# STEBBINS ENGINEERING SAFETY MANUAL

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STEBBINS ENGINEERING POLICY STATEMENT
ON EMPLOYEE SAFETY AND HEALTH

It is the continuing policy of STEBBINS that the safety and health of employees shall be the prime consideration in the performance of work; to abide by all regulations relating to our industry as prescribed by Federal, State and Local regulations and statutes; and to integrate good safety habits into all Company activities to protect the interest of its employees, STEBBINS, the customer and the public from the results of accidents.

MANAGEMENT WILL:

1. Provide the means to accomplish the policy as stated above.
2. Provide or make available to each employee, all equipment necessary to perform his/her work safely.
3. Provide or ensure that each employee works with tools and equipment that meet current safety standards.
4. Provide each employee with the necessary instructions to perform his/her work safely.
5. Accept the responsibility for enforcement of the safety policy at all supervisory levels.
6. Develop and improve safety methods through accident investigation and continuing education in safety and health matters.

EMPLOYEES WILL:

1. Work according to good safety practices as posted, instructed and discussed.
2. Wear and use all required safety equipment properly.
3. Report unsafe situations or acts to the supervisor immediately.
4. Maintain work habits and attitudes that will protect other employees and his/her self.

January 22, 2017
DATE

ALFRED E. CALLIGARIS, PRESIDENT

SAFETY IS THE CONSTANT AWARENESS FOR THE WELL BEING OF THE OTHER GUY
ENVIRONMENTAL POLICY

Sound environmental management is one of the core values of STEBBINS Engineering. The current version of our corporate environmental policy was implemented in 2007. Pollution prevention and conformity to all applicable environmental laws and regulations are the cornerstones of this policy, which applies to STEBBINS activities, worldwide.

Environmental Policy

STEBBINS and its subsidiaries an engineering-construction and manufacturing firm operating worldwide, affirms its conviction that sustainable development can only be achieved through the respectful use of natural resources.

STEBBINS is committed to helping its clients continuously improve the integration of environmental protection issues into all their activities.

As part of its commitment, STEBBINS will ensure that all of its activities are in compliance with applicable environmental laws and regulations.

STEBBINS will raise the awareness of its employees and its project managers so environmental protection is an integral part of their activities. Project managers will produce reports stating that their projects have been executed in compliance with this environmental policy.

STEBBINS will produce annual reports confirming that it has respected its environmental protection commitments.

This policy will be communicated to all employees and made available to the public upon request.

All managers are responsible for implementing and monitoring this policy. All employees and outside consultants working for STEBBINS must share this commitment.

Ryan Downing
Vice-President, Corporate Safety
January 22, 2017
SAFETY MANUALS

STEBBINS considers safety and health as its top priority on all work sites.

Attached is your copy of STEBBINS safety manual. This manual has been rewritten as of 05/2013 with several key items added.

The Company Safety Manual is intended to inform you the worker with the Company’s Procedures and Policies on Health and Safety. This manual will also give you an on the spot reference guide to the applicable OSHA regulations for the majority of the work we perform. Each company field employee will be issued a copy of this manual.

A copy of this Safety Manual must be on every job site.

The overall success of this Safety Program must be based on team work and commitment from everyone.
DESCRIPTION OF FIELD OPERATIONS

STEBBINS was founded in 1884 and incorporated in 1903. In the early years, the Company
designed and supervised construction of complete Pulp and Paper Mills. As specialization
developed, our primary effort became the specification, design and installation of protective
linings for chemical process vessels, together with complete tank and chest installations of
reinforced acid resistant tile linings for the storage and processing of pulp, paper stock, chemicals
and many other materials.

In order to stay at the top of the market, STEBBINS has ventured into many other industries such
as the Coal Power, Petrochemical and Mining markets. With the market crowded with
companies claiming similar expertise, we remain the recognized leader in this field. With more
than 100 years of experience, satisfying demanding applications and clients around the world,
The Company has earned the respect of customers and competitors. STEBBINS employs more
than 500 people on a regular basis, with total employees reaching 5000 through the use of local
field employees in connection with our contract installations worldwide.

STEBBINS field contracts cover a large range, from complete tanks and lining work for entire
new Pulp and Paper Mill complexes to simple linings in existing plant vessels requiring
corrosion protection. Contract durations’ range from days to years with the scope of work and
man power requirements varying dramatically.

With work in various industries, the primary equipment required remains basically the same.
Typical equipment used on our job sites include the following:

1. Scaffolds - Tube and clamp, Masonry walk-thru, and system.
2. Cherry Pickers and over head cranes.
3. Forklifts of various sizes.
4. Motor vehicles - pickup trucks and flat beds, etc.
5. Concrete Pumps and Concrete Mixers/Mortar Mixers
6. Various types of hand and power tools - rivet busters, hammers, air drills, etc.
7. Personal protective equipment such as hard hats, safety glasses, respirators, etc.

Field installations involve various workers from different crafts. STEBBINS employs
approximately 120 full time field employees which include the following crafts, brick masons,
ironworkers, carpenters, and labor foremen. Local crafts that are hired for projects include,
brickmasons, carpenters, ironworkers, laborers, and operating engineers. Job Superintendents
who run our projects are derived from our brick mason ranks and are responsible for the safety,
quality, and production on the jobs they run. The STEBBINS safety manual is their guide for
safety and health requirements on the job.
RESPONSIBILITIES

I. Purpose:

To give a brief outline of responsibilities for those persons directly involved in the implementation of the STEBBINS’ Safety Program. These responsibilities are not all inclusive.

II. Responsibilities:

A. Upper Management.

Upper management is the focal point of the Company’s overall safety program and is responsible for ensuring that;

1. STEBBINS health and safety policies and procedures are enforced.
2. Periodic management meetings are held for the purpose of reviewing health and safety practices and accident trends to determine the effectiveness of the program.
3. All necessary equipment, materials and personal protective equipment are provided and maintained in good working condition.
4. They lead by example.

B. Safety Department.

The Safety Department is responsible for ensuring that;

1. An effective safety program is written and implemented.
2. All Company field employees are trained in the STEBBINS Safety and Health Program and all OSHA & MSHA regulations applicable to the Company’s work.
3. Field audits are conducted to verify compliance with the Company’s Safety Program.
4. All safety equipment purchased and used in the field is approved.
5. All Company field employees are properly trained in the use of all field safety equipment.
6. All safety equipment provided to jobs is in good working condition.
7. On site safety supervision is provided when required.
C. Division Managers / Construction Managers / Salesman / Coordinators.

These individuals are the representatives of management who make on site visits. They are responsible for auditing the safety program on the job site and are authorized to take immediate corrective action to eliminate any unsafe condition.

Divisions Managers / Construction Managers / Salesman / Coordinators are responsible for ensuring that;

1. They are familiar with, promote, implement and enforce the Company’s Safety and Health policies and procedures.
2. A job site safety audit is conducted when on a site to ensure the Company’s Safety and Health program is being followed.
3. Any unsafe situation is corrected as soon as possible.
4. All required safety paperwork is provided for the job.
5. Safety meetings are conducted on a daily basis.
6. An adequate supply of all personal protective equipment is provided.

D. Superintendents.

The Superintendent is the Company representative on the job site and assumes on behalf of STEBBINS the responsibility for ensuring the Company’s Safety and Health program is carried out.

The Superintendent will ensure;

1. They are familiar with, promote, implement and enforce the Company’s Safety and Health policies and procedures.
2. Workers are informed and trained in our program by completing the pre-job kits.
3. The Department of Labor poster, “Safety and Health Protection on the Job” is posted in the construction office, OR in the assigned work area where it will be readily observable each day of the job.
4. All other required posters are posted on the job site. (General Safety Rules, Emergency Phone Numbers)
5. Workers are informed of any potential or actual dangers in their work area.
6. Workers are adequately instructed to perform their assigned job safely.
7. They perform daily job site safety audits and take immediate action to correct any unsafe situation.
8. They hold daily tool box talks with all workers.
9. They inform the crew of all emergency evacuation plans.
10. Adequate first-aid facilities are maintained on the job site.
11. Prompt first-aid is administered to injured employees and all appropriate forms are completed and submitted.
12. Tools and equipment are properly maintained in good working condition.
13. All tools and equipment are used properly.
14. They set a good example for workers.

E. Employees.

All employees must accept responsibility for their own safety and the safety of their assigned work area. Each employee is responsible for ensuring that;

1. They know and comply with the requirements of STEBBINS Safety and Health program.
2. They report all unsafe conditions and practices to their immediate supervisor.
3. They refuse to do work that would create a danger to the safety or health of any person.
4. They take corrective action when practicable to eliminate potential hazards.
5. They report all work related injuries to their supervisor as soon as possible.
6. They do not engage in horseplay, fighting, and/or practical jokes that may endanger themselves or others.
7. They wear personal protective equipment when required and maintain it in good working condition.
8. They do not operate machinery or equipment unless they are authorized and trained to do so.
9. They know the location of all emergency equipment.
10. They maintain good housekeeping in their work area.
11. They set a good example.

F. Warehouse.

Warehouse workers are responsible for providing the job with the tools and equipment required. They are responsible for ensuring that;

1. They maintain a minimum inventory of tools and equipment.
2. They provide safe and ready to use tools and equipment.
3. They inspect and red tag all defective or broken tools and equipment until it can be repaired.
4. They repair all equipment in accordance with manufacturers’ requirements.
5. They inform purchasing and safety when shortages occur with safety equipment.
6. Get approval from the Safety Department before substituting any safety equipment.
DISCIPLINARY - WARNING AND DISCHARGE PROGRAM

I. Purpose:

The Company Warning and Discharge program is an effective enforcement tool for the Superintendents. It allows the Superintendent to document a safety and/or other violation, and provides a copy of the written warning to the employee. The written warning adds an additional level of seriousness to the Superintendents warning, as well as providing the company with a means of identifying trends in employee problems, and employee caused workplace hazards. This allows the Company to initiate the appropriate training as needed to eliminate a problem, or hazard before it leads to a more serious problem.

II. Scope:

The discharge or warning of violation notice is applicable to all full time, part time, and temporary Company employees working on any Company job site. It may be issued by any Company Manager/Salesman/Superintendent, or Safety personnel. It covers all possible conditions which may require a warning or discharge. A warning shall be issued for violation of the general safety rules, examples are: not following verbal or written safety procedures, guidelines, rules, horse play, failure to wear selected PPE, abuse of selected PPE, etc.

III. Use:

The discharge and warning form is a fairly uncomplicated form. It is filled out as follows;

A. Fill in the Employees name, SSN, Mill name, location and Job number.

B. Check either warning or discharge.

C. Place an X in the appropriate box for the specific infraction and warning number.

D. If discharged, state in further detail the specific reason the employee was discharged.

E. The person issuing the warning/discharge must sign and date the bottom.

A sample of a properly completed Disciplinary - Warning/Discharge form can be found on the following page.
IV. Distribution:

Distribute the form as is shown on the bottom of the form. If the discharge or warning is for a safety violation, ensure that an additional copy is forwarded to the Watertown Safety Department.

Completed Sample Form
CELLULAR PHONE POLICY

I. Purpose:

It has been brought to our attention by our field personnel that cellular phones on our job sites have become a safety hazard as well as a source of disruption and work interruption. Thus, the following will take effect immediately.

II. Use:

Cellular phones on the job site are no longer authorized to be carried on the person of any Company employee as cellular phones have led to safety and production issues due to the fact that employees using them are distracted from the work at hand thus creating a potential hazard.

Any employee may bring a cellular phone with them, however, during work hours it must be kept either in their toolbox or lunch box and stored at the office trailer, tool trailer, or tool box area, it may not be carried on their person. STEBBINS takes no responsibility for cellular phones thus stored. These phones may only be used during an emergency, authorized breaks, lunch periods, or before and after work. No cellular phone use is authorized other than at these times.

III. Exceptions:

Exceptions to this policy are administrative personnel and job site Superintendents.
STOP WORK AUTHORITY

I. Purpose:

To inform all employees that they have the right and obligation to stop work when hazards cannot be controlled.

II. Use:

All employees will receive training at the commencement of each project on how to identify hazards. If they see that hazards are not controlled or identified they will have the authority as a competent person to stop work.

Work will not start again until all hazards have been identified, eliminated and the risk has been controlled.

No employee will ever be reprimanded for stopping work for safety reasons at any time.

III. Responsibilities:

It is the responsibility of every supervisor and manager to operate a safe project at all times. When an employee has stopped work for safety reasons all supervision involved in the project must participate in the investigation, when that is complete together a resolution must be met. Once work has resumed the supervisor responsible must follow up to ensure that all hazards have been corrected and controlled. The follow up by the supervisor must be recorded in the daily report. If conditions have not improved, the work must stop again.

Completion of the Stebbins investigation and stop work report must be completed and sent to the office ASAP.

The employee must follow the proper steps to ensure that the issues are handled properly. First they will stop the work, then they must notify direct supervision immediately. An investigation must be completed, a resolution met together, hazards controlled and then work can start again.
PROCESS SAFETY MANAGEMENT

I. Purpose:

To implement a Process Safety Management (PSM) system to ensure that workers are safe while on our projects. STEBBINS as a contractor has the responsibility to train all employees in the hazards in the workplace. The intention of PSM is to prevent or minimize consequences of catastrophic releases of toxic, reactive, flammable or explosive chemicals.

II. Responsibilities:

It is the responsibility of every supervisor and manager to operate a safe project at all times. In order to accomplish a safe working environment the first step is to train workers and give them as much information regarding hazards as possible. Supervisors must cover with all employees the hazards related to their jobs and potential fire, explosive or toxic release hazards all hazards with their employees before work commences. All training must be documented in the Pre Job safety training paperwork.

The supervisor is also responsible for following the rules of the owner/client. All forms must be completed before entering any confined spaces, lock out is completed or performing hot work. All hot work permits must be completed before hot work commences. Permits must be acquired before starting.

The supervisor must report all incidents immediately to the Safety Department, those reports must be given to the the owner / client as soon as they are completed.

The supervisor must adhere to all owner / client rules while on their property. All trade secrets are to be remain confidential at all times.

All hazards will be reported to the client immediately.
SAFETY INCENTIVE PROGRAMS

STEBBINS has instituted three safety incentive programs to reward our company men and locals for performing accident free work. They are as follows:

I. Safety Superintendent of the Year Award:

There will be one (1) award given in each of the four (4) categories listed below:

Category A  0 to 1,000 hours
Category B  1,001 to 7,500 hours
Category C  7,501 to 15,000 hours
Category D  15,000 + hours

A. The award for each category will be presented to the superintendent - Company wide - who has the highest number of accident free labor hours during the calendar year. The category will be determined by the total number of labor hours the superintendent has supervised during the calendar year.

B. The winner of each category will be determined as follows:

1. Each superintendent will start off with one (1) point. Each accident reported by a superintendent will add one (1) point to his point total. At the end of the calendar year, the total number of labor hours under his direct supervision will be divided by his accident point total. See the following example.

<table>
<thead>
<tr>
<th>NUMBER OF ACCIDENTS REPORTED</th>
<th>TOTAL POINTS</th>
<th>TOTAL HOURS ACCUMULATED</th>
<th>TOTAL HOURS PER ACCIDENT</th>
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<tbody>
<tr>
<td>A</td>
<td>0</td>
<td>1</td>
<td>950</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>2</td>
<td>7,000</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>3</td>
<td>12,000</td>
</tr>
<tr>
<td>D</td>
<td>3</td>
<td>4</td>
<td>20,000</td>
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2. The superintendent with the highest TOTAL HOURS PER ACCIDENT in the category he qualified in wins that award. For example: If a superintendent supervised 950 hours during the year, he would compete
with all other supervisors who supervised from 1 to 1000 hours, or CATEGORY A.

3. At the beginning of each calendar year, a summarization of the total number of hours per accident reported for the preceding year will be published showing the standings for the four (4) categories. A copy of this summation will be sent to every field company man. This will give everyone involved a chance to see the results and present any questions, before the awards are made.

II. **Safety Bonus Plan:**

A. In an effort to promote SAFETY on all our job sites and to reward employees who assist us in achieving our goal of INJURY-FREE JOB SITES, STEBBINS will pay an hourly safety bonus on a monthly basis.

B. Regulations regarding this SAFETY BONUS PLAN are as follows:

1. **Bonus Rates:**

   A. $0.35/hour: for all those job sites who have NO LOST-TIME OR OSHA RECORDABLE ACCIDENTS during the applicable month.

   B. $0.25/hour: for all those job sites who have NO LOST-TIME ACCIDENTS BUT HAVE HAD A OSHA RECORDABLE ACCIDENT during the applicable month.

   C. No bonus will be paid on a job site that has had a LOST-TIME ACCIDENT during the applicable month.

2. The bonus will be paid monthly to each individual employee based on individual hours worked on the job being awarded the safety bonus. It will be paid between the 15th and the following month cut-off date. (Cut-off date is the last applicable pay period of the month.)

3. The bonus will be paid to all hourly employees on the job who have a minimum of fifty (50) hours worked during the applicable month on the job being awarded the safety bonus.

4. The bonus will be paid on all jobs completed or in-progress since the last cut-off date.
C. Supplemental regulations for Company Field Crew:

1. The bonus will be paid monthly to each individual company employee based on individual hours worked on all jobs during the bonus period.

2. The bonus rate for all hours during the month will be based on a worst case situation of any job worked during the bonus period.

3. The bonus will be paid to all Company employees who have a minimum of fifty (50) hours worked during the applicable month.

4. For any consecutive award month after two, the Company will Double the applicable bonus rate for all company employees. Company employees will not suffer a penalty of not doubling in consecutive months if a gap in bonus exists strictly because of item 3 above only.
STEBBINS’ SAFETY TRAINING PROGRAM

I. Purpose:

In order to provide competent safety supervision in the field, the Company has decided to provide the necessary safety training to our field employees. Office employees who will represent the company in the field will also receive this training.

II. Scope:

The Company will offer the OSHA 10 or 30 Hour Construction Outreach program to all field superintendents. In addition, employees who perform work on Mine sites will receive training in accordance with our MSHA 24 & 8 hour programs. As a minimum the OSHA 10 hour is mandatory, the 30 hour will be given. The safety department will conduct refresher training as necessary.

In addition to Field Superintendents, all Company employees (Masons, Carpenters, Ironworkers, and Labor Foremen) will receive the training.

III. Responsibilities:

The Upper Management will provide the means for the Safety Department to become instructors for both programs.

The Safety Director will be responsible for keeping his certification up to date and will be responsible for writing and implementing the training programs. The VP of Corporate Safety will also be responsible for keeping his technicians certifications up to date.

IV. OSHA 30-Hour Construction Outreach Program:

The OSHA 30-hour Construction Outreach Program is designed to provide individuals with a broad knowledge of OSHA’s Construction safety and health regulations. The training will cover OSHA policies, procedures, and standards, as well as general construction safety and health principles. The topics will include scope and application. There will be a special emphasis on those areas that are most hazardous to our work environment, using OSHA standards as a guide. STEBBINS 30-hour program will cover the following:
1. Record keeping
2. Occupational Health and Environmental Controls
3. PPE & Lifesaving Equipment
4. Material Handling, Storage, Use and Disposal
5. Fire Prevention
6. Tools - Hand & Power
7. Welding & Cutting
8. Electrical
9. Ladders & Scaffolding
10. Floor & Wall Openings
11. Cranes / Derricks / Hoists
12. Concrete and Masonry Construction
13. Working with Lead
14. Excavations
15. Respirators
16. Accident Investigation and Reporting
17. Test Equipment
18. Confined Space
19. MSDS Forms
20. First-Aid and CPR

The course will take five days to complete. Upon completion of the course each individual will receive an OSHA 30-Hour Construction safety and health completion card.

V. OSHA 10-Hour Construction Outreach Program:

The OSHA 10-hour Construction Outreach Program is designed to provide individuals with the basic knowledge of OSHA’s Construction safety and health regulations. The training will cover OSHA policies, procedures, and standards, as well as general construction safety and health principles. The topics will include scope and application. There will be a special emphasis on those areas that are most hazardous to our work environment, using OSHA standards as a guide. The Company’s 10-hour program will cover the following:

1. Introduction to OSHA
2. Electrical
3. Fall Protection
4. PPE & Lifesaving Equipment
5. Tools - Hand & Power
6. Scaffolds
7. Cranes, Hoists, Elevators & Conveyors
8. Concrete & Masonry Construction

VI. MSHA 24 & 8 Hour Training:

In order to perform work on Mine property, workers must receive training in accordance with Section 48.25 of the MSHA safety and health regulations. All surface employees on mine property must receive as a minimum 24 hours of training to include the following:

1. Introduction to Work Environment
2. Hazard Recognition
3. Health & Safety Aspects of Tasks Assigned
4. Statutory Rights of Miners
5. Self-Rescue & Respiratory Devices
6. Transport & Communication Systems
7. Mine Map - Escapeways, Evacuation
8. Cleanup
9. Mandatory Health & Safety Standards
10. Health
11. Electrical Hazards
12. First-Aid
13. Mine Gases
14. Prevention of Accidents
15. Authority & Responsibility of Supervisors & Miners’ Representatives

Upon completion, an MSHA training form (MSHA form 5000-23) will be completed and a copy given to the employee. Employees are required to carry this form with them at all times while on mine property.

Per Section 48.28 all employees are required to take an annual refresher course every year. The refresher course will be 8 hours long and will consist of the above topics in condensed form. At the completion of the 8-hour course they will again complete the MSHA form 5000-23.

All new miner training in accordance with Section 48.25 must be completed prior to any employee being assigned or starting any tasks or duties.

All experienced miners must complete training in accordance with Section 48.26 prior to any employee being assigned or starting any tasks or duties.

VI. The Company 9 Hour Scaffold User & Erector/Dismantler Training:

The course will consist of 5 hours of lecture time and 4 hours of hands on field training. The training will cover all areas of Subpart L with an emphasis on Frame, Tube and Clamp, Swingstage and System scaffolds. At the completion of the lecture, a written test will be given. The field training will consist of safely erecting and dismantling the above-mentioned types of scaffolds.

All training topics are outlined in Section VII - Item 1. Upon completing the course each individual will receive a Company 9 Hour Scaffold User & Erector/Dismantler card.

VII. The Company Forklift Certification Course:

All individuals who must operate a forklift, must first complete the Company’s Forklift Certification course. The company will use the National Safety Councils - Coaching the Lift Truck Operator program. The program will consist of both lecture and hands on training. All operators will be trained on both straight-mast and extended-boom forklifts.

A detailed outline of the certification course can be found in Section VII - Item 5.

Upon completing the course each individual will receive a National Safety Council completion card.
VIII. Fall Protection & Training

The first priority for all projects will be to engineer out the fall hazard. Fall Protection PPE will only be used when it isn’t possible to engineer out the hazard. When a fall hazard of 6 feet or higher exists, fall protection must be used. Ideally we would install guardrails to prevent employees from falling. If that is not feasible, employees shall wear a full body harness with a 6 foot lanyard attached to an anchor point capable of withstanding a 5000lbs load. A fall protection plan will be made by the Corporate Safety Director, it will cover the scope of work and be communicated to all employees. The plan will include details as to where an employee may or may not tie off and will be amended when conditions change. This will also cover the type of PPE that the Company will supply. All PPE will meet ANSI Z398-1-1992. All employees will use our fall protection PPE, we supply a DBI SALA retrieval harness (part #1101254) and dual 6 foot lanyards (Part #1241219). No other PPE is permitted without the permission of the safety department. Training will include proper use, care and inspection of the PPE.

*All our fall hazards occur when working on scaffold* *Controlled access zones are not used*

The Company shall provide a training program for each employee who might be exposed to fall hazards. Training shall enable each employee to recognize the hazards of falling & shall train each employee in the procedures to follow to minimize these hazards.

Certification records of training will show the following:
1) Who was trained, when, dates of training
2) Signature of person providing training & date employer determined training was deemed adequate.

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

A competent person (safety supervisor) will be in charge of monitoring safety of the project. This person will be the competent person assigned to:
1. Recognizing fall hazards.
2. Warn employees if they are unaware of a fall hazard or are acting in an unsafe manner.
3. Be on same working surface and in visual sight.
4. Stay close enough for verbal communication.
5. Not have other assignments that would take monitor's attention from the monitoring function.
6. Correcting unsafe conditions.

Prior to commencing work it is mandatory that a representative from the company visit with the client’s Emergency Response Team. At that time a plan must be made together with the ERT to determine how to safely rescue an employee who has fallen and is not able to climb to safety. Every project will be different a detailed plan will be written only after a meeting with the ERT. For horizontal entry into a confined space all employees must use a company supplied DBI SALA SRL block with retrieval winch. This aid in the event an employee cannot pull him/her self up.
CPR AND FIRST AID TRAINING FOR COMPANY EMPLOYEES

I. Purpose:

Stebbins Engineering, in the interest of ensuring as safe as possible work area for its employees, requires that each FULL TIME FIELD EMPLOYEE shall receive and maintain current certification in First aid and Cardio-Pulmonary Resuscitation (CPR). This certification must be by the American Red Cross, or other nationally recognized training agency.

The tuition for this training will be paid by the employee as an out of pocket expense when enrolling. Upon successful completion of the required training, The Company will reimburse the cost of the tuition.

The Employee will make a photo copy of their certificate of completion and/or their wallet cards, and forward these copies as soon as possible to the Watertown Safety Department, where they will be maintained on file.

Each Company field employee has been issued a Johnson & Johnson first aid kit. They will be responsible for transporting this first aid kit from job site to job site, ensuring that all items in the kit are fully stocked, and within the expiration period. Restocking will be accomplished by purchasing the required items, then turning in the bills on their expense reports.

A person(s) who has a valid certificate in first aid training, the American Red Cross or equivalent shall be available at work sites to render emergency first aid. Provisions shall be made prior to commencement of a project for prompt medical attention in case of serious injury. (All our clients have first aid facilities)

First aid supplies shall be easily accessible when required, first aid kits are placed in the office trailer and in the lunch area at a minimum.

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

First aid kits are to be opened and the contents audited weekly. Any missing items shall be replenished immediately.

For construction operations, first aid kits shall be checked before being sent out to each job and at least weekly.
Proper equipment for prompt transportation of the injured person to a physician or hospital or a communication system for contacting necessary ambulance service shall be provided.

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

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

**THIS TRAINING IS REQUIRED TO BE KEPT CURRENT AT ALL TIMES**
PRE-JOB SAFETY TRAINING KITS

I. The information and material in the Pre-Job Safety Training Kit will aid the Superintendent in their job safety training. This training **WILL** be given to everybody hired for the job, this includes Company men and local hires. The training must be given before they start work. If possible, schedule this training to cover the entire crew at one time. **Each member of the crew must receive this training before they start work.**

II. The following is a list of the Pre-Job Safety Training Forms which are a basis for the safety training and the action required on each form.

***REMINDER*** It is important that the Mill name and job number be entered on the forms. These forms are kept on file for a minimum of 10 years at the Watertown Safety Office and filed by Mill and job number.

A. COMPANY GENERAL SAFETY RULES - Form SFT-W-41-3/98

The employee is to read and understand these General Safety Rules, print their name, sign, and date the bottom of the form.

B. HAZARD COMMUNICATION - Form SFT-W-50-3/00

After the employee has received training in the hazards associated with the products the Company uses (i.e., AR-196, AR-20, NUROFAST, etc.) and the contents of the Material Safety Data Sheets (MSDS) have been read to them, the employee will complete the form. The employee is to Print their name at the top of the form, circle the product(s) they have received training on, and place their initials in the box to the left of that product. Once that has been done the employee and the trainer will sign and date the bottom of the form.

C. SEARCH CONSENT FORM - Form GEN-W-61-3/97

The employee is to read the form in its entirety, any questions they may have will be answered. The employee will then, in the presence of the Supervisor and a witness, put the Plant, City and State they are being hired for on the location line, date the form, then fill in the next open block with their name, signature and company. The Supervisor and Witness will also sign the form in the presence of the employee.
D. TESTING CONSENT FORM - FORM GEN-W-59-3/97

The employee will read the form completely. They will then list any and all medications they are currently taking, or have taken in the past 30 days. These are to be listed by name, and the date last used entered next to the medication taken. The employee will then complete the blanks for the Plant, City, and State for the job they are being hired for, the current date, and Job number. The employee will sign the form in front of a witness, and the witness shall sign the form in front of the employee.

E. EEO / SEXUAL HARASSMENT - FORM GEN-W-83-1/99

The employee will read the form in its entirety. The Supervisor will answer any questions, then the employee will sign and date the bottom of the form.

F. SCAFFOLD TRAINING FORM - FORM SFT-W-51-3/00

Scaffold training is mandatory for all scaffold users and erector/dismantlers. This training must be documented. The form is in two parts. Users will need to complete the top half only. Erectors/dismantlers must complete BOTH parts of the form. The employee will date and initial each training topic as it is completed. The employee will then complete the blanks for the Plant, City, State and job number for the job they are being hired for. Once that has been done the employee and the trainer will sign the bottom of the form.

III. Before the employees sign any of the forms the Supervisors shall ensure that all employees have a thorough understanding of what they are signing by asking if any employee has any questions, or does not understand the policies. If an employee has difficulty understanding, or has questions, they will not be allowed to sign the forms until their understanding is complete.
GENERAL SAFETY RULES

1) Follow instructions; don’t take chances. If you don’t know, ask your Superintendent.

2) Wear approved Personal Protective Equipment as directed, air hoods, respirators, safety harness, face shield, hard-toe shoes and safety glasses. Keep them in good condition and clean daily.

3) Whenever you or the equipment you operate is involved in an accident - regardless of how minor - report it immediately to your Supervisor. Get first aid promptly.

4) Report immediately any condition or practice you think may cause injury to employees or damage to equipment or property.

5) Report all near-misses immediately to your Supervisor.

6) Stack materials in stable and self-supporting piles, clear of aisles and access ways to prevent sliding or falling and threat of injury to nearby workers or damage.

7) Use the proper tools and equipment for the job and observe safety instructions. Use, adjust, alter and repair equipment only when authorized.

8) When lifting, bend your knees, grasp the load firmly, then raise the load keeping your back as straight as possible. Lift with your legs, not your back. Get help for loads you cannot handle.

9) Put everything you use in its proper place. Disorder causes injury and wastes time, energy and materials. Keep your work area clean and orderly. Use good housekeeping practices.

10) Don’t horseplay, avoid distracting others.

11) Obey all rules, signs and instructions.

12) Do not smoke in “NO SMOKING” areas.

13) Know where the nearest fire extinguisher is and familiarize yourself with its use.

14) Do not ride on forklifts or other construction equipment.

15) Keep all guardrails, toe boards, etc. in place.

16) Keep all flammable liquids (acetone, ketone, gasoline, etc.) in properly marked safety cans.

17) Wear gloves when handling staging material, debris, acid, chemicals, etc.

18) Wear and use fall protection equipment when erecting and dismantling any scaffolding.

19) Follow the Company’s confined space program when entering a confined space.

20) Only operate the forklift if trained and certified.

21) Superintendent and Foreman shall be in charge of enforcing the safety rules.

I ____________ have read, understand and will abide by STEBBINS’ General Safety Rules

(print name)

(Signature) (Date)

Location ____________________________  Job #(s): ____________________________

(Plant, City and State) ____________________________
## STEBbins ENGINEERING SAFETY MANUAL

### SECTION III

### Item 3

## HAZARDOUS MATERIALS

I, ____________________________, have received training in the use of the hazardous products that I have circled and initialed below.

The hazards of these products are listed in their Material Safety Data Sheets (MSDS).

These MSDS have been fully explained to me and are on file in the office and are available for my review at any time. I can access this information through the job supervisor.

<table>
<thead>
<tr>
<th>COMPANY PRODUCTS</th>
<th>COMPANY PRODUCTS</th>
<th>COMPANY PRODUCTS</th>
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</thead>
<tbody>
<tr>
<td>1. AM-9 PUMPING FLUID</td>
<td>31. FURAGLASS CATALYST</td>
<td>61. UNHARDENED PORTLAND CEMENT</td>
</tr>
<tr>
<td>2. AR-196 ACCELERATOR SOLUTION</td>
<td>32. HYDROMET 49 LIQUID</td>
<td>62. URETHANE CONCRETE SEALER</td>
</tr>
<tr>
<td>3. AR-196 CONCRETE RESIN</td>
<td>33. HYDROMET 50 POWDER</td>
<td>MISCELLANEOUS PRODUCTS:</td>
</tr>
<tr>
<td>4. AR-196 CONCRETE RESIN CATALYST</td>
<td>34. HYDROMET 50 LIQUID</td>
<td>63. ACETONE</td>
</tr>
<tr>
<td>5. AR POWDER</td>
<td>35. HYDROMET 50 POWDER</td>
<td>64. ACETYLENE</td>
</tr>
<tr>
<td>6. AR-196 RESIN</td>
<td>36. M1 RESIN &amp; HARDENER</td>
<td>65. ADEKA KBA-1510</td>
</tr>
<tr>
<td>7. AR-20 ACCELERATOR SOLUTION</td>
<td>37. MDP CATALYST</td>
<td>66. ADEKA P-201</td>
</tr>
<tr>
<td>8. AR-20-C POWDER</td>
<td>38. NUROFAST 3MFR HARDENER</td>
<td>67. BLACK BEAUTY</td>
</tr>
<tr>
<td>9. AR-20-QC LIQUID</td>
<td>39. NUROFAST 3MFR PASTE</td>
<td>68. BYK-S 740</td>
</tr>
<tr>
<td>10. AR-25-HT LIQUID</td>
<td>40. NUROFAST 52 HARDENER</td>
<td>69. CAB-O-SIL TS 720</td>
</tr>
<tr>
<td>11. AR-25-HT POWDER</td>
<td>41. NUROFAST 52 CF PASTE</td>
<td>70. CITROL</td>
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<tr>
<td>12. AR-500 CONCRETE RESIN</td>
<td>42. NUROFASY 52 PASTE</td>
<td>71. DIESEL FUEL</td>
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<tr>
<td>13. AR-500 CONCRETE RESIN CATALYST</td>
<td>43. NUROFAST ACCELERATOR SOLUTION</td>
<td>72. FIBERGLASS MAT</td>
</tr>
<tr>
<td>14. AR-500 RESIN</td>
<td>44. NUROFAST CONCRETE PRIMER</td>
<td>73. HILTI HIT150</td>
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<td>15. AV-245 RESIN</td>
<td>45. SCI BRICK</td>
<td>74. HILTI HIT-RE500</td>
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<tr>
<td>16. AV-249 CATALYST</td>
<td>46. SCI TILE</td>
<td>75. METHYL ETHYL KETONE</td>
</tr>
<tr>
<td>17. CD-3000 POWDER</td>
<td>47. SEMAG AGGREGATE</td>
<td>76. MURIATIC ACID</td>
</tr>
<tr>
<td>18. CD-3000 RESIN</td>
<td>48. SEMAG BRICK</td>
<td>77. OXYGEN</td>
</tr>
<tr>
<td>19. CARBON BRICK</td>
<td>49. SEMAG MORTAR OR GROUT</td>
<td>78. PENNTRIOWERL</td>
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<tr>
<td>20. COLDSEAL HARDENER</td>
<td>50. SEMCO BRICK</td>
<td>79. PENINGUARD BRICK</td>
</tr>
<tr>
<td>21. COLDSEAL RESIN</td>
<td>51. SRM FLOOR TOPPING AGGREGATE</td>
<td>80. PENINGUARD MASTIC</td>
</tr>
<tr>
<td>22. EPOXY CONCRETE SEALER, PART A</td>
<td>52. SRM FLOOR TOPPING HARDENER</td>
<td>81. PERKADOX</td>
</tr>
<tr>
<td>23. EPOXY CONCRETE SEALER, PART B</td>
<td>53. SRM FLOOR TOPPING RESIN</td>
<td>82. PROPANE</td>
</tr>
<tr>
<td>24. EPOXY PUMPING FLUID, PART A</td>
<td>54. SRM MORTAR, PART A</td>
<td>84. UNLEADED GASOLINE</td>
</tr>
<tr>
<td>25. EPOXY PUMPING FLUID, PART B</td>
<td>55. SRM MORTAR, PART B</td>
<td>85. SILICIA SAND</td>
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<td>26. ES BLOCK</td>
<td>56. SRM PRIMER HARDENER</td>
<td>86. ________________</td>
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<td>27. FE-95 HARDENER</td>
<td>57. SRM PRIMER RESIN</td>
<td>87. ________________</td>
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<td>28. FE-95 HARDENER</td>
<td>58. SULFURGLASS HARDENER</td>
<td>88. ________________</td>
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<td>29. FRP INSERT</td>
<td>59. SULFURGLASS RESIN</td>
<td>89. ________________</td>
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<tr>
<td>30. FRP PUTTY</td>
<td>60. UNHARDENED CONCRETE</td>
<td>90. ________________</td>
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DATE: ____________________________ BY: ____________________________

DATE: ____________________________ BY: ____________________________

TRAINER

EMPLOYEE
NOTICE TO ALL PERSONNEL
READ CAREFULLY
SEARCH CONSENT FORM

It is the Policy of THE COMPANY and its affiliated or subsidiary companies to absolutely prohibit the use, possession, concealment, transportation or distribution of illegal and unauthorized items, drugs, look-alike, alcoholic beverages, weapons, ammunition, drug paraphernalia or stolen property while entering, on or leaving companies premises, work areas, work locations or while in the course and scope of employment of THE COMPANY employee.

For your protection, and for the protection of others with whom you will be working, you are requested to submit your person, personal effects, vehicles, belongings and all items to a search. If any items prohibited on COMPANY premises are found or if you refuse to submit to a search of yourself and/or your effects, you will be denied access to any of THE COMPANY and its affiliates or subsidiary companies’ facilities or premises. THE COMPANY will also undertake such disciplinary action in accordance with COMPANY POLICY.

A statement of THE COMPANY and its affiliated or subsidiary companies’ POLICY is on display on/at these COMPANY premises and you should read and understand the POLICY statement prior to signing this notice.

Your signature below constitutes your consent to search of your person, personal effects and property for illegal drugs, look-a-likes, alcohol, weapons, ammunition, drug paraphernalia or stolen property.

LOCATION: ___________________________ DATE: ________________
(Plant, City, and State)

<table>
<thead>
<tr>
<th>PRINT NAME</th>
<th>SIGNATURE</th>
<th>COMPANY</th>
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SUPERVISOR’S SIGNATURE

WITNESS
FORM GEN-W-61-3/98
TESTING CONSENT FORM

ATTACHMENT B

As you know, THE COMPANY has a POLICY prohibiting the use of illegal and unauthorized drugs, including alcohol. Furthermore, THE COMPANY states that an employee may be required to submit to a urine drug screen and/or blood and plasma test or a complete physical examination when THE COMPANY has a reasonable suspicion that an employee shows signs of intoxication, is under the influence of drugs, or where other conditions are present that would lead a prudent supervisor to be concerned about the employee’s safety or the safety of others that may be affected by an employee’s condition.

Please read and respond to the following instructions and information carefully.

If you are taking any medication that would impair your ability to safely perform your job, please indicate below:

<table>
<thead>
<tr>
<th>MEDICATION TAKEN</th>
<th>DATE LAST TAKEN</th>
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</table>

I have read and understand THE COMPANY’s POLICY on unauthorized and illegal drugs and alcohol, and I consent to both the drug screen and any other employment physical examination as may be required by this COMPANY. I agree in submitting to these tests and the testing agency is hereby authorized by me to provide the results of these tests to THE COMPANY, and I further agree to hold THE COMPANY, its agents, directors, officers, and employees harmless from any and all liability in connection with the testing for drug and/or alcohol content.

Location (Plant, City and State)  Job Number

Employee’s Signature   Witness’ Signature

Date           Date

Safety\Manual\Forms\GEN-W-59.WPD   FORM GEN-W-59-3/98
EQUAL EMPLOYMENT OPPORTUNITY

&

SEXUAL HARASSMENT

SUBJECT: EQUAL EMPLOYMENT OPPORTUNITY

It is the policy of this Company to maintain a business atmosphere which actively encourages and promotes Equal Employment Opportunity for all qualified persons without regard to race, color, religion, creed, sex/gender, age, national origin, disability or veteran status.

SUBJECT: POLICY AGAINST HARASSMENT

The COMPANY does not tolerate harassment of any of our employees, applicants or customers. Any form of harassment related to an individual’s race, religion, color, sex/gender, age, national origin, disability or citizenship status is a violation of this policy and will be treated as a disciplinary matter. For these purposes, the term “harassment” includes:

(1.) Offensive remarks, comments, jokes or slurs pertaining to an individual’s race, color, sex/gender, religion, age, national origin, disability, or citizenship status, (2.) Offensive sexual remarks, sexual advances or requests for sexual favors regardless of the gender of the individuals involved, (3.) Offensive physical conduct, including touching, regardless of the gender of the individuals involved. (4.) Offensive pictures, drawings or photographs or other communications, including e-mail and (5.) Threatening reprisals for an employee’s refusal to respond to requests for sexual favors or for reporting a violation of this policy.

Violation of this policy will subject an employee to disciplinary action, up to and including immediate discharge. Therefore, if you have any questions about what constitutes harassing behavior or what conduct is prohibited by this policy, please discuss them with your supervisor or the Watertown Human Resources Director. Our supervisors and managers are also covered by this policy and are prohibited from engaging in any form of harassing conduct. No supervisor or other member of management has the authority to suggest to any employee or applicant that the individual’s employment or advancement will be affected in any way by the individual’s entering into (or refusing to enter into) any form of personal relationship with him or her. Harassment of our employees in connection with their work by non-employees is also a violation of this policy. Any employee who experiences or observes any harassment of an employee by a non-employee should report such harassment to his or her supervisor. Appropriate action will be taken. If you feel that you are being harassed by another employee or by anyone else, you should tell that individual how you feel - no matter who it is. We also ask that you report the matter to your supervisor so that we can ensure that the conduct is stopped. If the problem involves your supervisor or if you do not feel that the matter can be discussed with your supervisor, you should immediately report the problem to the Human Resources Director in Watertown, New York. You may be assured that your complaint will be kept as confidential as possible and you will not be penalized in any way for reporting a harassment problem. If, at any time, you feel that your complaint is not being handled properly, please contact the Watertown Human Resources Director again immediately. We are serious about enforcing our policy against harassment. However, we cannot resolve a harassment problem unless we know about it. Therefore, it is your responsibility to bring any such problems to our attention so that we can take whatever steps are necessary to correct it.

I have read and will abide by the above Company Policies.

Employee Signature: _______________________________________          Date:  _________________________
SAFETY MANUAL

SECTION III

SAFETY MANUAL

SAFETY TRAINING FORM

SAFETY USER TRAINING

Federal regulations require that all scaffold users be trained by a Competent Person before they are allowed to utilize any scaffolding. This form is to document the training you have received as a scaffold user, or as a scaffold erector/dismantler. Initial and date each section as you complete the applicable training.

<table>
<thead>
<tr>
<th>Training Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>A general overview of all applicable scaffold regulations and standards.</td>
</tr>
<tr>
<td>Electrical hazards, fall hazards and falling object hazards in the work area.</td>
</tr>
<tr>
<td>Correct procedures for electrical hazards, erecting, maintaining and disassembling the fall protection and falling object protection systems.</td>
</tr>
<tr>
<td>Proper use of scaffolds and proper material handling on scaffolds.</td>
</tr>
<tr>
<td>Maximum intended load and load capacities of the scaffold in use.</td>
</tr>
<tr>
<td>The PPE required and the fall protection method to be used.</td>
</tr>
<tr>
<td>Other pertinent requirements (list):</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trained in all user topics.</td>
</tr>
<tr>
<td>The nature of scaffold hazards.</td>
</tr>
<tr>
<td>Correct procedures for erecting, dismantling, moving, operating, repairing, inspecting and maintaining the scaffold in use.</td>
</tr>
<tr>
<td>Design criteria, maximum intended load-carrying capacity, and intended use of the scaffolding on this job.</td>
</tr>
<tr>
<td>The purpose of guys, ties, and braces and when they must be used.</td>
</tr>
<tr>
<td>Other pertinent requirements (list):</td>
</tr>
</tbody>
</table>

Location (Plant, City and State) ___________________________ Job Number ___________________________

Employee’s Signature ___________________________ Trainers Signature ___________________________

SAFETY\MANUAL\Forms\SFT-W-51.WPD

FORM SFT-W-51-3/00

SAFETY\MANUAL\csm3-3.wpd

Rev. 01/2015 - RTD

8
SITE SPECIFIC TRAINING

I. Purpose:

Site specific training is used by the Superintendent to inform employees of existing practices and hazards that are unique to the job site.

II. Considerations:

A. Factors that the Superintendent should consider and add to his Safety Briefing are;


2. Site unique hazards to include;

   a. SDS applicable to the job.
   b. SDS applicable to the plant.
   c. Specific job site hazards (i.e., pits, trenches rail lines, etc.).
   d. Specific job site emergencies (i.e., fire, chemical exposure, etc.).
   e. Confined spaces.

3. Site unique locations to include;

   a. Nearest telephone for emergencies.
   b. Emergency telephone numbers and posting location.
   c. Nearest first aid station, eye wash, emergency showers, first aid kit, etc.
   d. Ambulance entrances.
   e. Muster areas for evacuation.

B. The factors above are just a brief outline of some issues to consider, and are not intended to be all inclusive. More topics should be added as needed.

C. The Superintendent should consider the information given to him during his Mill Safety briefing, and draw on his experiences from similar jobs in the past.
TOOL BOX TALKS

I. Purpose:

The purpose of Tool Box Talks (Safety Meetings) is to discuss and train daily in safety issues. This is accomplished by a Safety Meeting at the start of each and every working shift.

II. Implementation:

A. The shift Superintendent or Foreman shall, at the start of each work shift, conduct a safety meeting.

B. At least once per week this meeting shall be documented and a copy of the documentation will be maintained with the Superintendent job site paperwork. The original shall be forwarded to the Watertown Safety Department each week.

III. Discussion Subjects:

A. The Watertown Safety Department shall, within the Safety Newsletter, publish a list of MANDATORY safety topics to be given. These topics are intended to be given once per week, and documented. The published list will contain topics for the current and upcoming months.

B. The Superintendents shall choose for the other Safety Meetings, subjects that are appropriate to the job being conducted, or pertain to actions or incidents occurring on the job site as a lesson learned type of meeting.

C. Superintendents shall encourage workers to participate in safety meetings by encouraging them to point out any unsafe situation they have seen.
SUBSTANCE ABUSE POLICY
FOR FIELD EMPLOYEES

I. POLICY:

As part of STEBBINS commitment to safeguarding the health and safety of its employees, to providing a safe place for its employees to work, and to supplying its customers with the highest quality products and service possible, this policy establishes the Company’s position on the use or abuse of alcohol, drugs, or other controlled substances by its employees. Because substance abuse, either while at work or away from work, can seriously endanger the safety of employees and render it impossible to supply top-quality products and service, we have established this program to detect users and remove abusers of alcohol, drugs, or other controlled substances. We are committed to preventing the use and/or presence of these substances in the workplace.

The intent of this policy is:

1. To provide clear guidelines and consistent procedures for handling incidents of employees’ use of alcohol, drugs, or controlled substances that affect job performance, and to make every effort to institute and maintain a drug-free workplace.

2. To ensure that employees conform to all state and federal regulations regarding alcohol, drugs, or controlled substances.

3. To provide substance abuse prevention education for all employees and supervisory training regarding problem recognition and the implementation of this policy.

The essential parts of this program are as follows:

1. STEBBINS prohibits the unlawful manufacture, distribution, dispensation, presence, or use of alcohol, drugs, or other controlled substances on its property or work sites. Employees violating this prohibition will be disciplined, up to and including termination.

2. The sale and/or distribution of illegal drugs at anytime, anywhere is prohibited.

3. STEBBINS will utilize drug testing to help administer this policy. The following types of testing will be used:
a. All applicants will be tested.
b. Employees will be tested for reasonable suspicion.
c. Employees will be tested where required by a customer’s program or by contract with a federal or state agency.
d. Employees will be tested following accidents, and/or where required by law.
e. Employees will be subject to random testing.

3. This policy applies to all applicants, employees and contractors of the Company.

4. If an employee refuses to submit to testing sought pursuant to this policy, or if the employee attempts to circumvent the testing process or dilute or contaminate samples rendered, the employee will be subject to termination.

5. On projects covered by the Drug Free Workplace Act or other federal or state contracts, laws, or regulations, all employees will be given a copy of this policy, and be required to notify your supervisor of any conviction for violation of a criminal drug statute in the workplace within five days.

II. SUBSTANCE ABUSE PROCEDURES:

A. Drug-Free Awareness Education Program

1. All employees are to be informed of the Company’s Substance Abuse Program, and be made aware of its contents.

B. Explanation of Terms

1. *Legal Drugs.* Legal drugs include alcohol, medications prescribed by a physician, and over-the-counter medications. Employees shall notify their supervisor when taking any medication that impairs their ability to safely perform their work. Upon request, the employee shall furnish the Company with the physician’s statement regarding the possible/probable side effects of the medication. Employees may not continue to work if the effects of prescribed drugs impairs the ability of the employee to work safely and/productively. STEBBINS will consider reasonable accommodations that may be available to permit employees to continue
working while taking such medications.

2. **Illegal Drugs.** Illegal drugs include those controlled substances under federal or state laws which are not authorized for sale, possession, or use, and legal drugs which are obtained or distributed illegally. Arriving on Company property or job sites in possession of, or with the presence of illegal drugs in the employee’s system is prohibited.

C. Testing of Employees - Selection Procedures

1. Reasonable Suspicion Testing - Current employees may be asked to submit to a test if reasonable suspicion exists to indicate that this policy may have been violated. Factors which could establish reasonable suspicion include, but are not limited to:

   a. Sudden changes in work performance;
   b. Repeated failure to follow instructions or operating procedures;
   c. Violation of Company safety policies;
   d. Involvement in an accident or near-accident;
   e. Discovery or presence of substances in an employee’s possession or near the employee’s workplace;
   f. Odor of alcohol and/or residual odor peculiar to some chemical or controlled substances;
   g. Personality changes or disorientation; and
   h. Arrest or conviction for violation of a criminal drug statute.

If the President or other authorized Company official believes there is reasonable suspicion that an employee may be in violation of this policy, these findings and observations will be documented. Upon review and approval by the Vice President of Corporate Safety or Designated Official, the employee will be asked to submit to testing.

2. Customer Substance Abuse Testing - All employees who have access to customer facilities that have contractor or vendor substance abuse programs will be subject to those customer programs. Whenever possible, the drug testing and certification for customer substance abuse programs will be coordinated with STEBBINS other drug testing provisions.

3. Post-Accident Testing - All employees involved in reportable accidents will be drug-tested for the use of controlled substances as soon as possible after the reportable accident. Any employee who is seriously injured and
cannot provide a specimen at the time of the accident shall provide the necessary authorization for obtaining hospital records and other documents that would indicate whether there were any controlled substances in the employee’s system.

4. Other Testing programs - Employees may be required to submit to drug testing when required by federal or state law, regulation, or by contractual obligation not otherwise anticipated by the provisions of this policy. In the event that other drug testing is required, every effort will be made to coordinate the new testing requirements with STEBBINS other drug testing provisions.

5. Random Testing - Employees may be required by some job sites to submit to random testing per individual mill policies.

6. Confidentiality - Individual test results may not be released to any other party, or parties, without a specific written authorization by the tested person to release the results to others. The dissemination of such information within the Company will be handled on a need-to-know basis only.

D. Testing of Employees - Test and Post-Test Procedures

1. All testing will be done by a lab chosen by the Safety Department. The substances for which testing will be performed are listed below with the following cutoff levels (ng/ml):

<table>
<thead>
<tr>
<th>Substance</th>
<th>Immunoassay Test</th>
<th>Immunoassay Screening</th>
<th>GC/MS Confirmatory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amphetamines</td>
<td>1,000 ng/ml</td>
<td>500 ng/ml</td>
<td>300 ng/ml</td>
</tr>
<tr>
<td>Barbiturates</td>
<td>300 ng/ml</td>
<td>300 ng/ml</td>
<td>300 ng/ml</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>300 ng/ml</td>
<td>300 ng/ml</td>
<td>300 ng/ml</td>
</tr>
<tr>
<td>Cocaine</td>
<td>300 ng/ml</td>
<td>150 ng/ml</td>
<td>300 ng/ml</td>
</tr>
<tr>
<td>Ethanol</td>
<td>0.02 g/dl</td>
<td>0.02 g/dl</td>
<td>300 ng/ml</td>
</tr>
<tr>
<td>Marijuana</td>
<td>50 ng/ml</td>
<td>15 ng/ml</td>
<td>300 ng/ml</td>
</tr>
<tr>
<td>Methadone</td>
<td>300 ng/ml</td>
<td>300 ng/ml</td>
<td>300 ng/ml</td>
</tr>
<tr>
<td>Methaqualone</td>
<td>300 ng/ml</td>
<td>300 ng/ml</td>
<td>300 ng/ml</td>
</tr>
<tr>
<td>Opiates</td>
<td>300 ng/ml</td>
<td>300 ng/ml</td>
<td>300 ng/ml</td>
</tr>
<tr>
<td>Phencyclidine (PCP)</td>
<td>25 ng/ml</td>
<td>25 ng/ml</td>
<td>300 ng/ml</td>
</tr>
</tbody>
</table>
2. If an initial drug test is positive, a confirmation test will be performed on the same specimen.

3. STEBBINS may utilize breathalysers or other testing procedures to detect alcohol use or possible impairment of employees. Positive breathalyser results should be confirmed by a blood test at a local hospital or medical facility, if possible. If alcohol use or possible impairment is suspected, an employee, should be treated in the same fashion as other employees subject to reasonable suspicion investigations.

4. An authorized STEBBINS official will explain to the employee the testing procedures and the Substance Abuse Program.

5. All results are to be kept confidential. The employee will be informed of the results by the Vice President of Corporate Safety or Designated Official. Employees with negative test results may return to work. A confirmed positive test will result in removal from the current job site.

6. An employee awaiting pending test results may be placed on probationary status, and may be sent home without pay during the time required for a specimen to be evaluated.

E. Searches

1. At the request of the company President or other authorized Company official, based upon suspicions or evidence of sale, possession, or use of controlled substances, an employee shall be required to:

   a. Submit to the search of pockets, tool boxes, lunch boxes, and/or any personal article brought upon STEBBINS premises, the work site, or while on business.

   b. Submit to the seizure of any controlled substance found in the employee’s possession. Suspected illegal substances will be turned over to appropriate law enforcement authorities. The employee will be required to furnish the Company with a physician’s name and/or prescription for confirmation of the prescription of a legal substance found in the employee’s possession.

   c. Submission to a personal search of personal articles as used above
shall include the search of any vehicle brought upon Company premises or Company work sites or used on Company business. A personal search also includes a search of items within the employee’s work area.

d. Failure to submit to a search will result in termination.

F. Disciplinary Action

1. Any employee engaging in the use of alcohol while on Company property, while on a Company work site, or while on Company business or who reports for duty with any presence of alcohol will be removed from the workplace, required to undergo testing, and/or disciplined, up to and including termination.

2. Any employee engaged in the use, possession, purchase, sale or transfer of any illegal drug while on STEBBINS property, work sites, or while on business will be removed from the workplace, required to undergo testing, disciplined, up to and including termination, and may be subject to criminal investigation and/or prosecution.

3. If an employee is arrested or convicted for driving under the influence of alcohol or for violation of a criminal drug statute, the Vice President of Corporate Safety or Designated Official will thoroughly investigate all of the circumstances, and company officials may utilize the drug testing procedure. After the investigation has been completed, the Vice President of Corporate Safety will determine the best course of action to be undertaken for the benefit of STEBBINS and the individual. The circumstances of any arrest or conviction for DUI will be reviewed and may result in discipline.

G. Miscellaneous Matters

1. This Substance Abuse Program policy primarily governs STEBBINS actions in the area of alcohol, drugs, or other controlled substances. Other policies may be applicable in this area.

2. In any of the selection or testing situations described in this policy, if prescription drugs are detected and the applicant or employee is able to prove medical or professional authorization for the prescription, the company reserves the right to contact the individual’s physician or
profesional, or STEBBINS officials may send the individual to the company physician for verification and review of the situation.

3. No part of this policy, nor any of the procedures there under, is intended to affect the STEBBINS’ right to manage its workplace, to discipline its employees, or guarantee employment, continued employment, or terms or conditions of employment. The Substance Abuse Program in no way creates an obligation or contract of employment. STEBBINS reserves the right to alter or amend the program at any time at its sole discretion.

4. If any part of this policy is determined to be void or unenforceable under state or federal law, the remainder of the policy, to the extent possible, will remain in full force and effect.
ACCIDENT AND NEAR-MISS INVESTIGATIONS

I. Purpose:

The purpose of this policy is to standardize and outline the initial on site investigation of injuries, accidents, and near-misses. STEBBINS utilizes these reports not only as a means of reporting but as a learning tool. All accident and near-miss reports are analyzed, and the information is passed on, or work procedures are modified, so that similar occurrences can be prevented from happening again.

II. Responsibilities:

It is the duty of all Supervisors within the Company to not only report an accident or near-miss, but to do the initial on site investigation. Initial investigations by the Supervisors are often all the Company and our Workers Compensation carriers will have for most reported accidents, therefore, it is important that Supervisors understand the basic techniques of investigation, and site protection.

III. Accident Investigations:

The Supervisor must become extremely observant of their surroundings as soon as an accident is reported to them. This added observation will assist them later in their investigation. The following are the steps to be followed from the initial accident to the final report paperwork. Understand that this is a series of steps and that it is likely that these steps may be done out of order or skipped completely during a real emergency. Every effort, however, should be made to do all of the following:

A. Get to the scene of the accident as quickly as possible. On the way make a mental note of personnel leaving the area as you arrive. These people may have seen something, and you should question them later. Once you arrive on the scene, make a quick scan of the accident area, noting anything unusual or out of place. Try and take a mental photograph of the scene, this will assist you in your investigation later. Give immediate first aid to the victim of the accident, and arrange for further medical attention if required.

B. If possible, a photograph should be taken of any accident scene, but this is not required. Some things that you should specifically look for are listed below. This is not a complete list by any means, simply a basic guide.
1. Improper use of or missing safety equipment.
2. Defective or broken equipment.
3. Poor housekeeping practices.
4. Shoddy, slipshod, or unsafe work habits.
5. Weather conditions that affect working conditions.
6. Any marks or other indicators of impact or slippage.
7. Blood, tissue, or clothing residue.
8. Paint transference (primarily impact accidents only).
9. Anything out of the ordinary or out of place.
10. Any other possible contributing physical factor.

***IMPORTANT***

In the event of an accident that results in the death of one (1) or more workers, work-related inpatient hospitalizations, all amputations and all losses of an eye within 24 hours, the accident scene will be closed off and no one allowed access to the accident site until the Company and OSHA representatives have completed their investigation and have released the scene.

C. Take the names of all the people who witnessed the accident, regardless of whether they are Company employees or not. Ensure that these names get entered into your accident investigation report. Question these witnesses to discover who has relevant information to assist your investigation. When possible, voluntary written statements should be taken from all witnesses. The simplest statement should cover the questions WHO, WHAT, WHERE, WHY, WHEN, and HOW. These statements should be attached to the First report of accident/injury/illness and forwarded to the Watertown Safety Office in the same manner. (Note: Statements must be voluntary, you cannot use coercion or force to get an employee or witness to write a statement.)

D. Complete the Employer’s First Report of Accident/Injury/Illness form according to the directions in Section IV, Item 3 and forward it as detailed in Section IV, Item 2.

IV. Near-miss Investigations:
The reporting of a near-miss is not to lay blame. Rather it is to determine how to prevent a recurrence that could cause an injury. Near-miss investigations are almost identical to accident investigations. Again, you want to piece together the WHO, WHAT, WHERE, WHEN, WHY, and HOW of the near-miss.

Near-miss investigations are unusual due to the fact that there was no injury or damage, so there may be nothing to see at the location of the near-miss. Witnesses are important to a near-miss investigation, however, witness statements do not need to be recorded in any way. Rather use the witnesses’ information to assist in concluding how the near-miss occurred.

Solutions are a part of near-miss investigations for a reason. Once you have identified the hazard that assisted in creating the near-miss, we have to eliminate or reduce that hazard. The solution you recommend is going to be based on your experience and knowledge of your job and job site.

V. Review:

A review of all accidents and near-misses, their causes, and preventative measures should be the last step in your investigation. In other words do not keep what you have learned about the accident or near-miss a secret. Let the other employees know of the incident, its causes, and how to prevent it. This will assist you in accident prevention, and show the other employees that the Company is truly concerned with their safety by giving them the full reason behind the changes to their routine or work procedures. Remember, protect the confidentiality of the accident victim(s) when doing this.
ACCIDENT REPORTING AND RECORD KEEPING

I. Reporting Requirements:

A. Company Reporting Requirements:

The Company MUST, within eight (8) hours after a job related accident or illness that results in the death of one (1) All work-related inpatient hospitalizations, all amputations and all losses of an eye within 24 hours, report the incident to the nearest Area Director of OSHA, U. S. Department of Labor.

B. Superintendent Reporting Requirements:

The Superintendent has the responsibility of telephoning the Watertown Safety Office immediately and verbally reporting any accident or illness that results in the death of one (1) or more employees or All work-related inpatient hospitalizations, all amputations and all losses of an eye within 24 hours. The Superintendent will use the phone reporting roster located below to notify the appropriate personnel. The OSHA 1-800 number will only be used if all reasonable means have been made to contact the Company personnel below have failed.

1. Telephone Notification Chart:

The Supervisors will start at the top of this list and continue to call until contact is made if the notification involves the death of one (1) or more or hospitalization of three (3) or more Employees. All other accidents will be reported to the Watertown Safety Office from 8:00 AM to 4:30 PM EST, Monday to Friday.

RYAN DOWNING
Vice President of Corporate Safety
(W) (315) 782-3000 x2682
(C) (613) 286-0861

DIVISION MANAGERS
Per Division

ALFRED CALLIGARIS
Chairman of the Board/President
(W) (315) 782-3000 x201
(H) (315) 583-5981

OSHA REPORTING HOTLINE (800) 321-OSHA
II. Record Keeping Requirements:

A. Company Record Requirements:

1. The Company is required to maintain an OSHA 300 log. The Original OSHA 300 log will be maintained in the Safety Office in Watertown. Copies of the OSHA 300 Summary log for the preceding year will be posted on the Company and Divisional bulletin boards no later than the first day of February each year. The OSHA 300 Summary log will remain posted until April 30th of each year. The Company Safety Office will maintain on file ALL previous years OSHA 300 logs for a minimum of five (5) years.

2. The Company is required to maintain an OSHA 300 report or its equivalent for each accident or illness on a job site, regardless of how minor. The Company First Report of Injury found in Section 4-3, Appendix “A” is the Company’s equivalent to the OSHA 300 report and will be the ONLY report accepted. The Company Safety Office will maintain ALL accident reports for a minimum of 30 years.

B. Superintendents Record Requirements:

The Superintendent MUST COMPLETELY fill out and fax a copy of the Company First Report of Accident to the Watertown Safety Office the same day that the accident/illness is reported to them. The Supervisor will call the Safety Office prior to faxing the report, and notify his Division Manager of all accidents after notifying the Safety Office. The superintendent shall forward the original copy to the Watertown Safety Office within six (6) working days of the report. The Supervisor shall maintain a copy of the report on the job site until the job is completed. That copy will be included with their other safety documentation that is forwarded to the Watertown Safety Department at the end of a job.
I. Purpose:

The proper completion of the Employer’s first report of accident/injury/illness form and near-miss report is a must. Not only do these forms provide the Safety Department the means to brief the Senior Management, but also provides all the information that is required to complete the all relevant OSHA documentation and file the proper Workers’ Compensation papers. Without the proper documents from the Supervisor, or with incomplete documents being sent in, it is impossible to provide the appropriate information to these agencies.

These completed reports are also utilized by the Safety Department as a learning tool. From these reports, data is gathered to assist in identifying strength and weaknesses in our Safety program. These reports are also used to identify potential hazards, trends, or patterns in our work environment.

II. Responsibilities:

The job site Superintendent is responsible for conducting the investigations in near-misses and accidents. The Superintendent is also responsible for ensuring that the near-miss or accident form is filled out completely and correctly.

The employee is responsible for reporting any near-miss or accident.

III. Definitions:

A. Near-miss:

A near-miss is an incident that has caused no physical damage, but the potential for injury was present or where an accident was narrowly avoided.

B. Accident:

An accident is an incident that has resulted in physical harm to an employee or other person, or damage to equipment, structures. The actual extent of the injury or cost of damage does not matter.
IV. Completion of reports:

Pages three and four contain an example of a properly completed accident/injury/illness form. A similar completed near-miss report can be found on page five.

Compliance and accuracy in filling out the report are mandatory, not optional. These guidelines will be followed for ALL REPORTS of near-misses or accident/injury/illnesses.
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Division: Northern Sales (Stebbins)</td>
</tr>
<tr>
<td>2</td>
<td>Nature of Business: Masonry Construction</td>
</tr>
<tr>
<td>3</td>
<td>Location of Accident: Progress Energy</td>
</tr>
<tr>
<td>4</td>
<td>Job Number: 55-200-001-3</td>
</tr>
<tr>
<td>5</td>
<td>Date of Injury: 1/30/2017</td>
</tr>
<tr>
<td>6</td>
<td>A. Date stopped work because of this injury: N/A</td>
</tr>
<tr>
<td>7</td>
<td>B. Was injured paid in full for this day? YES</td>
</tr>
<tr>
<td>8</td>
<td>Injured's full name: John Doe</td>
</tr>
<tr>
<td>9</td>
<td>Injured's address: PO Box 321 East Main Street, Bangor, ME 45218</td>
</tr>
<tr>
<td>10</td>
<td>First: John</td>
</tr>
<tr>
<td>11</td>
<td>Middle: E</td>
</tr>
<tr>
<td>12</td>
<td>Last: Doe</td>
</tr>
<tr>
<td>13</td>
<td>Nationality: American</td>
</tr>
<tr>
<td>14</td>
<td>Social Security Number: 123-54-0982</td>
</tr>
<tr>
<td>15</td>
<td>Occupation when injured: Brick Mason</td>
</tr>
<tr>
<td>16</td>
<td>Regular occupation: Brick Mason</td>
</tr>
<tr>
<td>17</td>
<td>How long employed with company (job only): 5 Days</td>
</tr>
<tr>
<td>18</td>
<td>Date hired: 1/25/2017</td>
</tr>
<tr>
<td>19</td>
<td>Wages per hour: $18.00</td>
</tr>
<tr>
<td>20</td>
<td>Hours worked per day: 10</td>
</tr>
<tr>
<td>21</td>
<td>Days worked per week: 5</td>
</tr>
<tr>
<td>22</td>
<td>Shift worked: Day</td>
</tr>
<tr>
<td>23</td>
<td>Start time of shift: 7:00 am</td>
</tr>
<tr>
<td>24</td>
<td>Finish time of shift: 5:00 pm</td>
</tr>
<tr>
<td>25</td>
<td>Amount paid for weekly board and lodging: $50.00</td>
</tr>
<tr>
<td>26</td>
<td>Amount paid for weekly board and lodging: $490.00</td>
</tr>
<tr>
<td>27</td>
<td>Machine, tool or thing causing injury: Acid Brick</td>
</tr>
<tr>
<td>28</td>
<td>Machine tool or thing causing injury: Leather Gloves and Hard-toe boots</td>
</tr>
<tr>
<td>29</td>
<td>Safety appliance provided? YES</td>
</tr>
<tr>
<td>30</td>
<td>Safety appliance in use? YES</td>
</tr>
<tr>
<td>31</td>
<td>Accident caused by the injured's failure to use or observe the safety appliance or regulations? NO</td>
</tr>
<tr>
<td>32</td>
<td>Accident caused by the injured's failure to use or observe the safety appliance or regulations? NO</td>
</tr>
<tr>
<td>33</td>
<td>Was safety appliance provided? YES</td>
</tr>
<tr>
<td>34</td>
<td>Safety appliance in use? YES</td>
</tr>
<tr>
<td>35</td>
<td>Accident caused by the injured's failure to use or observe the safety appliance or regulations? NO</td>
</tr>
<tr>
<td>36</td>
<td>Was safety appliance provided? YES</td>
</tr>
<tr>
<td>37</td>
<td>Safety appliance in use? YES</td>
</tr>
<tr>
<td>38</td>
<td>Accident caused by the injured's failure to use or observe the safety appliance or regulations? NO</td>
</tr>
<tr>
<td>39</td>
<td>Was safety appliance provided? YES</td>
</tr>
<tr>
<td>40</td>
<td>Safety appliance in use? YES</td>
</tr>
<tr>
<td>41</td>
<td>Accident caused by the injured's failure to use or observe the safety appliance or regulations? NO</td>
</tr>
<tr>
<td>42</td>
<td>Was safety appliance provided? YES</td>
</tr>
<tr>
<td>43</td>
<td>Safety appliance in use? YES</td>
</tr>
<tr>
<td>44</td>
<td>Accident caused by the injured's failure to use or observe the safety appliance or regulations? NO</td>
</tr>
<tr>
<td>45</td>
<td>Was safety appliance provided? YES</td>
</tr>
<tr>
<td>46</td>
<td>Safety appliance in use? YES</td>
</tr>
<tr>
<td>47</td>
<td>Accident caused by the injured's failure to use or observe the safety appliance or regulations? NO</td>
</tr>
<tr>
<td>48</td>
<td>Was safety appliance provided? YES</td>
</tr>
<tr>
<td>49</td>
<td>Safety appliance in use? YES</td>
</tr>
<tr>
<td>50</td>
<td>Accident caused by the injured's failure to use or observe the safety appliance or regulations? NO</td>
</tr>
</tbody>
</table>
23. DESCRIBE THE EVENTS THAT LEAD UP TO THE ACCIDENT (PLEASE BE SPECIFIC):  Employee was stacking brick on his mortar table. He accidently bumped the table knocking the bricks to the scaffold deck.

24. DESCRIBE ACCIDENT IN FULL DETAIL INCLUDING BODY PART AND INJURY SUSTAINED (ATTACH A SEPARATE SHEET IF NECESSARY):
Two of the bricks that fell, hit the employee on his right knee causing a small cut.

