathable air:

• **Demand**: Delivers air only when wearer inhales.
• **Continuous Flow**: Delivers air continuously.
• **Pressure/Demand**: Delivers increased air upon demand, but maintains a permanent positive pressure inside the face piece.

**SELF-CONTAINED BREATHING APPARATUS (SCBA)**

SCBAs are SARs with a back mounted compressed breathing air cylinder supplying air. Generally, the cylinder supplies no more than 30 or 60 minutes of breathable air. Some SCBAs are oxygen rebreathers, devices that recycle exhaled air. These units can provide breathing air for up to four hours.

An SCBA may be used in an IDLH environment provided a second or stand by person is present and is equipped with an SCBA.

**AIR LINE RESPIRATORS**

The breathing air is supplied to the facepiece through a long hose connected to one or more cylinders or a specifically designed air compressor. The air line respirators are not for use in IDLH situations or where oxygen concentration is less than 19.5% unless a five minute belt-mounted escape bottle is connected to the worker's regulator.
EMERGENCY ESCAPE RESPIRATORS

The breathable air is supplied to a facepiece or head cover from a small cylinder carried by the wearer. The cylinder provides no more than 5 or 10 minutes of breathable air. This type of respirator is not designed for use when performing work, but is intended only for emergency escape from a contaminated atmosphere. Depending upon the manufacturer of device, it may be capable of being connected to an air line and quickly disconnected in case of an emergency.

These devices shall not be used for entry into hazardous atmospheres, even if the entry is for rescue purposes. Escape respirators are provided and carried by all individuals when there is a potential for exposure to toxic materials at IDLH levels during emergency egress from the work area.

All emergency escape devices have limitations that must be taken into account. When entering a work area where there is a potential IDLH atmosphere during the emergency egress, the worker shall assess the egress route to assure the emergency escape egress time does not exceed the capacity of the escape respirator.

5.0 AIR QUALITY FOR SUPPLIED AIR RESPIRATORS (SARs)

Only breathing gas containers marked with the NIOSH respirator certification standard, 42 CFR part 84, will be used.

A. Cylinders

Cylinders used to supply breathing air to respirators will meet the following requirements:

- Cylinders are tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR parts 173 and 178);
- Cylinders of purchased breathing air have a certificate of analysis from the supplier that the breathing air meets the requirements for Grade D breathing air; and
- The moisture content in the cylinder does not exceed a dew point of \(-50^\circ F\) at 1 atmosphere pressure.
B. Compressors

Compressors used to supply breathing air to respirators will be constructed and positioned to:

- Prevent entry of contaminated air into the air-supply system;
- Minimize moisture content so that the dew point at 1 atmosphere pressure is \(10^\circ F\) below the ambient temperature;
- Have suitable in-line air-purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters will be maintained, replaced and/or refurbished periodically per the manufacturer’s instructions; and
- Have a tag containing the most recent change date and the signature of the person authorized to perform the change. The tag must be maintained at the compressor.

Non-Oil Lubricated Compressors

For compressors that are not oil-lubricated, carbon monoxide levels in the breathing air will not exceed 10 ppm.

Oil-Lubricated Compressors

For oil-lubricated compressors, a high-temperature and/or carbon monoxide alarm will be used to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply shall be monitored at intervals that prevent carbon monoxide in the breathing air from exceeding 10 ppm.

C. Couplings

Breathing air couplings that are incompatible with outlets for nonrespirable worksite air or other gas systems will be utilized. No asphyxiating substance will be introduced into breathing air lines.

6.0 MEDICAL DETERMINATION

A. Medical Evaluation

Employees will not be assigned to tasks requiring usage of respirators unless it has been determined by a physician or a licensed health care professional (PLHCP) that they are physically able to perform their duties while wearing the prescribed respirators. Individuals will be evaluated medically before being fit tested or required to wear a respirator. Annual medical evaluations will be performed by a physician or licensed health care professional (PLHCP) to determine whether medical conditions exist that could preclude respirator use. The medical evaluation will include the administering of the confidential medical questionnaire found in Appendix...
A follow-up medical examination will be provided for any employee who responds positively to any question found in section 2, Part A of the medical questionnaire. The follow-up medical examination will include any medical tests, consultations or diagnostic procedures that the PLHCP determine are necessary.

C. Information For The PLHCP

The PLHCP will be provided with a copy of the respiratory protection program and the following information:

- The type and weight of the respirator to be used by the employee;
- The duration and frequency of respirator use (including use for rescue and escape);
- The expected physical work effort;
- Additional protective clothing and equipment to be worn;
- Temperature and humidity extremes that may be encountered;

D. Physician’s Written Opinion

The physician shall issue a written recommendation indicating the results of the medical determination. The physician’s written opinion will indicate if the employee has any medical condition that would place the employee at risk of physical impairment and any limitations regarding respirator usage. The physician shall also inform the employee of the findings in writing.

E. Recordkeeping

All medical examinations will be kept for the duration of the employee’s tenure, plus 30 years.

7.0 FIT TESTING

A. Medical Qualification

Employees who are required to utilize respiratory protection equipment will not be assigned to such a task without a prior medical determination that they are physically capable of using such equipment. No employee will undergo the fit testing procedure until a medical determination indicated in section VIII of this program has been done.

B. Fit Test

To ensure a good seal between the worker’s face and the respirator, employees will be required to receive a fit test.
• Prior to being assigned to initial use of a respirator.
• When a different respirator facepiece is used
• At least annually.
• At the frequency mandated by a substance specific OSHA standard.

Employees will be tested with the same make, model, and size of respirator that will be worn.

A qualitative (QLFT) or quantitative (QNFT) fit test will be performed to ensure that employees have an adequate face-to-face piece seal prior to using respiratory protection to perform the intended task. Regardless of the fit test method, all potential wearers of respirators must be tested.

A record of the test will be maintained for each employee.

C. Negative Pressure Air Purifying Respirators

QLFT will only be used to fit test negative pressure air purifying respirators that must achieve a fit factor of 100 or less.

The fit factor, as determined by QNFT, must be greater than or equal to 100 for half face respirators to pass the fit test.

For full facepiece respirators, the fit factor must be greater than or equal to 500 as determined by QNFT.

D. Atmosphere Supplying Respirators And Paprs

Fit testing of atmosphere supplying and PAPRs will be done using either QNFT or QLFT, but in the negative pressure mode.

Qualitative fit testing of these respirators shall be accomplished by temporarily converting the respirator user's actual facepiece into a negative pressure respirator with appropriate filters, or by using an identical negative pressure air-purifying respirator facepiece with the same sealing surfaces as a surrogate for the atmosphere-supplying or powered air-purifying respirator facepiece.
Quantitative fit testing of these respirators shall be accomplished by modifying the facepiece to allow sampling inside the facepiece in the breathing zone of the user, midway between the nose and mouth. This requirement shall be accomplished by installing a permanent sampling probe onto a surrogate facepiece, or by using a sampling adapter designed to temporarily provide a means of sampling air from inside the facepiece.

Any modifications to the respirator facepiece for fit testing shall be completely removed, and the facepiece restored to NIOSH-approved configuration, before that facepiece can be used in the workplace.

**Fit Test Result:**

The fit test procedure was conducted in fulfillment of OSHA’s fit testing requirement of employees wearing half-face air purifying respirators (Code of Federal Regulations 29 CFR 1910.134(f) and in accordance with American National Standards Institute Practices for Respiratory Protection ANSI Z88.2-1992).

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<th>Quantitative</th>
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</table>

Employee’s Acknowledgment of the Test Result:

Employee's Signature: __________________________

Date________________

Test Conductor’s Signature: __________________________

Date________________

Respiratory Protection Administrator’s Signature____________________

Date________________
8.0 RESPIRATOR USAGE

All employees wearing respirators are required to adhere to the following guidelines, practices and rules indicated in this section.

A. Facial Hair

Employees will not be permitted to wear respiratory protection if they are not able to obtain an adequate face-to-face piece seal. Any growth of facial hair, beards or long sideburns is not permitted as it affects the seal of the respirator. Mustaches may be permitted provided they are maintained above the lip line.

B. Corrective Eyewear

The temple bars of glasses interfere with the face-to-face piece seal of full-face respirators. Employees who cannot adequately perform the assigned task while wearing a full face piece respirator with their glasses on must notify their supervisor and/or the respiratory protection manager upon becoming aware of such visual problems.

Supervisors must contact the respiratory protection manager so that an accommodation may be made to permit the employee to obtain the necessary equipment. Specific kits are available from respiratory protection manufacturers. As a temporary measure, temple bars may be shortened and taped to the worker's face.

Employees are not permitted to wear contact lenses while utilizing full-face respiratory protection.

C. Seal Check

All employees wearing tight fitting respirators are required to perform a seal check each time they put on the respirator.

D. Circumstances When Employees Should Leave The Respirator Use Area

Employees may leave areas requiring respirator usage when any one of the following circumstances:

- To wash their faces and respirator facepieces as necessary to prevent eye or skin irritation associated with respirator use;
- They detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece;
- To replace the respirator or the filter, cartridge, or canister elements.
The respiratory protection program manager will repair or replace the respirator, if the employee detects vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece, before allowing the employee to return to the work area.

E. Idlh Procedures

In the rare occasion that entry into an area or space exposes an employee to an atmosphere that is IDLH, than the steps indicated below will be followed:

- One or more employees will be located outside the IDLH atmosphere;
- Visual, voice, or signal line communication will be maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere;
- The employee(s) located outside the IDLH atmosphere will be trained and equipped to provide effective emergency rescue;
- Supervisors will be notified before the employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue; and
- The supervisor, once notified, will provide necessary assistance appropriate to the situation;

Employee(s) located outside the IDLH atmospheres will be equipped with:

- Pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA; and
- Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres.

If the IDLH atmosphere is located in a “Permit Required Confined Space”, than the confined space entry and permit procedures will be followed in lieu of the IDLH procedure.

F. Structural Firefighting

No employees will be required to be involved in structural fire fighting procedures.

G. VOLUNTARY RESPIRATOR USAGE

1. Filtering Facepieces (Dust Masks)

   Employees wearing dust masks under voluntary circumstances (i.e. no airborne health hazard has been determined to exist), will not be included in the respiratory protection program. These employees will be issued Appendix D, “Information for Employees using Respirators when not required Under the Standard”.

2. All Other Respirators
Employees wearing any other type of respirator, other than a dust mask, will be included in the respiratory protection program.

H. Surveillance

Appropriate surveillance will be maintained of work area conditions and the degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, the continued effectiveness of the respirator will be reevaluated.

9.0 EMPLOYEE TRAINING PROGRAM

A. Basic Information

Equally as important as the selection of a respirator is proper instruction in its use. Therefore, all employees will be included in a thorough training program. Employees will be informed of:

• Purpose for wearing the respirator
• Operating principles of the respirator
• Limitations of the respirator
• Essential parts of the respirator
• Cleaning, storage and inspection of the respirator

The following will be demonstrated as part of the training program:

• How the respirator is to be worn
• Adjustment procedure
• How to determine proper fit and a good seal
• Testing its face piece to face seal
• Wearing it in normal air for familiarity
• Wearing it in a test environment

Employees will receive respirator training annually and are required to sign a log indicating that they have received the training.

10.0. RESPIRATORY INSPECTION & MAINTENANCE PROGRAM

A. General

Maintenance of respirators is critical to the overall respiratory protection program. Wearing a poorly maintained or malfunctioning respirator may be more dangerous than not wearing a respirator at all. Accordingly, respirators will be cleaned and disinfected, properly stored, inspected and repaired according to manufacturers specifications.

B. Repairs

Respirators that fail an inspection or are defective are removed from service, and are discarded or repaired or adjusted in accordance with the following procedures:
Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and will use only the respirator manufacturer's NIOSH-approved parts designed for the respirator;

Repairs shall be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed.

11.0 PROGRAM EVALUATION

An annual review of the effectiveness of the respirator program will be conducted. Annual surveys to determine the effectiveness of the respirator program will be conducted. This will include work site inspections, interviews with respirator wearers, air monitoring, and a review of all records pertinent to the respiratory protection program.

Users will be consulted periodically about their acceptance of wearing respirators. This includes comfort, resistance to breathing, fatigue, interference with vision, interference with communications, restriction of movement, interference with job performance, and confidence in the effectiveness of the respirator to provide adequate protection.

A Respirator Wearer Evaluation will be utilized to assist in gathering this information.

Records documenting medical evaluations, fit testing, respirator selection and usage, inspection, cleaning, maintenance, and repair of the respirators will be reviewed.

The above information can serve as an indication of the degree of protection provided by respirators and the effectiveness of the respirator program. Action shall be taken to correct any insufficiencies found in the program. The findings of the respirator program evaluation will be reported, and the report shall list plans to improve the program and target dates for the implementation of the plans.
FORM #1

JOB FUNCTIONS REQUIRING RESPIRATORS

Based on industrial hygiene assessments, the task will involve usage of respirators.

Department: ________________________________________________________________

Job Function/Activities Requiring Respirators: _________________________________

Contaminant(s): _____________________________________________________________

Monitored Level: ____________________________________________________________

Monitoring Date: ____________________________________________________________

Monitored Activities: _________________________________________________________

OSHA PELS: TWA___________ STEL___________ Action Level _________________

ACGIH TLVs: TWA__________________________   STEL _______________________  

NIOSH RELs: ____________________________________

Type of Respirator Protection Selected: _________________________________________

Make and Model of Respiratory Protection: _________________________________

Cartridge (if applicable): _____________________________________________________

Effective Date of Respiratory Protection Usage: _________________________________

Revision Date: _________________________________

Revision Date: _________________________________

ELMIRA STRUCTURES, INC.
FORM #2
EMPLOYEE FIT TEST RECORD

Employee Name: ________________________________________________________

Title/Job Description: _____________________________________________________

Conductor of Fit Test:
Name: ________________________________________________________________

Title: _________________________________________________________________

Conditions Which May Affect Respirator Fit:
(To be completed by Fit Test Conductor)

Clean Shaven____________  1-2 Day Growth____________
Mustache____________  2+  Day Growth____________
Glasses____________ Facial Hair____________
None____________ Other____________

Comments: _____________________________________________________________________
_______________________________________________________________________________

Employee’s Acknowledgement of Familiarity with User Instructions and Certain Limitations:

I have read and understood the USER INSTRUCTIONS of the _________________________
Respirator, and will follow said USER INSTRUCTIONS every time I use the respirator.  I
acknowledge that this respiratory protective device will not provide adequate protection when
used under conditions other than specified or when USER INSTRUCTIONS are not followed.

Employee’s Signature: ___________________________ Date: __________
FORM # 3

EMPLOYEE RESPIRATOR CERTIFICATE

1. Employee Name: _________________________________________________
   Job Title: _________________________________________________________
   Department: _______________________________________________________

2. Medical Clearance Date: _____________________________________________
   Name of PLHCP: ___________________________________________________

3. Fit Testing Data:
   Fit Testing Method:  □ Qualitative  □ Quantitative
   Challenge Agent: ___________________________________________________
   Respirator Make/ Model/ Cartridges: _________________________________
   Name of Fit Tester: _________________________________________________
   Signature of Fit Tester: _____________________________________________

4. Training Dates: ____________________________________________________
   Name of Trainer: ___________________________________________________
   Signature of Trainer: ______________________________________________

5. Expiration Date: ____________________________________________________
   ___________________________________________    _______________________
   Employee Signature      Date

   Name of Resp. Prot. Administrator/Date: _______________________________

   Supervisor’s Signature/Date: _____________________________
   Signature of Resp.Prot. Administrator/Date: ___________________________

   VALID FOR 1 YEAR
FORM # 4

INSPECTING THE AIR PURIFYING RESPIRATOR

Air purifying respirators should be checked before and after each use:

Examine the face piece for:

☐ excessive dirt (clean all dirt)
☐ cracks, tears, holes or distortion from improper storage (obtain new face piece)
☐ inflexibility (stretch and massage to restore flexibility)
☐ distortion (allow face piece to "sit" free from any constraints and see if distortion disappears; if not, obtain new face piece)
☐ cracked and badly scratched lenses in full face pieces
☐ incorrectly mounted full face piece lens or broken or missing mounting clips
☐ cracked or broken air purifying element holder(s), badly worn threads, or missing gasket(s) (if required)

Examine the head straps or head harness for:

☐ breaks or tears (replace head straps)
☐ loss of elasticity (replace head straps)
☐ broken or malfunctioning buckles and attachments (obtain new buckles)
☐ excessively worn serrations on the head harness which might permit slippage (full face pieces only)

After removing its cover, examine the exhalation valve for:

☐ foreign material, such as detergent residue, dust particles, or human hair under the valve seat
☐ cracks, tears, or distortion in the valve material
☐ improper insertion of the valve body in the face piece
☐ cracks, breaks or chips in the valve body, particularly in the sealing surface
☐ missing or defective valve cover
☐ improper installation of the valve in the valve body

Examine the air-purifying elements for:

☐ incorrect cartridge, canister, or filter for the hazard
☐ approval designation
☐ incorrect installation, loose connections, missing or worn gaskets, or cross-threading in holder
☐ expired shelf life date on cartridge or canister
☐ cracks or dents in outside case of filter, cartridge or canister
☐ evidence of prior use of sorbent cartridge or canister, indicated by absence of sealing materials, tape, foil, etc., over inlet

ELMIRA STRUCTURES, INC.
If the device has a corrugated breathing tube, examine it for:

- broken or missing end connector, gasket, or O-rings
- missing or loose hose clamps
- deterioration, determined by stretching the tube and looking for cracks

Examine the harness in a front or belt mounted air-purifying respirator for:

- damage or wear to the canister holder which may prevent its being held securely in place
- broken harness straps or fastenings

In addition a positive and negative pressure test (fit check) should be performed prior to each use of any respirator.

- Negative Fit Test - Place palms over cartridge openings and inhale for 10 seconds. You should feel the facepiece pull in toward your face.

- Positive Fit Test - With palms over exhalation valve opening, exhale gently into the mask. You should feel pressure in the face piece.
FORM # 5

INSPECTION OF SUPPLIED AIR RESPIRATORS

Check face piece, head straps, valves, and breathing tube, as for purifying respirators.

If there is a hood, helmet, blouse, or full suit check for:

☐ headgear suspension (adjust properly for you)
☐ cracks or breaks in faceshield (replace faceshield)
☐ protective screen to see that it is intact and fits correctly over the faceshield, abrasive blasting hoods, and blouses (obtain new screen)

Air supplying system - check for:

☐ breathing air quality
☐ breaks or kinks in air supply hoses, O-rings and end fitting attachments (replace hose and/or fitting)
☐ tightness of connections including leaks
☐ proper setting of regulators and valves (consult manufacturer's recommendations)
☐ correct operation of air purifying elements and carbon monoxide or high temperature alarms if applicable

Negative Fit Test

☐ Place palm of hand over breathing tube and inhale for ten seconds. You should feel the facepiece pull in toward your face.
APPENDICES

A. Medical Evaluation Questionnaire
B. Information for Employees Using Respirators When not Required
APPENDIX A

MEDICAL EVALUATION QUESTIONNAIRE

To the employer: Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a medical examination.

To the employee:

Can you read (circle one): Yes/No

Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health care professional who will review it.

Part A. Section 1. (Mandatory) The following information must be provided by every employee who has been selected to use any type of respirator (please print).

1. Today's date: _________________________________

2. Your name ________________________________

3. Your age (to nearest year): __________________

4. Sex (circle one): Male/Female

5. Your height: _______ ft. ________ in.

6. Your weight: _________ lbs.

7. Your job title: ______________________________

8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code): _________________

9. The best time to phone you at this number: ________________

10. Has your employer told you how to contact the health care professional who will review this questionnaire (circle one): Yes/No

11. Check the type of respirator you will use (you can check more than one category):
    a. _____ N, R, or P disposable respirator (filter-mask, non-cartridge type only).
    b. _____ Other type (for example, half- or full-facepiece type, powered-air purifying, supplied-air, self-contained breathing apparatus).
12. Have you worn a respirator (circle one): Yes/No

   If "yes," what type(s):_________________________________________   
   __________________________________________________________________

Part A. Section 2. (Mandatory) Questions 1 through 9 below must be answered by every 
employee who has been selected to use any type of respirator (please circle "yes" or "no").

1. Do you currently smoke tobacco, or have you smoked tobacco in the last month: Yes/No

2. Have you ever had any of the following conditions?
   a. Seizures (fits): Yes/No
   b. Diabetes (sugar disease): Yes/No
   c. Allergic reactions that interfere with your breathing: Yes/No
   d. Claustrophobia (fear of closed-in places): Yes/No
   e. Trouble smelling odors: Yes/No

3. Have you ever had any of the following pulmonary or lung problems?
   a. Asbestosis: Yes/No
   b. Asthma: Yes/No
   c. Chronic bronchitis: Yes/No
   d. Emphysema: Yes/No
   e. Pneumonia: Yes/No
   f. Tuberculosis: Yes/No
   g. Silicosis: Yes/No
   h. Pneumothorax (collapsed lung): Yes/No
   i. Lung cancer: Yes/No
   j. Broken ribs: Yes/No
   k. Any chest injuries or surgeries: Yes/No
   l. Any other lung problem that you've been told about: Yes/No

4. Do you currently have any of the following symptoms of pulmonary or lung illness?
   a. Shortness of breath: Yes/No
   b. Shortness of breath when walking fast on level ground or walking up a slight hill 
or incline: Yes/No
   c. Shortness of breath when walking with other people at an ordinary pace on level 
ground: Yes/No
   d. Have to stop for breath when walking at your own pace on level ground: Yes/No
   e. Shortness of breath when washing or dressing yourself: Yes/No
   f. Shortness of breath that interferes with your job: Yes/No
   g. Coughing that produces phlegm (thick sputum): Yes/No
h. Coughing that wakes you early in the morning: Yes/No
i. Coughing that occurs mostly when you are lying down: Yes/No
j. Coughing up blood in the last month: Yes/No
k. Wheezing: Yes/No
l. Wheezing that interferes with your job: Yes/No
m. Chest pain when you breathe deeply: Yes/No
n. Any other symptoms that you think may be related to lung problems: Yes/No

5. Have you ever had any of the following cardiovascular or heart problems?
   a. Heart attack: Yes/No
   b. Stroke: Yes/No
   c. Angina: Yes/No
   d. Heart failure: Yes/No
   e. Swelling in your legs or feet (not caused by walking): Yes/No
   f. Heart arrhythmia (heart beating irregularly): Yes/No
   g. High blood pressure: Yes/No
   h. Any other heart problem that you've been told about: Yes/No

6. Have you ever had any of the following cardiovascular or heart symptoms?
   a. Frequent pain or tightness in your chest: Yes/No
   b. Pain or tightness in your chest during physical activity: Yes/No
   c. Pain or tightness in your chest that interferes with your job: Yes/No
   d. In the past two years, have you noticed your heart skipping or missing a beat: Yes/No
   e. Heartburn or indigestion that is not related to eating: Yes/No
   f. Any other symptoms that you think may be related to heart or circulation problems: Yes/No

7. Do you currently take medication for any of the following problems?
   a. Breathing or lung problems: Yes/No
   b. Heart trouble: Yes/No
   c. Blood pressure: Yes/No
   d. Seizures (fits): Yes/No

8. If you've used a respirator, have you ever had any of the following problems? (If you've never used a respirator, check the following space and go to question 9:)
   a. Eye irritation: Yes/No
   b. Skin allergies or rashes: Yes/No
   c. Anxiety: Yes/No
   d. General weakness or fatigue: Yes/No
   e. Any other problem that interferes with your use of a respirator: Yes/No
9. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire: Yes/No

Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-facepiece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.

10. Have you ever lost vision in either eye (temporarily or permanently): Yes/No

11. Do you currently have any of the following vision problems?
   a. Wear contact lenses: Yes/No
   b. Wear glasses: Yes/No
   c. Color blind: Yes/No
   d. Any other eye or vision problem: Yes/No

12. Have you ever had an injury to your ears, including a broken ear drum: Yes/No

13. Do you currently have any of the following hearing problems?
   a. Difficulty hearing: Yes/No
   b. Wear a hearing aid: Yes/No
   c. Any other hearing or ear problem: Yes/No

14. Have you ever had a back injury: Yes/No

15. Do you currently have any of the following musculoskeletal problems?
   a. Weakness in any of your arms, hands, legs, or feet: Yes/No
   b. Back pain: Yes/No
   c. Difficulty fully moving your arms and legs: Yes/No
   d. Pain or stiffness when you lean forward or backward at the waist: Yes/No
   e. Difficulty fully moving your head up or down: Yes/No
   f. Difficulty fully moving your head side to side: Yes/No
   g. Difficulty bending at your knees: Yes/No
   h. Difficulty squatting to the ground: Yes/No
   i. Climbing a flight of stairs or a ladder carrying more than 25 lbs: Yes/No
   j. Any other muscle or skeletal problem that interferes with using a respirator: Yes/No
Part B Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.

1. In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen: Yes/No

   If "yes," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you’re working under these conditions: Yes/No

2. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes, or dust), or have you come into skin contact with hazardous chemicals: Yes/No

   If "yes," name the chemicals if you know them:____________________________
   _____________________________________________________________________
   _____________________________________________________________________

3. Have you ever worked with any of the materials, or under any of the conditions, listed below:
   a. Asbestos: Yes/No
   b. Silica (e.g., in sandblasting): Yes/No
   c. Tungsten/cobalt (e.g., grinding or welding this material): Yes/No
   d. Beryllium: Yes/No
   e. Aluminum: Yes/No
   f. Coal (for example, mining): Yes/No
   g. Iron: Yes/No
   h. Tin: Yes/No
   i. Dusty environments: Yes/No
   j. Any other hazardous exposures: Yes/No

   If "yes," describe these exposures:_______________________________________
   _____________________________________________________________________
   _____________________________________________________________________

4. List any second jobs or side businesses you have:__________________________
   _____________________________________________________________________

5. List your previous occupations:__________________________________________
   _____________________________________________________________________
6. List your current and previous hobbies: ______________________________________
_____________________________________________________________________

7. Have you been in the military services? Yes/No

If "yes," were you exposed to biological or chemical agents (either in training or combat): Yes/No

8. Have you ever worked on a HAZMAT team? Yes/No

9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications): Yes/No

If "yes," name the medications if you know them:_______________________

10. Will you be using any of the following items with your respirator(s)?

a. HEPA Filters: Yes/No
b. Canisters (for example, gas masks): Yes/No
c. Cartridges: Yes/No

11. How often are you expected to use the respirator(s) (circle "yes" or "no" for all answers that apply to you)?:

a. Escape only (no rescue): Yes/No
b. Emergency rescue only: Yes/No
c. Less than 5 hours per week: Yes/No
d. Less than 2 hours per day: Yes/No
e. 2 to 4 hours per day: Yes/No
f. Over 4 hours per day: Yes/No
12. During the period you are using the respirator(s), is your work effort:

a. Light (less than 200 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift: ____________hrs. ____________mins.

Examples of a light work effort are sitting while writing, typing, drafting, or performing light assembly work; or standing while operating a drill press (1-3 lbs.) or controlling machines.

b. Moderate (200 to 350 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift: ____________hrs. ____________mins.

Examples of moderate work effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; walking on a level surface about 2 mph or down a 5-degree grade about 3 mph; or pushing a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.

c. Heavy (above 350 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift: ____________hrs. ____________mins.

Examples of heavy work are lifting a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).

13. Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using your respirator: Yes/No

If "yes," describe this protective clothing and/or equipment:__________________
___________________________________________________________________

14. Will you be working under hot conditions (temperature exceeding 77 deg. F): Yes/No

15. Will you be working under humid conditions: Yes/No
16. Describe the work you'll be doing while you're using your respirator(s):
___________________________________________________________________
___________________________________________________________________

17. Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (for example, confined spaces, life-threatening gases):
___________________________________________________________________

18. Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator(s):

Name of the first toxic substance:_______________________________________
Estimated maximum exposure level per shift:______________________________
Duration of exposure per shift:__________________________________________
Name of the second toxic substance:_____________________________________
Estimated maximum exposure level per shift:______________________________
Duration of exposure per shift:__________________________________________
Name of the third toxic substance:_______________________________________
Estimated maximum exposure level per shift:______________________________
Duration of exposure per shift:__________________________________________

The name of any other toxic substances that you'll be exposed to while using your respirator:
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

19. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, security):
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

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

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

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

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

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2.0 General Requirements

3.0 Training Requirements

4.0 Competent Person

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6.0 Falling Object Protection

7.0 Aerial Lifts
1.0 POLICY

It is the policy of the ELMIRA STRUCTURES, INC. that all employees and subcontractors erect, use, maintain, and disassemble all types of scaffolding in a safe manner while following established guidelines. This will be accomplished through the use of competent and trained employees working with well maintained equipment that is inspected on a regular basis.

A scaffold is defined as any temporary elevated platform constructed of wood, metal, or a combination and its supporting structure used in construction or maintenance as an employee work platform and/or staging area for materials.

2.0 GENERAL REQUIREMENTS

- Designed to support at least 4 times the anticipated weight of workers and materials.

- Suspension scaffolds designed for a working load of 500 pounds should utilize no more than 2 workers at a time. Suspension scaffolds designed for a working load of 700 pounds should have no more than 3 workers at a time.

- Safe and convenient means of access to the working platform level must be provided. This may be a portable or fixed ladder, a ramp or runway, or a stairway.

- Footings or anchorage must be level, sound, rigid, and capable of carrying the maximum intended load without settling or displacement.

- Brace poles, legs or uprights prevent swaying and displacement.

- Unstable objects such as barrels, boxes, loose bricks, or concrete blocks are not to be used to support scaffolds or planks.

- No scaffold shall be erected, moved, dismantled, or altered except under the supervision of competent personnel.

- The use of shore or lean-to scaffold is prohibited.

- When work is being done below a scaffold, overhead protection must be provided no more than 9 feet above the working platform. It must be made of planking or other strong material.

- Any scaffold or component of a scaffold that is weakened or damaged must be replaced or repaired immediately.

- Slippery conditions on scaffolds must be eliminated as soon as they occur.
• All load carrying timber member of scaffolds shall be a minimum of 1500 fiber (stress-grade) construction grade lumber.

• Wire, synthetic, or fiber rope should be capable of supporting at least 6 times the rated load and should be inspected before each use.

3.0 TRAINING REQUIREMENTS

All employees who perform work on a scaffold will be trained by a person qualified (Competent Person) in the subject matter to recognize the hazards associated with the type of scaffolding being used. Training will also cover procedures to control or minimize those hazards. Training shall also include the seriousness of scaffold hazards such as

• Falls
• Unsafe Access
• Falling Objects
• Electrocution
• Structure Collapse

RETRAINING

When ELMIRA STRUCTURES, INC. has reason to believe that an employee lacks the skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, the employer shall retrain such employee so that the prerequisite proficiency is regained. Retraining is required in at least the following situations:

1. Where changes at the worksite present a hazard about which an employee has not been previously trained; or
2. Where changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained; or
3. Where inadequacies in an affected employees work involving scaffolds indicate that the employee has not retained the requisite proficiency.

4.0 COMPETENT PERSON

Scaffolds will be erected, moved, dismantled, or altered only under the supervision and direction of a qualified competent person. Such activities shall be performed only by experienced and trained employees selected for such work by the 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 the authorization to take corrective measures to eliminate them.
5.0 INSPECTIONS

All scaffolds will be inspected by a Competent Person prior and during their erection. Daily inspections will be made by the Competent Person, prior to any employee accessing the scaffold to perform work. Special inspections will be made by the Competent Person, when circumstances warrant such as

- High Winds
- Freeze/Thaw Conditions
- Heavy Rains
- Snow/Sleet
- Structure Modifications

6.0 FALLING OBJECT PROTECTION

To protect employees from falling hand tools, debris, and other small objects, install toeboards, screens, guardrail systems, debris nets, catch platforms, canopy structures, or barricades. In addition, employees must wear hats.

7.0 AERIAL LIFTS

Aerial lifts include the following types of vehicle-mounted aerial devices used to elevate personnel to job sites above the ground: extensible boom platforms, aerial ladders, articulating boom platforms, and vertical towers.

It is the company’s policy that all aerial lifts will be considered scaffolds and must comply with general company policy with regards to scaffolds and specific OSHA requirements for each type of aerial lift as well as any recommendations of the manufacturer of the device.
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Attachments Sample Site Specific Erection Plan
POLICY, RESPONSIBILITY, PURPOSE AND OVERVIEW

1.0 POLICY

ELMIRA STRUCTURES, INC. is dedicated to the safety of its employees. The erection of steel and the activities that go on around the process are extremely hazardous and require everyone to work together safely. All employees involved shall follow all safety requirement and wear all required safety equipment while working on the site.

RESPONSIBILITIES

The competent person along with the controlling contractor will ensure that all equipment meets required specifications for the intended application.

The competent person shall ensure all safety systems are used when required and systems and equipment is inspected as required.

PURPOSE

The purpose of the policy is to prevent injury to ELMIRA STRUCTURES, INC. employees caused by the erection of steel and the activities that go along with steel erection. The safe and correct implementation and use of the program will help ensure ELMIRA STRUCTURES, INC. compliance with the Occupational Safety and Health Administration’s (OSHA’s) Subpart R Steel Erection.

The following parts are an overview of the steel erection requirement, please note you should refer to the proper OSHA standard for detailed requirement of this topic (29CFR 1926.750/762).

2.0 SITE LAY OUT OVERVIEW

- Clearly know the duties and responsibilities of the controlling contractor.
- Assure all proper written notifications are on site (i.e. ASTM standard test methods for concrete).
- Assure all requirements for adequate access roads to and from the site are in order, also adequate space for safe storage of materials are identified and used.
- Site specific erection plan (see attachment).
3.0 **HOISTING AND RIGGING**

- Assure that the pre-planning of overhead hoisting has been performed.
- Assure all hoisting and rigging safety requirement are being met and maintained (pre-shift inspections record are available and corrective action taken when needed).
- Assure that all safety requirement have been met for working under loads, routes for suspended loads have been pre-planned.

4.0 **STRUCTURAL STEEL ASSEMBLY**

- Assure structural assembly is maintained at all time during the erection process.
- Permanent floors shall be installed as the erection process progresses, (no more than 8 stories between the erection floor and the upper most permanent floor).
- At no time shall there be more than 4 floor of 48 ft which ever is less of unfinished bolting or welding above the foundation or uppermost permanently secured floor.
- Walking/working surfaces, assure that tripping hazards are addressed (shear connectors).
- Plumbing –up, a competent person shall determine if plumbing –up equipment shall be installed in conjunction with steel erection process.
- Metal decking, assure proper hoisting, landing and placing of metal decking.
- Assure all bundles are secured and placed properly over supports.

5.0 **COLUMN ANCHORAGE**

- All columns shall be anchored by 4 anchor bolts.
- Columns shall be set on level finished floors.
- All columns shall be evaluated by a competent person to determine if guying or bracing is needed.

6.0 **BEAMS AND COLUMNS**

- Do not release structural members from the hoisting lines until at least 2 bolts per connection are wrench tight.
- A competent person shall determine if more than 2 bolts are need to ensure stability.
- Diagonal bracing, shall be secured by at least 1 bolt per column, wrench tight.
7.0 OPEN WEB STEEL JOIST

- Vertical stabilizer plates shall be provided for each column of steel joist.
- Stabilize the bottom chords of steel joists to prevent rotation during erection.
- Hoisting cables shall not be released until the seat at each end of the steel joist is field bolted and each end of the bottom chord is restrained by the column stabilizer plate.
- During placement of loads the employer placing the load on the steel joist shall ensure that the load is properly distributed.
- When installing joist please refer to table a and b for erecting short and long span joist.

8.0 SYSTEM – ENGINEERED METAL BUILDINGS

- Assure structural column shall be anchored by a minimum of 4 bolts.
- Assure rigid frames shall have at least 50% of their bolts installed.
- Do not place construction loads on any structural steel framework unless it is safely bolted.

9.0 FALLING OBJECT PROTECTION

- Assure all materials, equipment and tools are secured.
- Assure that the controlling contractor has barred all other construction processes from occurring when hazards may be present overhead, unless overhead protection has been provided.