25. NAME OF WITNESSES TO ACCIDENT:  Joe Summer    and    Bob Springs

26. IS THIS A RECURRING INJURY?  ☐ YES  ☒ NO  IF YES, EXPLAIN:  

27. HAS INJURED RETURNED TO WORK?  ☐ YES  ☒ NO

IF YES, INDICATE DATE & TIME RETURNED:  1/30/12  2:00 pm  OCCUPATION:   Brick Mason   WAGE: $18.00

IF NO, INDICATE PROBABLE LENGTH OF DISABILITY:  N/A

28. CHECK WHICH APPLY:  ☐ FIRST AID ONLY  ☐ DOCTOR’S OFFICE
   ☒ EMERGENCY ROOM/OUT PATIENT  ☐ HOSPITALIZED
   ☐ OFFERED & REFUSED MEDICAL TREATMENT  ☐ NO MEDICAL TREATMENT REQUIRED

29. DATE OF TREATMENT:  1/30/2015

30. NAME, ADDRESS AND TELEPHONE NUMBER OF HOSPITAL:  General Hospital of Maine ,  123 Main Street

   Bangor, ME    45218    207-554-1000

31. NAME, ADDRESS AND TELEPHONE NUMBER OF DOCTOR:  Dr. Ian Pain  - on call at Emergency Room

32. HAS INJURED DIED?  ☐ YES  ☒ NO  IF YES, DATE OF DEATH:  

I HAVE READ THE ABOVE COMPLETED ACCIDENT REPORT AND AGREE THAT THE STATED FACTS ARE TRUE.

INJURED WORKER’S SIGNATURE:  ___________________________ DATE:  ________________
SUPERINTENDENT’S SIGNATURE:  ___________________________ DATE:  ________________

RETURN COMPLETED FORM TO THE WATERTOWN SAFETY DEPARTMENT

SAFETY DEPARTMENT FOLLOW-UP BY:  ___________________________ DATE:  ________________

FORM SFT-W-52-3/00
NEAR-MISS/HAZARDOUS CONDITIONS REPORT
(PLEASE SUBMIT THIS FORM TO THE WATERTOWN SAFETY DEPARTMENT)

SITE: International Paper, Bad Luck, ME 45210 JOB NUMBER: 55-200-001-3

USE THIS SECTION TO REPORT EVENTS THAT, UNDER SLIGHTLY DIFFERENT CIRCUMSTANCES, COULD HAVE OR WILL RESULT IN INJURY TO PERSONS OR DAMAGE TO PLANT EQUIPMENT/ MATERIALS/ENVIRONMENT/PROCESS. THIS IS YOUR CHANCE TO HELP US STOP AN ACCIDENT BEFORE IT HAS A CHANCE TO GET SOMEONE OR SOMETHING. THIS FORM IS TO BE FILLED IN BY PERSON/PERSONS INVOLVED WITH THE EVENT.

I, Joe Summer, Superintendent, 1/30/2015 wish to report a NEAR-MISS/HAZARDOUS CONDITION at the International Paper, Bad Luck ME, 45210 Mill, City, State

Describe what happened: John E Doe was stacking brick on to his mortar table. He bumped the mortar table, accidently knocking the brick to the scaffold deck. One brick ended up almost falling off the scaffold because it almost bounced over the toe-board.

I think this could have or did injure/damage: (people, equipment, material, environment)
People and equipment.

I recommend the following actions: Even though we have toe-boards, Some kind of netting between the mid-rail and the toe board should be put up.

CLOSED OUT: 1/31/2015 REVIEWED BY: Joe Summer
(i.e. - all actions completed) Vice President of Corporate Safety Supervisor’s Name

Date

COMMENTS: Orange plastic netting installed on 1/31/99. Toolbox talk with masons about overloading mortar tables.

Safety/Manual/Forms/SFT-W-53.WPD FORM SFT-W-53-3/00
RETURN TO WORK PROCEDURES

I. PURPOSE:

The purpose of the return to work procedure is to return Company employees who have been injured on the job site, to work they are capable of doing within their prescribed limitations.

II. SUPERINTENDENT RESPONSIBILITIES:

The Superintendent should be made aware, in writing, of the specific limitations in regards to lifting, bending, standing, etc. The Superintendent in turn must understand these limitations and follow them in assigning the employee work. Re-injuries on the job site are not common, but become very possible when work limitations are ignored. Unless the limitations are clearly understood by the Superintendent and employee, and then adhered to, there is increased potential for further injury, conflict, or ill feelings.

A. The Superintendent should always respond positively to an employee’s first report of an injury.

1. Take the time to handle the injury properly.
2. Believe the employee. Don’t automatically suspect fraud.
3. Fully complete the Company first report of injury/illness form.
4. Investigate the accident, record all pertinent information, take statements if witnesses are available.

B. The Superintendent can play a very important role in bringing the injured employee back to work and avoiding lost time.

1. Visit the employee, encourage his peers to do the same.
2. Keep informed about the employee’s progress.
3. Reassure the employee that the Company needs them.
4. Travel with the employee to the initial medical treatment, make it clear to both the care-giver and employee that modifications can be made to fit most work limitations, so their job is not lost because of an injury or illness.

C. The Superintendent is key to making the employee’s return to work a successful one.
1. Make the employee feel welcome and glad to be back.
2. Provide duties that are within the limitations given by the physician.
3. Explain their duties clearly to them and explain the importance of the temporary job that has been assigned.
4. Point out any new safety precautions and remind them of the old ones.

III. EMPLOYEE RESPONSIBILITIES:

In order to comply with this procedure, the employee is responsible for complying with the following steps.

A. Any employee who receives medical treatment for a work related injury or illness must make the treating physician aware of their ability to return to work, with limitations, under the Company return to work procedures.

B. The employee must obtain from the treating physician, a signed document stating the physical limitations that have been placed on the employee. This document must also contain an estimated time span that the limitations will apply. An original copy of this document must be given to the Superintendent or job site manager prior to the employee being assessed for eligibility under the Company return to work procedure. This procedure only applies if work limitations or lost time is indicated on the document, and does not apply if a full work release is given. Only the Superintendent or job site Manager may accept a limited work document from an employee.

C. Any employee being treated for a work related injury or illness must provide the Company with updated medical information and documentation after each caregivers visit. This will enable the Company to bring employees on limited duty or lost time status back to work on a timely basis.

This information should include the following:

1. Current medical status of the injury or illness.
2. Projected dates for lifting the limitations.
3. Current limitations or lost time status.
4. Date of next scheduled return visit to the care-giver.

D. Any employee who seeks medical treatment for a work related injury or illness
must present a written release from the treating physician before being scheduled to return to work.

E. If an injury results in no lost time, the release may be presented to the Superintendent or job site Manager at the beginning of the employees next scheduled shift, provided they have made contact with them and work is still available on that job site. If an employee attempts to return to work without an appropriate medical release from the physician, the employee will not be allowed to work until such time as the release has been given to the Superintendent or job site Manager.

F. Any employee who is released to modified temporary duties and has been out of work for 30 days or more, may in some cases, provided such work is reasonably available, be scheduled as an “extra” person for a minimum of one week. This is to decrease the possibility of overexertion and re-injury, or aggravation by allowing the employee to resume work slowly and ensure assistance is available if production demands increase the physical demands of such a position.

G. All employees in the Company return to work procedure must be under the care of a physician.

H. All work provided will be consistent with and will not exceed the limitations set by the employees care-giver. The employee is responsible for ensuring that they do not work beyond the limitations of their injury or illness as set by the care-giver.

I. If the employee finds that the return to work procedure is beyond their current physical capabilities, they must contact the Superintendent or job site Manager immediately.

J. All employees covered under this return to work procedure will abide by all Company safety rules.

K. In cases where the employee has been authorized to return to work with time limitations, the work hours will be adjusted accordingly, and the employee shall not be allowed to work past his/her written time limitations.

L. Employees are encouraged to schedule physical therapy and physician’s appointments at times that they are not scheduled to work. If an employee must
leave the job site, all appointments requiring time away from work must be recorded and verified by the care-giver.

M. If an employee is unable to report to a job site where work has been scheduled to meet their limitations, they must immediately contact the Superintendent or job site manager.

N. The return to work procedure is not to be used as an excuse for tardiness, nonperformance of assigned duties, not calling in or notifying the Superintendent or job site manager of potential absences, etc. These types of actions will be subject to the same disciplinary actions as any healthy employee.

O. If, due to medical complications, the employee must be removed from the return to work procedure, medical documentation must be provided to the Superintendent or job site manager.

P. When an employee is released to regular duties, they must immediately contact their Superintendent or job site manager, or the Safety department so that they can be scheduled to return to a Company job site if possible and reasonable.

IV. RETURN TO WORK AGREEMENT (Form SFT-W-54):

The return to work agreement is a simple form that is filled out by both the employee and the Superintendent or job site Manager. The agreement ensures that both sides understand that limits have been set and what work is being provided to adjust for those limitations. Both sides of the agreement, while not defining limitations, does define responsibilities of both the employee and the Superintendent. This form must be completed in each use of this return to work policy, and a copy of any limitations attached then maintained on the job site until the job ends. It will then be forwarded to the Safety Department with all other Safety paperwork.
RETURN TO WORK AGREEMENT

EMPLOYEE ACKNOWLEDGMENT OF WORK RESTRICTIONS

I, the undersigned, have been advised of the restriction outlined by my care-giver. I have read and understand my work restrictions, and agree to refrain from the specific activities detailed as beyond my abilities in my work restrictions. I further understand that it is my responsibility not to violate these restrictions without specific authorization in writing from my care-giver. I further agree that if anyone asks me to perform duties which will violate those restrictions, I will immediately notify the Superintendent or job site Manager, if necessary, of my restrictions concerning the requested duties. I understand that all Company policies and procedures are applicable to the return to work program, and that as a participant in the return to work program, I still must follow all other Company policies and procedures that do not violate my work restrictions.

____________________________      ______________    ____________________________
Printed Name              Date          Employees Signature

SUPERINTENDENT ACKNOWLEDGMENT OF WORK RESTRICTIONS

I, the undersigned, have been advised of the work restrictions outlined by the care-giver of the above-named employee. I have read and understand the work restrictions which must be observed by this employee. I further understand that it is my responsibility to assist this employee in observing those restrictions. I will not ask or expect this employee to perform any duties which would violate this work restriction. I understand and will adhere to the return to work policy and procedures as described in Section IV, Item 4 of the Company safety manual.

____________________________     _______________   ____________________________
Printed Name              Date        Superintendents Signature

***NOTE***

The work limitation’s slip must be attached to this agreement in order to make it valid.
STANDARD PPE REQUIREMENTS

I. Purpose:

The PPE discussed in this section is the basic PPE that is consistently used by the individual employee. This section is not designed to be all inclusive. All other PPE used on the job site must meet the applicable NIOSH and ANSI standards for their type, and must be employed following manufactures guidelines. Any questions about specific PPE items not covered in this standard should be directed to the Watertown Safety Department.

II. Training:

All employees will be trained at the project site on how to use, don, wear, proper care, how to inspect, maintain, proper inspection, useful life & disposal of PPE. Retraining of the employee is required when the workplace changes, making the earlier training obsolete; the type of PPE changes; or when the employee demonstrates lack of use, improper use, or insufficient skill or understanding. All PPE must fit each employee properly. All PPE must be cared for and maintained in a sanitary and reliable location. Employees will be told on a per job basis when PPE will be required. All jobs are different and many clients have different rules concerning fall protection. STEBBINS will supply at no cost to the employee all PPE. Employees may wear PPE when not required at their discretion, however STEBBINS will mandate when PPE is mandatory. Defective or damaged equipment shall not be used. All training will be documented and records are to be forwarded to Watertown. A hazard assessment shall be completed with the employee’s participation to determine the hazards in the area and if STEBBINS has the appropriate PPE.

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

Per OSHA rules fall protection is required at 6 feet when guardrails are not present, 10 feet on scaffold. It is STEBBINS policy to engineer all hazards whenever possible, that means we will guardrail all openings when possible. Fall protection will be used as a last resort when engineering controls cannot be implemented.

III. Foot Protection:

A. Safety (Steel Toe) boots.
1. Safety boots will be worn at all times while on the job site.

2. No running style safety shoes will be allowed.

3. All safety boots shall comply with ANSI Z41-1991 standards.

4. Safety boots will be laced and tied so as not to fall off the foot or present a tripping hazard.

B. Rubber boots/overshoes.

1. Rubber boots that do not allow for the wearing of safety boots within them shall comply with ANSI Z41-1991 standards.

2. Overshoes that are worn overtop of safety boots must be laced, buckled, buttoned, or otherwise secured so as not to present a tripping hazard.

IV. Head Protection:

A. Protective helmets (Hard Hats).

1. All protective helmets shall comply with ANSI Z89.1-1986 standards.

2. At no time will protective helmets be worn backwards. When properly worn, the bill must be over the eyes only.

3. Protective helmets must have a serviceable 4 or 6 point web suspension securely mounted to the protective helmet at all points. This web will be adjusted to fit the head of the employee the protective helmet is issued to.

4. No protective helmet that is cracked or deeply gouged is to be considered serviceable.

5. No protective helmet that has sustained any impact is to be considered serviceable until inspected by the manufacturer.

V. Hearing Protection:

Hearing protection, regardless of its type must ensure that the noise level that ANY employee has to work in is less than 85 dBA over an 8 hour time weighted average. In general, this means that hearing protection shall be worn but is not limited to instances
where the employee is operating chipping guns, rivet busters, jack hammers, brick saws, and any other equipment that produces a similar noise level. All employees shall know all designated hearing protection areas at the job site they are currently working at, and ensure that hearing protection is worn as required.

A. Disposable hearing protection.

1. Disposable hearing protection shall have a noise reduction (NR) rating of no less than 25 dBA.

2. Disposable hearing protection shall be individually packaged for use in clean, dry packaging. Stored hearing protection shall be placed in such a manner as to be accessible to all, but protected from moisture, dirt and the environment if possible.

3. Disposable hearing protection is a ONE TIME use protection only. Under NO circumstances will disposable hearing protection be re-used, or used by more than one employee. Once removed from the ears, disposable hearing protection must be thrown away.

B. Permanent Hearing Protection.

In areas where long term work is being conducted around extreme noise, or where required for the job site, permanent hearing protection, in the form of Ear Muffs ONLY may be utilized. No other form of Non-Disposable hearing protection is allowed to Company employees.

1. Ear muffs utilized by the Company will have a minimum noise reduction (NR) rating of not less than 25 dBA.

2. Ear Muffs may be utilized by more than one employee provided that they are cleaned properly between users.

3. Ear Muffs will be stored in such a way as to keep them clean and dry.

4. Ear Muffs that are broken, or in any way altered from manufactures design shall not be allowed to be used.

VI. Eye and Face Protection:

All eye and face protection must meet the minimum required standards set forth in ANSI Z87.1-1968. All prescription eye wear must also meet this standard or be wearable.
underneath acceptable protective devices.

A. Safety Glasses.

1. Glasses must be complete and have all pieces in serviceable condition and properly attached.

2. Prescription eye glasses that meet the standard must be fitted with attached side shields, either permanently mounted, or temporarily mounted in accordance with manufactures guidance.

3. Side shields shall be of the hard plastic type only, no soft or flexible plastic shields will be allowed.

4. All glasses must be free of cracks and deep scratches that may weaken the material. All glasses should be free of scratches that would interfere with good vision.

5. No tinted safety glasses will be worn inside any building or structure.

B. Safety Goggles.

1. Safety goggles will be complete and have all pieces properly attached.

2. Safety goggles that are cracked, deeply scratched or otherwise weakened shall not be used. All safety goggles should be free of scratches that would interfere with good vision.

3. Safety goggles are mandatory in all operations that involve the use of any liquid that is capable of being splashed, dripped, or otherwise entering the eye around standard safety glasses.

C. Face shields.

1. Face shields will be complete and have all pieces properly attached.

2. Face shields that are cracked, broken, or having deep scratches or otherwise weakened, shall not be used. Face shields will be free of scratches that would interfere with good vision.

3. Face shields of the appropriate type will be worn in addition to safety glasses, in all cutting, brazing, and welding operations. The only
exception to this will be the use of specifically designed welding goggles.

VII. Safety Harnesses and Lanyards:

All safety Harnesses and Lanyards must meet the minimum requirements set forth in ANSI Z398-1-1992 standards. Safety harnesses and lanyards will be worn when any employee is on an elevated area in excess of 6 feet. Employees will be tied off at all times if they are elevated beyond six feet and a fall hazard is present so long as such a tie off does not create a further safety hazard. Failure to tie off will result in removal from the site, suspension and possible termination. All equipment that is involved in a fall shall be removed from service and red tagged until such time as a competent person can recertify the equipment as fully within standards. All the following equipment shall be inspected prior to each use.

A. Lanyards.

1. Lanyards shall have a minimum breaking strength of 5000 pounds when used.

2. Only lanyards equipped with locking type snap-hooks shall be used.

3. Only shock absorbing lanyards will be used.

4. D-rings and snap-hooks shall take a 3600 pound load without cracking, breaking, or taking permanent deformation.

5. Lanyards shall be designed in such a manner as to limit free fall distance to no more than 6 feet.

6. Lanyards shall be free of cuts, worn areas, fraying, or any other defect that may affect its ability to function properly.

B. Safety Lines and Lifelines.

1. Safety lines and lifelines shall withstand a force of 5000 pounds.

2. Only one employee shall be attached to a single lifeline.

3. D-rings and snap-hooks shall withstand a 3600 pound load without cracking, breaking, or taking permanent deformation.

4. Self-retracting lifelines shall be designed in such a manner as to limit free fall distance to no more than 2 feet.
5. Steel cables shall be fully extended before use and inspected for cuts, fraying or wear that would affect its ability to function properly.

6. All fibre type lifelines shall be inspected for cuts, fraying or wear that would affect its ability to function properly.

C. Safety Harnesses.

1. Harnesses shall not be adapted to lift equipment.

2. The harness must limit the impact on the employee to less than 900 pounds in the event of a fall.

3. The harness shall be properly worn with all buckles and fasteners properly in use.

4. The harness shall be worn so that the D-ring is located in the proper position in accordance with manufactures guidance.

5. All harnesses will be inspected for cuts, fraying, wear, broken and/or missing parts, and anything else that may affect its ability to function properly.
RESPIRATORS
WRITTEN PROGRAM
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IV. AIR QUALITY
V. TRAINING
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VII. PURCHASING DEPARTMENT
VIII. WAREHOUSE/SHOP COMPLEX
IX. DOCUMENTATION/RECORD KEEPING

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APPENDIX B RESPIRATOR FIT TEST RECORD

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APPENDIX D RESPIRATOR MEDICAL EVALUATION QUESTIONNAIRE
RESPIRATORS
WRITTEN PROGRAM

I. Policy:

To provide employees with respiratory protection when engineering controls are ineffective or cannot be applied, and in emergency situations in the work area. The Safety Department will be responsible for administering this program. Medical evaluation, PPE and training is free to employees. All employees will understand what respirator is used in each condition, how to use it and how it can become ineffective.

II. Definitions:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

III. Responsibilities:
A. Construction Managers/Salesmen/Coordinators:

It will be the responsibility of the Construction Manager/Salesman/Coordinator to select the correct respiratory equipment according to the hazard(s) that may be encountered on the job. They shall indicate the type of respirator, cartridge, etc. required on the job when making up the tool list. The selection of respirators will be limited to NIOSH approved respirators only and based on the following:

1. **OXYGEN DEFICIENT ATMOSPHERE** - that is below 19.5% oxygen content is;
   a. Immediately dangerous to life and health requires a self-contained breathing apparatus with a 30 minute service life rating, or a combination full facepiece pressure demand supplied-air respirator with an auxiliary self-contained air supply.
   b. Not immediately dangerous to life and health requires a self-contained breathing apparatus with a 30 minute service life rating or any atmosphere-supplying respirator.

2. **GAS AND VAPOR CONTAMINANTS** that are;
   a. Immediately dangerous to life and health requires a self-contained breathing apparatus with a 30 minute service life rating, or a combination full facepiece pressure demand supplied-air respirator with an auxiliary self-contained air supply.
   b. Not immediately dangerous to life and health requires any atmosphere-supplying respirator, or an air-purifying respirator equipped with the appropriate cartridges/filters.

3. **PARTICULATE CONTAMINANTS**;
   a. Require an atmosphere-supplying respirator; or
   b. An air-purifying respirator equipped with a filter approved by NIOSH.

4. **GASEOUS AND PARTICULATE CONTAMINANTS** that are;
   a. Immediately dangerous to life and health requires a self-contained breathing apparatus with a 30 minute service life rating, or a combination full facepiece pressure demand supplied-air respirator
with an auxiliary self-contained air supply.

b. Not immediately dangerous to life and health requires any atmosphere-supplying respirator, or an air-purifying respirator equipped with the appropriate cartridges/filters.

5. ESCAPE FROM CONTAMINATED ATMOSPHERE which may be;

a. Immediately dangerous to life or health requires a self-contained breathing apparatus with a 30 minute service life rating, or air-purifying respirators equipped with the appropriate cartridges/filters, or a combination full facepiece pressure demand respirator with escape self-contained breathing apparatus.

Examples include but are not limited to;

- Bite-type respirator for emergency egress, with the appropriate cartridge.
- Half face mask for emergency egress with appropriate cartridges.
- Positive pressure supplied-air respirator.
- Scott escape system (SCBA)

6. CARTRIDGE/FILTER LIFE.

a. The maximum use for any cartridge/filter used by The Company will be 12 hours. Cartridge/Filter life may be less than 12 hours depending on work-site conditions.

7. All outside standby persons, maintaining communication, proper training and equipment, notification procedures, and necessary action. Mandatory equipment must include SCBA or SAR with auxiliary air supply & appropriate retrieval equipment or equivalent rescue means.

B. If the Construction Manager/Salesman/Coordinator is uncertain of the proper respirator, they will contact the Safety Department for confirmation.

IV. Air Quality:

A. Breathable air must meet at least the minimum requirements for Grade D breathable air described in the Compressed Gas Association (CGA) Commodity Specifications G7.1-1989.

B. Breathable air may be supplied to respirators from cylinders or air compressors.
C. Cylinders of breathable air must be clearly marked and have a certificate of analysis from the supplier stating that the breathing air meets the requirements for grade D breathing air.

D. Compressors for supplying air must be equipped with the necessary safety devices and alarms in conjunction with an MST air-purification unit. A tag shall be maintained at the compressor containing the most recent filter change date of the compressor, and the signature of the person authorized by The Company to perform the change.

E. All breathing air couplings must be incompatible with all outlets for non-respirable work-site air, or other gas systems.

NOTE: UNDER NO CIRCUMSTANCES WILL PLANT PROCESS SUPPLIED AIR BE USED AS BREATHABLE AIR.

V. Training:

A. Job Superintendents:

Are responsible for the training of personnel in the proper selection and use of the respiratory equipment, its limitations and maintenance, prior to first using any respirator. This will be monitored by the safety department to ensure compliance.

1. TRAINING will include the following:

   • The nature of the respiratory hazard; i.e., chlorine, sulfur dioxide, carbon monoxide, etc. and what may happen if the respirator is not used properly.
   • Engineering and administrative controls being used and the need for the respirator to provide additional protection.
   • Reason(s) for selection of a particular type of respirator.
   • Limitations and capabilities of the selected respirator.
   • Method of donning the respirator and checking its fit, and operation.
   • How to audit the respirator.
   • Proper wearing of the respirator.
   • Recognizing an emergency situation and knowing the proper method for handling that emergency situation.
   • Maintenance, storage, and troubleshooting procedures.
   • Employees must leave the area to wash, change cartridges, or if they
detect break-through or resistance.

- This will be conducted by a competent person per job and annually.

2. RETRAINING:

Retraining will be conducted when any situation arises in which retraining appears necessary to ensure safe respirator use.

3. FIT TESTING:

Before beginning fit test procedures, the above listed training requirements MUST be performed. While respirators are designed for maximum efficiency, they will not protect the wearer if a tight seal is not made between the face piece and the skin of the wearer. Beards and other facial hair will substantially reduce the effectiveness of the respirator. The absence of dentures will seriously affect the fit of the face piece. Individuals required to wear respirators will arrive for work each day clean shaven, no exceptions will be authorized.

To assure protection from a face piece, it must be checked by performing a negative-pressure and positive-pressure test by the wearer each time it is put on.

This can be done by placing your hands over the cartridge(s)/filter(s) and try inhaling. If the fit is correct, the face piece will collapse in toward the face and stay collapsed until the wearer exhales, approximately 10 seconds. This test is known as a Negative-Pressure Test.

After a successful negative-pressure test, you must then block the exhalation valve using light pressure to close it off. Exhale gently. If the mask is sealed, a slight positive-pressure is built up in the mask and air should not be felt escaping from around the seal against the face. This is called a Positive-Pressure Test.

Once you have passed the negative pressure and positive pressure fit tests, refer to Appendix C for the irritant smoke fit test protocols, and complete the required 8 tests.

Corrective glasses must be removed before putting on a full face piece respirator. Individuals requiring corrective lenses must have their prescription placed into a special frame provided by the COMPANY. Their optometrist will then fit their lenses into the special frame, which
will be secured in the interior of the face piece with a special mounting bracket.

Contact lenses shall not be worn at any time, in any full face respirator.

Wearing of contact lenses or corrective glasses will not affect the wearing of a half mask, although the eyes will be affected by the gases, fumes and contaminants in the air.

VI. Medical Examinations:

A. All Persons who have the potential to use a respirator **MUST** complete The Company’s Respirator Medical Evaluation Questionnaire prior to wearing any respirator. (See Appendix D)

B. Persons assigned to tasks that require the use of a respirator must be physically able to perform the work while wearing a respirator. To ensure this, a Pulmonary Function Test will be conducted by a licensed physician prior to wearing the mask in a work environment.

C. Personnel with respiratory or other medical problems should see a doctor periodically and have their condition reviewed. All pulmonary function tests must be renewed annually, or more often if the worker has any difficulty breathing, dizziness, shortness of breath, or other serious symptom of breathing difficulties.

D. All testing will be documented and the original documents forwarded to the Watertown Safety Office to be recorded and kept on file.

E. Must be confidential, during normal working hours, convenient, understandable, and the employee given a chance to discuss the results with the PLHCP?

F. Employees will be asked how the respirator devices fit and work. Their input will be used to evaluate the program and selection of different respirators.

VII. Purchasing Department:

A. The Purchasing Department is responsible for ensuring that all respiratory protective devices are jointly approved by Mine Safety and Health Administration and the National Institute of Occupational Safety and Health for the contamination or situation to which the employee may be exposed.
VIII. Warehouse/Shop Complex:

A. Warehouse/Shop personnel are responsible for checking for the wear and deterioration of the components before and after each shipment. Self-contained breathing systems must be checked thoroughly and cylinders charged according to the manufacturers instructions, a certificate of analysis must be attached to all recharged bottles. Regulator and warning devices must be checked to see they function properly. A respirator which has been used must be cleaned and disinfected before it is re-issued.

1. Procedures for Cleaning Respirators:

a. Remove filters, cartridges, or canisters. Disassemble facepieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.

b. Wash components in warm (43° C [110° F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.

c. Rinse components thoroughly in clean, warm (43° C [110° F] maximum), preferably running water. Drain.

d. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:

   i. Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43° C (110° F); or

   ii. Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 43° C (110° F); or

   iii. Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.

e. Rinse components thoroughly in clean, warm (43° C [110° F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
f. Components should be hand-dried with a clean lint-free cloth or air-dried.
g. Reassemble facepiece, replacing filters, cartridges, and canisters where necessary.
h. Test the respirator to ensure that all components work properly.

B. Respirators must be stored to protect them against dust, sunlight, heat, extreme cold, excessive moisture and damaging chemicals.

1. Respirators should be stored so the face plate and exhalation valves rest in a normal position to prevent the rubber or plastic from reforming in an abnormal shape. They should also be protected from mechanical damage.

IV. Documentation/Record Keeping:

A. A record of respirator reviews will be kept using Form SFT-W-27 (see Appendix A). A copy of this form will be sent from the division warehouse/shop to the Safety Department each time maintenance/investigations are done on respiratory equipment. These records will be kept on file for three (3) years.

B. Fit test records, training records, and medical review questionnaires MUST be completed on all persons who have the potential to wear any respirator. Except for the medical review questionnaires, these records will be maintained on the job site, and forwarded to the Safety Department upon completion of the job. These records will be maintained in the Safety Department in accordance with applicable regulations.

C. Medical Review Questionnaires will be placed in envelopes marked confidential and mailed to the Corporate Office - Attention Safety Department or mailed to a local licensed physician. The Safety Department will coordinate with a local licensed physician to receive and review the medical review questionnaires.

D. All records will be kept in the job file. Post completion of a project all files will be sent to Watertown and kept in the Communications Department. *the job files are kept for 30 years*
APPENDIX A

RESPIRATOR REVIEW REPORT

<table>
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SFT
-W-27-3/98
APPENDIX C

IRRITANT SMOKE FIT TEST PROTOCOLS

I. Irritant Smoke Fit Test Procedure:

A. The person being fit tested shall don the respirator without assistance, and perform the required user seal check(s).

B. The test subject shall be instructed to keep his/her eyes closed.

C. The test operator shall direct the stream of irritant smoke from the smoke tube toward the face seal area of the test subject, using the low flow pump or the squeeze bulb. The test operator shall begin at least 12 inches from the facepiece and move the smoke stream around the whole perimeter of the mask. The operator shall gradually make two more passes around the perimeter of the mask, moving to within six inches of the respirator.

D. If the person being tested has not had an involuntary response and/or detected the irritant smoke, proceed with the test exercises.

E. The exercises identified below shall be performed by the test subject while the respirator seal is being continually challenged by the smoke, directed around the perimeter of the respirator at a distance of six inches.

1. Normal breathing: In a normal standing position, without talking, the subject shall breathe normally for 1 minute. After the normal breathing exercise, the subject needs to hold head straight ahead and hold his or her breath for 10 seconds during the test measurement.

2. Deep breathing: In a normal standing position, the subject shall breathe slowly and deeply for 1 minute, being careful not to hyperventilate. After the deep breathing exercise, the subject shall hold his or her head straight ahead and hold his or her breath for 10 seconds during test measurement.

3. Turning head side to side: Standing in place, the subject shall slowly turn his or her head from side to side between the extreme positions on each side for 1 minute. The head shall be held at each extreme momentarily so the subject can inhale at each side. After the turning head side to side exercise, the subject needs to hold head full left and hold his or her breath for 10 seconds during test measurement. Next, the subject needs to hold
head full right and hold his or her breath for 10 seconds during test measurement.

4. Moving head up and down: Standing in place, the subject shall slowly move his or her head up and down for 1 minute. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling). After the moving head up and down exercise, the subject shall hold his or her head full up and hold his or her breath for 10 seconds during test measurement. Next, the subject shall hold his or her head full down and hold his or her breath for 10 seconds during test measurement.

5. Talking: The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepare text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song for 1 minute. After the talking exercise, the subject shall hold his or her head straight ahead and hold his or her breath for 10 seconds during the test measurement.

6. Grimace: The test subject shall grimace by smiling or frowning for 15 seconds.

7. Bending Over: The test subject shall bend at the waist as if he or she were to touch his or her toes for 1 minute. After the bending over exercise, the subject shall hold his or her head straight ahead and hold his or her breath for 10 seconds during the test measurement.

8. Normal Breathing. The test subject shall remove and re-don the respirator within a one-minute period. Then, in a normal standing position, without talking, the subject shall breathe normally for 1 minute. After the normal breathing exercise, the subject shall hold his or her head straight ahead and hold his or her breath for 10 seconds during the test measurement. After the test exercises, the test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of a respirator shall be tried.

F. If the person being fit tested reports detecting the irritant smoke at any time, the test is failed. The person being retested must repeat the entire sensitivity check and fit test procedure.

G. Each test subject passing the irritant smoke test without evidence of a response (involuntary cough, irritation) shall be given a second sensitivity screening check,
with the smoke from the same smoke tube used during the fit test, once the respirator has been removed, to determine whether he/she still reacts to the smoke. Failure to evoke a response shall void the fit test.

H. If a response is produced during this second sensitivity check, then the fit test is passed.
APPENDIX D

RESPIRATOR MEDICAL EVALUATION QUESTIONNAIRE

TODAY’S DATE: ______________________

PART A

{Employee Information}

<table>
<thead>
<tr>
<th>NAME: Last</th>
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<th>Middle</th>
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<td><strong>AGE:</strong></td>
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<tr>
<td>CITY:</td>
<td><strong>SEX:</strong></td>
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<td>STATE:</td>
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<td><strong>SEX:</strong></td>
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<td><strong>AGE:</strong></td>
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<tr>
<th>PHONE NUMBER:</th>
<th>BEST TIME TO CALL:</th>
<th>JOB TITLE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area Code: {</td>
<td>_______ AM / PM</td>
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</table>

1. Has your employer told you how to contact the health care professional who will review this questionnaire? [ ] [ ] [ ]

2. Have you worn a respirator before? [ ] [ ] [ ]
   If “yes” what type(s) ____________________________________________________________
   ___________________________________________________________________________

3. Check the type of respirator you will use (check all that apply).
   A. _____ N, R, or P disposable respirators (filter-mask, non-cartridge type only).
   B. _____ Other Type(s): (example: half or full-face piece type, PAPR, supplied-air, or SCBA)

PART B

{Employee Medical Information}

Answer questions 4 thru 13 by placing a (✓) check mark in the appropriate box. Yes No

4. Do you currently smoke tobacco, or have you smoked tobacco in the last month? ☐ ☐

5. Have you ever had any of the following conditions?
   A. Seizures (fits): ☐ ☐
   B. Diabetes (sugar disease): ☐ ☐
   C. Allergic reactions that interfere with your breathing: ☐ ☐
### STEBBINS ENGINEERING SAFETY MANUAL

**SECTION V**

**Item 2**

<table>
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<tr>
<th></th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>D. Claustrophobia (fear of closed-in places):</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>E. Trouble smelling odors:</td>
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</table>

If “yes” please explain: ________________________________

6. Have you ever had any of the following pulmonary or lung problems?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>A. Asbestosis:</td>
<td>☐</td>
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<tr>
<td>B. Asthma:</td>
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<tr>
<td>C. Chronic Bronchitis:</td>
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<tr>
<td>D. Emphysema:</td>
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<tr>
<td>E. Pneumonia:</td>
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<tr>
<td>F. Tuberculosis:</td>
<td>☐</td>
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<tr>
<td>G. Silicosis:</td>
<td>☐</td>
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<tr>
<td>H. Pneumothorax (collapsed lung):</td>
<td>☐</td>
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<tr>
<td>I. Lung cancer:</td>
<td>☐</td>
</tr>
<tr>
<td>J. Broken Ribs:</td>
<td>☐</td>
</tr>
<tr>
<td>K. Any chest injuries or surgeries:</td>
<td>☐</td>
</tr>
<tr>
<td>L. Any other lung problem that you’ve been told about:</td>
<td>☐</td>
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</tbody>
</table>

If “yes” please explain: ________________________________

7. Do you currently have any of the following symptoms of pulmonary or lung illness?

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>A. Shortness of breath:</td>
<td>☐</td>
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<tr>
<td>B. Shortness of breath when walking fast on level ground or walking up a slight hill or incline:</td>
<td>☐</td>
</tr>
<tr>
<td>C. Shortness of breath when walking with other people at an ordinary pace on level ground:</td>
<td>☐</td>
</tr>
<tr>
<td>D. Have to stop for breath when walking at your own pace on level ground:</td>
<td>☐</td>
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<tr>
<td>E. Shortness of breath when washing or dressing yourself:</td>
<td>☐</td>
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<tr>
<td>F. Shortness of breath that interferes with your job:</td>
<td>☐</td>
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<tr>
<td>G. Coughing that produces phlegm (thick sputum):</td>
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<tr>
<td>H. Coughing that wakes you early in the morning:</td>
<td>☐</td>
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<tr>
<td>I. Coughing that occurs mostly when you are lying down:</td>
<td>☐</td>
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<tr>
<td>J. Coughing up blood in the last month:</td>
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<tr>
<td>K. Wheezing:</td>
<td>☐</td>
</tr>
<tr>
<td>L. Wheezing that interferes with your job:</td>
<td>☐</td>
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<tr>
<td>M. Chest pain when you breathe deeply:</td>
<td>☐</td>
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<tr>
<td>N. Any other symptoms that you think may be related to lung problems:</td>
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</table>

If “yes” please explain: ________________________________
8. Have you ever had any of the following cardiovascular or heart problems?
   A. Heart Attack: ☐ ☐
   B. Stroke: ☐ ☐
   C. Angina: ☐ ☐
   D. Heart Failure: ☐ ☐
   E. Swelling in your legs or feet (not caused by walking): ☐ ☐
   A. Heart arrhythmia (heart beating irregularly): ☐ ☐
   B. High blood pressure: ☐ ☐
   F. Any other heart problem that you’ve been told about: ☐ ☐
   If “yes” please explain: _______________________________________________________

9. Have you ever had any of the following cardiovascular or heart symptoms?
   A. Frequent pain or tightness in your chest: ☐ ☐
   B. Pain or tightness in your chest during physical activity: ☐ ☐
   C. Pain or tightness in your chest that interferes with your job: ☐ ☐
   D. In the past two years, have you noticed your heart skipping or missing a beat: ☐ ☐
   E. Heartburn or indigestion that is not related to eating: ☐ ☐
   F. Any other symptoms that you think may be related to heart or circulation problems: ☐ ☐
   If “yes” please explain: _______________________________________________________

10. Do you currently take medication for any of the following problems?
    A. Breathing or lung problems: ☐ ☐
    B. Heart Trouble: ☐ ☐
    C. Blood Pressure: ☐ ☐
    D. Seizures (fits): ☐ ☐
    If “yes” please explain: _______________________________________________________

11. If you’ve used a respirator, have you ever had any of the following problems?
    A. Eye irritation: ☐ ☐
    B. Skin allergies or rashes: ☐ ☐
    C. Anxiety: ☐ ☐
    D. General weakness or fatigue: ☐ ☐
    E. Any other problem that interferes with your use of a respirator: ☐ ☐
    If “yes” please explain: _______________________________________________________
12. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire: □ □

13. Have you ever worked with any of the materials, or under any of the conditions, listed below:

A. Asbestos: □ □
B. Silica (e.g., in sandblasting): □ □
C. Tungsten / cobalt (e.g., grinding or welding this material): □ □
D. Beryllium: □ □
E. Coal (e.g., mining): □ □
F. Iron: □ □
G. Aluminum: □ □
H. Tin: □ □
I. Dusty environments: □ □
J. Any other hazardous exposures: □ □

If “yes” please explain: __________________________________________________________

14. 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: If “yes” please list: ______________________________________________________

15. How often are you expected to use the respirator(s), answer all that apply?
A. Escape only (no rescue): □ □
B. Emergency rescue only: □ □
C. Less than 5 hours per week: □ □
D. Less than 2 hours per day: □ □
E. 2 to 4 hours per day: □ □
F. Over 4 hours per day: □ □

16. Describe the work you’ll be doing while you’re using your respirator(s): ______________

______________________________________________________________________________

______________________________________________________________________________
17. Will you be wearing protective clothing and/or equipment when you are using your respirator: □ □
   If “yes” please list: ____________________________________________________________
   __________________________________________________________________________

PART C
{For Employees wearing Full-face piece Respirators}

The following part must be answered by every employee who has been selected to use either a full-face piece 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.

Answer questions 18 thru 23 by placing a (✓) check mark in the appropriate box.

18. Have you ever lost vision in either eye (temporarily or permanently)? □ □
   If “yes” please explain: _______________________________________________________

19. Do you currently have any of the following vision problems?
   A. Wear contact lenses: □ □
   B. Wear glasses: □ □
   C. Color blind: □ □
   D. Any other eye or vision problem: □ □
   If “yes” please explain: _______________________________________________________

20. Have you ever had an injury to your ears, including a broken ear drum? □ □
    If “yes” please explain: _______________________________________________________

21. Do you currently have any of the following hearing problems?
    A. Difficulty hearing: □ □
    B. Wear a hearing aid: □ □
    C. Any other hearing or ear problem: □ □
    If “yes” please explain: _______________________________________________________

22. Have you ever had a back injury: □ □
    If “yes” please explain: _______________________________________________________
23. Do you currently have any of the following musculoskeletal problems?

A. Weakness in any of your arms, hands, legs, or feet: [ ] [ ]
B. Back Pain: [ ] [ ]
C. Difficultly fully moving your arms and legs: [ ] [ ]
D. Pain or stiffness when you lean forward or backward at the waist: [ ] [ ]
E. Difficultly fully moving your head up or down: [ ] [ ]
F. Difficultly fully moving your head side to side: [ ] [ ]
G. Difficultly bending at your knees: [ ] [ ]
H. Difficultly squatting to the ground: [ ] [ ]
I. Climbing a flight of stairs or a ladder carrying more than 25 lbs.: [ ] [ ]
J. Any other muscle or skeletal problem that interferes with using a respirator: [ ] [ ]

If “yes” please explain: _______________________________________________________

SFT-W-49-3/99
MODEL RP050BMST
RESPIRATORY PROTECTOR R
MANUAL

**************************WARNING: Do not attempt to operate this equipment without first reading and understanding the manual enclosed with this device. Suitability for use of this device lies solely with the user.**************************
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<td>PERFORMANCE CURVES</td>
<td>14</td>
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<td>PART LIST</td>
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### SPECIFICATIONS

**RESPIRATORY PROTECTOR**<sup>R</sup>  
**MODEL RP050BMST**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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<tbody>
<tr>
<td><strong>INLET PRESSURE (MAX.)</strong></td>
<td>150 PSIG STATIC (10.4 bar)</td>
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<tr>
<td><strong>RATED AIR FLOW (MAX.)</strong></td>
<td>50 SCFM (23.6 L/s)</td>
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<tr>
<td><strong>OPERATING PRESSURE</strong></td>
<td>100 PSIG DYNAMIC (6.9 bar)</td>
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<td><strong>OUTLET PRESSURE RANGE</strong></td>
<td>0-125 PSIG (0-8.6 bar)</td>
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<td><strong>OPERATING RELATIVE HUMIDITY</strong> (INLET AIR)</td>
<td>30-100% RH</td>
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<tr>
<td><strong>OPERATING TEMPERATURE RANGE</strong> (INLET AIR)</td>
<td>68-150°F (20-65°C)</td>
</tr>
<tr>
<td><strong>INLET CARBON MONOXIDE CONCENTRATION</strong> (MAX.)</td>
<td>40 PPM (VOLUME)*</td>
</tr>
<tr>
<td><strong>OUTSIDE DIMENSIONS</strong></td>
<td>23.25&quot;L x 20.75&quot;W x 9&quot;D</td>
</tr>
<tr>
<td></td>
<td>(590mm x 527mm x 229mm)</td>
</tr>
<tr>
<td><strong>WEIGHT (INCLUDING MONITOR)</strong></td>
<td>31 LBS. (14.1 kg.)</td>
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<tr>
<td><strong>REPLACEMENT FILTER SET</strong></td>
<td>FX050</td>
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</table>

*Based on maximum flow conditions (50 SCFM) for 40 hours minimum continuous performance.*
GENERAL SAFETY WARNINGS

WARNING: The MST RESPIRATORY PROTECTOR MODELS:

1) SHOULD NOT be used when the air entering the filtering system is oxygen deficient. The MST Respiratory Protector will not increase the oxygen content of the air.

2) SHOULD NOT be used in an Immediately Dangerous to Life and Health Atmosphere (IDLH) unless it is used in conjunction with a Back-Up Escape system or a supplied air Self-Contained Breathing Apparatus (SCBA), where applicable.

3) CARBON MONOXIDE MONITOR will alarm if Carbon Monoxide levels exceed requirements for Grade "D" Breathing Air set fourth by OSHA/CSA. If alarm should sound, remove respirator or activate SCBA and immediately move to safe breathable atmosphere. Have the proper qualified personnel examine the equipment and make the appropriate corrections before using again.

4) SHOULD NOT have air inlet pressure greater than 150 PSIG static (10.4bar). Personal injury could result.

5) SHOULD NOT have air outlet pressure that exceeds Manufacturers’ Respirator/Hose Assembly pressure requirements. Personal injury could result.

The MST Respiratory Protector is a Four Stage Purification System designed to remove or reduce select contaminants including Carbon Monoxide that is found in compressed air lines while monitoring for carbon monoxide through the MST Monitor. The Respiratory Protector can be connected directly to shop air from a standard compressed air source to help provide breathing quality air to face masks, helmets, hoods and other supplied air breathing apparatus.
GENERAL FILTER SYSTEM DESCRIPTION
(Refer to Figure No.1)

Air entering the MST Respiratory Protector at the inlet (A) is usually contaminated with oil, water, dirt, rust, scale, gaseous Hydrocarbons and often deadly Carbon Monoxide. As the air passes through the First Stage (B) of the MST Prefilter, particulate matter is trapped and retained down to 0.3 microns. The air then enters the Second Stage (C) of the Prefilter which coalesces liquid contaminants down to 0.75 microns with an efficiency rating of 99.97% (meets Underwriters Laboratories Specification UL 586 for High Efficiency, Particulate, Air Filter Units). The liquid contaminants are trapped in the lower chamber of the prefiler and expelled out through the Automatic Float Drain (D). The Third Stage (E) contains a deep bed of odor absorbing activated charcoal which collects various gaseous Hydrocarbons (such as oil vapors, benzene, etc.). The Fourth Stage (F) contains a low temperature catalyst which converts Carbon Monoxide gas into Carbon Dioxide. The unique catalyst also converts or absorbs ozone, Nitric Oxide, Sulfur Dioxide, Nitrogen Dioxide, Hydrogen Sulfide, Ammonia, Acetaldehyde, Methyl Chloride, Methyl Ethyl Ketone, Acetone and Methyl Alcohol. The air then passes through a one (1) micron filter disc (G) before entering the Regulator (H), which is used to adjust the air pressure going to the respirator. A sample of the filtered air is taken at (I) and passed through the Carbon Monoxide Monitor (J). The Carbon Monoxide Monitor continuously checks the carbon monoxide levels per OSHA/CSA requirements and digitally displays the amount present in PPM, (parts per million). An audio and visual alarm will alert operators if levels of carbon monoxide exceed OSHA/CSA requirements.
GENERAL OPERATIONS

******************************************************************************WARNING: The MST Respiratory Protector should not:
1) be used when the air entering MST's Unit is oxygen deficient. MST's Unit will not increase the oxygen content of the oxygen deficient air.
2) be used in an "Immediately Dangerous to Life and Health" atmosphere, (IDLH), unless it is used in conjunction with a back-up escape system or a supplied air self-contained breathing apparatus, (SCBA), where applicable.
******************************************************************************

MST, Inc. strongly recommends that a complete safety program be instated to ensure that the respiratory air is in compliance with all OSHA/CSA standards and other applicable laws regulating the use of supplied air respiratory systems. MST, Inc. recommends that the air quality be tested upon installation and periodically re-tested to ensure that the minimum requirements for breathing air are maintained.
MST, Inc. will not assume any liability for accidents or personal injury resulting from the improper use of this equipment. Service on this equipment should only be performed by qualified personnel. This system is to be used only by trained qualified personnel in accordance with a respiratory program as outlined in OSHA Regulation 29 CFR 1910.134(b).

**CUSTOMER AIR SUPPLY** (Refer To Figure No. 2)

1) **SUPPLIED AIR LINE** - Use minimum 3/8" I.D. hose or pipe to MST Unit.

2) **SUPPLIED AIR LINE PRESSURE** - Maximum air pressure at MST Unit’s inlet should not exceed 150 PSIG. As a Safety Back-Up, all MST Units incorporate a pressure relief valve rated at 150 PSIG.

3) **SUPPLIED INLET AIR TEMPERATURE RANGE** - 68 to 150°F (20-65°C).

4) **SUPPLIED AIR CONDITIONING** - May be required ahead of MST’s Unit to control:
   a) Inlet air temperature.
   b) Large Volumes of oil/water from entering MST Unit. A coarse oil/water extractor, (rated at 2-microns abs.), may be required if excessive oil/water conditions are present. Installation of the extractor should be located as close to MST Unit’s inlet hook-up as possible. MST, Inc. has coarse oil/water extractors available as an option.

5) **AVOID INSTALLING MST UNIT AFTER DESICCANT DRYER** - The Desiccant Dryer will produce extremely dry air, (4% R.H. or less), and MST’s fourth stage catalyst requires 30-90% R.H. in the supplied air for the catalyst to work and remove Carbon Monoxide efficiently. The extremely dry air produced by a Desiccant Dryer will also cause worker discomfort, i.e. dry throat, etc.

**MST RESPIRATORY PROTECTOR INITIAL INSTALLATION AND START-UP** (Refer To Figure No. 2)

1) **INSTALL AIR FITTINGS SUPPLIED WITH MST UNIT** - Industrial Interchange air fittings supplied standard with unit, Schrader Quick-Disconnect fittings available as option.

2) **NEW FILTER SYSTEM CONDITIONING** - Flow supplied air through new filter sets for several minutes to condition.

3) **POWER MONITOR/CALIBRATE** - Install the (2) 9-volt batteries and/or optional power source to the MST monitor and switch monitor on for minimum (5) minute warm-up. After warm-up period, check monitor’s circuits/audible-visual alarm system by pressing “Off/On/Test” switch up and hold. If monitor OK, the following will occur:
   a) Red/Amber LED - will come on steady
   b) Green LED - will blink
c) Audible alarm will sound and the remote alarm jack will be energized. Monitor’s calibration should be checked now. Refer to MST MONITOR MANUAL.

4) CALIBRATION GAS REQUIREMENTS - Zero Gas: Nitrogen, free of "CO". Span Gas: 50 to 150 PPM of "CO" concentration in air. Calibration gas flow to monitor should be 1.0 SCFH (472 cc/minute).

5) RESPIRATOR/HOOD/HOSE ASSEMBLY HOOK-UP - Couple hose assemblies to MST Unit’s outlet using appropriate fittings. Consult Manufacturer’s respirator manual for the proper air pressure requirements. The air should be dynamically flowing through respirator/hose assemblies when the air pressure is set. DO NOT EXCEED RESPIRATOR/HOSE ASSEMBLY MANUFACTURER’S REQUIREMENTS FOR OUTLET PRESSURE. PERSONAL INJURY COULD RESULT.

6) EXTREME TEMPERATURE CHANGES - Avoid; MST monitor best performs at a temperature range of 32-104°F (0-40°C). Always calibrate monitor after it has stabilized in the surrounding temperature where system is to be used.
MST RESPIRATORY PROTECTOR
GENERAL OPERATION AND MAINTENANCE

1) MST MONITOR - Utilizes an electrochemical sensor to measure the carbon monoxide content of the respirable air. If a problem has developed in the system, the monitor will alarm due to one or more of the following conditions:
   a) Monitor is out of calibration. The monitor should be calibrated monthly if used continuously and prior to use if used on a non-continuous basis. Calibrate monitor as outlined in the MST MONITOR MANUAL.
   b) If the monitor can be and is calibrated, but the alarm still sounds, the filter cartridge life is exhausted. Replace all three (3) filter cartridges as outlined in the FILTER REPLACEMENT INSTRUCTIONS, page 9.
   c) If the monitor cannot be calibrated, the carbon monoxide sensor may require replacement. See MST MONITOR MANUAL for replacement instructions and other troubleshooting information. The MST MONITOR has one (1) year warranty. All warranty work must be performed at the factory.
   d) If the monitor was calibrated in a surrounding temperature other than where the system was being used and the temperature difference was 36°F (20°C) or greater, the monitor may give a false alarm due to its characteristics. Always calibrate the monitor in the temperature conditions where the monitor is to be used in. Monitor best performs at temperature range of 32 to 104°F (0 to 40°C).

2) MST MONITOR - Alarms should be checked prior to use.

3) MST MONITOR - Power supply is (2) 9-volt transistor - type batteries, (unless optional power supply used). The batteries will power the monitor continuously for approximately (30-35) hours. When the batteries output fall below (7.3) volts, the Amber LED "Low Battery" light will come on, indicating the batteries require replacement. When installing the new batteries into the battery holders, review polarity position marked inside holders and install batteries accordingly.

4) MST MONITOR - Flow of the air sample to monitor should be checked periodically to ensure sample valve is not clogged. This situation normally occurs when customers' supplied air has excessive liquids in it and the filters in the MST unit are not routinely changed. To quickly check the sample valve/air flow, dead head and pressurize MST unit first. Remove sample tube from monitor's inlet and submerge sample tube end in a small glass of water. Now set pressure at MST unit's regulator to (80-100) PSIG. If there is a steady stream of air bubbles coming from end of sample tube, sample valve is OK. If no bubbles appear, the needle valve needs to be replaced or sent back to factory for evaluation.

5) MST RESPIRATORY PROTECTOR® SYSTEM - Filters should be replaced monthly unless the air quality conditions warrant more or less frequent replacement. Replace all (3) filter cartridges if:
   a) The "CO" monitor alarms (fourth stage catalyst is used up).
   b) The operator detects a petroleum smell and/or taste in his purified air (third stage charcoal is used up).
NOTE: If the supplied air entering MST's unit has high volumes of liquids in it, the filter set life may be greatly reduced. See CUSTOMER AIR SUPPLY, page 6, for corrective measures to take.

6) MST RESPIRATORY PROTECTOR® SYSTEM - New filter set:
   a) Has no shelf life, but should be stored in a cool/dry storage area.
   b) When first installed in MST's unit the filters should be conditioned by flowing the customer's supplied air through system for several minutes.

NOTE: If MST's unit is not to be used for an extended period of time, before storing, check 3rd and 4th stage filters for presence of liquid/moisture. If moisture present, dry system and replace all filters. Also, if moisture present, consider changing filter set more frequently and/or installing MST's OPTIONAL PREFILTER prior to MST's system hook-up.
FILTER SET
SERVICE INSTRUCTIONS
(Refer To Figure No. 3)

******************************************************************************WARNING: Always turn off air supply and bleed air pressure before disassembling unit or SERIOUS INJURY COULD RESULT.
******************************************************************************

MST, Inc. recommends replacing all three (3) filter cartridges after one (1) month of use unless conditions warrant more or less frequent replacement. To replace the filter cartridges in the RESPIRATORY PROTECTORR follow these steps:

1) PREFILTER FIRST/SECOND DUAL STAGE ELEMENT REPLACEMENT
   a) First unlock tube locking collar and then pull Drain Tube 1 down through case. Then unscrew Prefilter Bowl Assembly 2, clean in mild soap and water and blow dry with low pressure air.
   b) Remove Dual Stage Element 3 by unscrewing End Cap Retaining Nut 4.
   c) Inspect the Prefilter Manifold 5 for dirt/contaminants and clean as required. Inspect O-Ring 6 for cuts, etc. and replace if required.
   d) Install new Dual Stage Element and Tighten End Cap Retaining Nut. Be sure Element is seated squarely on Manifold boss and End Cap.
   e) Apply light film of petroleum jelly on Bowl’s beveled edge to provide good seal between Bowl and O-Ring.
   HAND TIGHTEN ONLY:
   f) Guide Drain Tube back through hole in case bottom and lock into tube locking collar.
   g) Dispose of used Dual Stage Element according to local, state and federal regulations.

2) THIRD/FOURTH STAGE CARTRIDGE REPLACEMENT
   a) Loosen Bracket Bolt 7 from Bracket 8, (do not remove).
   b) Loosen the five Manifold Bolts 9 and remove the front two Bolts. Now slide out the Third 10 and Fourth 11 Stage Aluminum Tube Assemblies.
   c) Remove the End Cap 12 from Third Stage Aluminum Tube Assembly and slide old Third Stage Filter Cartridge 13 out of aluminum tube. Clean aluminum tube in mild soap and water, dry and install new Third Stage Filter Cartridge. Be sure the Flow Direction Arrow on Third Stage Filter Cartridge is pointing down. Remove End Sealing Label 14 and install new End Cap.
   d) Follow same procedure for the Fourth Stage Filter Cartridge 15 replacement as in step
   e) Now slide the Third and Fourth Stage Aluminum Tube Assemblies back in place and install the front two Manifold Bolts.
   f) Tighten Manifold Bolts in sequence from center outward to 100 inch-pounds (1.15 Kg-M). Repeat sequence
and re-torque bolts to 250 inch-pounds (2.88 Kg-M).
   g)  Tighten Bracket Bolt 7 against Bracket 8.
   h)  Dispose of used cartridges according to local, state and federal regulations.

3)  FINAL CHECK AND CALIBRATION
   a)  Pressurize system and check for leaks.
   b)  Flush system with compressed air for several minutes.
   c)  Calibrate Carbon Monoxide Monitor as outlined in MST MONITOR MANUAL.

RECORD KEEPING

Record all periodic air quality checks, monitor calibration date, filter cartridge change intervals and any other service performed on the MST RESPIRATORY PROTECTOR®.

MST INC. SHALL NOT BE LIABLE FOR ANY INJURY, LOSS OR DAMAGE, (DIRECT OR CONSEQUENTIAL), ARISING OUT OF THE USE OF OR THE INABILITY TO USE THIS PRODUCT, BEYOND THE REPLACEMENT OF DEFECTIVE MATERIALS OR WORKMANSHIP. USER OF SUPPLIED AIR RESPIRATORS SHOULD EVALUATE THEIR OWN PARTICULAR APPLICATION AND PERFORM THEIR OWN TESTS FOR AIR QUALITY TO DETERMINE THE SUITABILITY FOR USE OF THIS PRODUCT.

For further information, or questions about service or maintenance care of this unit, contact your local distributor or MST.
MST, INC.
SERVICE RECORD
RESPIRATORY PROTECTOR®
MODEL RP050BMST-S1/2

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### RESPIRATORY PROTECTOR<sup>R</sup>
#### MODEL RP050BMST PARTS

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<tr>
<td>2</td>
<td>80008, Black Porting Block</td>
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<td>3</td>
<td>80014, Pressure Relief Valve</td>
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<td>S608-005, Hex Nipple - 3/8&quot;</td>
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SCOTT SKA-PAK EMERGENCY ESCAPE UNIT

I. Purpose:

The Scott SKA-PAK five (5) minute self-contained air supply was originally adopted for use by the Company for use in bleach towers, digesters, and other vessels where the vessel had been removed from the process line, but adjacent vessels are still operating. It was more specifically designed for use on swing-stage scaffolding.

To augment the Scott SKA-PAK five (5) minute self-contained air supply, THE COMPANY has adopted the following system which will operate from an external air supply tied into the five (5) minute self-contained Scott system.

II. Setup for Use:

This supply will employ a 75' maximum length hose line that will provide respirable air from a compressed air tank.

An adapter capable of servicing five (5) hose lines from each tank will be attached to the regulator on the compressed air tank. If required, more than one (1) compressed air tank will be connected to ensure sufficient respirable air during emergency escape.

The compressed respirable air tank will be located outside the vessel under repair. The air hose lines will be placed in the vessel attached to the Scott SKA-PAK unit (face mask, five (5) minute compressed cylinder and shoulder harness), and secured in the working area free from mortar, dirt and other debris.

The Scott SKA-PAK is a POSITIVE-PRESSURE/DEMAND full face mask system. When the air is turned on from the compressed air tank, a constant flow of air will be present in the face piece. When the face piece is donned (fitted to the face), the airflow will subside, stopping once the face piece is securely fitted to the face. A slight positive pressure (approximately ± 2.5 inches of water pressure maximum) inside the face piece will prevent any external contaminated environment from entering the system. When the demand or inhalation of air is made, air will be released into the face piece for breathing. This system prevents the leakage of air through the face piece from the constant flow of air from the compressed air tanks.

If the valve controlling the air flow from the compressed air tanks is on and the face piece is NOT WORN, the compressed air tanks will bleed dry.

*****IT IS THE RESPONSIBILITY OF THE WORKER ON THE OUTSIDE OF
III. Operation of the System:

A. Check the units and verify that each of the five (5) minute self-contained egress cylinders on the Scott SKA-PAK are fully charged and the valves are closed.

B. Check that all threaded connections are tight.

C. Prior to donning the respirator, check to ensure that all components are assembled.
   1. Adjust the straps on the face piece harness to the full out position.
   2. Fit the face piece chin first, then pull down and control the harness on the back of the head.
   3. Adjust the bottom straps first, then the middle pair of straps. In most cases the top strap will be tight in the full out position.

D. Fit the body harness assembly as follows:
   1. Adjust the waist and shoulder straps to the full open position.
   2. Position the unit so that the five (5) minute self-contained cylinder is next to the left foot of the wearer, with the belt buckle to the front of the wearer.
   3. Raise the unit so the shoulder strap can be passed over the head and placed on the right shoulder. The five (5) minute self-contained cylinder may be supported using the left hand.
   4. Engage the waist belt buckle.
   5. Adjust the shoulder straps so the waste belt is positioned comfortably at waist level.
   6. Adjust the waist belt.

THE VESSEL TO ENSURE THAT THE VALVE CONTROLLING THE AIR FROM THE COMPRESSED TANKS IS OFF. THIS VALVE WILL ONLY BE OPENED FOR TESTING OF THE SYSTEM, OR WHEN A GAS LEAK OCCURS IN THE WORKING AREA. *****
E. As this is a combination hose line unit, connect the respirable air hose to the breaking air supply with the Hanson fitting.

F. With the Scott SKA-PAK emergency unit on and operational, you are completely safe from a contaminated environment. The next step in your escape is to **KEEP CALM**. The respirable compressed air tanks will provide a sufficient air supply for a controlled exit out of the vessel. Once out of the vessel, disconnect the compressed respirable air hose from your breathing air supply. Turn on the five (5) minute self-contained cylinder. This will allow sufficient time to exit the contaminated building.

*****IT WILL BE THE RESPONSIBILITY OF THE HOLE WATCH OUTSIDE THE VESSEL TO ENSURE A CONSTANT SUPPLY OF RESPIRABLE AIR IS AVAILABLE UNTIL ALL EMPLOYEES HAVE EXITED THE CONTAMINATED VESSEL AND ARE PROCEEDING TO A NON CONTAMINATED AREA, AND NO EMPLOYEES ARE LEFT IN THE WORKING AREA.*****
ATMOSPHERIC TESTING

I. Purpose:

The purpose of Atmospheric testing is to ensure the work environment is safe and free of atmospheric hazards. The results of testing will not only indicate the proper engineering requirements, but also assist in the choice of the proper respirator and other PPE. When atmospheric changes occur in the work environment, continuous air monitoring will be required.

II. Scope:

At all times atmospheric testing will be done to meet the minimum requirements set forth by OSHA and all other regulatory agencies that apply. The Company goal is to not have any worker exposed to any substance beyond the permissible TLV.

III. ISC MX-6.

The MX-6 series of gas monitors is one of two job site methods of Atmospheric Testing utilized by the Company. These Monitors are capable of testing for a wide variety of gasses in a variation of different configurations, however, those on hand are capable of testing for H₂S, LEL, O₂, CO, Cl₂, ClO₂, and SO₂. Any other gas that may be present must be tested with different equipment, to ensure safe working levels.

A. Upon receipt of the MX-6 unit;

1. Open the case and ensure there is the following in the case;

   a. A MX-6 pump and nylon case.
   b. Small duel use screwdriver.
   c. Battery charger.
   d. Nylon strap for the detector case.
   e. Hose, filter, and water trap pre-assembled for remote monitoring.
   f. Spare water trap.
   g. Instruction booklets for the MX-6.
   h. Grey plastic pelican shipping and storage case.

2. Turn the monitor on by holding the center button for 5 seconds.

3. The MX-6 will now perform a series of internal self tests, followed by
zeroing itself. Observe the screen to ensure all the following take place;

a. Each position of the display will show a star-shaped pattern.
b. The model number and software version will appear on the display.
c. The gas sensors in place will show on the display.
d. A countdown will take place from 9 to 0 on the display. Once the countdown reaches 0 the current gas levels are being detected and displayed.

4. Attach the hose by pressing down the button on top of the female fitting until it locks. Insert the male fitting on the hose into the female fitting until a click is heard, then gently tug the fitting to ensure it is properly locked in place.

(***NOTE*** DO NOT ever use the pump without the hose assembly complete with in-line dust filter and water trap. Failure to use these can result in the destruction of the pump and monitor.)

5. Trouble shooting these units is limited to manually zeroing the monitor, this is done by;

a. Press the small black button in the center of the button cluster twice slowly.
b. Watch the display window, it should read “ZERO” on the upper line, and the words “PRESS (E) TO START” should scroll from right to left on the lower line.
c. Press the (E) button on the top of the monitor unit. It has a picture of a small light bulb on it.
d. Observe the monitor to ensure the following happens;
   i. The back-light should come on from both left and right side.
   ii. The word “ZEROING” appears on the upper line of the display.
   iii. A number appears in the upper left corner of the screen, quickly replaced by a new number, and the words “O2 SPAN” on the bottom line.
   iv. After the oxygen span is complete, the words “GO CAL” appear on the top line, with the words “PRESS (E) TO CAL” scrolling from right to left on the bottom line. **DO NOT PRESS E!**
   v. After a few seconds, the screen returns to the four different gas readings. The instrument has now been zeroed.
e. If anything other than what has been described happens, contact the Safety Department for further instructions.

6. Turn the unit off by pressing and holding the small black button at the base of the unit until the word “HOLD” is replaced by the word “RELEASE”. Releasing the button will complete the shutdown.

B. Calibration of the MX-6 units will ONLY be conducted at the Watertown Safety Department. The calibration is valid for 30 days from the date it was performed. You will find this date on a small green tag attached to the grey case. It is also on file in the Watertown Safety Department. If the monitor is outside of the calibration window, arrangements must be made to return it and receive a new monitor. Under NO circumstances will a monitor be used past its Calibration window.

C. If there are any questions about the function of the MX-6, contact the Watertown Safety Department.

IV. Sensidyne Pumps.

A. Sensidyne pumps are simple to use and easy to read. The Sensidyne Pumps are capable of testing for over 200 different chemicals and gases as long as the appropriate tubes are available, making it one of the most versatile pieces of detection equipment available in a portable form. However, they are a one time reading device only, and are not capable of continuous monitoring. A new test should be conducted at regular intervals to ensure levels have remained constant while the employees are working. At any time it is suspected that the atmosphere has changed, another test should be performed.

B. Upon receipt, the following should be checked by the Superintendent;

1. Ensure that the pump is in proper working order and that all parts are present.

2. Ensure that the proper sampling tubes have been sent in adequate amounts for the duration of the monitoring required. Also, verify that the sampling tubes have not passed the manufacturers printed expiration date on the box. Expired tubes shall not be used for monitoring as their results are likely to be inaccurate.

VI. How and Where to Perform Atmospheric Testing:
A. Atmospheric testing will be done every 12 hours or prior to the start of each shift.

B. Testing will be done at multiple areas throughout the vessel. The first test MUST be conducted at the manway or opening to be used as an entrance. The tubing shall then be used to test further into the vessel prior to actual entry. At this point, if it has been determined to be safe, the vessel may be entered and final testing at random points and elevations throughout the vessel will be conducted.

C. The highest measurement taken is to be recorded on the entry permit, and is to be the considered level of the atmosphere present throughout the entire vessel.
EXPOSURE CONTROL PLANS

I. Purpose:

The purpose of the policy is to help reduce exposure to Silica and other airborne hazards.

II. Scope:

An Exposure Control Plan must be completed before using a product that contains Silica. Other products may contain harmful ingredients, work with the Safety Department to complete the ECP for any other products you feel need more documentation.

III. Silica.

STEBBINS uses silica in the bricks and mortars we manufacture. A significant amount of air sampling has been completed to determine our exposure in different applications. 2 tasks can exceed current OSHA regulations for silica exposure if good engineering methods are not used.

All masonry must be wet before starting any grinding or demo. The face of the masonry must remain wet for the entire operation. Water is available on all sites, if a water hose is not accessible use portable sprayers to keep the area wet.

Ventilation must be used at all times, all projects are different, exhaust or supply ventilation needs to be planned prior to starting work. Negative air machines are always available whenever necessary.

Mixing mortars must be done in an enclosed area with sufficient ventilation. The Negative Air 2000 units work well to minimize exposure. The HEPA filters in the Negative Air machines must be changed periodically, usually at the start of the project. We do not ship Negative Air Machines with the filters installed, this practice forces the Supervisor to verify the HEPA filter is good before starting.

Silica substitutes are being developed for all our products.

We do not use silica for any abrasive blasting. Non-Silica products will be used.
Exposure Control Plans have been developed for all our products that contain Silica. The Superintendent must cover the contents of the ECP with all workers prior to starting.

See form below
Stebbins Engineering will take any precautions necessary to prevent workers from exposure to Crystalline Silica. Engineering controls will be implemented. We commit to being diligent in our efforts to select the most effective control technologies available, and to ensure that the best practices, as described in this ECP, are followed at our worksites. The work procedures we establish will protect not only our workers but all workers on our worksites. PPE will be used as a last resort for protection.

The written work procedure portion of the exposure control plan is to be used only after substitution has been investigated and no suitable replacement products can be found that would reduce the risk to workers.

Product identification:

<table>
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<th>Product Name(s):</th>
<th>Supplier: Stebbins Engineering &amp; Mfg. Co Ltd.</th>
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<td>CD 3000, AR-196, AR-500 Powder</td>
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<th>Hazardous &quot;A&quot; designated ingredient</th>
<th>Other WHMIS regulated ingredients:</th>
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<tr>
<td>Crystalline Silica &gt; 90%</td>
<td>Benzoyl Peroxide, Titanium Dioxide</td>
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Hazard assessment/identification: This section details the potential acute and chronic health effects following overexposure to these ingredients. As well as summarizes other possible hazards following exposure.

Route of Entry (Check all that apply): Inhalational: ✔ Ingestional: ✗ Dermal: ✗

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<th>Acute health effects:</th>
<th>Chronic health effects:</th>
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<td>Eye &amp; lung irritation</td>
<td>Crystalline silica has been determined by the IARC that it is a confirmed human carcinogen and may cause delayed lung injury such as silicosis.</td>
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Caustic / Corrosive (Y/N): NO If yes, list pH:

Flammable (Y/N): NO If yes, list Flashpoint:
Hygienist/Safety Department Comments:

Hazard only occurs during the mixing of the silica aggregate with the resin liquids for new installations. Demo or grinding existing joints will create considerable dust, a procedure has been established to control exposure. Mixing must be done in a controlled environment and done by a properly trained employee, demo must be done with adequate ventilation and the area must remain wet to minimize exposures.

Job Identification: This section describes who may be exposed to the product and identifies how exposure may occur.

Specify where the product is to be found:

- During a grind & point or demolition job.
- During mixing of dry ingredients for acid resistant mortar.

How it will be used: Be as specific as possible, describing action done following application, etc. (ie applied by trowel with grinding after curing).

- As a mortar for laying tile or brick.

Identify people exposed (Welder, Pipefitter, Painter, Electrician, Machine Operator, other, etc.):

- Workers involved in the grinding or removal of existing linings.
- Workers who mixes the dry powder with the resin. Both Brick Mason and Mason Tenders.

Training:

All employees will receive product training in the STEBBINS pre job safety training. At that time we will cover all hazards associated with all products. If you have not received training you cannot use the product. Employees mixing the product will be subject to further training prior to starting that task. Training will be given by a qualified Company representative.
Exposure Control Options: This section details how exposure will be controlled to ensure it remains "As Low As Reasonably Achievable."

Personal Protective Equipment: Equipment that must be used to control exposure.

Gloves (Identify type): Rubber
Clothing: Tyvek disposable Coveralls
Respirator: 3M ½ Face respirator with Dual Cartridge 60926

Control Precautionary measures: To be completed by the Supervisor.
List the steps that will be undertaken to reduce exposure below or include a Job Safety Procedure or Written Work Procedure.

a) Identify hygiene facilities and decontamination procedures (when required).
b) Training: ensure all workers who must use an "A" designated ingredient have received adequate & proper instruction on the safe use of the material. Ensure they have read the exposure control plan & understood all elements. All training will be done prior to starting the project. Training is covered in Section 6 of the Safety Manual.

Steps to be undertaken to reduce exposure:

1. Workers exposed to dry ingredients while mixing must use a 3M ½ mask with dual 60926 cartridge filters.

2. Enclose mixing area and vent using negative air machine 2000 with HEPA filter. *note: Wash area with water & wash down mixing shack prior to dismantling.*

3. As much as possible, use wet grinding techniques to reduce dust during grinding.

4. Disposable coveralls to be given to the mixer person & these coveralls are to be discarded at each break.

5. Where applicable vent & duct away from all personal in the area

Health Monitoring:
Local employees will receive a pulmonary test prior to a respirator being issued.

Review and Documentation:
All Safety documents will be reviewed annually by the Vice-President of Corporate Safety and the Safety Committee. All documentation post project is to be sent to the Safety Department in Ottawa where it will be kept on file for 30 years.
By signing I have reviewed the Exposure Control Plan and I understand the hazards associated with the product and I know what engineering controls are implemented.

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HAZARD COMMUNICATION PROGRAM

I. Purpose:

To ensure that the hazards of all chemicals shipped to the job site are evaluated, and that the information concerning their hazards is relayed down to the employees. This program is being issued to conform to OSHA 29 CFR Part 1910.1200 and CFR 1925.59.

II. Scope:

This program is intended to cover those employees who are directly involved with the handling, storage, use, and disposal of hazardous materials or the supervision of those activities.

III. Responsibilities:

A brief outline of responsibilities for those persons involved will help in the overall program development. The following responsibilities are not all inclusive, but are designed to give guidance. Since each facility and job is different, these responsibilities may vary.

A. Safety Department.

The safety department will be responsible for ensuring that;

1. All management personnel are aware of the “Hazard Communication Program.”
2. An annual audit is done on the “Hazard Communication Program’s” effectiveness.
3. The training is being done and documented as prescribed by Company Policy.

B. Technical Services Department.

The Technical Services Department will be responsible for maintaining and updating material safety data sheets for Company Products.

C. Division Managers / Construction Managers / Salesmen / Coordinators.

It will be the responsibility of management to ensure that the proper information is obtained and transmitted to the appropriate employees. They are responsible
for;

1. Determining which jobs require hazard communication training.
2. Providing the Superintendent with the required MSDS for each product.
3. Ensuring all materials shipped are properly labeled.
4. Following up to ensure Superintendents are carrying out the program.
5. Ensuring all training is being documented.

D. Warehouse. (Shipping, Receiving, and Storage)

The personnel responsible for shipping, receiving and storing hazardous materials will follow established safe practices that include the following:

1. Ensuring that all labels are affixed to containers.
2. Storing hazardous materials in designated locations.
3. Using prescribed personal protective equipment when handling hazardous materials.
4. Reporting damaged containers or spills to the appropriate personnel immediately.
5. Ensuring a MSDS is included with all materials shipped out.

E. Superintendents.

Superintendents are responsible for the field training of personnel engaged in the handling, storage, use, and disposal of products containing hazardous materials. They will be responsible for ensuring that;

1. A MSDS is on the job site for every product containing a hazardous material.
2. All hazardous materials are properly labeled at all times while on the job site.
3. All employees are training in the hazard communication program.
4. A copy of all training records are maintained on the job site.
5. All required PPE is worn at all times when working with hazardous materials.

F. Employees.

Employees will be responsible for ensuring that they;

1. Obey established safety rules.
2. Use personal safety equipment as required by the Company and MSDS.
3. Inform your supervisor of:
   a. Any symptoms of overexposure due to hazardous materials.
   b. Missing labels on containers.
   c. Malfunctioning safety equipment.
4. Use approved labels on the containers.
5. Don’t use unapproved containers for hazardous materials.
6. Know the location of emergency equipment.
7. Know their role in an emergency.

IV. Labels:

Labels are designed to provide information to employees concerning the hazards of various materials. Therefore, it is important that no hazardous materials are placed in an improperly labeled container. Labels will have the following information:
   a. Identity of hazardous chemicals,
   b. appropriate hazard warnings and name & address of the chemical manufacturer,
   c. importer or other responsible party.
   d. Employer or employees shall not remove or deface labels on incoming containers of hazardous chemicals.

V. Material Safety Data Sheets:

Material Safety Data Sheets are intended to outline the special precautions and controls necessary for handling hazardous materials. Employees must know where to obtain MSDS information.

Employees must be told, as part of their hazardous material training, of the existence of, availability of, and that MSDS’s are maintained in the main office. MSDS’s for each hazardous material in the field must be maintained on the job site and easily accessible to all employees.

The MSDS will be the main tool used when conducting hazardous material training in the field.

VI. Training:

The Superintendent is responsible for conducting field training. The training of personnel in the handling, storage, use, and disposal of hazardous materials is done utilizing the “on the job” training method. Training for employees will include the following areas:

1. The Federal Hazard Communication Regulations.
- Title 29, CFR 1910.1200 and CFR 1926.59 which are the OSHA standards covering the implementation and directs the procedures in complying with the Hazard Communication regulations.

2. Review with Employees in the language of their preference.
   a. MSDS (Material Safety Data Sheets)
   b. Container labeling
   c. Location of first-aid stations
   d. Eye wash stations
   e. Use of personal safety equipment

3. The Company Hazard Communication Program

4. Provide employees and new hires at their initial assignment effective information & training on hazardous chemicals in their work area.
   a. Requirements of this program.
   b. Any operations in their work area where hazardous chemicals are present.
   c. Location of written hazard communication program, listing of hazardous chemicals present & MSDS.
   d. Methods & observations that may be used to detect the presence or release of hazardous chemicals by use of monitoring devices, visual appearance or odor.
   e. The physical & health hazards of chemicals in the work area.
   f. Protection measures to be utilized to prevent exposure, appropriate work practices, emergency procedures & proper PPE to be used.
   g. Details of the hazard communication program, explanation of the labeling system and the MSDS and where employees can obtain & use the appropriate hazard information.

5. All proper names of hazardous chemicals known to be present using an identity that is referenced on the appropriate Material Safety Data Sheet.

   This form will be completed by everybody on the job, and maintained on the job until the project has been completed. At the completion of the project, these forms will be mailed to the Watertown Safety Department.

7. All employees will be trained on the hazards in their work environment, including of non-routine tasks (i.e., the cleaning of vessels, etc.) & the hazards associated
with chemicals contained in unlabeled pipes in their work areas.

8. All other contractors in the area need to receive a copy of our exposure control plan. That will ensure that they are educated in the chemical hazards that we have and introduced in our work environment.

VII. Hydrogen Sulfide:

1. H2S is a colorless, very poisonous, flammable gas with the characteristic foul odor of rotten eggs. It often results from the bacterial break down of organic matter in the absence of oxygen, such as in swamps and sewers (anaerobic digestion). It also occurs in volcanic gases, natural gas and some well waters. It can be found where there is something decomposing. Most likely in sewers or where old stock would have been left behind. The odor is a poor warning property because it quickly deadens the sense of smell.

2. Hydrogen sulfide is slightly heavier than air; so it can be difficult to move with ventilation. It generally lingers at the bottom of tanks or vessels.

3. It will irritate the eyes at low concentrations and effects nerve centers of the brain which control breathing.

4. Personal or area monitors that alarm when PEL exceeds the preset level of 20 PPM for 1910 or 10 PPM for 1926. Evacuation to muster areas in mandatory should levels reach the PEL.

5. To enter a vessel where the H2S has risen above the PEL is strictly prohibited. An SCBA must be used in this case and can only be carried out with the written permission from the Corporate Safety Director.

6. A copy of the client’s contingency and emergency plans must be communicated to employees. Everyone must know what they need to do, where they need to go and what their roles are in the event of an emergency.

IX. Benzene:

1. Benzene is an organic chemical compound with the molecular formula C_6H_6. It is sometimes abbreviated Ph–H. Benzene is a colorless and highly flammable liquid with a sweet smell and a relatively high melting point. Because it is a known carcinogen, its use as an additive in gasoline is now limited, but it is an important industrial solvent and precursor in the production of drugs, plastics, synthetic rubber, and dyes. Benzene is a natural constituent of crude oil, and may be synthesized from
other compounds present in petroleum.

2. Benzene can be found in petroleum refining sites, tank gauging (tanks at producing, pipeline & refining operations), field maintenance.

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

4. Short term effects of overexposure may include: irritation of eyes, nose and skin, breathlessness, irritability, euphoria, headache, dizziness, or nausea. Long term effects may result in blood disorders such as leukemia and anemia.

5. Necessary PPE requirements are safety boots, gloves, sleeves, aprons, eye and face protection.

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

7. A copy of the client’s contingency and emergency plans must be communicated to employees. Everyone must know what they need to do, where they need to go and what their roles are in the event of an emergency.
STANDARD OPERATING PROCEDURE

WORKING WITH LEAD
STANDARD OPERATING PROCEDURE
WORKING WITH LEAD

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APPENDIX ‘B’ - NEGATIVE AIR (FILTER) ROOM AND MIXING ROOM LAYOUTS
APPENDIX ‘C’ - OSHA LIST OF LABORATORIES APPROVED FOR BLOOD-LEAD ANALYSIS
APPENDIX ‘D’ - STATE BLOOD-LEAD LEVEL REPORTING REQUIREMENTS
STANDARD OPERATING PROCEDURE
WORKING WITH LEAD

DESTRUCTION AND INSTALLATION OF LININGS

I. Scope:

This Procedure applies to demolition and installation of linings in all types of vessels where STEBBINS employees may be exposed to inorganic lead.

The facilities at which demolition and installation of linings is conducted vary greatly. The physical arrangement and available space at some facilities may make it impossible to comply with all parts of this Procedure, particularly the layout and construction of containment rooms, filter rooms, mixing rooms, and decontamination units. Because of this, each job is to be evaluated prior to mobilization by the Vice-President of Corporate Safety or his appointed representative. STEBBINS shall try to modify the operations and work practices in order to provide employee protection equivalent to that offered by this Procedure. The physical layout will be planned and provided to the Construction Manager / Salesman and the Field Superintendent prior to the start of the field work, and it must not be altered without the prior written approval of the Vice-President of Corporate Safety. Types of areas with lead may include, digesters, autoclaves, accumulators, pipes and painted surfaces.

II. Purpose:

This Procedure is intended to protect employees from the toxic effects of inorganic lead and to meet all applicable Federal and State regulations. No employee should be exposed to lead at concentrations greater than fifty micrograms per cubic meter of air averaged over an 8-hour period.

III. Responsibilities:

The ultimate responsibility and authority for the administration of this Procedure and the protection of employees’ health rest with the top level of management from STEBBINS. The Vice-President of Corporate Safety is directly responsible to the top management to see that this Procedure is implemented.

On the job site, the Construction Manager / Salesman and the Job Superintendent have the responsibility to ensure that this Procedure is implemented and followed on a daily basis. The Superintendent and Foreman are responsible to ensure that all employees use protective equipment properly, use proper work practices, and follow the established decontamination practices.
Each employee is responsible to follow the safety guidelines as instructed, use proper protective equipment whenever entering a controlled area, and follow the established decontamination practices. One warning will be given to everybody during the training phase. Anybody who deviates or takes short cuts from this Procedure after training is completed will be terminated from the project.

IV. Controlled Areas:

There are three main areas where employees may be exposed to lead; on demolition / installation inside the vessel, in the work area immediately adjacent to the vessel, and in the change room where dirty work clothes are kept. These areas will be contaminated with lead during the demolition and installation phases.

All employees must follow the practices and procedures whenever they enter one of these controlled areas. Appropriate protective clothing and respirators shall be worn. Proper entry, exit, and decontamination procedures shall be followed. SMOKING, EATING AND DRINKING ARE FORBIDDEN IN THE CONTROLLED AREAS.

V. Site Design:

A. Vessel Ventilation Enclosure.

The vessel will be maintained under negative pressure ventilation continuously through the demolition / installation operation. No lead-containing materials are to be disturbed in any way until the ventilation system is installed and operating. The ventilation system shall be tested with smoke tubes to ensure its effectiveness.

Negative air machines fitted with high efficiency particulate air (HEPA) filters will be used to pull air through the vessel. Enough negative air machines shall be provided so that the air volume inside the vessel is totally replaced once every 15 minutes. During demolition operations the air volume inside the vessel should be replaced every 5-7 minutes. Negative air machines shall be ducted as necessary to release exhaust air away from occupied indoor areas.

The vessel will be sealed so that fresh air can only enter through the port being used for employee entry and exit. An exception to this occurs when inserts are being worked on and/or ventilation ducts are being moved. This entry will be enclosed with an airtight containment room sealed to the surface on the vessel.
The enclosure will generally be constructed on site with lumber or other materials covered or lined with polyethylene (poly) sheeting. (See Job Instructions.)

The exhaust and fresh air makeup shall be suited so that the air flows through the entire vessel. This will generally be accomplished by placing the exhaust port(s) in the far end(s) of the work area and placing the fresh air entry as close to the center of the work area as practical. All openings located between the entry and the exhaust ports should be sealed airtight with poly sheeting, duct tape, etc. The opening through which the exhaust ducts enter shall be sealed airtight around the duct.

The various openings will be uncovered from time to time during the operations, such as when the inserts are removed, when the inserts are relined with fiberglass, when the ventilation ducts are moved around, etc. It is critical during the demolition and installation phases of the job that all openings be closed off as soon as possible. They should be closed off with poly sheeting and duct tape, or similar materials that will provide an airtight seal. **COVERING A HOLE WITH PLYWOOD, CARDBOARD, A LID WITH OPEN BOLT HOLES, OR OTHER MATERIALS THAT CANNOT BE SEALED AIRTIGHT IS NOT ACCEPTABLE.**

The layout of the enclosure will depend upon the actual work site and will vary from job to job. It may be only slightly larger than the entrance into the vessel, or it may enclose the entire work area on top of the vessel. It must be at least large enough to allow employees to remove their disposable coveralls before exiting.

If the containment room is directly over the entrance into the vessel, it will have to be removed when the insert is removed and replaced and may be left off during the non-toxic operations. However, the containment room must be replaced and sealed back onto the vessel prior to the use of lead-based materials.

**B. Filter Room.**

The primary and secondary filters on the negative air machines must be removed and replaced frequently during lead demolition / installation operations. The filters will be changed more often during demolition (dusty) operations. Since this activity may release lead dust into the air, the negative air machines must be inside an enclosure which is itself ventilated by a negative air machine. This room should be constructed as close as possible to the vessel being worked on.
The room will be constructed out of 2 x 4 lumber and poly sheeting or from similar materials. See Appendix ‘B’ for a typical filter room layout.

C. Mixing Room.

Mixing of mortar containing lead shall only be done in an airtight, ventilated room. The mixing room shall be constructed with 2 x 4 lumber and poly sheeting or from similar materials. The mixing room shall be located as close as possible to the vessel being worked on.

Local ventilation shall be provided at the point where both the measuring of powder and the mixing is done. This shall pull air from the top of the mixing containers and away from the employee conducting the work. Only the employee conducting the mixing shall be in the mixing room. THE MIXING ROOM SHALL NOT BE USED FOR ANY OTHER PURPOSE OR OPERATION.

D. Warning Signs.

The following warning signs shall be posted at every entryway into each containment room, filter room and mixing room.

**WARNING**  
LEAD WORK AREA  
POISON  
NO SMOKING OR EATING  

**WARNING**  
KEEP OUT  
AUTHORIZED  
PERSONNEL ONLY  

**DANGER**  
RESPIRATORS  
REQUIRED  
IN THIS AREA  

E. Decontamination Unit.

A 3-room decontamination (decon) unit shall be provided for employees entering and exiting the vessel. The decon unit shall consist of separate clean and dirty changing rooms and a shower room.

The decon unit can either be constructed on site or may be a permanent structure that is brought on site. Commercially available trailer units may be used.
VI. Employee Training:

Employees shall be trained in accordance with Section (1) of 29 CFR 1926.62. Every employee who may be exposed to lead in the course of their work shall receive training prior to their initial job assignment or annually. This training will have to be conducted and documented every time new employees arrive onto the job. During the training everybody will be given their one warning. All employees shall receive refresher training at the beginning of each new job.

Training shall cover the following topics:

* This Procedure and all of the work practices included in it.
* 29 CFR 1926.62 and its Appendices.
* The specific nature of the operation which could result in exposure to airborne lead.
* The purpose, proper selection, fitting, use and limitations of respirators, as described elsewhere in this Procedure and in the Company’s Respiratory Protection Program.
* A description of lead and its harmful effects, with particular attention to the adverse reproductive effects on both males and females. (This information can be taken directly from Appendices A and B of 29 CFR 1926.62)
* The purpose and a description of the medical surveillance program and the medical removal protection program.
* The engineering controls and work practices associated with the employee’s job assignment, to include such information as how to properly replace ventilation HEPA filters and ensure they have an adequate seal, how to position ventilation exhaust tubes inside the vessel, etc.
* Proper procedures for donning protective clothing and entering the controlled areas.
* Proper decontamination procedures when exiting the controlled areas.
* All training will be documented with dates of training, location, name of employee and trainer name.

VII. Respirators:

Due to the importance of respirators and the ease with which they may be misused, respirators will be provided and used in strict accordance with the OSHA Construction Industry Regulations 29 CFR 1926.62 and 29 CFR 1926.103. A full written Respiratory
Protection Program has been implemented and can be found in the Company’s Safety Manual - marked Section V, Item 2. All aspects of respirator use shall follow the Respiratory Protection Program. Respirators are worn by all affected employees at all times due to the nature of our work. No one is permitted to work in lead without a respirator regardless of the exposure.

A. Respirator Selection.

The respirator selections specified below are the minimum requirements. The Company may at any time require the use of respirators providing a greater level of protection. Any time a half-face or full-face negative pressure respirator is called for, employees may choose to use a powered air purifying respirator (PAPR). **Disposable respirators shall never be used on jobs where employees may be exposed to inorganic lead.**

During demolition operations, employees inside the vessel and in containment rooms shall use a full-face supplied air respirator operated in pressure-demand or continuous-flow mode only.

During new construction and reline installations, employees inside the vessel and in containment rooms may use a full-face powered air purifying respirator (PAPR), if available. Otherwise, a pressure demand must be worn.

During demolition / installation operations, employees working in the filter room and in the mixing room shall use a full-face supplied air respirator operated in pressure-demand or continuous flow mode only.

During clean-up and tear-down operations, employees shall use a half-face negative pressure respirator.

Employees involved in fiberglass installation and other operations involving organic solvents such as acetone or toluene, shall use a negative pressure respirator fitted with combination cartridges approved for use with dusts, mists, and fumes, as well as organic vapors. During all other operations negative pressure respirators shall be fitted with either the combination cartridge mentioned above or a HEPA cartridge approved for use with dusts, mists, and fumes. Employees making brief visits inside or on top the vessel shall also use a half-face negative pressure respirator.

B. Supplied Air Quality.
Breathing air for supplied air respirators may come from cylinders or air compressors. Supplied breathing air shall meet at least the requirements of the specification for Grade D breathing air as described in Compressed Gas Association Commodity Specification G-7.1-1966.

When a compressor is used to provided breathing air, the following guidelines shall be followed:

* Only breathing air-type compressors shall be used.
* A MST air purification unit shall be used to filter the air.
* Compressors shall be constructed and situated so as to avoid entry of contaminated air into the system, such as may be released from contaminated equipment or waste removal operations. Suitable in-line air purifying sorbet beds and filters shall be installed to further assure breathing air quality.
* Provisions shall be made for employee escape in the case of compressor failure. This can be provided through the use of backup HEPA filters on the respirators, or by providing a receiver on the compressor system with sufficient capacity to enable the respirator wearers to escape. If a receiver is used for emergency escape, alarms must also be installed to indicate compressor failure and overheating.
* If an oil-lubricated compressor is used, it shall have a high temperature or carbon monoxide alarm, or both. If only a high temperature alarm is used, the air from the compressor shall be frequently tested for carbon monoxide to ensure it meets Grade D breathing air standards.
* Air line couplings shall be incompatible with outlets for other gas systems to prevent inadvertent connection of air line respirators with non-respirable gases.

VIII. Protective Clothing & Entry Procedures:

During all phases of the job from when lead is first disturbed until the job is completed employees inside the vessel, adjacent to the vessel, in the filter room and in the mixing room shall wear two layers of work clothes. No street clothes, with the exception of underwear, shall be worn or otherwise brought into the dirty change room, or the work areas above or inside the vessel. All PPE and equipment are provided by STEBBINS.

All employees shall enter the decon unit into the clean room where they will remove their
street clothes, which shall be left in this room. At this time they will don their work clothes and respirators. Their protective clothing will consist of the following:

1. Cotton Coveralls or a Tyvek suit
2. Tyvek booties
3. A second Tyvek suit with hood and booties
4. Cotton gloves
5. Rubber or latex or heavy leather gloves (type depends on work application)
6. Rubber steel-toe work boots
7. Full-face or half-face respirator (type depends on work application)

If the decon unit is remote from the containment room the employees shall wear two (2) layers of work clothes as indicated above. The first layer can be disposable or reusable coveralls or the equivalent. The second, outer layer of clothing shall be disposable.

If the decon unit is attached directly to the containment room, the employees shall put on a single layer of coveralls with hoods, booties, and gloves. The coveralls may be disposable or reusable.

When the hoods, booties, and gloves are separate from the coveralls, they shall be securely taped to the outer layer. Work boots shall be worn over the disposable booties and shall be securely taped to the coveralls. When employees don their respirators they shall make sure that the head straps are beneath the hood of their coveralls. During demolition operations, the employees shall take extra steps to seal the opening at the top of the zipper in their coveralls. This can be accomplished by taping the space shut with duct tape, or by wrapping a disposable towel around their neck inside the coverall, or taping a towel over the outside of the coveralls like a bib.

IX. Exit/Decontamination Procedure:

Every time employees leave the work areas above or inside the vessel, they shall exit through the containment room into the decon unit. When employees are ready to exit, they will remove their work boots, rubber gloves and set them aside in the containment room. They will then remove their outer coveralls and cotton gloves and dispose of them in a properly marked bag or container. This will be done before leaving the containment room and while wearing their respirator. It will generally be necessary to have uncontaminated boots outside the containment room for employees to put on before walking down to the decon unit. The employees will then simply walk to the dirty room of the decon unit and follow the decontamination practices described below.

Employees working in the mixing room and filter room will remove their work boots,
rubber gloves and set them aside inside their room. They will then remove their outer coveralls and cotton gloves and dispose of them in a properly marked bag or container. This will be done before leaving either the mixing or filter room and while wearing their respirator. It will generally be necessary to have uncontaminated boots outside the containment room for employees to put on before walking down to the decon unit. The employees will then simply walk to the dirty room of the decon unit and follow the decontamination practices described below.

Upon entering the dirty change room, employees shall remove their clothes. Disposable coveralls shall be thrown away, while cotton reusable coveralls can be hung up and reused.

Reusable coveralls can only be used for one (1) shift only. **Respirators shall be kept on at all times.** The employees shall then enter the shower room, where they will remove respirator parts that cannot be submerged in water and handed to an individual for manual cleaning. Once that has been done, the employees will take a complete shower. Employees may remove their respirators after they have thoroughly wetted down themselves and their respirator. Hard hats, work boots, and other reusable gear shall either be left in the dirty change room or shall be washed off in the shower and placed back in the clean room.

No work clothes shall be brought into the shower room or clean change room, no street clothes shall be brought into the dirty change room, and no employee shall be in the dirty change room without wearing a respirator. Used work clothes shall never be worn outside of the controlled areas.

**X. Proper Work Practices:**

**A. Prior to Starting Each Job.**

Effectively controlling the employees exposure to lead depends upon how well the many small details of this Procedure are followed. Before any job involving lead begins, the Safety Director and/or Construction Manager / Salesman shall visually examine the work site, including the containment room, ventilation setup, filter room, mixing room and decon unit. Work shall not begin until the Safety Supervisor and/or Construction Manager / Salesman has approved the site.

**B. When Entering Controlled Areas.**

Every time a work crew enters the controlled areas for work, including at the beginning of the shift, after breaks, and after meals, the crew chief shall check
each of the following items:

* All employees are wearing proper protective clothing and respirators.
* Ventilation ducts are properly located and the ventilating (negative air) machines are working.
* As many openings in the vessel as possible are sealed airtight.
* The containment room and doors adjacent to the vessel, filter room, and mixing room are in place and free of leaks, tears, and openings.

C. **When Exiting Controlled Areas.**

During demolition and installation operations, one employee shall be assigned to clean the controlled areas each time the work crew leaves for breaks, meals, and at the end of the shift. All floors, work benches, and other surfaces shall be cleaned by vacuuming or wet wiping. **Only vacuums fitted with HEPA filters shall be used in the controlled areas. Dust and debris in the controlled areas shall not be dry swept.**

D. **Communication between Containment Rooms and the Outside.**

It is inherently difficult to communicate through a containment room to the outside while wearing a respirator. In addition, employees who enter controlled areas cannot go directly to the outside areas. For these two (2) reasons, special steps must be taken to allow for routine communication between the employees inside the containment room and employees on the outside.

One method of communicating is to provide a two-way radio inside the containment room and one on the outside. With effort, employees can be understood over a radio, even while wearing a respirator.

A second method is to assign one person on the outside of the containment room as the permanent support person. This employee stays on the outside of the containment room and communicates with employees on the inside. The support person can deliver supplies and pass them through the door of the containment room to the employees on the inside. The support person cannot enter the containment room for any reason. The support person should wear a half-face respirator, gloves, and disposable coveralls. They can be allowed to keep their street clothes on underneath the coveralls and do not have to go through the decontamination procedure.
E. General Work Practices.

When removing filters for the negative air machines, employees shall try to minimize the amount of dust that comes off of the filters. Once the filters have been removed and bagged, new filters will be placed into the negative air machines. After the filters have been changed, the filter room is to be vacuumed with a HEPA vacuum.

Employees who are required to wear respirators shall shave every morning before coming to work.

Employees shall ensure that all doors are closed tightly after they pass through.

Employees shall never lift their respirators from their face for speaking or any other purpose while in a controlled area.

Employees shall never smoke, eat, or drink in a controlled area.

All tools and materials shall be cleaned of all contamination before they are taken out of controlled areas.

Areas used for breaks and meals shall be kept clean and free of all potentially contaminated clothing, tools, etc.

F. Cleaning and Shipping of Equipment.

All negative air machines, remote filter boxes, black manifolds, and portable shower units shall be wiped down and vacuumed with a HEPA vacuum to ensure that all potentially hazardous lead dust is removed before being boxed for shipment. All filters except the 12"X 12"X 11½” HEPA are to be removed from the negative air machines and disposed of properly.

XI. Waste Removal:

All waste materials being removed during demolition / installation operations shall be sealed in airtight containers before they are removed from the containment room. Bricks will generally have to be placed in drums or heavy boxes. Small debris can be placed in 6 mil heavy gauge plastic bags. All containers are to be wiped and vacuumed with a HEPA vacuum before coming out of the controlled areas.
If materials are to be passed down a trash chute before they are sealed in containers, the chute must be air tight and must open directly into the containment room. The negative pressure ventilation system shall be designed so that air is drawn up the chute and into the containment room.

At the end of the job, all materials that may have become contaminated and which cannot be effectively cleaned off shall be disposed of as lead waste. This includes such items as the lumber and poly sheeting used to build the containment rooms, flexible exhaust ducts, etc.

Employees handling waste containers shall wear all the required Personnel Protective Equipment outlined in Section 8.0 of this Procedure.

XII. Exposure Monitoring / Air Sampling:

Air sampling will be done on a job-to-job basis. Air testing will be done by using personal air samplers with the appropriate air cassette. All results will be documented and the originals will be sent to the Watertown Safety Department. All job sites will maintain a copy of the results on site until the project has completed. If the initial determination or subsequent air monitoring reveals employee exposure to be at or above the action level but below the permissible exposure limit the employer shall repeat air monitoring in accordance with this paragraph at least every 6 months. The employer shall continue air monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level at which time the employer may discontinue monitoring for that employee.

XIII. Medical Surveillance and Medical Removal:

A. Medical Examinations.

All employees involved with the project shall be provided with an initial medical examination before beginning any work which may involve exposure to lead or require the use of respirators. The examination shall ensure that the employees are physically able to perform the work and use the equipment, in accordance with the Company’s Respiratory Protection Program. The examination shall also include the elements list in 29 CFR 1926.62 (j)(2)(ii) for lead-related medical examinations. All examinations are at no cost to the employee.

An annual medical examination shall be provided for each employee for whom a blood sampling test was conducted at any time during the preceding 12 months and indicated a blood lead level at or above 40 ug/dl of whole blood.
Employees will be provided with a medical examination as soon as possible upon notification that the employee has developed signs or symptoms commonly associated with lead intoxication, that the employee desires medical advice concerning the effects of current or past exposure to lead or that the employee has demonstrated difficulty in breathing during either a respirator fit test or during the use of a respirator. The sampling & monitoring should be performed at least monthly during the removal period. Any employee with elevated blood levels should be temporarily removed. Employees should be notified in writing within five days when lead levels are not acceptable. The standard requires temporary medical removal with Medical Removal Protection benefits.

B. Blood Lead Testing.

As part of the employee initial medical examination, they shall receive biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin. Sample analysis shall be conducted by a laboratory that is on the OSHA List of Laboratories Approved for Blood Lead Analysis. A copy of the list can be found in Appendix ‘C’ of this Procedure.

Once work has begun which might disturb lead, employees shall receive blood lead tests periodically until the job is completed.

Within five (5) working days after the receipt of the biological monitoring results, the Company shall notify each employee in writing of his/her results.

C. Medical Removal.

29 CFR 1926.62 requires employees to be removed when their blood lead level is at or above 50 ug/dl of whole blood.

The Company has set 25 ug/dl of whole blood as its medical removal level. Some state levels are stricter than the Company’s established level and require the Company to report an employee’s elevated blood lead level to the appropriate agency within that state. When that occurs the Company will follow the more strict (ie., Nevada - 22 ug/dl) guideline. For states that have set levels refer to Appendix ‘D’ of this Procedure.

Employees may be returned to work involving exposure to lead when two consecutive blood lead tests indicate that the employee’s blood level is below 25 ug/dl of whole blood.
Affected employees shall be notified of the results of any monitoring performed within 5 working days, either individually in writing or by posting the results in an appropriate location that is accessible to affected employees. Whenever the results indicate that the representative employee exposure, without regard to respirators, exceeds the permissible exposure limit, in the written notice shall be included a statement that the permissible exposure limit was exceeded and a description of the corrective action taken or to be taken to reduce exposure to or below the permissible exposure limit. This applies to all employees in the area, not just the employees performing the lead abatement.

D. Symptoms of Lead Exposure

Once inhaled or ingested, the lead gets into the blood stream. Lead is then circulated through the body and stored in various organs & body tissues. As exposure continues, the amount stored will increase if the body is absorbing more than it is excreting. As time goes on irreversible damage can occur.

Common symptoms of acute lead poisoning are: loss of appetite, nausea, vomiting, stomach cramps, constipation, difficulty in sleeping, fatigue, moodiness, headache, joint or muscle aches, and anemia, metallic taste in the mouth.

Long term (chronic) overexposure to lead may result in severe damage to the blood-forming, nervous, urinary, and reproductive systems.
Note: Neg. Air Machine #4 will filter both the Neg. Air Room and Mixing Room
## OSHA LIST OF LABORATORIES APPROVED FOR BLOOD LEVEL ANALYSIS

### APPENDIX ‘C’

#### Alabama

Alabama Reference Laboratories Inc.  
Attn: QC Coordinator  
543 S. Hull St., P.O. Box 4600  
Montgomery, Ala. 36103

#### Arizona

Sonora Quest Laboratories  
Attn: Russell W. Duke, Ph.D.  
1255 West Washington  
Tempe, Ariz. 85281

#### California

<table>
<thead>
<tr>
<th>Location</th>
<th>Laboratory Name</th>
<th>Attn:</th>
<th>Address 1</th>
<th>City, State, Zip</th>
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</thead>
<tbody>
<tr>
<td>Kern County Dept. Of Public Health</td>
<td>Physicians Automated Lab</td>
<td>Bruce Smith</td>
<td>2801 H Street</td>
<td>Bakersfield, Calif. 93302</td>
</tr>
<tr>
<td></td>
<td>California Department of Health</td>
<td>Raymond Fornes</td>
<td>2151 Berkeley Way, Room 334</td>
<td>Berkeley, Calif. 94704</td>
</tr>
<tr>
<td>TPGM Regional Laboratory</td>
<td>Health Line Clinical Labs</td>
<td>Gary Burkhaertsmeier</td>
<td>2249 N. Hollywood Way</td>
<td>Burbank, Calif. 91505</td>
</tr>
<tr>
<td></td>
<td>Physicians Immunodiagnostic Lab</td>
<td>Joseph Fu</td>
<td>512 S. Verdugo Drive</td>
<td>Burbank, Calif. 91502</td>
</tr>
<tr>
<td>Westcliff Medical Laboratory</td>
<td>California Diagnostic Labs</td>
<td>Javad R. Falati</td>
<td>1300 W. 155th St, Suite 103</td>
<td>Gardena, Calif. 90247</td>
</tr>
<tr>
<td></td>
<td>Maharlika Medical Lab</td>
<td>Johnnie Adams</td>
<td>401 E. Manchester Blvd., S 106</td>
<td>Inglewood, Calif. 90301</td>
</tr>
<tr>
<td>Advanced Medical Analysis</td>
<td>Long Beach Dept. Of Health</td>
<td>Hazel Wallace, DRPH</td>
<td>2525 Grand Avenue</td>
<td>Long Beach, Calif. 90815</td>
</tr>
<tr>
<td></td>
<td>Memorial Medical Center</td>
<td>Chemistry Department</td>
<td>2801 Atlantic Drive</td>
<td>Long Beach, Calif. 90801</td>
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| American Bioclinical Labs | Cedars-Sinai Medical Center | Drew Univ of Med & Science | |

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OSHA LIST OF LABORATORIES APPROVED FOR BLOOD LEVEL ANALYSIS

<table>
<thead>
<tr>
<th>Laboratory</th>
<th>Contact Person</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attn: Mary L. Somali</td>
<td>Attn: Stephen A. Geller, M.D.</td>
<td>1201 North Main Street, P.O. Box 48750</td>
</tr>
<tr>
<td>Los Angeles, Calif. 90012</td>
<td>Attn: Mario A. Manalo</td>
<td>Los Angeles, Calif. 90048</td>
</tr>
<tr>
<td>King/Drew Medical Center</td>
<td>LA County Public Health Lab</td>
<td>UCLA Medical Center</td>
</tr>
<tr>
<td>Attn: Pathology Lab Supervisor</td>
<td>Attn: Mitzi Vergel De Dios</td>
<td>Attn: Ana Reyes</td>
</tr>
<tr>
<td>12021 S. Wilmington Ave.</td>
<td>313 North Figueroa Street</td>
<td>10833 Le Conte Ave.</td>
</tr>
<tr>
<td>Los Angeles, Calif. 90095</td>
<td>Los Angeles, Calif. 90012</td>
<td>Los Angeles, Calif. 90095</td>
</tr>
<tr>
<td>Valley Children’s Hospital</td>
<td>Kaiser Permanente Labs</td>
<td>Fresno County Public Health</td>
</tr>
<tr>
<td>Attn: Dr. Kurt Grote</td>
<td>Attn: Pushpa Ramachandran</td>
<td>Attn: Robert Skrowonski</td>
</tr>
<tr>
<td>9300 Valley Children’s Place</td>
<td>11668 Sherman Avenue</td>
<td>1221 Fulton Mall</td>
</tr>
<tr>
<td>Madera, Calif. 93638</td>
<td>North Hollywood, CA 91605</td>
<td>Fresno, CA 93721-1867</td>
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<tr>
<td>UC Irvine Medical Center</td>
<td>UC Davis Medical Center</td>
<td>Unilab</td>
</tr>
<tr>
<td>Attn: Jeff Barnes</td>
<td>Attn: Kathy Omand</td>
<td>Attn: Sue Aitken</td>
</tr>
<tr>
<td>101 City Drive South</td>
<td>4625 2nd Ave, Room 1204</td>
<td>3714 Northgate Blvd.</td>
</tr>
<tr>
<td>Orange, Calif. 92668</td>
<td>Sacramento, Calif. 95817</td>
<td>Sacramento, Calif. 95834</td>
</tr>
<tr>
<td>Lab Corp</td>
<td>Navy Env Punt Med Unit Five</td>
<td>UCSD Medical Center</td>
</tr>
<tr>
<td>Attn: Laura Villanueva</td>
<td>Attn: Charles Kubrock</td>
<td>Attn: Les Rivier</td>
</tr>
<tr>
<td>5601 Oberlin Dr, Suite 100</td>
<td>Bldg 14 NAS N Island</td>
<td>200 West Arbor Drive</td>
</tr>
<tr>
<td>San Diego, Calif. 92121</td>
<td>San Diego, Calif. 92135</td>
<td>San Diego, Calif. 92103</td>
</tr>
<tr>
<td>San Francisco General Hospital</td>
<td>St. Mary's Hospital &amp; Med Ctr</td>
<td>Santa Clara Valley Med Center</td>
</tr>
<tr>
<td>Attn: John Osterloh, M.D.</td>
<td>Attn: Sally Ross</td>
<td>Attn: Richard B. Gilbert, PhD</td>
</tr>
<tr>
<td>1001 Potrero Ave., Bldg. 30, Rm. 3501</td>
<td>450 Stanyan St.</td>
<td>751 South Bascom Ave.</td>
</tr>
<tr>
<td>San Francisco, Calif. 94110</td>
<td>San Francisco, Calif. 94117</td>
<td>San Jose, Calif. 95128</td>
</tr>
<tr>
<td>Quest Diagnostics</td>
<td>International Molecular Diag.</td>
<td>Specialty Laboratories Inc.</td>
</tr>
<tr>
<td>Attn: George Pounds</td>
<td>Attn: Dan Leighton, Bioanalyst</td>
<td>Attn: Shoreh Ershadi, Ph.D.</td>
</tr>
<tr>
<td>33608 Ortega Highway</td>
<td>15162 Triton Lane</td>
<td>2211 Michigan Ave.</td>
</tr>
<tr>
<td>San Juan Capistrano, Calif. 92690</td>
<td>Huntington Beach, CA 92649</td>
<td>Santa Monica, Calif. 90404</td>
</tr>
<tr>
<td>Healthcare Clinical Labs</td>
<td>Unilab</td>
<td>Tulare Count Dept. of Health</td>
</tr>
<tr>
<td>Attn: Denise Facaros-Armolea</td>
<td>Attn: Doria Gould-Honda</td>
<td>Attn: Baron Nitta</td>
</tr>
<tr>
<td>2102 N. California Street</td>
<td>18408 Oxnard St.</td>
<td>1062 South K Street.</td>
</tr>
<tr>
<td>Stockton, Calif. 95204</td>
<td>Tarzana, Calif. 91356</td>
<td>Tulare, Calif. 93274</td>
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<tr>
<td>Quest Diagnostics</td>
<td>Pacific Toxicology Labs</td>
<td>Diamond Reference Laboratory</td>
</tr>
<tr>
<td>Attn: Geoffery H. Moyer, M.D.</td>
<td>Attn: John T. Treuting</td>
<td>Attn: Abbas Rajaee</td>
</tr>
<tr>
<td>7600 Tyrone Avenue</td>
<td>6160 Varial Ave.</td>
<td>1407 S. Valley Vista Drive</td>
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OSHA LIST OF LABORATORIES APPROVED FOR BLOOD LEVEL ANALYSIS

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<tr>
<td>Van Nuys, Calif. 91405</td>
<td>Woodland Hills, Calif. 91367</td>
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<tr>
<td>San Diego County Public Health Lab.</td>
<td>Attn: Klaus Steurmann</td>
</tr>
<tr>
<td>Attn: Klaus Steurmann</td>
<td>Suite 100</td>
</tr>
<tr>
<td>3851 Roseerans Street</td>
<td>Diamond Bar, Calif. 91765</td>
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<tr>
<td>San Diego, CA 92110</td>
<td>Spectra Lab.</td>
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<td>Penrose Hospital</td>
<td>Quest Diagnostics</td>
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<tr>
<td>Attn: Gene H. Moore, MD</td>
<td>Attn: Carole Fritsch</td>
</tr>
<tr>
<td>2215 N. Cascade Ave. PO Box 7021</td>
<td>695 S. Broadway</td>
</tr>
<tr>
<td>Colorado Springs, Colo 80933</td>
<td>Denver, Colo. 80209</td>
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<td>Colorado Springs, Colo 80933</td>
<td>Tamarac Medical</td>
</tr>
<tr>
<td>Colorado Springs, Colo 80933</td>
<td>Attn: Donna Clark</td>
</tr>
<tr>
<td>Colorado Springs, Colo 80933</td>
<td>7000 S. Broadway, Suite 2C</td>
</tr>
<tr>
<td>Colorado Springs, Colo 80933</td>
<td>Littleton, Colo. 80112</td>
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<td>Connecticut</td>
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<td>Conn. State Dept. of Health Lab Yale-New Haven Hospital</td>
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<tr>
<td>Attn: Earl R. Thompson, Jr.</td>
<td>Attn: Peter Jatlow, M.D.</td>
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<tr>
<td>10 Clinton Street</td>
<td>20 York Street</td>
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<td>Hartford, Conn. 06106</td>
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<td>District Of Columbia</td>
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<td>NO APPROVED LABS</td>
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<tr>
<td>Children's Hosp National Med Ctr</td>
<td>Attn: J. Hicks, Ph.D.</td>
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<td>Attn: J. Hicks, Ph.D.</td>
<td>Walter Reed Army Medical Ctr</td>
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<tr>
<td>111 Michigan Ave., N.W.</td>
<td>Attn: Robert Stevenson</td>
</tr>
<tr>
<td>Washington, D.C. 20010</td>
<td>DPALS Reference Chemistry</td>
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<tr>
<td>Washington, D.C. 20010</td>
<td>Washington, D.C. 20307</td>
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</table>
OSHA LIST OF LABORATORIES APPROVED FOR BLOOD LEVEL ANALYSIS

Florida

Lab Corp
Attn: W. Allen Taylor, Ph.D.
5610 W. La Salle Street
Tampa, Fla. 33697

Shands Jacksonville Lab.
Attn: Diane Schlessing
655 W. 8th Street
Jacksonville, Fla 32209

St. Vincent’s Medical Center
Attn: Regina Hartley
1800 Barrs Street
Jacksonville, Fla 32204

Georgia

Centers for Disease Control
Attn: Elaine Gunter
4770 Buford Highway NE MS F-18
Atlanta, Ga. 30341

DDE Army Medical Center
Attn: Dept. of Path. & Als.
Building 300
Fort Gordon, Ga. 30905 Savannah, Ga. 31416

Chatham Cty Dpt of Pub Health
Attn: Deborah Leslie
2011 Eisenhower Drive

Quest Diagnostics
Attn: Lee Smith
1777 Montreal Circle
Tucker, Ga. 30084

Doctors Laboratory Inc.
Attn: David C. Williams Ph.D.
PO Box 2658
Valdosta, Ga. 31604

Hawaii

Diagnostic Laboratory Services
Attn: Minnie Pang
770 Kapiolani Blvd Suite 100
Honolulu, Hawaii 96813

Consolidated IH Laboratory
Attn: Roy M. Ishikawa, Ph.D.
1215 North Road
Pearl Harbor, Hawaii 96860

Idaho

NO APPROVED LABS

Illinois

Cook County Hospital
Attn: Yochanan Friedman
627 S. Wood St, Room 581
Chicago, Ill. 60612

La Rabida Childrens Hospital
Attn: William T. Boorazanes
East 65th at Lake Michigan
Chicago, Ill. 60649

Michael Reese Hospital
Attn: Yolanda O’Coner
2929 S. Ellis Ave.
Chicago, Ill. 60616

Northwestern Memorial Hospital
Attn: John R. Warren, MD
250 East Superior Street
Chicago, Ill. 60611

University of Illinois Hospital
Attn: Robert H. Williams PhD
840 S. Wood St., MC750
Bldg 20-H 3N
Chicago, Ill. 60612

Great Lakes Naval Hosp.
Attn: F. William Burnet
Great Lakes, Ill. 60088

Loyola University Medical Center
Attn: Stephen Kahn PhD Rm 0122
Chicago, Ill. 60611

Metropolitan Medical Lab
Attn: Cheryl Westin
Saint Francis Medical Center
Attn: Melinda Davis
OSHA LIST OF LABORATORIES APPROVED FOR BLOOD LEVEL ANALYSIS

2160 South First Avenue 1520 7th Street 530 NE Glen Oak Avenue
Maywood, Ill. 60153 Moline, Ill. 61265 Peoria, Ill. 61637

Illinois Dept. Of Health Memorial Medical Center Quest Diagnostics
Attn: David Maserang, MD Attn: John G. Dietrich, M.D. Attn: Lynn Bonse
825 North Rutlege St. Box 19435 800 North Rutledge 1355 Mittel Boulevard
Springfield, Ill. 62794 Springfield, Ill. 62781 Wood Dale, Ill. 60191

Indiana

St Catherine Hospital Arnett Clinic Indiana University Hospital
Attn: J Griep, MD/M Triana Attn: Trudy Trochta Attn: John Baenziger, MD
4321 Fir Street 2600 Greenbush Street 550 N Univ Blvd Room 4430
East Chicago, Ind. 46312 Lafayette, Ind. 47904 Indianapolis, Ind. 46202
Indiana Department of Health Methodist Hospital South Bend Med Foundation
Blood Lead Testing Labs MS2009 Attn: Annamarie Yarger Attn: Luis N. Galup, M.D.
635 North Barnhill Drive 1701 North Senate Blvd. 530 North Lafayette Blvd.
Indianapolis, Ind. 46202 Indianapolis, Ind. 46202 South Bend, Ind. 46601
Witham Memorial Hospital
Attn: Daniel Conn 1124 North Lebanon Street
Lebanon, Ind. 46052

Iowa

Linn County Health Dept. University Hygienic Lab U of Iowa Hospitals and Clinics
Attn: Kyle Lundberg Attn: Mary J. Gilchrist, Ph.D. Attn: Pamela Roberts
501 13th Street NW East 9th and Grand 200 Hawkins Dr., 6246 RCP
Cedar Rapids, Iowa 52405 Des Moines, Iowa 50319 Iowa City, Iowa 52242

Kansas

Clinical Reference Lab Lab One Inc. Via Christi Regional Med Ctr
Attn: Bruce Smith Attn: Bridget McKelvy Attn: Tom Beat
8433 Quivira Road 10101 Renner Blvd 929 North St. Francis
Lenexa, Kan. 66215 Lenexa, Kan. 66219 Wichita, Kan. 67214

Physicians Reference Laboratory University Of Kansas Med. Ctr.
Attn: David K. Roberts, Ph.D Attn: Masahiro Chiga, MD
7800 West 110th St. 3901 Rainbow Blvd.
Overland Park, Kan. 66210 Kansas City, Kan 66160
OSHA LIST OF LABORATORIES APPROVED FOR BLOOD LEVEL ANALYSIS

Kentucky

NO APPROVED LABS

Louisiana

Ochsner Foundation Hospital
Attn: Charles F. Genre, M.D.
1516 Jefferson Highway
New Orleans, La. 70121

Maine

Main Health & Environmental Testing Laboratory
Attn: Deb Stahler
221 State Street
Augusta, Maine 04333

Maryland

Md. Dept. Health/Mental Hygiene
Attn: Joseph Libonati, Ph.D.
P.O. Box 2355
Baltimore, Md. 21203

Quest Diagnostics
Attn: Selvin Passen, MD
1901 Sulphur Springs Rd
Baltimore, Md. 21227

Shore Health Laboratories
Attn: Gary Shortall
301 Bay Street, Suite 201
Easton, Md. 21601

The Kennedy Institute
Attn: Dr. J. Julian Chisholm
707 North Broadway
Baltimore, Md. 21205

Hagerstown Medical Labs
Attn: Leroy D. Mell, Ph.D.
111110 Medical Campus Road
Suite 230
Hagerstown, Md. 21742

Massachusetts

MIT Industrial Hygiene Lab
Attn: Robert W. Edwards
77 Massachusetts Ave., 56-235
Cambridge, Mass. 02139

Quest Diagnostics
Attn: Robert Meehan
415 Massachusetts Avenue
Cambridge, Mass. 02139

ESA Laboratories
Attn: Reg Griffin, Ph.D.
22 Alpha Road
Chelmsford, Mass. 01824
### OSHA LIST OF LABORATORIES APPROVED FOR BLOOD LEVEL ANALYSIS

<table>
<thead>
<tr>
<th>State</th>
<th>Laboratories</th>
</tr>
</thead>
</table>
| Massachusetts | MA Dept. Of Public Health
Attn: Julianne Nasif
305 South State Street
Jamaica Plains, Mass. 02130 |
Path Lab - Worcester Med. Ctr.
Attn: Lisa Turgeon
20 Worcester Center Blvd.
Worcester, Mass. 01608 Medford, Mass. 02155 |
Medford Medical Laboratory
Attn: Albert Chapper |
Berkshire Medical Center
Attn: L. Spatz, Ph.D.
725 North Street
Pittsfield, Mass. 01201 |
DoL & Workforce Dev. Mayo Medical Lab
Attn: A. Michau/c. McDonough
1001 Watertown Street 265
Balardvale Street
Wilmington, Mass. 01887 |
| Rhode Island | U. of MASS Medical Center
Attn: Dr. Guy Vallaro
365 Plantation St. Biotech 1 Suite 220
Worcester, Mass. 01605 |
| Michigan   | Warde Medical Laboratory
Attn: Angie Pare
5025 Venture Drive
Ann Arbor, Mich. 48108 |
Quest Diagnostics
Attn: William Block, MD
4444 Giddings Road
Auburn Hills, Mich. 48326 |
Regional Medical Laboratories
Attn: Ken Vanden Bosch
175 College Street |
Detroit Health Department
Attn: Aloysius Hanson, Ph.D.
1151 Taylor Avenue
Detroit, Mich. 48202 |
DMC University Laboratories
Attn: Ericka Johnson
4210 St. Antoine |
Comprehensive Health Services Inc.
Attn: Art S. Quinones
6500 John C. Lodge
Detroit, Mich. 48202 |
Blodgett Toxicology Lab
Attn: Guy Zandbergen
1840 Wealthy SE
Grand Rapids, Mich. 49506 |
MI Dept of Community Health
Attn: Blood Lead Unit
3500 N. Martin Luther King Jr. Blvd, PO Box 30035
Lansing, Mich. 48909 |
Marquette General Health Systems.
Attn: Dale Hamari
420 West Magnetic Street
Marquette, Mich. 49855 |
Sparrow Regional Laboratories
Attn: Art Vandyke
1215 East Michigan, Ave
Lansing, Mich. 48912 |
Mount Clemens Gen. Hospital
Attn: Bill Corby
1000 Harrington Blvd.
Mount Clemens, Mich. 48043 |
Hackley Hospital Laboratory
Attn: Wayne Dolislager
1700 Clinton Street |
Hennepin County Medical Center
Minneapolis Health Dept.
Hennepin County Medical Center
Minneapolis Health Dept. |
| Minnesota  | Mayo Clinic - 530 Hilton |
|           | SAFETY/MANUAL:esm6-2c.wpd
Rev. 02/2012-RTD |
OSHA LIST OF LABORATORIES APPROVED FOR BLOOD LEVEL ANALYSIS

Attn: Fred S. Apple, Ph.D.  Attn: Tom Oehler  Attn: Mary Hilton
701 Park Ave., South  250 4th Street South  200 First Street, SW.
Minneapolis, Minn. 55415  Minneapolis, Minn. 55415  Rochester, Minn. 55905

Medtox Laboratories
Attn: Harry G. McCoy, Ph.D.
402 West County, Road D
St. Paul, Minn. 55112

Mississippi

University of Mississippi Med Ctr
Attn: Toxicology
2500 North State St.
Jackson, Miss. 39216

Medical Pathology Laboratory
Attn: Shelia Wheeler
PO Box 5226
Meridian, Miss. 39302

Missouri

St. Louis County Dept of Health Quest Diagnostics
Attn: Robert A. Nicolotti  Attn: Joseph P. Devine, Ph.D.  Attn: David Zwick, M.D.
111 South Meramec, 5th Floor  11636 Administration Drive  24th & Gilliam Rd.
Clayton, Mo. 63105  Creve Coeur, Mo. 63146  Kansas City, Mo. 64108

Lab Corp
Attn: Rita Brock
1706 North Corrington
Kansas City, Mo. 64120

City Of St. Louis
Attn: Public Health Lab. Attn: Fred V. Palpp, MD
634 N. Grand Blvd.
4400 Wornall Road
St. Louis, Mo. 63103  Kansas City, Mo. 64111

Montana

Montana Public Health Laboratory
Attn: Susan Norris Zanto
P.O. Boc 59604
Helena, Mont. 59604
<table>
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<tr>
<th>State</th>
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<th>Attn:</th>
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<th>City</th>
<th>ZIP</th>
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<tbody>
<tr>
<td>Nebraska</td>
<td>St Joseph Hospital</td>
<td>Theresa Darcy, M.D.</td>
<td>601 North 30&lt;sup&gt;th&lt;/sup&gt; Street</td>
<td>Omaha, Neb.</td>
<td>68131</td>
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<td>Nevada</td>
<td>NO APPROVED LABS</td>
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<tr>
<td>New Hampshire</td>
<td>NH Public Health Lab</td>
<td>Veronica Malmberg</td>
<td>6 Hazen Drive</td>
<td>Concord, N.H.</td>
<td>03301</td>
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<td></td>
<td>Path Lab Inc.</td>
<td>Lacey Bongs</td>
<td>P.O. Box 4070</td>
<td>Portsmouth, N.H.</td>
<td>03801</td>
</tr>
<tr>
<td>New Jersey</td>
<td>Kaulson Laboratories</td>
<td>Randhir Sandhu</td>
<td>691 Bloomfield Avenue</td>
<td>Caldwell, N.J.</td>
<td>07006</td>
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<td></td>
<td>Bio-Reference Laboratories</td>
<td>Dominick N. Cetani, Jr.</td>
<td>481 Edward H. Ross Drive</td>
<td>Elmwood Park, N.J.</td>
<td>07407</td>
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<td></td>
<td>NJ Department of Health</td>
<td>Joanne Voorhees Searles</td>
<td>CN 360</td>
<td>Trenton, N.J.</td>
<td>08625</td>
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<td>Quest Diagnostics</td>
<td>Mary Biresak</td>
<td>69 First Avenue</td>
<td>Raritan, N.J.</td>
<td>08869</td>
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<td></td>
<td>Lab Corp</td>
<td>Deborah Johnson</td>
<td>718 Teaneck Road</td>
<td>Teaneck, N.J.</td>
<td>07666</td>
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<tr>
<td></td>
<td>Accumed Diagnostic Lab.</td>
<td>Glenn Levy</td>
<td>540 Bordentown Ave.</td>
<td>South Amboy, N.J.</td>
<td>07407</td>
</tr>
<tr>
<td>New York</td>
<td>Catholic Hospital of Buffalo</td>
<td>James J. Jarnot</td>
<td>2157 Main Street</td>
<td>Buffalo, N.Y.</td>
<td>14214</td>
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<tr>
<td></td>
<td>NY State Dept. of Health</td>
<td>Dr. Patrick J.Parsons</td>
<td>PO Box 509, Empire State Pl</td>
<td>Albany, N.Y.</td>
<td>12201</td>
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<tr>
<td></td>
<td>Montefiore Medical Center</td>
<td>Sara Jenks</td>
<td>111 East 210&lt;sup&gt;th&lt;/sup&gt; Street</td>
<td>Bronx, N.Y.</td>
<td>10467</td>
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<td>Universal Diagnostic Labs</td>
<td>Arnold L. Statsinger, ME</td>
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<td></td>
<td></td>
<td>Joseph Daino, M.D.</td>
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## OSHA LIST OF LABORATORIES APPROVED FOR BLOOD LEVEL ANALYSIS

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<thead>
<tr>
<th>State</th>
<th>Laboratories</th>
<th>Attn</th>
<th>Address</th>
<th>City</th>
<th>Code</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td>Childrens Hospital of Buffalo</td>
<td>Phillip K. Li, Ph.D.</td>
<td>219 Bryant Street</td>
<td>Brooklyn</td>
<td>11224</td>
<td>New York</td>
</tr>
<tr>
<td></td>
<td>MDS Hudson Valley Labs</td>
<td>Jennifer T. Williams</td>
<td>115 Delafield St.</td>
<td>Poughkeepsie</td>
<td>12601</td>
<td>New York</td>
</tr>
<tr>
<td></td>
<td>NYC Dept. of Health</td>
<td>Jack Deutch, MD</td>
<td>455 First Ave.</td>
<td>New York</td>
<td>10016</td>
<td>New York</td>
</tr>
<tr>
<td></td>
<td>Genesee Hospital</td>
<td>David Hohnadel, M.D.</td>
<td>224 Alexander St.</td>
<td>Rochester</td>
<td>14607</td>
<td>New York</td>
</tr>
<tr>
<td></td>
<td>Lab Corp</td>
<td>L. S. Hale</td>
<td>1447 York Court</td>
<td>Burlington</td>
<td>27215</td>
<td>North Carolina</td>
</tr>
<tr>
<td></td>
<td>Duke University Medical Ctr</td>
<td>Kenneth Copeland, Ph.D.</td>
<td>1447 York Court</td>
<td>Durham</td>
<td>27710</td>
<td>North Carolina</td>
</tr>
<tr>
<td></td>
<td>SUNY-HSC Dept. of Pathology</td>
<td>Frederick R Davey, MD</td>
<td>750 E. Adams St.</td>
<td>Syracuse</td>
<td>13210</td>
<td>North Carolina</td>
</tr>
<tr>
<td></td>
<td>Yorktown Medical Lab</td>
<td>Albert H Padovani</td>
<td>PO Box 99, 321 Kear Street</td>
<td>Yorktown</td>
<td>10598</td>
<td>North Carolina</td>
</tr>
<tr>
<td>North Carolina</td>
<td>Douglas Battery Mfg. Co.</td>
<td>James Melvin Cobb</td>
<td>500 Battery Dr., Box 12159</td>
<td>Winston-Salem</td>
<td>27107</td>
<td>North Dakota</td>
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<td>Ohio</td>
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No approved labs
## OSHA LIST OF LABORATORIES APPROVED FOR BLOOD LEVEL ANALYSIS

<table>
<thead>
<tr>
<th>Location</th>
<th>Laboratory Name</th>
<th>Address</th>
<th>Contact Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ohio</td>
<td>Cincinnati Dept. of Health</td>
<td>Cincinnati, Ohio 45229</td>
<td>James C. Reynolds</td>
</tr>
<tr>
<td></td>
<td>Univ. Of Cincinnati Hospital</td>
<td>3223 Eden Ave., Room 313</td>
<td>Sandy Roda</td>
</tr>
<tr>
<td></td>
<td>Cleveland Clinic Foundation</td>
<td>9500 Euclid Avenue</td>
<td>W. R. Hart, Lab L21</td>
</tr>
<tr>
<td></td>
<td>Cleveland, Ohio 44113</td>
<td></td>
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<tr>
<td>Ohio</td>
<td>Cleveland Dept Of Public Health</td>
<td>4242 Lorain Avenue</td>
<td>Niel Conway, Ph.D.</td>
</tr>
<tr>
<td></td>
<td>Univ Hospitals Lab Services</td>
<td>11400 Euclid Ave, Suite 100</td>
<td>Tony Wallish</td>
</tr>
<tr>
<td></td>
<td>Childrens Hosp of Columbus</td>
<td>700 Childrens Drive</td>
<td>David Thornton, Ph.D.</td>
</tr>
<tr>
<td></td>
<td>Columbus, Ohio 44106</td>
<td></td>
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<tr>
<td>Ohio</td>
<td>Riverside Methodist Hospital</td>
<td>3535 Olentangy River Road</td>
<td>Sandy Woyach</td>
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<td></td>
<td>Lab Corp</td>
<td>Dublin, Ohio 43017</td>
<td>Doug Copen</td>
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<td></td>
<td>EHC Medical Laboratories</td>
<td>505 Forest Avenue</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medical College of Ohio</td>
<td>Toledo, Ohio 43614</td>
<td></td>
</tr>
<tr>
<td>Ohio</td>
<td>The University Hospitals</td>
<td>940 NE 13th St., Room EB 400</td>
<td>Cynthia Evans</td>
</tr>
<tr>
<td>Ohio</td>
<td>Oklahoma</td>
<td></td>
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</tr>
<tr>
<td>Oregon</td>
<td>Oregon Medical Laboratories</td>
<td>722 E. 11th Ave.</td>
<td>Steven Urfuth, Ph.D.</td>
</tr>
<tr>
<td></td>
<td>Interpath Laboratory</td>
<td>1100 Southgate, Box 1208</td>
<td>Robert Velander, MS</td>
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<tr>
<td></td>
<td>Legacy Laboratory Services</td>
<td>1225 NE Second Avenue</td>
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<td>Oregon Medical Laboratories</td>
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<tr>
<td>Pennsylvania</td>
<td>Health Network Laboratories</td>
<td>2024 Lehigh Street</td>
<td>David Beckwith, Ph.D.</td>
</tr>
<tr>
<td></td>
<td>Geisinger Medical Center</td>
<td>Danville, Pa. 17821</td>
<td>Conrad Shuerch III, MD</td>
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<td></td>
<td>A.E.K. Memorial Health Center</td>
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<td>Danville, Pa. 17821</td>
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<td></td>
<td>71 North Franklin Street</td>
<td>Wilkes-Barre, Pa 18701</td>
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</table>
OSHA LIST OF LABORATORIES APPROVED FOR BLOOD LEVEL ANALYSIS

Ellwood City Hospital  Quest Diagnostics  Wikes Barre General Hospital
Attn: Karl Williams, MD  Attn: Donna Jenkins  Attn: George Hockenbury
724 Pershing Street  900 Business Center Drive  North River & Auburn Street
Ellwood City, Pa. 16117  Horsham, Pa. 19044  Wilkes Barre, Pa. 18764

Pennsylvania Dept. of Health  East Penn Manufacturing Co.  National Medical Service Inc.
Attn: M. Jeffrey Shoemaker, Ph.D  Attn: Robert Flicker  Attn: Margaret R. Beamer
Pickering Way & Welsh Pool Road  Deka Road  3701 Welsh Road
Lionsville, Pa. 19353  Lyon Station, Pa. 19536 Willow Grove, Pa. 19090

Philadelphia Dept. Of Health  Mercy Hospital  Omega Medical Lab
Attn: Ramesh H. Churi, Ph.D.  Attn: Christine McClure  Attn: David Rohrbach
500 South Broad Street  1400 Locust Street  2001 Statehill Rd., Suite 100
Philadelphia, Pa. 19146  Pittsburgh, Pa. 15219  Wyomissing, Pa. 19610

Quest Diagnostics  U of Pittsburgh Medical Ctr  Quality Medical Lab
Attn: Fred Fochtman, Ph.D.  Attn: Mohamed Virji, Ph.D.  Attn: Tim Murray
875 Greentree Road  200 Lothrop St.  12th and Walnut St, Box 316
Pittsburgh, Pa. 15220  Pittsburgh, Pa. 15213  Reading, Pa. 19602

Puerto Rico

Clendo Reference Laboratory  Caparra Reference Lab
Attn: Idalia Becerra De Rodz  Attn: Marta Y Perez
P.O. Box 549  P.O. Box 11560
Bayamon, Puerto Rico 00959  Caparra Heights, Puerto Rico 00922

Rhode Island

Our Lady of Fatima Hospital  Rhode Island Hospital
Attn: Cecilia A. Gmuer, MD  Attn: Pathologist-in-Chief
200 High Service Avenue  593 Eddy Street, APC 12
North Providence, R.I. 02904  Providence, R.I. 02903

South Carolina

Medical University of SC  S. C. DoH & Env. Control
Attn: G. Wicker, Lab  Attn: Thomas M Hickey, MD
171 Ashley Avenue  8231 Parklane Road
Charleston, S.C. 29425  Columbia, S.C. 29223

South Dakota
## OSHA LIST OF LABORATORIES APPROVED FOR BLOOD LEVEL ANALYSIS

**NO APPROVED LABS**

### Tennessee

Shelby County Health Dept.  
Attn: Kaye B. Cox, Ph. D.  
814 Jefferson Ave.  
Memphis, Tenn. 38105

Memphis Pathology Laboratory  
Attn: David L. Smalley, PhD  
5846 Distribution Drive  
Memphis, Tenn. 38141

### Texas

- **CPL Clinical Labs**  
  Attn: Jerry Cantrell  
  9200 Wall Street  
  Austin, Texas 78754

- **Lab Corp**  
  Attn: Stephen W. Alred, MD  
  7777 Forest Lane, #C-350  
  Dallas, Texas 75230

- **Lab Corp**  
  Attn: Pamela Holder, MD  
  7207 North Gessner  
  Houston, Texas 77040

- **RSR Corp., Quemetco Labs**  
  Attn: Gary Wimbish, Ph.D.  
  2804 Sea Harbor  
  Dallas, Texas 75212

- **Brooke Army Medical Center**  
  Attn: Dept. of Pathology/ALS  
  Building 2630  
  Fort Sam Houston, TX 78234

- **Houston Dept. Of Health**  
  Attn: Odatt Rajan, Ph.D.  
  1115 South Braeswood  
  Houston, Texas 77030

- **Bureau Of Laboratories**  
  Attn: Anabel Granado  
  1100 W. 49th Street  
  Austin, Texas 78756

- **Quest Diagnostics**  
  Attn: Paula Washington, MD  
  4770 Regent Blvd.  
  Irving, Texas 75063

### Utah

- **Kennecott Environmental Labs**  
  Attn: Lynn Hutchinson  
  9600 West 2100 South, Box 6001  
  Magna, Utah 84044

- **Arup Clinical Labs**  
  Attn: Ronald L. Weiss, M.D.  
  500 Chipeta Way  
  Salt Lake City, Utah 84108

- **Biotrace Labs/ASARCO Inc.**  
  Attn: Miguel Acevedo  
  3440 South 700 West  
  Salt Lake City, Utah 84119

### Vermont

- **Fletcher Allen Health Care**  
  Attn: Edwin G. Bovil, MD  
  111 Colchester Avenue  
  Burlington, Vt. 05401

- **Vermont Dept. of Health**  
  Attn: Burton Wilcke Jr., Ph.D.  
  195 Colchester Avenue  
  Burlington, Vt. 05402

### Virginia

- **American Medical Labs**  
  Lab Corp  
  Navy Env Prev Med Unit #2
OSHA LIST OF LABORATORIES APPROVED FOR BLOOD LEVEL ANALYSIS

Attn: Jan Turner              Attn: Bernard Thompson, Ph.D.              Attn: Officer-In-Charge
14225 Newbrook Drive Box 10841 13900 Park Center Road  Bldg. X336, IH Lab
Chantilly, Va. 20153             Herndon, Va. 20171                         Norfolk, Va. 23511

Norfolk Health Department
Attn: Leony Viado
401 Colley Ave Lab Room 47
Norfolk, Va. 23507

Medical College of Virginia
Attn: Joseph J. Saady, Ph.D.
Sanger Hall, Rm 4011 Box 662
Richmond, Va. 23298

Washington

Univ. of Washington              Washington Dept. Of Health
Attn: Renee Lang
Lab Medicine SB10
Seattle, Wash. 98195

Sacred Heart Medical Center
Attn: Lawrence Killingsworth
101 West Eighth Avenue
Spokane, Wash. 99220

West Virginia

NO APPROVED LABS

Wisconsin

Consultants Lab of WI              Bellin Hospital
Attn: Gary Schwefel
430 East Division St.               Attn: Dan Sheier
Fon du Lac, Wis. 54935               744 South Webster Avenue
Green Bay, Wis. 54305                  1910 South Street
La Crosse, Wis. 54601

Wisconsin State Lab of Hygiene
Attn: Noel Stanton
465 Henry Mall
Madison, Wis. 53706
Marshfield Med. Ctr-St. Joseph
1000 North Oak Avenue 9200 West Wisconsin Avenue
Marshfield, Wis. 54449
Milwaukee, Wis. 53226

Milwaukee Health Dept.
Attn: E. George Linke, Ph.D.
841 North Broadway, Rm. 308
Milwaukee, Wis. 53202

ACL Industrial Toxicology Lab
Attn: Mary J. Reznicek
8901 W Lincoln Ave, # 27167A
West Allis, Wis. 53227

Wyoming

**OSHA LIST OF LABORATORIES APPROVED FOR BLOOD LEVEL ANALYSIS**

*NO APPROVED LABS*

**Canada**

<table>
<thead>
<tr>
<th>Laboratory</th>
<th>Address</th>
<th>Contact</th>
<th>City, Province, Zip Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.D.S Laboratories</td>
<td>100 International Boulevard, Etobicoke, Ontario M9W 6J6</td>
<td>Attn: Shelia Boss, Ph.D.</td>
<td>Etobicoke, Ontario M9W 6J6</td>
</tr>
<tr>
<td>Ontario Ministry of Health</td>
<td>81 Resources Road, Weston, Ontario M9P 3T1</td>
<td>Attn: G. Huntingford</td>
<td>Weston, Ontario M9P 3T1</td>
</tr>
<tr>
<td>IRSST</td>
<td>505 De Maisonneuve W, 12th Fl, Montreal, Quebec H3A 3C2</td>
<td>Attn: Claude Ostiguy</td>
<td>Montreal, Quebec H3A 3C2</td>
</tr>
<tr>
<td>Le Centre Hospitalier</td>
<td>2705 Boul Laurier, Sainte-Foy, Quebec G1V 4G2</td>
<td>Attn: Jean-Philippe Weber</td>
<td>Sainte-Foy, Quebec G1V 4G2</td>
</tr>
</tbody>
</table>
APPENDIX ‘D’

Blood level reporting requirements by State.