10.0 FALL PROTECTION

- Protect employees for fall hazards in steel erection activity when they are exposed to fall hazards of 15 feet or more by means of guardrails, safety net systems, personal fall arrest systems, positioning device systems or fall restraints systems.
- Connectors shall be protected from fall hazards at heights of 30 feet or two stories above lower level, which ever is less.
- Controlled Decking Zone (CDZ) can be established in areas of the structure over 15 feet and up to 30 feet above lower level where metal decking is initially installed.
11.0. TRAINING

- Training must address the following, the recognition and identification of fall hazards. The use and operation of fall protection systems, guardrails, personal fall protection equipment.
- Assure the proper level of additional training is provided for CDZ activity and it is specific to the site where it is being used.
SITE SPECIFIC STEEL ERECTION PLAN AND CHECKLIST

Job Name: _____________________________________________________________

Job Number: ___________________________ Date: ________________________________

Erector: ___________________________ Project Eng.: ________________________________

Sheeter: ___________________________ Qualified Person: ___________________________

Anchor Bolt Cont.: __________________ Fabricator: ________________________________

Crane Operator: _____________________ Qualified Rigger: ___________________________

Controlling Contractor: _________________________________________________________

Scope of Work

Pre-Engineered Metal Building    □
Conventional Steel Building    □
Roofing    □
Siding    □
Decking    □
Miscellaneous Steel    □
General Miscellaneous    □

General Description of Work: ________________________________________________

____________________________________________________________________________

____________________________________________________________________________

Footings, Piers, Walls and Anchor Bolts
1. Has concrete reached 75% of sufficient strength? □ YES □ NO
2. Proof of Strength:
   a. ASTM test method results □ YES □ NO
   b. Engineer verification □ YES □ NO
3. Were anchor bolts repaired, replaced or modified? □ YES □ NO
4. Was erector notified in writing? □ YES □ NO

Notification of Commencement of Steel Erection

1. Was written notification given to the erector? □ YES □ NO
Site Layout

1. Has controlling contractor provided adequate access to site?  □ YES □ NO

2. Is lay down area firm, properly graded, well drained and accessible?  □ YES □ NO

Pre-Construction Site Conference

Has a Pre-Construction Site Conference been held?  □ YES □ NO

Please list those attending

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Sequence of Erection Activity

Give a general sequence of erection activities:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

2. Material delivery date:___________________________________________________

3. How will activities be coordinated with other trades?_________________________

________________________________________________________________________
________________________________________________________________________

Cranes

1. Crane Type:______________________________________________________________

2. Crane Brand:____________________________________________________________

3. Crane Capacity:__________________________________________________________

4. How is the site prepared for the crane?_____________________________________

________________________________________________________________________

5. How many different locations will the crane have and where are they?

________________________________________________________________________
________________________________________________________________________

6. What is the path for overhead loads?_______________________________________

________________________________________________________________________
7. How will employees be notified of overhead loads?

________________________________________________________________________
________________________________________________________________________

8. Are there any critical lifts? (75% of capacity or dual crane) □ YES □ NO
   a. How many?________

9. Describe critical lifts:____________________________________________________
________________________________________________________________________
________________________________________________________________________

Steel Erection Activities / Procedures (give a description of the following items and how they will be performed)

1. Temporary Bracing / Guying:
________________________________________________________________________
________________________________________________________________________

2. Repair, Replacement or Modification of Anchor Bolts:___________________________
________________________________________________________________________
________________________________________________________________________

3. Columns / Beams (Joists or Purlins): _________________________________________
________________________________________________________________________
________________________________________________________________________

4. Connections:____________________________________________________________
________________________________________________________________________
________________________________________________________________________

5. Decking:____________________________________________________________________
________________________________________________________________________

6. Roofing:___________________________________________________________________
________________________________________________________________________
7. Siding:

8. Steel Grating:

9. Handrail or Miscellaneous Iron:

---

**Fall Protection (Please identify the Fall Protection procedures for the following tasks):**

1. Erection of vertical structural members
   - JLG Lift / Tie-Off
   - Scissor Lift / Guardrails
   - Vertical Lifeline / Harness and Lanyard
   - Retractable Lanyard / Harness
   - Other – Explain ___________________

2. Erection Horizontal Structural Members
   - JLG Lift / Tie-Off
   - Scissor Lift / Guardrails
   - Vertical Lifeline / Harness and Lanyard
   - Retractable Lanyard / Harness
   - Other – Explain ___________________

3. Installation of Siding & Associated Insulation
   - JLG Lift / Tie-Off
   - Scissor Lift / Guardrails
   - Vertical Lifeline / Harness and Lanyard
   - Retractable Lanyard / Harness
   - Other – Explain ___________________

4. Installation of Roofing & Associated Insulation
   - JLG Lift / Tie-Off
   - Scissor Lift / Guardrails
   - Vertical Lifeline / Harness and Lanyard
   - Retractable Lanyard / Harness
   - Other – Explain ___________________
<p>| | |</p>
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<thead>
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<th></th>
<th></th>
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</thead>
</table>
| 5. Installation of Decking | □ JLG Lift / Tie-Off
□ Scissor Lift / Guardrails
□ Vertical Lifeline / Harness and Lanyard
□ Retractable Lanyard / Harness
□ Other – Explain ___________________
| 6. Unprotected Sides / Edges | □ JLG Lift / Tie-Off
□ Scissor Lift / Guardrails
□ Vertical Lifeline / Harness and Lanyard
□ Retractable Lanyard / Harness
□ Other – Explain ___________________
| 7. Leading Edges | □ JLG Lift / Tie-Off
□ Scissor Lift / Guardrails
□ Vertical Lifeline / Harness and Lanyard
□ Retractable Lanyard / Harness
□ Other – Explain ___________________
| 8. Holes | □ JLG Lift / Tie-Off
□ Scissor Lift / Guardrails
□ Vertical Lifeline / Harness and Lanyard
□ Retractable Lanyard / Harness
□ Other – Explain ___________________
| 9. Wall Opening | □ JLG Lift / Tie-Off
□ Scissor Lift / Guardrails
□ Vertical Lifeline / Harness and Lanyard
□ Retractable Lanyard / Harness
□ Other – Explain ___________________

10. Has fall protection training been documented? □ YES □ NO

11. Is a competent person on-site at all times? □ YES □ NO

12. Were fall protection systems designed by a Qualified Person? □ YES □ NO

**Falling Object Protection**

1. Method for securing loose items aloft:____________________________________________
______________________________________________________________________________
______________________________________________________________________________

2. Are all personnel wearing hardhats? □ YES □ NO

3. Are erection areas properly barricaded? □ YES □ NO

ELMIRA STRUCTURES, INC.
Hazardous Non-Routine Tasks

1. Are Job Safety Analyses performed on all non-routine hazardous tasks? ☐ YES  ☐ NO
2. Attach JSA’s.

Training Certification

1. Are all personnel properly trained for performing steel erection activities? ☐ YES  ☐ NO
2. Are all personnel properly trained for the use of fall protection systems? ☐ YES  ☐ NO
3. Attach documentation of training.

List of Qualified and Competent Persons

1. Qualified Person for site specific erection plan:________________________________
2. Qualified Person for fall protection system design:______________________________
3. Qualified Rigger:___________________________________________________________
4. Crane Operator:___________________________________________________________
5. Crane Inspector:___________________________________________________________
6. Fall Protection Competent Person:___________________________________________

Emergency Rescue Procedures

☐ Self-Rescue   ☐ Emergency Response Team   ☐ Manbasket
☐ Stair Tower   ☐ 1st Aid Trained Personnel   ☐ Hoists
☐ Aerial Lifts  ☐ Other

Comments: _________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

Completed By:_________________________________________ Date:______________
Reviewed By:__________________________________________ Date:______________
TRENCHING AND EXCAVATION SAFETY MANUAL

CONSTRUCTION SAFETY POLICY

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1.0 INTRODUCTION

PURPOSE

ELMIRA STRUCTURES, INC. has implemented this Excavation Program to assure the safety of employees who work in or around excavations as part of their job duties. This program is also designed to protect employees and the general public who work or travel in the vicinity of excavations.

SCOPE

This program is designed to assist ELMIRA STRUCTURES, INC. with establishing procedures to achieve workplace Safety Standards as established in the OSHA Excavation standard at 29 CFR 1926 Subpart P. The program establishes guidelines and procedures for use on excavations created on ELMIRA STRUCTURES, INC. job sites.

APPLICATION

This program applies to all work involving excavations on ELMIRA STRUCTURES, INC. job sites.

GENERAL PROGRAM REQUIREMENTS

- Employees who work in or around excavations must be provided training according to their work.
- The excavation or trench must either be sloped or supported as required to comply with OSHA requirements.
- Traffic around the site must be controlled, and barricades, signs, and/or flag persons used as needed to control both vehicular and pedestrian traffic.
- Utilities on the site must be protected and suitable precautions taken if any utility will be disturbed by the work.
- Employees must use required personal protective equipment (PPE).
- Each job site covered by this program must appoint one or more competent person(s) to ensure compliance with this program.

Excavation work may involve safety hazards not addressed by this program including:
- Work conducted on or around electrical utility systems;
- Work that may impact existing utilities that may need to be locked and tagged out using procedures from the Lockout/Tagout Program;
- Work conducted in areas where hazardous atmospheres or gases could accumulate (e.g. landfills, manure pits, gas distribution lines, or hazardous materials storage locations) covered under the Confined Space Program;
• Work associated with electric power generation, transmission and distribution systems;
• Fall hazards covered under the Fall Protection Program.

2.0 RESPONSIBILITIES

ELMIRA STRUCTURES, INC. will monitor the overall effectiveness of the program through audits and annual reviews. ELMIRA STRUCTURES, INC. will provide worker training and competent person training. ELMIRA STRUCTURES, INC. will conduct an annual audit of the program and will maintain records relating to training and audits.

COMPETENT PERSON

Each competent person is responsible for ensuring that procedures described in this program are followed including employee training, personal protective equipment, site inspections, tests, and record keeping.

EMPLOYEES

Each employee has the responsibility to follow established procedures, enter an excavation only after receiving training, and must demonstrate a complete understanding of the safe work practices to be followed while working in an excavation. Employees must wear the required personal protective equipment.

3.0 COMPLIANCE

In order to comply with this program:

1. An initial inspection to evaluate site hazards must be conducted by a competent person.
2. All hazards must be eliminated, controlled, or employees must be provided appropriate personal protective equipment.
3. Protection must be provided against potential cave-ins using either sloping or benching systems or support systems.
4. Inspections must be conducted daily or as conditions occur that may affect or create hazards.
4.0 TRAINING

All personnel involved in excavation work must be trained in accordance with the requirements of this program. Training must be provided before the employee is assigned duties.

Retraining will be provided the lesser of every three years or as necessary to maintain knowledge or skills to safely work within or in the vicinity of excavations.

SITE WORKER

Personnel who conduct work within or in the vicinity of excavations must receive training prior to beginning work at the site. The training must include:

- Requirements of the OSHA Excavations standard;
- Requirements of ELMIRA STRUCTURES, INC. Excavation Safety Program;
- Work practices;
- Hazards relating to excavation work;
- Methods of protection for excavation hazards;
- Use of Personal Protective Equipment;
- Procedures regarding hazardous atmospheres;
- Emergency and non-entry rescue procedures.

COMPETENT PERSON

In addition to site worker training, a job site competent person must also receive training to include:

- Methods of evaluating the site and conducting inspections according to this program;
- Evaluation and selection of protection methods;
- Ensuring compliance with this program;
- Requirements under additional applicable programs such as Confined Space and Fall Protection.
5.0 HAZARDS

SURFACE ENCUMBRANCES

All equipment, materials, supplies, permanent installations (e.g. buildings, roadways), trees, brush, boulders, and other objects at the surface that could present a hazard to employees working in the excavation must be removed or supported, as necessary, to protect employees.

UNDERGROUND INSTALLATIONS

The location of sewer, telephone, fuel, electric, and water lines as well as any other underground installations that may be encountered during excavation work must be located and marked prior to opening the excavation. The Competent Person must make arrangements as necessary with the appropriate utility agency for the protection, removal, shutdown, or relocation of underground installations.

If it is not possible to establish the exact location of underground installations, the work may proceed with caution provided detection equipment or other safe and acceptable means (e.g. using hand tools) are used to locate the utility as the excavation is opened and each underground installation is approached.

Excavation work will be conducted in a manner that does not endanger underground installations or employees engaged in the work. Utilities left in place must be protected by barricades, shoring, suspension, or other means as necessary to protect employees.

ACCESS AND EGRESS

Stairs, ladders, or ramps must be provided where employees are required to enter trench excavations four feet or more in depth. Stairs, ladders, and ramps, where used, will be in accordance with the Stairways and Ladders Program. The maximum distance of travel in an excavation to a means of egress will not exceed 25 feet.

VEHICULAR TRAFFIC

Employees exposed to vehicular traffic must be provided with, and will wear, warning vests or other suitable garments marked with or made of reflectorized or high-visibility material. Warning vests worn by flagmen must be red or orange and be of reflectorized material if worn during night work.

 FALLING LOADS

No employee will be permitted underneath loads handled by lifting or digging equipment. Employees will be required to stand away from any vehicle being loaded or unloaded. Vehicle operators may remain in the cabs of vehicles being loaded or unloaded when the vehicle provides adequate protection for the operator during loading and unloading operations.
MOBILE EQUIPMENT

When mobile equipment is operated adjacent to the edge of an excavation, a warning system will be used when the operator does not have a clear and direct view of the edge of the excavation. The warning system must consist of barricades, hand or mechanical signals, or stop logs. If possible, the surface grade will slope away from the excavation.

WATER ACCUMULATION

Employees will not work in excavations that contain or are accumulating water unless precautions have been taken to protect employees from hazards posed by water accumulation. The precautions taken could include, for example, special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of safety harnesses and lifelines.

If water is controlled or prevented from accumulating by the use of water removal equipment, a person trained in the use of the equipment must monitor the water removal equipment and operation.

If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means will be used to prevent surface water from entering the excavation. Precautions will also be taken to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains must be reinspected by the Project Manager to determine if additional precautions should be taken.
ADJACENT STRUCTURES

Support systems (such as shoring, bracing, or underpinning) will be used to assure the stability of structures and the protection of employees where excavation operations could affect the stability of adjoining buildings, walls, or other structures.

Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees will not be permitted except when:

- A support system, such as underpinning, is provided to ensure the safety of employees and the stability of the structure; or
- The excavation is in stable rock; or
- A registered professional engineer has approved the determination that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity; or
- A registered professional engineer has approved the determination that such excavation work will not pose a hazard to employees.

Sidewalks, pavements and appurtenant structures will not be undermined unless a support system or other method of protection is provided to protect employees from the possible collapse of such structures.

Where review or approval of a support system by a registered professional engineer is required, ELMIRA STRUCTURES, INC. will secure this review and approval in writing before the work is begun.

LOOSE ROCK OR SOIL

Adequate protection must be provided to protect employees from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection will consist of:

- Scaling to remove loose material;
- Installation of protective barricades, such as wire mesh or timber, at appropriate intervals on the face of the slope to stop and contain falling material; or
- Benching sufficient to contain falling material.

Excavation personnel will not be permitted to work above one another where the danger of falling rock or earth exists.
Employees must be protected from excavated materials, equipment or other materials that could pose a hazard by falling or rolling into excavations.

- Protection will be provided by keeping such materials or equipment at least 2 feet from the edge of excavations, by the use of restraining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.
- Materials and equipment may, as determined by the competent person, need to be stored further than 2 feet from the edge of the excavation if a hazardous loading condition is created on the face of the excavation.
- Materials piled, grouped or stacked near the edge of an excavation must be stable and self-supporting.

**FALL PROTECTION**

Barricades, walkways, lighting and posting must be provided as necessary prior to the start of excavation operations.

Guardrails, fences, or barricades must be provided on excavations adjacent to walkways, driveways, and other pedestrian or vehicle thoroughfares. Warning lights or other illumination must be maintained as necessary for the safety of the public and employees from sunset to sunrise.

Wells, holes, pits, shafts, and all similar excavations must be effectively barricaded or covered and posted as necessary to prevent unauthorized access. All temporary excavations of this type will be backfilled as soon as possible.

Walkways or bridges protected by standard guardrails must be provided where employees and the general public are permitted to cross over excavations. Where workers in the excavation may pass under these walkways or bridges, a standard guardrail and toeboard must be used.

**6.0 INSPECTIONS**

The competent person will conduct daily inspections of excavations, adjacent areas, and protective systems for evidence of a situation that could result in possible cave-ins, failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection will be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections will also be made after each hazard-changing event (e.g. rainstorm). These inspections are required when the excavation will be or is occupied by employees.
A sample inspection checklist is included in Section 9.0

Where the competent person finds evidence of a situation that could result in a possible cave-in, failure of protective systems, hazardous atmosphere, or other hazardous conditions, exposed employees will be removed from the hazardous area until precautions have been taken to assure their safety.

The competent person will maintain a written log of all inspections conducted. This log will include the date, work site location, results of the inspection, and a summary of any action taken to correct existing hazards.

7.0 PROTECTION

Each employee in an excavation will be protected from cave-ins by using either an adequate sloping and benching system or an adequate support or protective system.

Exceptions to this are limited to:

- Excavations made in stable rock; or
- Excavations less than four feet in depth where examination of the ground by a Competent Person provides no indication of a potential cave-in.

Protective systems will be capable of resisting all loads that could reasonably be expected to be applied to the system.

Section 10 provides a flowchart to assist with the selection of protection systems.

SLOPING AND BENCHING

The slope and configuration of sloping and benching systems will be selected and constructed by the Competent Person in accordance with Section 11.

Employees will not be permitted to work above other employees on the faces of sloped or benched systems except when employees at the lower levels are protected from the hazard of falling, rolling, or sliding material or equipment.

SUPPORT SYSTEMS

The design of support systems, shield systems, and other protective systems will be selected and constructed by the Competent Person in accordance with the requirements of Section 14.
8.0 GLOSSARY

Accepted Engineering Practices means the standards of practice required by a registered professional engineer.

Adjacent Structure Stability refers to the stability of the foundation of adjacent structures whose location may create surcharges, changes in soil conditions, or other disruptions that have the potential to extend into the failure zone of the excavation.

Aluminum Hydraulic Shoring means a manufactured shoring system consisting of aluminum hydraulic cylinders (cross braces) used with vertical rails (uprights) or horizontal rails (wales). Such system is designed to support the sidewalls of an excavation and prevent cave-ins.

Bell-bottom Pier Hole means a type of shaft or footing excavation, the bottom of which is made larger than the cross section above to form a belled shape.

Benching or Benching System is a method of protecting employees from cave-ins by excavating the sides of an excavation to form one or more horizontal steps, usually with vertical or near-vertical surfaces between levels.