Alabama

15 µg/dl

Najmul H. Chowdhury, MBBS, MPH
Alabama Department of Health
Division of Epidemiology
434 Monroe Street
Montgomery, Alabama, 36130-3017
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Fax: (205) 288-5021

Arizona

10 µg/dl

Patty Arreola, MS
Arizona Department of Health Services
Office of Environmental Health
3815 North Black Canyon Highway
Phoenix, Arizona 85015
Phone: (602) 230-5943
Fax: (602) 230-5933

California

25 µg/dl

Susan Payne, MA, Epidemiologist
California Department of Health Services
Occupational Health Branch
1515 Clay Street, Suite 1901
Oakland, California 94612
Phone: (510) 622-4284
Fax: (510) 622-4310

Colorado

25 µg/dl

James McCammon
Colorado Department of Health
Epidemiology Division
4300 Cherry Creek Drive South
Denver, Colorado 80220
Phone: (303) 692-2639
Fax: (303) 329-0904

Connecticut

10 µg/dl

Carolyn Jean Webb
Mail Stop # 11OSP
P. O. Box 340308
410 Capital Avenue
Hartford, Connecticut 06134-0308
Phone: (860) 509-7744
Fax: (860) 509-7785

Florida

10 µg/dl

Raul Quimbo, MBS
Florida HRS / HSEE
1317 Winewood Blvd.
Tallahassee, Florida 32399-0700
Phone: (904) 488-3370
Fax: (904) 921-0298
Illinois

25 µg/dl

Melinda Lehnherr, RN
Illinois Department of Public Health
Division of Epidemiologic Studies
Occupational Disease Registry
605 West Jefferson
Springfield, Illinois 62761
Phone: (217) 785-1873
Fax: (217) 524-1770

Iowa

All Levels

Rita Gergely, Program Manager
Iowa Department of Public Health
Bureau of Environmental Health
Division of Health Protection
Lucas State Office Building
Des Moines, Iowa 50319-0075
Phone: (515) 242-6340
Fax: (515) 281-4529

Maine

25 µg/dl

Steve Shannon, DO, MPH Director
Maine Department of Human Services
Occupational Safety and Health
State House Station #11
Augusta, Maine 04333
Phone: (207) 287-5378
Fax: (207) 287-4172

Maryland

25 µg/dl

Beverly Gammage, RNC, MS
Maryland Department of Environment
Lead Poisoning Prevention Program
2500 Broening Highway
Baltimore, Maryland 21224
Phone: (410) 631-3859
Fax: (410) 631-4112

Massachusetts

15 µg/dl

Richard Rabin, MSPH
Massachusetts Department of Labor
Division of Occupational Hygiene
1001 Watertown Street
Newton, Massachusetts 02165
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Fax: (617) 727-4581

Michigan

All Levels

Carol Hinkle, Lead Coordinator
Michigan Department of Cmty Health
Division of Family and Cmty Health
3423 North Logan/MLK Boulevard
P.O. Box 30195
Lansing, Michigan 48909
Phone: (517) 335-9242
Fax: (517) 335-8509
Minnesota

All Levels

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Minnesota Department of Health
Environmental Health Division
121 E. Seventh Place, Suite 220
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St. Paul, Minnesota 55164-0975
Phone: (651) 215-0890
Fax: (651) 215-0975

Mississippi

25 µg/dl

Linda Pollock, MD, MPH
Mississippi Department of Health
Office of Epidemiology
570 East Woodrow Wilson
P.O. Box 1700, A107
Jackson, Mississippi 39215-1700
Phone: (601) 960-7725
Fax: (601) 960-7909

Nebraska

10 µg/dl

Thomas J. Safranek, MD
State Department of Health
State Epidemiologist
301 Centennial Mall South
P.O. Box 95007
Lincoln, Nebraska 68509-5007
Phone: (402) 471-0550
Fax: (402) 471-3601

New Hampshire

All Levels

David Solet, PhD
NH Division of Public Health Services
Bureau of Risk Assessment
Occupational Disease Surveillance Prog.
6 Hazen Drive
Concord, New Hampshire 03301-6527
Phone: (603) 271-4670
Fax: (603) 271-3745

New Jersey

25 µg/dl

David Valiante, MS, CIH, Director
Barbara Gerwel, MD, Coordinator
New Jersey Department of Health
Occupational Health Service
P.O. Box 360
Trenton, New Jersey 08625
Phone: (609) 984-1863
Fax: (609) 292-5677

New Mexico

All Levels

Dan Merians, MBA, MPH
New Mexico Department of Health
Division of Epidemiology
1190 St. Francis Drive
P.O. Box 26110
Santa Fe New Mexico 87502-6110
Phone: (505) 827-0006
Fax: (505) 827-0013
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<td>Robert Stone, Ph.D.</td>
<td>Pat Curan</td>
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<tr>
<td>New York Department of Health</td>
<td>Health Hazards Control Unit</td>
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<tr>
<td>Flanigan Square</td>
<td>NCDHHS-OEEB-</td>
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<tr>
<td>547 River Street</td>
<td>Division of Public Health</td>
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<tr>
<td>Troy, New York 12180</td>
<td>1912 Mail Service Center</td>
</tr>
<tr>
<td>Phone: (518) 402-7900</td>
<td>Raleigh, North Carolina 27699-1912</td>
</tr>
<tr>
<td>Fax: (518) 402-7909</td>
<td>Phone: (919) 733-0200</td>
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<td></td>
<td>Fax: (919) 733-8493</td>
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<tr>
<td>Edd Rhoades, MD MPH</td>
<td>Michael A. Heumann</td>
</tr>
<tr>
<td>Oklahoma State Department of Health</td>
<td>Oregon Health Division</td>
</tr>
<tr>
<td>Health and Guidance Services</td>
<td>800 Northeast Oregon Street</td>
</tr>
<tr>
<td>1000 Northeast 10th Street</td>
<td>Suite 772</td>
</tr>
<tr>
<td>Oklahoma City, Oklahoma 73117-1299</td>
<td>Portland, Oregon 97232</td>
</tr>
<tr>
<td>Phone: (405) 271-4471</td>
<td>Phone: (503) 731-4573</td>
</tr>
<tr>
<td>Fax: (405) 271-6199</td>
<td>Fax: (503) 731-4798</td>
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<tr>
<td>Judy Gostin, MS Industrial Hygienist</td>
<td>Robert Marino, MD, MPH</td>
</tr>
<tr>
<td>Pennsylvania Department of Health</td>
<td>Div. Of Health Hazard Evaluations</td>
</tr>
<tr>
<td>Div. of Environmental Health Assessment</td>
<td>Dept. of Health&amp;Environmental Control</td>
</tr>
<tr>
<td>P.O. Box 90</td>
<td>2600 Bull Street</td>
</tr>
<tr>
<td>Harrisburg, Pennsylvania 17108</td>
<td>Columbia, South Carolina 29201</td>
</tr>
<tr>
<td>Phone: (717) 787-1708</td>
<td>Phone: (843) 737-4170</td>
</tr>
<tr>
<td>Fax: (717) 783-3794</td>
<td>Fax: (843) 737-4171</td>
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Texas

25 µg/dl

Diana Salzman, MPH
Texas Department of Health
Bureau of Epidemiology
1100 West 49th Street
Austin, Texas 78756
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Fax: (512) 458-7699

Utah

15 µg/dl

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Utah Department of Health
Bureau of Epidemiology
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Fax: (801) 538-6036

Vermont

10 µg/dl

Laurie Toof
Vermont Department of Health
Div. of Health Protection (Lead Program)
PO Box 70, 108 Cherry Street, Room 306
Burlington, Vermont 05402
Phone: (802) 863-7330
Fax: (802) 863-7483

Washington

All Levels

Stephen G. Wittaker, PhD
Associate Medical Director for SHARP
Washington State Department of Labor and Industries
P.O. Box 44330
Olympia, Washington 98504-4330
Phone: (306) 902-5663
Fax: (306) 902-5672

Wisconsin

25 µg/dl

Henry Anderson, MD
Chief Medical Officer & Investigator
State Occupational & Environmental Epidemiology Div. Of Health
1400 E. Washington Street
Madison, Wisconsin 57301-3044
Phone: (608) 266-1253
Fax: (608) 267-3696

Wyoming

All Levels

Todd S. Klietz, REHS
Lead Project Coordinator
Wyoming Department of Health
487 Hathaway Building
Cheyenne, Wyoming 82002
Phone: (303) 777-6015
Fax: (303) 777-5402
JOB HAZARD ASSESSMENT / ANALYSIS

I. Purpose:

To identify all potential hazards associated with the work at hand, to inform, and train employees of those hazards and the methods of reducing or eliminating those hazards.

II. Scope:

Every task that must be done on a job site has hazards associated with it. The job hazard analysis is a process used to evaluate the hazards involved and develop a standard work procedure to reduce or eliminate that hazard.

A job hazard assessment / analysis breaks down the job to be done into steps. The Superintendent and employees working on an item should do a job hazard analysis before work begins. A typical job hazard analysis consist of the following:

1. Description of the work to be performed.
2. Sequence of basic job steps in performing the work.
3. Description of the tools and equipment to be used.
4. Description of the potential hazards associated with the job.
5. Recommend safe job procedures to eliminate or control potential hazards.

III. Control Methods:

When trying to eliminate or control a potential hazard, use the four types of control measures in the order they are listed. The control measures can be used separately or in combination. The four types of control measures include:

1. Engineering Controls
2. Work Practice Controls
3. Administrative Controls
4. Personal Protective Equipment Controls

IV. Job Hazard Assessment / Analysis Form:

A JHA Form should be completed for every task. To help guide you through the process of completing a proper JHA, a sample of a partially completed copy of the STEBBINS JHA Form is attached for your review.
HAZARD ANALYSIS & TOOL BOX TALK

PROJECT JOB HAZARD ASSESSMENT

CLIENT / MILL:

LOCATION:

JOB #:

JOB DESCRIPTION:

FIRST SHIFT:

COMPLETED BY:

PROJECTED MAN POWER FOR SHIFT

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<th>Trade</th>
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<td>Project Manager</td>
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<tr>
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<td>STEBBINS</td>
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<tr>
<td>Safety Supervisor</td>
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<tr>
<td>Labour Forman</td>
<td>0</td>
<td>STEBBINS</td>
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<tr>
<td>Carpenter</td>
<td>0</td>
<td>STEBBINS</td>
</tr>
<tr>
<td>Labourer</td>
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<td>TOTAL:</td>
<td>0</td>
<td>Man Hours: 10</td>
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EMERGENCY RESPONSE INFORMATION

FIRST AID VIA PLANT PHONE:
FIRST AID VIA CELL PHONE:
CONTROL ROOM VIA PLANT PHONE:
IN-VAC ASSEMBLY AREA:
OUT-VAC ASSEMBLY AREA:
SUPERINTENDENT CELL PHONE #:
PLANT CONTACT & #:

DESCRIPTION OF WORK TO BE PERFORMED

1. RECEIVE AND UNLOAD MATERIALS & EQUIPMENT
2. MOVE EQUIPMENT INTO WORKING AREA
3. ENTER CONFINED SPACE
4. INSTALL SUSPENDED PLATFORM
5. DEMO BRICK
6. REPLACE BRICK
7. MIXING AR MORTAR
8. POURING CONCRETE
9. CLEAN UP AREA AND PACK UP TOOLS
# HAZARD ANALYSIS & TOOL BOX TALK

## REQUIRED PERSONAL PROTECTIVE EQUIPMENT

<table>
<thead>
<tr>
<th></th>
<th>1. SAFETY GLASSES</th>
<th>2. EAR MUFFS</th>
<th>3. HARD HAT</th>
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<tbody>
<tr>
<td>4.</td>
<td>RUBBER STEEL TOE BOOTS</td>
<td>5. RUBBER GLOVES</td>
<td>6. 3M HALF MASK RESPIRATOR</td>
</tr>
<tr>
<td>7.</td>
<td>DISPOSABLE COVERALLS</td>
<td>8. FACESHIELD</td>
<td>9. VENTED SAFETY GOGGLES</td>
</tr>
<tr>
<td>10.</td>
<td>HARNESS</td>
<td>11. LIFELINE</td>
<td>12. 3M AIRHOODS</td>
</tr>
</tbody>
</table>

## JOB TASKS

### RECEIVE AND UNLOAD EQUIPMENT & MATERIALS

1. PINCH POINTS
2. TRIPPING HAZARDS

**RECOMMENDED ACTION**

1. ENSURE SPOTTER IS USED AT ALL TIMES WHEN FORKLIFT IS IN MOTION.
2. CLEAN WORK AREA REGULARLY.

### MOVE EQUIPMENT INTO WORKING AREA

1. PINCH POINTS
2. PLANT HAZARDS
3. OVERHEAD HAZARDS

**RECOMMENDED ACTION**

1. ENSURE QUALIFIED PERSONNEL USES EQUIPMENT.
2. VERIFY ALL REQUIRED PPE.
3. VISUAL INSPECTION OF WORK AREA.
4. NO ACCESS BELOW OR ABOVE WORK AREA.
5. .
## HAZARD ANALYSIS & TOOL BOX TALK

<table>
<thead>
<tr>
<th>JOB TASK</th>
<th>POTENTIAL HAZARDS OR RISKS</th>
<th>RECOMMENDED ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTER CONFINED SPACE</td>
<td>1. ENGULFMENT HAZARDS&lt;br&gt;2. LOCK OUT&lt;br&gt;3. TRIPPING HAZARDS&lt;br&gt;4. PROCESS CHEMICAL EXPOSURE</td>
<td>1. KEEP WORK AREA TIDY&lt;br&gt;2. LOCK OUT AS DIRECTED BY THE CLIENT.&lt;br&gt;3. VERIFY TRAINING OF ENTRANTS AND ATTENDANT&lt;br&gt;4. KEEP EXTENSION CORDS ELEVATED TO AVOID TRIPPING HAZARDS.&lt;br&gt;5. ½ MASK WITH #60926 CARTRIDGES WORN WHEN DUST IS CREATED.</td>
</tr>
<tr>
<td>INSTALL SUSPENDED PLATFORM</td>
<td>1. FALL HAZARDS&lt;br&gt;2. DAMAGE TO EQUIPMENT</td>
<td>1. SUSPENDED PLATFORM MUST BE ERECTED ACCORDING TO ENGINEERED DRAWING.&lt;br&gt;2. 100% FALL PROTECTION REQUIRED WHILE WORKING ON PLATFORM - LIFELINES&lt;br&gt;3. LIFELINES MUST BE ANCHORED ACCORDING TO ENGINEERED DRAWING. 500LBS MIN.&lt;br&gt;4. EMPLOYEES OPERATING THE HOISTS MUST COMPLETE A VISUAL CHECK OF THE AREA BEFORE MOVING THE</td>
</tr>
</tbody>
</table>
## HAZARD ANALYSIS & TOOL BOX TALK

<table>
<thead>
<tr>
<th>JOB TASK</th>
<th>POTENTIAL HAZARDS OR RISKS</th>
<th>RECOMMENDED ACTION</th>
</tr>
</thead>
</table>
| **DEMO BRICK** |                            | 1. DEMO HAZARDS  
2. TRIPPING HAZARDS  
3. EMPLOYEE INJURY                  | 1. KEEP WORK AREA TIDY  
2. ENSURE INSPECTION OF CHIPPERS IS COMPLETE.  
3. WET THE AREA BEFORE STARTING DEMO.  
4. FACESHIELD & ½ MASK WITH #60926 CARTRIDGES WORN WHEN DUST IS CREATED. USE 3M AIRHOODS FOR DEMO WHERE DUST CANNOT BE CONTAINED. |
| **REPLACE BRICK** |                         | 1. DUST EXPOSURE  
2. CUTS                                                                         | 1. SEMPLATE IS VERY SHARP WHEN IT IS CUT, ALL EMPLOYEES MUST HANDLE WITH GLOVES.  
2. IF THE WET SAW IS USED, ALL PPE MUST BE WORN – DOUBLE HEARING PROTECTION, FACESHIELD, SAFETY GLASSES, GAUNTLET |
<table>
<thead>
<tr>
<th>JOB TASK</th>
<th>POTENTIAL HAZARDS OR RISKS</th>
<th>RECOMMENDED ACTION</th>
</tr>
</thead>
</table>
| MIXING AR-196 MORTAR| 1. DUST EXPOSURE  
2. FLAMMABLE HAZARDS  
3. STYRENE EXPOSURE | 1. ALL MIXING MUST BE DONE IN THE DESIGNATED MIXING AREA WITH VENTILATION.  
2. NO OPEN FLAMES IN THE MIXING AREA, AUTHORIZED PERSONNEL ONLY.  
3. KEEP LIDS ON PRODUCTS AT ALL TIMES.  
4. CONDUCT PERIODIC STYRENE TESTING TO VERIFY LEVELS ARE LOW. |
| PUMPING CONCRETE    | 1. DERMATITIS  
2. EYE / FACE INJURY | 1. INSPECT THE PUMP PRIOR TO USING.  
2. FACESHIELD REQUIRED FOR PUMP OPERATOR, EMPLOYEE ON THE END OF THE HOSE AND VIBRATOR.  
3. ALL WASTE MUST BE DISPOSED AS REQUIRED BY GLENCORE. |
### HAZARD ANALYSIS & TOOL BOX TALK

<table>
<thead>
<tr>
<th>JOB TASK</th>
<th>POTENTIAL HAZARDS OR RISKS</th>
<th>RECOMMENDED ACTION</th>
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</thead>
<tbody>
<tr>
<td>CLEAN UP AND PACK UP</td>
<td>1. WASTE</td>
<td>1. DISPOSE WASTE AS HAZARDOUS WASTE.</td>
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<tr>
<td>TOOLS</td>
<td>2. DAMAGE TO EQUIPMENT</td>
<td>2. REMOVE LOCKS IF NECESSARY.</td>
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<tr>
<td></td>
<td></td>
<td>3. PACK UP TOOLS FOR SHIPPING SO NOTHING GETS BROKEN IN TRANSIT.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.</td>
</tr>
</tbody>
</table>

#### OTHER ISSUES DISCUSSED

1. REVIEW ALL PLANT REQUIREMENTS PRIOR TO SHIFT STARTING
2. 
3. 
4. 

---

---
HAZARD ANALYSIS & TOOL BOX TALK

Daily Toolbox Meeting

Client: __________________________ Site: __________________________
Job Ref #: __________________________
Job Description: __________________________
Supervisor: __________________________ Date: __________________________

Topics:
1. ________________________________________________________________
2. ________________________________________________________________
3. ________________________________________________________________
4. ________________________________________________________________
5. ________________________________________________________________
6. ________________________________________________________________

New Items:
1. ________________________________________________________________
2. ________________________________________________________________
3. ________________________________________________________________
4. ________________________________________________________________
5. ________________________________________________________________

Old Items:
1. ________________________________________________________________
2. ________________________________________________________________
3. ________________________________________________________________
4. ________________________________________________________________
5. ________________________________________________________________

Supervisors will give a tool box talk daily

Conducted by: ____________________________________________________
HAZARD ANALYSIS & TOOL BOX TALK

SHIFT SIGN-IN / SIGN-OUT

By signing in, I have attended today’s JHA meeting and reviewed our plans for a safe shift. By signing out, I have completed the shift with NO INCIDENTS to report to my immediate supervisor.

<table>
<thead>
<tr>
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<th>SIGNATURE</th>
<th>TIME IN</th>
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ALL FORMS MUST BE SUBMITTED TO STEBBINS SAFETY DEPARTMENT
LOCKOUT TAGOUT

I. Purpose:

To set lock-out/tag-out guidelines that will eliminate the potential for accidental start up of equipment, or the release of stored energy of any kind during maintenance operations.

II. Definitions:

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

**Authorized Employee** - An employee who locks or implements a tag-out system procedure on machines or equipment to perform the servicing or maintenance on that machine or equipment. An authorized employee and an affected employee may be the same person when the affected employee’s duties also include performing maintenance or service on a machine or equipment which must be locked or tag-out system implemented.

III. Scope:

This policy applies to the servicing and maintenance of machines and equipment in which the unexpected energization or start-up of the machines or equipment, or release of any stored energy could cause injury to employees.

No deviation from this policy shall be allowed unless previously approved by the Corporate Safety Director in writing.

All employees (regardless of craft) shall be instructed in the safety significance of the lock-out/tag-out program. Only those employees listed in Appendix A of this policy are authorized to perform lock-out/tag-out procedures.

IV. Equipment Isolation:

The equipment that is to be worked on must be isolated from all potential sources of energy. These sources include electrical, hydraulic, pneumatic, and any other energy type that is normal to the functioning of the equipment.
The preferred method of isolation is always locking the equipment out, tag-outs will only be used when lock-outs have been proven to be impossible.

**Preparation for Lock-out or Tag-out:**

Identify the machinery or equipment requiring maintenance or repair. Refer to Appendix B for specific equipment shut down procedures. If the equipment is not listed in Appendix B refer to the equipment service manual or following the steps below. The Company’s lock-out/tag-out permit must be completed prior to commencing any maintenance. This will verify that the lock-out/tag-out procedure has been followed (Refer to Appendix F - Form SFT-W-61-7/03).

I. **Lock-out procedures.**

1. Notify all affected employees that a lock-out system is going to be utilized and the reason therefore. The authorized employee shall know the type and magnitude of energy that the machine or equipment utilizes and shall understand the hazards thereof.
2. Ensure the machine is shut down at the control panel.
3. Should the equipment require a specific shutdown or cool down process then it must be followed in order to control any hazards.
4. All equipment will have proper lockout points marked on the appropriate area for lock-out. Instruction on how to lock-out equipment will be found in the job instructions.
5. Locate the power source for the equipment.
   If the power source is electrical, the following must be done:
   - Unplug the power cord from the wall, or;
     - i. Move the knife switch to the off position and install a personal padlock, or;
     - ii. Move the breaker to the off position, install a breaker block and personal lock, or;
     - iii. Physically remove the breaker for the circuit the machine or equipment is powered by, from the proper main power panel.
6. Each employee working on the equipment to be locked out must apply their own personal lock. Lock trees may be used for multiple locks. Locks are supplied by the Company, so are Tags. All tags will be (weather & chemical resistant) standardized in size, color, with wording warning of hazardous energy Do Not Start or Do Not Energize and Do Not Operate.
   Personal locks must be tagged to identify the following:
     - i. The person locking the equipment out.
ii. The equipment being worked on.
iii. The date and time the lock was applied.
iv. Personal locks shall be individually keyed, no multiple key locks are allowed.

7. Release all hydraulic and pneumatic pressure on the equipment. Apply locks or tags to the release points as needed.
8. Install blocking on equipment that requires it.
9. Return to the control panel, and try to turn the machine on. This will verify the lockout.
10. The possibility of potentially hazardous stored or residual energy shall be relieved, disconnected, restrained & otherwise rendered safe.
11. If there is a possibility of reaccumulation of stored energy level, verification of isolation shall be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.
12. Apply a lock to the control switch if it is capable of being locked out, and will not interfere with the work to be performed.
13. An audit of the lock-out procedure and verification that it was done correctly should be carried out at this time.
14. After the servicing and or maintenance is complete and the equipment is ready for normal production operations, check the area around the machine to ensure that no one is exposed.
15. After all tools have been removed from the machine or equipment, guards have been reinstalled and employees are in the clear, remove lock-out and or tag-out devices. Operate the energy isolating device(s) to restore energy to the machine or equipment.
16. Only the worker who applied the lock may remove it.
17. A lock may be removed by a representative of the Safety Department only if all the following have been verified:
   a. The Department Head for that work area is present, and verifies the need for the lock to be removed.
   b. The employee applying the lock is present, but has lost or misplaced their key, or;
      v. The employee applying the lock has been contacted by the Safety Department, and has been verified away from the work area.
   b. The equipment to be unlocked has been re-assembled, and is ready to operate.
   c. No other employees have begun to work on the equipment.
   d. The area immediately around the equipment is clear of all employees.
   e. A memorandum has been completed detailing the reasons for the lock getting cut, and the steps taken to ensure the other requirements
of lock cutting.

vi. This memorandum will be signed by a representative of the Safety Department and the Department Head present when the lock is cut.

vii. The original memorandum will be kept on file for a minimum of 3 years in the Safety Department.

viii. A copy of the memorandum will be given to the Department Head and to the employee whose lock was cut.

18. No deviation from these steps will be allowed when a lock-out lock must be cut.

19. If a lock-out must be temporarily removed it must be carried out in this order.

   i. Clear away tools; remove employees;
   ii. Remove the LOTO device;
   iii. Energize & proceed with testing;
   iv. De-energize & reapply control measures.
   v. This will be documented. (Refer to Appendix F - Form SFT-W-61-7/03).

20. During shift change the Authorized employee will instruct all employees as to what hazards exist with the lock-out, he will verify that all in coming employees are in compliance with LOTO and he will do the same for out going employees.

21. The authorized employee ultimately has responsibility for the entire group when under the lock-out.

II. Tag-out Procedures.

Tag-out procedures are identical to lock-out procedures, with the exception that they’re in no way to physically apply a lock to the energy source. In this case a tag-out must be used. Tag-out may be used in conjunction with lock-out to meet the requirement that all potential energy sources be eliminated.

Tag-out is done as follows:

1. Notify all affected employees that a tag-out system is going to be utilized and the reason therefore. The authorized employee shall know the type and magnitude of energy that the machine or equipment utilizes and shall understand the hazards thereof.

2. Ensure the machine is shut down at the control panel.

3. Locate the power source for the equipment.
   a. If the power source is electrical, the following must be done:
   b. Unplug the power cord from the wall, or;
c. Move the knife switch to the off position and install a personal tag, or;
d. Move the breaker to the off position and install a tag.
e. Each employee working on the equipment to be locked out must apply their own personal tag.
f. Tag-out tags must identify the following:
   The person tagging the equipment out.
   The equipment being worked on.
   The date and time the tag was applied.

4. Release all hydraulic and pneumatic pressure on the equipment. Apply tags to the release points as needed.
5. Install blocking on equipment that requires it.
6. Return to the control panel, and try to turn the machine on. This will verify the tag-out.
7. Apply a tag to the control switch if it is capable of being tagged out, and will not interfere with the work to be performed.
8. After the servicing and or maintenance is complete and the equipment is ready for normal production operations, check the area around the machine to ensure that no one is exposed.
9. After all tools have been removed from the machine or equipment, guards have been reinstalled and employees are in the clear, remove tag-out devices. Operate the energy isolating device(s) to restore energy to the machine or equipment.
10. Only the worker who applied the tag may remove it.
11. A tag may be removed by a representative of the Safety Department only if all the following have been verified:
   a. The Department Head for that work area is present, and verifies the need for the tag to be removed.
   b. The employee applying the tag has been contacted by the Safety Department, and has been verified away from the work area.
   f. The equipment to be untagged has been re-assembled, and is ready to operate.
   g. No other employees have begun to work on the equipment.
   h. The area immediately around the equipment is clear of all employees.
   i. A memorandum has been completed detailing the reasons for the tag being removed, and the steps taken to ensure the other requirements of tag removal.

This memorandum will be signed by a representative of the Safety Department and the Department Head present when the tag was removed.

The original memorandum will be kept on file for a
minimum of 3 years in the Safety Department.
A copy of the memorandum will be given to the Department
Head and to the employee whose tag was removed.

12. No deviation from these steps will be allowed when a tag-out tag must be
removed.

III. Outside Personnel (Contractors):

Whenever outside servicing personnel are engaged in operations involving servicing or
maintenance of machinery with potentially hazardous energy, the outside employer must
inform a representative of the Employer of his/her respective lock-out/tag-out procedures.
Conversely, the Employer representative must verify that the contractor is complying with
all applicable regulations concerning lock-out/tag-out (1910.147) while working in the
Employer’s buildings. Additionally, all affected Employer’s personnel will be informed
of and instructed to comply with the outside contractor’s energy control procedures.

IV. Training and Periodic Inspections.

All authorized employees involved in the Lock-out/Tag-out program must be trained prior
to performing any functions of the Lock-out/Tag-out program (Refer to Appendix C -
Form SFT-W-58-7/03). The training must include recognition of hazardous energy source,
type & magnitude of energy available, methods & means necessary for energy isolation &
control. Each authorized employee shall receive adequate training. The training should
address that all affected employees are instructed in the purpose & use of the energy
control procedure. There should be training provisions included for any other employee
whose work operations are or may be in an area where energy control procedures may be
utilized. The employee training should also address when tagout systems are used
including the limitations of a tag (tags are warning devices & do not provide physical
restraint). The training should also include that a tag is not to be removed without
authorization. The tag is never to be ignored or defeated in any way. Retraining is required
when there is a change in job assignments, in machines, a change in the energy control
procedures, or a new hazard is introduced. All training and/or retraining must be
documented, signed & certified. In addition, annual certifications will also be required for
authorized employees. The Safety Department or the Supervisor will conduct the annual
re-certification and complete the appropriate form (Refer to Appendix D - Form
SFT-W-59-7/03).

The Safety Department along with the Superintendent will conduct an Annual
Lock-out/Tag-out Administrative Review of the Company’s Lock-out/Tag-out Program to
determine if changes need to be made to the program (Refer to Appendix E - Form
SFT-W-60-7/03).
HEARING CONSERVATION PROGRAM

I. Scope:

This Procedure is intended to cover those STEBBINS employees who may be exposed to work activities that present a noise exposure hazard.

II. Purpose:

This program is intended to protect employees from the adverse health effects of noise exposure and to meet all applicable Federal and State regulations.

III. Responsibilities:

The ultimate responsibility and authority for the administration of this program and the protection of employees’ health rest with the top level of management in STEBBINS. The VP of Corporate Safety is directly responsible to the top management to see that this procedure is implemented and followed. STEBBINS will administer a continuing effective hearing conservation program when employees are exposed to sound levels greater than 85 dbA on an 8 hour time-weighted average basis

A. Company Responsibilities.

1. Ensure all management personal are aware of the “Hearing Conservation Program”.
2. Annually audit the “Hearing Conservation Program’s” progress.
3. Make available all required Personal Protective Equipment.

B. Superindendent.

1. Review operations periodically with all Supervisors to determine what areas and specific jobs may require hearing protection.
2. Follow up to ensure Supervisors are carrying out the prescribed STEBBINS PROGRAM.
3. Once an area has been determined to be a “Noise Hazard Area” through monitoring, all “Noise Hazard” areas are marked with permanent signs.
4. Will ensure that all personnel are properly trained on the existing Noise Hazards and PPE.

C. Supervisors Responsibilities.

1. Identify all jobs that may expose employees to a noise hazard.
2. Notify the Plant Manager of any changes in production, process, or equipment controls that may expose workers further to a noise hazard, or an increase in a current noise hazard, or an employee hearing complaint.

3. Conduct and document training annually or as often as needed.

4. Make routine surveys of work areas to ensure safe practices are being followed and all PPE is being worn properly.

5. Ensure all require signs are posted, legible, and current.

D. Employee Responsibilities.

1. Obey all established Safety Rules.

2. Use the proper Personal Protective Equipment required by, and provided by STEBBINS. DO NOT use personal equipment that has not been approved for use by the Plant Superintendent or his representative.

3. Immediately inform your supervisor of:
   a. Any signs/symptoms of hearing damage or loss.
   b. Missing signs and warning labels on Entry ways or machinery.
   c. Missing, worn, damaged, or malfunctioning safety equipment.

IV. Personnel Protective Equipment:

A. STEBBINS shall make available a selection of ear muffs with a noise reduction factor of NR 29. The employee will be given a choice of PPE from among this selection. (at no cost)

B. Individuals will inspect all their assigned PPE periodically to ensure it is serviceable. Unserviceable equipment will be red tagged and repaired or replaced.

C. Maintenance will be done only in accordance with manufacturers guide lines.

D. STEBBINS will evaluate hearing protection for the specific noise environments in which the protector will be used.

V. Audiometric Testing:

A. STEBBINS will ensure the completion and recording of a base line (initial) Audiogram for all employees, and a mandatory annual Audiometric examination thereafter. All original audiometric test results and noise monitoring shall be forwarded to the Watertown Safety office and maintained on file for a minimum of 30 years. Copies will be maintained at the plant.
B. STEBBINS will ensure that all Audiometric testing is done in accordance with 29 CFR 1910.95 and that the equipment and personnel use to give the exam are properly certified.

C. STEBBINS will notify all employees of their testing results, and allow employee access to their personal Audiometric results.

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

VI. Area Monitoring for Noise Hazards:

A. STEBBINS shall conduct area noise level monitoring periodically (Annual monitoring is recommended, done in conjunction with the annual audiometric testing), or when the noise hazard is perceived to have changed, or employee complaint of hearing difficulties or loss, or when it is suspected to be higher than 85 decibels. Monitoring shall be done in accordance with 29 CFR 1910.95(c)(1). All monitoring conducted shall be recorded, the original forwarded to the Watertown Safety Office where it will be maintained on file for a minimum of 2 years, and copies kept on file at the plant.

B. An employee representative shall be offered the opportunity to observe all monitoring, but their presence is not required should they decline.

C. All measurements and recording of noise levels shall be done in accordance monitoring standards listed in 29 CFR 1910.95.

1. The sampling shall identify employees for inclusion in the hearing conservation program.

2. The sampling shall be done using either of the following methods.
   a. Dosimeter Monitoring
   b. Sound Level Meter

D. All noise hazard areas will be appropriately marked with permanent signs.

E. All noise hazard machinery shall be appropriately marked with self adhesive labels, or signs posted visibly near the machine.
F. Within 6 months of an employee's first exposure at or above the action level, the employer shall establish a valid baseline audiogram against which future audiograms can be compared. When a mobile van is used, the baseline shall be established within 1 yr.

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

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

VII Training Requirements:

A. STEBBINS will provide training that will be conducted and documented annually, or as often as needed. Original documentation shall be forwarded to the Watertown Safety office, copies shall be maintained on site. The training must consist of the following at a minimum:

1. The effects of noise on hearing.
2. The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care.
3. The purpose of Audiometric testing and an explanation of the test procedures.
4. The availability and location of the OSH Act standards as well as STEBBINS PROGRAM.
5. Copies of the noise exposure procedures will be available for affected employees and a copy shall be posted in the workplace.
BLOODBORNE PATHOGENS

I. Scope:

This Procedure is intended to cover those STEBBINS employees who may be exposed to work activities that present a bloodborne pathogen exposure hazard.

II. Purpose:

This program is intended to protect employees from the adverse health effects of bloodborne pathogen exposure and to meet all applicable Federal and State regulations.

III. Responsibilities:

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

2. A copy of the Exposure Control Plan will be made accessible to employees in accordance with 29 CFR 1910.1020(e).

3. All employees who are exposed to an manual labor, working with tools and machinery are exposed to cuts and therefore are subject to learn the requirements of the bloodborne pathogen policy.

4. All bodily fluids must be considered dangerous.

5. Any employee can come in to contact with these hazards, especially when responding to an emergency or injury. All PPE for tending to injured parties is supplied by the STEBBINS free of charge.

6. Should you administer first aid or come in contact with any bodily fluids do the following:

- Wear impervious gloves when there is a chance of exposure to blood or body fluids.
- Use resuscitation devices when performing cardiopulmonary resuscitation (CPR).
- Report all BBP exposures or potential exposures to the Safety Department immediately.
- Immediately wash your hands and affected areas with soap and warm water.
- Flush your eyes, nose or other mucous membrane areas with water, if exposed.
• Wash down areas which body fluids may have been contacted with the use of a mild solution of household water and bleach (10:1).
• Wash hands, if facilities are not available antiseptic is provided in first aid kits.
• Bag all contaminated materials in a leak proof bag and mark the bag accordingly.
• You must bag the material so that you do not infect yourself, remove gloves without touching your skin.

7. A hepatitis B vaccine to all employees that have occupational exposure at no cost to the employee(s).

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

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

I. Scope:

This Procedure is intended to cover STEBBINS waste at jobsites.

II. Purpose:

This program is intended to help segregate waste so that more recycling may be done and to ensure the proper disposal of hazardous waste.

III. Responsibilities:

Every project is different, so prior to mobilization an estimate of the amount of waste will be completed by the Project Manager. This will help planning the need for waste containers and waste removal. Waste will should be properly stored and handled to minimize the potential for a spill or impact to the environment. All outdoor waste bins must remained covered at all times to prevent dispersion of waste materials and to control the potential for run-off.

IV. Training

All employees will be instructed on the site policies with regards to waste management. If waste needs to be segregated for recycling purposes. The disposal of hazardous waste needs to be done separately than that of all other waste. There will be hazardous waste bins appropriately marked at the site. Scrap metal and wood will require its own bin as they will always be recycled separately. Any employee caught placing hazardous waste in a non hazardous bin will be subject to progressive discipline.
SCAFFOLD PROCEDURES

I. Purpose:

STEBBINS is responsible for providing for safe assembly, disassembly, and proper use of scaffolding by its employees. We believe these procedures provide our employees with the safest method possible for erecting and dismantling scaffolding.

II. Scope:

These procedures are intended to provide our employees with strict guidelines for erecting and dismantling various types of scaffolding. All employees will be trained in the use of scaffolding.

III. Training Requirements:

A. All employees who perform work while on a scaffold must be trained by a person who is qualified in the subject matter, can recognize the hazards associated with the type of scaffold being used, and understand the procedures to control or minimize those hazards. The following items as a minimum must be covered:

1. A general overview of the scaffolding regulations and standards.

2. The nature of any electrical hazards, fall hazards and falling object hazards in the work area.

3. The correct procedures for dealing with electrical hazards and for erecting, maintaining, and dismantling the fall protection systems and falling object protection systems being used.

4. The proper use of the scaffold, and the proper handling of materials on the scaffold.

5. The maximum intended load and the load-carrying capacities of the scaffolds used.

6. The PPE required and the fall protection method to be used.

7. Any other pertinent requirements.
B. All employees who are involved in erecting, dismantling, moving, operating, repairing, maintaining, or inspecting a scaffold shall be trained by a competent person to recognize any hazards associated with the work in question. All of the above topics must be covered in addition with the following:

1. The nature of scaffold hazards.
2. The correct procedures for erecting, dismantling, moving, operating, repairing, inspecting, and maintaining the type of scaffold in question.
3. The design criteria, maximum intended load-carrying capacity and intended use of the scaffold.
4. The purpose of guys, ties, and braces and when they must be used.
5. Any other pertinent requirements.

C. When there is reason to believe that an employee lacks the skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, the Company shall retrain each such employee so that the requisite proficiency is regained. Retraining is required in at least the following situations:

1. Where changes at the work site present a hazard about which an employee has not been previously trained.
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.
3. Where inadequacies in an affected employee’s work involving scaffolds indicate that the employee has not retained the requisite proficiency.
4. On a yearly basis.

D. All scaffold training must be documented. A scaffold user and erector/dismantler training form (FORM SFT-W-51-3/2017) can be found in the Pre-job safety training kit provided for each project. Scaffold Users must complete the top half of form, while Erectors/Dismantlers must complete both sections of form. The training must be completed before any user or erector/dismantler can begin work on any scaffolding.
IV. Prior to Use:

A. All equipment shall be inspected before use. Only equipment in good repair and safe condition shall be used.

B. All planking shall be inspected to ensure it is of sound quality, straight grained, free from through knots and is graded for scaffold use.

C. The scaffold assembly used on most Company projects has been designed by professional engineers and drawings are sent to the job. Alterations or modifications to the assembly of scaffold shall not be made unless approved by the Engineering Department. The date, time and name of the person authorizing the change will be put on the drawing. New drawings with the approved changes will then be sent to the job.

D. If any doubt exists as to the ability of the equipment to accomplish a particular job, call the Engineering Department for assistance.

E. All personnel must be trained in the use of the scaffold to be erected or dismantled.

F. Familiarize yourself with both State and Federal requirements on scaffolding. OSHA 29 CFR Part 1926.450 - 1926.454 Subpart L covers the Federal requirements for Scaffolds.

V. General Requirements:

A. Scaffold should be erected, moved or dismantled only under the supervision of competent persons.

B. All scaffold and scaffold components shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied to it.

C. All personnel erecting and dismantling scaffold will be 100% tied-off.

D. Provide adequate mud sills for scaffold legs and use base plates. If the scaffold is being erected on a concrete or other solid foundation, only base plates are required. If scaffold is being erected on earth/soil, then mud sills are required. Sills shall be of wood plank, a minimum of 2-1/2" x 10" x 30". Base plates should be secured to the sills to prevent movement. Base plates can be secured to the sill by nails or when steel I-beams are used, the base plate can be secured by tack welding the plate to the sill. When 2 boards are stacked to reach the necessary height, they shall be nailed together. When more than 2 boards are required to reach the necessary
height, they shall be banded together. The maximum height sills can be stacked is equal to its width. For example: if a 2" x 10' is being used, the height of the stacked sills cannot exceed 10 inches.

E. Adjustable screw legs shall not extend past the limit set in the scaffold drawing. If the drawings are not available, then the screw legs shall not exceed 15" in height. On mobile scaffolds screw legs shall not exceed 12" in height.

F. All scaffold shall be plumb and level at all times. The scaffold will remain plumb and level constantly as the assembly proceeds.

G. When erecting scaffold on round tanks, towers are assembled in order to facilitate the radial turn.

H. Each scaffold leg on towers must be braced. Braces must be fastened securely. Each tower is braced with tube and coupler braces on every other frame on both the inside and outside frame legs, and diagonally in the same direction.

I. Toe boards shall be used on all scaffolding that constitutes a working platform. Toe boards must be used to prevent material from falling to the ground below, they shall be a minimum height of 4".

J. Wire screen consisting of #18 gauge 1/2" mesh, will be used to protect persons who are required to walk or pass under the scaffold from falling material.

K. Guarding, using 2 x 4 or other solid material shall be used for top rails and midrails. Top rails shall be approximately 42" in height and midrails shall be approximately 24" in height. All guarding material will be able to withstand 200 pounds of pressure and bend no more than 2". Guarding shall also be used between the outrigger planks and the walking surface of the main working platform if this opening is greater than 30". The guardrail will be placed halfway between the outrigger planks and the walking surface.

L. Provide proper access to scaffold platforms. **NEVER** climb scaffold frames to gain access to or egress from scaffolding.

M. Overhead protection shall be provided for workers on scaffold when exposed to overhead hazards.

N. The scaffold shall be anchored to the vessel, chest, or wall every 30' horizontally and 26' vertically.
O. When uplift may occur, use a locking system (hinge pins) to lock frames together.

P. Do not use ladders or makeshift devices on top of the scaffold to increase the working height.

Q. Scaffold is not to be placed in the proximity of power lines unless special precautions are taken.

R. All scaffold accessories shall be used and installed in accordance with the manufacturer’s recommended procedures. Accessories shall not be altered in the field.

S. Do not omit or fail to tighten all bolts or wing nuts that are part of the scaffold assembly.

T. When erecting or dismantling scaffold, an approved safety harness will be properly worn and tied off to prevent falls. No work will be done by masons, ironworkers or other personnel on uncompleted scaffolding unless these people are properly tied off.

U. Any work above 6’ without guardrails as a primary form of fall protection will require employees to tie off 100%. Failure to abide by the site tie off rules will result in immediate removal from the site and subject to a suspension. Suspensions lengths will be determined by the nature of the infraction, at a minimum the employee will be sent home for the day. Failure to follow safety rules can lead to termination of employment.

V. In any case it is a safe work practice to refrain from working on any uncompleted scaffold level.

W. All scaffold and components shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied to it.

VI. Planking:

A. All planking must be scaffold grade.

B. All scaffold boards shall be visually inspected before use. Check for sound and unsound knots, surface checks, through checks, splits, twists, notches, and weather rot. Scaffold boards deemed unsafe shall be cut up and disposed of.

C. All planking shall extend 6" but not more than 12" beyond the support. If the
plank is overlapped it will not extend beyond the support more than 12". On single tower scaffold, all plank must be secured to prevent movement.

D. **DO NOT** overload scaffold. Maximum allowable spans for nominal thickness lumber.

<table>
<thead>
<tr>
<th>SPAN FEET</th>
<th>LOAD P.S.F.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>75</td>
</tr>
<tr>
<td>8</td>
<td>50</td>
</tr>
<tr>
<td>10</td>
<td>25</td>
</tr>
</tbody>
</table>

E. Scaffold platforms shall be fully planked.

F. Secure planks to scaffold when necessary to prevent uplift or displacement.

VII. Erection of Scaffolding:

A. Tubular Welded Frame Scaffold (Fabricated Frame Scaffold):

1. The scaffold will be erected on solid and stable ground capable of supporting the loaded scaffold without displacement. When necessary use mud sills.

2. Screw legs shall be placed on foundations or mud sills, when using mud sills secure the base plate of the screw leg to the mud sill. Center all base plates on the sill.

3. The first segment or tower assembly will be erected by placing the frames on adjustable screw legs and by attaching the appropriate size cross-bracing. Once that has been completed, it will be checked for plumb and level. After the assembly has been checked, it will be fully planked.

4. As each level is erected or dismantled, safe access must be provided. Ladders or staircases will be attached as each level is added.

5. When the second level starts the first two frames (bucks) will be put in place and secured by hinge pins. Cross-bracing will then be put in place. The sides will be guarded with top rails, midrails and toe boards in accordance with General Requirements - I and K. All open ends will also be guarded. Continue to check the scaffold for plumb and level.
6. The worker putting the next frame into place will be provided with a Sala block fall arrester model L3020. This is an 11' fall arrester that will be attached to the last fully secured frame. This fall protection will be moved along and fastened to the next fully secured frame. As each frame is placed, it will be braced and guarded with top and midrail guarding, along with the toe board. This system will be used until the scaffold assembly is complete.

7. Scaffold assembly can be erected going clockwise, counter-clockwise or both as long as the procedures above are followed.

8. If the scaffold cannot be completed, the last open ended frame will be guarded with both a top and midrail guards, plus a toe board.

9. All incomplete scaffolding will be red tagged off when not in use.

10. **Remember** - All personnel erecting or dismantling scaffolding must be tied off to a section of scaffold above them which is capable of sustaining a 5,000 pound load. Never tie off to cross-bracing, toprails or midrails, or frame attachment hardware, only tie off to fully secured frames. The standard 6' lanyard will be used to tie off personnel not setting the frames.

B. **QES and System Scaffold:**

1. The mud sills will be laid out and screw jacks with fixed base plates will be attached. Center the base plate on the sill.

2. Place starter collars on the screw jacks. Connect the appropriate size runners and bearers for the scaffold. Runners and Bearers are connected by placing the ledger end onto the rossete (locking ring) and securing the wedge through the slot in the rossete. All wedges on the ledger end are to be hammered into place.

3. At this time level and plumb the base.

4. Once level and plumb, the main posts can be set on the starter collars.

5. Bracing on the main post should not exceed more than four rossetes.

6. The braces on QES and System scaffolds also provide fall protection as these braces are horizontal instead of at an angle and are at the required height for guarding.
7. Every third tower will have vertical diagonal braces secured to its tower.

8. Toe boards must be installed to complete the execution.

9. QES and System scaffold will be erected section by section, fully planked, with toe boards as the assembly goes. Check the scaffold as it is assembled for plumb and level.

10. If the mobile scaffold is 6’ or higher top rails, midrails, and toeboards will be required. See General Requirements - I and K.

11. All personnel erecting or dismantling QES or System scaffold will be tied off in the same manner as above. The person setting the upright posts will be attached to the SALA block fall arrester model L3020 and the remaining personnel will wear the standard 6' lanyard.

C. Rolling (Mobile) Scaffolds:

1. The height of free standing mobile scaffold towers shall not exceed 4 times the minimum base dimensions.

2. The job site surface must be level, free of debris, and free of holes.

3. The mobile scaffold must be plumb and level at all times.

4. To begin, install the casters on the frame or system scaffold. Once the caster is installed the caster brake must be set. The caster brake shall remain locked unless the scaffold is to be moved.

5. The caster shall be secured to the scaffold by pins or by some other suitable means.

6. Adjustable screw legs shall not exceed 12" in height on mobile scaffolds.

7. With the casters secured to the scaffold frame, stand up both frames and attach the cross-bracing. Once the cross-bracing has been attached secure it in place.

8. Attach horizontal diagonal bracing to the bottom. Horizontal diagonal bracing will be also be placed 20' thereafter to prevent racking.
9. Once the scaffold has been check for plumb and level, the next level can begin.

10. To begin, fully deck the scaffold, planks must be secured or cleated. Then attach either a ladder or staircase for safe access.

11. Place the next frames on top of the coupling pins of bottom frames and secure them with hinge pins. All frames will be locked together.

12. Once the frames have been secured, attach and secure the cross-braces.

13. If the mobile scaffold is 6’ or higher top rails, midrails, and toeboards will be required. See General Requirements - H and J.

14. Remove or secure all material or equipment on the platform before moving the scaffold.

15. Employees are not to ride rolling scaffolds.

16. When moving the tower, apply the force as close to the base as possible.

D. Tube and Clamp Scaffold:

1. Refer to the OSHA regulations for tube and clamp scaffolds. (See the OSHA tables for light, medium, and heavy duty scaffolds.

2. There are four basic parts to tube and clamp scaffolds. They are the base plate, tubelok, right angle clamp, and the swivel clamp.

3. To erect a tube and clamp scaffold you begin by placing the base plates on either a foundation or mud sill.

4. Place a tubelok on the base plate and secure by twisting the tubelok.

5. Once all the tubeloks have been placed on their base plates, attach a right angle clamp to the bottom of each tubelok.

6. With the clamp attached, place a runner (tubelok) in the clamp and secure. This will set the length of the tower.

7. Once the runner is secured, place a bearer (tubelok) in the clamp and secure. This will set the width of the tower. The bearer always goes on top of the
8. After the runners and bearers are attached, measure the scaffold to determine if it is square. Once the scaffold is square, attach a horizontal diagonal brace to ensure it remains square. The scaffold shall also be checked for plumb and level at this time.

9. Once that has been completed, the next level can begin. Each level should not exceed 6’6” in height.

10. The second level will be erected by attaching four more right angle clamps. Two more runners and bearers will then attached and secured.

11. After the runners and bearers are attached, swivel clamps will be attached to run diagonal braces at a 45-degree angle.

12. When that is completed fully, deck the scaffold.

13. Repeat steps 8 through 12 to continue erecting the scaffold. Horizontal diagonal bracing should be done every 20’ intervals.

14. Scaffolds 6’ or higher will require toeboards, top rails, and midrails. See General Requirements - I and K.

VIII. Inspection:

A. Completed scaffold assemblies shall be inspected by a competent person and be in safe condition and in compliance with existing regulations prior to use.

B. Scaffold assembly shall be inspected before each shift to see that changes or alterations have not been made that will affect the safety of its use. See Appendix B - Scaffold Tag Procedures.

C. Scaffolds that have been altered will be red tagged and taped off. Work will not begin until the scaffold has been corrected and is certified safe to use.

IX. Dismantling of Scaffolds:

A. All scaffold dismantling will be done using 100% tie-off. All personnel will wear a safety harness and a 6’ shock absorbing lanyard. Tie off to a
secure section of scaffold at all times. Personnel dismantling Tubular Welded Frame Scaffolds can use the Sala block L3020 - 11' fall arrester.

B. To begin dismantling tubular welded frame scaffold start by removing the hinge pins anchoring the frame. Remove the top rail, midrail, and toeboard on the first segment to be taken down. Then remove the cross-bracing from the frames. All components should be removed to the area set-up for lowering the material.

C. The frames can then be removed and placed in the lowering area. The decking from this segment can then be lowered to the next level.

D. This system will be repeated until the scaffold has been dismantled.

E. QES/System and Tube and Clamp Scaffolds will be dismantled by reversing the erection procedure for that type of scaffold.

F. Scaffold can be dismantled in a clockwise or a counter-clockwise direction.

G. If the scaffold level being dismantled cannot be fully completed, the last open section will be guarded with top rails, midrails, and toeboards.
CONCRETE HAZARDS

I. Purpose:

To ensure that employees are safe while pumping concrete.

II. Scope:

This policy is written to help the employees in pumping tasks, hazards need to be identified on a per site basis with the use of the JSA.

III. Mixing, Pumping & Placing:

Concrete construction exposes the worker to physical & mechanical hazards. Careful attention to this checklist will aid in prevention of accidents.

Concrete & Plaster Mixers

1. Guards on all gears, chains and rollers on mixers must remain in place and in good condition.
2. If the mixer has a charging skip do not walk under the skip.
3. Switches should be locked in open position, fuses removed and/or throttles closed when men are cleaning the inside of the drum.
4. Ropes and sheaves should be inspected daily.

Ready-Mix Trucks

1. Backing operations must be controlled by a signalman with a clear view of the area behind the truck.
2. Movement of personnel and other job equipment should be routed to avoid crossing the truck lane.
3. When discharging concrete on a slope, wheels should be blocked and brakes set to prevent movement.
4. Employees should stay clear of area below concrete placement points to avoid being injured by falling concrete.
5. Employees should stay clear of the area below concrete placement points to avoid being injured by falling concrete.

Concrete Pumps
Concrete pumps and hoses represent several hazards which you must check.

1. Hose must be laid out in smooth curves and restrained. If it is allowed to rub against the structure during pumping it can become damaged and rupture.

2. Use steel pipe and elbows whenever possible. Hoses represent a significant increase in safety hazards.

3. Hose clamps must be HD type.

4. Hose clamps must be securely fastened and checked on a routine schedule before every pour.

5. The clamps must not be released while pressure remains in the hose.

6. The swing reducer on the pump has been the site of several near-miss incidents; the clamp and hinges must be maintained in good condition and cleaned after every pour.

7. **NEVER USE AIR TO CLEAN A CONCRETE HOSE OR LINE**, we must use water.

8. A pressure gauge should be installed to determine the force of the pump in the event of a blockage, never exceed the manufacturer’s recommendations.

9. The lines should be taken apart whenever possible to remove a blockage, do not pressurize.

10. Never place a body part in front of a pressurized concrete line.

### IV. Personal Protection

1. Protect exposed skin from direct contact with lime and cement. Lime and cement products can cause burns if allowed to come into contact with exposed skin. Rubber sealed work gloves are required.

2. Wear clothing made of durable materials and which fit snugly around the neck, wrists and ankles.

3. Use of protective cream on exposed skin surfaces should be encouraged. It is part of standard tool box supply.


5. Cement in the eyes should be treated by flushing the eye with cold water immediately.

6. Long sleeves are recommended.

7. Hard Hat, Faceshield and Safety Glasses are mandatory for all concrete pumping.
APPENDIX A

SCAFFOLD & SHORING SIGN-OFF PROCEDURES

To ensure the Health and Safety of all personnel working on the job site, the following Scaffold & Shoring Sign-Off Procedure will be followed prior to starting any pouring of overhead covers or slabs.

Definitions:

A. **Erector** - the competent person responsible to oversee the daily erection of the Scaffold and Shoring. (i.e., Labor Foreman, etc.)

B. **Job Superintendent** - the person in charge of the daily job site operations.

C. **Authorized Inspector** - a person specially designated by the Owner of the Company, who is authorized to inspect installed Scaffolds & Shoring and signs off on the drawing approving the pour.

D. **Sign-off block** - the area on the drawing where the Erector, Superintendent and Authorized Inspector must sign-off at. (See page 3 of this procedure.)

Step #1:

- The **Erector** will ensure all Scaffold & Shoring is installed in accordance with the engineered drawing. When all Scaffold & Shoring is installed, the erector will sign and date two (2) copies of the Scaffold & Shoring drawing, affirming it is installed per the drawing.

Step #2:

- The **Superintendent**, when advised by the **Erector** that all Scaffold and Shoring is installed, will then personally inspect all Scaffold and Shoring (using the drawing) to ensure that it was installed per the drawing.

- Once the inspection has been completed, the **Superintendent** will sign and date the two (2) copies of the drawing, affirming that it is installed per the drawing.

- **This procedure does not relieve the Superintendent from making a daily check of all Scaffold and Shoring on the job. This is to be done on a daily basis with inspection notes listed on his daily log sheet.**
Reminder - Copies of the daily log sheet are to be forwarded to the Home Office each week.

Step #3:

- The **Authorized Inspector** will, together with the Job Superintendent, personally inspect all Scaffold and Shoring (using the drawing) to ensure it was installed per the drawing.

- The **Authorized Inspector** will not sign-off on the drawings unless the Scaffold and Shoring confirms with the drawings. If they are out of compliance, then he must wait until he has witnessed the correction before signing-off on the Scaffold and Shoring drawing.

- Once this is completed, the **Authorized Inspector** will sign and date the two (2) copies of the drawing, affirming it is installed per the drawing.

Step #4:

- The **Final Inspection - Job Superintendent**. The **Job Superintendent** will again (using the drawing(s)) inspect the Scaffold and Shoring immediately prior to starting to pour the cover or slab, to ensure the Scaffold and Shoring is still in compliance with the drawing.

- Upon making the final inspection, the **Job Superintendent** will sign, date and indicate the time of the inspection on the two (2) copies of the Scaffold and Shoring drawing and report compliance to their Division Coordinator by telephone.

- The area beneath the shoring scaffold will not be accessible by anyone during the pouring of concrete. The area must be tapped/barricaded so that access is denied to all employees.

Step #5:

- The **Job Superintendent** will file one (1) copy of signed drawing at the job site office. He will (prior to starting pouring) mail one (1) copy of the signed drawing to the Watertown C & R Department only if there has been a modification to the drawing, to be filed in the appropriate job folder. The signed drawings are to be sent to Watertown for forwarding to the Engineering or Drafting Manager.
If obstructions or field problems occur and the Scaffold and Shoring cannot be installed per the drawing, all erection is to **STOP** and the Watertown Engineering Department shall be contacted **IMMEDIATELY**.

Scaffold and Shoring changes will be made only after the drawing has been changed. This will be accomplished by the site being supplied with a new drawing or by an Authorized Licensed Engineer marking all changes on the existing drawing and signing and dating all changes.

**Sign-Off Block:**

Below is copy of the “sign-off block” which appears on all Scaffold and Shoring Drawings. Before any pours begin, the Erector, Superintendent, and Authorized Inspector shall inspect the scaffold and shoring to ensure it was installed in accordance with the drawing(s). Once inspected the following “sign-off block” must be completed.

| POURING OF COVER/SLAB CANNOT BE STARTED UNTIL ALL BELOW HAVE SIGNED OFF I, THE UNDERSIGNED, HAVE INSPECTED THE SCAFFOLD / SHORING AND AFFIRM THAT IT HAS BEEN INSTALLED PER THIS DRAWING. |
|---|---|
| ERECTOR | DATE |
| SUPERINTENDENT | DATE |
| AUTHORIZED INSPECTOR | DATE |
| FINAL INSPECTION*** | TIME | DATE |
APPENDIX B

SCAFFOLD TAG PROCEDURES

I. Purpose:

To ensure the safety and health of all Company employees that utilize scaffolds, the following scaffold tag procedure will be followed on all scaffolds erected and used by the Company.

II. General Information:

All four (4) of the Company scaffold tags are generic, meaning the Company name will not be pre-printed on them. There is a blank line provided at the top of each tag where you will have to write in the appropriate Company name (i.e., Stebbins, Chemipulp, etc.).

Company scaffold tags will come in four (4) different colors: Red, Yellow, Green, and White.

Scaffold Tags will only be completed by the Company Employee who has been designated as the on site Competent Person.

OSHA defines a Competent Person as one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. (29 CFR Part 1926.450 (b))

What this means is that a Competent Person is one who can see that there is a problem, identify it, then has the authority to correct it, which could include stopping the work at hand on the item until the problem has been corrected.

III. White Scaffold Tags:

White scaffold tags will be used in conjunction with the other three tags. That means all scaffolds are required to have two tags on it at all times.

White scaffold tags are two sided. On one side is a checklist of scaffolding requirements. When you fill it out, check the appropriate blocks. This will tell others what areas need to be inspected at the start of each shift. The other side contains blocks for the date and time the pre-shift observations were made, as well as the name of the competent person.
who made the observations. This side needs to be completed prior to using the scaffold on each shift.

IV. Red Scaffold Tags:

Red scaffold tags will be used whenever the scaffolding is to be raised, lowered, or has been inspected and found to be out of compliance. The red tag means that only those authorized by the superintendent may be on this scaffolding, and that no work may be done on the scaffolding other than to work on the scaffold itself.

V. Yellow Scaffold Tags:

Yellow scaffold tags will be used on incomplete scaffold, when work must be performed on that scaffold. All attempts will be made to build complete scaffolds, but due to the locations in which we work this is not always possible. When incomplete scaffolds have to be used, all the required PPE needed will be listed on the yellow tag, and all persons working on the scaffold must have the PPE worn before using the scaffolding.

VI. Green Scaffold Tags:

Green scaffold tags are for completed scaffolds only. At any time the scaffold becomes incomplete, the green tag must be removed and replaced with the appropriate yellow or red tag. Completed scaffolds must meet all Federal, State, and Company requirements.

VII. Other Means of Marking Scaffolding:

In the event that no Scaffold Tags are present on the Job site, the following must be used as an alternative until such time as proper scaffold tags are available.

A. Barricade tape and job made signs will be used to indicate the current status of the scaffolding. Signs should include any required PPE as well as the words “Authorized Personnel Only.”

B. Red barricade tape will be placed in such a way as to limit access to the area immediately around and under the scaffolding to authorized personnel only.

C. The required pre-shift observations will be made at the start of each shift, and documented in the Superintendents daily log. This log entry must include the time of the observations, and the name of the competent person who made the observations.
### Scaffold Pre-Shift Observation

<table>
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<tr>
<th>YES</th>
<th>N/A</th>
<th>Observation Point</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Scaffold Pins in place?</td>
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<tr>
<td></td>
<td></td>
<td>Guard Rails in place?</td>
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<tr>
<td></td>
<td></td>
<td>Mid Rails in place?</td>
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<tr>
<td></td>
<td></td>
<td>Toe Boards in place?</td>
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<tr>
<td></td>
<td></td>
<td>Mudsills in use?</td>
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<tr>
<td></td>
<td></td>
<td>Ladderway/Access proper?</td>
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<tr>
<td></td>
<td></td>
<td>Planks overlapped or secured?</td>
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<tr>
<td></td>
<td></td>
<td>Scaffold properly braced and tied?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All planks serviceable?</td>
</tr>
<tr>
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<td>Working level fully decked?</td>
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<tr>
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<td></td>
<td>Base plates in use?</td>
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<tr>
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<td>Scaffold level and plumb?</td>
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<tr>
<td></td>
<td></td>
<td>Rest platforms provided?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Drawings on site if required?</td>
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<tr>
<td></td>
<td></td>
<td>Other:</td>
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</table>

**Do Not Remove This Tag**

**See Other Side**

**Do Not Remove This Tag**

### Company:

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Competent Person</th>
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</tbody>
</table>

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[Image of scaffold pre-shift observation sheet]
COMPANY:

COMPLETE

THIS SCAFFOLD IS COMPLETE AND MEETS APPLICABLE STATE AND FEDERAL REGULATIONS.

DO NOT ALTER WITHOUT PERMISSION OF THE UNDERSIGNED.

DATE: __________________________

NAME: __________________________

SIGNATURE: ______________________

COMMENTS: ______________________

AUTHORIZED PERSONNEL ONLY
DO NOT REMOVE THIS TAG
SWING STAGE SCAFFOLD PROCEDURES

I. Purpose:

To provide our employees with the safest possible method for erecting, using, and dismantling swing stage scaffolds.

II. Scope:

STEBBINS Swing stage (multiple point) suspended work platforms are specially designed for the use inside circular tanks. Since our swing stage scaffolds are considerably different from the stages contemplated in the OSHA regulations, they are designed by our Engineering Department.

III. Swing Stage Requirements:

1. General Requirements:

   ◆ All work platforms shall be constructed and assembled to the engineered drawing.
   ◆ A copy of the drawing must be kept on site.
   ◆ The platforms are not to be used for any other purpose than intended unless the drawing has been modified and approved.
   ◆ All components of the swing stages shall be inspected before use. (Platform, cables, griphoists, blocstops, eyebolts, and bolts.)
   ◆ Use the proper griphoist and cable in accordance with the engineered drawing.
   ◆ All safety lines shall be 3/4" nylon or 1" manila rope.
   ◆ When using Blocstops, safety lines are not required.
   ◆ Safety lines must be kept snug at all times.

2. Installation:

   A. Hanging cables from Scaffold Nozzles or Steel Beams:

   **Note:** FRP or wood covers are not to be used for the support of platforms.

   ◆ It is important to carefully inspect the support nozzles on the roof of the tank before installation of the hangers. If there is obvious corrosion or any other concern about the integrity of the nozzle they must be inspected and approved by an engineer before the cables are installed.
   ◆ The cable hanging supports must be installed in the nozzle according to the drawing provided. The following 3 Data Sheets 74410, 74410A, &
74410B provide 3 different methods for installing the hanger supports. Choose the method that best fits the design of the vessel you are working on.

- Scaffold nozzles to withstand minimum 6000 lb. point load.
- When scaffold nozzles are unsafe and steel beams are not feasible, secure cables and safety lines to the closest structural steel.

B. Installing Griphoists and Blocstops or Safety Lines:

- Once the cables have been secured at the top and lowered to the bottom, thread the cable through the blocstop then through the appropriate griphoist.
- Safety lines are to be used to minimize the vertical movement of the scaffold should one of the hoisting cables break, become unattached, or otherwise loosened or if the Griphoist should fail.

C. Installation of the Wood Platform:

- When installing platform, at a height over 10', a fall restraint system is required.
- Install the platform in accordance with the engineered drawing.
- Connect the griphoist to the eyebolt (check safety catch).
- Connect the blocstop safety cable to the eyebolt on the scaffold.
- All shackles require a safety pin or tie wire to secure the bolt.
- The access hatch in the center of the platform must have either a secured cover which is closed during the work procedure, or must have a guard rail system installed.
- A center tower should be erected with a steel beam, it must be capable of supporting a 500 lb. point load.

D. Installing equipment and safety equipment:

- A rope ladder and Sala Block with retrieval capabilities is to be installed on the platform.
- If possible, try to install the ropeladder to allow for top and bottom escape routes.
- The air tugger is to be secured to platform. Run the air tugger cable through a wheel well attached to the steel beam on the center tower.
- Inspect the air tugger cable, safety latch, and bucket before using.

3. Daily operations:
The swing stage shall be inspected by a competent person on a daily basis.

When working on a swing stage, do not exceed safe work loads.

When raising and lowering platform, all griphoists are to be operated simultaneously.

Everybody working on a swing stage is required to wear a full body harness at all times.

All rubble and debris must be removed from the deck.

All tools and parts shall be kept in secure containers while on the platform.

Workers are to use Sala Block and rope ladder or man basket for all access and egress to the work platform.

Precautions are required to protect the person loading the bucket, if possible load the bucket from outside the manhole.

**NOTE:** AT NO TIME CAN THE AIR TUGGER USED FOR MATERIAL HANDLING BE USED FOR PERSONAL ACCESS OR EGRESS TO OR FROM THE SWING STAGE.

### IV. Griphoist Models and Limitations:

1. **Model TU-28**  -  Cable size 7/16"  -  Color code = Red  
   - 3000 pound capacity live load per Griphoist.  
   - 4-point suspension permissible up to 12'0" ID steel.  
   - 6-point suspension permissible up to 23'6" ID steel.

2. **Model TU-32**  -  Cable size 5/8"  -  Color code = Green  
   - 6000 pound capacity live load per Griphoist.  
   - 4-point suspension permissible up to 16'0" ID steel.  
   - 6-point suspension permissible up to 26'0" ID steel.

3. **Model XE-2000 P**  -  Cable size 9/16"  
   - 4400 pound capacity live load per Griphoist.  
   - 4-point suspension permissible up to 16'0" ID steel.  
   - 6-point suspension permissible up to 26'0" ID steel.

Limitations for the various Griphoists outlined above are based on manufacturer specifications. Do not overload the staging.

Only the cable supplied with the suspended work platform can be used with our Griphoist. Do not use any other cable.
GUIDELINES FOR USE OF SUPPORT BRACKETS (PUT LOGS) IN A VERTICAL WALL

I. General:

A. Scaffold frames, TubeLox® and wood members shall be inspected before erecting. Any members found to have structural deficiencies must be set aside or discarded. Items set aside or discarded shall not be used.

B. Support brackets shall conform to STEBBINS Data Sheet 74435.

C. The 1¾” long “hook” on the support bracket must be bent 90° ± from the vertical member as shown below:

D. If the hook is bent such that it is greater than 3/16” from its original position, the bracket must be thrown out. The hook may not be bent back to the proper position and used.

E. Unless drawings show otherwise, the maximum allowable spans for the support joist (with 3’ 6” maximum spacing) are as follows:

   - 2" x 6" joist: 6' 6"
   - 2" x 8" joist: 8' 6"
   - 2" x 10" joist: 10' 0"

If spans greater than these exist, the Watertown Engineering Department must be notified. (Note: for round tanks, the 3’ 6” maximum spacing is measured at the wall.)
II. Joist Spanning from Support Bracket to Center Tower:

A. If the Center tower is built of scaffold frames, the ends of the joist are to be supported on TubeLox® secured to the frames as shown below:

![Diagram of TubeLox® support](image)

The TubeLox® must be supported every 4' 6". Use only approved TubeLox® clamps to secure the TubeLox® to the scaffold frames. If the TubeLox® spans more than 4' 6", an intermediate support is required and the Watertown Engineering Department must be notified.