Cave-in means the movement of soil or rock into an excavation, or the loss of soil from under a trench shield or support system, in amounts large enough to trap, bury, or injure and immobilize a person.

Competent Person means one who has been trained to identify hazards in the workplace, or working conditions that are unsafe for employees, and who has the authority to have these hazards eliminated or controlled.

Cross Braces mean the horizontal members of a shoring system installed from side to side of the excavation. The cross braces bear against either uprights or wales.

Excavation means any man-made cut, cavity, trench, or depression in an earth surface formed by earth removal.

Faces or Sides mean the vertical or inclined earth surfaces formed as a result of excavation work.

Failure means the movement or damage of a structural member or connection that makes it unable to support loads.
**Hazardous Atmosphere** means an atmosphere that is explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, that may cause death, illness, or injury.

**Ingress and Egress** mean "entry" and "exit" respectively, and refer to the safe means for employees to enter or exit.

**Kickout** means the accidental movement or failure of a cross brace.

**Protective System** means a method of protecting employees from cave-ins, from material that could fall or roll from an excavation face into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

**Ramp** means an inclined walking or working surface that is used to gain access to one point from another. A ramp may be constructed from earth or from structural materials such as steel or wood.

**Registered Professional Engineer** means a person who is registered as a professional engineer.

**Sheeting** means the members of a shoring system that retain the earth in position and in turn are supported by other members of the shoring system.

**Shield or Shield System** means a structure used in an excavation to withstand cave-ins and which will protect employees working within the shield system. Shields can be permanent structures or portable units moved along as work progresses.

**Shoring or Shoring System** means a structure that is built or put in place to support the sides of an excavation to prevent cave-ins.

**Sides** See "Faces."

**Sloping or Sloping System** means sloping the sides of the excavation away from the excavation to protect employees from cave-ins. The required slope will vary with soil type, weather, and surface or near surface loads that may affect the soil in the area of the trench (such as adjacent buildings, vehicles near the edge of the trench and so forth).

**Stable Rock** means natural solid mineral material that can be excavated with vertical sides that will remain intact while exposed.
Structural Ramp means a ramp built of steel or wood, usually used for vehicle access. Ramps made of soil or rock are not considered structural ramps.

Support System means a structure such as underpinning, bracing, or shoring, which provides support to an adjacent structure, underground installation, or the sides of an excavation.

Surface Encumbrances include underground utilities, foundations, streams, water tables, transformer vaults, and geologic anomalies. Surcharge means an excessive vertical load or weight caused by spoil, overburden, vehicles, equipment, or activities that may affect stability.

Tabulated Data means tables and charts approved by a registered professional engineer and used to design and construct a protective system.

Trench means a narrow excavation (in relation to its length) made below the surface of the ground.

Trench Box See "Shield".

Unconfined Compressive Strength is the load per unit area at which soil will fail in compression.

Underground Installations include, but are not limited to, utilities, tunnels, shafts, vaults, foundations, and other underground fixtures or equipment that may be encountered during excavation work.

Uprights mean the vertical members of a trench shoring system placed in contact with the earth and usually positioned so that individual members do not contact each other. Uprights placed so that individual members are closely spaced, in contact with or interconnected to each other, are often called "sheeting."

Wales are horizontal members of a shoring system placed in the direction of the excavation face whose sides bear against the vertical members of the shoring system or earth (the uprights or sheeting).
INSPECTION CHECKLIST

SURFACE CONDITIONS

Cracks or Cracking
Spoil piles set back 2 feet from edge
No equipment or materials stored near edge
No standing water in excavation
No sources of vibration

BANKS AND SIDES OF SLOPE OR BENCH

Cracks or Cracking
Spalling
Change in soil type
Slope adequate for soil

SHORING AND SHIELDING

In place and functioning properly
No leakage from hydraulic cylinders
Wedges tight

ACCESS AND EGRESS

Access every 25 feet
Stairs, ladders, and ramps set properly

EXISTING UTILITIES

Support adequate
Loose materials
Utilities identified and protected

WEATHER

Overnight freezing
Rain

PERSONAL PROTECTIVE EQUIPMENT

Reflectorized vests in vehicular areas
Hard hats, steel-toe shoes, etc. being used as specified
10.0 PROTECTION SYSTEMS DECISION TREE

Use the following guideline to determine whether protection systems are needed.

1. If the excavation is less than 4 feet deep, a protection system is needed that meets the requirements under Section 11 – Sloping and Benching or Section 14 – Support Systems, unless the site excavation competent person determines that there is no risk for cave-in.

2. If the excavation is between 4 and 20 feet deep, a protection system that meets the requirements under Section 11 – Sloping and Benching or Section 14 – Support Systems must be installed and utilized in all occupied areas of the excavation.

3. If the excavation is greater than 20 feet, a protection system designed by a registered engineer must be installed and utilized in all occupied areas of the excavation.

11.0 SLOPING AND BENCHING SYSTEMS

The slope and configuration of sloping and benching systems must be selected and constructed by the Competent Person in accordance with one of the following:

**Option 1 - ALLOWABLE CONFIGURATIONS AND SLOPES.**

Excavations must be sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal), unless the Competent Person uses one of the other options listed below.

The slopes used must be excavated in accordance with the slopes shown for Type C soil in Section 12 - Sloping and Benching.

**Option 2 - DETERMINATION OF SLOPES AND CONFIGURATIONS.**

Maximum allowable slopes, and allowable configurations for sloping and benching systems, must meet the requirements of Section 12 - Sloping and Benching and Section 13 - Soil Classification.
Option 3 - DESIGNS USING OTHER TABULATED DATA.

The design of sloping or benching systems may be selected from, and must be constructed in accordance with, other tabulated data, such as tables and charts. The tabulated data used must be in written form and include all of the following:

- Identification of the factors that affect the selection of a sloping or benching system;
- Identification of the limits of use of the data, including the maximum height and the angle of the slopes determined to be safe;
- Other information needed by the user to make correct selection of a protective system.

One copy of the tabulated data that identifies the registered professional engineer who approved the data must be maintained at the jobsite during construction of the protective system.

Option 4 - DESIGN BY A REGISTERED PROFESSIONAL ENGINEER:

Sloping and benching systems not utilizing Option (1), Option (2) or Option (3) above must be approved by a registered professional engineer.

Designs must be in written form and must include at least the following:

- The maximum height and angle of the slopes that were determined to be safe for the particular project;
- The identity of the registered professional engineer approving the design.

At least one copy of the design must be maintained at the jobsite while the slope is being constructed.
12.0 SLOPING AND BENCHING

SCOPE AND APPLICATION

This appendix contains specifications for sloping and benching when used as methods of protecting employees working in excavations from cave-ins. The requirements of this Section apply when the design of sloping and benching protective systems is to be performed in accordance with the requirements set forth in Section 11 – Sloping and Benching Systems Option 2.

DEFINITIONS

*Actual slope* means the slope to which an excavation face is excavated.

*Distress* means that the soil is in a condition where a cave-in is imminent or is likely to occur. Distress is evidenced by such phenomena as the development of fissures in the face of or adjacent to an open excavation; the subsidence of the edge of an excavation; the slumping of material from the face or the bulging or heaving of material from the bottom of an excavation; the spalling of material from the face of an excavation; and ravelling, i.e., small amounts of material such as pebbles or little clumps of material suddenly separating from the face of an excavation and trickling or rolling down into the excavation.

*Maximum allowable slope* means the steepest incline of an excavation face that is acceptable for the most favorable site conditions as protection against cave-ins, and is expressed as the ratio of horizontal distance to vertical rise (H:V).

*Short term exposure* means a period of time less than or equal to 24 hours that an excavation is open.

REQUIREMENTS

**Soil classification**

Soil and rock deposits must be classified in accordance with the Section 13 – Soil Classification Procedures.
Maximum allowable slope

The maximum allowable slope for a soil or rock deposit must be determined from Table C2-1.

<table>
<thead>
<tr>
<th>Soil or Rock Type</th>
<th>Maximum Slope (H:V)</th>
<th>Maximum Slope (Degrees)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stable Rock</td>
<td>Vertical</td>
<td>90</td>
</tr>
<tr>
<td>Type A</td>
<td>.75:1</td>
<td>53</td>
</tr>
<tr>
<td>Type B</td>
<td>1:1</td>
<td>45</td>
</tr>
<tr>
<td>Type C</td>
<td>1.5:1</td>
<td>34</td>
</tr>
</tbody>
</table>

Footnote(1) Numbers shown in Max Slope (degrees) are angles expressed in degrees from the horizontal. Angles have been rounded off.

Footnote(2) A short-term maximum allowable slope of 1/2H:1V (63 degrees) is allowed in excavations in Type A soil that are 12 feet (3.67 m) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 m) in depth will be 3/4H:1V (53 degrees).

Footnote(3) Sloping or benching for excavations greater than 20 feet deep will be designed by a registered professional engineer.

Actual slope

The actual slope must not be steeper than the maximum allowable slope.

The actual slope must be less steep than the maximum allowable slope, when there are signs of distress. If that situation occurs, the slope must be cut back to an actual slope which is at least 1/2 horizontal to one vertical (1/2H:1V) less steep than the maximum allowable slope.

When surcharge loads from stored material or equipment, operating equipment, or traffic are present, a competent person must:

- determine the degree to which the actual slope must be reduced below the maximum allowable slope, and
- assure that such reduction is achieved.

Surcharge loads from adjacent structures must be evaluated in accordance with this program.
Configurations

Configurations of sloping and benching systems must be in accordance with the table and figures below.

**Figures: Slope Configurations**

All slopes stated below are in the horizontal to vertical ratio.

*Excavations made in Type A soil*

<table>
<thead>
<tr>
<th>Depth</th>
<th>Slope Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>20' Max.</td>
<td>3/4:1</td>
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<tr>
<td>8' Max.</td>
<td>3 1/2 feet</td>
</tr>
<tr>
<td>12' Max.</td>
<td>1:1 and a maximum vertical side of 3 1/2 feet</td>
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</tbody>
</table>

All simple slope excavations 20 feet or less in depth will have a maximum allowable slope of 3/4:1.

All benched excavations 20 feet or less in depth will have a maximum allowable slope of 3/4 to 1 and maximum bench dimensions as indicated.

All excavations 8 feet or less in depth which have unsupported vertically sided lower portions will have a maximum vertical side of 3 1/2 feet.

All excavations more than 8 feet but not more than 12 feet in depth with unsupported vertically sided lower portions will have a maximum allowable slope of 1:1 and a maximum vertical side of 3 1/2 feet.
All excavations 20 feet or less in depth which have vertically sided lower portions that are supported or shielded will have a maximum allowable slope of 3/4:1. The support or shield system must extend at least 18 inches above the top of the vertical side.

All other simple slope, compound slope, and vertically sided lower portion excavations will be in accordance with the other options described in Section 11 – Sloping and Benching Systems.

**Excavations Made in Type B Soil**

All simple slope excavations 20 feet or less in depth will have a maximum allowable slope of 1:1.

All benched excavations 20 feet or less in depth will have a maximum allowable slope of 1:1 and maximum bench dimensions as indicated.

All excavations 20 feet or less in depth which have vertically sided lower portions will be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations will have a maximum allowable slope of 1:1.

All other sloped excavations must be in accordance with the other options permitted in Section 11 – Sloping and Benching Systems.
**Excavations Made in Type C Soil**

All simple slope excavations 20 feet or less in depth will have a maximum allowable slope of 1 1/2:1.

All excavations 20 feet or less in depth which have vertically sided lower portions will be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations will have a maximum allowable slope of 1 1/2:1.

All other sloped excavations must be in accordance with the other options described in Section 11 – Sloping and Benching Systems.

**Excavations Made in Layered Soils**

All excavations 20 feet or less in depth made in layered soils will have a maximum allowable slope for each layer as set forth below.
13.0 SOIL CLASSIFICATION

SCOPE AND APPLICATION

SCOPE

This Section describes a method of classifying soil and rock deposits based on site and environmental conditions, and on the structure and composition of the earth deposits. This appendix contains definitions, sets forth requirements, and describes acceptable visual and manual tests for use in classifying soils.

APPLICATION

This Section applies when a sloping or benching system is designed in accordance with the requirements set forth in 1926.652(b)(2) as a method of protection for employees from cave-ins. This Section also applies when timber shoring for excavations is designed as a method of protection from cave-ins in accordance with appendix C to subpart P of part 1926, and when aluminum hydraulic shoring is designed in accordance with Section 14. This Section also applies if other protective systems are designed and selected for use from data prepared in accordance with the requirements set forth in 1926.652(c), and the use of the data is predicated on the use of the soil classification system set forth in this appendix.

DEFINITIONS

The definitions and examples given below are based on, in whole or in part, the following; American Society for Testing Materials (ASTM) Standards D653-85 and D2488; The Unified Soils Classification System; The U.S. Department of Agriculture (USDA) Textural Classification Scheme; and The National Bureau of Standards Report BSS-121.

Cemented soil means a soil in which the particles are held together by a chemical agent, such as calcium carbonate, such that a hand-size sample cannot be crushed into powder or individual soil particles by finger pressure.
Cohesive soil means clay (fine grained soil), or soil with a high clay content, which has cohesive strength. Cohesive soil does not crumble, can be excavated with vertical sideslopes, and is plastic when moist. Cohesive soil is hard to break up when dry, and exhibits significant cohesion when submerged. Cohesive soils include clayey silt, sandy clay, silty clay, clay and organic clay.

Dry soil means soil that does not exhibit visible signs of moisture content. Fissured means a soil material that has a tendency to break along definite planes of fracture with little resistance, or a material that exhibits open cracks, such as tension cracks, in an exposed surface.

Granular soil means gravel, sand, or silt (coarse grained soil) with little or no clay content. Granular soil has no cohesive strength. Some moist granular soils exhibit apparent cohesion. Granular soil cannot be molded when moist and crumbles easily when dry.

Layered system means two or more distinctly different soil or rock types arranged in layers. Micaceous seams or weakened planes in rock or shale are considered layered.

Moist soil means a condition in which a soil looks and feels damp. Moist cohesive soil can easily be shaped into a ball and rolled into small diameter threads before crumbling. Moist granular soil that contains some cohesive material will exhibit signs of cohesion between particles.

Plastic means a property of a soil which allows the soil to be deformed or molded without cracking, or appreciable volume change.

Saturated soil means a soil in which the voids are filled with water. Saturation does not require flow. Saturation, or near saturation, is necessary for the proper use of instruments such as a pocket penetrometer or sheer vane.

Soil classification system means, for the purpose of this subpart, a method of categorizing soil and rock deposits in a hierarchy of Stable Rock, Type A, Type B, and Type C, in decreasing order of stability. The categories are determined based on an analysis of the properties and performance characteristics of the deposits and the characteristics of the deposits and the environmental conditions of exposure.

Stable rock means natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.

Submerged soil means soil which is underwater or is free seeping.
Type A means cohesive soils with an unconfined, compressive strength of 1.5 ton per square foot (tsf) (144 kPa) or greater. Examples of cohesive soils are: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A. However, no soil is Type A if:

- The soil is fissured; or
- The soil is subject to vibration from heavy traffic, pile driving, or similar effects; or
- The soil has been previously disturbed; or
- The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater; or
- The material is subject to other factors that would require it to be classified as a less stable material.

Type B means:

- Cohesive soil with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa); or
- Granular cohesionless soils including: angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.
- Previously disturbed soils except those which would otherwise be classed as Type C soil.
- Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subject to vibration; or
- Dry rock that is not stable; or
- Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than four horizontal to one vertical (4H:1V), but only if the material would otherwise be classified as Type B.

Type C means:

- Cohesive soil with an unconfined compressive strength of 0.5 tsf (48 kPa) or less; or
- Granular soils including gravel, sand, and loamy sand; or
- Submerged soil or soil from which water is freely seeping; or
- Submerged rock that is not stable, or
- Material in a sloped, layered system where the layers dip into the excavation or a slope of four horizontal to one vertical (4H:1V) or steeper.
Unconfined compressive strength means the load per unit area at which a soil will fail in compression. It can be determined by laboratory testing, or estimated in the field using a pocket penetrometer, by thumb penetration tests, and other methods.

Wet soil means soil that contains significantly more moisture than moist soil, but in such a range of values that cohesive material will slump or begin to flow when vibrated. Granular material that would exhibit cohesive properties when moist will lose those cohesive properties when wet.

REQUIREMENTS

Classification of soil and rock deposits

Each soil and rock deposit will be classified by a competent person as Stable Rock, Type A, Type B, or Type C in accordance with the definitions set forth in this appendix.

Basis of classification

The classification of the deposits will be made based on the results of at least one visual and at least one manual analysis. Such analyses will be conducted by a competent person using tests described below, or in other recognized methods of soil classification and testing such as those adopted by the American Society for Testing Materials, or the U.S. Department of Agriculture textural classification system.

Visual and manual analyses

The visual and manual analyses, such as those noted as being acceptable in this appendix, will be designed and conducted to provide sufficient quantitative and qualitative information as may be necessary to identify properly the properties, factors, and conditions affecting the classification of the deposits.

Layered systems

In a layered system, the system will be classified in accordance with its weakest layer. However, each layer may be classified individually where a more stable layer lies under a less stable layer.

Reclassification

If, after classifying a deposit, the properties, factors, or conditions affecting its classification change in any way, a competent person will evaluate the changes. The deposit will be reclassified as necessary to reflect the changed circumstances.
ACCEPTABLE VISUAL AND MANUAL TESTS

Visual tests

Visual analysis is conducted to determine qualitative information regarding the excavation site in general, the soil adjacent to the excavation, the soil forming the sides of the open excavation, and the soil taken as samples from excavated material.

Observe samples of soil that are excavated and soil in the sides of the excavation. Estimate the range of particle sizes and the relative amounts of the particle sizes. Soil that is primarily composed of fine-grained material material is cohesive material. Soil composed primarily of coarse-grained sand or gravel is granular material.

Observe soil as it is excavated. Soil that remains in clumps when excavated is cohesive. Soil that breaks up easily and does not stay in clumps is granular.

Observe the side of the opened excavation and the surface area adjacent to the excavation. Crack-like openings such as tension cracks could indicate fissured material. If chunks of soil spall off a vertical side, the soil could be fissured. Small spalls are evidence of moving ground and are indications of potentially hazardous situations.

Observe the area adjacent to the excavation and the excavation itself for evidence of existing utility and other underground structures, and to identify previously disturbed soil.