B. If the center tower is built of wood, the ends of the joist are to be supported on 2" x 6" headers nailed to the tower legs, as shown below:

![Diagram of header support](image)

The 2" x 6" headers must be supported every 5' 0". Use a minimum of four (4) 16d common nails to secure the header to the tower legs. If the header spans more than 5' 0", an intermediate support is required and the Watertown Engineering Department must be notified.
C. Place the support bracket on the wall so that the vertical member of the bracket is flat against the wall, as shown below:

D. Place one end of the joist in the support bracket and set the other end on the TubeLox® or wood header, as shown below:

E. After all the joists have been set, place a 2" x 6" cleat on the top of the joists at the tower end and, making sure the cleat is tight against the frame or tower leg, drive two (2) 16d common nails through the cleat and into each joist, as shown below:

F. After the 2" x 6" cleats have been secured, drive a wood wedge between the end of each joist and the support bracket (as shown below) to prevent any horizontal movement of the joist.
G. To prevent any “rocking” of the joist, drive a wood wedge between the joist and the side of the support bracket, as shown below:

H. For additional stability, place a 16d common nail in the 3/16" diameter hole in the side of the support bracket and drive it into the joist, as shown below:

III. Joist panning From Support Bracket to Support Bracket:

A. Place the support bracket on both walls so that the vertical members of the brackets are flat against the walls, as shown below:

B. Place the Joist in the support brackets.

C. As shown below, drive a wood wedge between the support brackets and each end of the joist to prevent horizontal movement of the joist.
D. Drive a wood wedge between the joist and the side of each support bracket to prevent “rocking” of the joist, as shown below:

E. For additional stability, place a 16d common nail in the 3/16" diameter hole in the side of each support bracket and drive them into the joist, as shown below:
HYDRO MOBILE PROCEDURES

I. Purpose:

The Company is responsible for providing for safe assembly, disassembly, and proper use of Hydro Mobile mast climbers by its employees. We believe these procedures provide our employees with the safest method possible for operation.

II. Scope:

These procedures are intended to provide our employees with strict guidelines for erecting and dismantling various types of scaffolding. All employees will be trained in the safe use of Hydro Mobile.

SAFETY comes first. For your personal safety, always have a competent person and back up competent person assemble, operate, disassemble and move this mast climber system. The definition of competent person is defined as one having the;

A. Capability of identifying existing and predictable hazard,

B. Authority to take prompt corrective action,

C. Training & knowledge to assemble, operate, disassemble and move this system,

D. Operator’s manual information on hand at all times,

E. Experience (on the job) to assemble, operate, disassemble and move this system.

III. Training Requirements:

A. All employees who perform setups of the Hydro Mobile must attend training from our Safety Dept. or a representative from Hydro Mobile. Training will consist of the following:

1. A general overview of regulations and standards.

2. Weight capacities, and how to balance the motor units prior to lowering bridges in place.

3. The nature of any electrical hazards, fall hazards and falling object hazards in the work area.
4. How and when to tie the Hydro Mobile into the structure.

5. The correct procedures for raising and lowering the Hydro Mobile.

6. The proper use of the Hydro Mobile, and the proper handling of materials on the platform.

7. The maximum intended load and the load-carrying capacities of the Hydro Mobile system used.

8. The PPE required and the fall protection method to be used when necessary.

9. Any other pertinent requirements.

B. When there is reason to believe that an employee lacks the skill or understanding needed for safe work involving any operation of the Hydro Mobile, the Company shall retrain each such employee so that the requisite proficiency is regained. Retraining is required in at least the following situations:

1. Where changes at the work site present a hazard about which an employee has not been previously trained.

2. Where changes in the types of Hydro Mobile components, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained.

3. Where inadequacies in an affected employee’s work involving the Hydro Mobile indicate that the employee has not retained the requisite proficiency.

4. Annually.

C. All Hydro Mobile training must be documented. The training must be completed before any user or erector/dismantler can begin work on any Hydro Mobile setup.

IV. Prior to Use:

A. All equipment shall be inspected before use. Only equipment in good repair and safe condition shall be used.
B. No modifying equipment.

C. The Hydro Mobile assembly used on most STEBBINS projects has been designed by professional engineers and drawings are sent to the job. Alterations or modifications to the assembly setup **shall not** be made unless approved by the Engineering Department. The date, time and name of the person authorizing the change will be put on the drawing. New drawings with the approved changes will then be sent to the job.

D. If any doubt exists as to the ability of the equipment to accomplish a particular job, call the Engineering Department for assistance.

V. Setup Requirements:

A. An 8000lbs minimum rough terrain forklift is required to move the motors and bridges of the Hydro Mobile.

B. Mudsills provided shall be used under the legs of the Hydro Mobile, even when on solid ground.

C. All machines and bridges must overlap by no less than 6 inches, and no more than 12 inches. The ideal overlap is 9 ½ inches. Too much overlap causes interference with compartment doors, too little overlap could cause a bridge to fall.

D. All masts must be level prior to completing setup. We have noticed that on round tanks it is beneficial to ensure that rung height is level, this helps keep the working platform at the same height on all sides of the tank.

E. Bridge heights can vary up to an inch per foot. (If you have a 56 foot bridge one motor can be higher or lower than the adjacent by 56 inches)

F. Do not raise the Hydro Mobile until all guardrail components are installed, failure to do this will result in fall protection infractions and discipline. The hydro Mobile is 7 feet wide, always stay away from the leading edge by 6 feet when no guardrails are installed. **Remember** - All personnel must be tied off to an anchor point above them which is capable of sustaining a 5,000 pound load.

VI. Fall Protection

A. We will not wear harnesses on the Hydro Mobile while all guardrails are
installed, harnesses will be present and available. Anytime a fall hazard arises the area will be barricaded and only employees with fall protection, tied off to a suitable anchor will be permitted in that area.
STEBBINS CONFINED SPACE ENTRY POLICY

I. Purpose:

The procedures and practices developed by STEBBINS for entry into and working on a confined space is designed to protect you the worker from the hazards involved in this environment. The intent is to provide you the worker with the necessary training and required personal protective equipment (PPE) to prevent serious injury or death which can result from this type of work. The safety of the employee is the primary concern in our procedure for confined spaces and convenience will never be used as an excuse for short cuts.

II. Special Note:

Many of our customers have established policies already in place and by contract we are responsible to abide by their policies. Any deviation from our procedures however, must be discussed with and approved by the STEBBINS Safety Department prior to implementation. All employees must be trained on the confined space policy that we will use. The training will cover all hazards involved with the space(s) involved. All employees will receive training prior to entry. The training will be updated if there is any change in the space, any new hazards introduced or if duties have been reassigned. Training will be documented and done by a competent person.

III. Procedures:

Before you can begin work, you first must determine whether or not your work is inside a confined space. Refer to the definition of a confined space to make that determination.

A Confined Space means a space that:

1. Is large enough and so configured that an employee can bodily enter and perform assigned work; and

2. Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, etc. are spaces that may have limited means of entry.); and

3. Is not designed for continuous employee occupancy.

Once you have determined it to be a confined space by using the definition above, the next step is to determine whether or not the confined space is a Non-permit or Permit-required confined space. Use the following definitions to determine the proper classification.
A **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.

A **Permit-Required Confined 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; **or**
2. Contains a material that has the potential for engulfing an entrant; **or**
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 small cross-section; **or**
4. Contains any other recognized serious safety or health hazard.

As a company we work in both types of confined spaces. Some tanks, depending on their location are classified as Non-Permit Confined Spaces. If the hazards change inside the item the Non-Permit space is reclassified as a Permit-Required space. All shutdown work performed by STEBBINS on existing chemical containment vessels are Permit-Required Confined Spaces. The following steps are to be taken by the Superintendent on the job when required to work in **Permit-Required** Confined Spaces.

**Preparing for entry into Permit-Required Confined Spaces (Steps):**

1. All training of entrants, and hole watch must be completed prior to entry. The training must be done by a competent person who will address all relevant hazards in the confined space. Update training will be required when tasks change or any new hazards have been introduced. All training will be documented. The certification shall include employee name, trainer signature/initiais, dates of training. Certification must be made available to employees & their authorized representative.

2. The tank, chest, or vessel must be ventilated and purged of fumes to eliminate or control atmospheric hazards. Start the ventilation system 15 - 30 minutes before entry. The ventilation system used must be capable of moving air in all areas of the vessel.
3. The tank, chest, or vessel must be washed or flushed with water to ensure all contents have been drained and removed. It is important to remove all stock and slurry from the sidewalls and roof. This will eliminate any potential engulfment hazard.

4. The tank, chest, or vessel must be locked-out / tagged-out. All lines and piping carrying hazardous materials, to and from, such as steam, hot water, stock, corrosive chemicals, flammables, etc. to the vessel shall be blanked-off and valves locked and tagged in the closed position to prevent them from being opened.

5. All electrical, mechanical, hydraulic, or pneumatic powered equipment coming into the vessel shall be locked and tagged in the “off” position to prevent accidental dumping inside the vessel. The lockout can be accomplished by locking and tagging the main electrical switch controlling the item or any switch in line that can be physically locked-out. If the circuit breaker or fuse can be removed, this should also be done. Without exception, this step must be completed before entry can be made into the vessel.

6. The atmosphere inside the vessel must be tested prior to entry. The vessel must be tested for oxygen, LFL, toxic substances. The oxygen level should read approximately 20.9%. If the oxygen level is below 19.5% or higher than 23.5% do not enter the vessel. The Lower Flammable Limit must be less than 10%. The toxic levels should not exceed their permissible exposure limits (PEL). See Appendix II for safe breathing levels.

7. Provide barriers as necessary to protect entrants from external hazards.

**Entry into the Confined Space**

As soon as the above steps are completed, the job superintendent may allow entry by following these steps:

1. The superintendent must ensure that everybody involved with the confined space understands his/her responsibilities including his own. See Appendix I - List of Responsibilities for the Superintendent, Authorized Entrant, and Attendant (Hole Watch).

2. The ventilation system must remain on at all times while working inside the confined space.

3. All temporary and/or portable lights must be available to safely illuminate the work area and access ways. Where moist and/or hazardous conditions are involved, such lighting within the vessel must be of explosion-proof design.
and/or 12 volt.

4. All required safety protective clothing and equipment must be available. Such items may include: escape respirators, 30 minute self-contained rescue units, the Company SKAPAK System, tripod retrieval systems, chemical suits, and harnesses with lifelines, etc. **Note:** If the lifeline creates an entanglement or a trip hazard it may not be worn, but it must be present outside the vessel.

5. The superintendent will make arrangements with the Mill/Plant or an outside source to provide rescue services. Each Mill/Plant has an established rescue team which is available to us. Under no circumstances are we to perform escues.

6. At this time the Superintendent verifies that the necessary steps have been taken and completes the Confined Space permit. The Superintendent will sign and post the permit as close as possible to the vessel.

7. Once the Attendant signs the permit, Authorized entrants may enter by signing the permit every time they enter and exit. Attendants are not permitted to watch more than one confined space at a time.

8. The entry permit and process may be reviewed at any time, should any deficiencies be found the appropriate changes to the entry process must be made to ensure safety to the entrants.

### Multi Employer Entry

At various times it may be necessary to allow entry into a confined space when another contractor is already in the space or needs access during our operations. In this case all rules must be followed by both contractors. Should the entry of the other contractor introduce new hazards, the appropriate training must be completed. It is possible to share attendants and to coordinate atmospheric air monitoring. It is very important to coordinate activities as we do not need interference with other companies nor do we want to create any unnecessary hazards.

### Completion of the work inside the Confined Space

When the work within the confined space has been completed, the vessel shall be cleaned of all foreign materials, tools, etc. All entry and ventilation points are to be closed, all blanks and blinds, locks, and tags are to be removed. The mill/plant contact shall be informed of the work completion and at that time the Confined Space Permit will be terminated and removed.
At the completion of the entire job, all confined space permits are to be mailed to the Watertown Safety Department, where they will be filed and kept for a period of one year.

All cancelled permits will be reviewed by the safety department each year. The review will help in administering improvements to the program. All permits will be kept in the job file. (Job files are kept for 30 years).

**New Construction**

STEBBINS does not consider new construction of reinforced concrete tanks as permit required confined spaces, until we form the cover and lose access to the tank from the top. No atmospheric hazards exist in a normal construction environment, access is not limited and we work inside tanks of this nature every day, so the tank is intended for human occupancy until construction is completed. Ventilation is very good as these tanks have a natural chimney effect.

If the construction is located in an area where exposure to hazardous substances is possible, simply applying a confined space label to the vessel is not acceptable. Engineering controls must be implemented, as a significant amount of our scope requires outside work. A plan must be implemented with the Safety Department.

**Rescue Services**

Rescue services are handled by our client’s ERT. Prior to entry we must visit with the ERT and explain what the nature and scope of our work will be so that together we can implement a suitable plan. ***ALL CLIENTS HAVE EMERGENCY RESPONSE**** We do not work in atmospheres that are considered to be IDLH.
APPENDIX I

LIST OF RESPONSIBILITIES

**Entry Supervisor (Superintendent):** - is the person responsible for determining if acceptable entry conditions are present at a permit space where entry is planned.

Responsibilities include:  
- verifies permit is filled out completely  
- ensures all safety steps are followed  
- signs form  
- must know all potential hazards of the confined space  
- verifies rescue services are available  
- must check conditions during work operations  
- makes sure all unauthorized people are removed  
- cancels the permit when the space becomes unsafe or when the work is completed

**Authorized Entrants:** - is an employee who is authorized to enter the permit space.

Responsibilities include:  
- must know all potential hazards of the confined space  
- know the proper use of all required PPE  
- must communicate with the attendant as necessary  
- alert the attendant whenever a dangerous situation occurs

**Attendant (Hole Watch):** - is 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.

Responsibilities include:  
- know all potential hazards of the confined space  
- watch one space only  
- aware of possible behavioral effects of hazard exposure  
- must maintain an accurate count of entrants and ensures accurate means of identifying who is in the permit space  
- remains outside the permit space during entry operations  
- communicates as necessary with entrants  
- monitor activities inside and outside the space for hazards  
- summons rescue if entrants need assistance to escape  
- keeps all unauthorized person(s) from entering the confined space  
- performs no other duties that might interfere with his/her role as attendant
APPENDIX II

SAFE BREATHING LEVELS

<table>
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<tr>
<th>Chemical</th>
<th>TLV - 8 HRS</th>
<th>STEBBINS TLV - 8 HRS</th>
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<tbody>
<tr>
<td>Oxygen - O₂ (Average 20.9 %)</td>
<td>Range 19.5 - 23.5%</td>
<td>Range 19.5 - 23.5%</td>
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<tr>
<td>Combustibles - % LFL</td>
<td>10 % or less</td>
<td>10% or less</td>
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<td>Chlorine - Cl₂</td>
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<tr>
<td>Chlorine Dioxide - ClO₂</td>
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<td>0.1 ppm</td>
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<tr>
<td>Sulfur Dioxide - SO₂</td>
<td>5 ppm</td>
<td>2 ppm</td>
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<tr>
<td>Styrene - C₆H₅CHCH₂</td>
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<td>50 ppm</td>
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<tr>
<td>Ammonia - NH₃</td>
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<tr>
<td>Methyl Mercaptans - CH₄S</td>
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</table>

**TLV** - Threshold Limit Value - Amount that can be safely breathed for eight (8) hours. Levels that are used for tank entry. Permissible Exposure Level (PEL) is another common term used.

**PPM** - Parts Per Million.

**LEL** - Lower Explosive Level.
SOFTBINS ENGINEERING SAFETY MANUAL

SECTION VII

CONFINED SPACE ENTRY PERMIT

JOB NO.: ______________ ITEM (PERMIT) NO.: ______________ PLANT ______________

LOCATION: ___________________ DESCRIPTION OF VESSEL: ___________________

NORMAL CONTENTS OF VESSEL: ___________________

NATURE OF TASK TO BE ERFORMED: ___________________

PROBABILITY OF SPECIAL HAZARDS EXISTING:

- TOXIC VAPORS [ ] [ ] [ ]
- FLAMMABLE OR COMBUSTIBLE GASES [ ] [ ] [ ]
- LACK OF OXYGEN [ ] [ ] [ ]
- ELECTRIC SHOCK [ ] [ ] [ ]
- INJURY FROM MECHANICAL EQUIPMENT [ ] [ ] [ ]
- ENGULFMENT HAZARDS [ ] [ ] [ ]

GAS TEST RESULTS:

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GAS MONITOR USED:

DATE OF LAST CALIBRATION / MAINTENANCE:

NAME OF PERSON CONDUCTING TEST RESULTS:

SAFETY CHECKLIST:

- VESSEL DRAINED AND CLEANED [ ] [ ] [ ]
- VESSEL FLUSHED WITH WATER IF POSSIBLE [ ] [ ] [ ]
- LINE(S) BROKEN - CAPPED - BLANKED [ ] [ ] [ ]
- ADEQUATE VENTILATION PRESENT [ ] [ ] [ ]
- APPROVED LIGHTING [ ] [ ] [ ]
- LOCK-OUT / TAG-OUT PROCEDURE COMPLETE [ ] [ ] [ ]
- PROPER RESPIRATORY EQUIPMENT PROVIDED [ ] [ ] [ ]
- FULL BODY HARNESS AND LIFELINE AVAILABLE [ ] [ ] [ ]
- SAFETY SHOWER & EYE WASH STATION LOCATED [ ] [ ] [ ]
- REQUIRED PPE AVAILABLE [ ] [ ] [ ]

PERMIT EXPIRES: _______ TIME: _______ DATE: ______________

SUPERVISOR AUTHORIZING ENTRY:

ATTENDANT(S):

PERMIT CLOSED BY: _______ TIME: _______ DATE: ______________

***EVERYBODY MUST SIGN THE BACK OF THIS FORM WHEN ENTERING AND EXITING THE VESSEL***

SAFETY/MANUAL/csm7-4a.wpd  Rev. 11/2016-RTD
## CONFINED SPACE ENTRY PERMIT

### SIGN IN AND OUT LOG

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### EMERGENCY PHONE NUMBERS

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Safety\Manual\Forms\SFT-W-9.WPD

FORM SFT-W-9-3/00

SAFETY\MANUAL\esm7-4a.wpd

Rev. 11/2016-RTD
I. **Purpose:**

To outline the STEBBINS requirements for the safe operation of cranes, forklifts, and hoists on the job site. To set and define operator qualifications, inspection and maintenance standards.

II. **Operator Qualifications:**

A. All operators must have no physical impairment which would limit the safe operation of the equipment.

B. The operator must have successfully completed training, and have on their person a valid operators card for the equipment being operated.
   1. Lift truck operator requirements are detailed in paragraph VI of this section.
   2. Crane operators must be certified by a nationally recognized crane operator training program.

C. Copies of all training records and operators cards shall be maintained by the Safety Department.

D. No employee suspected to be under the influence of alcohol or drugs shall be allowed to operate any equipment of any type.

III. **Pre Use**

A. All cranes used shall be assembled and disassembled according to the manufacturer’s recommendations and under the supervision of a qualified person. STEBBINS is responsible for any 3rd party that may conduct these tasks. All assembly/disassembly is subject to Company inspection.

B. An inspection of the ground conditions shall be made prior to using any crane. Equipment must not be assembled or used unless ground conditions are firm, drained, and graded to a sufficient extent so that, in conjunction (if necessary) with the use of supporting materials, the equipment manufacturer’s specifications for adequate support and degree of level of the equipment are met.

C. A hazard assessment must be completed prior to starting work. The hazard assessment must address the site specific hazards.
IV. Equipment Inspections:

A. The equipment must be of the proper type and of sufficient capacity to fulfill all requirements of the work without endangering personnel or equipment.

B. If the equipment is rented, a copy of the complete maintenance and service records of the equipment must be obtained from the rental company, and maintained by the Superintendent.

C. The equipment must be inspected, and that inspection recorded on the appropriate inspection form, (Form SFT-W-24 or Form SFT-W-25). This inspection shall be done at the start of every shift by the operator. All inspections will be documented and kept onsite for the duration of the project.

D. A monthly inspection must be completed by a competent person when daily inspections are not kept onsite for 3 months.

E. Only manufacturer approved parts, fuels, and fluids will be used to maintain equipment. All modifications must be approved by the manufacturer.

F. All repairs will be made by qualified personnel only. All repairs must be completed before the equipment can be used.

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

V. General Guidelines:

A. The equipment will be operated with the assistance of a signal person in any situation where maneuvering room is limited, vision is limited, overhead power lines are present, or other personnel are present, and at any other time the Superintendent deems it necessary.

B. When a radio is used to direct loads, the frequency and the channel shall be different from all other radios on the job site.

C. Operators and signal men MUST know the PROPER hand signals.

D. No one other than the operator will ride on any piece of mobile equipment. At
no time will anyone be allowed to ride on the load.

E. When using a crane or hoist to make any lift, all slings, cables, and connectors shall be inspected. All lifts require a tag line. No operator will make a lift until these conditions have been met.

F. No lifts will be swung directly over the heads of any workers, at any time.

G. Hand signals to crane and derrick operators shall be those prescribed by the applicable ANSI standard for the type of crane in use. A pocket card will be issued for the proper crane.

H. An annual documented inspection done by a 3rd party recognized by the US department of labor on each crane or hoist used.

I. Should any machinery be used inside enclosed spaces, air monitoring will be conducted to ensure that employees will not be exposed to any toxic gases or fumes.

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

K. Safety devices are required to be on all equipment and must be in proper working order before operations begin. If any of the devices are not in proper working order the equipment must be taken out of service and operations must not resume until the device is working properly again. Examples of safety devices may include: crane level indicator, boom stops, jib stops, foot pedal brake locks, horns, etc.

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

M. All manufacturer procedures applicable to the operational functions of equipment, including its use with attachments, must be complied with.

N. The operator shall have access to procedures applicable to the operation of the equipment. Procedures include rated capacities (load charts), recommended operating speeds, special hazard warnings, instructions and operator's manual.

O. The work zone shall be identified by demarcating boundaries such as flag and range limiting devices, or defining the work zone as 360 degrees around the equipment up to the maximum working radius. The hazard assessment must determine if any part of the equipment could get closer than 20 feet to a power line.
P. If it is determined that any part of the equipment, load line or load could get closer than 20 feet to a power line then at least one of the following measures must be taken:

1) Ensure the power lines have been deenergized and visibly grounded
2) Ensure no part of the equipment, load line or load gets closer than 20 feet to the power line
3) Stop operations, we will not operate the equipment closer than 20 feet.

Q. The operator has last call on all lifts. If there is any safety concern the operator has the authority to stop the lift. A qualified person must be able to support the data that the lift can be completed safely within the manufacturer’s guidelines before the lift is completed.

R. Lifts shall not be made when the equipment has the potential to strike and injure an employee or pinch/crush an employee against any other object.

VI. Lift Truck Operator Certification:

A. All Company employees shall be certified by the successful completion of the Company certification program. This program consists of:

1. Classroom instruction utilizing the “Coaching the Lift Truck Operator” program developed by the National Safety Council.
2. Hands on Training and evaluation using:
   a. Standard industrial lift truck.
   b. Extendable boom style rough terrain lift truck.
3. Completion of a final evaluation to include:
   a. Written 25 question final test.
   b. Hands on pre-shift inspection of a lift truck.
   c. Obstacle course testing.
   d. Basic ground lift and placement of load.
   e. Elevated lift and placement of load.

B. Successful completion of the training will result in the issuance of a National Safety Council certification wallet card signed by a representative of the Safety Department.

C. Cards will be valid for 2 years from the completion date of the training.
D. Refresher training will be conducted:
   1. Every 2 years.
   2. After an accident involving a lift truck.
   3. After a pattern of unsafe lift truck operation has been shown.

E. Refresher training will consist of the complete course and test, as well as any specific shortcomings noticed that initiated the retraining.
MOBILE EQUIPMENT

I. Purpose:

To outline the Stebbins’ requirements for the safe operation of cranes, forklifts, and other mobile equipment on the job site. To set and define operator qualifications, inspection and maintenance standards. All company equipment must be properly maintained and in safe working condition at all times. Any equipment found to be unsafe will be tagged and removed from service immediately. It can return to service when the problem has been corrected/repaired by an authorized person. All equipment used must be of the correct size and designed for intended use.

II. Operator Qualifications:

A. All operators must have no physical impairment which would limit the safe operation of the equipment.

B. The operator must have successfully completed training, and have on their person a valid operator’s card for the equipment being operated.
   1. Lift truck operator requirements are detailed in paragraph VI of this section.
   2. Crane operators must be certified by a nationally recognized crane operator training program.

C. Copies of all training records and operators cards shall be maintained by the Safety Department.

D. No employee suspected to be under the influence of alcohol or drugs shall be allowed to operate any equipment of any type.

III. Pre Use

A. All cranes used shall be assembled and disassembled according to the manufacturer’s recommendations and under the supervision of a qualified person. The Company is responsible for any 3rd party that may conduct these tasks. All assembly/disassembly is subject to Company inspection.

B. An inspection of the ground conditions shall be made prior to using any crane. Equipment must not be assembled or used unless ground conditions are firm, drained, and graded to a sufficient extent so that, in conjunction (if necessary) with the use of supporting materials, the equipment manufacturer’s specifications for adequate support and degree of level of the equipment are met.
C. A hazard assessment must be completed prior to starting work. The hazard assessment must address the site specific hazards.

D. An audible warning must be given by the equipment operator prior to starting the equipment.

IV. Equipment Inspections:

A. The equipment must be of the proper type and of sufficient capacity to fulfill all requirements of the work without endangering personnel or equipment.

B. If the equipment is rented, a copy of the complete maintenance and service records of the equipment must be obtained from the rental company, and maintained by the Superintendent.

C. The equipment must be inspected, and that inspection recorded on the appropriate inspection form, (Form SFT-W-24 or Form SFT-W-25). This inspection shall be done at the start of every shift by the operator. All inspections will be documented and kept onsite for the duration of the project. A back up audible alarm is mandatory and must be inspected.

D. A monthly inspection must be completed by a competent person when daily inspections are not kept onsite for 3 months.

E. Only manufacturer approved parts, fuels, and fluids will be used to maintain equipment. All modifications must be approved by the manufacturer.

F. All repairs will be made by qualified personnel only. All repairs must be completed before the equipment can be used.

G. Rated load capacities, and recommended operating speeds, special hazard warnings, or instruction, shall be conspicuously posted on all equipment. Instructions or warnings shall be visible to the operator while he/she is at his control station. All manufactures guidelines will be followed. Never exceed rated capacities and never lift loads which because of the length, width, or height that have not been centered and secured for safe transportation.

V. General Guidelines:

A. The equipment will be operated with the assistance of a signal person in any
situation where maneuvering room is limited, vision is limited, overhead power lines are present, or other personnel are present, and at any other time the Superintendent deems it necessary.

B. When a radio is used to direct loads, the frequency and the channel shall be different from all other radios on the job site.

C. Operators and signal men MUST know the PROPER hand signals.

D. No one other than the operator will ride on any piece of mobile equipment. At no time will anyone be allowed to ride on the load.

E. When using a crane or hoist to make any lift, all slings, cables, and connectors shall be inspected. All lifts require a tag line. No operator will make a lift until these conditions have been met.

F. No lifts will be swung directly over the heads of any workers, at any time.

G. Hand signals to crane and derrick operators shall be those prescribed by the applicable ANSI standard for the type of crane in use. A pocket card will be issued for the proper crane.

H. An annual documented inspection done by a 3rd party recognized by the US department of labor on each crane or hoist used.

I. Should any machinery be used inside enclosed spaces, air monitoring will be conduct to ensure that employees will not be exposed to any toxic gases or fumes.

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

K. Safety devices are required to be on all equipment and must be in proper working order before operations begin. If any of the devices are not in proper working order the equipment must be taken out of service and operations must not resume until the device is working properly again. Examples of safety devices may include: crane level indicator, boom stops, jib stops, foot pedal brake locks, horns, etc.

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

M. All manufacturer procedures applicable to the operational functions of equipment,
including its use with attachments, must be complied with.

N. The operator shall have access to procedures applicable to the operation of the equipment. Procedures include rated capacities (load charts), recommended operating speeds, special hazard warnings, instructions and operator's manual.

O. The work zone shall be identified by demarcating boundaries such as flag and range limiting devices, or defining the work zone as 360 degrees around the equipment up to the maximum working radius. The hazard assessment must determine if any part of the equipment could get closer than 20 feet to a power line.

P. If it is determined that any part of the equipment, load line or load could get closer than 20 feet to a power line then at least one of the following measures must be taken:

   1) Ensure the power lines have been deenergized and visibly grounded
   2) Ensure no part of the equipment, load line or load gets closer than 20 feet to the power line
   3) Stop operations, we will not operate the equipment closer than 20 feet.

Q. The operator has last call on all lifts. If there is any safety concern the operator has the authority to stop the lift. A qualified person must be able to support the data that the lift can be completed safely within the manufacturer’s guidelines before the lift is completed.

R. Lifts shall not be made when the equipment has the potential to strike and injure an employee or pinch/crush an employee against any other object

VI. Lift Truck Operator Certification:

A. All forklifts must be inspected by a competent person before use. All Company employees shall be certified by the successful completion of the Company certification program. This program consists of:

1. Classroom instruction utilizing the “Coaching the Lift Truck Operator” program developed by the National Safety Council.
2. Hands on Training and evaluation using:
   a. Standard industrial lift truck.
   b. Extendable boom style rough terrain lift truck.
3. Completion of a final evaluation to include:
   a. Written 25 question final test.
b. Hands on pre-shift inspection of a lift truck.
c. Obstacle course testing.
d. Basic ground lift and placement of load.
e. Elevated lift and placement of load.

B. Successful completion of the training will result in the issuance of a National Safety Council certification wallet card signed by a representative of the Safety Department.

C. Cards will be valid for 2 years from the completion date of the training.

D. Refresher training will be conducted:
   1. Every 2 years.
   2. After an accident involving a lift truck.
   3. After a pattern of unsafe lift truck operation has been shown.

E. Refresher training will consist of the complete course and test, as well as any specific shortcomings noticed that initiated the retraining.

VII. Pickup Trucks:

A. All pickup trucks on site must be inspected by a competent person before use.

B. Only authorized employees may operate and must have a valid driver’s license. Supply HR in Watertown a copy of the driver’s license prior to authorizing the employee driving privileges.

C. All employees riding in mobile equipment must keep all parts of their bodies within the protective confines of the equipment while the equipment is in motion at all times.

D. At no time may employees ride in the box of a pickup truck.

E. Seatbelt use is mandatory at all times when any mobile equipment is in use.

F. While on Job sites all employees must check in and out at least daily. Follow site protocols.

G. No employee may operate any machinery while under the influence of alcohol or drugs.

H. All loads must be secured properly before operation, the rated capacity of the
vehicle is not to be exceeded at any time.

I. Safe driving practices must be adhered to. Hands free or blue tooth are permitted for cell phone use. The driver must keep both hands on the wheel at all times obey all traffic laws and keep a safe distance between other vehicles. Drivers must avoid all distractions, pull over if necessary.

J. All company vehicles must be properly maintained. Follow the manufacturer’s recommendations. Per vehicle agreement all service must be performed by an approved facility. Check the corporate lease handbook in the glove compartment.

K. All accidents will be reported immediately. Drivers must also report any traffic violations.

L. Drivers must perform pull-through parking (pulling through a space, so the vehicle is facing outwards in the next space) when available, or backing into a parking space if necessary. This provides the operator an easier exit from the parking area as well as a quick exit in case of an emergency. When backing, it is recommended that a spotter be stationed outside the vehicle to ensure the driver backs safely, whenever practicable.
JOB SITE SAFETY PROCEDURES

I. Purpose:

To ensure that certain minimum safety standards are set, and to give the Superintendents guidance on basic safety procedures for various operations, as well as the reference where further guidance can be obtained.

II. Scope:

The following areas are detailed in this section. Further guidance may be taken from other portions of this manual, or from the applicable OSHA/MSHA regulations.

A. Ladders and Stairways.
B. Electrical.
C. Hand and Portable Powered Tools.
D. Compressed Air and Air Tools.
E. General Environmental Controls.
F. Material Handling.
G. Fire Prevention.
H. Welding, Cutting, and Brazing.
I. Barricades and Signs.
J. Floor and Wall Openings.
K. Rope, Cable, and Slings.
L. Ventilation.
M. Machinery and Machine Guarding.
N. Mixing Station Set Up and Use.
   1. Flammable and Non-flammable Mortar Stations
   2. Concrete Mixing Stations
   3. Lead Mortar Stations

III. Job site Safety Requirements:

A. Ladders and Stairways (Subpart X CFR 1926)
   1. General Requirements:
      ◆ All ladders and stairways are to be used correctly.
      ◆ All ladders must be secured.
      ◆ All ladders must extend 36" (3 feet) above the upper landing.
All ladders and stairways must be free from slippery materials.
All ladders and stairways shall be stored in neat and clean areas when not being used.
All ladders and stairways shall be inspected by a competent person daily before use.
Walkways to and from ladders and stairways must be kept clear at all times.
Ladders will be used on a 1 to 4 ratio. (Base of the ladder 1' from the wall for every 4' in height.)
All employees shall be trained in the use of ladders and stairways.
All rungs, cleats, and steps shall be parallel, level, and uniformly spaced.
Any ladder deemed to be unserviceable shall be immediately red tagged “DO NOT USE” and immediately removed from service until repaired in such a way as to restore it to a condition meeting it’s original design criteria.
All ladders must never be loaded above their intended load.

2. Wooden Job-made Ladders:

Shall not be painted or coated with any opaque covering.
Shall not exceed 24 feet in working length.
Single-cleat ladders shall be at least 16 inches wide, but not more than 20 inches.
Double-cleat ladders shall be at least 18 inches wide, but not more than 22 inches.
Shall have cleats that are nominal 1x4 site-inspected board material or nominal 2x4 stress grade dimension lumber.
Rungs shall be evenly spaced - 12 inches ± ½ inch.
Job-made ladders must be secured at both the top and bottom.
Material relatively clear of knots shall be used.
All wood materials shall be free of sharp edges and splinters.

3. Portable Wood and Metal Ladders:

Rungs shall be spaced not less than 10 inches or more than 14 inches.
Minimum distance between side rails shall be no less than 11½ inches.
The rungs and steps shall be corrugated, dimpled, coated with slip resistant materials, or otherwise treated to minimize slipping.
Stepladders shall have a metal spreader or locking device to hold
the front and back sections open when the ladder is in use.

- The top of a stepladder shall not be used as a step. (Follow the manufacturers guidelines as to the use of other upper steps.)
- Cross bracing on the rear of a stepladder shall not be used for climbing unless the ladder is designed for and provided with steps for climbing on both front and rear sections.
- Tops of stepladders shall not be used as support for scaffolds.

4. Rope Ladders:

- Rope ladders shall be used only in conjunction with a harness and a retractable lifeline.
- Rope ladders shall be secured at both ends if at all possible.
- Rope ladders shall only be used where all other forms of ladders are not feasible or practical due to the limitations of the work area or scaffolding.
- Main support ropes shall be free of cuts, abrasions, or any other defect.
- Rungs will be inspected for cracks, bends, or breaks, they shall be securely lashed to the main support rope with no fraying in the lashing.
- Shackle eyelets shall be in place on BOTH ends of the ladder. No ladder shall be used with missing or broken eyelets.
- Only one worker shall be allowed to climb a rope ladder at any time.

B. Electrical (Subpart K CFR 1926)

1. General Requirements:

- Ensure that all of the equipment used is properly grounded and/or double insulated.
- Ensure that there are no exposed electrical connections that workers can get shocks from.
- Never allow employees to do electrical maintenance work that should be done by a person familiar with the hazards of working with electricity.
- Ground fault circuit interrupters are required on all power tools, light strings, extension cords, etc.
- Remember that electricity is to be respected, not feared.
- Electrical boxes require covers at all times.
- All electrical cords should be run overhead whenever possible.
Suspended electrical cords shall be secured with rope or electrical plastic straps.
Tie wire shall NOT be used to suspend electrical cords.

2. Ground-fault Circuit Interrupters:
- Shall have a sufficient rating for the current that is to be interrupted.
- Shall not be used for any other purpose other than grounding.
- Shall be used when the wiring is not part of the permanent wiring of the building or structure in use by the employees.

3. Extension Cords:
- Extension cords must be of the 3 prong grounding type only. No 2 prong extension cords are permitted.

4. Light Strings:
- Light strings shall be of the 2 prong, double insulated, or 3 prong grounded type only. No other type is allowed.

C. Hand and Portable Powered Tools. (Subpart I CFR 1926)

1. General Requirements:
- Inspect all hand or portable power tools prior to use.
- No employee shall operate any unsafe hand or portable power tools.
- Ensure that the correct tool is used for each job.
- Make sure that all guards on all portable power tools are in place and working.
- Ensure that any employee who uses a portable power tool wears the required PPE.
- Ensure that employees utilizing the tools are properly trained in their use.
- When a hazard to other workers is presented by the use of the tool, signs and barricades warning others of the hazard must be used.

2. Electric Power Operated Tools:
- Inspect all electric powered operated tools and their cords before use.
3. Pneumatic Power Tools:

- Shall be secured to the hose by the means of wire or whip checks to prevent accidental disconnection.
- The manufacturers save operating pressure for hoses, pipes, valves, filters and other fittings shall not be exceeded.
- Use of hoses for hoisting or lifting is forbidden.
- Never point an air tool at another person.
- Hoses larger than ½ inch shall have a safety device at the source to reduce line pressure in the event of line failure.
- The air source and air line supplying air shall be turned off, and the lines bled prior to working on any air tool.
- Pneumatic impact tools shall not be dry fired in the open. Dry firing shall be done only while the tool is pressed against the appropriate material for its use.

4. Fuel Powered Tools:

- All fuel power tools shall be stopped while being refueled, serviced, or maintained.
- When used in enclosed places, adequate ventilation must be in place to allow for safe operation of the tool.

5. Powder-actuated Tools:

- Employees MUST be trained on the powder-actuated tool in use by the Manufacturer, or their designated representative. Documentation of this training must be on hand while the powder-actuated tool is in use.
- All manufacturers guidelines shall be followed when powder-actuated tools are in use.
- NEVER aim a powder-actuated tool at anybody.
- Shall be tested daily prior to use to ensure all safety devices are working properly.
- Tools shall not be loaded until just prior to use.
- Loaded tools shall not be left unattended.
- Fasteners shall not be driven into brittle material.
Driving into easily penetrated materials shall be avoided unless such material is backed to avoid the creation of a missile hazard.

No fastener shall be driven into a spalled area.

When not in use, powder-actuated tools shall be secured in a lockable container.

6. Abrasive Wheels and Tools:

- Shall be provided with work rests which are rigidly supported and readily adjustable.
- All abrasive wheels shall be inspected and ring tested prior to mounting. See Appendix ‘A’.
- Grinding wheels shall fit freely on the spindle and not be forced in place.

D. Compressed Air. (Subpart M CFR 1910)

1. General Requirements:

- Report any and all of the following:
  a. Dents in cylinders.
  b. Cuts or gouges in cylinders.
  c. Corrosion or pitting of the cylinders.
  d. Cylinder necks that have hairline cracks.
  e. All cylinders that are not stored in a dry, clean area.
- Ensure that employees do not use compressed air to clean their skin or clothing.
- Know that no more than 30 PSI (at the nozzle head) is allowed for the cleaning of machines or parts.
- Only compressors approved for use in supplying breathing air shall be used when working with supplied-air respirators.
- Ensure that the proper size compressor is being used for the work at hand.
- Compressors shall be turned off for servicing and refueling.
- All air compressors MUST have a safety shut-off valve.
- A copy of all maintenance records for air compressors must be kept on hand at the job site.

E. General Environmental Controls (Subpart D CFR 1926 & Subpart J CFR 1910)

Note: This section is devoted to protecting workers from unsafe and unhealthy conditions arising
from the GENERAL Environment.

1. General Requirements:
   - Keep the area neat and clean at all times.
   - All refuse is removed daily at a minimum, more often if needed.
   - All signs (warning, watch your step, etc.) Must be legible.

2. Housekeeping:
   - All tripping hazards are either removed or visibly marked.
   - All stairways, ladder ways, and walking surfaces are kept free of debris and other tripping hazards.
   - Tools are returned to their proper storage area when not in use.
   - Splinters, nails and other protruding items shall be removed from all working surfaces.
   - All rubbish and debris shall be removed from the working areas as soon as possible, and not be allowed to create a tripping or other hazard.

3. Potable Water:
   - An adequate supply of potable water shall be provided.
   - No common (shared) drinking cups are allowed.
   - Where single serving cups are used, a container for disposal of the used cups shall be provided. Unused cups will be kept in a sanitary container till use.
   - Any container used for Drinking water will be clearly marked. Only potable water and ice made of potable water shall be allowed in the container.
   - Containers for drinking water will be capable of being tightly closed and be equipped with a tap. Water shall not be dipped from the containers.
   - There shall be no cross connection to Non-Potable water if the water is supplied by a tap or similar means.

F. Material Handling (Subpart N CFR 1910 & Subpart H CFR 1926)
1. General Requirements:
   - Make sure that all aisles are clean where lift trucks are used.
   - Ensure that the storage of materials does not create a hazard in itself.
Insist that all open pits, vaults, ditches, vats, etc. be guarded.

Know that the rules applicable to power trucks and cranes are established in section 7-4 of this manual.

Proper lifting techniques will be observed at all times.

Weight in excess of 75 pounds shall be lifted only with two workers or with mechanical assistance.

At no time will ANY weight be lifted with a bent back.

2. Stacking requirements:

All materials stored in tiers shall be stacked, blocked, racked, interlocked, or otherwise secured to prevent sliding, falling or collapsing.

Maximum safe load limits of floors shall be conspicuously posted excepting on a grade or slab.

Aisles and passageways shall be kept clear to allow for free and safe movement of employees and equipment.

Materials placed indoors shall not be within 6 feet of a hoist way.

Bagged materials shall be stacked by stepping back the layers and cross-keying the bags at least every 10 layers.

Materials shall not be stored on scaffolds or runways in excess of what is needed for immediate use.

Brick stacks shall not exceed 7 feet. Once loose brick passes 4 feet it shall be layered back 2 inches for each additional foot in height.

Non-compatible materials shall be segregated in storage.

Used lumber shall have all nails withdrawn prior to stacking.

Lumber shall be stacked so that it is stable and self supporting.

Lumber shall not be stacked to exceed 16 feet in height.

Structural steel, pipes, poles, bar stock, and other cylindrical items, unless racked, shall be stacked and blocked so as to prevent spreading or tilting.

G. Fire Prevention  (Subpart F CFR 1926)

1. General Requirements:

Access to all available firefighting equipment shall be maintained at all times.

All equipment provided by the Company be conspicuously located.

Be aware of the different types of fires that may occur on the job site, and instruct your employees/subordinates on how to fight all types of fires on the job site.
Spot check extinguishers in the job site periodically to ensure that they have not been tampered with and that the contents of the extinguisher has not been used. Defective equipment shall be immediately replaced.

All fire fighting equipment will be inspected and tagged monthly and are subject to an annual maintenance check.

All employees will be trained upon initial assignment and at least annually thereafter on how to use the firefighting equipment properly and effectively.

H. Welding, Cutting and Brazing (Subpart J CFR 1926)

1. General Requirements:

- Be actually aware of all the hazards involved in operations connected with welding and cutting.
- Never allow the welder/cutter/brazier to work alone, they should always work in conjunction with a fire watch.
- Be alert to the accumulation of toxic gases or odors that may lead to potential exposure hazards to the employee.
- Always have fire fighting and prevention equipment on hand before starting welding, cutting, or brazing work.
- Check the welding equipment to make sure it is in perfect working order at all times. Checks include but are not limited to:
  a. Make sure that the tanks are in good shape and properly secured.
  b. Make sure all electrical equipment is in good working order.
  c. Ensure that all acetylene equipment is clean, free from oil, and in good working order.
  d. Check cables and hoses to protect them from slag and sparks.
  e. Cutting and welding must not be performed where sparks or slag can come in contact with the cylinders.
  f. Open all cylinder valves slowly. The wrench used for opening the cylinder valves should be kept on the valve spindle when the cylinder is in use.
  g. Whenever needed, use side shields and/or barriers to prevent sparks and slag from injuring other people in the work area.
  h. All workers will be properly trained in all aspects of their work and their equipment.
◆ When working overhead, use fire resistant materials such as blankets and tarps to control or contain sparks and slag.
◆ The object that was welded or cut cannot be readily moved, all fire hazards must be removed.
◆ All fire watch will be trained in the proper use of a fire extinguisher. PASS – Point Aim Squeeze and Sweep.
◆ If the task cannot be done Safely, IT WILL NOT BE DONE.
◆ Fire extinguishers shall be made readily available and a fire watch shall be maintained at least a half an hour after the welding or cutting operation was completed.
◆ Before cutting or welding is permitted the area shall be inspected by a supervisor responsible for inspection and granting authorized welding and cutting operations. Precautions that are to be taken shall be in the form of a written permit, made by the client or a competent person.
◆ Welding in confined spaces, the following precautions must be met;
  a. All gas testing must be complete and the space must meet safe entry air qualities.
  b. The space must be ventilated; ideally the air should be changed 4 times every 15 minutes.
  c. Lifelines will be used, unless they pose a hazard.
  d. Warning signs will be posted
  e. Electrode removal will be done according the manufactures guidelines
  f. The gas will be shut off as soon as welding operations are complete or any time the person welding needs to leave the confined space. At no time may oxy acetelyene tanks enter the confined space.
  g. If there are any hazardous gases, fumes or dusts welding operations are not permitted. The space must be ventilated and air monitoring done prior to commencing.
◆ All first aid equipment will be readily available – just like it is everywhere else in our manual!!!!!!!!!
◆ Workers in charge of oxygen or fuel-gas supply equipment (including distribution piping systems and generators) must be instructed and judged competent for such work.
◆ Oxygen cylinders shall be stored in an upright secured position 20 feet from any flammable gases or petroleum products.
◆ Transporting Oxygen cylinders will be done according to site rules and by manufacturers’ recommendations.
◆ Employees assigned to operate arc welding equipment must be
properly instructed and qualified to operate such equipment.

- Workmen assigned must be familiar with this section (1910.254) and with 1910.252(a)(b) & (c).
- Operators will report any hazards or any defects with their equipment immediately to a supervisor. They must discontinue use of the equipment until it is safe to use again.
- Repairs are to be made by a qualified person.

I. Signs and Barricades:

1. General Requirements:

   - All open pits, vats, ditches, etc. shall be guarded.
   - All stairways and elevated platforms shall be guarded as set forth in the appropriate sections of this manual.
   - Basic informational signs shall be posted as set forth in the appropriate section of this manual.

2. Accident Prevention Signs:

   - Danger signs shall be used only where an immediate hazard exists.
     a. Danger signs shall have red as the predominant color for the upper panel, with black borders and white in the lower panel for additional wording.
   - Caution signs shall be used to warn against potential hazards or to caution against unsafe practices.
     a. Caution signs shall have yellow as the predominant color, black upper panel and borders, with yellow lettering of the word “caution” in the black panel. A lower yellow panel will be used for additional wording.
   - Exit signs, when required, shall be lettered in legible, red letters, not less than 6 inches in height, ¾ an inch wide, on a white field.
   - Safety instruction signs, when used, shall be white with a green upper panel, with white letters to convey the primary message. Any additional wording shall be black with a white background.
   - Directional signs for other than automotive traffic shall be white with a black panel and a white directional signal. Any additional wording shall be black on a lower white panel.
   - Traffic signs shall be posted at all points of hazard in a construction sight. Traffic signs shall be;
     a. Legibly written.
3. Barricades:

- Barricades for protection of employees shall conform to ANSI D6.1-1971 standards.
- Floor covers are detailed in section J.
- Red barricade tape will be used to warn of a serious hazard and to keep all unauthorized personnel out.
- Yellow barricade tape will be used as a caution to warn people of a hazard before they enter that area.

J. Floor and Wall Openings (Subpart M CFR 1926)

1. General Requirements:

- Temporary openings may have temporary barriers.
- Permanent openings should have permanent guardrails.
- Handrails are needed in all permanent steps.
- Toe boards are needed in all stairs above four (4) feet.
- Any stairway with four (4) or more risers shall have hand railings.
- All wall openings, a cut out area at least 30" H x 18" W, must have protection to make sure employees do not fall into them. A wall opening could be a ventilation shaft, trash chute, etc.
- Ensure that wherever you have an open hole located in a floor on the job site, it is guarded.
- If the opening is of a temporary nature, a barricade must be placed around it.
- If the opening is permanent you must have a standard railing constructed around it.
- Make sure that the handrails on all steps on the job site are in good order.
- Ensure that all wall openings are guarded so that no employee may accidentally fall into them.

2. Floor Openings:

- A floor opening larger than 2" across shall be covered by ¾” or thicker plywood. Holes larger than 24" across shall be covered with 2 X 4 or stronger support, covered with ¾” plywood.
- Covers where vehicle traffic is expected or possible shall be capable of bearing twice the axle weight of the vehicle.
STEBBINS ENGINEERING SAFETY MANUAL

SECTION VII

Item 7

Covers must be capable of supporting twice the weight of employees, to include their material and equipment. Covers shall be secured so as to prevent accidental dislocation. All covers shall be marked with the word “HOLE” or “COVER” to provide warning of the hazard.

K. Rope, Cable, and Slings:

1. General Requirements:

   - Inspect all ropes, cables and slings prior to use for any defects such as:
     a. Fraying.
     b. Untied or loose ends.
     c. Missing or deformed cleats, eyelets, and lacing.
     d. Bends, kinks, or worn areas.
     e. Stretching.

   - Any rope, sling or cable found to be defective in any way shall be put to the side, red tagged or marked “DO NOT USE.”

   - Observe the ropes, slings and cable during use for any damage caused during use.

   - All materials used for rigging and hoisting shall be inspected prior to each shift before use.

   - Rigging and hoisting equipment shall not be loaded in excess of it’s recommended safe load limits.

   - Protruding ends of wire ropes shall be covered or blunted.

   - Wire ropes shall not be secured by knots.

   - Wire ropes shall be modified only in accordance with 29 CFR 1926.251 (c) (4) i-iv.

   - Hands and fingers should not be placed between a sling and it’s load while the sling is being tightened around it’s load.

   - Slings shall not be knotted or kinked.

   - Slings shall be padded or protected from sharp edges on their load.

   - All splices made in fiber ropes shall be in accordance with manufactures specifications.

   - Knots shall not be used in place of splicing.

   - Fibre ropes shall be removed from service and red tagged “Do Not Use” if any of the following is visible:
     a. Abnormal wear.
     b. Powdered fibre between strands.
     c. Broken or cut fibers.
     d. Variations in size or roundness of strands.
e. Discoloration or rotting.
f. Distortion of the hardware.

- Fittings shall be;
  a. Of a minimum breaking strength equal to that of the rope or sling.
  b. Free of any sharp edges that could in any way damage the webbing, rope, or sling.

- Nylon, polyester, polypropylene and aluminum shall not be used where fumes, vapors, sprays, mists or caustics are present.

- Shackles and hooks shall have the appropriate rating for the work being done.

- Shackles and hooks shall be free of sharp edges, deformations, bends, warping, or any other defect.

L. Ventilation  (Subpart D CFR 1926)

1. General Requirements:

- Always exhaust to the outside if at all possible.
- Exhaust ventilation systems must be provided to produce maximum protection against airborne dusts, flammable or explosive vapors, or potentially toxic substances.
- Complete air changes should occur every 15 minutes. (4 to 1 ratio)
- If the environment cannot be controlled by engineering, the employee must be properly trained and provided with the proper Personal Protective Equipment (PPE).
- Make sure that all ventilation systems are spot checked periodically to ensure they are working properly and clean.
- Know the characteristics of the solvents, cleaners, etc. you are working with.

- If there seems to be a high accumulation of a gas or an undesirable odor in your area, check it out. Report all gas or liquid leaks as soon as they are detected.
- Always ventilate with fresh air, NEVER use pure oxygen.
- All electrical ventilation equipment should be grounded.
- Place the intake as far as possible away from toxic or flammable sources.
- Place outlets where air currents will quickly disperse the exhaust without endangering others.
- Filter the exhaust as required by OSHA, MSHA, EPA or other applicable regulations.
If the exhaust could be flammable, remove all possible ignition sources from the location of the exhaust.

2. Local Exhaust Ventilation:
   - Local Ventilation captures contaminants at their point of origin and removes them.
   - Shall be designed to prevent dispersion of dust, fumes, mists, and vapors into the air.
   - Shall be sufficient to gather dust, fumes, mists, and vapors and convey them to a suitable disposal site.
   - Shall be in operation continuously during all operations which it is designed to serve.
   - Whenever possible, use local exhaust ventilation during hot work and cleaning with solvents.
   - Keep the exhaust intake close to your working area.
   - When the contaminants are widely dispersed, or a confined space does not allow for easy use of local ventilation, general ventilation should be used.

3. General Ventilation:
   - General ventilation flushes the atmosphere by supplying or exhausting large volumes of air;
     a. Exhaust ventilation draws contaminated air OUT of an area.
     b. Supply ventilation blows fresh air into an area.
     c. Drawing air out is better when the atmosphere could be flammable or toxic.
     d. Blowing air in could spread contaminants.
   - The best uses of general ventilation are to provide oxygen and to control low concentrations of materials that are not highly toxic.
   - General ventilation does not reduce the amount of contaminants released;
     a. Employee’s should not be too close to the contaminant source.
     b. The contaminant cannot be highly toxic.
     c. The concentration level must be low to start with.
     d. The contamination must be produced at a fairly steady rate.
   - If using general ventilation during certain hazardous work such as hot work;
     a. Retest the air often or monitor it continuously.
     b. Realize that respirators may be needed with general
Machinery and Machine Guarding   (Subpart O CFR 1910)

1. General Requirements:
   ◆ Ensures protection is provided for every machine at the point of operation and/or power transmission.
   ◆ Ensure all existing guards are in place at all times when machinery is in operation.
   ◆ Machines should be “locked out” and “tagged out” when work is being done on the machines.
   ◆ Never remove ANY guard or cover when using a machine.

N. Mixing Station Set Up and Use.

1. Flammable and Non-flammable Mortar Mixing Stations:
   ◆ Ensure proper PPE for each mixing station is present:
     a. Rubber Gloves
     b. Face Shield
     c. Particulate Respirator, etc.
   ◆ Ensure that the mixing station is not located near a heat source or in a high traffic area, and is well ventilated.
   ◆ Ensure that the mixing station is fully barricaded by red danger tape.
   ◆ Ensure that signs reading “CAUTION - FLAMMABLE - NO SMOKING OR OPEN FLAMES” are posted on all accesses to flammable mixing station, other signs posted as appropriate.
   ◆ Ensure each mixing station has a proper fire extinguisher present, and that it is fully charged and serviceable.
   ◆ Ensure the mixing person understands the hazards of the materials they are working with, as well as how to use the fire extinguisher.

2. Concrete Mixing Stations:
   ◆ Ensure proper PPE for each mixing station is present:
     d. Gloves
     b. Face Shield
     c. Particulate Respirator, etc.
   ◆ Ensure that the mixing station is not located near a high traffic area, and is well ventilated.
   ◆ Ensure that the mixing station is fully barricaded by yellow caution
tape.

- Ensure that the appropriate signs are posted on all accesses to the mixing station.
- Ensure each mixing station has a proper fire extinguisher present, and that it is fully charged and serviceable when refueling mixers.
- Ensure the mixing person understands the hazards of the materials they are working with, as well as how to use the fire extinguisher.

3. Lead-Based Mortar Mixing Stations:

- All lead-based mortars will be mixed in accordance with the Company Lead Procedure found in Section VI, Item 2 of this manual.

O. Rigging.

1. Rigging Equipment:

- All Rigging equipment shall be purchased and supplied by the Company.
- Rigging equipment shall be inspected to ensure it is safe. Rigging equipment for material handling shall be inspected prior to use on each shift and as necessary during its use to ensure that it is safe.
- Defective equipment shall not be used and removed from service immediately.
- Rigging equipment shall not be loaded beyond its recommended safe working load and load identification shall be attached to the rigging.
- Rigging equipment not in use shall be removed from the immediate work area so as not to present a hazard to employees.
- Tag lines shall be used unless their use creates an unsafe condition.
- Hooks on overhaul ball assemblies, lower load blocks, or other attachment assemblies shall be of a type that can be closed and locked, eliminating the hook throat opening. Alternatively, an alloy anchor type shackle with a bolt, nut and retaining pin may be used.
- All employees shall be kept clear of loads about to be lifted and of suspended loads.
APPENDIX ‘A’

RING TEST PROCEDURES

Prior to using any grinder, the grinding wheel (stone) must be inspected and tested before use. This test is commonly known as the Ring Test. The purpose of the ring test is to determine if the grinding wheel is damaged or not. The ring test depends on the damping characteristics of a cracked wheel to alter the sound emitted when the wheel is tapped lightly. The ring test shall be performed, before mounting either a new or used wheel on a grinder.

The following explains how to perform a proper ring test. All wheels must be dry and free of dust when applying the ring test, otherwise the sound may be deadened. To perform the ring test, wheels should be tapped gently with a light non-metallic implement, such as the handle of a screwdriver for light wheels, or a wooden mallet for heavier wheels.

If the wheel is not heavy, it may be suspended from the hole on a small pin or finger. Heavier wheels may be allowed to rest in a vertical position on a clean hard floor. Tap the wheel about 45 degrees each side of the vertical center line and about 1 or 2" from the periphery as indicated by the spots in figures 1 and 2. Then rotate the wheel 45 degrees and repeat the test.

Large, thick wheels may be given the ring test by striking the wheel on the periphery rather than on the side of the wheel.

A sound and undamaged wheel will give a clear tone. If cracked, there will be a dead sound and not a clear ring and the wheel shall not be used.

Figure #1

Light Wheels - Suspend from hole by small pin or finger

Figure #2

Heavy Wheels - Support on clean hard floor

SAFETY\MANUAL\esm7-6a.wpd

Rev. 01/2007 - RTD
25 FOOT FALL ZONE

I. Purpose:

To restrict access around the perimeter of the reinforced masonry structure site in order to further ensure the safety of our employees, other contractors and client personnel.

II. Scope:

It is assumed our customer’s personnel and their contractor’s employees may want access adjacent to the reinforced masonry structure during construction activities to perform work simultaneously with The Company.

Restricted Zone:

1) Establish a restricted zone of 25 feet from the outside perimeter of the reinforced concrete structure at all locations. The potential hazards/risks inside this restricted zone includes but is not limited to the following:

   i. Hoisting of 3000 pounds pallets of masonry onto the reinforced masonry structure platform.
   ii. Hoisting of rebar bundles – potentially 5000 pounds loads.
   iii. Hoisting and setting of nozzles and assemblies that weigh as much as 10,000 pounds.
   iv. Pouring of concrete and the potential of the masonry form rupture.

Barricades or warning tape will be used to clearly distinguish the restricted zone. Failure to observe these warning may result in disciplinary action.

Work in Restricted Zone:

1) Prior to entry inside the restricted zone, any contractor must obtain written permission from the Stebbins site Supervisor. A plan should be developed which could include the scheduling of work, building overhead protection, etc. to minimize the risk of injury to those wishing to work inside the restricted zone. Personnel working in the restricted zone will be informed by this employer of the potential hazards and risks and be
properly protected from such.

2) An indemnity statement accepting the aforementioned risks shall be signed by an authorized person of the company electing to work in the restricted fall zone.

3) Work may not be performed at any time above our working platform elevation within our 25’ zone or can operations be conducted that interfere with our crew’s ability to communicate with each other.
SUB CONTRACTOR MANAGEMENT

I. Purpose:

The purpose of this procedure is to establish a commitment to creating an incident free environment as an integral part of conducting business that contributes to the overall success of all projects.

II. Safety Policy

It is the intent of STEBBINS Engineering to foster, and promote the **MISSION** of an Incident Free Environment. This calls for the elimination of unsafe acts, unsafe conditions, and the elimination of near-miss incidents, which can be accomplished with:

- The collaborative teamwork management, craft labor and subcontractors.
- Personal commitment to the success of the project.
- Ownership by the workers.

The intent of the Site Safety Plan is to protect and promote the safety and well-being of workers by providing a safe and healthy work environment during all phases of this project. This plan provides a foundation and a mechanism for protecting people, equipment, materials, and property, and for complying with Stebbins Engineering, federal, state, and local safety and health regulations and to aid in the development of a tangible safety culture.

Following this plan will help reduce at-risk behaviors and unsafe conditions; furthermore, it will facilitate good cooperation and communication between Stebbins Engineering, subcontractors, union craft, the public and other agents represented on this project. Everyone is expected and obligated to perform all tasks safely.

By contract, every worker including direct hire, subcontractor and staff on this site is obligated to conform to the requirements, of OSHA regulations and all additions and revisions thereto, as well as other applicable federal, state and local requirements.

All subcontractors at any tier subcontractors, and all supervisory personnel are responsible for the actions of those they supervise, for maintaining safe and healthy working conditions in their areas of responsibility, and for strictly enforcing all authorized safety and health rules and regulations. Everyone is expected to comply with these rules and regulations.

All personnel working onsite will be required to successfully meet the criteria set forth...
within the Site Safety Orientation, and subcontractors shall provide their own company’s safety orientation course for additional site specific information. Supervisors will attend a separate supervisory safety training programs discussing site specific information.

Again, our goal coupled with the contractual requirement to meet or exceed Occupational Safety and Health Regulations, by adhering to the more stringent of referenced procedures and rules. Above reference material is located in Stebbins Engineering’s Safety Office and is available to all employees.

These safety efforts will affect the overall success of the project - the MISSION of an incident free workplace and zero environmental impacts. It is understood that all subcontractors working on this project will adhere to the SSP in addition to their own plan. With the cooperation, dedication and the assistance of everyone, this will be a safe and successful job.

To effectively motivate and monitor the safe work practices, all Superintendents, Foremen, and Supervisors are to become familiar with the Plan, the safety indicators, and milestones for the project.

### III. Pre-Qualification

All sub contractors must complete and return Contractor Safety Pre-Approval. This must be completed and reviewed prior to work commencing. A copy of the sub contractor’s insurance and a letter stating that they are in good standing order with their insurance carrier will be kept on file. All sub contractors must have an EMR below1.0 to qualify and be competent in their field of work. A copy of general safety statistics for the past 5 years must be submitted, along with a current copy of the safety manual. In order to qualify you must meet the minimum requirements in our safety program along with that of our client.

### IV. General Safety

All contractors are required to participate in the same orientation that all Stebbins Engineering’s employees will attend. Attendance to Stebbins pre work safety meeting each day is mandatory for all employees. Participation is required. Contractors will also be accountable for training in relation to the hazards that they will bring to site. Any other progress meetings will also require mandatory attendance by sub contractors. Sub contractors will be held to the same safety audit criteria as Stebbins, therefore familiarization to the Stebbins safety program is essential to success. All infractions will need to be corrected. Any dangerous conditions must be fixed prior to work progressing. Following the project the sub contractor will be reviewed by Stebbins and their client and the results will be communicated. Good performance will ensure
the ability to bid on further projects.
JOB SITE AUDITS AND OBSERVATIONS

I. Job Site Audits:

A. It is the responsibility of the Construction Manager/Division Manager/Salesmen to conduct routine audits when visiting job sites under their jurisdiction. These audits will be performed using the Company’s Construction Safety Review Checklist. An example of the form is located in section 8-2. It is imperative that these safety checklists be filled out completely as possible, and include all deficiencies that were observed. If the problem was corrected on the spot, it must still be documented, as this will allow the Company to track trends, and direct training into needed areas.

B. It is the responsibility of the Superintendent to correct immediately those deficiencies noted that can be corrected on the spot. All other deficiencies will be corrected as soon as possible, with all members of the work force to be informed of the unsafe condition, and the steps to be taken to avoid the hazard. At no time will employees be allowed to work in an unsafe area until the deficiency has been corrected, and all reasonable and necessary steps have been taken to correct the problem.

C. The Watertown Safety Department will be responsible for conducting unannounced job site audits. These audits will not be based on size of the job, Mill location, or the kind of work being performed, and may be done at any time during the project at the discretion of the Vice President of Corporate Safety.

II. Distribution:

A. The original copy of all audits will be forwarded to the Watertown Safety Department as soon as possible, where it will be filed with the job file.

B. The carbon copy of the audit will be left with the job Superintendent who will be given a time frame in which to correct the deficiency. Upon completion of the correction, the date will be entered in column C with any comments on page 5, it will then be forwarded to the Watertown Safety Department where it may be used for a later follow up audit.

C. Copies of the original will be made by the Safety Department and distributed to the President, Vice Presidents, Division Managers, Salesmen, and
Superintendents for their information and action if needed.
CONSTRUCTION SAFETY REVIEW CHECK LIST

<table>
<thead>
<tr>
<th>Plant</th>
<th>Job No</th>
<th>Job site Address</th>
<th>Person in Charge</th>
<th>Date</th>
<th>Time</th>
<th>Person(s) making review:</th>
<th>Column:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A - Adequate at time of review</td>
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<td>B - Needs immediate attention.</td>
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<td></td>
<td></td>
<td></td>
<td>C - Date corrected</td>
</tr>
</tbody>
</table>

### (1) JOB SITE INFORMATION:

<table>
<thead>
<tr>
<th>Item</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Posting OSHA and other job site warning posters.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) Do you have safety meetings?</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>(c) Do you have job safety training?</td>
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<tr>
<td>(d) Are there medical service and first-aid equipment, stretchers, and emergency vehicles available?</td>
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<tr>
<td>(e) Are job site injury records being kept?</td>
<td></td>
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<tr>
<td>(f) Are emergency telephone numbers, such as police department, fire department, doctor, hospital, ambulance, posted?</td>
<td></td>
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</tr>
</tbody>
</table>

### (2) HOUSEKEEPING AND SANITATION:

<table>
<thead>
<tr>
<th>Item</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) General neatness of working areas.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) Regular disposal of waste and trash.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(c) Passageways and walkways clear.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(d) Adequate lighting.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(e) Projecting nails removed.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(f) Oil and grease removed.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(g) Waste containers provided and used.</td>
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<td></td>
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</tr>
<tr>
<td>(h) Sanitary facilities adequate and clean.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(i) Drinking water tested and approved.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(j) Adequate supply of water.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(k) Disposable drinking cups.</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

### (3) FIRE PREVENTION:

<table>
<thead>
<tr>
<th>Item</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Fire instructions to personnel.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) Fire extinguishers identified, checked.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(c) Phone number of fire department posted.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>(d) Hydrants clear, access to public thoroughfare clear.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e) Good housekeeping.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(f) “No smoking” posted and enforced where needed.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(4) ELECTRICAL INSTALLATIONS:

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Adequate wiring, well insulated.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) Fuses provided.</td>
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<td></td>
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<tr>
<td>(c) Fire hazards checked.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>(d) Electrical dangers posted.</td>
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<td></td>
</tr>
<tr>
<td>(e) Proper fire extinguishers provided.</td>
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<tr>
<td>(f) Are terminal boxes equipped with required covers? Are covers used?</td>
<td></td>
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</tr>
</tbody>
</table>

(5) HAND TOOLS:

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Proper tool being used for each job.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) Neat storage, safe carrying.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(c) Review and maintenance.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(d) Damaged tools repaired or replaced promptly. Employees' tools examined and repaired?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(6) POWER TOOLS:

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Good housekeeping where tools are used.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) Tools and cords in good condition.</td>
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</tr>
<tr>
<td>(c) Proper grounding.</td>
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</tr>
<tr>
<td>(d) Proper instruction in use.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e) All mechanical safeguards in use.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(f) Tools neatly stored when not in use.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(g) Right tool being used for the job at hand.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(h) Wiring properly installed.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(7) LADDERS:

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Ladders examined and in good condition.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) Are ladders spliced?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(c) Properly secured to prevent slipping, sliding, and falling?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(d) Do side-rails extend 36&quot; above top of landing?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e) Are built-up ladders constructed of sound materials?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(f) Rungs or cleats not over 12&quot; on center.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(g) Stepladders fully open when in use.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(h) Metal ladders not used around electrical hazards.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(i) Proper maintenance and storage.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(j) Are ladders painted?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(k) Are safety shoes in use?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### (8) SCAFFOLDING:

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Is erection properly supervised?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td>Will all structural members meet the safety factor?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(c)</td>
<td>Are all connections secure?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(d)</td>
<td>Is the scaffold tied into structure?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e)</td>
<td>Are working areas free of debris, snow, ice, grease?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(f)</td>
<td>Are foot sills and mud sills provided?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(g)</td>
<td>Are workers protected from falling objects?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(h)</td>
<td>Is the scaffold plumb and square, with cross-bracing?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(i)</td>
<td>Are guard rails, intermediate rails, and toeboards in place?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(j)</td>
<td>Is scaffold equipment in good working order?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(k)</td>
<td>Are ropes and cables in good condition?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### (9) HOISTS, CRANES, AND DERRICKS:

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Examine cables and sheaves.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td>Check slings and chains, hooks and eyes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(c)</td>
<td>Equipment firmly supported.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(d)</td>
<td>Outriggers used if needed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e)</td>
<td>Proper loading for capacity at lifting radius.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(f)</td>
<td>All equipment properly lubricated and maintained.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(g)</td>
<td>Signalmen where needed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(h)</td>
<td>Signals understood and observed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(i)</td>
<td>Are review and maintenance logs maintained?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(j)</td>
<td>Power lines inactivated, removed, or at safe distance.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### (10) FORK LIFTS AND CHERRY PICKERS:

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Regular review and maintenance.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td>Qualified operators.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(c)</td>
<td>Local state vehicle laws and regulations observed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(d)</td>
<td>Brakes, lights, warning devices operative.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e)</td>
<td>Weight limits and load sizes controlled.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(f)</td>
<td>Is all glass in good condition?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(g)</td>
<td>Are back-up signals provided?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(h)</td>
<td>Are fire extinguishers installed where required?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## 11) BARRICADES:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Floor openings planked over or barricaded.</td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td>Roadways and sidewalks effectively protected.</td>
<td></td>
</tr>
<tr>
<td>(c)</td>
<td>Adequate lighting provided.</td>
<td></td>
</tr>
<tr>
<td>(d)</td>
<td>Traffic controlled.</td>
<td></td>
</tr>
</tbody>
</table>

## 12) FLAMMABLE GASES AND LIQUIDS:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>All containers clearly identified.</td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td>Proper storage practices observed.</td>
<td></td>
</tr>
<tr>
<td>(c)</td>
<td>Fire hazards checked.</td>
<td></td>
</tr>
<tr>
<td>(d)</td>
<td>Proper storage temperatures and protection.</td>
<td></td>
</tr>
<tr>
<td>(e)</td>
<td>Proper types and number of extinguishers nearby.</td>
<td></td>
</tr>
<tr>
<td>(f)</td>
<td>Carts for moving cylinders.</td>
<td></td>
</tr>
</tbody>
</table>

## 13) WELDING AND CUTTING:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Are operators qualified?</td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td>Screens and shields.</td>
<td></td>
</tr>
<tr>
<td>(c)</td>
<td>Goggles, gloves, clothing.</td>
<td></td>
</tr>
<tr>
<td>(d)</td>
<td>Equipment in operating condition?</td>
<td></td>
</tr>
<tr>
<td>(e)</td>
<td>Electrical equipment grounded.</td>
<td></td>
</tr>
<tr>
<td>(f)</td>
<td>Power cables protected and in good repair.</td>
<td></td>
</tr>
<tr>
<td>(g)</td>
<td>Fire extinguishers of proper type nearby.</td>
<td></td>
</tr>
<tr>
<td>(h)</td>
<td>Inspection for fire hazards.</td>
<td></td>
</tr>
<tr>
<td>(i)</td>
<td>Flammable materials protected.</td>
<td></td>
</tr>
<tr>
<td>(j)</td>
<td>Gas cylinders chained upright.</td>
<td></td>
</tr>
<tr>
<td>(k)</td>
<td>Gas lines protected and in good condition.</td>
<td></td>
</tr>
<tr>
<td>(l)</td>
<td>Are cylinder caps in use?</td>
<td></td>
</tr>
</tbody>
</table>

## 14) CONCRETE CONSTRUCTION:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Forms properly installed and braced.</td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td>Adequate shoring, plumbed, and cross-braced.</td>
<td></td>
</tr>
<tr>
<td>(c)</td>
<td>Shoring remains in place and strength is attained.</td>
<td></td>
</tr>
<tr>
<td>(d)</td>
<td>Proper curing period and procedures.</td>
<td></td>
</tr>
<tr>
<td>(e)</td>
<td>Check heating devices.</td>
<td></td>
</tr>
<tr>
<td>(f)</td>
<td>Mixing and transport equipment supported, and traffic planned and routed.</td>
<td></td>
</tr>
</tbody>
</table>
(g) Adequate runways.

(14) CONCRETE CONSTRUCTION (Continued):

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>(h)</td>
<td>Protection from cement dust.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(i)</td>
<td>Hardhats, safety shoes, shirts covering skin.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(j)</td>
<td>Nails and stripped form material removed from area.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(15) MASONRY:

<table>
<thead>
<tr>
<th></th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Proper scaffolding.</td>
</tr>
<tr>
<td>(b)</td>
<td>Masonry saws properly equipped, dust protection provided.</td>
</tr>
<tr>
<td>(c)</td>
<td>Safe hoisting equipment.</td>
</tr>
</tbody>
</table>

(16) PERSONAL PROTECTIVE EQUIPMENT:

<table>
<thead>
<tr>
<th></th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Eye protection.</td>
</tr>
<tr>
<td>(b)</td>
<td>Face shields.</td>
</tr>
<tr>
<td>(c)</td>
<td>Respirators and masks.</td>
</tr>
<tr>
<td>(d)</td>
<td>Helmets and hoods.</td>
</tr>
<tr>
<td>(e)</td>
<td>Head protection.</td>
</tr>
<tr>
<td>(f)</td>
<td>Gloves, aprons and sleeves; rubber or plastic; designed to afford protection from alkalis and acids; electricians' rubber gloves with protectors.</td>
</tr>
<tr>
<td>(g)</td>
<td>Respirators for harmful dust, asbestos, sand blasting, welding (lead paint and galvanized zinc or cadmium). Adequate ventilation when painting or applying epoxy resins. All safe practices in spraying asbestos materials using vacuum to clean up. When there is a question about injurious exposure, notify superior immediately who shall arrange for atmospheric samples to be taken.</td>
</tr>
</tbody>
</table>

(17) ADJUSTABLE MULTIPLE-POINT SUSPENSION SCAFFOLD:

<table>
<thead>
<tr>
<th></th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Deck planking not split, cracked.</td>
</tr>
<tr>
<td>(b)</td>
<td>Not overloaded with materials, personnel.</td>
</tr>
<tr>
<td>(c)</td>
<td>Griphoist are right size for scaffold in use.</td>
</tr>
<tr>
<td>(d)</td>
<td>Wire ropes have no broken strands, are clean and free of debris.</td>
</tr>
<tr>
<td>(e)</td>
<td>Wire ropes are right size for Griphoist.</td>
</tr>
<tr>
<td>(f)</td>
<td>Rope ladders are securely fastened at both top and bottom of the ladder.</td>
</tr>
<tr>
<td>(g)</td>
<td>Personnel are using safety belts/harness with fall arrester when climbing rope ladder.</td>
</tr>
<tr>
<td>(h)</td>
<td>Safety lines are tied to hanger eye bolts while scaffold is in a stationary position.</td>
</tr>
<tr>
<td>(i)</td>
<td>Safety man is positioned at the man-way ensuring safety of personnel inside vessel.</td>
</tr>
<tr>
<td>(j)</td>
<td>Adequate ventilation.</td>
</tr>
<tr>
<td>(k)</td>
<td>Hanger eye bolts are free of rust, cracks, bends, dents, etc.</td>
</tr>
<tr>
<td>(18) UNSAFE ACTS AND/OR PRACTICES OBSERVED (LIST):</td>
<td>A</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>---</td>
</tr>
<tr>
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</tbody>
</table>

COMMENTS:

|                                                  |   |   |   |
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|                                                  |   |   |   |

SAFETY\MANUAL\esm8-2.wpd  6  Rev. 03/2012-RTD
WHAT TO DO WHEN THE
OSHA COMPLIANCE OFFICER ARRIVES ON SITE

As part of a contractor’s program to prepare a construction job for the safety law, it is as
important to know and understand his rights under the OSHAct as an employer and to know the
prohibitions of the law. Most circumstances allow sufficient time to determine what rights exist
in a given situation before action is taken which may affect those rights. Unfortunately the
OSHAct expressly denies STEBBINS such time in that it requires surprise examinations
without delay. So, you, the Superintendents must know and understand these rights beforehand;
when the Compliance Officer knocks, time to learn has expired.

Without previous instructions, the job Superintendent or “highest official” available at the job
site may find themselves frustrated and confused as to what they can and should do in
representing STEBBINS. As a result, many rights of an employer may be waived simply because
the Superintendent does not know what to do. The following is intended as a practical checklist
to guide the Superintendent efficiently through the investigation. An actual checklist can be
found in appendix A of this section.

ARRIVAL OF THE OSHA COMPLIANCE OFFICER

1. Polite, Respectful and Cooperative:

Since there seems to be a tendency for job Superintendents or managers to resent an
outsider who attempts to interfere with, or question the running of their job, it is
imperative for them to control their emotions, conducting themselves in a business like
manner at all times. Hostile attitudes or attempts to delay or interfere with the
investigation will only result in STEBBINS losing precious rights during the
examination and receiving maximum penalties and fines for violations.

2. See Credentials:

An employer has the right to know who is entering his job. The Act specifically
provides “...upon presenting appropriate credentials to the ... agent in charge” the
Compliance Officer shall be allowed to enter the work place without delay. This
means that the highest company official available on the project is entitled to
determine whether this person is a bona fide Federal or State Compliance Officer before
they have to allow them to examine the job site. This does not mean that an employer
can abuse this right as a means of delaying the examination entry, but it does mean that
the Compliance Officer can be asked to wait a few minutes while the highest ranking
official of STEBBINS on the construction site at that time is located and brought to
the receiving gate or office. Of course if the Superintendent is not present, then the next
highest ranking manager on the job must receive the Compliance Officer.

3. Outside Parties Not With the Department of Labor:

In the event the Compliance Officer is accompanied by another person or persons,
STEBBINS is equally entitled to examine their credentials to determine whether they are
appropriate representatives of the U.S. Department of Labor or a corresponding State
authority. Under the OSHAct, only representatives of the Secretary of Labor
accompanied by a representative of STEBBINS and a representative authorized by
his employees are to conduct the investigation.

4. Get Their Card and Copies of the Complaint:

Since STEBBINS may wish to contest an alleged violation as a result of the investigation,
it is important to record all relevant information concerning the investigation. If the
investigation is pursuant to a written complaint, the Superintendent should get a copy of
that complaint and keep it. Also, the names, business affiliations and addresses of all
persons present should be written down. An exchange of business cards is an excellent
way to obtain this information.

Where the investigation is prompted by a written complaint, STEBBINS’ copy will not
include the name of the person filing the complaint nor the names of individuals referred
to therein, when the U.S. Department of Labor has been requested not to disclose the
name. Under this statutory prohibition against releasing names when requested not to do
so, it would be improper for the Superintendent to ask the Compliance Officer for such
names. However, there is nothing improper or wrongful about asking questions
concerning the complaint in order to learn more about its source. If no such request was
made, then the non-disclosure of names would be contrary to the statute. SECOND, the
Compliance Officer should be asked whether the complaint was filed by a present or past
employee, by an employee of the customer, subcontractor or supplier, or by a person not
directly employed around the work place involved. The answers to these questions may
be extremely important to STEBBINS in the management of the construction site.
5. Pre-Investigation Conference:

Prior to the beginning of the investigation, the Compliance Officer will explain the nature and purpose of the investigation, indicate generally the scope of the investigation and outline generally those records they wish to review and the employees they wish to question. This summary will not in any way preclude any such additional investigations that the Compliance Officer may deem necessary, but it will provide a guideline to the Superintendent of what will be involved and help them assist the Compliance Officer in conducting an efficient, orderly and fair investigation.

Where a contractor is performing work in an existing facility or in conjunction with other contractors, the Superintendent should inquire whether the investigation will involve work places and equipment of the customer for whom the contractor is working for, or of other contractors and subcontractors not directly involved in the investigation. If this is the case, then it would be proper for the Superintendent to ask permission to notify the customer, or such other contractors who may become involved, that a safety investigation is under way on a portion of the job site or the plant. The Superintendent should also request permission to have someone contact the main office of STEBBINS to advise upper management of the situation on the job site.

Again, these requests are proper and should be granted in most cases if they will not delay the investigation. However, if these are made in bad faith in an attempt to delay or interfere with the investigation, these courtesies not only may be denied but the Compliance Officer can make the investigation and penalties extremely tough. “Good faith” is STEBBINS’ only salvation under this act.

6. Reasonableness is a Right:

The OSHAct repeatedly guarantees STEBBINS the right to a reasonable, orderly and fair investigation. The entry must be at a “reasonable time” to examine “within reasonable limits” and in a “reasonable manner” such places of employment and all pertinent conditions, structures, machines, apparatus, devices, equipment and materials, and to question privately any employer, owner, operator, agent or employee. The OSHAct further provides that, where there is no representative authorized by the employees, the Compliance Office shall question a “reasonable number” of employees. In this regard the Superintendent should conduct himself in a business like manner and expect the Compliance Officer to do the same. The OSHAct gives the Department of Labor the right to go “fishing” on STEBBINS’ construction site for violations, but this right must be tempered with reasonableness.
In the event a Superintendent believes the request is unreasonable, he again must use careful judgment and good faith in handling the situation. He certainly can discuss the matter with the Compliance Officer and explain why he thinks the request is unreasonable. If the Compliance Officer insists on the request, the Superintendent will then be faced with the alternative of giving in or asking the Compliance Officer to wait until top management can be consulted. If the Superintendent has strong convictions that the request is unreasonable and unnecessary, he should consult with top management before proceeding. There should be other areas the Compliance Officer can examine while a decision is being made by top management.

7. Avoidance of Disruption:

As a part of the requirement that an investigation be conducted in a “reasonable manner,” the Department of Labor’s proposed regulations on inspections direct the Compliance Officer to conduct their investigation so as to avoid any undue and unnecessary disruptions in the normal operations of STEBBINS. It is the job Superintendents’ responsibility to inform the Compliance Officer of the day’s schedule of construction and to assist them in conducting the investigation so as not to unduly interfere with the work. For example, if a critical concrete pour is underway, the Compliance Officer should be informed so they can examine other work areas and equipment not involved in that operation until the pour is completed.

THE INVESTIGATION

8. Accompany the Compliance Officer:

The most important right given to STEBBINS is the right to have our representative(s) accompany the Compliance Officer during the physical investigation of any work place for the purpose of aiding such investigation. Since the representative will be the only spokesman for STEBBINS during the investigation and the eyes and ears of the management for any contest proceeding later, the Superintendent should accompany the Compliance Officer or assign the job to a person who can adequately represent STEBBINS. If the job has a Safety Supervisor, he should be STEBBINS’ representative to accompany the Compliance Officer as he is more likely to be familiar with the Safety Standards and the requirements of the OSHAct. However, it is possible that, upon request, the Compliance Officer will allow both the job Superintendent and the Safety Supervisor to accompany him so long as their presence assists in the investigation. The proposed regulations expressly provide the Compliance Officer with the authority “. . . to deny the right of accompaniment . . . to any person whose conduct interferes with a fair and orderly investigation . . . .” With this in mind, the Superintendent should be
careful to be cooperative and to properly introduce the Compliance Officer to those employees they wish to interview. Under the OSHAct, the officer can interview employees privately if he wishes, and can examine any machinery or equipment in the work place. They are empowered to take pictures and samples and to employ other reasonable investigative techniques.

9. Take Notes:

Since STEBBINS’ representative is the only eyes and ears for management during the investigation, it is imperative that they take notes during the investigation. The notes should identify as completely as possible the areas visited, the machinery, equipment and materials examined and the employees and other persons interviewed or involved in the investigation. As STEBBINS has a right to defend itself against alleged violations, there is nothing improper about taking notes during the investigation. After the investigation is completed, a full written report should be prepared, incorporating the above information and any other relevant comments by the Compliance Officer or information acquired during the pre-investigation and post-investigation conferences as well as during the investigation.

10. Representatives Authorized by Employees:

The OSHAct also provides a right for a representative authorized by STEBBINS employees to accompany the Compliance Officer during the physical investigation of any work place. But it further provides that “when there is no authorized employee representative, the Compliance Officer shall consult with a reasonable number of employees concerning matters of health and safety in the work place.” STEBBINS is protected under this provision from outside interference in the investigation by persons who claim to represent the interests of employees, even though they are not the representatives of STEBBINS employees.

POST-INVESTIGATION MATTERS (IMPORTANT)

11. Post-Investigation Conference:

Upon completion of the investigation, the Compliance Officer shall confer with STEBBINS or its representative and informally advise them of any apparent safety or health violations disclosed by the investigation and with reasonable promptness, issue a citation to the Employer. The citation shall be in writing and shall describe in detail the nature of the violation, including reference to the provision of the Act, standard, rule, regulation or order alleged to have been violated. The citation shall fix a reasonable time for the abatement of the violation. On jobs where the employees have an authorized
representative, there is no provisions of his inclusions in this conference unless STEBBINS invites him. Otherwise, the role of the Employees representative is completed with the end of the actual investigation.

12. **Imminent Danger:**

   If the Compliance Officer concludes that conditions or practices exist which could reasonably be expected to cause death or serious harm before the danger can be eliminated, he shall so inform STEBBINS or his representative and attempt to get STEBBINS to immediately abate the danger. Where the danger can be immediately abated without great expense or shutting down a job, STEBBINS should endeavor to correct the problem. However, the Compliance Officer has no power to shut down the job without a court order, so there is time to consult with top management. If STEBBINS decides that it cannot abate the danger without a court order, the Compliance Officer can only leave and report to his office. But he is required before he leaves to personally inform the affected employees of the danger and advise STEBBINS and employees that he is recommending a civil action to restrain or remove such conditions. Also, if STEBBINS is wrong on whether the danger is a violation of the OSHAct and an employee is killed before the court order can remove the danger, STEBBINS has clearly opened itself to the criminal penalties of a possible $70,000 fine and imprisonment.

The foregoing is merely a brief interpretation of the law and regulations to help a job Superintendent understand his rights during an investigation. As new regulations and interpretations are issued by the Department of Labor, some of these guidelines may change. But in general, the Superintendent may now be better prepared to competently represent STEBBINS during the moment of truth under the Occupational Safety and Heath Act.
## APPENDIX “A”

### OSHA Inspection Checklist

Ensure that each of the following is identified, use separate paper for further details as needed.

<table>
<thead>
<tr>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date &amp; Time of OSHA visit notification.</td>
<td></td>
</tr>
<tr>
<td>Date &amp; Time Safety Department notified.</td>
<td></td>
</tr>
<tr>
<td>Inspect credentials of OSHA investigators.</td>
<td></td>
</tr>
<tr>
<td>Identification of others with the investigators.</td>
<td></td>
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<tr>
<td>Record names of all persons at opening conference.</td>
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<tr>
<td>Date &amp; Time of opening conference.</td>
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<tr>
<td>Request a copy of the complaint.</td>
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<tr>
<td>Was complaint filed by a past/present employee, customer, subcontractor, supplier, or other?</td>
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<tr>
<td>Locations inspected.</td>
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<tr>
<td>Pictures taken? If so are copies available?</td>
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<tr>
<td>Employees interviewed? Name, date &amp; time.</td>
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<tr>
<td>The Company contacted over “unreasonable” requests by the investigator? If yes, date &amp; time</td>
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<tr>
<td>Closing conference completed? Date &amp; time.</td>
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<tr>
<td>Citation issued?</td>
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<tr>
<td>Further inspections requested?</td>
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<tr>
<td>Date &amp; Time investigators departed.</td>
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</tbody>
</table>
TOOLBOX TALK DIRECTORY

TALK #:

1. Don’t Break Your Back
2. Report Hazardous Conditions And Acts
3. Lifting
4. Horseplay
5. Concrete Burns
6. Proper Work Clothing
7. Wire Rope/Cable Guidelines
8. Fire Extinguishers
9. Openings Can Be A ‘Death Trap’
10. The Hazards Of Falling
11. Housekeeping
12. Don’t Give Fire A Chance
13. The Little Things That Count
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15. Invest In Safety
16. From Head To Foot
17. Don’t Be Shortsighted
18. Safety With Ladders
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21. Safe Use Of Grinders
22. Electrical Hazards
23. Good Housekeeping
24. Skin Protection
25. Acids And Bases And You
26. 10 Commandments Of Safety
27. How Well Do You Protect Your Hands

TALK #: 
28. Working With Nurofast Hardener
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33. Think Safety
34. Safe Practices For Welding And Cutting
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38. Airborne Contaminants
39. The Value of a Close Call
40. Chain Saw Safety
41. LP Gas Heaters
42. General Construction Safety Practices #1
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47. Take the Bite Out of Cold Weather
48. Confined Spaces, No Room for Mistakes
49. Words Can Hurt You
50. What Did You Say? Hearing Conservation
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52. Hazard Communication
53. Acetone Use & Care
54. Avoiding Electrical Shocks
55. Back Care: You Can Make A Difference!
56. Carbon Monoxide (CO)

TALK #:
57. Personal Protection - Care For Your Half-Mask Air-Purifying Respirator
58. Chocking and Blocking
59. Cold Weather Hazards of Propane Fueled Vehicles
60. Confined Space Entry - Don’t Be A “Dead” Hero
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86. Personal Protection - Picking The Proper Glove
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<td>#95</td>
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<tbody>
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<td>Manual Handling Of Materials</td>
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<td>#93</td>
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<td>#81</td>
<td>Equipment Hazards - Inspection and Use of Slings</td>
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## Fall Hazards:

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<thead>
<tr>
<th>#</th>
<th>Topic</th>
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<tr>
<td>#9</td>
<td>Openings Can Be A ‘Death Trap’</td>
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<tr>
<td>#10</td>
<td>The Hazards Of Falling</td>
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<td>#87 Powder Actuated Hand Tools</td>
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<td>#70 Eye Protection - Preserve Your Vision</td>
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<tr>
<td>#77 Head Injuries - After the Fall</td>
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<tr>
<td>#92 Seven Common Accident Causes</td>
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<th>Weather Conditions</th>
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<td>#46 When the Heat is On, Take Precautions</td>
<td>#48 Confined Spaces, No Room for Mistakes</td>
</tr>
<tr>
<td>#47 Take the Bite Out of Cold Weather</td>
<td>#60 Confined Space Entry - Don’t Be A “Dead” Hero</td>
</tr>
<tr>
<td>#59 Cold Weather Hazards of Propane Fueled Vehicles</td>
<td>#84 Machine Safety - Lockout/Tagout Programs</td>
</tr>
<tr>
<td>#78 Health &amp; Safety - Heat Stress Disorders</td>
<td>#96 Ventilation</td>
</tr>
<tr>
<td>#97 Warning: Extreme Heat is Coming</td>
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</tr>
</tbody>
</table>
TOOLBOX TALK 1

Subject: Don’t Break Your Back

Ever heard that expression -- “He’s got a strong back and a weak mind.”? Don’t believe it. Any guy with a strong back has a strong mind too. Strong enough to keep from breaking his back.

Don’t break YOUR back. Have a strong mind as well as a strong back. Learn how to lift properly. Learn how to keep from breaking your back.

First off, never lift anything alone that’s either too heavy or too awkward for one man to handle. Get help. Either in the form of additional manpower or additional mechanical help. Remember, you’re not a horse, and in this day and age no Company man wants to break his back for it.

Second, remember this about backs -- the surest way to break your back is to twist and bend it at the same time.

Third, learn how to lift properly. Size up the load. Stand close to it. Squat down, keeping your back straight. Get a firm grip on the load. Keep the load close to your body. Lift by straightening up your legs. Lift with your legs, not with your back. Always keep your back straight.

Never reach and lift. If what you’re trying to lift is too far over or too far to one side or another, never make the mistake of reaching for it or twisting your body to get it. Walk over to the load instead. Twist your feet instead of your body.

Finally, remember this. If you do hurt your back, never make the mistake of abusing it. Get medical help promptly. And take care of your back. Most back injuries will respond wonderfully with a little care. On the other hand, back injuries, if neglected, can cause you considerable misery.

Have a strong mind about backs; learn how to lift properly. Follow these simple recommendations and you’ll have a strong back the rest of your life.

Don’t break your back.
TOOLBOX TALK 2

Subject: Report Hazardous Conditions and Acts

On all Construction jobs, you have no doubt heard someone request “Report all injuries, no matter how minor.”

Now another request is being made! A request that you report to your immediate supervisor any and all hazardous conditions and unsafe acts, tools or equipment. It is your definite responsibility, as an employee of the Company, to take such action while at work to help provide:

- Safety to yourself.
- Safety to your fellow employees.
- Protection to the public.
- Protection to Company property and the property of others.

If asked to work under conditions which you believe are not safe, you should call these conditions to the attention of the person in charge. It is your responsibility to report ALL hazardous conditions you see on the job to the person in charge.

The word hazard means any conditions where there is danger of injury to life or property. Accidents can be prevented by taking reasonable and proper precautions.

One of the best ways of preventing accidents is to eliminate hazardous conditions as soon as they are discovered. Hazardous conditions which have almost resulted in accidents (near misses) should also be reported the same as if the accident had really occurred. The next person who meets these dangerous conditions may become the victim of an accident unless such hazards are removed.

If each worker fulfills their responsibilities and reports hazardous conditions and unsafe acts, then hazardous conditions will decrease as they are uncovered and corrected.

The worker that talks “shop” likes their job. Do not hesitate to volunteer information about things that may affect your safety or well being. There is nothing wonderful about being a “clam” where safety is concerned. People who make sensible suggestions, volunteer information, engage in conversations, and work carefully may still make errors, but they are giving.

So let’s all give, to our accident prevention program.
TOOLBOX TALK 3

Subject: Lifting

In spite of the increased use of machinery and equipment in construction work, most of the materials put into a structure are moved by hand during some phase of its building. The human body is subject to severe damage in the form of back injuries and hernia if caution is not observed in the handling process. Each worker should know the proper method of lifting heavy objects.

The general guidelines for lifting are:

Get a good footing.

Place feet about shoulder width apart.

Bend at the knees and grasp the weight.

Keep the back straight.

Get a firm hold.

Keep the back as straight as possible.

Lift gradually by straightening the legs.

When the lift is too heavy or bulky for you to lift comfortably -- **GET HELP.**

When putting the load down, reverse the procedure.

Remember: **Lift Properly - Think - Think!**
TOOLBOX TALK 4

Subject: Horseplay

Far from being humorous -- horseplay is unsafe and stupid. It is thoroughly out of place where people are at work. It is a violation of Company safety rules, and every effort should be made to discourage it.

There is probably one on every job - The practical joker. The guy who likes to make a bid for laughs and attention by playing jokes on his fellow workers. He thinks he’s funny and clever, and unfortunately, he can usually find a fellow employee unwise enough to encourage him.

Actually, this fellow is as dangerous as a fall without a harness. His horseplay is a hazard to all his fellow employees, particularly to those who are minding their own business and doing their jobs well. His foolishness should not be tolerated by any of you.

If you have this type of fellow employee working with you, it is your responsibility to talk to him confidentially. You can help him overcome his childishness by getting him to understand these facts:

There is a proper time and place for everything and a construction job site is definitely not the time or place for horseplay.

Horseplay often results in injury.

Horseplay can strike back like a boomerang, by making the worker liable, in many cases, to criminal and civil prosecution.

It is poorly named because a real horse would have too much sense to indulge in horseplay.

To make him realize that such acts as tripping, pushing, throwing tools or other objects, etc., can result in serious injuries. You must understand that horseplay is unfair, stupid, and treacherous, and any reasonable man will cooperate in avoiding it.

On one construction job, two men were fatally burned to death when a fellow employee tossed what he thought was a can of water on them. It was not water, it was gasoline. This horseplay took place in a confined space. The gasoline was immediately ignited by a match one of the workers was using to light a cigarette. The joker in this case was criminally prosecuted for manslaughter and found guilty in court. He was assessed a large fine and sentenced to 5 to 10 years in jail.
The prosecution in this case was based on the fact that it was not an accident in the generally accepted sense, but a deliberate action, thus a crime.

So horseplay uses no horse sense, nor is it play. It can be serious, so let’s cut it out before someone gets hurt.
TOOLBOX TALK 5

Subject: Concrete Burns

In the construction industry certain types of occupational diseases occur, the prevention of which becomes the problem of the employers, the employees, and the medical and engineering professions.

The principle occupational disease that occurs on most construction sites is a form of dermatitis, a skin disease, caused by the handling of raw concrete. The lime and cement, when wet, affect principally the skin. Some people are more sensitive to these materials than others.

The effect of “concrete burns” is the drying and subsequent cracking of the skin, which will allow for further problems, such as infections, if not properly treated. Quicklime actually burns when wet due to the high heat of hydration.

When working with lime, cement, or quicklime, as much as possible, the exposed parts of the body should be kept out of contact with the product. In manually mixing, vibrating, or otherwise handling poured raw concrete, high boots are a requirement. Cleanliness is very important. Hands, wrists, legs, ankles, etc. should be thoroughly washed and dried and should be rubbed with foil or lanolin ointment following washing.

Prompt reporting of concrete burns is a must because they will usually require the attention of a physician.

Remember, protect against concrete burns. Wear the proper clothing, PPE, and wash regularly.
TOOLBOX TALK 6
Subject: Proper Work Clothing

When an employee takes on a job, it is common sense for him to wear clothing appropriate to the work being done. Clothing that will protect him against injury and assist in safeguarding his health. The workday clothing an employee wears can expose him to a wide variety of accidents. Here are some typical suggestions for dressing to avoid accidents:

Shirts should be worn at all times during the warm seasons, and must have at least a 4" sleeve. If you want to get a tan, go to the beach or lay out in your back yard. A construction site is not a tanning booth.

Clothing should not be loose, unbuttoned, unzipped, or otherwise hanging from the front.

Metal button or metal fittings of any kind should not be worn when working with or near electrical equipment.

Ragged, torn, or ripped clothing should not be worn. Save the fashion statements for the bars.

Steel toed boots will be worn at all times on any Company job site.

Clothing should be snug fitting, but not over-tight, to offer as little as possible to catch or snag on projections.

Rings, bracelets, necklaces and other jewelry should be left at home as they can catch on tools or moving parts. This can lead to injuries, or make an accident even more serious.

Hair that goes beyond the bottom of the shirt collar must be put up in such a way that will not interfere with the proper wearing of a hard hat.

Work clothes that collect oil, grease, dust or dirt should be laundered at regular intervals.

Work cloths that collect irritating dusts or dry concrete should be changed daily to assist in eliminating a cause of dermatitis.

It is important to protect your bodies. When a machine breaks down, it can be repaired or replaced. Damaged materials and tools, the same. But when an injury or occupational disease strikes the human body, you may never be able to work again.
TOOLBOX TALK 7

Subject: Wire Rope/Cable Guidelines

There has been a vast change from the days when loads were moved up mountainsides by the use of twisted vines and cheap manpower, to modern times when enormous loads, cradled in slings of steel or nylon, are hoisted by electric cranes and winches.

Failure in wire ropes/cables is rare and is seldom caused by a defect in the rope/cable. But when failures do occur, they generally result in a serious accident and are usually caused by misuse or inadequate observation and maintenance procedures.

A study of ten serious wire rope/cable failure accidents showed that 8 of the 10 happened in the construction industry. The average material loss in these cases was $18,000. This does not include the loss to workers through injury or death.

The following are some of the more common causes of wire rope/cable failure:
- Use of rope/cable of the incorrect size, construction, or grade.
- Allowing rope/cable to drag over or across obstacles.
- Improper or improperly used fittings.
- Sheaves and drums of inadequate size.
- Over winding or cross winding on drums.
- Kinking or binding of the rope/cable.
- Severe overloads, reserve bends, and other excessive stresses.
- Internal wear caused by dirt and grit penetration between rope/cable strands.

Complete manuals have been written on preventative maintenance for all kinds of wire rope/cable, however, for the purpose of this talk, it is enough to say the first use of wire rope/cable use is to apply common sense. If a heavy or unusual lift is to be made, don’t guess! Predetermine the proper size for ropes/cables, fittings, rigging, lifts, etc., to do the job at hand safely.

Thoroughly examine wire ropes/cables before each use. The following are some of the most common conditions which can be easily spotted by someone just looking at the rope/cable:
- Five or more wires broken in one lay.
- Wear on the outside wires, oval flat spots equal in length to ½ or more of the exposed length of the wires.
- Rope/Cable flattened and the core exposed or broken. This is most often found in the eyes of a choke where it bears on a hook.
- Kinks and doglegs or the rope shows definite sharp bends when under no load.
- Corrosion, black, pitted rusted spots on the exterior wires.
TOOLBOX TALK 8

Subject: Fire Extinguishers

Have you looked at the fire extinguisher near where you are working lately? Are they fully charged? Well located? Accessible and ready for use? Or are they covered with dust, expended, and hidden behind a pile of equipment?

The fact that a fire extinguisher is our first line of defense in the event of fire, it should be inspected prior to the start of each shift in an area where an extinguisher is called for. Fire extinguishers should be kept clean to attract attention, accessible to eliminate lost time when they are needed, and pressurized properly with no blockages to the delivery tube/hose.

The following is a brief explanation of the classification of fires, and the recommended extinguisher to use on each:

CLASS ‘A’ FIRES: Ordinary combustibles such as rubbish, paper, rags, scrap lumber, etc. These are fires that require a cooling agent to be put out. Recommended extinguishers are water through the use of hoses, pumps, or pressurized cans, and soda ash type extinguishers.

CLASS ‘B’ FIRES: Flammable liquids, oil and grease. Fires that require a smothering effect to put them out. Most Company resins fall into Class B fires. Recommended extinguishers include Carbon Dioxide (Co2), Dry Chemical, and Foams.

CLASS ‘C’ FIRES: Electrical equipment. Fires that require a non-conducting agent to put them out. Recommended extinguishers include Carbon Dioxide (Co2), and Dry Chemical.

Most Company extinguishers sent to the job site are rated for class A, B, and C fires.

If your job site requires the presence of an extinguisher, familiarize yourself with its use. In the event you need to use it to extinguish a fire, you must aim it at the base of the fire, continue to use the extinguisher until it is fully discharged.

In all cases, anytime an extinguisher is used, local fire fighting agencies must be notified.

No discharged extinguishers will be placed on the job site.
TOOLBOX TALK 9

Subject: Openings can be a ‘Death Trap’

Openings in floors, walls and ceilings are especially hazardous exposures to potential accidents. The reason is usually as simple as the workers did not know the opening was there. Many times openings are hidden by piles of materials, improper covers, or tarps.

The storage of materials around openings may be simpler or easier for one worker; however, it can prove to be fatal for other workers.

The most violent and unusual injuries occur from these „Death Traps”. Partly as the result of the sudden change of condition, balance, or health. There is absolutely helplessness on the part of the individual who accidentally springs the trap, because it is far too late to take corrective actions.

There is no guaranteed safety from falls, regardless of the dimensions of the opening. ALL openings should be protected with approved guard rails, midrails, and toeboards, or by closing them with solid construction, such as required on scaffold platforms. Such covers should be fastened in place or cleated to fit the opening to prevent slipping. The cover must be marked with large, legible letters, either “HOLE” or “COVER.”

Do not forget the hazard involved during the placement and/or removal of this temporary protection. One man trying to handle plywood, planks or other cumbersome materials can fall during the operation.

Strength of the materials used for covers are regulated by the scaffold platform code requirements. The vertical and lateral resistance of the railings should be sufficient to withstand a load of approximately 200 pounds applied in any direction at any point on the material.

Lastly, do not overlook roof openings. The same exposure exits and code requirements are the same. In many types of industrial and institutional buildings, this exposure may be greater than floor openings. Skylights, ventilation ducts, etc., are numerous on many such structures, but often are not considered a hazard by the workers on sight.

Remember, do not allow „Death Traps” to go unguarded.
TOOLBOX TALK 10

Subject: The Hazards of Falling

Everyone takes a tumble once in a while. Unless you’re hurt, you don’t think much about it. But falls are a big problem. In an average year 18,000 Americans are killed by falls.

Most falls happen off the job. On the sidewalk, on stairs, at home, and in the bath tub. On the job there are about 2,700 deaths from falls every year. An average of 450 of these deaths is in the construction industry. That’s too many. One worker’s death from a fall is one too many.

What can be done about it? Should we figure, because we work up high on scaffold or vessels, that it’s just part of the job? Should we take our chances? Remember the saying? “Familiarity breeds contempt.”

On this job site we want to worry about falling, worry about it enough to be fall safe. Safety works. It has been proven over and over again on the job. We know how to set up safety precautions. You know how to work safely. If you don’t know safety, it’s time to learn.

Anytime you go up, figure out a safe way to get up there, and a safe way to get back down. Any time you think about taking a short cut, taking a chance, or participating in horseplay, forget it! Anytime you see something risky on this job site, report it! Don’t let it slide until it is too late and someone gets hurt.

One simple trick in preventing falls is good housekeeping. Platforms and floors need to be kept clean and orderly at all times. Don’t leave anything around where someone can trip over it. Scrap is a trap. Tools and materials lying around are a booby trap for you and the other guy.

Always watch where you walk. Don’t carry anything that keeps you from seeing where you are going. Be very careful carrying plywood, especially on a windy day.

Don’t ride on unauthorized equipment, jumping off moving equipment is asking for an accident.

Handrails and barricades will be set up where needed. If you have to move handrails, barricades or covers, put them back as soon as possible. If you see something that should be barricaded, notify your Superintendent. He will welcome the suggestion. The goal is a zero accident job site.

Everyone loses on accidents, so take care of yourself. Fall proof yourself, and watch out for the other guy. Nobody wants to work with a careless partner, so don’t be one. Remember that anyone can be a dumb construction worker, but only the smart ones stay alive.
SECTION IX

TOOLBOX TALK 11

Subject: Housekeeping

Clean, orderly job sites are usually good places to work. It assists in improving your safety and efficiency, your morale, and the quality of your work. It is good business for the Company because the client will have more confidence in a company that runs a clean and orderly job.

Orderliness in the job leads to orderliness in your thinking. It is the foundation of good, safe working conditions. Clean and neat areas inspire others to keep things clean. A dirty work area attracts garbage and discarded materials.

In construction, the term ‘Housekeeping’ refers to not only cleanliness, but having everything in its appropriate place. Cleanliness of all kinds must be continuous. A job is clean when it is free of unnecessary things. It is in order when those things that are needed are in their proper places, properly arranged, and in good condition. An orderly arrangement not only contributes to a reduction in accidents, but it shows good management, supervision, and workmanship. It is what the government intends when it calls for a ‘safe place to work’.

As we all know, sometimes production wants to take first place over safety. This will lead to accidents, and there is no doubt about it. The standard must be ‘Safety, Quality, Production’ in that order. Anything less is unacceptable.

We must all resist the tendency to let things slide near the end of a job. Continue to clean up behind your work and in your work area. Think about the fact that no matter what debris you leave on the work surface, it is a potential slip or trip hazard for yourself and your co-workers.

An injury is almost always caused by an accident, and the accident is always caused by some factor that preceded it. In many cases, poor housekeeping is the factor that leads to an accident.

99% of accidents are preventable and all accidents are caused by either unsafe physical or mechanical conditions, failure of a worker, or unsafe acts. We need your help to correct unsafe conditions and acts. So think and always remember it is the workers who do the bleeding, both physically and financially, when, through your own fault, you set in motion an accident that causes your injury.
SUBJECT:  Don’t Give Fire a Chance

Attention to detail will help keep our jobs from going up in smoke.  We have to remember that any construction or maintenance project has plenty of air, plenty of fuel, and plenty of ignition sources.  We have to be on our toes to prevent fires.

See that you help to keep the area clean, that combustible scrap and trash is promptly removed to a dumpster or safe location, and that combustible materials are stored away from ignition sources.

You need to report any fire hazard immediately!  Open flames, sparks, and electrical equipment, anything that might start a fire.

Extra care must be taken in hot work jobs.  Be sure combustibles are safe from ignition on welding or cutting operations, or when open flames or a heat source is in use.  Keep a fire watch with a good extinguisher on guard during all hot work jobs.

Protect temporary electrical wiring from possible damage.  If drop cords are in use, they must be suspended overhead, rather than lying across an area of vehicle or foot traffic.  In case of a fire near electrical equipment, be sure that a water extinguisher is NOT used.

Check the smoking habits of your fellow workers.  See that they do not smoke near flammable, or in any NO SMOKING areas.  See that they dispose of cigarette butts and matches properly.

Double check and ensure that you always use safety cans for flammable liquids.  Clean up spills immediately; toss any oily rags into covered metal receptacles used for rags only.

Make sure you follow all precautions while using any space heaters.  Be sure canvas tarps, plastic sheeting, and other combustibles cannot be ignited, and that the heaters cannot be accidentally tipped over.

Know where the fire protection equipment is located and how to use it properly.  Check to see that firefighting equipment is in the clear and ready for instant use.

Do not give a fire a spark of a chance!
TOOLBOX TALK 13

Subject: The Little Things That Count

An employee of a construction firm, while walking from one area of a job site to another, observed a ¾” lock nut lying on the ground. Other than casually noticing the nut, he paid no particular attention to it, and continued on to his work area.

After working a short while, he found that he was having difficulty concentrating on his job. He kept thinking of that small nut lying on the ground. Being well trained and a believer in safety, as well as curious about where the nut came from, he decided to investigate.

He located the nut and brought it to his Superintendent. He explained that he believed the nut was, to his knowledge, not part of the equipment being installed, he thought that perhaps it came from a piece of equipment already operating on the job site. The Superintendent was a little dubious about that idea, but decided to investigate further, just to be safe.

Final investigation revealed that the nut had become detached from an important holding bolt for the blade frame structure of a bulldozer being used on the job site. The bolt was still partially in position, but had already started to work its way loose. The Superintendent of the entire project concluded that had the bolt not been detected and corrected, serious injury to the operator of the bulldozer, as well as possible injury to other employees could have occurred.

This incident illustrates the importance of always being on the alert for, and avoiding the little infractions of accident prevention. A small lock nut, a spit handle on a shovel, a protruding nail, a carelessly discarded piece of wood or brick. These are all little things that can lead to much greater troubles.

Eliminate the little things and you are well on your way to a safe job.
TOOLBOX TALK 14

Subject: Afterthoughts (A.K.A. Whoops!)

That’s the way I’ve always done it! (Before the accident that is...)

Never thought the hard hat was designed to protect my face as well. (Until the wrench broke my nose because I wore it backwards...)

You know, I saw that nail sticking out earlier too. (I sure do hate tetanus shots...)

I never knew resin fumes were so flammable. (When I get out of the burn ward, I’m quitting smoking...)

I know I should lift with my legs but it was only 40 pounds. (Wonder if spinal fusion hurts...?)

OK, so I was careless and had a lost time accident. (Gee I could have used that bonus too...)

I’ve been climbing scaffolding for 20 years. (When my leg heals I’ll tie off 100%...)

It is only a temporary scaffold. (Guess Joe will be out tomorrow, surprising how small a thing like toeboards would have helped...)

Just grab it from the toolbox and let’s go. (Funny, you think the RPM ratings of the wheel and the grinder would have matched...)

Do you see or hear yourself in any of these examples? They are intended to point out one thing to everyone. It is the little things done right before you start, that will keep you healthy and happy. Safety done right is the only way to go. Don’t end up like these examples.

Gee, I could have.....

Gee I should have...

Thinking back I would have...

Instead lets work with the sentence, I already did!
TOOLBOX TALK 15

Subject: Invest in Safety

Do you realize how important your safety is to you and your family? Are you on the lookout each and every day, to the hazards of using an unsafe practice? Many safe practices have been designed to protect you on the job. These safe practices are vital to you, for you are up against a tough enemy, one who has the ability to break your most important tool, YOU! The enemy can do this in more ways than we care to think about, cuts, burns, explosions, falls, impacts, ruptures, electrocution, gassing, All these and many more.

Be on guard every minute of every day. Failure to observe just one safe practice, just one time, can cause you to be hurt or killed.

If you have learned safety know-how on the job, and learned it well, it will be easy for you to catch anything some other worker does that is not as safe as it should be. If you ever see that, and don’t say anything to them, aren’t you partly to blame? Think about it . . .

Keeping an eye out for the other workers safety can help you as well, a lot sometimes. We all make mistakes. We all slip up once in a while. After all, we are only human. But if each of us is keeping our fellow worker’s safety in mind, and they are doing the same for us, they are likely to catch our slips, or at least the more serious ones. You help them, and they help you. One hand washes the other, as simple as that. Believe me, it pays.

How are you fixed for safety? Do you have enough saved to last until the next hazard comes along? Be sure before you answer.

Buying safety is pretty much like buying anything.

Most employees buy safety, some buy safety more than others. Those that do are less likely to be injured on the job. They are also less likely to injure someone else.

The question is not how much safety you want, but how much do you need. How are you fixed for safety?

Invest wisely, buy safety, it pays!
Subject: From Head to Foot

A look into history would show that the average American man is now spending more money on his clothes than ever before. We take so much pride in the way we dress when we are away from work, but we take little time to consider the clothing we wear during work.

Are we worried about the protection of our skull, the important guardian of our brain, shown by wearing our hardhat?

What about our eyes, our most important sense? Do we have them examined periodically, if needed do we wear our glasses when we work? And above all do we wear safety glasses and goggles as required?

How about the shirt? An important piece of apparel. If we operate in or around machinery, do we wear short sleeves at least 4 inches long? Or long sleeves with straight cuffs? The same goes for jackets. Do we keep it buttoned or zipped shut at least to our chest?

Our hands are a very vulnerable part of our body. If our work calls for it, do we wear the appropriate gloves? Do we recall that worn or tattered gloves are more dangerous than no gloves at all?

Do we wear overalls or long pants with cuffed or rolled up legs? If the legs are too long, they must be cut off and hemmed. Straight legged pants reduce the tripping hazard.

How about our work shoes? Are they steel toed as required by the company? Safe work shoes have a thick sole, thin soles can result in punctures. Shoe laces should not be too long, and tied at all times when the boots are worn.

Accessories, fine for social life, but they can be dangerous as part of our working clothes. Never wear loose watch chains, straps, items hanging off your belt, etc., or any item which may hook on something and put you in a hazardous position. Rings, bracelets, and necklaces belong in the club, or at home, not on the job.

Remember, it is safest to dress properly for the job you are doing.
TOOLBOX TALK 17

Subject: Don’t be Shortsighted

Let’s take a quick test. How many senses are we given at birth? I’m sure we all agree the answer is five, Sight, Hearing, Touch, Taste, and Smell.

Now if we had to choose to deliberately lose one, which would we keep? One thing many of us agree on is we would keep our sight. Yet we seem to take it for granted, and constantly risk our vision by not wearing eye protection, or wearing the wrong type of protection for the job we are doing.

8% of everything we will ever know comes to us through the eyes. Now let’s toss in some statistics;

- Approximately 1000 eye injuries occur daily on the job, almost 365,000 a year.
- 25% of all injuries result in lost work days.
- 11% of all injuries involve chemicals.
- Chemicals can cause irreversible damage to eye tissue within 10 seconds if untreated.
- 50% of all chemical injuries involve the eyes.
- 30% of corneal transplants done nation-wide are the result of chemicals in the eyes.
- 90% of all eye injuries were preventable simply by using the proper eye protection.

To function properly your eye uses 5 different parts, the lens, retina, cornea, iris, and optic nerve. The 5 coordinate the light that enters your eye, and produces constant vision for you, to include color, motion, and depth.

It is almost a moral obligation to take care of your eyes, but over and over we refuse to protect them by taking chances, by thinking to ourselves, “It’s just a short job.”, “Goggles are uncomfortable.”, “I’ll just squint.”, and other similar excuses. Or we make the mistake that thinking because safety glasses protect us from many eye hazards, they can protect us from all of them. There was an accident investigation where a man lost an eye when a grinding wheel exploded. He was wearing the proper goggles at the time of the accident. Unfortunately for him they were on his forehead instead of protecting his eyes.

In another accident, a worker was doing maintenance on a high temperature caustic pipe when the pipe burst, shooting boiling caustic directly into his face. The worker escaped unscathed because he was wearing the PPE the job called for, goggles and a face shield, and wearing it properly.

Medical science today still cannot replace your eyes. You will only ever have just the two.
TOOLBOX TALK 18

Subject: Safety with Ladders

Ladders are used in one form or another on almost every job site the Company works on. The following is a list of simple ladder safety rules that must always be used:

- Select a ladder that is the right length and weight capacity for the job being done.
- Inspect all ladders for defects before use.
- Ensure safety feet are on all ladders and function properly.
- Make sure rungs and steps are in good condition, have non-slip surfaces, and are free from grease, oil, and other residue that can cause slipping.
- Ensure your boots are free of any substance that could cause slippage before you get on a ladder.
- Keep metal parts lubricated and rust free.
- Check to make sure there are no splinters or sharp edges.
- Check the support braces, bolts, screws, etc., to ensure they are in good condition.
- Set up ladders on a firm, level surface.
- Set ladder feet parallel to the surface it rests against.
- Anchor the ladder top by tying it off.
- Have the bottom of the ladder held, or tied off if possible.
- Ensure the ladder extends at least 36” past the level to which you are climbing to.
- Angle the ladder so that you are 1’ away from the wall for every 4’ of height being climbed.
- Position an extension ladder before you extend it.
- Always face the ladder when climbing up or down.
- Always maintain 3 points of contact with the ladder, 2 hands 1 foot or 2 feet 1 hand.
- Carry tools up with a belt, tool pouch or rope, not your hands.
- Always keep your body between the side rails when on the ladder.
- Move slowly and cautiously when using a ladder.
- Never use ladders as horizontal members of a scaffold.
- Never work off of a ladder if a safer alternative is available. If you do have to work off a ladder, always keep one hand on the tool, one hand on the ladder, and keep your body centered between the side rails.

Remember that it is not the fall from the ladder that gets you hurt. It’s that sudden stop at the bottom that does it every time.
STEBBINS ENGINEERING SAFETY MANUAL

SECTION IX

Toolbox Talk 19

Subject: Why We Wear Hard Hats

The average hard hat weighs only 14 ounces. The average adult human head weighs 14 pounds. That means an ounce of protection for every pound of head. Provided the hard hat is worn properly and is serviceable.

As you know, the brain is the control center for the entire body. The slightest damage to the brain will cause a malfunction in some part of your body. Your skull is the body’s natural protection for your brain, but when a possibility of injury from a falling object is present, your skull needs additional help to protect your brain. This is the purpose of wearing a hard hat. Now let’s look at how the hard hat helps.

The force of a falling object can be calculated by multiplying the weight of the item by the distance it falls. A 3½ ounce washer, for example, falling just 32 feet will generate a force of 7 PFS of impact. Should this same washer strike an unprotected head, it would equal a blow of approximately 560 PFS to the skull. When a hard hat is worn, the force is not only reduced to 127 PFS, but is transmitted to the neck and shoulders, rather than the skull.

Often workers are reluctant to wear hard hats because they believe them to be too heavy, or too hot. Considering the amount of protection the hard hat provides though, the weight becomes negligible. Soldiers go into battle wearing their version of a hard hat, designed to stop shrapnel, and it weighs over 10 pounds. They gladly deal with the weight however, because it has been proven repeatedly that they work. Hard hats are just as effective to protect us in the work we do, and they are far lighter.

Regarding the ‘so called’ discomfort of additional heat, testing has proved that the inside temperature of a cloth or knit hat is 2 cooler than the outside temperature, where the inside of a hard hat is 5 to 10 cooler. The material they are constructed of, the air flow room they have, and the heat they reflect make them actually cooler to work in during the heat.

Remember that all hard hats are designed to be worn with the brim forward. The brim is designed to assist in deflecting falling items or liquids away from your face. Wearing the hard hat backwards eliminates this extra protection. Also, as the hard hats were not designed to be worn backwards, the webbing and suspension may not withstand the designed impact levels. This is due to the fact that the suspension is now 180 out from its original design. The Company policy is that NO ONE will be allowed to wear their hard hat backwards.
TOOLBOX TALK 20

Subject: Safety Harnesses and Lanyards

A safety harness is purchased by the Company for one reason, and one reason only, to provide our workers with protection so that they can perform their duties in a safe manner. Many times though, this important piece of PPE is often abused, left lying on the ground, worn improperly, or getting covered in a product of one kind or another. Lanyards get used as handy 6’ sections of rope.

The worst thing is that at the end of the job the equipment that was misused will get tossed back into the tool box and the next unsuspecting worker will take it out, and wear it with a false sense of security.

It is the responsibility of the worker to inspect his harness and lanyard prior to using them, each and every time they put it on. The following are guidelines for inspecting the equipment, as well as rules for use:

- Examine your harness and lanyard carefully before each use. Look for the following;
  - Worn, torn or frayed webbing.
  - Bent, broken, missing, or deformed buckle, snaps, or rings.
  - Leather or plastic torn, creased or missing.
  - Leg straps that have been cut or non-manufacture made holes.
  - Locking snap links only, no non-locking type.

Do not permit acids, caustics, or other corrosive material to get on your harness or lanyard.

Never modify the harness or lanyard by cutting, knotting, or adding holes.

Handle your harness and lanyard with care, never leave it lying on the ground, and keep it away from sharp objects which could cut it.

If your harness or lanyard becomes unserviceable in any way, exchange it for a new one. If you take a fall while wearing a harness and lanyard, they must be turned in and a new one will be issued to you. That harness and lanyard are no longer safe to use until re-inspected and approved by the manufacturer.

Remember it is your body that will be wearing this equipment, inspect it and keep it in good shape, and it will take care of you.
TOOLBOX TALK 21

Subject: Safe Use of Grinders

The abrasive grinding wheel is probably the most universally used power tool in all industries. Because it is used indiscriminately, by many people, frequent injuries result from the lack of training, ignorance of the hazards, and incorrect setup and operation.

Some of the causes of injury involving abrasive grinding wheels include:

1. Failure to use eye protection or the eye shield mounted on the grinder itself. Cup-type goggles should be used for extremely rough grinding.

2. Holding the work improperly.

3. No work rest, or an improperly adjusted work rest. The work rest should be no more than ⅛” from the wheel.

4. Cleaning, adjusting, or gauging work while the grinder is in motion.

5. Improper wheel guards, or removing the manufacturers guarding devices.

6. Excessive wheel speed (i.e., wheel rated at a slower RPM speed than the grinder).

7. Taking too heavy a cut.

8. Side grinding.


10. Applying work too quickly to a cold wheel.

11. Using a spindle with the incorrect diameter. Threads on the spindle cut so that the nut tends to loosen during operations.

12. Incorrect dressing of the wheel.

13. Using or mounting the grinder in a way it was not designed to be used.
TOOLBOX TALK 22

Subject: Electrical Hazards

Famous last words:

“It’s only 110, it can’t hurt you.”
“It’s OK, that line’s not hot.”
“I don’t need to ground this, I’m only using it for a second.”
“Heck, I can get this load under that power line, no problem.”

Many people don’t believe that 100 volts can kill, but resources are full of cases which prove that a 110 volt shock can be fatal.

To prevent this from happening to us, we need to ensure the following:

1. Only qualified electricians perform any type of electrical work.
2. A GFCI is to be used on ALL electrical equipment to include lights, and are connected at the source (i.e., the wall outlets), not at the tool end.
3. All wiring should be run overhead if at all possible, and tied off with plastic cable straps or rope. Metal tie wire shall never be used.
4. Never work on equipment that is still energized. Unplug it.
5. Ensure all electrical tools and cords are of the double insulated, or 3 pronged grounded type.
6. Electrical boxes require covers at all times.
7. Ensure that there is no exposed electrical wire on any equipment, cords or lights that you are using. If there is red tag it and turn it in.
8. When operating lifting equipment, a minimum of 10' must be kept from all overhead power lines.
9. Remember, respect electricity, don’t fear it.
10. Never remove the grounding plug so that the cord will fit into a two pronged outlet.
TOOLBOX TALK 23

Subject: Good Housekeeping

Good housekeeping is an integral part of every company’s safe work practices. Many times during the course of the work day, you may find all of a sudden you’re starting to walk around or trip and stumble over tools, equipment, or debris in a work area that was clear before. The job has become more dangerous and difficult to do in a safe and efficient manner.

It is a proven fact that a neat work area helps prevent accidents. Many times in reviewing an accident report, it becomes apparent, that had the work area been neat and organized, there would have been no accident.

It is everyone’s responsibility to keep their work areas neat and safe. Good housekeeping not only makes our work area easier to move around in, and safer, but it also makes for a more professional appearance.

How neat is your work area? Is it barely able to get by, or do you take pride in the appearance of your working area? There is always room for improvement and housekeeping is one area we can all improve in. Housekeeping is not just an end of item thing, but something that needs to be maintained daily.

Work areas reflect the neatness and abilities of their occupants. If you keep your work area in the condition you want to find it in the next day, then everyone’s work could be done more efficiently and safely.

Remember good housekeeping is a team effort.
TOOLBOX TALK 24

Subject: Skin Protection

The Greeks had a word for it, Dermatitis. “Derma” means skin or hide and “titis” means inflammation.

Occupational dermatitis is an inflammation of the skin caused by an irritating substance that gets on the skin while you’re at work. The symptoms and seriousness vary widely depending on the type of irritant, the length of exposure, and your susceptibility to the irritant.

Early symptoms are redness, irritation, and occasional swelling. Blisters may appear next, and if these break, the skin can become infected.

Although an irritant may affect any part of the body, usually it affects the hands and arms. However if dust, liquids, or fumes are involved, the inflammation may also occur on the face and neck.

Dermatitis is not contagious, but if untreated it may spread to other parts of the body. Correct treatment at an early stage is essential.

To understand why dermatitis occurs, we must first understand human skin. It is the largest organ in the body, covering 2,880 square inches (or about 2 square yards) of surface area. Because it completely covers the body, the skin is the first barrier to come in contact with the elements.

Thus, its main jobs are to protect the body against infection, injury to more sensitive tissues, rays of the sun, and loss of moisture. It also assists in regulating body temperature.

Dermatitis occurs when the skin is damaged or the protective mechanism is thrown out of balance by external irritants. One out of every four workers is exposed to some form of skin irritant at work.

Dermatitis can happen in every kind of workplace. The direct causes are classified as Chemical, Mechanical, Physical, and Biological.

CHEMICAL: Organic and inorganic chemicals are the major cause of skin irritants. It is estimated that 75% of occupational dermatitis cases are caused by primary irritant chemicals. By definition, a primary irritant chemical is a substance that will injure anyone’s skin after sufficient exposure takes place. Irritants can be rapidly destructive, as would occur with concentrated acids, alkalis, solvents, metallic salts, and some gasses. In contrast, diluted acids, alkalis, dusts, and solvents may take hours or even days or repeated contact to produce visible results.
SECTION IX

MECHANICAL: Friction, pressure, and trauma resulting in abrasion wounds, bruises, and the introduction of foreign bodies into the skin can set up dermatitis conditions, to include various fungi.

PHYSICAL: Heat, cold, high or low humidity, electricity, sunlight, artificial ultra violet light, laser radiation, and high energy sources such as X-ray, radium, and other radio-active substances are potentially injurious to the skin.

BIOLOGICAL: Occupation exposures to bacteria, fungi, viruses, and parasites may cause primary or secondary skin infections.

It is easier to prevent dermatitis than to cure it. However, effective prevention requires everyone’s cooperation. Let’s look at what can be done to reduce or eliminate contact between the skin and an irritant because occupational skin diseases account for of all job related diseases.

When possible, avoid contact with oils, chemicals, and resins by using tongs, rakes, and other long handled tools, and by keeping splash guards in place.

When dust, fumes or vapors are present, ventilate properly.

Follow good housekeeping practices. Clean your work areas. Wipe up spills immediately.

Clean all machines and tools properly.

Minimize direct handling of an irritant by wearing the proper PPE, such as overalls, aprons, footwear, leggings and face masks.

Use non-fabric gloves such as rubber, nitrol, or neoprene. Use them only when necessary, as they are not ventilated and could, themselves, cause irritation.

Wash hands frequently with soap and water, or waterless hand cleaners. Dry your hands completely. Wash clothing frequently; do not wear dirty clothing to work.

The annual cost of occupational skin disease is estimated as high as 2,000,000 lost work days and a direct economic cost of $9.6 million because of lost production and health care for affected workers.
Subject: Acids, Bases, and You

Acids and bases are highly corrosive. They will burn or irritate skin, eyes, and the respiratory tract. Minor exposures are generally reversible and healing is usually normal. Severe exposure, or repeated exposures, may cause permanent damage.

The degree of damage caused by exposure to acids and bases depends on:

- The duration of the exposure.
- The type of acid or base involved.
- The concentration of the acid or base.
- The area of contact with the body.
- The time elapsed between exposure and first aid.

Much of the industry uses acids and bases in many different processes. Acids and bases take several forms. They may be liquid solutions, solid granules, powders, gases, and vapors. A few commonly used acids are:

- Nitric Acid
- Sulfuric Acid
- Hydrochloric Acid, also called Muriatic Acid
- Phosphoric Acid
- Hydrofluoric Acid

Some common bases or caustics are:

- Sodium Hydroxide, also called caustic soda or lye
- Potassium Hydroxide, also called Potash
- Ammonium Hydroxide

Here are some of the things you should know if you work around or with acids and bases.

Any corrosive material that comes in contact with your eyes may cause blindness if it is not washed out of the eye immediately.

Some vapors, like those of nitric acid, are especially dangerous because they are not soluble in water. These vapors may be inhaled without any warning signals such as irritation to the nose, throat, and lungs. The vapors may cause delayed, permanent lung damage.

The concentration of a solution of an acid or a base is very important in determining how dangerous the acid or base is. For example, household vinegar is a mild solution of acetic acid,
as such it can be swallowed or come into contact with your skin without serious effects. Yet concentrated acetic acid can cause serious burns.

Acids generally cause irritation or pain quickly. A person exposed to most acids is aware of the exposure almost at once and can wash off the acid. In contrast, Hydrofluoric acid in low concentrations may not even be noticed on the skin, but severe tissue damage may occur hours later, with painful, deeply penetrating burns that will be very slow to heal.

Bases feel slippery or soapy. Concentrated caustic gasses and vapors, such as ammonia vapors, can cause severe damage to the surface of the eyes, skin, or respiratory tract. Dry bases, powders and solid granules, will react with the moisture in your skin, eyes, or respiratory tract to produce severe burns.

Inhalation of very large amounts of acidic or basic vapors can cause major destruction to your lung tissue, resulting in pulmonary edema (fluid in the lungs) and even death.

Long term exposure to moderate concentrations of corrosives may result in dermatitis, erosion of tooth enamel, and bronchitis.

Here are some of the precautions that anyone can take with acids and bases;

- Ventilate the work area properly when working with any chemical.
- Wear the appropriate PPE such as gloves, aprons, goggles, and face shields.
- Use a respirator fitted with the appropriately rated cartridges.
- Clean up any spills to prevent their being mistaken for water.
- Wear approved protective respirators and clothing when cleaning up spills.
- Store acids separately from bases, solvents, and other toxic materials.
- Know the reaction that will occur if substances are mixed to assist in avoiding an explosion or toxic release.
- Always add acid to water when mixing, never water to acid. Water added to acid may heat up and cause splattering.

Know where to get help and first aid. Even with controls and PPE, accidents occur. Proper knowledge and quick action can save a life. An accident victim may need the help of others.

In all cases of contact, flush the affected skin or eyes with water for a minimum of 15 minutes. **DO NOT RUB THE AFFECTED AREA!**
TOOLBOX TALK 26

Subject: 10 Commandments of Safety

I. Support the management’s effort to provide all employees with a safe and healthful place to work. Do your part, follow all safety regulations and established safe work practices.

II. Act responsibly and with concern for the safety of others as well as yourself.

III. Frequently check all your tools and PPE to ensure they are in safe working order.

IV. Educate yourself in the hazards associated with your job and educate others in the safe way to perform tasks you are familiar with.

V. Ask others how to safely perform tasks you are unfamiliar with. Don’t play it by ear, that can only lead to accidents.

VI. Think of all the possibilities for accidents and injuries before starting any job. Take the appropriate precautions to protect yourself and your fellow workers.

VII. Warn other employees of the possibility of an accident or injury when you see them working unsafely.

VIII. Observe changes in the work environment, conditions or process. Changes in these areas may require changes in the safety equipment and measures being used currently.

IX. Report all unsafe acts and conditions immediately to the Superintendent. Don’t assume that someone else already has done it, or will do it.

X. Keep your work area clean and all of your tools and materials picked up and properly stored.
TOOLBOX TALK 27

Subject: How Well Do You Protect Your Hands

Your hands are vulnerable to injury from a variety of sources in the work place. Here are some basic safety ideas that can help you protect your hands from an injury:

- Remove all jewelry, including wedding bands, before you start a job.
- When you carry materials through a narrow opening such as a door, place both of your hands on the bottom of the load if possible.
- When you stack materials separated by spacers, ensure your fingers are to the sides of the spacers, not over or under them.
- Before you use equipment or tools, be sure to examine them. Are they in good condition, complete, and serviceable? Damaged tools should be red tagged and turned in.
- Turn off the power before repairing powered tools and machinery.
- Always use the correct safeguards and other safety devices on the tools or equipment you are using. Never modify or remove them.
- Keep your working area clean. Use a broom and dustpan, not your hand, to pick up dirt and debris.
- Only use a tool for the purpose it was designed for. Do not use screwdrivers as chisels as an example.
- Always store the tools properly, shielding sharp edges if possible.
- Avoid placing your fingers in tight spots or pinch points on equipment.
- When using handcarts, keep your hands on the inside of the handle if possible, to avoid pinching them between the cart and other objects.
- Use the proper gloves for the job. Different gloves provide different protection. Ask your Superintendent if you are not sure what kind of gloves to use.

One of the most common skin problems is dermatitis, which is caused by chemical, physical, mechanical, or biological irritation. For instance, concrete dermatitis can cause the skin on your hands to become red, blistered, flaked and cracked.

Good Hygiene is important to prevent contact type injuries. Here are a few more basic ideas to prevent this kind of injury:

- Wash your hands frequently with soap and water. When this is not possible, wipe them off with a clean rag or towel.
- Read and follow cleaning procedures found in the MSDS or product warning labels.

Your hands are a very important part of your life and your livelihood, take care of them.
TOOLBOX TALK 28

Subject: Working With Nurofast Hardener

If handled properly, most people can work with NUROFAST hardener without experiencing adverse physical reactions. However, as with epoxies and other chemical based products, some people will experience an allergic type of reaction.

When people have a reaction to NUROFAST hardener, they are actually having a reaction to a chemical called an ISOCYANATE. The type of ISOCYANATE we use is called a polymeric MDI. Exposure to NUROFAST hardener can cause a burning sensation in the nose, throat, and lungs. It can cause a shortness of breath, wheezing, coughing, and asthma like reactions, this is sometimes referred to as chemical asthma. The hardener can also affect the skin and eyes. Some individuals will develop a skin rash and/or tearing, reddening and swelling of the eyes. The primary route of entry for the hardener is through inhalation, which affects the lungs, and the most common adverse reaction is difficulty breathing.

Although allergic reactions can occur if an individual is overexposed to NUROFAST hardener, it is important to note that it is not necessary for a person to be overexposed in order for that person to experience an adverse reaction. Some individuals experience an asthma like reaction even when the amount of hardener in the air is well below the limit set forth by OSHA. These individuals have been sensitized to the hardener and will ALWAYS have the same reaction whenever they are exposed to it again.

If an individual has EVER experienced difficulties when working with NUROFAST hardener, they can NEVER work with ANY amount of NUROFAST hardener, or work in an area where NUROFAST hardener is being used.

Each person working with NUROFAST 52 or NUROFAST 3MFR must wear a 3M brand, #9913 disposable respirator, or its equivalent. The respirator must be worn even if the individual is working with the paste/hardener combination only. The respirators are shipped in the tool box as standard practice. They can be worn for a maximum of four (4) hours or until the end of shift, whichever comes first. NUROFAST hardener has very poor warning qualities. That is by the time you can smell it, you have been overexposed, therefore it is essential to use a new respirator when required to do so. Safety goggles and rubber gloves are also required.

It is important to read all Material Safety Data Sheets (MSDS) that you receive. The MSDS for NUROFAST hardener contains vital information on the symptoms of overexposure and the first aid responses required on your part. If an individual is exhibiting any symptoms of overexposure, they are to be removed immediately from the work area.
The following products contain isocyanates and can cause the same adverse physical responses associated with the use of NUROFAST hardener: 3M Chemical Grout 5600, Avanti 220 Hydrocure Resin, and NUROFAST Concrete Primer.

There are other precautions that can be taken to ensure minimal exposure to hardener vapors:

1. The work area must be well ventilated to avoid a buildup of hardener vapors.

2. As soon as the hardener cans are emptied, place the lids back onto empty cans of hardener and deposit the used cans into a sealed container for future disposal. If possible the container should be located away from the work area.

3. Make sure that the respirator fits snugly against the workers face. A beard, moustache, or long sideburns will result in an improper fit and exposure to hardener fumes.
TOOLBOX TALK 29

Subject: Tear Gas Effects of Styrene/Chlorine

The Company has found that while using AR-196 resins, AR-500 resins, or doing FRP work with these resins, in the presence of trace amounts of chlorine or chlorine dioxide gas, that these fumes will combine and intensify the odor, producing a tear gas effect.

Some possible chemical reactions reveal, for instance, that chlorine gas can react quite readily with acetone to produce a compound called Chloroacetone. This is a tear gas, one of the types used by the military. Since we frequently use acetone or ketone with our resins, this is one possible reaction that can take place.

Styrene, which is present in all polyester resins or cements, can also have an affinity for chlorine and chlorine dioxide gas. The products of this reaction could produce a vapor which would be more intense than either the styrene or the chlorine or chlorine dioxide gas alone. The combination of gases, and the reaction to the products, can cause irritating vapors, but are not toxic. They are however, extremely irritating to the eyes, nose, throat, and lungs.

The need for good ventilation and a supply of fresh air is required in these conditions. When we are working inside of tanks, towers, or chests, they must be well ventilated. In some cases, an approved respirator may be required.

It is stressed for your information, that the reactions we just discussed are NOT toxic, they are however, extremely irritating to the eyes, nose, throat, and lungs.
TOOLBOX TALK 30

Subject: Forklifts

There are many makes, types, and models of this class of construction equipment, each of which is designed to perform within a specific range of capabilities, while operating under certain limiting conditions.

Forklifts should not be used to do a job for which it is not intended. This factor alone has been involved in the cause of many accidents on construction sites.

Consideration must also be given to the terrain to be traveled on, location of the load, volume to be handled, type of material, weight, and many other matters. Considering all of the factors will make a safer lift.

A safe forklift will have a variety of built in safety appliances, these include but are not limited to the following: Mounting steps, fully decked, roll over protection, overhead protection, seat belts, fire extinguisher, and exhausted away from cab.

A horn or similar warning device is required, as is a back up alarm.

If used for night time operations, warning lights and headlights must be installed and operating properly.

Whenever the forklift is in motion, the forks (loaded or empty) should be as low to the ground as is safe. Many turnovers and spears have occurred as a result of “high lift” travel.

Forklifts should be used properly at all times; they are not man lifts, jacks, or passenger vehicles.

Long or unbalanced loads should not be moved by a forklift.

Anytime the forklift is stopped with the forks raised for maintenance, the forks must be blocked.

All operators of forklifts shall be properly trained and certified.

A daily inspection of the forklift is required to be done by the operator of the forklift, before use. This should be documented on the Company daily forklift inspection form (Form # SFT-W-24-3/98).
Subject: Safe Practices for Carpenters

1. Erect scaffolds and supports from sound material of ample strength to carry the required load. Construct platforms of sound lumber. Secure toeboards and guardrails in place.

2. Use both hands on side rails when going up or down ladders. Use a rope to raise or lower tools.

3. Sharp cutting tools are safer to work with than dull ones.

4. Do not use tools with defective handles or mushroomed heads.

5. Keep saws properly set and blades tightened and adjusted.

6. Ensure there are no protruding nails in passageways and work spaces. Pull nails from unused boards, or dismantled lumber as soon as possible.

7. Never leave loose boards or tools on scaffolding, runways, or working platforms, where they may be knocked off, or present a tripping hazard.

8. Keep work shoes in good condition to assist with solid and secure footing. Keep the hem of your pants from reaching below the sole of your shoes.

9. Do not carry sharp edged tools in your pocket unless the edges are sheathed.

10. Clean up as you go. Ensure all loose tools and materials are stored properly when no longer needed.

11. Place an adequate number of yellow lights or other warning devices in places where materials are piled close to a work or walking area that is used at night.

12. Barricade off all areas in danger of objects falling from overhead and post appropriate warnings.
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TOOLBOX TALK 32

Subject: Manual Handling of Materials

There are a great many hazards in this job because our materials come in a great variety of sizes, shapes, and weights. Since they do, we have to find the best way to handle them with a maximum of safety and a minimum of cost, and to learn to expect the unexpected at all times.