Observe the opened side of the excavation to identify layered systems. Examine layered systems to identify if the layers slope toward the excavation. Estimate the degree of slope of the layers.

Observe the area adjacent to the excavation and the sides of the opened excavation for evidence of surface water, water seeping from the sides of the excavation, or the location of the level of the water table.

Observe the area adjacent to the excavation and the area within the excavation for sources of vibration that may affect the stability of the excavation face.

Manual tests

Manual analysis of soil samples is conducted to determine quantitative as well as qualitative properties of soil and to provide more information in order to classify soil properly.

Plasticity. Mold a moist or wet sample of soil into a ball and attempt to roll it into threads as thin as 1/8-inch in diameter. Cohesive material can be successfully rolled into threads without crumbling. For example, if at least a two inch (50 mm) length of 1/8-inch thread can be held on one end without tearing, the soil is cohesive.
Dry strength. If the soil is dry and crumbles on its own or with moderate pressure into individual grains or fine powder, it is granular (any combination of gravel, sand, or silt). If the soil is dry and falls into clumps which break up into smaller clumps, but the smaller clumps can only be broken up with difficulty, it may be clay in any combination with gravel, sand or silt. If the dry soil breaks into clumps which do not break up into small clumps and which can only be broken with difficulty, and there is no visual indication the soil is fissured, the soil may be considered unfissured.

Thumb penetration. The thumb penetration test can be used to estimate the unconfined compressive strength of cohesive soils. (based on the thumb penetration test described in American Society for Testing and Materials (ASTM) Standard designation D2488 - "Standard Recommended Practice for Description of Soils (Visual - Manual Procedure).") Type A soils with an unconfined compressive strength of 1.5 tsf can be readily indented by the thumb; however, they can be penetrated by the thumb only with very great effort. Type C soils with an unconfined compressive strength of 0.5 tsf can be easily penetrated several inches by the thumb, and can be molded by light finger pressure. This test should be conducted on an undisturbed soil sample, such as a large clump of spoil, as soon as practicable after excavation to keep to a minimum the effects of exposure to drying influences. If the excavation is later exposed to wetting influences (rain, flooding), the classification of the soil must be changed accordingly.

Other strength tests. Estimates of unconfined compressive strength of soils can also be obtained by use of a pocket penetrometer or by using a hand-operated shearvane.

Drying test. The basic purpose of the drying test is to differentiate between cohesive material with fissures, unfissured cohesive material, and granular material. The procedure for the drying test involves drying a sample of soil that is approximately one inch thick (2.54 cm) and six inches (15.24 cm) in diameter until it is thoroughly dry:

If the sample develops cracks as it dries, significant fissures are indicated.

Samples that dry without cracking are to be broken by hand. If considerable force is necessary to break a sample, the soil has significant cohesive material content. The soil can be classified as an unfissured cohesive material and the unconfined compressive strength should be determined.

If a sample breaks easily by hand, it is either a fissured cohesive material or a granular material. To distinguish between the two, pulverize the dried clumps of the sample by hand or by stepping on them. If the clumps do not pulverize easily, the material is cohesive with fissures. If they pulverize easily into very small fragments, the material is granular.
14.0 SUPPORT SYSTEMS

The design of support systems, shield systems, and other protective systems will be selected and constructed by the Competent Person in accordance with one of the following options.

**Option 1 - Designs using OSHA Criteria.**

Timber shoring and aluminum hydraulic shoring must be utilized in accordance with OSHA criteria.

**Option 2 - Designs using manufacturer's tabulated data.**

Support systems, shield systems, or other protective systems (e.g. trench boxes) drawn from manufacturer's tabulated data will be constructed and used in accordance with all specifications, recommendations, and limitations issued or made by the manufacturer.

Deviation from the specifications, recommendations, and limitations issued or made by the manufacturer will only be allowed after the manufacturer issues specific written approval.

Manufacturer’s specifications, recommendations, and limitations, and manufacturer’s approval to deviate from the specifications, recommendations, and limitations will be kept in written form at the jobsite during construction of the protective system.

**Option 3 - Designs using other tabulated data.**

Designs of support systems, shield systems, or other protective systems will be selected from and be constructed in accordance with tabulated data, such as tables and charts.

The tabulated data will be in written form and include all of the following:

- Identification of the factors that affect the selection of a protective system drawn from such data;
- Identification of the limits of use of the data;
- Information needed by the user to make a correct selection of a protective system from the data.
- At least one copy of the tabulated data, identifying the registered professional engineer who approved the data, will be maintained at the jobsite during construction of the system.
Option 4 - Design by a registered professional engineer.

Support systems, shield systems, and other protective systems not using the options detailed in options 1, 2, or 3 above will be approved by a registered professional engineer.

Designs will be in written form and will include the following:

- A plan indicating the sizes, types, and configurations of the materials to be used in the protective system; and
- The identity of the registered professional engineer approving the design.

At least one copy of the design will be maintained at the jobsite during construction of the protective system.

MATERIALS AND EQUIPMENT

Materials and equipment used for protective systems will be free from damage or defects that might affect their proper function.

Manufactured materials and equipment used for protective systems will be used and maintained in accordance with the recommendations of the manufacturer, and in a manner that will prevent employee exposure to hazards.

When material or equipment used for protective systems are damaged, the Competent Person will ensure that these systems are examined by a competent person to evaluate its suitability for continued use. If the competent person can not assure the material or equipment is able to support the intended loads or is otherwise suitable for safe use, then such material or equipment will be removed from service. These materials or equipment will be evaluated and approved by a registered professional engineer before being returned to service.

INSTALLATION AND REMOVAL OF SUPPORT

Members of support systems will be securely connected together to prevent sliding, falling, kickouts, or other potential hazards.

Support systems will be installed and removed in a manner that protects employees from cave-ins, structural collapses, or from being struck by members of the support system.

Individual members of support systems will not be subjected to loads exceeding those which those members were designed to support.
Before temporary removal of individual support members begins, additional precautions will be taken as directed by the Competent Person to ensure the safety of employees.

These precautions could include, for example, the installation other structural members to carry the loads imposed on the support system.

Removal of support systems will begin at, and progress from, the bottom of the excavation. Members will be released slowly. If there is any indication of possible failure of the remaining members of the structure or possible cave-in of the sides of the excavation the work will be halted until it can be examined by the competent person.

Backfilling will progress together with the removal of support systems from excavations.

Additional requirements for support systems for trench excavations:

- Excavation of material to a level no greater than 2 feet below the bottom of the members of a support system is allowed, but only if the system is designed to resist the forces calculated for the full depth of the trench. There will be no indications while the trench is open of a possible loss of soil from behind or below the bottom of the support system.

- Installation of a support system will be closely coordinated with the excavation of trenches.

**SHIELD SYSTEMS**

Shield systems will not be subjected to loads that are greater than those they were designed to withstand.

Shields will be installed in a manner that will restrict lateral or other hazardous movement of the shield that could occur during cave-in or unexpected soil movement. Employees will be protected from the hazard of cave-ins when entering or exiting the areas protected by shields.

Employees will not be allowed in shields when shields are being installed, removed, or moved vertically.

In trench excavations, excavation of material to a level no greater than 2 feet below the bottom of the shield system is allowed, but only if the system is designed to resist the forces calculated for the full depth of the trench. There will be no indications while the trench is open of a possible loss of soil from behind or below the bottom of the shield system.
Tool Box Talks

Created by the
Lovell Safety Management Co., LLC
Safety Staff
NOTICE

This manual is designed to provide information with regard to the subject matter involved.

The state of the art and the related regulatory programs are still subject to substantial review and change, as well as significant differences of professional interpretation. Federal, State, and Local Right To Know laws and regulations are being adopted, promulgated and altered. The entire responsibility for complying with the law and remaining current lies with employers.

All employees who work with or otherwise encounter hazardous chemicals are affected and must be trained. They must understand the hazards presented by the chemical substances and take proper precautions when working with such materials.

This publication is not intended to take the place of legal or other professional assistance. If legal advice or other expert assistance is required to address specific problems confronting your business, the services of competent professionals should be sought. Accordingly, no representation can be made or responsibility taken by the publishers regarding the completeness, accuracy or continuing validity of the information in this publication or the accompanying video tape.
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TOOL BOX MEETINGS

Tool box talks of 5 to 10 minutes must be held by superintendents and/or foreman each week. Employees never receive too much training, and therefore our company relies upon jobsite management to provide ongoing and continuous employee training.

The subject to each training talk should be chosen to relate to the type of work that is being performed.

*Some examples include:*

- The use of safety glasses when using circular saws, grinders, table saws, radial arm saws, jack hammers, power actuated tools, etc.
- The proper set up and use of ladders.
- Hard hats and why they are necessary.
- A discussion of a recent accident and its cause(s).
- A discussion of an old accident.
- A discussion of disciplinary procedures for failure to comply with safety policies.

Lovell Safety Management has put together a series of weekly talk topics.

*We did the research and the writing, all you have to do is administer them.*

The enclosed weekly tool box talks will assist your organization in providing a safe and healthy work place for your employees.
JOBSITE SAFETY MEETING REPORT

Job Location: ____________________________________________________________

Meeting Date: __________________________ Number of Employees Present: ________

Supervisor: _____________________________________________________________

Names of Subcontractors Present:

_______________________________________________________________

_______________________________________________________________

Others Present:

_______________________________________________________________

Topics Discussed:

_______________________________________________________________

_______________________________________________________________

Remember!

An employee will better understand and retain a safety message if you both show and tell the person. Lead by example.

In attendance at this meeting were:

1. __________________________  6. __________________________

2. __________________________  7. __________________________

3. __________________________  8. __________________________

4. __________________________  9. __________________________

5. __________________________ 10. __________________________

Cc: Main Office - Original
BACK SAFETY

SAVE YOUR BACK

Back pain is second only to the common cold on the reason why people go to the doctor. Managing back pain is the most important step you can take to avoid lost workdays.

The National Institute of Occupational Safety & Health (NIOSH) has developed seven factors to mathematically evaluate stress while lifting. The seven factors that influence lower back stress are:

1. **Weight Of Object**: This is obvious – if it’s above your company guidelines or your limits – get help or use mechanical assistance.

2. **Horizontal Position**: How far away is the load located from you?

3. **Travel Distance**: How far do you have to carry the load?

4. **Vertical Distance**: How high do I have to lift, or lower it?

5. **Body Rotation**: Do I rotate the waist while lifting?

6. **Frequency Of Lifts**: How often do I need to lift the weight?

7. **Coupling**: How good are your hands grasping the load?

Think about these factors and look for ways to reduce them. If you find yourself making repetitive lifts this week, think of these factors and look for ways to modify them.
There are three basic causes or sources of burn accidents. They are chemical, electrical and fire. Certain steps can be taken to help employees from getting burned.

**Chemical Burns**

- Make sure all containers are properly labeled
- MSDSs are available and reviewed periodically
- PPE is available and in good condition
- Employees are conducting proper hygiene practices such as washing after using chemicals

**Electrical Burns**

- All machinery is properly guarded
- Do not overload electrical circuits
- Replace any wiring that has exposed wires

**Fire**

- Smoke only in designated areas
- Place oily rags in approved safety cans
- Store flammable liquids properly
- Keep flammables away from heaters

If an employee is burned, treat it as a serious burn. Seek medical attention immediately. Do not put ice, ointment or any other material directly on the burned area. Do not break any blisters that may form. Keep burned area elevated. Use only cool water on first and second degree burns. For chemical burns, flush the skin immediately for 15 minutes. Provide the doctor with the MSDS of the chemical that caused the burn.

Remember to always use caution while working in areas where the possibility of getting burned exists.
Carbon monoxide is a colorless, odorless, tasteless gas. Large amounts of carbon monoxide can kill you in minutes. The more carbon monoxide in the air, and the longer you are exposed to it, the greater the hazard. The more carbon monoxide means less oxygen for you to breathe.

The incomplete burning of any material containing carbon, such as wood, coal, gasoline, oil, propane, or natural gas produces the gas. The most common source of exposure is the internal combustion engine.

Any one or more of the following symptoms can signal carbon monoxide exposure: headaches, nausea, dizziness, fatigue, tightness across the chest or flushed face.

How can carbon monoxide poisoning be prevented?

- Install an effective ventilation system.
- Maintain equipment in good working order.
- Consider using battery-powered machines instead of internal combustion engines.
- Install carbon monoxide monitors where carbon monoxide is generated or used.

Inform workers to:

- Report any condition which carbon monoxide may form or accumulate.
- If you get sick, report it immediately.
- If an employee is exposed to carbon monoxide, direct them to a fresh air area and contact physician.
- Remember physical activity increases the body’s need for oxygen, thus increasing the danger of poisoning.
Caught In Between Hazards

Headlines in your local paper may cry out “Trench Cave-In Claims Life of Local Construction Worker” or “Rotating Crane Superstructure Crushes Worker at Local Construction Site”.

Almost every day workers are injured or killed by “caught in between” hazards. These types of accidents cause approximately 18% of all construction deaths. This is why OSHA is focusing on worksite hazards that present the possibility of being caught in between something.

This Lovell 2000 Toolbox Talk is a reminder of many OSHA regulations that are designed to protect you from “caught in between” hazards.

Trenching & Shoring – In trench excavations four feet or more in depth a stairway, ramp or ladder is required so no more than 20 feet of lateral travel is needed to evacuate from the opening.

Material Handling & Storage – All materials stored in tiers must be stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, falling or collapse.

Cranes, Derricks & Hoists – Accessible areas within the swing radius of the rear rotating superstructure of the crane, either permanent or temporarily mounted, shall be barricaded to prevent an employee from being struck or crushed by the swing of the crane.

Hand & Power Tools – When power operated tools are designed to accommodate guards; they shall be equipped with the guards when in use.

Belts, Gears, Pulleys & Chains – All belts, gears, shafts, pulleys, sprockets, drums, flywheels, chains or other reciprocating, rotating or moving parts of equipment must be guarded if such parts are exposed to workers or otherwise create a hazard.

Mechanical Equipment – Bulldozers, end-loader buckets, dump bodies, and similar equipment, must be either fully lowered or blocked when being repaired or when not in use. All control must be in a neutral position, with the motors stopped and brakes set, unless work being performed requires otherwise.
CEMENT SAFETY

Cement is a major cause of skin irritation for construction workers. The more lime the cement contains, the more irritating the cement is to the skin. Adding water to cement generates heat, therefore, increasing the possibility of burning your skin upon contact.

When cement comes into contact with skin, the skin becomes hard, dry and thickened. The skin is then likely to crack. The nails will also become dry and brittle. Cement can also cause inflammation of the eyelids.

Factors that can contribute to the development of dermatitis include:

- Excessive sweating – workers who perspire freely are more likely to develop cement dermatitis, first on the exposed parts of the body, and then on the covered parts.
- Lack of cleanliness
- Pre-existing dermatitis or allergy

Proper personal hygiene is the most important defense in the prevention of dermatitis. Workers should know the proper preventive measures. This would include showers after each shift, and changing of work clothes daily. During work, a lanolin-based soap should be used for washing. Lanolin should be applied to exposed arms before putting on gloves. Refer to the MSDS to ensure the gloves you are using are providing enough protection.

If any employee develops dermatitis, the proper medical care should be taken. If necessary, remove the employee from the work area until their condition improves.
Chain Saw Safety

Almost a third of all accidents in the woods involve chain saws. Chain saw injuries, tend to be severe and even life threatening.

Obey the following safety rules when operating chain saws:

- Always start the saw on the ground, not on your knee or in the air.
- When walking, make sure your finger is not on the saw trigger in case you fall or trip.
- When refueling, shut the motor off and let it cool before refueling.
- Take gasoline to and from the job using an approved safety can and wipe up any gasoline spills from the motor.
- When operating a chain, wear a hard hat, safety shoes, safety pants or chaps, hearing protection and safety glasses.
- Keep a first aid kit and fire extinguisher available.
- Before using, inspect the chain saw to ensure that all parts are in good working condition.

The most important safety factor is the knowledge and safety orientation of the operator. A chain saw is a powerful piece of equipment; so familiarize yourself with the manufacturer’s information on parts, safe operation and trouble shooting.

Also, consider whether working alone is worth the extra risk. Using a buddy system when operating a chain saw is a good work practice.
Employees who work outdoors during the winter months must deal with the hazard of exposure to the cold. Prolonged exposure to freezing temperatures can result in health problems as serious as trench foot, frostbite, and hypothermia. There are several ways of preventing employee exposure to cold weather dangers.

**Personal Protective Clothing** – Perhaps the most important step is dressing in layers of insulation. Remember you can always take off excess clothing.

- An outer layer to break the wind and allow some ventilation (nylon or gortex).
- A middle layer of wool or synthetic fabric to absorb sweat.
- An inner layer to allow ventilation (cotton).
- Keep your head covered, you lose up to 55% of your body heat through your head.

**Engineering Controls** –

- Shield work areas from drafty or windy conditions.
- Provide a heated shelter for employee to get temporary relief from the cold.
- Use thermal insulating material equipment handles.

**Safe Work Practices** –

- Allow a period of adjustment to the cold before start of a full work schedule.
- Allow employees to set their own pace and take extra work breaks as needed.
- Ensure that employees remain hydrated - lots of liquids.
- Establish a buddy system for working outdoors.
- Be aware of the symptoms of cold related stress.

Knowing the facts on cold exposure and following a few simple guidelines can lead to a safe productive winter work season.
HARMFUL EFFECTS OF COLD WEATHER

Most cold related injuries are a result of exposure to humidity, high wind, wet condition, and inadequate clothing. When cold exposure lasts for more than an hour, cooling of your skin and reduce blood flow to your hands, leads to bloated sensation of touch, pain and loss of dexterity and agility.

Employee should be aware of the harmful affects of cold weather, which includes trench foot, frostbite and hypothermia.

Trench Foot – Is caused by long, continuous exposure to a wet, cold environment.

**Symptoms** – Tingling or itching sensation, burning pain and welling. Blisters in extreme cases.

**Treatment** – Move individual to a warm, dry area. Where the affected tissue can be treated, carefully wash and dry, re-warm and slightly elevate. Seek medical attention.

Frostbite – Occurs when the skin tissue actually freezes causing ice crystals to form between cells and draw water from there. Typically occurs at temperature below 30°F.

**Symptoms** – Uncomfortable sensations or coldness, tingling, stinging or aching feeling, followed by numbness. Ears, fingers, toes, cheeks, and nose are primarily affected. Frostbite appears white and is cold to the touch.