I am sure you are familiar with the hazards, but it is a good idea to refresh our memories.

We do not have to spend much time talking about materials being handled by forklifts and cranes. You realize that when a forklift or crane is handling a heavy load, you should stand clear so that you won’t be caught under the load or pinned by it.

Of course it is the equipment operator’s job to check the load and ensure it is not too heavy for his equipment to handle. Also he has to check to ensure the load is not caught, wedged, or tangled with other materials. This avoids putting unnecessary strain on his equipment.

Now let’s talk about handling materials by hand. I think you will agree with me that more hands, fingers, and toes are injured in this kind of work than any other type of material handling. Let’s touch on some proper handling methods.

Bend your knees and keep your back straight when lifting.

Get a good grip on the object and ensure your footing is firm. Do your lifting with your leg muscles. They are the most powerful muscle in your body.

Bend at the knees when you lower or set the materials down.

Never move a load that is too large or clumsy to be handled by one person. When this type of load must be moved, ask one of your fellow workers to help you. If you cannot find help, notify your supervisor you need assistance. Remember, if it is more than 70 pounds, regardless of the size, it is a two-person lift.

Do not try to carry too bulky a load. Always be sure you can see where you are stepping.

Watch out for sharp or jagged edges. When you have to handle sharp materials, wear your gloves.

Before you set materials down, ensure your fingers and toes are clear.
When you pile bricks, tile, scaffolding, etc., see that you have clearance for your fingers so that they won’t be pinched or crushed by the materials.

Wear safety shoes at all times to protect your toes.

Remember, using common sense can save a lot of pain.

When lifting material by the use of a rope and pulley system, ensure the equipment is capable of holding and lifting the required load. Inspect the lifting equipment before use.

When lifting with a rope, remember the same body position is required as if you were carrying the load manually. Use your arms, not your back, to bring the material to your working level.

With the snow season comes an added caution about all hazards, especially those that can be hidden, such as nails, crack in materials, and ice patches. You have heard the saying, “What you can’t see can’t hurt you?” Well in this job, it goes like this, “What you can’t see, can kill you!”

Remember, it is too late to be cautious after the damage is done. Don’t get the attitude that it cannot happen to you, for when you do, your time is soon to come.
Subject: Think Safety

If you were asked to define safety in one word, what would be your reply? Would you define safety as alertness, always ready for the unexpected? Would you define safety as skill, the art of being ultra adept? Would you define safety as experience, asserting that as a veteran you will never get hurt? Would you define safety as cooperation, the ability to exercise patience and get along with your fellow worker?

Or, after due deliberation, would you finally define safety with the use of a single word, THINK?

Perhaps alertness, skill, experience, and cooperation could all be associated with safety, but these are all actions that require you to THINK, and have to be considered secondary definitions. A well known business executive has made the word “think” synonymous with success, and as in other phases of the industry, the application of the meaning of the word is also very necessary if we are to reduce the number of accidents and injuries.

As has been so often stated, 99% of all accidents are attributed to unsafe acts on the part of the worker, and failing to think before acting is the root cause of almost all of the accidents in this category.

A carpenter removes a guard from a table saw for the purpose of saving a little time, an injury results. The carpenter did not take the time to think of the original purpose of the guard and has suffered unfortunate consequences.

Another individual, again to save time, fails to go to the toolbox for safety goggles for a job that will only take a moment. Again an injury results because of a failure to think of the reason for the goggle requirement, as well as the possible negative results.

Many accidents could be averted if we would only discipline ourselves to think about the consequences of our actions.

Think Safety, then act safely.
TOOLBOX TALK 34

Subject: Safe Practices for Welding and Cutting

1. Wear clothing which will protect all of your body from the rays of the welder and from hot metal sparks.

2. Wear shoes that extend above the ankles, or spats and trousers extending below the tops of the shoes. Turn all trouser cuffs inside and secure them so they can’t fall out.

3. See that sufficient ventilation is provided, or wear a supplied-air respirator when welding in a confined space.

4. Be sure your hood is in place before striking an arc, and at all times while welding. Wear hardened filter lens goggles under the hood or shield.

5. Keep shield in place to prevent others from the flash of the welding. Warn them to avoid looking at the flash.

6. If persons nearby are unprotected by the shield, advise them to wear protective goggles.

7. Prior to commencing operation, thoroughly examine the area to ensure there are no combustible materials nearby. Keep a fire extinguisher on hand during all welding and cutting jobs.

8. Welding cable is subjected to severe abuse as it is dragged around work under construction and across sharp edges. Special cable with high quality insulation should be used. The fact that welding circuit voltages are low may lead to laxity in keeping welding cables in good repair. Frequent examinations should be made and defective cables replaced or repaired immediately.

9. Put rod stubs in a metal container when finished with the stub.

10. If gasoline powered welding generator is used inside of a building or in a confined space, the engine exhaust should be vented to the outside atmosphere.

11. Use fully insulated electrodes (stingers). Do not dip hot electrodes in water for cooling purposes.

12. Never weld on any container that holds flammable liquids.

13. Tanks must be secured at all times by either being chained or tied into place.
14. When not in use, disconnect the regulator and hoses, and screw the metal safety cap fully into position on the bottles.

15. Always inspect your equipment thoroughly before each use.
TOOLBOX TALK 35

Subject: Air Tools and Compressed Air

In construction we use pneumatic tools for a variety of tasks. A pneumatic tool is simply any tool that gets its power source from compressed air. Because of this fact, there are special precautions to using them that are unique to air tools.

Let’s take a quick verbal walk from the toolbox at the start of the job, to the toolbox at the end of the job. We will talk about some specific things we need to look at and do in order to safely use these tools. Misused, they can cause serious injuries, not only to the operator, but to anyone nearby as well.

When getting the tool from the toolbox, we need to look it over and give it a thorough visual inspection. Some of the things we need to look for are:

- Is the hose free from defects like cracks, splits, worn areas and dry rotting?
- Is the hose secured at both ends by clamps? Are the clamps in good shape?
- Are the manufacture’s guards in place, working, and securely mounted?
- Is the blade, grinding stone, or bit the correct one for the job at hand? Is it serviceable?
- Is the blade or grinding stone speed rated for the tool it is to be used on?
- Did you red tag any tools you found that were bad?

OK, our tool appears to be fine as we take it from the toolbox. Now we go to our job site. On the way we need to locate our air supply. It can either be from a compressor, or from Mill air. A few things we need to look at about our air supply before we can use it includes:

- Is the pressure of the air greater than the rating for the air lines being used.
- Are the connection points from the source to the tool secured with safety wire, clips, or whip checks? These prevent accidental separation of the air lines.
- Is the hose free from defects like cracks, splits, worn areas and dry rotting along its entire length?
- Do hoses larger than ½” have a safety device at source of the compressed air?

All right, our tool seems fine, and the hose and air supply is proper, now we can start the job, but there are still some things we need to do while we are using the air tool. These are the things we need to consider and do while using the tool:

- Are you wearing ALL the proper PPE for the job we are doing?
- Are you properly trained in how to use this tool?
- Will there be a hazard to nearby workers when you use the tool? If there is, are there warning signs posted?
Do you avoid using the air lines to raise or lower the tool?
When using the air tool, do you avoid pointing the tools at other workers?
Do we turn off the air at the source and bleed the lines prior to working on the tool?
Do we avoid dry firing in the open? Only dry firing against the materials we are using the tool on?
Have we turned off the air at its source and bled the lines before we disconnect the tool at the end of the job?

The end of this job is at hand and we are now preparing to return the tools and equipment to the toolbox. There are just a few more steps to take:

Have we reinspected the tool and hoses to make sure it hasn’t suffered damage during use?
Have you red tagged any tools that went bad or broke during use?
Have you cleaned the tool and air hoses?

If we all follow these fairly simple and quick rules, we will not have any troubles when we are using pneumatic tools. There are still some things we need to cover about compressed air in general though, they are:

You can **NEVER** use compressed air to clean your skin or clothing.
You can only use 30 PSI or **LESS** to clean equipment or parts with compressed air.
If you have to service a compressor, or refuel it, it must be **TURNED OFF FIRST**.
All air compressors used on the job **MUST** have a safety shut off valve.
**NEVER** use Mill air for supplied-air respirators. **ONLY** approved compressors used with MST units shall be used for supplied-air respirators.

Air tools, lines, and compressors are all common parts of a construction job site. They are here now and will be for a long time to come. If we know how to use them properly and safely, we have just made our own lives that much easier.
TOOLBOX TALK 36

Subject: Scaffold Use

Understanding how to work safely with scaffolding is essential for anyone who uses them. Every year, accidents related to scaffolding account for 9,750 injuries, and 79 deaths. This is about 9% of ALL workplace fatalities. Most of these accidents could have been prevented through proper training and safe work techniques.

So how do we work safely on scaffolding? Almost all of the answers to this question are simple, requiring just a little bit of your time to stop and look first. Look at what? Let’s talk about the components of most scaffolding, and what they need to have in order to be considered safe:

**General:** All scaffolding, shall at all times, be square and plumb. Working levels shall be fully decked, with top rails, mid rails, toeboards. Ladders shall extend 36” from the deck level. No modifications will be made to any scaffolding unless made by a competent person. Modifications to scaffolding that has been engineered can only be made by an engineer, who must modify, sign, and date the blueprints to reflect the changes.

**Planking:** Planking shall be sound with no splits, surface checks, through checks, twists, notches, unsound knots, and weather rot. Planking must overlap edges of the scaffolding by at least 6" but no more than 12", and must be secured to prevent movement.

**Scaffold Frames:** Frames must be free of dents, bends, cracks or breaks that would weaken the frame. Welds should be solid and rust free. All connection points on the frames must have a locking device that is in working order. Frames must be interlocking, with the frame above and/or below, and secured by pins or other means where there is a danger of uplift.

**Cross Bracing:** (tubular welded frame scaffolding only) Cross-bracing must be free of dents, cracks, bends or breaks that would weaken the cross-bracing. The center must be secured and allow for free movement of the bars. The cross-bracing must be secured to the frame using a locking type pin.

**Top rails and Mid rails:** Top rails and mid rails must be of 2 x 4 or other solid material. Wood shall be sound and free of splits, surface checks, through checks, notches, unsound knots, and rot. Metal rails shall be free of cracks, bends, dents or breaks. Top rails should be approximately 42" in height, mid rails approximately 21" in height. Any material used for guard rails should withstand a load of 200 pounds of
pressure, and not bend more than 2". Metal guard rails shall be secured with clamps or locking type pins to the scaffold frame or posts.

**QES and System Scaffold parts:** Parts to these scaffold types shall be free of breaks, cracks, bends and dents. Welds shall be solid and rust free. All ledger ends and locking rings must be firmly welded in place. Locking pins must be securely seated into the collars and not loose.

**Tube and Clamp Scaffold Parts:** Parts to these scaffold types shall be free of breaks, cracks, bends and dents. The clamps shall swivel freely and the nuts and bolts shall be rust free. When clamps are installed, they must be tight and allow for no movement.

**Ladders:** Ladders should extend 36" or more beyond the level where the work is to be done. A rest platform must be provided every 24 feet.

**Fall Protection:** At any time you are involved with the erecting or dismantling scaffolding, or you are working off of incomplete scaffolding, 100% tie off with a safety harness and lanyard are required to be worn. The lanyard shall be 6' in length and of the shock absorbing type, with the exception of the man on the top level during erection or dismantling; he shall have an 11' retractable fall arrester (Sala Model L3020). All lanyards shall be secured to the post or frame of the scaffold only. Lanyards will not be secured to cross braces, mid rails or top rails. The Fall arrester will be secured to the last fully completed level of the scaffolding during erection or dismantling.

**General Rules:** The following are just a few of the basic rules of working safely off of a scaffold. These rules must always be followed:

- Scaffolds may only be erected, dismantled, moved or altered under the direct supervision of a competent person.
- Adjustable screw legs cannot extend more than 15" in height.
- Toe-boards must be used on all working levels and be a minimum of 4" in height.
- Scaffold frames shall never be climbed to gain access to the scaffolding.
- Scaffold shall be anchored to the wall every 30' horizontally, and 26' vertically.
- Do not use ladders or makeshift devices on top of scaffolding to increase the working height.
- Scaffolding cannot be built within 10' of power lines unless special precautions have been taken.
- Scaffold parts shall never be modified in the field.
- Base plates are required on all scaffolding.
TOOLBOX TALK 37

Subject: Mixing Stations

As a construction company, we work with various mortars, resins, grouts, concretes, and cement. In order to use them we have to mix them. A proper mixing station is an important part of keeping our workers healthy, and maintaining a safe job site.

The Company has two basic types of mixing stations. The first handles the heavier mixes, concrete and cement, and uses a powered cement mixer. The second handles grouts, resins, and mortars, and is generally mixed by hand utilizing a mixing drill.

The concrete and cement mixing station is fairly easy to set up. Basic requirements of the station is ample room to set down the mixing components, sand, gravel, etc. This must be placed in such a manner as not to clog drainage lines and sewers, as well as avoid foreign materials from being included into the mix, such as dirt or wood chips. The simplest way to accomplish both items is to have visqueen on the ground prior to setting the material down.

When mixing, you must remember that you now have a potential for a splash due to the liquid used in the mix. You must also recall that concrete and cement that comes in contact with your skin can create a form of dermatitis, commonly called a “concrete burn.” To assist in avoiding these types of injuries, the proper PPE must be worn. This consists simply of safety glasses, face shield, a dust mask style respirator, and gloves along with the routine items of PPE required on the job site.

Common sense plays a major part in staying safe in this mixing station. When using gasoline powered mixers, ensure you have good ventilation. If you are in a shack or other enclosed area, ensure that the air inside is exchanged often, or the exhaust is vented to the outside atmosphere.

The second type of mixing station is a little more involved, as some of our resins are flammable. The station must be clearly defined and limited; barricade tape can be used for this purpose. Warning signs for flammable materials must be posted. A portable mixing drill is to be used. If the resin to be mixed is flammable, this drill must be spark proof so as to prevent possible ignition of the resins by a spark from the electric motor. A fully charged and sealed 20 pound fire extinguisher has to be placed within 20' of the mixing station so as to be readily available in the event of a fire. This extinguisher must either be type B or C.

PPE for this type of station includes but is not limited to all the required PPE as stated in the MSDS sheet, as well as any Mill specific requirements.
Subject: Airborne Contaminants

As we work on the job site, we encounter many different kinds of air contaminants. Most of these are readily identifiable. The various gasses around the Mills we work in, the dust from cutting, grinding or chipping, and many others.

The first thing we think to do in many cases is to reach for some form of respirator to assist us in breathing, so that we can continue to work in whatever contaminant is present. While this could work, it is not the correct thing to do first.

First we have to turn towards engineering controls. Does this mean we get the Engineers out of their offices to come look at the problem? No it means we look at some of the simple answers we have right on the job site.

If we have to work in a confined area, we think nothing of setting up an air horn or a blower to assist in the ventilation of the area. This is a form of engineering controls. Ventilation can be set up anywhere, even out of doors. It is the simplest answer to most of our airborne contaminant troubles. Remember, if you do use ventilation as an answer, your ventilation cannot endanger other workers.

Another form of engineering controls that we can and do use on the job site is wet cutting to reduce the amount of airborne dust. Wet cutting or grinding eliminates 100% of the airborne dust caused by the work. Again, this solution may not be 100% effective, based on the type of work being done, and the area it is being done in, but it is another simple way to engineer away the problem of airborne contaminants.

There are other, more complex forms as well, that the Company can implement to assist in controlling airborne contaminants. Negative pressure ventilation is a very good way to eliminate airborne dusts. Misting, or fogging the area with water through special nozzles also reduces the amount of particles in the air.

Remember that all PPE does is allow you to work safely WITHIN some form of airborne contaminant, whereas engineering controls allow you to ELIMINATE the contaminant from your workplace.

It is far better to work without any hazard present at all, so engineering must be FIRST!
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SECTION IX

Item 3

TOOLBOX TALK 39

Subject: The Value of a Close Call

There are probably a lot more accidents that don’t cause injuries than those that do. That’s just a hunch, but it seems reasonable.

One of us may drop something heavy, but it missed our foot. A poorly stacked pile of tile lets go during the night, and no one is around to get hurt.

We all know that there are accidents that don’t get reported because no one gets hurt, this time. Even though a near accident doesn’t cause an injury, or damage to equipment, it does alert us to trouble. Without some quick corrective action, the same situation might be repeated, and the second time cause an injury or property damage.

Usually it is only a split second, or a fraction of an inch that keeps a near-miss from becoming an injury causing accident.

A near-miss at work is a mistake. It should not have happened, but it did. That mistake serves as a warning. It’s really become an opportunity to correct the error and ensure a tragedy doesn’t happen in the future.

The attitude or condition that causes a near-miss can just as easily cause a real accident the next time, when an employee is not so alert, or his reflexes are just a little slower.

Imagine an oil spill on the floor. One person sees it and steps around it. The next person doesn’t notice it, slips, and almost falls down. After regaining his balance, he also goes on his way. Unfortunately, the third person who walks by slips, can’t keep his balance, and suffers a bad fall, maybe striking his head, or wrenching his back.

Suppose you feel the tingle of a slight electric shock while using a defective portable drill. This is a near-miss, because there is no injury or property damage. If the cause, the faulty drill, is removed from use and red tagged, a potential injury or fatality has just been avoided.

It pays to report those near-misses; they may save yours or someone else’s life.
TOOLBOX TALK 40

Subject: Chain Saw Safety

Think of workers who use chain saws, and you will probably think of lumberjacks who fell tall trees on some distant mountainside. However, many of our construction jobs require the use of a chain saw, and the same safety standards apply, whether workers use chain saws once a year, or daily.

The National Injury Data Clearinghouse estimates that chain saw injuries sent more than 44,000 Americans to the emergency room in 1991. To ensure you don’t join them, you must be properly trained before you pick up a chain saw.

A chain saw’s greatest danger is kickback, when the top corner of the saw blade digs into the wood and gets caught. The chain basically bites off more than it can chew. When the chain stops suddenly, it transfers the force of the chains motion to the saw itself. When the chain saw kicks back, it knocks the chain loose and throws the still rotating chain saw back towards you.

To reduce the risk of injury, every chain saw should include a chain brake, which will slow the chain if the saw kicks back. Saws also need a chain catcher to keep the chain from lashing back at the operator if a link gives way.

The manufacturers manual is important as well, not only for maintenance, but to set the depth of the cut, and ensure replacement chains and teeth are the correct size. Make sure all adjustments made meet the manufacturer’s specifications.

Before you use the saw, you need to check it out thoroughly. Be sure to keep the teeth sharp, make sure the brake is working, and check that the chain tension is properly tight. Start the saw and make sure the chain doesn’t move when it idles, ensure the engine is running smoothly.

Like the saw, the worker needs to be ready as well, he needs to be wearing a hard hat, safety glasses, hearing protection, and steel toed boots. Long sleeved shirts and heavy work pants are also desirable.

Some basic chain saw dos and don’ts:

Chain saws are made to cut wood only, ensure materials are free of nails or other metal before cutting.

Keep a safe distance from the operator of the chain saw, he may not see you and will not hear you coming near.
Never use a chain saw above shoulder height.

Never allow the top corner of the bar to touch wood.

When you refuel, use a funnel or flexible nozzle to avoid spills.

Stay at least 10 feet from the refueling site to restart the chain saw.

Never smoke while refueling the chain saw.

Never walk with the chain saw running. Always shut it down before moving.

A chain saw will always present a hazard, but well trained people who follow the rules can minimize the likelihood of an accident.
TOOLBOX TALK 41

Subject: LP Gas Heaters

LP gas (propane, butane or a mixture) is, in many cases, an indispensable fuel for construction space heating.

Space heating refers to the heat for personnel or other requirements and usually means infra-red heaters, salamanders or standard space heaters.

Place containers, regulators, piping and hoses where they will not be subject to damage, tampering, or excess temperatures. Container valves should be protected from physical damage while in use by either being recessed, or by a suitable protective collar or cap. Containers in use must be upright and on a firm foundation, or secured.

Do not drop containers.

Temporary space heaters must be designed to be used with LP gas and should be approved and listed with a nationally recognized testing laboratory, such as the American Gas Association, Underwriters’ Laboratory, Canadian Gas Association, and also meet the specifications for the state in which it is being used.

Heaters need to be located at least 6 feet from any LP gas container. This rule does not apply to those heaters, specifically designed to have the container mounted directly onto them. Blower and radiant type heaters will not be pointed in the direction of LP gas containers, or other flammable materials, unless they are over 20 feet away from the heater.

LP gas containers that are not in use shall be stored outside, in an upright position and secured from falling over. Valves should be closed and protective collars or caps in place.

Regulators, if used, shall be directly connected to the containers valves, or to manifolds connected to the containers valves. The regulator must be suitable for use with LP gas.

For flexible connections between the container and the heater, use only an approved LP gas hose, of the shortest practical length. Protect all hoses from damage and excessive heat.

Heaters should be operated only where there is sufficient air for combustion. Use only heaters or salamanders equipped with safety shut off valves.
Subject: General Construction Safety Practices #1

Keep oily cloths away from oxygen (explosion danger).
Always light a torch with a torch lighter, never a match or cigarette.
Open compressed gas cylinders slowly to avoid valve damage.
Keep salamanders and other portable heating devices away from combustible materials.
Make sure engines inside buildings are away from combustibles, and the exhaust is properly ventilated.
Check for a clear path before moving items, then have a clear view while carrying a load.
Face the ladder when climbing and use both hands. Use a hand line or material lift to raise and lower equipment; don’t carry it up a ladder.
Have the ladder reach at least 36 inches above the landing level for easy access. Tie off the ladder at the top.
Scaffold planking should overlap supports by at least 6" and no more than 12".
Consider all wires as live until they have been checked and de-energized by an electrician.
Have all electrical equipment and power tools properly grounded. Use GFCI’s.
Do not use electrical equipment or tools while standing in water, ensure cords do not lie in water.
Damaged electrical tools, equipment, and cords should be replaced, and red tagged, not repaired.
Only qualified persons should repair or install electrical equipment, tools, and cords.
Do not use metal ladders and hats near high powered electrical items, or power lines.
All spills must be cleaned up immediately. Delay can cause an accident.
Keep loose materials off of stairs, walkways, ramps, working surfaces, etc.
Operate machinery and vehicles within rated capacities and safe speeds.
Never adjust or repair machinery while it is running.
Report defective power tools or machinery to your supervisor immediately.
Never point air hoses or tools at anyone.
Keep a fire watch with adequate fire extinguishers during and shortly after hot work operations as job locations require.
Do not look at welding or cutting operations without the proper protective eye wear.
Know the correct use of hand and power tools before you use them.
Use the right tool for the job at hand.
Only qualified and/or certified personnel should operate forklifts and cranes.
TOOLBOX TALK 43

Subject: General Construction Safety Practices #2

Report to work rested and physically fit to do your job.
Wear clothing suitable for the weather and your work. Torn or loose clothing, cuffs, and neckwear are hazardous.
Wear approved safety foot wear that is in good condition.
Use gloves, aprons, and other required PPE when handling materials. Replace it if it becomes unserviceable.
Jewelry (rings, bracelets, necklaces, etc.) should not be worn.
Special safety equipment is provided for your protection. Use it, use it properly, and keep it in good condition. Report loss or damage to your supervisor immediately.
“No Smoking” signs are posted for a reason, obey them.
Know the location and use of the nearest fire extinguishers. Know the proper alarm.
Flammable liquids should be used only in small amounts and stored in approved metal safety cans.
Do not refuel a hot or running engine. Clean up spills before re-starting engines.
Do not block aisles, traffic lanes, stairs, emergency equipment, or fire exits.
Have safe access to work areas, the safe way is the only way.
Bend your knees and keep your back as straight as possible when lifting. Use your legs, not your back, to lift.
Get help with heavy or bulky materials.
Have just one person give commands when team lifting big loads.
Intoxicants and illegal drugs are NOT PERMITTED, and are cause for termination.
When entering a new work area, familiarize yourself with the area, and any special safety considerations for that area.
Be sure of your footing before you move or carry a load.
Be aware of what is going on around you. Keep clear of suspended loads, traffic, etc.
Do not ride on equipment or vehicles not intended for passengers.
Always remain seated while riding authorized vehicles. Seat belts must be worn if provided.
Report any injuries, no matter how small, immediately. Even tiny cuts can become seriously infected.
Report any unsafe conditions or equipment to your supervisor immediately.
Keep horseplay and roughhousing OFF the job site. Practical jokes all too often lead to painful injuries on the job site.
Keep materials orderly. Prevent piles from falling or shifting.
Make good housekeeping part of the job.
TOOLBOX TALK 44

Subject: Ground Electricity with GFCIs

The electrician climbed the ladder with his portable drill in hand. He positioned himself, and without thinking, grasped a damp pipe for extra support, and turned on the drill. The current from the drill ran through his arms to the ground at the pipe. The shock was so severe he fell from the ladder, breaking both legs.

The electrician could have avoided this accident if a ground fault circuit interrupter had been used, either at the wall outlet, or the extension cord. A GFCI would have sensed the imbalance in the electrical current and automatically shut down the power.

Line to ground faults occur when something happens to create an unplanned electrical path between the source of the electrical current and a grounded surface. Dampness or a current leak caused by faulty insulation or wiring can cause ground faults. A ground fault most commonly occurs when equipment is old, defective, or improperly used.

GFCIs monitor the flow of electrical current through an ungrounded hot wire and the return neutral wire. If the current differs by as little as 4-6 Milliamperes (1/1000 of an amp), the GFCI will automatically trip the circuit. This disconnects the power source in as little as .025 seconds, or faster than the blink of an eye.

Circuit breakers that are typically 10 Amp or more can also shut down power, but only when an electrical current is greater than the circuit breakers rating. The GFCI’s sensitivity is crucial, since high levels of electrical current can cause dangerous irregular heartbeats, brain damage, or even death.

GFCI’s are people protectors. GFCI’s are built as class A devices to comply with Underwriters Laboratories standards. They have a self-contained means of testing; a button that, when pushed, indicates the device is working by tripping the circuit breaker.

The Occupational Safety and Health Administration says that nearly 3.3 million people work on, with, or near electrical installations. Ground fault protection with GFCIs is just one way that helps us make the job site safer.
Subject: Sprains and Strains: Too Painful to Ignore

While the old adage, “If it ain’t broke, don’t fix it.” may be considered wise words in some things, that is not the case when it comes to workplace injuries. Certainly a sprained ankle is not as serious as a broken one, but it could be if you don’t give it proper care. It could mean big headaches in terms of recovery, possible further injury, and lost pay. So even if it ain’t broke, pay attention.

A sprain is caused when a person places excessive demands on a joint, which is the place where two bones are connected to each other by a ligament. This extra stress on the joint loosens it, and can cause the ligaments to stretch or tear. The more severe the tear to the ligament, the more severe the sprain. Although any ligament can be sprained, some areas of the body are more likely to be injured than others. Knees, ankles, and fingers are likely candidates for sprains, since we typically place more force on these joints. Injuries are also related to the type of work you do. A delivery person, who doesn’t follow correct lifting procedures, may sprain ligaments in his back, for example.

It’s not always easy to recognize a sprain, since it can resemble a pulled muscle, a bruise, or even a broken bone. All of them hurt.

Muscle strains or pulls are most similar to sprains. These occur when muscle fibers tear suddenly during exertion. Common symptoms of sprains and strains include, but are not limited to:

- Swelling of the injured joint.
- Bruising at and around the point of injury.

Someone with a sprained or strained joint may find it painful to move the injured body part, although the joint may still function. On the other hand, some sprains, such as those in the high ankle area, may cause only minimal pain.

Likewise, a severe sprain can resemble a broken bone, especially if the injured area appears misshapen. If you’re not sure whether an injured person has a sprain or a fracture, play it safe and treat it like a break. It’s not worth taking chances.
SECTION IX

TOOLBOX TALK 46

Subject: When the Heat is On, Take Precautions

Hot conditions pose special hazards to the safety and health of many workers. Foundry and construction workers, bakers, glass makers, and many others spend some part of their workday in hot environments. Off the job, a simple trip to the beach or weekend jobs around the house may result in a heat injury.

Conditions are most severe in the summer months. Workers must take many special precautions to prevent heat injuries during the hottest months of the year.

There are three major injuries related to heat; heat stroke, heat exhaustion, and heat cramps.

Heat stroke (also called sun stroke) is a life threatening disorder. The main signs of heat stroke are extremely high body temperature and hot, dry, flushed skin. A rapid pulse, headache and nausea often accompany these symptoms. People who suffer from heat stroke must be cooled quickly to avoid permanent disability or death. Move the victim to a cool place, and keep the head and shoulders elevated. Seek medical assistance immediately.

Heat exhaustion is not as serious as heat stroke. Its symptoms include pale, clammy skin and excessive sweating. The victim may also be extremely tired and weak. Move the worker to a cool place, and keep the legs elevated. If there is no improvement within 30 minutes, call for medical assistance.

Heat cramps usually occur in the arms and legs after strenuous work. They are rarely serious and generally do not last very long. Rest the affected body part, and give the victim water to drink. Do not massage the cramping area.

Heat rash (prickly heat) or sunburn are much more common heat related disorders. Treat the victim according to accepted first aid treatments.

You can take many steps to prevent heat injuries. Follow these tips:

- Avoid large meals whenever you work in a hot environment.
- Wear lightweight and loose clothing.
- Wear a hat and other clothing that will protect you from the sun’s rays.
- Apply sun screen to exposed skin to protect against sunburns.
- Take frequent breaks in a cool location.
- Try and schedule strenuous outdoor tasks for cooler parts of the day.
Avoid dehydration by drinking plenty of fluids both before, during, and after exposure to hot environments. The body can lose more than a quart of sweat an hour in a hot environment. Dehydration often accompanies the heat injuries we have already talked about.

Your blood volume decreases when you become dehydrated. Less available blood affects your circulation; it slows the flow of oxygen to your muscles. Since the muscles can’t get rid of the heat they naturally produce, your body’s internal temperature increases. Dehydration is similar to what happens when the antifreeze runs out of your car’s radiator, without coolant, there’s no capability to remove the heat from the engine.

Cases of dehydration can be either acute or chronic. Acute dehydration often develops over a period of hours. Symptoms include sluggishness, flushed skin color, and a fast pulse rate. Your body temperature will also rise.

At this point most people realize it’s time to take a break. If you ignore your body’s signals, things get worse. Headache, loss of appetite, and a shortened temper signal that the dehydration is getting serious. If the skin becomes hot and dry, the body has lost its ability to sweat, and a potentially fatal case of heat stroke is in the making.

Chronic dehydration is a water loss that doesn’t get completely replaced. Like going too many days on too little sleep, it can add up to knock you out if you’re not careful. Chronic cases often occur when you are working on a project for days at a time.

The easiest way to prevent dehydration is to make sure you drink plenty of fluids. In hot weather you should drink a cup or more of cool water every 15 - 20 minutes. This is more effective than drinking a greater amount once an hour.

To cool down with a beer after work isn’t actually as refreshing as it sounds. Alcohol is a diuretic; it increases your need to urinate, which causes fluids to leave your body at a time when you need them most.

Some commercial sports drinks replenish minerals as well as provide fluids. However understand that medical opinion is still divided as to whether they are as effective as advertised.

And skip the salt tablets. Most American diets don’t require any additional salt. And worse, salt tablets can irritate your intestines and lead to vomiting or diarrhea.

Pre-Hydrating by drinking fluids before you work will help your body prepare.
TOOLBOX TALK 47

Subject: Take the Bite Out of Cold Weather

Frostbite. Just the word can send chills up your spine. If you work in the cold, you’re more likely to suffer from this common cold related injury. People often say they are “freezing” when they’re just cold. When a person’s skin actually freezes, it’s called frostbite.

You’re most likely to get frostbite if you:

- Work outdoors in the cold.
- Work in a refrigerated room.
- Work in a poorly heated building.
- Handle cold generating substances.

The good news is that you can avoid frostbite if you know the facts about safety from the cold, and use your common sense.

Faced with bitter cold, your body conserves heat by directing warm blood away from the arms, legs, and face to supply the heart, lungs, and other vital organs. If your body temperature in your extremities drops low enough, ice crystals actually may form in the tissue. The most vulnerable body parts include the nose, cheeks, ears, fingers and toes.

Frostbite has three different degrees of damage:

- First Degree; When the skin freezes but doesn’t blister or peel.
- Second Degree; When the skin freezes and blisters or peels.
- Third Degree; When the skin freezes or dies. Third degree frostbite often causes damage or death to deeper skin tissues.

First degree frostbite turns skin white or grayish yellow. Burning, tingling, aching sensations or numbness are other symptoms.

Second degree frostbite turns the skin white or grayish yellow, blisters appear, or the skin starts to peel. Burning and tingling disappear, to be replaced by deep aches and a numb, wooden sensation in the affected areas.

Third Degree frostbite usually attacks the feet and hands. The skin becomes white and cold, and feels solid to the touch. After the area thaws, it may appear blue, purple, or black. The best way to prevent frostbite in the first place is to dress properly. Always layer your clothes so you can take off or add clothing as you either heat up or cool off. Cover potentially sensitive areas.
For all frostbite injuries follow the same first aid treatment, seek medical attention immediately, do not attempt to thaw the frozen area, rather re-warm frozen body parts at a medical facility only.

One common mistake is to rub the affected area with snow or ice. This can damage sensitive tissues and lead to gangrene. Do not apply heat lamps or hot water bottles, place the injured areas near a heat source, or break blisters. Drink warm, sweet fluids, but avoid alcohol and beverages with caffeine.

Once you have had frostbite, you’re more susceptible to it again in the future. The affected area will also be more sensitive too cold, so avoid overexposure. Never take chances with frostbite, even if it seems the area has gotten better, always see a doctor.

In some cases you may develop both frostbite and hypothermia. Hypothermia occurs when your body loses heat faster than it can produce it. In mild cases the blood vessels in your skin tighten as they try to keep the heat in, the muscles in your arms, legs, and neck also stiffen up.

Anyone who works outside for more than a few minutes can get hypothermia. The risk increases near cold water or if you work in clothing that has become wet. But it **DOES NOT** have to be freezing outside. In fact most cases of hypothermia develop in temperatures between 30 and 50 Fahrenheit. It can be 35 and sunny out, but a strong wind could bring the chill factor down considerably.

If you ignore the warning signs of hypothermia and continue to lose body heat, uncontrollable shivering can follow. Symptoms of severe hypothermia include difficulty speaking, poor coordination, mental confusion, and pale, swollen skin.

Certain people are more vulnerable to hypothermia than others. Older adults and smokers have a harder time resisting chills than younger people. So do people on some medications. The medication prevents their bodies from regulating temperatures normally. If you take anti-depressants, sedatives, tranquilizers, or cardiovascular drugs, check with your doctor or pharmacist to see whether your job/medication mix increases your chance of hypothermia.

Don’t ignore the warning signs of hypothermia. If you suspect a case, call for an ambulance. While you wait for help to arrive, move the victim to a warm area and gently wrap him in blankets, towels, or extra layers of clothing. Remove and replace any wet clothing. Be careful not to warm the victim up too quickly with a hot bath or electric blankets. Rapid warming can cause heart problems.

In severe cases, in which the victim loses consciousness, monitor the person’s breathing and prepare to perform CPR if necessary. Be careful not to raise the victims’ feet, as this causes cold blood to flow into the body’s core, further chilling the victim.
The best way to prevent hypothermia is to dress in layers and recognize when it is time to take a break from the cold.

A lot of people have the misconception that a heavy coat is all you need. Layers are actually what keep the heat in the best. And layers also give you the flexibility to remove or add clothing as you warm up and cool down.

It is recommended to start with cotton long johns or undergarments made of a high tech synthetic such as polypropylene, to draw moisture away from the skin. Next wear a flannel shirt or a wool sweater, possibly both, if they are not too bulky. Top it all off with a comfortable jacket, ideally made of a water proof fabric. A double layer of socks, the outer layer should be wool or a wool blend, and a warm hat or cotton liner with a hard hat will also keep heat in.

Remember, keeping your cool about the cold means a safer workplace for everyone.
TOOLBOX TALK 48

Subject: Confined Spaces, No Room for Mistakes

Each year tens of thousands of U.S. workers climb, crawl, or descend into confined spaces to perform their jobs. A few hundred of them never make it back.

Confined space hazards are present in many industries and cover a wide range of job duties. It is hard to track the number of injuries and deaths because accident reports sometimes credit the cause of confined space incidents to other causes, such as suffocation or fire. However, a 1996 study by the National Institute for Occupational Safety and Health suggest more than half of all confined space victims are would be rescuers who weren’t aware of the dangers.

Confined spaces have 3 common features:

- Limited or restricted means of entry and exit.
- Large enough and so configured that an employee can bodily enter and perform assigned work.
- Not designed for continuous employee occupancy.

Common confined spaces include boilers, furnaces, manholes, pipelines, sewers, pits, process vessels, silos, storage tanks, and utility vaults. Changing conditions in an atmosphere, such as exposure to toxic gases and a lack of oxygen, are common causes of confined space deaths. Mechanical hazards, explosions, fires, engulfment and drowning also claim lives.

Employers are required to identify and mark areas in the work place that meet the definition of a confined space, and classify them as permit required, or non-permit required confined spaces. Those areas classified as permit required confined spaces must be monitored under a formal permit entry system.

Each confined space that workers must enter will require a permit issued by the employer. The permit, which remains valid until the end of shift, must be posted at the entry point to the confined space and include the following information:

- Date, time, and duration of the permit.
- Identity of the confined space.
- Hazards associated with the confined space.
- Hazard controls such as flushing, lockout/tagout, etc.
- Type of atmospheric hazards to test for (i.e., H2S, LEL, O2), and their results must be recorded.
- Purpose of entry.
- Name, and time of persons entering and leaving the confined space.
SECTION IX Item 3

Name of the assigned attendant.
Name of the entry Supervisor.
Required PPE.
Communication information to include signals and emergency numbers.

Confined space entry also requires an attendant stationed at the entrance to the confined space. The attendant will have continuous contact with the workers in the confined space. If a hazardous condition develops, in or out of the confined space, it is the attendants’ responsibility to order the workers in the confined space to evacuate.

Everyone involved has to understand what they are doing before they enter a confined space. Confined space work involves teamwork, and requires good supervision.

Just because something is safe under normal conditions, doesn’t mean it is safe in a confined space. If you are not sure, or do not understand, ask questions. No one should ever enter a confined space not knowing for themselves, what is being done and why.
TOOLBOX TALK 49

Subject: Words Can Hurt You

It may start as something small, a harsh response to a question, or an angry outburst on a difficult day. Or it may be something much more serious, constant harassment, ugly name calling, even threats.

Whatever form it takes, dealing with verbal abuse on the job can be one of the most difficult challenges you can have. At its least, such abuse can lead to an unpleasant or unproductive work environment, at worst it can lead to physical violence, even death.

Unfortunately, it’s not uncommon. According to “Fear and Violence in the Workplace,” a 1993 study conducted by an international insurance company, some 6 million American workers were threatened, and 16 million were harassed between July 1992 and July 1993. Three fourths of them reported psychological distress from the harassment. The study also reported that harassment reduced productivity and increased workers desire to change jobs.

Before you can learn how to deal with verbal abuse, it’s important to understand why it happens. Verbal abuse often stems from workplace stress and frustration. Other factors that can lead to verbal abuse include frustration over deadlines, relationships, or finances. Misuse of alcohol or drugs also can play a part.

How you confront such behavior on the job site depends on the frequency and the severity of the abuse. The simple answer is that you respond in a neutral tone, without added emphasis on words. Avoid the temptation to be the one in the right at all costs. This can feed on the abusers play for power or attention, or on their anger.

Experts also state that clear expectations of proper conduct are important so that everyone knows how verbal abuse will be handled. Depending on what is said, the three strike rule will usually fall into play with written warnings for the first two offenses, followed by possible termination for the third strike. Racial or sexual harassment however, is grounds for possible immediate termination.

If you find yourself the victim of verbal abuse, you should take it up with the abuser first, if you are comfortable speaking to them. If you’re not comfortable speaking to your co-worker or the abuse continues after speaking to them, then it becomes the supervisor’s responsibility.

Verbal abuse is not common only between co-workers unfortunately. Some supervisors are also guilty of it from time to time. What to do when your immediate supervisor is the abuser? Simply bring it to the attention of the Superintendent, or the Company Human Resource Manager in the Watertown office. They will investigate any alleged cases of abuse.
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Whatever it’s form, verbal abuse cannot be ignored. If you are the victim today, it could be someone else tomorrow. Stop it before it can grow into serious trouble.
TOOLBOX TALK 50

Subject: What Did You Say? Hearing Conservation

Hearing loss is not just a result of aging. It affects about 40% of the people under the age of 45 and about 29% of people 65 and older. Many people lose their hearing because of loud music, environmental noise, and noise on the job.

A barely audible crackle of cereal registers at 30 decibels, a whisper at 60 dB, a vacuum cleaner at 80 dB, the clang of a stamping press at 110 dB, and a jet plane taking off at 130 dB.

About 9 million workers are exposed to noise on the job. These include firefighters, musicians, police officers, construction workers, dentists, farmers, the military, and truck drivers. When hearing loss occurs, job related incidents increase, communication breaks down, and the effected person can suffer increased stress and fatigue.

The inner ear is second only to the brain in being the most complex organ in the human body. The ear has 1,200 microscopic hair cells all tuned to different pitches transmitted from the outside. If you damage a few hundred of these, you have a hearing loss that prevents you from distinguishing speech, and high frequency sounds begin to sound alike. In the workplace, that loss to hearing can be a disaster.

You should suspect the presence of hazardous noise if you find communication difficult while you are exposed to sound, if you have a ringing in your ears, or if sounds seem muffled after you leave a noisy area.

The major types of hearing protection devices are ear muffs and ear plugs. However, there are many kinds that can do the job. Hearing protection devices should be matched to the noise exposure level, but more importantly, to the user’s personal preferences.

It is important to carefully follow the manufacturer’s instructions for wearing hearing protectors. Hearing protection devices must be individually fitted to the user to ensure the most protection.

Hearing loss creeps up on you; it is not sudden, but gradual and irreversible. Unlike eyeglasses used to correct vision, hearing aids do not return noise damaged hearing to its natural, pre-injury condition. Noise does not have to be annoying to cause hearing loss.

Losing your hearing for the rest of your life is not worth the extra 30 seconds it takes you to properly wear a hearing protection device.
Section IX

Toolbox Talk 51

Subject: Face It, A Shield Provides Protection

Sometimes you don’t recognize a hazard until it hits you in the face. And if you’re not properly protected, by then it’s far too late.

That’s why it’s important to wear face shields for tasks that involve liquids or flying particles. A face shield can be a crucial barrier that saves you from injury.

More than 15,000 injuries occur annually that involve flying objects striking the head or eyes, according to Bureau of Labor statistics. Workers in occupations that involve chemicals, liquids, wood, molten metal, loose fibers, and demolitions are particularly at risk for these accidents. If there is a chance that a hazardous material could get in your face, then the proper face shield is an essential piece of equipment.

Despite their importance however, face shields should never be considered as the primary eye and face protector. The number one rule with face shields, regardless if they’re worn to protect against splashes or chips, is that they are NEVER to be worn alone. You have to be wearing either goggles or safety glasses to protect your eyes. This extra protection is necessary because face shields have an opening at the bottom through which material can pass, striking the eyes.

Remember a few simple rules about using your face shield:

- Keep it clean, if you need to, stop working and clean the shield, then resume work.
- If it gets scratched to the point it distorts or limits your vision, replace it.
- Even though it can swing up on your hard hat when not in use, it does you no good there when you need it.
- When you’re done with the shield, return it to the tool box to assist in keeping it serviceable for the next job.
TOOLBOX TALK 52

Subject: Hazard Communication

The Company tries hard to protect you against the hazards of the chemicals you will use or be exposed to on our job sites. We utilize engineering controls, PPE, medical exams, and training, or any combination of these, to assist in ensuring you work in a hazard free environment.

Modern life would be impossible without chemicals. Plastics, drugs, modern fibers, and more, all require the use of chemicals. But chemicals have to be treated with respect to. Many can cause injury or illness if not handled properly.

In the past there was no guarantee that workers would be told about the hazards they might face on the job. Container labels and warning sheets, even when available, often did not have enough information on the hazards, prevention, or first aid procedures for the chemicals involved.

Now, with federal requirements for labeling, MSDS sheets, and employee training, the worker has a much better grasp of just what he is working with, what to wear for protection, and how to administer the first aid for that particular chemical. Let’s talk about what is there to inform you.

Every container of hazardous chemicals is labeled by the manufacturer. The actual format differs from manufacturer to manufacturer, but the labels must all contain the same basic information. This makes it easy to find out at a glance the possible hazards, and some of the basic steps you can take to protect yourself against those risks. The label should use words or words and symbols to tell you the following:

The name of the chemical.
The name, address, and emergency phone number of the company that made or imported the chemical.
The physical hazards.
Any important storage and handling instructions.
The health hazards (if any).
The basic PPE and procedures recommended for safe use.

Before you move, handle, or open a chemical container, READ the label and follow the instructions. If you are not sure about how to do it after reading the label, ask your supervisor.

The MSDS is the basic hazard communication tool that gives details on chemical and physical dangers, safety procedures, and emergency response techniques. There is an MSDS available for every chemical you will be working with on the job site. The MSDS covers:
STEBBINS ENGINEERING SAFETY MANUAL

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<td>Hazardous ingredients. You’ll find the mixtures hazardous components, chemical ID and common names. Worker exposure limits, such as PEL, TLV, and other recommended limits are found here also.</td>
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<td>3.</td>
<td>Physical and chemical characteristics such as boiling point, color, odor, appearance and others are to be found here.</td>
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<tr>
<td>4.</td>
<td>Physical hazards such as fire and explosion, and recommended ways to handle those hazards, such as special equipment or procedures.</td>
</tr>
<tr>
<td>5.</td>
<td>Reactivity, this tells you if the chemical is stable, and what other chemicals and situations to keep it away from (if any).</td>
</tr>
<tr>
<td>6.</td>
<td>Health hazards tells you how the chemical could enter your body, whether or not it is a carcinogen, as well as signs and symptoms of exposure, and emergency procedures and first aid steps to take if needed.</td>
</tr>
<tr>
<td>7.</td>
<td>Procedures for safe handling and use to include what to do for spills and leaks, safe disposal, cleanup equipment, as well as handling and storage procedures.</td>
</tr>
<tr>
<td>8.</td>
<td>Control methods used to reduce harmful exposure, to include the proper PPE, respirator cartridges, ventilation, etc. needed to use the product.</td>
</tr>
</tbody>
</table>

The MSDS gives you everything you need to work safely with the chemical you have. You won’t find exactly the same amount of information on every MSDS, some will have more, however, the eight sections we have talked about are the minimum.

Read the MSDS before you start any new job, that way you will be much better prepared.
TOOLBOX TALK 53

Subject: Acetone Use & Care

Acetone, also called dimethyl ketone, is one of the ketone group of solvents that also includes methyl ethyl ketone. Mechanics, painters, and fiberglass workers are frequent users of acetone for various purposes in the shop, and many people are familiar with its pleasant sweet-smelling odor. Acetone is an excellent solvent for oils and grease. It is often used in the electronics industry for degreasing and cleaning of precision electronic parts. It is also used in the formulation of lacquers, rubber cements, cleaning fluids, and paint removers, as well as the manufacture of methacrylic and epoxy resins. Acetone can also absorb 22 times its volume of acetylene gas, which permits safe and economical shipment of acetylene in cylinders.

Acetone is one of the least toxic of the many organic solvents used in the workplace. Its toxicity is low for both acute and chronic exposures. However, prolonged inhalation of high concentrations of acetone vapor causes irritation of the respiratory tract, headache, loss of memory, and in extreme cases, unconsciousness. Other symptoms of acetone intoxication include dizziness, nausea, or drowsiness. Continued skin contact may produce a mild form of dermatitis.

Control Vapor Concentrations: Acetone vapor in work areas should be maintained at or below the Threshold Limit Value of 750 PPM (averaged during an 8-hour workday), with a maximum Short Term Exposure Limit (defined as 15 minutes) no higher than 1000 PPM. For most operations, vapor can be kept at safe levels by enclosing the operation, by ventilating, or both. Opening windows or doors is often adequate for most small uses. Local exhaust may be needed with larger operations in order to capture the vapors at the source and keep them out of the breathing zone.

Wear PPE: Employees engaged in routine handling of acetone should wear milled butyl rubber gloves and rubber aprons for protection against skin contact. Chemical goggles should be worn where necessary. When complete face protection is necessary, a face shield should be worn.

Fire Prevention: Acetone is a serious fire hazard and can ignite with only a 2.6% concentration in the air. Water solutions of acetone are also highly flammable; a solution of 10 percent acetones in water has a flash point of about 80 F (27C). All sources of ignition, including spark-producing mechanisms or operations should be eliminated in areas where acetone is stored, handled, or used. Vapor proof electrical systems should also be installed (Class 1 - Division 1). Fire extinguishers for acetone fires include foam, carbon dioxide, and dry chemical. Water used on an acetone fire should be in the form of a spray or fog in order to prevent spreading the fire.

First Aid: If a person has inhaled small amounts of acetone vapor and exhibits any of the symptoms of acetone intoxication, they should be moved to fresh air and the effects will often disappear in a few hours. If large amounts have been inhaled, the person should be moved to
fresh air and medical assistance immediately summoned. If breathing has stopped or respiration is weak; artificial respiration should be given. If splashed in the eyes, the eyes should be irrigated immediately with large quantities of running water for at least 15 minutes. An evaluation by a physician as soon as possible is recommended. Skin contaminated with acetone should be washed with soap and water, and any contaminated clothing removed.
TOOLBOX TALK 54

Subject: Avoiding Electrical Shocks

Electrical hazards can be found in all industries. Avoiding electrical shocks both at home and at work requires awareness of the hazards and a respect for this "Silent Killer." The human body has a low resistance to electricity, making it a good conductor, like most metals. Unlike metals however, the human body does not respond well when electricity passes through it. Physical results include thermal burns, disruption of normal heart activity, severe muscle contractions, and even death.

The most common and serious electrical injuries occur when electrical current flows between the hands and feet. This happens when a person touches an energized line. The electrical energy is looking for the shortest path to the ground, and it will pass through the body to the feet to reach it. When this occurs, a person's heart and lungs are frequently damaged by the electrical energy.

Placing an insulator between the energy and the point of physical contact is one method of protection. Porcelain, rubber, pottery and dry wood offer substantial resistance to the flow of electricity, and are therefore good insulators. These materials can often protect a person from electrical shock.

Precautions for avoiding electrical shocks include, but are not limited to, the following:

- Always make sure electric tools are properly grounded or double insulated. The double insulated tool must have an undamaged outer case and be clearly labeled as "double insulated" by the manufacturer.

- Always check to be sure the grounding system is complete. Unless they are designated as double insulated, grounded power tools must be attached to a grounded service circuit. If there is any doubt about the grounding, test it! (Ground testers are inexpensive.)

- Use heavy duty grounded extension cords. These cords have two layers of insulation, with reinforcement between the layers. They are less susceptible to damage than household type cords. To check if the cord is heavy duty, check its shape. Most flat cords are not heavy duty. Heavy duty cords will have a marking on the insulation such as: "S", "SJ", "SJO", etc.

- Avoid mixing water and electricity! Not only keep cords, tools and working/walking surfaces dry, keep your hands and feet dry as well. The electrical resistance of wet skin is at least 100 times less than dry skin. Wet skin greatly increases the likelihood of severe shock if a person comes in contact with a live circuit. If you must work around water, connect to a Ground Fault Circuit Interrupter (GFCI) to automatically shut off the current if there is an abnormal current flow.
Never work on or around a live electrical circuit. *Lock Out* the power so that *only you* have control over energizing the machine or equipment. Don't take chances.

Remember, electricity strikes without warning—always play it safe!
SAFETY MANUAL

SECTION IX Item 3

TOOLBOX TALK 55

Subject: Back Care: You Can Make a Difference

"OUCH! Why did I try to lift that much weight on my own?" Did you ever ponder those words after you hoisted something heavy, or lifted from an awkward position? These incidents are well-known causes of back strain, but you might not have considered other "underlying" factors that lead to back injury. Several conditions influence your "back health."

The cause of most back problems is poor posture, loss of flexibility, stressful living/working habits and above all, a general decline in physical fitness. Surprised? You shouldn't be. When you "let yourself go," (and most of us do with age) the first thing to go can be back strength.

Along with correct lifting techniques, we should also work on our overall physical condition. Nutrition--is an important key to staying physically fit! As we grow older, our metabolism slows down. To counteract this natural event, we have to eat the right types of food-and not too much of it-or the pounds come on quickly! Now, what does nutrition have to do with a healthy back? For one thing, a healthy back is correctly balanced on your spine. With a "sway" back, that balance is lost-and those darned potbellies cause sway backs. Carrying around excess weight puts tremendous strain on back tissues, so lifting even a small extra load may cause an injury.

Exercise--plays an important role as well. A form of exercise as simple as walking 30 minutes a day can raise your heart rate and burn enough calories to help keep you lean. Flexibility is another condition that changes as we grow older, if we don't work to retain it. It's true, as they say."Use it or Lose it!" Without flexibility, we lose our body's full range of motion. Then, when a sudden, physical demand takes a muscle or joint further than it's used to, the risk of injury is high. You can do stretching exercises every morning to keep yourself flexible and ready for the physical demands of work. After all, don't athletes warm up before a game to prevent injury?

Fixed positions--not moving enough--can also cause back problems. Staying in a fixed position for too long can lead to muscle spasms. We feel it as stiffness, but by the time discomfort from "static" muscle contractions is experienced, low level tissue damage has begun. Take stretch breaks between long standing or sitting periods to improve circulation and prevent back strain.

Poor body mechanics and bad lifting habits usually "trigger" a back injury-and are more likely to do so if overall physical condition is poor. Remember these techniques to help escape injury:

- Avoid using fast, jerking motions when lifting.
- Avoid bending and twisting at the same time.
Avoid handling a load too far away! Keep the load close to your body.

Teamwork! If the load is too heavy, two persons should carry the load.

Emotional Stress leads to mental distraction, so that things other than proper body mechanics are on your mind. Stress and back pain seem to go together. Low back pain has been called "a tension headache that slipped." Solving our personal problems isn't always easy to do, but it often takes away back pain and helps prevent repeated injuries.

In Conclusion: Improper lifting isn't the only thing that causes back injuries. People who do not also stay in good physical and mental condition are at high risk for back problems.

It's Up To You--Take Good Care Of Your Body and Save Your Back!
TOOLBOX TALK 56

Subject: Carbon Monoxide (CO)

Carbon monoxide is a clear, odorless, heavier than air gas which is created by inefficient combustion emissions. The most common sources in industry are gasoline or diesel powered pressure washers, air compressors, forklifts or other petroleum fired machinery.

The chemical makeup of CO is a carbon molecule linked to an oxygen molecule. The carbon molecule makes CO heavier than air and will not allow the lungs to absorb oxygen into the blood stream. Without oxygen, you will slowly suffocate to death.

What does this mean for workers? As the CO fills the space, it displaces oxygen and will affect workers as follows:

- Slight headache and dizziness
- Nausea
- Drowsiness and an euphoric feeling
- Unconsciousness
- Death

The level of CO mandated by OSHA as the maximum allowable for 8 hours is 35 parts per million. This is an extremely small amount of CO. To put this into perspective, think of a room that holds 1 million ice cubes and then remove 35 cubes from the room. Those 35 ice cubes are the maximum amount allowed by OSHA for workers to be exposed to over an 8 hour period.

What to do to prevent CO overexposure?

1. Inspect the jobsite and remove any internal combustion machinery located near a hatch or other opening that may cause exhaust fumes to enter the space.
2. VENTILATE, VENTILATE, VENTILATE! ! !
3. Frequently monitor work spaces for CO with testing equipment and observe employees for signs of CO exposure.
4. Train workers about the early symptoms of CO exposure.
STEBBINS ENGINEERING SAFETY MANUAL

SECTION IX

Item 3

TOOLBOX TALK 57

Subject: Personal Protection - Care for Your Half-Mask Air-Purifying Respirator

Your half-mask air-purifying respirator provides protection against breathing of airborne contaminants. Your employer is responsible for the respiratory program which includes providing you with the proper type of respirator for the given exposure. You and your employer share responsibility for making certain that your respirator is functioning as intended for your protection. The following is a list of general rules to help you care for and maintain your respirator:

1) The disposable filter cartridges usually contain a chemical absorbent to trap contaminants. The filter cartridge should be replaced immediately if it becomes more difficult to inhale. It should also be changed if you begin to smell or taste the contaminant.

2) You should thoroughly inspect your respirator on a daily basis or before each usage. Examine the elastic headband(s) to assure it has not lost elasticity. Also check the headband for tears, frays, and loose strands. Take the cartridges off and examine the cartridge housing to make certain it is not cracked. Check the cartridge threads to ensure they are not stripped or damaged in any way. Check the facepiece for tears, cuts, or holes. Inspect the exhaust valves and intake valve to make certain they are not sticking or damaged.

3) Clean your respirator after each use. The cleaning process usually consists of washing, disinfecting, rinsing, and drying. You should refer to the manufacturer's suggestions for specifics. Most facepieces can be washed with warm water. Disinfecting with a disinfectant cleaner or germicidal detergent is a commonly acceptable practice. Rinsing should be done with water. Air drying is usually preferred as towel drying or heated quick drying may cause damage.

4) It is important to store your respirator properly. Your respirator should be protected from heat, sunlight, dust, and vapor contaminants. Storage in a sealed plastic bag is the preferred practice. Be careful not to cram the respirator in a tight space or store it in an awkward position as both of these practices may warp the respirator permanently and alter the fit.

5) Do a "fit-check" often to make certain that you have a good seal. This can be done by covering the exhalation valve with your hand and gently exhaling into the facepiece. If air leaks out during gentle exhaling, the seal and facepiece should be checked by your respirator program administrator.

If you take good care of your respirator, it will take good care of you!
Subject: Chocking and Blocking

An essential part of a safe working environment when loading or unloading trucks and trailers is the proper use of equipment, which includes chocks and blocks. Every year, workers are severely or fatally injured because the wheels of a truck or trailer were not chocked. Vehicle drivers are also injured when trailers overturn because unblocked freight shifted during travel.

When wheels aren't meant to roll. Accidents are caused each year when a truck or trailer rolls away from the dock because no one took time to chock the wheels. In some cases, drivers who got out of the cab were crushed by their own rig. In other cases, lift truck drivers were injured when the forklift fell between dock edge and a trailer that moved away. The wheels of trucks or trailers at a dock should always be chocked prior to the start of any operation, to prevent this from happening. Lift truck drivers should never enter a trailer without first verifying that the wheels have been chocked, and that the floor of the trailer is in good condition and capable of supporting the weight of the forklift and its load. In most states, OSHA requires that vehicle wheels be chocked prior to permitting forklifts to enter trailers.

Positioning of chocks is important. The purpose of the chock is to pin the wheels and hold them stationary so that the tractor or trailer can't move. However, if they aren't placed in the right location they don't always prevent movement of the wheels. The safest procedure is to always chock the wheels closest to the dock--especially on a tandem-axle trailer. The reason is, the lift truck entering the trailer can exert a downward force which helps pin the wheels more effectively against the chock. When the front axle is chocked, the forward motion of a forklift entering the trailer may loosen the chock, allowing the trailer to move forward, or even jump the chock.

Shifting loads are hazardous. Freight inside the trailer must also be blocked or secured to keep the load from shifting, which can damage other cargo or cause a trailer to overturn in transit. Cargo needn't be round, such as reels or machinery on wheels, to shift position. Blocking of heavier freight is used to prevent movement during transit. To accomplish this, it may be necessary to block each item separately, on all four sides. The type of blocking material used is also important. Make certain that nails are long enough to hold the block and that lumber is thick enough to prevent the cargo from shifting without breaking. Never use other freight as blocking. If it looks like the cargo can move around, it probably will. Take time to secure it.

Be sure the correct equipment is always available. Every loading dock should be equipped with chocks, which if properly used, will keep vehicles from moving while being loaded or unloaded, especially when forklift trucks are used. Chocks will more likely be available at all times if they
are fastened to the dock with a chain or rope to prevent their "disappearance," and stored out of the traffic areas when not in use.

Chocks and blocks help avoid accidents. Use them, and require others to use them!
Subject: Cold Weather Hazards of Propane Fueled Vehicles

Propane is a gas that is turned into a liquid when stored in pressurized cylinders. You should be aware that as the temperature of the fuel tank rises, the liquid fuel expands which increases pressure inside the tank. In cold weather this could result in a fire or explosion if a propane-powered vehicle with more than 80% liquid fuel in the fuel tank is brought into a heated building from outside. The increased air temperature in the shop causes increased pressure inside the fuel tank. This will open the safety relief valve if the tank has been overfilled, and the released propane gas can burn if any ignition sources are present.

General Safety Precautions When Servicing Propane Fuel Vehicles in Cold Weather:

1. Before bringing a propane-fueled vehicle indoors for service be sure the propane system is leak-free. In weather above freezing use a soap and water solution to check connections, valves, and lines. In colder weather use a commercial leak detector solution that is available from safety supply houses, or use a combustible gas indicator that is calibrated for propane.

2. Be sure the fuel tank is not filled beyond the maximum recommended filling capacity (usually 80%). The level of liquid fuel can be checked as follows:

   Park the vehicle on a level area outdoors with no possible sources of ignition nearby.
   While wearing neoprene gloves disconnect the fuel line and briefly open the tank valve. If the container is safely filled you will hear an audible hiss when the valve is opened. No white fog will appear.
   If the tank is overfilled, you will see a white fog when the valve is opened.
   If the tank is overfilled, do not take the vehicle indoors until the liquid level is reduced below 80%. Consider letting the vehicle run to accomplish this.
   When the liquid has reached a safe level, recheck all valves, especially the pressure relief valve to be sure there are no leaks before moving the vehicle indoors.

3. The fuel lines should be free of fuel when the vehicle is indoors for repairs or servicing. Fuel lines should be charged only when propane is required to operate the engine. The procedure is:

   Turn the tank valve to the closed position. Clockwise closes the valve.
   Allow the engine to operate until it stops from lack of fuel.
4. When repair or service work has been completed, recharge the fuel line:

Open the fuel line valve VERY SLOWLY, until the line fills with propane.
If the excess flow valve should close, shut off the tank valve and wait 10-15
seconds for the valve to reset. Then, SLOWLY open the tank valve again.

5. If the propane gas is released in an enclosed area (for example, if the relief valve opens),
the following actions should be quickly taken:

Evacuate the area.
Remember that propane vapors are heavier than air and will settle at floor level.
Eliminate all sources of ignition (torches, water heaters, pilot lights, cigarettes).
Close off the source of the leak if possible and open all doors to ventilate the area.
Do not restart ignition sources until after the propane odor has been eliminated.

6. Be sure to follow safe operating procedures as recommended by the equipment
manufacturer and consult with them, and/or the distributor if you have questions.
TOOLBOX TALK 60

Subject: Confined Space Entry - Don’t Be A “Dead” Hero

You are standing at the top of an open manhole acting as an attendant for a team of maintenance personnel who have entered a confined space that required an entry permit. It has been several minutes since you talked to the crew, but you can peer down into the space and see them. During your last few checks with them, everything was A-OK.

This time, however, when you yell down to check on them, you don't get a response. You look inside the hole and you notice that they are slumped over or leaning up against the wall like they are taking a nap.

You yell for help but know that it will be some time before a rescue team arrives. Those are your friends down there, and they need your help. They are real close to the top, why you almost could just reach down and pull them up. Your pulse is beating and you are breathing hard from excitement. You're yelling at the workers, trying to arouse them. Something has to be done . . . so . . . you jump down into the hole.

The rescue team arrives in time to pull your lifeless body out with the rest. The record will show that you attempted to rescue your friends and gave your life doing so. Some would say you were a hero. Yes, but a dead one!

The moral of this scenario is that when you are an attendant watching over a confined space, your duty is to observe and assist from above. If you have a tag line on the person inside and can pull them out without entry, go ahead (but how much dead weight can you lift from below your feet). If you have the proper rescue tripod, you can winch the victim to the surface. At no time do you enter the space to attempt rescue. You can wait until a new attendant arrives and after you put on the proper rescue equipment and enter (providing of course you have been trained in rescue procedures). But you must never.. never .. never abandon your duties as the attendant and attempt rescue on your own.

You have no idea what the hazards are that overcame your co-workers. And like the scenario described above, you might wind up as a DEAD HERO.

Confined spaces can be killers. Know what the risks are and take appropriate measures to control them. Be sure that air samples are taken before entry, and as frequently as required by the activities being conducted. Provide ventilation into the space if required. Use all personal protective equipment in accordance with the manufacturer’s directions. Use your entry permit to log the sample results and the time of test. Have a rescue plan established before it is needed.
We want you to walk away from all confined space entry situations. We don't want to carry you away in a body bag. Think SAFETY and stay ALIVE.
TOOLBOX TALK 61

Subject: Crane Operations - Working Under the Load

When you think about it, the human body is totally out-matched when it tries to go against a load being lifted by a crane. Think of the dangers for a moment. First the load is being lifted by a mechanical device operated by a human being. We know that both are subject to limitations and failures. Something can go wrong despite our best intentions. Loads can be heavy, difficult to rig, and are subject to unexpected movement. There is only one sure way to avoid injury-stay clear of the load!

Crane movements should always be considered prior to set up. Every effort should be made to avoid having to move the load over the work area. If this cannot be done, work should be temporarily halted and the area cleared while the pick is taking place.

Be aware of what is happening around you and above you.

Others may not be as conscientious as they should. An operator may not even think of the danger of moving a load over your head. If you see a load coming, get out of the way. Don't forget to look out for your buddy also.

Riggers and others may have to work near a suspended load in order to guide it into position. The use of tag lines can help keep you out of harm's way. The tag line will put distance between yourself and the load in the event the load shifts or moves unexpectedly. Tag lines can help keep a load under control but remember, your weight is no match against a load that has started to swing or spin and develop momentum. Let it settle down on its own.

When tending tag lines, never loop the line around your hand, arm, or body. This could cause you to be dragged along with the load. Wear gloves. This helps you avoid rope burn.

Lastly, be sure if you are guiding a load with a tag line that your travel path is clear and safe before the load is suspended. You will be spending a lot of time watching the load, rather than where you are going. It would be a shame to take all of the precautions to avoid being caught by the load, only to be injured in a fall.
TOOLBOX TALK 62

Subject: General Safety - Cuts and Burns

Nicks, cuts, scratches and burns. Minor injuries that can occur to any one of us no matter how careful we are. Minor injuries to the skin that are often ignored. But it must be remembered that skin is a vital organ; one that should not be ignored. Not only is skin the largest bodily organ, it also keeps the good stuff in and the bad stuff out. So what do you do when you get a minor injury? If you are like many, you realize a doctor's visit is not necessary and try to treat the injury yourself. How do you know when to seek professional treatment? How do you treat injuries that do not require a doctor's visit?

Cuts:

Cuts require immediate professional attention if:

- There is severe bleeding, especially arterial wounds, which literally pump blood from the body.
- Puncture wounds, such as those caused by a rusty nail or animal bite. These will require a tetanus booster shot.
- Cuts more than one half inch long and one quarter inch deep, which will require stitches.

To treat any cuts, first stop the bleeding and then treat to prevent infection. Place a sterile gauze (or if you do not have any gauze, a clean cloth) over the wound and hold it until the bleeding stops. Apply pressure continuously. If the gauze or cloth soaks through, simply place another cloth over the first and resume the pressure. When the bleeding has stopped, wash the cut with soap and water, followed by a disinfectant. If the bleeding does not stop, get professional treatment. After the cut is clean, look for any foreign object(s) in the cut and remove them. If you do not, a threatening infection may set in. To aid in keeping the wound clean while it heals, you can cover it with a bandage. However, if you use a bandage, remember it will need attention too. Change it twice daily and use an antibiotic cream to prevent further infection. Keep in mind that wounds exposed to air heal faster. But it is also very important to keep a wound clean and dry to prevent infection.

Treatment for a scrape is the same, except you do not have to worry about stopping blood flow as there is very little.
Burns:

Burns are classified as first, second, or third degree. A first degree burn causes redness. Blistering is caused by a second degree burn. Charred, blackened or blanched skin are signs of a third degree burn. Furthermore, burns can be caused by heat (thermal burns) or by contact with chemicals. Seek professional, medical treatment for:

- All third degree burns.
- Second degree burns involving more than one fifth of the body or if the burn has affected the face, hands, feet, or genitalia.

First aid treatment for a burn involves relief of pain, infection prevention and treatment or prevention of shock. If a burn begins to blister, cool it by placing your hand or foot in cold, still (not running) water. You will need to use an ice pack on any other part of the body. Gently clean the burn and cover the area with sterile, non-stick gauze. Change the dressing twice a day. Never puncture a blister. This just opens the door for infection. Never use butter, oils, or petroleum jelly on burns.

If the burn is due to a chemical exposure, flush the burned area with running water for at least 15 minutes. While you flush, remove any contaminated clothing, especially clothing in the area of the burn. Check the first aid instructions for the chemical. These are found on the container and/or Material Safety Data Sheet (MSDS). Treat as specified. Cover the burn with a clean dressing and call a doctor.

If a third degree burn is involved, get professional medical treatment quickly. Call an ambulance first. While awaiting professional help, make sure any fire is out and/or remove the victim from the burn source. DO NOT REMOVE ANY CLOTHING OR APPLY ANY DRESSINGS. Treat for shock and make sure the victim is still breathing.

Use common sense in all situations. Maintain a well stocked first aid kit and be familiar with first aid procedures. Being knowledgeable and prepared may be the smartest first step of all.
TOOLBOX TALK 63

Subject: Develop and “Sell” Your Safety Solutions

The best ideas for improving the work environment often come from the people who are most affected by what happens in that environment—the workers. But how can employees effectively create solutions to their workplace safety problems, communicate their ideas for improvement to management, and have those ideas be seriously considered? Two tools are needed—a structured approach to solving problems and a way to submit formal suggestions.

A Five Step Approach to Solving Problems:

1. Identify the Problem. Perhaps you already have a specific, perplexing safety problem in mind. It may be a piece of equipment or a process within your department that needs improvement. Define the problem as it now exists—the more specific the better. If excess costs are associated with this problem, knowing what these are will make it easier to explain the problem to management. This will also help you develop clear solutions.