**Treatment** – Seek medical assistance immediately. Frostbitten parts should be covered with dry cloth bandages. DO NOT massage frostbitten tissue because this may cause greater injury.

Hypothermia – Describes the condition of dramatically lowered body temperature that can result from overexposure to cold.

**Symptoms** – The first symptom is shivering, and mild confusion. As body temperature falls, the victim is in a state of dazed consciousness, blurred speech and irrational behavior. The most severe state results in slowing of the heart rate, blood flow, and breathing.

**Treatment** – Seek medical assistance immediately. Conserve the victims remaining body heat and provide additional heat sources. Remove all wet clothing; add layers of dry clothing, blankets, etc. External warming techniques may be applied (body to body contact, chemical heat packs, insulated hot water bottles). Avoid giving beverages containing alcohol or caffeine.
Compressed gas cylinders present numerous hazards. They may contain gases that are poisonous, corrosive, flammable, combustible or explosive.

In order to work safely with compressed gas cylinders, ensure that they are properly labeled. Also, follow these guidelines:

- Never attempt to repair a cylinder or valve
- Do not roll or drag cylinders
- Only move one cylinder at a time
COMPRESSED GAS CYLINDERS (CONTINUED)

- Separate oxygen and flammable gas cylinders a minimum of 20 feet apart.
- Store full and empty cylinders in separate areas.
- Do not store acetylene cylinders on their side
- Open cylinder valves slowly
- Shut off the valves when the cylinder is not in use. Also remove gauges at the end of the workday, and replace caps.
- Make sure the cylinder is secured to a structure capable of supporting its weight.

An accident involving compressed gas cylinders can be very devastating. Make sure you have been properly trained before you attempt to work with any compressed gases.
CONCRETE MASONRY CONSTRUCTION

This type of construction requires rules and procedures to protect employees from the hazards of concrete and masonry operations. You must be aware and follow these rules for your personal safety.

- No construction loads shall be placed upon a concrete structure unless it is determined by a person qualified in structural engineering that the concrete structure is capable of carrying the loads.
- All protruding reinforcing steel (rebar) shall be guarded in order to prevent injury should anyone fall on it.
- Signs and barriers shall be erected in the area of posting tensioned operations in order to keep out unauthorized and unnecessary personnel.
- No riding of concrete buckets is allowed.
- No employee shall be allowed to work under concrete buckets while they are being hoisted or lowered.
- To the extent possible, concrete buckets shall not be swung into position over employees.
- Proper personal protective equipment shall be required when applying cement, sand and water mixtures delivered by compressed air under pressure.
- There are a series of requirements concerning equipment and tools. These requirements are industry accepted standards and should present you with no problems. If you need to review them, do so as you are responsible for these requirements.
- All masonry walls over 8 feet in height shall be braced to prevent overturning and collapse, unless the wall is supported so that it will not do so. Bracing shall remain in place until permanent supporting elements of the structure are in place.
- A limited access zone shall be established before the start of the construction of any masonry wall.
- The limited access zone shall be the entire length of the wall by the height of the wall plus 4 feet.

Cast In Place Concrete

- All form work shall be capable of carrying all construction loads.
- Drawings or plans, including all revisions, for form work, shoring and related components shall be available at the jobsite.
- Inspect all shoring and reshoring equipment prior to use.
- Do not use any shoring equipment that appears to be damaged or defective.
- Inspect all shoring immediately prior to, during and immediately after concrete placement.
- Make sure all bases for shoring are able to carry all applicable loads, are supported and properly aligned.
- Design of shoring shall be done by a qualified designer. A qualified structural engineer shall inspect the erected shoring.
- Ensure that all posts are tight and plumbed properly.
Reinforcing Steel

- Properly secure and support wall mats, columns, etc. to prevent overturning and collapse.
- Take proper measures to keep wire mesh from recoiling.

Removal of Form Work

- Do not remove until concrete has sufficient strength to support itself and soon to be imposed loads.
- Reshoring has the same requirement as above.

Precast Concrete

- Properly support all precast units to prevent overturning and collapse.
- Lifting inserts in tilt-up members shall have a safety factor of 2.
- Lifting inserts in all other members shall have a safety factor of 4.
- Lifting hardware shall have a safety factor of 5.
- No employee shall be allowed under precast concrete members being lifted into position.

Lift Slab Construction Operations

- A registered professional engineer shall design all lift slab operations.
- Jacks and other lifting units shall be properly labeled and shall not be overloaded.
- All jacking equipment, including all accessories shall have a safety factor of 2.5.
- All jacks and lifting equipment shall:
  - Have a safety device, which will allow the unit to support the loads in the event of a malfunction.
  - Be designed and installed so that it will stop lifting if its load is exceeded.
  - Secured so that it will not dislodge or dislocate during operations.
- All operations are to be synchronized and are to be controlled by a qualified, competent person.
- Only essential personnel shall be allowed in the operational area.
- All temporary welding shall be performed by a certified welder.
- Do not transfer loads to maintain columns until welds have cooled to air temperature.
CONSTRUCTION VEHICLE

SAFETY

Construction equipment must be identified to the traveling public.

Construction equipment must conform to project plans and specifications, as well as applicable laws and ordinances.

All equipment must properly enter, work, stop and exit a work site.

All equipment must have proper legal registration.

All equipment must have an unobstructed view to the rear unless
  The vehicle has a reverse signal alarm.
  The vehicle is backed when an observer signals.

All equipment must have proper working visible flashing warning lights, as required by the project plans and specifications.

Construction equipment designed to move 25 MPH or less on public roads shall have appropriate “Slow-Moving Vehicle Emblems”.

Slow moving equipment must have proper escorting vehicles when traveling with traffic, as per the project plans and specifications.
Conveyor systems help lower an employee’s exposures to lifting and possible back injuries. However, there are hazards associated with the use of conveyors. Employers need to know how to operate the conveyor safely and the possible hazards associated with that piece of equipment.

Hazards associated with conveyors include pinch points, falling material, electrical and struck by. It is essential that all machine guards remain in place and are properly secured. Also, keep floors and walkways clear of slip and trip hazards such as spilled liquids and packing material.

Only trained mechanics should be allowed to work on or repair conveyor systems. However, employees should inspect the machines throughout their shift to ensure all belts, rollers and mechanical parts are in good working order. Any defects or worn parts should be reported immediately.

Employees should follow the guidelines below when working with conveyor systems:

- Never climb, step or ride a conveyor.
- Do not tamper with guards or safety devices.
- Never overload a conveyor.
- Do not reach into an area with moving parts.
- Do not wear loose fitting clothing, jewelry, or hair, which may get caught.
- Shut down the conveyor if problems occur. Use a lockout/tagout system when attempting any work on the conveyor.
- Never attempt to un-jam any moving conveyor.

Conveyors are capable of making a job more convenient. Make sure you receive proper training before using one.
CRANE AND HOIST SAFETY

Working with or near cranes and hoists exposes employees to serious hazards. Certain safety rules must be applied when working in this type of work environment.

Workers not involved in the operation of the crane or hoist, but who are in the operating area need to:

- Never stand or walk under a load, whether moving or stationary.
- Stay alert and pay attention to warning signals.
- Do not distract signal person when a load is being lifted.

Workers involved in the lift need to follow the following safety guidelines:

- Never operate a crane that is unsafe.
- Inspect the equipment before using it.
- Never let an unauthorized person operate the crane or give hand signals.
- Make sure the operator and signal person are in direct contact.
- Never carry a load over another worker.
- Lockout equipment when doing any repair work.
- Never exceed the limits of the equipment
- If the lift appears to become unstable or unsafe, stop immediately.

The safe operation of cranes and hoisting equipment require a team effort. Ensure that all employees are properly trained to identify hazards and protect employees.
A Certified Competent Crane Operator must carry a license of competence from the New York State Department of Labor when operating a crane. A copy of this license is to be retained in the project records.

- **A COMPETENT PERSON MUST INSPECT ALL CRANE EQUIPMENT AND MACHINERY PRIOR TO EACH USE.**

- A competent person must conduct a thorough annual crane inspection and the owner shall maintain a record of inspection dates and results.

- Rated load capacities, recommended operating speeds, special hazard warnings and special instruction are to be posted conspicuously on all cranes and visible to the operator at the crane operator’s control station.

- Cranes must comply with the manufacturer’s specifications and limitations. Attachments to a crane cannot exceed the manufacturer’ recommended crane capacity, rating or scope.

- Accessible areas within the swinging radius of the rotating crane superstructures must be barricaded.

- Cranes must be at least a minimum of 10 feet from all electrical lines, unless the electrical lines are de-energized or insulated.

An “ABC” rated fire extinguisher is to be available at all crane operator stations.
Driving Aggressively

Aggressive driving is the operation of a motor vehicle in an unsafe and hostile manner without regard for others. It often occurs when a driver is frustrated, impatient or irritable.

Speeding can lead drivers to follow too closely; change lanes frequently, or abruptly, without signaling; pass on the shoulder or unpaved portions of the roadway and even harass motorists who just happen to be in front of them.

Aggressive driving may also include running stop signs and red lights, passing stopped school buses, failing to keep right, driving while impaired by alcohol or drugs and reckless driving.

The following are ways to avoid becoming an aggressive driver:

- Allow for enough travel time to reach your destination on time.
- If you are running late, call ahead.
- Alter your schedule to avoid driving during peak highway congestion periods.
- Don’t; drive when you are angry, upset or overly tired.
- Make your vehicle comfortable. Listen to relaxing music, and avoid situations that raise your anxiety.
- When driving, relax and remain aware of your posture. Loosen your grip on the steering wheel.
- Give others the benefit of the doubt; be polite, courteous and forgiving.

You can control your reaction to other drivers. If someone drives aggressively, do not retaliate and stay clear of him or her.
Drug and alcohol abuse has become epidemic and accounts for a high percentage of accidents on the job. We are all potential victims of the misuse of these dangerous chemicals.

Drug and alcohol use on the job increases the likelihood of accidents three to four times. Drug and alcohol abusers typically work at 65% of their ability and are absent from work and late to work more often than non-abusers. Between 38-50% of all workers’ compensation claims are related to alcohol or drug abuse in the workplace.

Studies show that alcohol and drug users use their health insurance at a rate eight times higher than non-users.

Up to 40% of industrial fatalities and 47% of all industrial injuries can be linked to alcohol.

One out of four American workers has a substance abuse problem or a family member with a drug or alcohol addiction.

We must all make a commitment to actively do what we can to eliminate the use of illegal drugs in the workplace. No longer can the employee come to work with alcohol on their breath or under the influence of potentially dangerous substances. Your health, life and job could be at risk if you stand idly by as drug and alcohol abusers steal from you what was so hard earned. If you see co-workers using drugs or alcohol on the job, you must speak up before an accident occurs. Not only could you help avoid a tragedy, but you might begin the process of recovery for someone who needs help to beat his or her addiction.
**ELECTRICAL HAZARDS**

Warning: Electricity can burn skin; burn body tissue and cause fires or explosions.

You increase your changes of staying safe when:

- Electric current travels through insulated conductors from the power source to tools, lights and equipment.
- Grounding creates a low-resistance path for the current that connects to the earth.

You are unsafe when:

- Working with electrical equipment that is not insulated or grounded. This could make your body an electrical conductor.
- If current enters your body, you can experience shock and risk: pain; loss of muscle control; damage to nerves, tissue or muscles; cardiac arrest; or death.

You are likely to get shocked when:

- You are in contact with water or other liquids – wet hands, wet floor, and damp environment.
- You are in contact with metal, jewelry, belt buckles, and conductive metal tools.
Electricity if used improperly prevents hazards that can cause serious injury or death. To prevent you and your co-workers from becoming a victim of an electrical accident, the following work practices are to be observed.

**Ground Fault Circuit Interrupter (GFCI)** - The use of this safety device is mandatory on all construction sites when using temporary electrical of 120 volts single phase for 15 and 20 amp outlets. This device is positioned between the power source and the electrically powered tool. The GFCI is a fast acting circuit breaker, which senses small imbalances of current entering and leaving the circuit. If there is an electrical fault (short) where the amount of electricity “returning” (approximately 5 milliamps) then the GFCI will shut down the electrical power within 1/40 of a second to prevent you from being shocked or electrocuted. GFCI’s also provides protection against fires, overheating of tools and equipment and destruction of insulation or wiring.

**Safety Procedures** - The following common sense procedures can prevent electrical accidents and injuries. You probably do much of this already. If not, make these procedures a habit.

1. Read and follow manufacturers instruction for your equipment.
2. Inspect portable tools before using. Look for broken plugs, frayed cords, bare wires, smoke when running, sparks from switches or erratic operation.
3. When necessary to use extension cords, use heavy duty cords. Check for exposed wires, frayed cords, missing ground pins, and broken, bent or defective plugs and connectors.
4. Always remove cords from the outlets by the plug, not by pulling on the cord. Be sure that cords are not pinched or cut when using around doorways or across sharp objects. Don’t fasten cords with staple.

6. Make sure your hands are dry before using electric tools. Never stand in wet locations when using electric tools.

7. Be cautious around flammable liquids, vapors or dusts when using electric tools. Your tool may act as a source of ignition. Ventilate the area before using electric tools.

8. When using or handling long metal objects such as pipe or duct work, beware of touching live electricity. When in doubt, use insulation or other protection.

9. Never use metal ladders around live electricity.

10. Obey barriers, signs or other warning to stay away from live electrical power sources.

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**EXCAVATION/TRENCHING**

Before we begin digging…..

- The employer must designate a “competent person” who knows about soil analysis, the use of protection systems and the requirements of the OSHA standard. He must also be given the authority to take action when there is a safety issue at the site. This person may be one of your superintendents.

- In trenches 4 feet or more deep, ladders, stairways, ramps or other safe means of getting out must be available. You should not have to go more than 25 feet to gain access to a way of getting out of the trench.

- When working near public traffic, warning vests with reflectorized or high visibility material should be provided by the employer and worn by the employee.

- Employees are not permitted to work under loads.

- We must perform daily inspections of the excavation to ensure employee safety.

- We cannot excavate more than 2 feet below support systems.

- Be sure to keep excavated materials and debris 2 feet back from the edge of excavations.

- A registered professional engineer will be required for assistance when:
  - The excavation is >5’ deep with a slope less than 1½ to 1 plus the width of the bucket.
  - Excavation is over 20 feet deep.
  - A self constructed trench box/shield is used.
  - A sheeting or shoring system is used.

- The only exception to the above rules are when working in:
  - Solid virgin rock with no cracks.
  - The trench is less than 5 feet deep.
  - Sloping 1 ½ to 1 plus the width of the bucket, if less than 20 feet deep.
There are a number of workplace hazards, which can result in injuries to the eye and face. These hazards include:

- Chemical Splashes
- Flying Chips and Sparks
- Optical radiation from welding, lasers and radiology
- Biological Hazards

Eye protection such as glasses and goggles are designed to protect the eyes only. There are specific types of glasses, goggles and shields for particular hazards.

**Glasses**
- Clear glasses are designed to shield the eyes from the impact of flying chips
- Lenses are made of safety glass or plastic. They can be made to correct the worker’s vision.
- Lenses should be large enough to cover the entire eye. When peripheral hazards are present, side shields are required.

**Goggles**
- Goggles are protective devices intended to fit the face around the eyes. They protect the eyes from flying objects, chemical splashes, chemical fumes and optical radiation. Tinted goggles are available to protect eyes from laser and welding operations.

**Face Shields**
- Face shields are intended to protect the worker’s face from specific hazards. Face shields do not provide primary eye protection. They must be used with safety glasses or goggles.
- Face shields are designed to protect the face. The bottom of the shield should drop below the chin to provide adequate protection to the face.
Eye and face protection (continued)

Welding Helmets
- Welding helmets provide protection against optical radiation as well as face protection.
- Welding helmets will protect the worker from flying objects with the insertion of a safety glass in front of the shaded glass.

Eye and face protection with scratches, dents, and defective parts that obscure workers' vision should be discarded.
This Lovell 2000 Toolbox Talk has practical fall protection tips to protect yourself while on the work sites.

When you are required to work at heights of 6 feet or more, your employer must take steps to protect you from falling. Here are some tips you can take to stay safe while working at heights:

- Keep your mind on your work – no horseplay on the job. Injury, job termination or both can result.
- Watch where you are walking. Never run.
- Never distract other workers. To do so may cause injury.
- Keep your work area free of litter and debris.
- Keep walking and working surfaces as level as possible. Faulty patching, sagging supports, warped boards, and poorly constructed working surfaces are conditions to look for to eliminate slips and falls.
- Keep working surfaces dry and clear. Grease, oil, water, dirt and ice can create surfaces that are potentially dangerous.
- Never work aloft if you are afraid to do so, are subject to dizzy spells, or are apt to be nervous or sick. Be comfortable with your work environment.
- Wear fall protection equipment when required and as prescribed.
- Never enter a roped off or barricaded area.
- Keep away from leading edges of cuts, embankments, trenches, holes and/or pits.

If a slip or fall condition exists, take short steps with toes pointed out, and walk on the whole portion of your foot when crossing rough or slippery surfaces. Do not make sharp turns. If a fall starts to happen, protect your head and neck from injury. Relax, go limp and do not resist the fall; as you land, roll.
**FALL PROTECTION**

**Training**

- Training shall consist of:
  - The nature the fall hazards in the work area
  - The function, use and operation of a personal fall arrest system, warning line and safety monitoring system to be used.
  - The correct procedures for erecting, maintaining and disassembly of the system to be used.
  - The role of each employee in the safety monitoring system.
  - The limitations when using mechanized equipment.
  - The correct procedures for equipment and material storage and handling.

- Training shall be provided to all new employees and for all other employees as is necessary to maintain a high level of proficiency.

**Safety Harness, Lifelines and Lanyards**

- Lifelines, safety harness and lanyards shall only be used for employee safeguarding. Do not use them for material lifting, etc.
- Any lifeline, safety harness or lanyard, which was actually subjected to an in-service load, shall be removed from service.
- Secure above the point of operation to a member capable of withstanding a minimum of 5,000 lbs.
- Lifeline exposed to cutting or abrasion shall have a minimum 7/8 inch diameter rope. All other lifelines shall have a minimum ¾ inch diameter rope.
- Minimum breaking strength of the ropes shall be 5,000 lbs.
- Safety harness lanyard shall be a minimum of ½ diameter nylon, or equivalent, maximum length of 6 feet, minimum nominal breaking strength of 5,400 lbs.
- All hardware shall meet the requirements of Federal Specification QQ-P-416.
- All hardware shall be able to withstand a tensile loading of 4,000 lbs. without any deformations.
FALL PROTECTION

WHICH RULE TO FOLLOW?

Have you wondered which rule to follow for fall protection? There are several heights at which you must be protected.

- **6 Foot Rule**
  For construction, Subpart M, Fall Protection, employees working on unprotected sides and ledges, leading edges, hoist areas, around holes, on form work and reinforcing steel, over excavations, and other situations where the employee could fall 6 feet or more, must be protected by a fall protection system, guardrail, safety net or personal fall arrest system (harness).

- **10 Foot Rule**
  For scaffolding, employees more than 10 feet above a lower level must be protected from falling to a lower level. Guardrails and personal fall arrest systems are the primary fall protection used.

- **25 Foot Rule**
  For steel erection, on buildings or structures not adaptable to temporary floors and where scaffolds are not used, safety nets must be installed and maintained whenever potential fall distance exceeds 2 stories or 25 feet.

- **30 Foot Rule**
  In skeleton steel work, a tightly planked and substantial floor must be maintained within 2 stories or 30 feet, whichever is less.

- **No Foot Rule**
  Believe it or not, some employees believe you must tie off to a ladder when you are 6 feet or more up the ladder. The fact is, fall protection for ladders or stairways is to follow the OSHA regulations. If the ladder or stairway is set up safely, according to the OSHA regulations, and used properly, the ladder or stairway is safe and that is the fall protection.

It would be nice if fall protection were all the same, but they are not. The important thing is to know the requirements.
Fires are very costly to the Construction Industry. Each year they take many lives, cause workers to lose their jobs and cost millions of dollars. You can do your part by observing and complying with fire-control regulations. If you notice conditions that can cause a fire, report them to your supervisor immediately.

- The employer is responsible for developing a fire protection program for the jobsite. Familiarize yourself with your particular program.
- The emergency telephone number for reporting fires shall be conspicuously posted.
- Locate fire fighting equipment in easily seen places. Use signs where appropriate.
- Each 3,000 square feet of building requires a minimum of one 2A fire extinguisher. Distance to the fire extinguisher shall not exceed 100 feet.
- For multi-story buildings, provide at least one 2A fire extinguisher for each floor.
- Wherever there is 5 gallons or more of a flammable or combustible liquid, a fire extinguisher of not less than 10B shall be located within 50 feet.
- Portable fire extinguishers shall be periodically inspected and maintained in accordance with NFPA 10A-1970.
- When an extinguisher has been used, no matter how little, remove from service and replace with a fresh unit.
- During demolition, a water truck should be used if there is no other available water supply.

Do what you can to prevent fires. Be prepared by knowing what actions to take should a fire occur. Know where the alarms and fire extinguisher are located. Fire safety is everyone’s business.
Fires - Preventing Workplace

You can prevent workplace fires by doing the following:

**Housekeeping**
- Keep the workplace free of sawdust and debris; put waste in proper containers.
- Keep combustibles (paper, cardboard, wood) away from heat sources and machines.

**Flammable Liquids**
- Follow the label for handling and storage precautions
- Clean up spills and leaks immediately
- Use non flammable substitutes whenever possible
- Use approved flammable liquid storage containers
- Ground containers during transfers and storage
- Use only in well-ventilated areas, away from heat sources
- Treat empty containers as if they are full, unless purged
- Remove any saturated clothing immediately

**Oxygen**
- Keep oxygen cylinders from contact with any combustibles

**Electricity**
- Replace frayed or worn cords and wires
- Never overload circuits, motors, fuses or outlets
- Always have good ground connection
- Never let heating equipment or machinery run unattended
- Keep machines and motors clear of dust and grease

**Fuel and Ignition Sources**
- Smoke only where permitted
- Use space heaters only in well-ventilated areas where they can’t fall over
- Perform welding and cutting in protected areas

Always keep fire alarms, exits, aisles and sprinklers clear.
Every company sets forth a goal of zero injuries. However, incidents do happen. Employees should be given basic information regarding first aid. The following are some key points regarding first aid:

- Keep the injured person lying down until professional help arrives.
- Do not give liquids to the unconscious victim.
- Never give alcohol to an injured person.
- Control the bleeding by pressing on the wound.
- Dilute swallowed poisons (refer to MSDS).
- Keep broken bones from moving.
- For someone who has fainted, keep their head lower than their heart.
- Cover eye injuries with a gauze pad.
- Cover burns with thick layers of cloth.

The first thing that needs to be done is to call for professional help. Remember your job is not to save lives. Obtain first aid for every injury no matter how small. To neglect a cut or a scratch is to invite infection. Wounds that do not bleed are often the first to become infected.
FLAMMABLE LIQUIDS -

GASOLINE

Gasoline is a product that is commonly used at both work and home. It is important to our way of life. We must treat it with caution and follow specific rules.

Gasoline should be kept in approved safety cans that are properly labeled as to their contents. Never put flammable liquids in a soft drink bottle, food container or any other unapproved container.

Gasoline can be accidentally ignited many ways. A few of these sources are: open flames, hot surfaces, sparks resulting from contact of metals, operation of electrical equipment and discharge of static electricity. Smoking and matches are also common ignition sources.

Some basic safety rules concerning gasoline are as follows:

- No smoking, spark sources, or open flames in areas where gasoline is used or stored.
- Gasoline should never be used for cleaning purposes.
- Gasoline should be kept in approved containers and clearly identified.
- When fueling equipment, make sure the engine is turned off and the engine has cooled off.
- Do not do a sloppy job of pouring. Use a funnel if necessary and clean up any spills immediately.
- When finished using, return containers to flammable storage areas.

Gasoline is an item that we use on a daily basis and need to take the appropriate safety precautions when using it.
Floor guarding

- Floor openings need to be properly protected on all open sides.
- Ladder way floor openings should be protected on all open sides, except at entrance to the opening.
- Hatchways and chute floor openings should have properly designed hinged covers with removable guardrails present on no more than two sides of the openings.
- Skylights must be properly guarded or covered with a cover capable of supporting a 200 pound person.
- Pits, trap door floor openings, manhole floor openings must be properly guarded.
- Temporary floor openings and floor holes are to be properly guarded.
- Open sided floors, platforms and runways shall be properly guarded.
- Wall opening guards and screens for wall openings shall withstand a load of 200 pounds.
- Wall openings shall be properly guarded when there is a drop or more than 4 feet and the bottom of the opening is less than 3 feet above the working surface.
- Top rail shall be 42 inches in height from surface, midrail 21 inches.
- Hand rail height shall be between 30 and 34 inches.
- All hand rails and top rails of stair rails shall be able to withstand a force of 200 pounds without failure.
DON'T FORGET ..... 

Driving a Fork Lift is NOT like driving a car. 
It is a 3 point suspension system, not a balanced 4 point like a car. This makes it very unstable and can tip over easily.

- Fire extinguishers must be mounted on the lift truck.
- Mirrors may give the operator an approved view of the area surrounding the lift truck when normal operating vision is otherwise obstructed.
- If the operator’s view is restricted, an audible alarm may warn pedestrians that the truck is moving.

Required Safety Equipment:
  - Load Back Rest
  - Overhead Guards
  - Capacity Plates
  - Fork Retaining Pins and Horns.

Replace Worn or Damaged Labels
**GRINDERS - PORTABLE**

Portable abrasive grinders have most of the same hazards associated with grinders mounted on fixed stands. In addition, the fact that they are portable creates more hazards.

The biggest danger with grinding wheels is that the wheel may explode. They generally run at 2,000 or 3,000 rpm, and if you bang it into something or give it a good blow, there is a good chance of it exploding and causing a severe accident.

Over speed can also explode a wheel. Never put an oversized wheel on a grinder. It will increase the rim speed and increase the chance of an accident.

Always use a guard on a portable grinder. The guard should cover at least half the wheel. Make sure it is properly secured. Always make sure when operating the grinder that the guard is between you and the wheel. The guard will keep a lot of the dust and sparks away from you.

Before using a portable grinder, inspect the following areas:

- Cord in good condition?
- Guard in place and secure?
- Is the trigger working properly?
- Does the wheel run smoothly without vibration?

If there are any defects in the piece of equipment, it should be taken out of service immediately, until it is repaired.

Also, make sure you are wearing the proper eye protection. A face shield may also be needed, depending on the activity.
HAZARDOUS MATERIAL SAFETY

OSHA provides the rules... your company provides the training and personal protective equipment. The bottom line is you are responsible for handling hazardous materials safely! The following basic rules must be followed for working with hazardous materials:

- Know what you are working with and how it might harm you.
- Read labels first – they tell the identity of the chemicals, what the hazards are, and how to protect yourself.
- Consult MSDSs – they give detailed information about the substance; what’s in it, physical and health hazards, how to protect yourself, and how to handle it safely.
- Other sources of safety information – company provided safety training; the company’s written HazCom (Right to Know) program.
- Use proper personal protective equipment (PPE) every time.
- Follow proper clean up and decontamination procedures.
- Know what to do in case of spill or leak of hazardous materials.
- Know how to respond if you or others are overexposed to hazardous materials.
- Never handle any substance unless you know what it is and how to protect yourself.

Don’t be afraid to ask questions about safety! The more you know, the safer you’ll be.
Protect Your Hearing — Reduce Noise

High noise levels, over time, can damage your hearing.
Employees should be encouraged to cooperate with efforts to reduce workplace noise exposures. These efforts include:

- Placing noisy machinery or operations in separate areas or behind sound barriers.
- Keep equipment lubricated and maintained to prevent squeaks and rattles.
- Place vibrating equipment on rubber mats.
- Replace worn or loose machine parts.
- Choose quieter replacement equipment.
- Install sound barriers around noisy equipment.
- Reduce the time spent in noisy areas.

Use hearing protectors — ear muffs, or ear plugs. Do not use cotton, stereo head sets, or makeshift hearing protection.

Inspect and care for your hearing protection devices.

Replace broken, cracked, stiff or loose fitting hearing protectors.

Wash your hands thoroughly before inserting or putting on hearing protectors.

Clean hearing protectors regularly. Follow manufacturer’s instructions.

Store hearing protectors in a clean, dry place.

Report hearing problems, ringing in the ears, trouble hearing voices, or high or soft sounds; or needing radio or television volume so high, others complain.
Construction sites are dynamic by nature. The work areas often times become cluttered and disorderly creating a hazard. The array of construction debris is almost endless, including wood from old forms, broken pallets, boards with protruding nails, and material shipping containers to name just a few. At any given time, a construction site will have housekeeping problems.

Housekeeping must be on-going as the job progresses.

Poor housekeeping can lead to the increased risk of trips, slips and falls. Resulting injuries range from fractures to sprains/strains. Associated hazards include nail in boards responsible for skin punctures resulting in lockjaw. If combustibles are not controlled at the site fire may occur.

⇒ Encourage the first line managers to make a concentrated effort to focus on housekeeping.

⇒ On larger job sites, give laborers specific duties related to housekeeping only.

⇒ On smaller sites, set up a system designating certain employees on an hourly basis to care for housekeeping chores.
Ladders

- Two or more ladders or a double cleated ladder is needed for 25 or more people.
- Ladders shall have a safety factor of 4.
- Rungs shall support a single load of 250 lbs.
- Rungs, cleats and steps shall be parallel, level and uniformly spaced.
- Ladders shall not be tied or fastened together unless specifically designed to do so.
- When splicing or side rails is required, splice shall be of equal strength as the single side rail of the ladder.
- Do not cover wood ladders with opaque coatings.
- Step ladders shall have a metal spreader or locking device to hold the ladder open.
- Tops of ladders shall be at least 36 inches above the dismount surface.
- Ladder shall be secured, at its top, to a rigid support.
- Keep ladders clean and free of slippery surfaces or materials (i.e., grease).
- Place only on suitable, stable and level surfaces.
- Keep area around the ladder clear and clean.
- Do not move ladders while personnel are on them.
- Ladders with defects shall be removed from service and tagged “DO NOT USE”.
- Face the ladder when climbing and do not carry any loads up the ladder. Use a hoisting line to move loads.

Keep at least one hand on the ladder at all times when climbing.
Using Ladders Safely

Falls from ladders, scaffolds, and roofs represent the majority of fall from elevation injuries. The largest portion of injuries associated with falls from ladders occur in carpentry and residential construction trades – caused primarily by slips, loss of footing, and shifting or unstable ladders. Slips and loss of footing are also the most significant factors in falls from roofs. While slips and loss of footing are not always preventable, falling off a roof or a ladder because of a slip is preventable. The following are some useful guidelines that can help reduce the risk:

Getting on the roof with a ladder

Climbing and descending a ladder is easy enough. However, many workers who have fallen from ladders neglected one or more of the following guidelines:

- Angle the ladder at the access area so that it has approximately a 4:1 slope and stands on a stable, level footing.

- Tie the ladder off to a secure anchor.

- The top of the ladder must extend at least three feet above the landing or leading edge of the access area.

- Stay within the side rails of the ladder when climbing or descending.

- Use both hands, don’t carry anything.
LEAD CONSTRUCTION

Overview
The purpose of the Lead in Construction Standard, is to protect the work force from illnesses associated with exposure to lead aerosols. Due to environmental protection laws, which prohibit the emission of lead dust to the general atmosphere and to communities, our industry has been forced to contain lead dust as well as protect employees. Consequently, the exposure to lead experienced by our employees can reach levels, which can be injurious to health.

The standard specifies methods, which can reduce and control the employee exposure so that ill health effects are less likely to occur. The requirements of the standard are summarized.

Scope and Application
The Lead in Construction Standard applies to all occupational exposures to lead and all construction work in which lead, in any amount, is present in an occupationally related context., Construction work is defined as work involving construction, alteration, and/or repair, including painting and decorating. Maintenance activities, which may expose employees to lead, are also covered by the standard.

Exposure Limits
The action level is the employee exposure, without regard to the use of respirators, to an airborne concentration of a 30 micrograms per cubic meter of air (30 ug/M³), calculated as an 8-hour time weighted average (TWA). If the action level is exceeded, several provisions of which includes periodic monitoring, and employees exposed days must be included program.

The permissible employers take steps to reduce the exposures to lead below 50 ug/M³ averaged over an 8-hour day. OSHA is aware that current engineering controls at lead activity sites cannot guarantee compliance with this objective. Therefore, respiratory protection can be used to supplement engineering controls.

NOTE: It is strongly recommended that you obtain the new OSHA Lead in Construction (1926.26) Standard for complete compliance requirements.
**LIFTING SAFELY**

Before you lift:
- Lift a corner of the load to see if you can lift it safely and carry it.
- When in doubt, get help or mechanical assistance (hand truck, dolly or forklift).
- Plan your route – remove anything in your path.
- Wear gloves and good sturdy shoes.
- Loosen up before lifting with gentle stretches and bends.

When you lift:
- Stand close to the load
- Squat, bend knees, and keep back straight.
- Get a firm grip.
- Keep the load close to your body.
- Push up with your legs.

When you carry:
- Keep the load waist high.
- Move your feet to change directions – don’t twist.
- Take small steps while walking.

When placing load:
- Lower the load slowly with knees bent – not the waist.
- Place the load on the surface edge and then slide it back.
MACHINE GUARDING

Machine guarding helps prevent injuries from contact with:

- Point of operation
- Ingoing nip points
- Rotating parts
- Blades and other sharp edges
- Pinch points

To prevent injury:

- Don’t remove, disable, deactivate or try to work around machine guards and safety devices.
- Report – DON’T USE machines with missing or disabled guards or protective devices.
- Follow all machine operating instructions – don’t skip steps!
- Know how to turn equipment “on” and “off” quickly and safely.
- Inspect all equipment before use. Don’t use if it is damaged or hasn’t been maintained properly.
- Use a push stick, not your hands, to feed materials into machines.
- Wear eye protection to prevent injuries from flying chips or sparks.

Machine guarding prevents injuries only if you use guards and safety devices.
OVERHEAD UTILITY SAFETY

OVERHEAD ELECTRICAL WIRE ACCIDENTS ARE 100% PREVENTABLE

Workers and equipment will not work within 10 feet of energized power lines or equipment. No portion of any piece of equipment nor any tool nor any persons be allowed within 10 feet of energized power lines or equipment.

We shall identify and reference all potential electrical hazards and document them.

Energized electrical lines or equipment will be conspicuously marked and workers will be reminded of their location by the project supervisor.

New workers to the project will be informed of electrical hazards and power precautions and procedures.
- Oxygen cylinders are required to be separated from fuel-gas cylinders, reserve stocks of carbides, or highly combustible materials (especially oil or grease) by a minimum distance of 20 feet or by a non-combustible barrier at least 5 feet high having a fire resistance rating of at least 1/2 hour.

- All cylinders must be capped and secured from movement.

- Use appropriate cart to secure cylinders when performing work.

- Do not take cylinders into confined spaces.

- Close cylinder valve at the completion of work, when empty or when moving.
**Pneumatic Power Tools**

- Shall be secured to the hose or whip to prevent accidental disconnect by a positive means.

- Safety clips shall be used to prevent attachments from becoming accidentally expelled.

All hoses exceeding ½ inch in diameter shall have pressure reducing devices in case of hose failure.
POWER ACTUATED TOOLS

Only properly trained and qualified personnel should use power actuated tools. All users must possess qualified operator cards, which can be obtained by completing a training course.

Safety goggles or full face shields must be worn by operators or assistants.

Tool must remain unloaded until ready to use.

Never use or store tools in explosive areas or in vicinity of flammable materials.

Always hold tool perpendicular and firmly against surface being driven into.

Do not drive fasteners into predrilled holes or very rough concrete.

In the event of misfire do not remove tool from working surface for at least 15 seconds. Remove cartridge before lifting tool from the surface.

Inspect tool prior to each use. Be sure that tool is clean, safety devices are working, all movable parts operate freely, and that the barrel is free from obstruction.

Use only fasteners specially designed for use with this tool.
ROOF PROTECTION

Warning Lines shall be erected around all sides of the work area when mechanical equipment is being used, the warning line shall be erected not less than 6 feet from the roof edge which is parallel to the direction of mechanical equipment operation, and not less than 10 feet from the roof edge which is perpendicular to the direction of mechanical equipment operation.

The warning line shall consist of a rope, wire, or chain and supporting stanchions:

- The rope, wire, or chain shall be flagged at not more than 6 feet intervals with high visibility material.
- Rope, wire or chain shall be rigged and supported in such a way that its lowest point is no less than 34 inches from the roof surface and its highest point is no more than 39 inches from the roof surface.
- Stanchions shall be capable of resisting without tipping over a force of at least 16 pounds.

Guard rails shall be extended 4 feet on each side of the hoisting areas.

Safety -Monitoring System

A safety system in which a competent person monitors the safety of all employees in a roofing crew, and warns them when it appears to the monitor that they are unaware of the hazard or are acting in an unsafe manner. The competent person must be on the same roof as, and within visual sighting distance of the employees, and must be close enough to verbally communicate with the employees.

Training

The employer shall provide a training program for all employees engaged in build-up roofing work so that they are able to recognize and deal with the hazards of falling associated with working near a roof perimeter. The employees shall also be trained in the safety procedures to be followed in order to prevent such falls.
The employer shall assume that employees engaged in build-up roof work have been trained and instructed in the following areas:

- The nature of fall hazards in the work area near a roof edge
- The function, use, and operation of the personal fall arrest system, warning line, and safety monitoring system to be used.
- The correct procedures for erecting, maintaining, and disassembling the systems to be used.
- The role of each employee in the safety monitoring system when this system is used.
- The limitations on the use of mechanical equipment.
- The correct procedures for the handling and storage of equipment and materials.

Training shall be provided for each newly hired employee, and for all other employees as necessary, to assure that employees maintain proficiency in the listed subjects in the standard.
ROPE - NATURAL AND SYNTHETIC

- Natural and synthetic ropes shall not exceed the safe working loads found in 29 CFR 1926 Subpart H. Refer to the Standards themselves.
- Make all splices in accordance with manufacturer’s recommendations.
- Eye splices in manila rope shall have at least 3 full tucks.
- Short splices in manila rope shall have at least 6 full turns, 3 on each side of the centerline of the splice.
- In layered synthetic ropes, eye splices shall have at least 4 full tucks.
- Short splices in layered synthetic rope shall have at least 8 full turns, 4 on each side of the centerline of the splice.
- Do not trim strand end tails short in either type of rope.
- For fiber ropes under 1 inch in diameter, tails shall project at least 6 full diameters beyond the last full tuck.
- For fiber ropes 1 inch in diameter and greater, tails shall project at least 6 inches beyond the last full tuck.
- Knots shall not be used in lieu of splices.
SAFETY NETS

- Safety nets shall be provided when work surfaces are 25 feet or more above another work surface when other means of fall protection are not appropriate.

- No work is to be performed until the safety net is in place and tested.

- Safety nets should be installed as close as possible to the work surface, but no more than 25 feet below the work surface.

- Safety nets shall not hit the lower work surface when load falls in them.

- Safety nets shall extend 8 feet beyond the edge of the work surface.

- It is intended that only one level of nets be required on bridge construction.

- Mesh size shall not exceed 6 inches by 6 inches.

- All new safety nets shall have an impact resistance of 17,500 foot-pounds as a minimum.

- Edge ropes shall have a minimum strength of 5,000 lbs.

- Connections between net panels shall develop full strength.

- Shall be utilized on bridges 25 feet and over that are not equipped with other appropriate fall protection.
Flammable and combustible liquids on a construction site are generally stored outdoors. These liquids are stored in plastic containers, metal drums or portable tanks. The biggest danger to outside storage of these liquids is fire and explosion. Smoking, therefore, is absolutely prohibited in or around these areas.

To prevent fires or explosions, specific storage and handling practices are required.

- No single area or storage pile shall contain more than 1,100 gallons.
- Within 200 ft. or each pile, maintain a 12 ft. wide access-way to permit approach of fire vehicles.
- The storage area is to be graded to direct spills away from any building or surrounded by an earth dike at least 12” high.
- Portable tanks or drums are not to be stored within 20 ft. of a building.
- Storage areas are to be kept free of debris, weeds or other combustible materials.
- Each tank must have the proper placard. Each drum must have a label identifying its contents.
- All portable tanks must be provided with venting.
- Provide as a minimum, one 20B fire extinguisher at least 25 ft. but no more than 75 ft. from portable tanks, drums or containers.

**PORTABLE FUEL CONTAINERS (Gas Cans)**

Portable fuel containers shall be labeled, contain spark arrestor and have a self-losing lid.

**PORTABLE HEATERS**

- Portable heaters must be properly vented.
- Maintain proper clearances to prevent fires.
- Must be provided with a level, stable base.
- Do not use solid fuel salamanders inside of buildings.
“STRUCK BY” HAZARDS

Each day at construction work sites, workers are struck by vehicles, materials, debris and tools. 22% of all construction injuries and deaths are the result of being hit by an object.

This Lovell 2000 Toolbox Talk is a reminder of many OSHA regulations designed to protect you from “struck by” injuries.

Personal Protective Equipment (PPE) – Where workers are in areas where there is a possible danger of head injuries from impact or from falling or flying objects, or electrical shock and burns, they must wear protective helmets.

Scaffolds – Where workers pass under a scaffold, the scaffold must be equipped with a screen between the toe board and the guard rail.

- Overhead protection must be provided for workers on a scaffold exposed to overhead hazards.
- Materials being hoisted onto a scaffold must have a tag line.

Falling Object Protection – Toe boards must be provided long the edge of overhead walking/working surfaces. Materials and equipment must not be stored within 6 feet of the roof edge. Materials, which are piled, grouped or stacked near a roof edge, must be stable and self-supporting.

Cranes, Derricks, and Hoists – All workers shall be kept clear of loads about to be lifted and suspended loads.

Structural Steel – Tag lines must be used for controlling loads.

Excavations – No employee is permitted underneath loads handled by lifting of digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials.
TUNNELS AND SHAFTS

- The atmosphere in all underground work areas must be tested quantitatively for methane, carbon monoxide, nitrogen dioxide, hydrogen sulfide, and other toxic gases as often as necessary to ensure that permissible limits are not exceeded.

- The atmosphere in all underground work areas shall be tested as often as necessary to assure it contains at least 19.5% oxygen and no more than 22% oxygen.

- The employer shall provide rescuers having current approval from NIOSH and MSHA in immediate proximity to all employees at work stations in underground areas where employees might be trapped by smoke or gas.

- Shaft casing or bracing shall extend 432 inches above ground plus or minus 3 inches. Such height may be reduced to 12 inches provided that a standard railing is installed; the ground next to the shaft is sloped away from the shaft collar; and effective barriers are used to prevent mobile equipment operating near the shaft from jumping the 21 inch barrier.

- The employer shall assign a competent person who shall perform all air monitoring required by this section.
Underground Utilities

Employee injuries and business interruption losses may be very high when underground utilities are damaged during trenching or excavation. Underground utilities, which may be interrupted, include electrical cables, telephone lines, gas lines, and water lines.

Applicable Rules

- The estimated location of utility installations, such as sewers, telephone, fuel, electric, water lines, or any other underground installation that reasonably may be expected to be encountered during excavation work should be determined prior to opening an excavation.

- Utility companies or owners must be contacted within established or customary local response times, advised of the proposed work, and asked to establish the location of the utility underground installations prior to the start of actual excavation.

- When excavation operations approach the estimated location of underground installations, exact location of the installations should be determined by safe and acceptable means.

- While the excavation is open, underground installations must be protected, supported or removed as necessary to safeguard employees.

Risk Recognition

- Employee Exposure
  - Electrocution
  - Explosion/Fire

- Business Interruption Losses
  - Disrupting electrical service will lead to business interruption losses as well as the cost of repairing the line
Wheelbarrow Safety

Wheelbarrows are used on the worksite, whether it is in a warehouse, loading and unloading equipment, or on a construction site to move dirt, concrete or bricks, and can make work easier.

When wheelbarrows are used properly, they can be a great help, but when misused, they can be a source of frustration and injury. Picking up an out of balance wheelbarrow means you will be loading it again.

This Lovell 2000 Toolbox Talk offers tips to prevent wheelbarrow injuries:

- Wear gloves.
- Never overload a wheelbarrow or attempt to move a load you are not physically able to handle.
- Balance the load over the wheel(s).
- Plan ahead. Avoid obstacles in your path.
- When you raise or lower the handles, keep your back and arms straight and your knees bent.
- Keep a good grip on the handles and keep your speed under control.
- Do not store a wheelbarrow where it will become a trip hazard.
- Wheelbarrows come in different sizes, used the size best suited for the job task.
Wire rope shall not exceed the safe working loads of those found in 29 CFR 1926 Subpart H. Refer to the Standards themselves.

For wire rope not found in these tables, follow the manufacturer’s recommendations as long as the safety factor is not less than 5.

Protruding ends of wire rope shall be covered or blunted.

Wire rope shall not be secured in knots.

Eye splices shall have at least 3 full tucks.

Each wire rope shall be continuous when used for hoisting or lowering, except for the eye splices at the ends of wires and endless rope springs.

Wire rope shall not be used:

- If in any length of eight diameters, the total number of viable broken wires exceeds 10% of the total number of wires.
- If the wire rope shows excessive wear.
- If the wire rope shows corrosion.
- If the wire rope shows any defects.

U-bolt wire rope clips are to be used in accordance with 29 CFR 1926 Subpart H. Refer to the Standards themselves.

U-bolt clips shall be applied so that the U section of the clip is in full contact with the dead end of the rope.
WOODWORKING TOOLS

All fixed power driven woodworking tools shall have a disconnect switch that can be locked or tagged in the off position.

The operating speed shall be etched or permanently marked on circular saws over 20 inches in diameter or operating at speeds over 10,000 peripheral feet per minute.

Saws referenced above shall not be operated at speeds other than those indicated.

Self-feeding devices shall be used whenever possible and they shall be properly guarded.

All guarding shall be done per the standard and per manufacturer’s recommendations.

Personal protective equipment shall be provided by the employer and utilized by the employees when working with woodworking tools.
WORKING OVER OR NEAR WATER

- U.S. Coast Guard approved life jackets shall be provided.
- Inspect life jackets after each use and remove from service if there are any defects.
- Ring buoys with a minimum of 90 feet of line shall be provided and readily available for emergency rescue.
- Distance between ring buoys shall not exceed 200 feet.
- At least one lifesaving skiff shall be available at the worksite.
- This includes working on barges, and bridge rehabilitation work.
## OSHA's Form 300
### Log of Work-Related Injuries and Illnesses

You must record information about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must also record work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR 1904.8 through 1904.12. Feel free to use two lines for a single case if you need to. You must complete an injury and illness incident report (OSHA Form 301) or equivalent form for each injury or illness recorded on this form. If you're not sure whether a case is recordable, call your local OSHA office for help.

### Identify the person

<table>
<thead>
<tr>
<th>(A) Case No.</th>
<th>(B) Employee's Name</th>
<th>(C) Job Title (e.g., Welder)</th>
<th>(D) Date of injury or onset of illness (mo./day)</th>
<th>(E) Where the event occurred (e.g., Loading dock north end)</th>
<th>(F) Describe injury or illness, parts of body affected, and object/substance that directly injured or made person ill (e.g., Second degree burns on right forearm from acetylene torch)</th>
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### Classify the case

Using these categories, check ONLY the most serious result for each case:

<table>
<thead>
<tr>
<th>(G) Death</th>
<th>(H) Days away from work</th>
<th>(I) Job transfer or restriction</th>
<th>(J) Other recordable cases</th>
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### Page totals

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Be sure to transfer these totals to the Summary page (Form 300A) before you post it.

Public reporting burden for this collection of information is estimated to average 14 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information.

Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Ave, NW, Washington, DC 20210. Do not send the completed forms to this office.
<table>
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<th>State</th>
<th>Enter the number of days the injured or ill worker was:</th>
<th>Check the &quot;injury&quot; column or choose one type of illness:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(On job transfer or restriction (days))</td>
<td>(Away from work (days))</td>
</tr>
<tr>
<td></td>
<td>(K)</td>
<td>(L)</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Be sure to transfer these totals to the Summary page (Form 300A) before you post it.
OSHA’s Form 300A
Summary of Work-Related Injuries and Illnesses

All establishments covered by Part 1904 must complete this Summary page, even if no injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete.

Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you’ve added the entries from every page of the log. If you had no cases write “0.”

Employee former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR 1904.35, in OSHA’s Recordkeeping rule, for further details on the access provisions for these forms.

Number of Cases

<table>
<thead>
<tr>
<th>Total number of deaths</th>
<th>Total number of deaths with days away from work</th>
<th>Total number of cases with job transfer or restriction</th>
<th>Total number of other recordable cases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(G)</td>
<td>(H)</td>
<td>(I)</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Number of Days

<table>
<thead>
<tr>
<th>Total number of days of job transfer or restriction</th>
<th>Total number of days away from work</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(K)</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>(L)</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

Injury and Illness Types

<table>
<thead>
<tr>
<th>Total number of... (M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Injury</td>
</tr>
<tr>
<td>(2) Skin Disorder</td>
</tr>
<tr>
<td>(3) Respiratory Condition</td>
</tr>
<tr>
<td>(4) Poisoning</td>
</tr>
<tr>
<td>(5) All other illnesses</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Post this Summary page from February 1 to April 30 of the year following the year covered by the form.

Public reporting burden for this collection of information is estimated to average 50 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistics, Room N-3444, 200 Constitution Ave, NW, Washington, DC 20210. Do not send the completed forms to this office.
# OSHA's Form 301

## Injuries and Illnesses Incident Report

This Injury and Illness Incident Report is one of the first forms you must fill out when a recordable work-related injury or illness has occurred. Together with the Log of Work-Related Injuries and Illnesses and the accompanying Summary, these forms help the employer and OSHA develop a picture of the extent and severity of work-related incidents.

Within 7 calendar days after you receive information that a recordable work-related injury or illness has occurred, you must fill out this form or an equivalent. Some state workers' compensation, insurance, or other reports may be acceptable substitutes. To be considered an equivalent form, any substitute must contain all the information asked for on this form.

According to Public Law 91-596 and 29 CFR 1904, OSHA's recordkeeping rule, you must keep this form on file for 5 years following the year to which it pertains.

If you need additional copies of this form, you may photocopy and use as many as you need.

<table>
<thead>
<tr>
<th>Information about the employee</th>
<th>Information about the case</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Full Name</td>
<td>10) Case number from the Log</td>
</tr>
<tr>
<td>2) Street</td>
<td>(Transfer the case number from the Log after you record the case.)</td>
</tr>
<tr>
<td>3) Date of birth</td>
<td>11) Date of injury or illness</td>
</tr>
<tr>
<td>4) Date hired</td>
<td>12) Time employee began work</td>
</tr>
<tr>
<td>5) Male</td>
<td>13) Time of event AM/PM</td>
</tr>
<tr>
<td></td>
<td>Check if time cannot be determined</td>
</tr>
<tr>
<td>6) Name of physician or other health care professional</td>
<td>14) What was the employee doing just before the incident occurred?</td>
</tr>
<tr>
<td></td>
<td>Describe the activity, as well as the tools, equipment or material the employee was using. Be specific. Examples: &quot;climbing a ladder while carrying roofing materials&quot;; &quot;spraying chlorine from hand sprayer&quot;; &quot;daily computer key-entry.&quot;</td>
</tr>
<tr>
<td>7) If treatment was given away from the worksite, where was it given?</td>
<td>15) What happened? Tell us how the injury occurred. Examples: &quot;When ladder slipped on wet floor, worker fell 20 feet&quot;; &quot;Worker was sprayed with chlorine when gasket broke during replacement&quot;; &quot;Worker developed soreness in wrist over time.&quot;</td>
</tr>
<tr>
<td>Facility</td>
<td>16) What was the injury or illness? Tell us the part of the body that was affected and how it was affected; be more specific than &quot;hurt&quot;, &quot;pain&quot;, or &quot;sore.&quot; Examples: &quot;strained back&quot;; &quot;chemical burn, hand&quot;; &quot;carpal tunnel syndrome.&quot;</td>
</tr>
<tr>
<td>Street</td>
<td>17) What object or substance directly harmed the employee? Examples: &quot;concrete floor&quot;; &quot;chlorine&quot;; &quot;radial arm saw.&quot; If this question does not apply to the incident, leave it blank.</td>
</tr>
<tr>
<td>City</td>
<td>18) If the employee died, when did death occur? Date of death</td>
</tr>
<tr>
<td>State Zip</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

Public reporting burden for this collection of information is estimated to average 22 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Persons are not required to respond to the collection of information unless it displays a current valid OMB control number. If you have any comments about this estimate or any other aspects of this data collection, including suggestions for reducing this burden, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Ave, NW, Washington, DC 20210. Do not send the completed forms to this office.
You have the right to notify your employer or OSHA about workplace hazards. You may ask OSHA to keep your name confidential.

You have the right to request an OSHA inspection if you believe that there are unsafe and unhealthful conditions in your workplace. You or your representative may participate in the inspection.

You can file a complaint with OSHA within 30 days of discrimination by your employer for making safety and health complaints or for exercising your rights under the OSH Act.

You have a right to see OSHA citations issued to your employer. Your employer must post the citations at or near the place of the alleged violation.

Your employer must correct workplace hazards by the date indicated on the citation and must certify that these hazards have been reduced or eliminated.

You have the right to copies of your medical records or records of your exposure to toxic and harmful substances or conditions.

Your employer must post this notice in your workplace.

The Occupational Safety and Health Act of 1970 (OSH Act), P.L. 91-596, assures safe and healthful working conditions for working men and women throughout the Nation. The Occupational Safety and Health Administration, in the U.S. Department of Labor, has the primary responsibility for administering the OSH Act. The rights listed here may vary depending on the particular circumstances. To file a complaint, report an emergency, or seek OSHA advice, assistance, or products, call 1-800-321-OSHA or your nearest OSHA office: • Atlanta (404) 562-2300 • Boston (617) 565-9860 • Chicago (312) 353-2220 • Dallas (214) 767-4711 • Denver (303) 844-1600 • Kansas City (816) 426-5861 • New York (212) 337-2378 • Philadelphia (215) 861-4900 • San Francisco (415) 975-4310 • Seattle (206) 553-5930. Telephontypewriter (TTY) number is 1-877-889-5627. To file a complaint online or obtain more information on OSHA federal and state programs, visit OSHA’s website at www.osha.gov. If your workplace is in a state operating under an OSHA-approved plan, your employer must post the required state equivalent of this poster.

1-800-321-OSHA
www.osha.gov