2. Make a list of options. What possibilities exist to fix the problem? What are the results you are looking for? Brainstorm a multitude of ideas which could effectively and efficiently eliminate the problematic situation.

3. List the consequences. You can rarely do one thing without having it affect someone or something else. All ideas have pros and cons associated with them. Consider all sides of the issue and the effect each option may have on other departments or workers.

4. Compare the options. How much effort will be required? How much time and money will it take? You may need some help from your supervisor in calculating time and costs.

5. Choose the best option. Step 4 should help identify the proper choices. Again, discussing this with your supervisor or someone else higher up may help you see the bigger picture and aid you in making the best choice.

Submitting the Formal Suggestion:

1. Describe the current safety problem in a brief, clear, and objective statement to decision makers. Explain the disadvantages of the present situation.
2. Outline your idea. Briefly detail your suggestion for improvement, avoiding negativity.

3. Show how much it will cost to execute your plan. Include the anticipated effect your idea will have on other workers or departments in your organization.

4. Estimate the cost savings. There must be some monetary benefit to what you are suggesting. If your plan improves safety, what is the expected cost savings associated with preventing an injury that old methods caused? Are there other benefits? Is it more efficient? Will it take less time? Try to state these benefits in terms of hard dollars which can be saved.

5. Finish with a more in-depth description of your idea. Break your idea down into its component parts. Use drawings and all other pertinent information to emphasize the importance of your idea. Get your plan across to the decision makers persuasively.

If you use this twofold method to address safety concerns in your workplace, you'll be giving your management team all the information and tools they need to make an intelligent decision. By submitting your ideas in this format, you may also demonstrate to your organization that you are the person to be considered for that next promotion.
Subject: Drum Handling

Improper handling of drums and barrels can result in severe injuries. These include painful back sprains, smashed toes and fingers, or exposure to hazardous chemicals if the contents are leaking. Proper work practices can minimize your risk of injury, so consider the following tips.

Prior to handling the drum, read the label on the drum and look for symbols, words or other marks which indicate if its contents are hazardous, corrosive, toxic or flammable. If the drum isn't labeled, consider the contents hazardous until they are positively identified.

Look around the drum to see if it is leaking. Before cleaning up any spill, make sure the substance has been identified. Make sure that you've been trained in the hazards of the chemical, and have the correct materials for cleaning it up. Find and review the appropriate MSDS.

Before moving the drum or barrel, replace missing bungs and/or lids and secure as necessary.

Depending upon the contents of the drum, estimate its weight. Determine whether you can move it yourself or if you need assistance. A 55-gallon drum can weigh 400-800 pounds.

If you decide to move it yourself, use a forklift if one is available, a hand truck or a drum cart that is designed specifically for drum handling.

If the drum can be rolled, stand in front of it and place both hands on the far side of the chime. Pull the drum forward until it balances on the bottom chime. You can now roll the drum on its chime, being careful to keep your hands from crossing over one another. You can also lower the drum to the ground for rolling by shifting your hands to the bottom side of the chime (not where they will be crushed). Then slowly lower the drum to the floor. Keep your back straight and bend at your knees. Then roll the drum with both hands. Don't use your feet or grasp the ends.

To upend a barrel or drum, a drum lifter bar is preferable. If one is not available, crouch in front of the drum, knees apart and firmly grasp the chime on each side. Keep your back...
straight and use your leg muscles to lift. Balance the drum on the lower chime, shift your hands to the far edge, and ease the drum into the upended position.

Protect your hands, feet, back and face during this work. Safety shoes should be required when moving heavy drums. Gloves, eye protection, aprons, and other personal protective equipment may be needed, depending upon the contents of the drum.

Most importantly, use material handling equipment whenever possible, and get help when you need it!
TOOLBOX TALK 65

Subject: Electrical Sources in Hazardous Locations

An explosion or fire can cause all sorts of havoc in any company's operations. Rebuilding, after a fire, can take a company years. One of the major causes of explosions and fire in industry is from electrical sources. Potential losses from these fires can be reduced by having proper electrical installations and equipment.

Hazardous locations require specially designed electrical equipment to protect people and property against increased fire potential. Certain electrical components and instruments are engineered specifically for locations designated as hazardous due to the possible presence of ignitable quantities of flammable liquids, gases, vapors, combustible dusts, or ignitable fibers.

Hazardous locations are classified as Class I, Class II, or Class III. The class is dependent on the physical properties of the combustible materials which may be expected to be present.

- Class I locations are those in which flammable vapors or gases may be present.
- Class II locations are those in which combustible dusts may be found.
- Class III locations are those in which there are ignitable fibers and filings.

Each of these three classes is divided into two hazard categories, Division 1 and Division 2. The divisions identify the degree of potential for an ignitable atmosphere to exist. Class and Division explanations are detailed in Articles 500 - 503 of the National Electric Code (NEC), and in OSHA 29CFR 1910.39.

Before selecting electrical equipment and the associated wiring for any hazardous location, the exact nature and concentrations of the flammable materials must be determined. An electrical fitting or device which is safe for installation in an atmosphere of combustible dust may not be safe for operation in an atmosphere containing flammable vapors or gases. These electrical fittings are specifically designed for each hazard.

Class I electrical wiring applications are commonly referred to as "Explosion Proof." Properly installed and maintained class I equipment will not ignite the dangerous atmosphere surrounding it, and is approved for use in specific hazardous areas. Explosion proof fittings are designed to contain any arcing, intense heat, and explosions. These fixtures are distinctive in appearance. Class II locations may require "Dust-ignition proof" fixtures. These fixtures are designed in such a manner that their construction prohibits ignitable amounts of dust from entering the devices.
SECTION IX Item 3

Hazardous areas that must have approved electrical installations include, but are not limited to: locations where volatile flammable liquids are transferred from one container to another; interiors of spray booths; in the vicinity of spray painting operations where volatile flammable solvents are used; locations where dangerous concentrations of suspended dust are likely, such as in grain elevators; and gasoline fueling stations. Remember to think electrical safety when proposing any electrical systems that will be located in a hazardous location.
Subject: Electrical Safety - Portable Light Strings

Follow these precautions when using portable light strings:

Inspect the wiring and fixtures before stringing the lights or before they are energized or plugged in. Make sure the outer insulation is not damaged, the plug ends are intact, and the fixtures are not cracked.

The light string must be grounded. Make certain the plug has a ground prong. Never cut one off. The quality of the ground must be tested frequently. A good ground could save your life if an electrical fault develops, especially when working in wet conditions or on metal structures. If a Ground Fault Circuit Interrupter (GFCI) is available, use it. GFCI’s should always be used under wet conditions.

Never string lights so they are near any combustible items. You know from experience, that bulbs get hot. Even if they are not in direct contact with the combustible, heat can build up slowly until the ignition temperature is reached.

Make certain that all bulbs have guards installed. Not only will this help prevent the bulb from coming in direct contact with a combustible, it can also protect you (or someone else) from coming in contact with the bulb and getting burned.

All fixtures must have an unbroken bulb installed. The bulb will help prevent you from coming in contact with the exposed electrical conductors that are present when a bulb is missing or broken. When you change a broken bulb, disconnect the power from the light-string and wear gloves to guard against cuts.

Never use an ordinary light string in an area that could contain flammable vapors. When used within an enclosed or confined space, the space must be certified as "Safe for Hot Work" if a conventional string is used. If the atmosphere is not "Safe for Hot Work", then "explosion-proof" lights must be used. Keep in mind, when you place any type of lighting in an area where flammable vapors are present, you are introducing a source of ignition. This could endanger your life. You will want to be especially careful during your inspection to make sure that the cord, all plugs, the fixture and the globe are all in place. Don't forget the gasket at the bottom of the globe. Make sure everything is clean and tight.
Subject: Everyone is Responsible for Safety

Safety is everyone’s responsibility! As an employee, you should:

a. Learn to work safely and take all rules seriously.
b. Recognize hazards and avoid them.
c. Report all accidents, inquiries and illness to your supervisor immediately.
d. Inspect tools before use to avoid injury.
e. Wear all assigned personal protective equipment.

On the other hand, it is management’s responsibility to:

a. Provide a safe and health workplace.
b. Provide personal protective equipment.
c. Train employees in safe procedures and in how to identify hazards.

Everyone must be aware of potential hazards on the job:

a. Poor housekeeping results in slips, trips and falls.
b. Electricity can cause shocks, burns or fire if not handled properly.
c. Poor material handling may cause back problems or other injuries.
d. Tools and equipment can cause injuries if guards or protective devices are disengaged.

Always use the protections that are provided on the job:

a. Guards on machines and tools keep body parts from contacting moving equipment.
b. Insulation on electrical equipment prevents burns, shock and fire.
c. Lockout/Tagout assures equipment is de-energized before it is repaired.
d. Personal protective equipment shields your body from hazards you may face on the job.

In case of emergency:

a. Understand alarms and evacuation routes.
b. Know how to notify emergency response personnel.
c. Implement a procedure for leaving the scene safely so emergency personnel can do their job.
d. Wipe up spills promptly and correctly.
Safety benefits everyone! By incorporating safety rules, employees avoid injury as well as illness from exposure to hazardous substances. With fewer inquiries, a business can be more productive and profitable. The welfare of the community is also enhanced by providing cleaner air and water and less chance of dangerous accidents that can put lives and property at risk.
SECTION IX Item 3

TOOLBOX TALK 68

Subject: Extension Cord Safety - Take No Chances

We use extension cords almost every day both at work and at home. These are very useful devices, but they can present a fire or shock hazard when either worn out or used improperly.

Types of extension cords:

Extension cords come in either two or three-wire types. Two-wire extension cords should only be used to operate one or two small appliances. Three-wire cords are used for outdoor appliances and electric power tools. The third wire on this cord is a ground and this type of cord should never be plugged into any ungrounded electrical outlet. Only grounded extension cords are to be used with power tools unless the tool is double insulated.

Construction sites require extension cords which are specified by the National Electric Code for hard usage or extra hard usage. Approved cords may be identified by the word "outdoor" or the letters "WA" on the jacket.

Care and inspection of extension cords:

Extension cords must be treated with care and checked regularly for damage or deterioration. The cord itself should never be pulled to disconnect it from an electrical source; remove it by the plug. They should not be placed under rugs or furniture and should never be strung through doorways, windows, walls, ceilings, or floors. Damaged cords present a potential fire or shock hazard and should be destroyed and replaced immediately.

An extension cord should never be used as a substitute for permanent wiring. They should not be fastened to a building or structure, even though staples are sold for this purpose at many hardware stores. Avoid plugging two cords together to make a longer one. It's best to use one cord in a continuous length from the receptacle to the appliance or tool. Extension cords which are either connected together or are too long will reduce operating voltage and operating efficiency of tools or appliances and may cause motor damage.

Extension cords are convenient devices which we often take for granted in our everyday activities, but which need proper care and attention. Use good housekeeping practices at home and at work, to keep extension cords from being a tripping hazards or becoming damaged. Inspect them regularly for wear and replace defective units.

Prevent potential electrical hazards that may lead to someone's injury!
SECTION IX

TOOLBOX TALK 69

Subject: Personal Protective Equipment - Eye Injury Prevention

One thousand eye injuries occur in American workplaces every day. These injuries are responsible for over $3,000,000.00 annually in medical, lost production and workers' compensation costs!!

Why are these injuries occurring?

Three out of five injuries happen because the worker was not wearing any eye protection at the time of the accident.

About 40% of the injured workers were wearing some type of eye protection, but it was the wrong kind and failed to protect adequately. The leading cause in this category is the lack of side shields.

Accident studies reveal flying or falling objects and sparks as the cause in 70% of eye injuries. Nearly 60% of the objects causing eye injury are smaller than a pin head.

Nearly 20% of all eye injuries are caused by contact with chemicals. This includes splashing or chemicals being sprayed directly into the eye.

40% of eye injuries occurred among craft workers, such as mechanics, repairers, carpenters, and plumbers. 30% of eye injuries occurred among operatives, such as assemblers, sanders, and grinding machine operators.

50% of the injured workers were employed in manufacturing. 20% were employed in construction.

What can we do to prevent these injuries?

First of all make sure you select the proper eye protection for the task. 94% of the eye injuries that occurred to workers wearing eye protection resulted from objects or chemicals going around or under the protector.

Second, make sure the eye protection you have selected fits properly and is clean. One of the leading reasons for workers removing or not wearing eye protection is the lens became dirty and they could not see what they were doing.

Nearly 20% of eye injuries happened to workers wearing face shields or welding helmets while grinding. Only 6% of the workers injured while wearing eye protection were wearing goggles.

Choose the best protection, make sure it fits, keep it clean and wear it!
TOOLBOX TALK 70

Subject: Eye Protection - Preserve Your Vision

This SMO is going to require some effort on your part! I'm assigning everyone a homework task. But don't panic, this homework will be a piece of cake! What I'd like you to do on your way home today is spend the evening observing the many beautiful things in this world! For just one evening, stop taking your eyesight for granted! Let me suggest the following:

As you leave the workplace today, look up, down, and all around, observing the beauty around you. See the blue sky, the many shades of leaves in the trees, and the different birds that occupy them. When you get home, watch your children playing in the yard and pay attention to how their eyes light up when Daddy or Mommy gets home. Have you ever stopped to think how wonderful your eyesight really is? Well, think about it. For about two minutes, close your eyes completely and contemplate how life would be if you lost your eyesight! That's it—your homework is complete! Did you come up with visions about how your life would change if you couldn't see? Did they include any of the following?

- When you and your family are on vacation, they will have to describe the scenery to you.
- You would have to be led wherever you want to go.
- Your spouse would have to describe the way your children's eyes light up when they open their presents at Christmas.
- No more leisurely activities such as hunting or fishing, watching movies or TV.
- No more driving the new truck you just bought.

Does this sound like something you want to go through? I didn't think so! Is there a way to prevent this from happening? You bet—wear your eye protection! A recent article in Safety & Health states that every day approximately 1,000 eye injuries occur in the U.S. OSHA estimates that 90% of eye injuries are preventable through the proper use of safety eye wear. What does this tell us? Many people are not wearing proper eye protection! Let's examine a few operations that present eye hazards:

- Grinding, hammering, chiseling, wood working or any other activity that might cause large fragments or small particles to fly through the air and into the eyes;
- Painting, spraying, sanding, metal working, spot welding or any process that may cause dust, fumes or tiny particulate to become airborne;
- Work tasks such as electric welding and cutting with a torch, furnace tending or operations around radiant energy or intense heat;
Operations such as handling acids and caustics, and hot metal casting and babbitting where gases, vapors, liquids or splashing metals are generated.

Your eyesight is a precious gift. Please do not wait until it's too late to come to your senses. If your work presents an exposure to eye hazards, wear your eye protection.

Don't take chances. Open your eyes and protect your vision!
TOOLBOX TALK 71

Subject: Flammable Liquids - Gasoline

Gasoline is the most common flammable liquid manufactured and used. Because virtually everyone uses gasoline it is often assumed that everyone is familiar with its dangerous properties. However, as familiarity breeds contempt (or at least carelessness) it may be a good idea to review this highly hazardous material. Here are some brief but important items to remember when dealing with gasoline.

Gasoline as a liquid does not burn. It is the vapors that the liquid gives off that burns. Vapors usually cannot be seen but frequently travel long distances to a source of ignition. Thus the gasoline can be located a great distance from an actual ignition source.

Gasoline gives off enough vapors to flash, when exposed to an external ignition source at temperatures as low as -45°F! In other words, hazardous vapors are almost always being released unless you work in temperatures colder than -45°F.

Gasoline vapors are heavier than air. Vapors will settle to the ground and flow similar to a liquid. This is why gasoline vapors tend to find their way into drains, sewer lines, basements and other low spots.

Gasoline must be mixed with air before it can burn. It does not take much gasoline to make an ignitable mixture. If the gas-to-air mixture contains as little as 1.4% gasoline by volume, it can be ignited with explosive force.

It has been said that the potential energy in a one gallon can of gasoline is equal to numerous sticks of dynamite.

A gasoline/air mixture can be ignited by a hot surface, a smoldering object such as a cigarette, an open flame, or even a static spark.

Practice good hygiene after handling gasoline. Wash hands and other areas that may have come in contact with gasoline. Avoid prolonged inhalation of vapors as gasoline contains benzene, a known carcinogen.

What can you do to avoid a gasoline disaster? The following tips are good advice when handling or using gasoline.

Never use gasoline for anything other than its intended purpose, as a fuel. Never use it as a cleaning solvent!

Store gasoline in UL approved safety containers.
Never smoke when anywhere near gasoline. Shut off all equipment before refueling and allow it to cool off first. Inspect all fuel hoses, pipes and pumps frequently. Fix leaks now!

Gasoline was chosen as a fuel for the same reasons that make it so dangerous. It is easily vaporized, easy to ignite and explodes powerfully when ignited. Never let yourself become complacent around this volatile liquid that we use every day.
TOOLBOX TALK 72

Subject: GFCI’s at Work and Home

Definition: GFCI = Ground Fault Circuit Interrupter. The GFCI is a fast-acting circuit breaker that senses small imbalances in an electrical circuit caused by the electrical current leaking to ground. If this imbalance occurs, the GFCI shuts off the electricity within a fraction of a second.

How it works: The GFCI device continually matches the amount of current going to an electrical device against the amount of current returning from the device along the electrical circuit path. Whenever the amount "going" differs from the amount "returning" by approximately 5 milliamps, the GFCI interrupts the electric power by closing the circuit within as little as 1/40 of a second.

What a GFCI Can and Cannot do: It does provide protection against the grounding fault—which is the most common form of electrical shock hazard. A grounding fault occurs when a "hot" wire comes into contact with a grounded enclosure. If you happen to be in contact with the grounded enclosure of an electrical tool when a ground fault occurs, you will be subject to a shock unless a GFCI device is in use, and functioning as intended. The GFCI will not protect you from line-to-line contact hazards (i.e., holding two "hot" wires or a hot and a neutral wire in each hand).

Where GFCI’s are needed in construction work: Your employer is required to provide approved ground-fault circuit interrupters for all 120-volt, single phase, 15-and 20-ampere receptacle outlets being used on construction sites that are not a part of the permanent wiring of the building or structure. Since extension cords are not part of the permanent wiring, any electrical tools or equipment plugged into extension cords must be protected by a GFCI device. Insulation around flexible extension cord conductors can be damaged through hard usage or excessive wear. If the "hot" wire conductor of the extension cord were to come into contact with the grounding wire conductor, a ground fault would occur. GFCI’S should certainly be used in wet environments. When a cord connector is wet, hazardous current leakage can occur to the grounding conductor and to anyone who picks up that connector if they also provide a path to ground. An alternative method of protection is the Assured Equipment Grounding Program. This method is achieved by establishing a direct ground for the equipment and doing a continuity check of the equipment and cords being used.

Where GFCI’S are needed at home: The shock hazards of a grounding fault are not isolated to just your work place. A grounding fault may occur at home in areas such as bathrooms, kitchens, garages, and basements. You need to be vigilant and make sure that the circuits you are "plugged" into are protected by GFCI’S whenever using electrical tools or equipment in potentially wet environments. Most local building codes require receptacles in potentially wet
locations, such as near sinks in bathrooms and kitchens, to be equipped with a GFCI device. It is also recommended that you use a GFCI device whenever you have any concerns about the integrity of the tool, equipment, or cord system.

Actions you should take for electrical safety: Always make sure the tools and cords you use are in good working condition and inspect them regularly for any visible damage. Failure in the insulation or grounding protection of your tools or cords could result in ground faults. Use GFCI devices. Take a little extra care so that you will not have a SHOCKING experience.
TOOLBOX TALK 73

Subject: Hand Tool Safety

Hammers, wrenches, chisels, pliers, screwdrivers, and other hand tools are often underrated as sources of potential danger. Hand tools may look harmless, but they are the cause of many injuries. In fact, an estimated 8 percent of all workplace compensable injuries are caused by incidents associated with hand tools. These injuries can be serious, including loss of fingers or eyesight.

Hand tools can cause many types of injuries:

1. Cuts, abrasions, amputations, and punctures. If hand tools are designed to cut or move metal and wood, remember what a single slip can do to fragile human flesh.
2. Repetitive motion injuries. Using the same tool in the same way all day long, day after day, can stress human muscles and ligaments. Carpal tunnel syndrome (inflammation of the nerve sheathe in the wrist) and injuries to muscles, joints and ligaments are increasingly common if the wrong tool is used, or the right tool is used improperly. Injury from continuous vibration can also cause numbness or poor circulation in hands and arms.
3. Eye injuries. Flying chips of wood or metal are a common hazard, often causing needless and permanent blindness.
4. Broken bones and bruises. Tools can slip, fall from heights, or even be thrown by careless employees, causing severe injuries. A hammer that falls from a ladder is a lethal weapon.

To avoid such injuries, remember the following safety procedures:

1. Use the right tool for the job. Don’t use your wrench as a hammer. Don’t use a screwdriver as a chisel, etc. Go back to the tool house and get the right tool in the right size for the job.
2. Don’t use broken or damaged tools, dull cutting tools, or screwdrivers with worn tips.
3. Cut in a direction away from your body.
4. Make sure your grip and footing are secure when using large tools.
5. Carry tools securely in a tool belt or box. Don’t carry tools up ladders. Use a hoist or rope.
6. Keep close track of tools when working at heights. A falling tool can kill a co-worker.
7. Pass a tool to another person by the handle; never toss it to them.
8. Use the right personal protective equipment (PPE) for the job. Follow company instructions for selecting and using safety eyewear, steel toed shoes, gloves, hard hats, etc.
SECTION IX

9. Never carry sharp or pointed tools such as a screwdriver in your pocket.

10. Select ergonomic tools for your work task when movements are repetitive and forceful.


12. Always keep your tools in top condition. A dull blade or blunt point can lead to injury.

13. Store tools properly when you stop work.

By following these precautions, you can help prevent injuries and provide a better Workplace for everyone. Remember, an ounce of prevention is worth a pound of cure!
TOOLBOX TALK 74

Subject: General Safety - Hazard Awareness

A hazard is defined as a condition or changing set of circumstances that present a potential for injury, illness, or property damage. The potential or inherent characteristics of an activity, condition, or circumstance which can produce adverse or harmful consequences.

An accident is defined as an unfortunate event often the result of carelessness or ignorance. An unforeseen and unplanned event or circumstance usually resulting in an unfavorable outcome.

There are some key words in these definitions: Unplanned; Unforeseen; Unfortunate; Unfavorable and most importantly POTENTIAL!

I met a person the other day that had fallen from a height of 25 feet. He was fortunate to have escaped this accident with only a badly broken leg. A few weeks ago a worker fell just a couple of feet off a ladder and he passed away. Both of these situations have been discussed to the limit and on several occasions I heard people refer to luck, good and bad! Well, the last time I looked, luck was not an effective accident prevention or loss control technique.

For an unplanned or unforeseen event to take place there has to be potential! Complacency and taking things for granted are causes of a tremendous number of injuries each year. Recognizing hazards and doing something about them is everyone's responsibility!

So as you begin work, ask yourself:

Do I have the right tools/equipment for the job?

Have I inspected my tools/equipment to make sure they are in good repair or am I trying to get by?

Is the work laid out to provide safe completion of the job?

Are the materials I am using safe, and do I need additional personal protective equipment such as: safety glasses, gloves, hard hat, respirator, etc.?

Is there a safer way to accomplish the task?

Are all necessary equipment guards in place?

Are written procedures such as lockout/tagout being followed?

Be aware of the potential hazards associated with your work and make your choices carefully!!
TOOLBOX TALK 75

Subject: Chemical Hazards - Hazardous Materials Identification System

Under the Hazard Communication Standard put forth by OSHA, virtually all hazardous chemicals used in the workplace are required to have labels that indicate the type and level of the potential hazard.

The warning labels used to identify hazardous materials have a universal color and numbering system. They also utilize a letter designating what type of personal protective equipment is needed. This makes it easier for you to tell what type and level of hazard you are dealing with. Colors are used to show the specific kind of hazard, and numbers within the colors are used to let you know what the potential hazard is, mild through severe. Please review the following:

<table>
<thead>
<tr>
<th>COLOR:</th>
<th>TYPE</th>
<th>TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>-- indicates the flammability hazard.</td>
<td>0</td>
</tr>
<tr>
<td>Blue</td>
<td>-- shows the health hazard.</td>
<td>1</td>
</tr>
<tr>
<td>Yellow</td>
<td>-- tells the reactivity hazard.</td>
<td>2</td>
</tr>
<tr>
<td>White</td>
<td>-- informs if any special hazards exist.</td>
<td>3, 4</td>
</tr>
</tbody>
</table>

PPE

A -- safety glasses
B -- safety glasses, gloves
C -- safety glasses, gloves, synthetic apron
D -- face shield, gloves, synthetic apron
E -- safety glasses, gloves, dust respirator
F -- safety glasses, gloves, synthetic apron, dust respirator
G -- safety glasses, gloves, vapor respirator
H -- splash goggles, gloves, synthetic apron, vapor respirator
I -- safety glasses, gloves, dust and vapor respirator
J -- splash goggles, gloves, synthetic apron, dust and vapor respirator
K -- air line respirator, gloves, full suit, boots
X -- Ask your supervisor for guidance
As a rule of thumb, any category with a "2" or higher should be considered as having the potential to create a dangerous situation. If you are unsure about any aspect of the chemical that you are handling, refer to the MSDS. Remember, at a minimum, always wear the personal protective equipment recommended. The purpose of the standard is to reduce the number of unprotected exposures to workplace chemicals. It is meant to protect YOU!
TOOLBOX TALK 76

Subject: Hazards of Solvents

We use solvents practically every day in our lives. At work, we may use or be exposed to solvents when we come in contact with paints, coatings, while using dip tanks, thinners, degreasers, cleaners, glues or mastics. As a result of this widespread usage, it is important to know some of the hazards that are associated with the group of chemicals, generally called "solvents."

For practical purposes a solvent is simply a liquid capable of dissolving specific solids or liquids. As you know, there are solvents that we use daily that are hazardous. Petroleum based solvents are the most common type used in industry. Therefore, as part of your job, it's important for you to understand the hazards of working with or around solvents.

Exposure and over-exposure to a solvent can come from various methods. The routes of entry may include:

- Absorption by direct contact on the skin. If there are no "barriers" between the solvent and your skin, the solvent can be absorbed through your skin.
- Inhalation by breathing solvent vapors. Breathing in the solvent vapors can quickly result in the chemical getting into your body and bloodstream via your lungs.
- Ingestion from literally eating the chemical by not practicing good hygiene after handling solvents. Direct contact with your hands and mouth through eating or smoking may result in unexpected ingestion of solvents.
- Puncture of the skin by a tool or other object which has a coating of solvent. Punctures can result in the direct introduction of toxic chemicals into your body.

Overexposure to solvents can cause a variety of ailments. Depending on the type of solvent you are exposed to, the body will react in different ways. Skin contact may result in minor skin rashes or an allergic reaction resulting in "chloracne." This happens when the solvent dissolves the skin's natural oils. Some workers can develop a sensitization to a particular product or chemical. Sensitization results in the entire body being "overly" sensitive to a particular chemical or product. After sensitization has occurred, even a very slight exposure can result in adverse or serious reactions. Serious over exposures can lead to illnesses resulting in organ or tissue damage.

As with any chemical or product, important information is contained in the product’s Material Safety Data Sheet (MSDS). The MSDS provides information on safe use, handling, disposal and...
Solvents are very useful in our everyday lives. If we take the time to learn more about them, we can be better prepared to properly use them, protect ourselves and effectively get our job done.

If you are unsure of the solvent or product that you are using, ask questions or check the MSDS.
TOOLBOX TALK 77

Subject: Head Injuries - After the Fall

You can work for years and hardly get a scratch, then one day a fall can turn your life around. Fall injuries may cause abrasions, fractures and dislocations. However, one of the most serious results of a fall, other than death, can be a head injury. How this will affect you depends upon which part of your brain has been injured as a result of a fall or impact. Broken bones usually heal, but head injuries can result in lifelong serious problems, such as:

- Changes in personality, such as increased anxiety, depression or anger.
- Difficulties with eye and hand coordination, and inability to handle tools or play sports well.
- Defects in vision and visual illusions.
- Short-term memory loss or interference with long term memory.
- Increased aggressive behavior.
- Difficulty in distinguishing left from right.
- Changes in social behavior

How You Fall Often Determines Your Specific Injury.

From the time a worker loses a secure grip, footing or balance, until impact, several factors influence what part of the body will be injured and how severe the damage will be. They are:

- Distance of the fall - momentum and velocity affect the impact on your body.
- The angle of the body at impact - we're not like cats landing on all fours.
- The obstacles the body strikes - what if you fall on railings, steps, or vehicles?
- The surface eventually landed on - will it be a pile of hay, or broken concrete & re-bar?

What You Can Do: THINK!

- Help remind your co-workers to play it safe and avoid taking risks.
- Report unsafe conditions to the nearest supervisor.
- Make it a habit to work safely, regardless of time pressures and productivity goals.
- Practice caution at home - accidents and head injuries from falls happen more often off the job than at work.
Know how to use fall protection and fall restraint equipment. Never say, "I don't need to fool around with that stuff-I'll only be up there a minute."

Stay Alert! Head injuries can have devastating consequences that may impact your life forever.
TOOLBOX TALK 78

Subject: Health & Safety - Heat Stress Disorders

Although summer heat is the largest cause of heat distress disorder, it may also occur when workers are exposed to confined areas such as pipelines, shipboard spaces with limited ventilation, and any confined area involving welding or cutting.

Symptoms:

The symptoms of heat stress disorders are very slow to start, but increase in intensity if precautions are not taken. The onset of the initial symptoms is mild and usually involves headaches, thirst, and tiredness.

Heat stress can move to heat stroke, a life-threatening medical emergency, quickly when the body's natural cooling system breaks down and causes the body core temperature to rise and overheat the brain. Some of the symptoms of heat stroke are immense thirst, severe headaches, disorientation, dry/hot skin (no sweating) and possibly collapse.

Treatment/Prevention:

The following ideas may aid in combating heat stress disorders:

1. Employees accustomed to working in the heat are better candidates for job assignments where heat stress disorders may occur.
2. Until employees acclimate to the high temperatures, allow them to take frequent breaks to cool down.
3. Employees should be rotated from the exposure area to a non-exposure area on a regular basis to help in avoiding heat stress symptoms.
4. Employees should be encouraged to drink plenty of fluids (water, Gatorade, Powerade, etc.) to replace electrolytes. Employees should not drink any carbonated beverages (Coke, Pepsi, etc.) as this only increases dehydration and give a false sense of being properly hydrated. Also, the use of alcohol the evening before the work shift, can lead to dehydration even before heat exposure.

If an employee appears to be suffering from heat stress disorder, remove him or her from the heat and provide a cool, shaded place to rest. If the employee is disoriented or non-responsive, call for medical attention immediately.
The goal is to recognize the hazards and symptoms of heat stress disorders and stop them before they occur. Remember, there is no better cure than prevention, and heat stress disorders can occur in winter as well as summer.
TOOLBOX TALK 79

Subject: Hearing Protection

Noise is unwanted sound that can affect job performance, safety, and your health. Psychological effects of noise include annoyance and disruption of concentration. Physical effects include loss of hearing, pain, nausea, and interference with communications when the exposure is severe.

Hearing protection is essential when noise exposures can't be controlled at their source. Both earplugs and earmuffs provide a physical barrier that reduces inner ear noise levels inner ear and prevent hearing loss from occurring. However, people often resist wearing these or use them incorrectly.

Employees resist wearing hearing protection more than any other type of personal protective equipment. One reason is, they don't think they really need it. But hearing loss occurs so gradually (even in intense exposures) that by the time you notice it, irreversible damage has already occurred. Another reason for not wearing hearing protection is that it can feel uncomfortable. Sometimes workers "spring" the muffs so they don't seal properly against the head, or snip off the inner portion of ear plugs leaving only the outer end to fool their supervisor. If you feel the need to do this, see your supervisor about obtaining a different type or style that fits you correctly and comfortably.

Slight initial discomfort may be expected when a good seal between the surface of the skin and the surface of the ear protector is made. The amount of protection you obtain depends on obtaining a good seal and even a small leak can substantially reduce the effectiveness of the protector. Remember to check the seal several times each day. Protectors - especially ear plugs - have a tendency to work loose as a result of talking or chewing, and must be resealed occasionally.

Properly designed, fitted, and clean ear protectors will cause no more discomfort to most workers than wearing a pair of safety glasses. Earplugs are made of soft material such as neoprene to prevent injury to the ear canal. Skin irritations, injured eardrums, or other adverse reactions from using ear plugs are very rare if they are kept reasonably clean.

There are many different styles, types, and brands of ear protectors available, but when correctly fitted, they all provide similar levels of protection. The best hearing protector for you is one that fits correctly so that you can wear it properly.

Some signs that you should be wearing hearing protection include:
1. If it is necessary for you to speak in a very loud voice, or shout directly into the ear of a person to be understood, it is likely that the noise level is high enough to require hearing protection.

2. If you have roaring or ringing noises in your ears at the end of the workday, you are probably being exposed to too much noise.

3. If speech or music sounds muffled to you after you leave work, but it sounds fairly clear in the morning when you return to work, you are being exposed to noise levels that are causing a temporary hearing loss. In time, this can become permanent if you do not take care.
TOOLBOX TALK 80

Subject: Inspect Your Slings

Inspecting your synthetic web slings prior to use is one of the easiest ways to prevent a serious accident from occurring. By adhering to the following suggestions, you can spot potential problems before you find yourself, literally, over your head in trouble.

1. Inspect your equipment before, during and after use.
   This increases your chance of catching a defective sling before anyone uses it.

2. What do you look for when you inspect a sling?
   Look for obvious abnormalities in the integrity of the material. Run your hands along the fabric and feel for irregularity such as tears, holes, snags and frayed areas. If your sling is exposed to sharp edges, broken and/or worn stitches may be evident. Most slings are made with a red warning string in the core of the material. If the sling is heavily worn, the warning string will show through. Also, check the fittings to make sure they are not distorted out of normal shape.

3. What if you find something defective about a sling?
   Take it out of service immediately. Don't use it for even one more pick. Cut it into pieces and throw it away! Also, do not use it at home! If you wouldn't use a defective sling at work, why would you use it at home?

4. Do chemicals or heat affect slings?
   Yes! Slings can be affected by chemicals without showing any real signs of wear. This is where a good visual and hands-on inspection can pay off. Know what chemicals your slings are contacting and how they affect the material your slings are made of. Check for burns or melted areas when working around hot work operations. Remember, your sling is made from man-made materials, and all synthetics break down after prolonged exposure to the ultraviolet rays of the sun. Inspect carefully for such damage.

5. Know the rating of your sling.
   Your sling is marked to show the trademark or name of the manufacturer, the stock number and most importantly, the load rating and types of hitches to be used. If the specifications on the sling do not match what you will be doing with it, this sling is not rated for your purpose! Do not use if it isn't rated for the capacity you need!!!
SECTION IX  

Item 3


Maintain documentation on all sling inspections that you perform while the sling is in use. This assures that inspections take place and lessens the chance of an accident due to sling failure.

Slings are expected to wear out and be replaced at regular intervals. How heavily they are used, and how they are used, should indicate how often they need to be replaced. A good sling inspection program will assure that slings with the potential of causing an accident are not being used in your operation. Don't risk damaging goods--or worse yet, injuring workers--due to a worn out sling!

Take Good Care Of Your Equipment!
TOOLBOX TALK 81

Subject: Equipment Hazards - Inspection and Use of Slings

Each day before being used, all slings, fastenings and attachments must be inspected for damage or defects. Any damaged or defective sling must be immediately removed from service. Some general safe operating practices for slings of all types are:

- Slings, which are damaged or defective, shall not be used.
- Slings shall not be shortened with knots, bolts or other makeshift devices.
- Sling legs shall not be kinked.
- Slings shall not be loaded in excess of their rated capacities.
- Slings used in a basket hitch shall have the load balanced to prevent slippage.
- Slings shall be securely attached to their loads.
- Slings shall be padded or protected from all sharp edges of their loads.
- Suspended loads shall be kept clear of all obstructions.
- All persons shall be kept clear of suspended loads or those about to be lifted.
- Hands or fingers shall not be placed between the sling and its load while the sling is being tightened around the load.
- Shock loading is prohibited.
- A sling shall not be pulled from under a load when the load is resting on the sling.

**Synthetic web slings** shall be removed from service if one or more of the following conditions are present:

- Acid or caustic burns; melting or charring of any part of the sling surface.
- Snags, punctures, tears or cuts.
- Broken or worn stitches.
- Distortion of fittings.
Subject: Isocyanates - A Sweet Smelling Hazard

Isocyanates. They sound nasty, but what are they? Isocyanates are chemical compounds derived from cyanide and hydrocarbons, such as toluene or methylene. Common compounds are TDI (Toluene Di-Isocyanate) and Methylene Bisphenyl Isocyanate (MDI). These types of hydrocarbons have a sweet, pleasant smell, and so are commonly called "aromatics." But don't let their sweet smell fool you— isocyanates require your attention and respect.

Chemical compounds containing isocyanates are frequently associated with polyurethanes. Polyurethane can be found in a number of common industry materials such as: paints, coatings, insulation, and plastics. Isocyanate compounds provide industry with a two-sided sword, since these chemicals have useful characteristics, but also introduce safety & health concerns. Materials such as polyurethane produce beautiful, long lasting gloss finishes; are resistant to wear; resistant to many chemicals; and work well indoors, outdoors and in harsh industrial environments.

The OSHA Threshold Limit Value (TLV) for these types of compounds is as low as .02 parts per million (PPM). TLVs represent the limit of exposure that an average worker can safely be subject to over the course of an 8-hour day, without the aid of engineering controls or personal protective equipment. Controls must be in place for any exposure above this level. This is an extremely low TLV level and affirms the hazards represented by this compound. Clip-on, direct-read dosimeters are available in the marketplace to monitor worker exposure levels to isocyanates.

Conditions associated with isocyanate overexposure can be both immediate and long-lasting. Immediate, acute effects can include: eye and throat irritation; choking; shortness of breath; tightness of chest; dizziness; abdominal pain; nausea; vomiting; headache and dermatitis. After continued exposure to these compounds some workers may become sensitized to isocyanates, creating a chronic health hazard. Once this happens, extremely low exposures to isocyanates can trigger an asthma like response, or a severe allergic reaction.

Exposure usually occurs during an application process when droplets of the material are airborne. Not only is the application operator exposed, but potentially, so is anyone working in the area of the spray operation. Unlike many common paints and coatings, organic cartridge respirators or other air-purifying respirators are not adequate protection against isocyanates. In situations where a worker's exposure is above the 8-hour TLV, an approved air-supplied respirator must be used.
With isocyanate compounds it is critical to review the specific chemical MSDS prior to using the product. Check the TLV, the recommended or required personal protective equipment (PPE), and all other manufacturer's information. If you don't thoroughly understand the information, have someone explain it to you.

Beware of the risks associated with all the chemicals in your workplace. If isocyanates are part of your firm's operations, respect the benefits and hazards of this chemical and take every precaution to stay safe and accident free.
SECTION IX

TOOLBOX TALK 83

Subject: Limitations of Cartridge - Type Respirators

A half mask cartridge-type respirator is the most common type used for protection against organic vapors, dusts, mists, acid gases, and fumes. You should be aware, however, that respirators of this type provide adequate protection only under limited conditions. This type of respirator is designed mainly for short-term operations that do not contain atmospheres that are "immediately dangerous to life." To use this type of respirator you must know both the type and concentration of contaminants in the air.

Cartridge type respirators are approved only for low concentrations of contaminants in the air, the maximum permitted level of which depends on the "respiratory protection factor" (a measure of the degree of protection provided to the wearer). If a qualitative fit test is used (for example banana oil, or smoke tubes) a respiratory protection factor of 10 must be used. To determine the maximum concentration of airborne contaminants permitted in the air where the respirator will be used, the permissible time weighted average concentration (TWA or TLV) of the contaminant is multiplied by 10. For example, the TLV for lead fume is .15 mg/m³, so the maximum concentration permitted in the air when using this type of respirator is 1.5 mg/m³. (TLVs are published by the American Conference of Governmental Industrial Hygienists (ACGIH).

Also, remember that a cartridge-type respirator does not generate breathing air and the oxygen content of the area must be at least 19.5% to use this type of respirator. In addition, it must also be worn only in the presence of moderately toxic air contaminants that have distinctive warning properties such as odor, irritation, or taste. The purpose of this requirement is to allow the user to tell when the cartridges have become exhausted. If you can detect the contaminant inside the mask, it means you must exit the area immediately and change the cartridge.

Other things you should be aware of when wearing a cartridge-type respirator:

Never enter a confined space with a cartridge-type respirator unless you know for sure that the space has been tested for oxygen content and toxic air contaminants, and that entry with this type of respirator is allowable and that entry has been approved.

Never work in toxic vapors for which the respirator cartridge was not intended. There are many different types and combinations of cartridges--each for a specific type of hazard that is described on the band surrounding the cartridge. Also be sure the cartridges are the type the manufacturer specifies for your respirator. In general, they are not interchangeable from one manufacture to another. Ask your supervisor if you have doubts about these factors.
Be sure your respirator fits your face properly. Most manufacturers provide at least three sizes of face pieces and one of them should fit you better than others. Your supervisor will help you select the proper size so that you get a good respirator fit.

Be sure to check the respirator seal by performing positive and negative pressure tests immediately prior to entering a contaminated area. Tighten the straps and move the respirator around if you can't get a good seal. Beards, mustaches and long sideburns usually prevent obtaining a good seal.

Cartridge respirators are safe to use if you understand their limitations and how to use them properly.
Subject: Machine Safety - Lockout/Tagout Programs

If any employees of a company are required to perform hazardous maintenance or repair of machines and equipment, a formal, written Lockout/Tagout Program must be developed and implemented. This program must include machine-specific procedures for shut-down and re-energizing equipment and training for "affected" employees (i.e., those who operate, service or work near the equipment in question).

These procedures must be followed during the servicing or maintenance of machines, to avoid the "unexpected energization or start up of the machinery or equipment, or the release of stored energy, which could cause injury to employees."

Procedures will vary, depending upon (1) whether the source of hazardous energy is electrical, hydraulic, pneumatic, mechanical, thermal or chemical, and (2) how many employees are affected. Nevertheless, all employees should be familiar with lockout/tagout procedures for their company's operations and a review of these should take place periodically.

The following SIX STEPS are a review of basic steps for safely de-energizing equipment.

1. Notify all “affected employees” that the equipment will be shut down.
2. Shut down the equipment by normal stopping procedures.
3. “Isolate” all the equipment’s energy sources.
4. Lock out and/or tagout the energy isolating devices with assigned, individual locks.
5. Release or restrain any stored energy by grounding, blocking, bleeding down, etc.
6. Assure that no personnel are exposed, and then test the equipment to assure that it will not operate.

Restoring Equipment to Service:

1. Check to assure that all employees have been safely positioned or removed from the area.
2. Verify that equipment controls are in neutral.
3. Remove lockout devices and/or tags and re-energize the machine or equipment.
4. Notify affected employees that servicing is complete and the equipment is ready for use.

According to the latest statistics, every ten minutes, two people are killed and hundreds suffer disabling injuries from accidents on the job. DON’T BE A STATISTIC! Know what part you play in the Lockout/Tagout Program.

*29 CFR 1910.147 describes federal requirements and exempted operations.
Subject: Personal Fall Arrest & Fall Restraint Systems

It is important for you to understand the difference between a fall arrest system and fall restraint system. These are most commonly used in the construction industry, but may apply to many other situations where employees must work at heights.

FALL RESTRAINT: A fall restraint system consists of the equipment used to keep an employee from reaching a fall point, such as the edge of a roof or the edge of an elevated working surface. The most commonly utilized fall restraint system is a standard guardrail. A tie off system that "restrains" the employee from falling off an elevated working surface is another type of fall restraint.

FALL ARREST: According to the definition in the Federal OSHA standard, a personal fall arrest system means a system used to arrest an employee in a fall from a working level. It consists of an anchor point, connectors, a body belt or body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these. The entire system must be capable of withstanding the tremendous impact forces involved in stopping or arresting the fall. The forces increase with the fall distance due to acceleration (a person without protection will free fall 4 feet in ½ second and 16 feet in 1 second!).

Let's review 5 key requirements for fall arrest systems:

1) Body belts may not be used after 12/31/97. In the meantime, body belts can only be used if the system limits the maximum arresting force on an employee to 900 pounds. A maximum arresting force of 1800 pounds is allowed when a body harness is utilized. In some jurisdictions, such as Washington State, belts are currently not allowed for fall arrest purposes.

2) The system must be rigged so that employees can neither free-fall more than 6 feet or contact a lower level. After the free-fall distance, the deceleration or shock absorbing component of the system must bring an employee to a complete stop within 3.5 additional feet.

3) The anchorage point must be capable of supporting at least 5000 pounds per employee. Most standard guardrail systems are not adequate anchorage points because they are not built to withstand the impact forces generated by a fall.

4) The system's D-ring attachment point for body harnesses shall be in the center of the employee's back near the shoulder level.
5) The system components must be inspected for damage and deterioration prior to each use. All components subjected to the impact loading forces of a free-fall must be immediately removed from service.
TOOLBOX TALK 86

Subject: Personal Protection - Picking the Proper Glove

Your hands are one of your most valuable assets. Without them, you wouldn't be able to touch, hold, feel, write or gesture. In fact, you couldn't do much of anything. Too often, however, we take them for granted. We don't pay attention to how we treat or mistreat them! Just a few examples of when your hands should be protected is whenever you are cutting, painting, welding, or handling sharp metal, chemicals, needles, or blood samples. And it is very important to wear the right glove for each specific task, since no one glove protects against all hazards.

You now have even more reason to wear your protective equipment since OSHA has added hand safety to its standard on personal protective equipment. The standard requires workers to wear appropriate protection whenever their hands are exposed to hazards, and lists guidelines for employees to follow when selecting and purchasing the proper gloves. The following list points out the advantages and disadvantages of certain gloves.

The most widely used and "abused" glove material is cotton.

Advantages: low cost; perspiration absorption; versatility in application; more cut resistance than leather; moderate abrasion and heat protection.
Disadvantages: cut protection is limited; short lifetime; thermal application range limited to about 400 F.

The next most widely used from of hand protection is leather.

Advantages: good puncture resistance and abrasion resistance; absorbs impact and helps cushion blows to the hand; shields against sparks; greater thermal protection than cotton.
Disadvantages: limited cut resistance; limited dexterity, depending on thickness of leather.

Natural rubber, neoprene, nitrile, PVC are among many elastomers used for gloves.

Advantages: liquid-proof for resistance against caustics, acids and other chemicals.
Disadvantages: offer limited cut resistance.

Metal mesh and other new fibers known as Kevlar, Spectra, and Vectran

Advantages: flexible, cut resistant, lightweight, and resist thermal transfer.
Disadvantages: may be costly
Washes and creams: Wearing gloves is important, but it is also important to maintain personal hygiene and keep your hands clean to prevent infection. If you use barrier creams, always be sure to wash your hands before putting on the cream, and at the end of the day, when you are ready to go home. Barrier creams provide limited protection against alkali's and acids, but are sometimes used in conjunction with gloves.

Another great hand protection tool is the pre-moistened heavy-duty hand towels. Employees can use these towels to remove heavy grease and grime at their workstations or remote job sites.
TOOLBOX TALK 87

Subject: Powder Actuated Hand Tools

Whenever you operate a powder-actuated hand tool, safe work practices must always be followed. These tools are designed to fire nails or fastening devices into material not easily penetrated such as concrete, steel, and masonry. Unfortunately, they have also been known to fire nails and fastening devices into human flesh.

Only qualified persons who have been trained and certified by an authorized instructor should use a powder-actuated tool!

Persons using the tools should always have their certification card with them.

GENERAL SAFETY RULES FOR USE:

A powder-actuated tool must never be pointed at anyone, whether it is loaded or not!
A powder-actuated tool should never be loaded until it is ready to be used for fastening.
The tool should be tested each day prior to use, to assure that safety devices and the tool itself are in proper working condition.
Any defective or poorly working tool should be immediately removed from service and tagged as unsafe.
Always wear proper protective equipment when operating powder-actuated tools.

ANSI - approved eye protection must be worn to guard against possible ricocheting materials.

Hearing protection must also be worn.

Powder-actuated tools should not be used in areas where flammable or combustible atmospheres may be present. The combination could cause an explosion.
When operating a powder-actuated tool, press the tool firmly against the surface into which the fastening device is being driven, so the fastener will not glance off the surface.
Never drive a fastener into a "spalled" or chipped surface, i.e., over an uneven area where a previous fastening was unsatisfactory.
Do not drive fasteners into easily penetrated material unless that material is backed by an object that will prevent the fastener from passing completely through the material and creating a flying missile hazard on the other side.
Never shoot into a surface unless you are certain it will contain the fastener. Take whatever time is necessary to examine both the surface and the opposite side, assuring your safety as well as the safety of others.

Safe operation of powder-actuated tools demands knowledge and the operator's constant alertness. Too many innocent workers have been fatally injured when safety practices were disregarded.

Therefore, before each use of a powder-actuated tool, a complete study of the job task should be assessed and total concentration should be on the job task to be performed.

Powder-actuated tools are only as safe as their operators! WORK SAFELY!
TOOLBOX TALK 88

Subject: Preventing Welding Flashback

Oxy-acetylene torches have been used for many years for cutting, welding, brazing, and heating of metals. The equipment used today is safe, but every year, hundreds of employees are injured or die as a result of improper use. Knowledge and precautions can prevent fires and violent explosions.

Gas Pressure: One cause of fires and explosions is high acetylene pressure. When more than 15 pounds of pressure is used, acetylene becomes unstable and decomposes explosively. This is the major reason for using other fuel gases such as MAPP, propylene, propane, and natural gas which may be safely used at higher operating pressures.

Burnback: If your oxygen cylinder is low or empty, reverse flow of gas may occur. The fuel gas, being at a higher pressure, can travel up the oxygen line and mix with gas in the hose, regulator and cylinder. If you light your torch without purging the lines, a burnback may occur with explosions in the hose, regulator, or cylinder.

Backfire: The same thing can happen with high oxygen pressure and low fuel gas pressure if a backfire occurs, which is usually caused by holding the cutting torch too close to your work. This causes gas starvation of the cutting flame and results in the flame being sucked into the torch head. Usually you will hear a popping sound that turns to a whistle when this happens.

Flashback: When a backfire takes place in a mixing chamber, unless you shut off the oxygen valve, the flame burning in the torch head may ignite gases in the hoses and result in a flashback. A flashback is an explosion that progresses through the torch, hoses, regulators, and into the cylinders. Consequence can range from a burst hose to a violent explosion of the regulator and cylinders.

There are several things you can do to help prevent flashbacks, fires and explosions:

1. If using acetylene, keep the pressure below 15 pounds.
2. Purge your hoses before lighting the torch.
3. Never light your torch with a mixture of fuel and oxygen. After purging the lines, light the torch with only the fuel gas valve open.
4. Check valves should be installed on both torch inlets and operating properly. Check valves can stop the reverse flow of gases, but will not prevent flashbacks.
5. To prevent flashbacks, flashback arrestors must be installed on the outlets of both regulators, and/or torch inlets.

Check the Torch: How can you tell if the torch you are using has flashback arrestors and check valves? If you look at the torch you will notice a small cylindrical valve on each inlet with the hoses screwed onto this valve instead of hooked directly to the torch. Most of these valves are combination flashback/check valves and it will say so on the valve body. Often, combination valves are also installed on regulator outlets.

Before welding, take time to inspect the equipment you will be using to be sure check valves and flashback arrestors have been installed. This precaution can prevent a deadly cylinder explosion.
TOOLBOX TALK 89

Subject: Protective Headwear

One serious blow to the head can leave an otherwise strong and healthy person permanently brain-damaged or disabled for life. At best, a blow on the head can give you a whopper of a headache. Therefore, it is crucial to protect it from the impact of falling objects, painful bumps and in some cases, from high-voltage electric shock. ANSI approved head protection is generally required when there is "a potential for head injury from falling or moving objects" and where employees' heads are exposed to electricity.

Hard Hats: The American National Standards Institute has established guidelines for helmets, the latest of which is ANSI Z89.1-1986. The standard indicates that the manufacturer's name must be listed inside the helmet, and it must have one of the following ANSI designations:

- Class A: These protect the head from the impact of falling objects and from electric shock during contact with exposed low voltage conductors.
- Class B: These have the same function as class A except that they prevent electric shock when exposed to high voltage conductors.
- Class C: These protect the head from falling objects, but offer no electrical protection.

Hard hats primarily protect from impacts to the top of the head, limit penetration of sharp objects which hit the top of the shell and provide some lateral protection. To be effective, however, helmets must be properly worn. Some workers wear their hard hats backwards, which lessens the protection. If it is worn tilted back on the head, it offers virtually no protection at all.

Hard Hat Care:

- Inspect helmets daily for cracks, signs of wear and deterioration to insure that they provide the amount of protection originally intended.
- Helmets that exhibit chalking, cracking, or lose their entire surface gloss should be discarded.
- If helmets must be marked for identification, use adhesive decals or tape. They should not be painted, cut or engraved.
- Do not keep helmets on the window shelf of a vehicle since extreme heat can affect the degree of protection. The hat can also become a projectile in the event of a vehicle accident.
- Replace internal suspension systems once a year or if the system detaches from the shell. Hair oils and dirt can weaken the shock-absorbing suspension system.
At least every 30 days, protective helmets and their sweatbands and cradles should be washed in warm, soapy water and rinsed thoroughly.

Bump Caps: Made of light-weight plastic, bump caps do not protect against serious blows to the head or falling objects and should never be worn in place of hard hats. They are useful, however, when working in cramped spaces where painful bumps, scrapes or cuts to the head are a potential.

Use your head to absorb knowledge--not blows to the head!
TOOLBOX TALK 90

Subject: Personal Protective Equipment – Respirator Fit Check

Although negative pressure respirators are an accepted way to reduce exposure to airborne contaminants, engineering controls should always be your first choice. Sometimes strategies such as adequate ventilation can reduce contaminants to levels where personal protection is not required. However, if you do choose this equipment, you must be certain of two things: Have you selected the proper respirator with the correct filtering media, and does it fit properly?

No amount of training or respiratory equipment will provide the protection you need unless a good seal is made. Prior to entering a contaminated atmosphere, you must perform a test to guarantee that you have a proper seal between your face and the facepiece of the respirator. A “Fit Check” provides proof that an adequate seal exists. The fit check consists of both a negative and a positive pressure seal test.

This test can be conducted by following the manufacturers’ instructions or by using the guidelines listed below. *NOTE: These tests are easily performed on respirators that are equipped with valves but may be difficult to do on “valveless” respirators and disposable respirators.*

**Negative Pressure Test:**

1. Don the respirator according to the manufacturer’s instructions.
2. Cover and seal the filter cartridge(s) using the palm of your hand(s).
3. Gently *inhale* through the respirator and hold your breath approximately 10 seconds.
4. The respirator should collapse slightly. Check, feel and listen for leaks around the facepiece.
5. If there are no leaks, it can be reasonably assumed that there is a good seal and the respirator is not leaking.

**Positive Pressure Test:**

1. Cover the exhalation valve with the palm of your hand.
2. Gently *exhale* but do not break the seal around the facepiece.
3. The respirator should expand slightly with a slight positive pressure increase in the facepiece.
4. If there are no leaks and no loss of pressure, it can be reasonably assumed that there is a good seal.
The only way to take full advantage of any negative pressure respirator you use is to be sure that you have a good facial seal. Conducting a fit check prior to entering a contaminated atmosphere provides that assurance. It only takes a minute, and it can save your life.
TOOLBOX TALK 91

Subject: Safety Considerations for Sand Blasting

Sand blasting operations can be overlooked when preparing safety plans because they are generally a small part of a larger project such as cleaning and refinishing or painting. As a result, many workers are exposed to the hazards of sand blasting without adequate protection. Even if all sandblasting equipment is properly designed and regularly inspected, users must always be alert to the hazards of these operations and take precautions against harmful exposures.

Airborne dust: This is one of the most serious hazards associated with blasting operations. When evaluating this hazard, it's important to consider the concentration of dust and the size of particles. Larger particles, considered "nuisance" dust, are normally filtered out in the nose and throat. Smaller particles (10 microns or smaller) can bypass the lung's filtering system and penetrate deep into the respiratory system, where they may cause serious damage. Safeguards are needed when smaller particles are present in the working environment.

Metal dust, in addition to the abrasive being used, contributes to the generation of airborne dust. Metals such as lead, cadmium, and manganese, can be extremely toxic when inhaled. Many existing paints have a lead base. Regulations require special handling, trained personnel, and medical monitoring when lead is present. If in doubt, check it out. Don't guess.

Silica sand: This product is a potentially serious health hazard and should not be used as an abrasive. If silica containing (quartz) materials are selected for any reason, workers must wear a positive pressure or pressure demand respirator with an assigned protection factor (APF) of either 1000 or 2000. Silica must be contained and disposed of properly. Even if a wet blasting method is selected, silica that is allowed to migrate by either wind or water will eventually become an airborne contaminant.

Air supply: Air-supplied respirators must be used (1) when working inside of blast cleaning rooms, (2) when using portable units in areas without enclosure, and (3) under any circumstances where the operator is not physically separated from the abrasive material by an exhausted enclosure. If airline respirators and compressors are used, make sure the intake hose is placed in an area that provides clean air. An attendant should be in the area at all times, monitoring breathing air and assuring the blaster's safety.

Additional personal protective equipment: Blasting operations create high noise levels, so hearing protection is a must--for both the operator and nearby workers! Operators should also use heavy canvas or leather gloves, aprons, or leggings when appropriate, as well as safety shoes.
Manual cabinet blast cleaners should never be exhausted into an area where workers can breathe dusts. These fully enclosed cabinets are designed to filter out dust and re-use blasting medium.

Handling and storing abrasives: Dust is nearly always created at any point where abrasives are transferred, whether by hand or shovel. Therefore, all points of transfer must be properly exhausted and workers who handle abrasives manually should wear particulate filter respirators.
TOOLBOX TALK 92

Subject: Seven Common Accident Causes

Consider this statistic: 80 out of every 100 accidents are the fault of the person involved in the incident. *Unsafe Acts cause four times* as many accidents & injuries as *unsafe conditions*.

Accidents occur for many reasons. In most industries people tend to look for "things" to blame when an accident happens, because it's easier than looking for "root causes," such as those listed below. Consider the underlying accident causes described. Have you been guilty of any of these attitudes or behaviors? If so, you may have not been injured—but next time you may not be so lucky.

Taking Shortcuts: Every day we make decisions we hope will make the job faster and more efficient. But do time savers ever risk your own safety, or that of other crew members? Short cuts that reduce your safety on the job are not shortcuts, but an increased chance for injury.

Being Over Confident: Confidence is a good thing. Overconfidence is *too much* of a good thing. "It'll never happen to me" is an attitude that can lead to improper procedures, tools, or methods in your work. Any of these can lead to an injury.

Starting a Task with Incomplete Instructions: To do the job safely and right the first time you need complete information. Have you ever seen a worker sent to do a job, having been given only a part of the job's instructions? Don't be shy about asking for explanations about work procedures and safety precautions. It isn't dumb to ask questions; it's dumb not to.

Poor Housekeeping: When clients, managers or safety professionals walk through your work site, housekeeping is an accurate indicator of everyone's attitude about quality, production and safety. Poor housekeeping creates hazards of all types. A well maintained area sets a standard for others to follow. Good housekeeping involves both pride and safety.

Ignoring Safety Procedures: Purposely failing to observe safety procedures can endanger you and your co-workers. You are being paid to follow the company safety policies—not to make your own rules. Being "casual" about safety can lead to a casualty!

Mental Distractions from Work: Having a bad day at home and worrying about it at work is a hazardous combination. Dropping your 'mental' guard can pull your focus away from safe work procedures. You can also be distracted when you're busy working and a friend comes by to talk while you are trying to work. Don't become a statistic because you took your eyes off the machine "just for a minute."
Failure to Pre-Plan the Work: There is a lot of talk today about Job Hazard Analysis. JHA's are an effective way to figure out the smartest ways to work safely and effectively. Being hasty in starting a task or not thinking through the process can put you in harm’s way. Instead, Plan Your Work and then Work Your Plan!

"It is better to be careful 100 times than to get killed once." (Mark Twain)
TOOLBOX TALK 93

Subject: Stacking Up a Pile of Trouble

An alarming number of employee accidents and injuries are associated with forklift operations. Many of these are a result of poorly stacked materials that topple and damage property or injure people. Stacking boxes, bagged goods, and similar items is usually thought to be an uncomplicated job. Yet, like most tasks that are considered to be easy, a lack of attention or knowledge can create safety problems.

The stability of a stack is probably the number one concern. If a stacked load is going to be moved, with a forklift or pallet jack for example, you can see that the inevitable jostling may cause items to fall. But what about stacks that are not to be moved? Stability is still important. An earthquake or an accidental bump could cause something to fall.

For a load to be stable, its base must be stable. This means you have to start building the stack on a firm, level surface. If a pallet is used, inspect it to be sure it's in good repair. If not, don't use it! Though it seems obvious, make sure everyone on the crew knows the difference between "good" and "bad" pallet repair.

Place larger and heavier objects at the bottom. If the packaging material is compressible, pay attention to the printed instructions on the box that advise how many units can be stacked. If you go higher, the weight could cause the lower boxes to crush, creating an unstable stack and damaging goods in the boxes. If the product is bagged, be sure the contents are evenly distributed in the bag as you lay it down. This creates a flat surface for the next tier. Interlock the units as you build the load. Your supervisor can show you how this is done.

Some stacks are going to be inherently stable. An example would be a stack of rectangular, interlocked boxes with the base of the stack wider than the height. Other stacks are inherently unstable. An example would be square boxes that cannot be interlocked. Such stacks must be tied or wrapped to increase stability.

Watch the total weight of objects or containers you stack. If the load is going to be moved by a forklift or pallet jack, the total weight must not exceed the capacity of the equipment. Also know the weight bearing capacity of floors and shelves, and do not exceed these capacities. Spread the load out so the weight is not concentrated in one area.

Do not contribute to a lift truck mishap. Pay careful attention, and take pride in having an accident free, injury free record.
Subject: General Safety - The Basics of Safety

Through several years of investigating accidents and research in the field of accident reconstruction, leaders in the field of occupational accident prevention have concluded that there are specific reasons why accidents occur. They found that worker safety is dependent on worker behavior and human factors. They developed ten safety rules and, while some of you may have heard them before, they are worth repeating:

1. **STAY ALERT** - and stay alive. The more awake a worker is the less likely he or she is to get hurt. If you are unsure how to operate equipment or perform a task, ask your supervisor. Don't guess and muddle through. Make sure you know in advance the correct, safe way to do it.

2. **WEAR THE RIGHT CLOTHES** - work clothes should fit properly. Anything that can catch in machinery or trip you up is hazardous. Wear protective clothing and equipment as required.

3. **USE THE RIGHT TOOLS** - if you need a hammer, get a hammer. It may be handier to use a pair of pliers, wrench, screw driver or even your fist. But you will have only yourself to blame if you break your fingers.

4. **LEARN HOW TO LIFT** – Lifting takes more that muscle; it is an art. Don’t try to show how strong you are; you may end up in a hospital. Get help to handle anything that is too heavy or cumbersome for you.

5. **DON'T BE A PRANKSTER** - practical jokes and horseplay can be dangerous around machinery. If you feel the urge to play, resist it until after work.

6. **BE TIDY** - Good housekeeping reduces hazards in the workplace or your home. Always put away tools when they are not in use. Keep the floors clean, pick up scraps, and wipe up spills. A slip or trip can be fatal.

7. **REPORTING IS IMPORTANT** - Never fail to report accidents, defective equipment, and unsafe conditions.

8. **GET FIRST AID IMMEDIATELY** - if you're hurt -- even if it is just a scratch. Neglect of the injury may lead to serious infection, weeks of lost time, even permanent injury.

9. **BACK YOUR SAFETY PROGRAM** - If you have an idea you believe will reduce accidents, tell your supervisor about it. Set an example by obeying safety rules. Cooperate with your safety committee.

10. **NEVER TAKE A CHANCE** - Next to sheer carelessness, the short cut is probably the biggest killer of all. To save a minute or two, you may lose a lifetime. Whatever you are doing, if you are not doing it safely, you are not doing it right!!
Subject: The Hazards of Silica Dust

Crystalline silica is a common mineral in the earth's crust, and is found in many types of rock including sand, quartz, and granite. Silica is present in both work and non-work environments, and exposure to crystalline silica dust has long been known to cause a disease called silicosis. When you inhale crystalline silica the lung tissue reacts by developing fibrous tissue around trapped silica particles. This condition of the lung is called silicosis.

Due to the extensive use of concrete and masonry products in buildings today, construction workers have a potential exposure to crystalline silica. Operations such as dumping of rock, jack hammering, abrasive blasting, sawing, drilling or demolition of concrete and masonry structures are some of the activities that could produce this exposure.

Silica sand or other substances containing more than 1% crystalline silica should never be used as abrasive blasting materials. Where silica exceeds 1% of the content, less hazardous materials should be substituted. In addition, always follow safe work practices when there is possible exposure to silica dust.

FOR APPROPRIATE PROTECTION:

- Keep awareness high, which is the key to preventing silicosis. Recognize when silica dust may be generated and plan ahead to eliminate or control the dust at the source.
- Use proper respiratory protection when point of operation controls cannot keep exposures below the recommended exposure limit.
- Use Type CE pressure-demand, or positive-pressure, abrasive-blasting respirators when sandblasting.
- Always use dust control systems when they are available and keep them well maintained.
- Be aware that high silica concentrations can occur inside and outside enclosed areas during operations such as concrete or masonry sawing or abrasive blasting.
- Do not eat, drink, or smoke in areas where sandblasting is being done, or where silica dust is being generated.
- Wear disposable or washable over-garments at the work site.
- Wash your hands and face before eating, drinking, or smoking and vacuum (don't blow) dust from your clothing.
SECTION IX Item 3

Shower if possible and change into clean clothes before leaving the job site to prevent contamination of cars, homes, and other work areas.

Lungs take care of normal dust. Airborne dust and dirt is common at worksites--both at home and on the job. Fortunately, the body's respiratory system does a good job filtering out dust and most foreign bodies. Fine particulates such as asbestos and silica, however, are so tiny they can get past our filtering system. This may cause serious lung problems over an extended period of time if protection or controls are not used. Respect these tiny invaders. Use the appropriate personal protective equipment and safety precautions.
SECTION IX

TOOLBOX TALK 96

Subject: Ventilation

Work activity or the presence of harmful substances in industrial environments frequently produces airborne contaminants. These contaminants can be controlled by isolating them from the breathing zone, substitution of a less hazardous substance or process, or by providing adequate ventilation. Ventilation is one of the most common engineering control methods, and can be defined as the movement of fresh air into a space in order to replace contaminated air and/or control the temperature in a space.

Natural ventilation usually does not provide a sufficient volume of airflow to ventilate enclosed spaces, or to promptly remove highly toxic airborne contaminants from breathing zones. Mechanically aided ventilation, measured in cubic feet per minute (CFM), is generally classified as either "dilution" (consisting of a supply and exhaust system) or as "local exhaust." A properly designed local exhaust system located at the source of the contamination is extremely effective in removing contaminants.

The effectiveness and efficiency of supply and exhaust fans will depend upon the volume of air that is moved in conjunction with the proximity to the contamination source. The following principles and safety controls should be considered whenever ventilation systems are utilized:

A supply fan with a diameter of 1 will produce approximately 10% of its face velocity at a distance equal to 30 diameters from the face opening.

An exhaust fan with a diameter of 1 will lose approximately 90% of its face velocity at a distance of 1 diameter from the exhaust opening.

The use of ducting systems will improve circulation and minimize airflow losses.

Make-up air should be provided where exhaust systems are operating. The make-up air source point should be located so that only fresh, contaminant-free air is introduced into the working space.

Never use pure oxygen to ventilate a space. An oxygen-enriched atmosphere is extremely explosive.

Know whether the airborne vapor contaminants you are trying to remove are heavier or lighter than air (which has a vapor density of 1). This will assist you in properly locating exhaust fans at the most effective height.

All fan motors and control equipment utilized to move combustible or flammable vapors should be of the explosion-proof type. The metallic parts of air-moving devices, including fans, blowers, jet-type air movers, and ductwork should be electrically bonded to a grounded structure.
STEBBINS ENGINEERING SAFETY MANUAL

SECTION IX Item 3

TOOLBOX TALK 97

Subject: Warning: Extreme Heat is Coming

Wow! What a scorcher! You knew it was going to be a hot day but with this humidity it has to be 105°F outside. You reach for that power tool to finish your job and start to feel lightheaded. It's probably because you haven't eaten much this morning. You can make it until lunch!

Time passes and your condition hasn't gotten any better-in fact it's worse! Your breathing has increased, you're sweating profusely, and your mouth is dry. Something's wrong! You start to climb down the scaffolding but you're almost too weak to move. You feel like you're going to be sick. With no control over your movements, you fall to the ground below. The workers above you are trying to get your attention but you can't understand them. You yell, "Help me up guys!" but they don't respond. Can't they hear? All you can see is black......what's happening......?

Heat Exhaustion! That is what's happening. Heat exhaustion can occur when you are subjected to hot environments and fail to take in enough fluids, salts, or both. And even worse, this can lead to a life threatening condition known as a heat stroke. Sun stroke or heat stroke happens when the body's internal mechanism fails to regulate its core temperature. At this point, the body stops cooling itself through perspiration and can't get rid of excess heat. Unfortunately, the end result can be death if the body temperature isn't lowered immediately! So, especially if you work in hot environments, it's critical to recognize when you're suffering from a Heat Stress Disorder.

SYMPTOMS OF HEAT STRESS DISORDERS:

- Heat Cramps - Symptoms are painful spasms of the muscles. Heat cramps are caused when workers consume large quantities of water but fail to take in enough salt to replace the salt their body lost through sweating. Tired muscles are most susceptible to cramping.
- Heat Exhaustion - Symptoms for this disorder are moist, clammy, pale skin; profuse sweating; extreme weakness or fatigue; dry mouth; dizziness; fast pulse; rapid breathing; muscle cramps and nausea.
- Heat/Sun Stroke - Symptoms are a very high body temperature (104°F or higher); lack of sweat; mental confusion, delirium, or hallucinations; deep breathing and rapid pulse; hot, dry, red or mottled skin; and dilated pupils. Seek medical help at once for this condition.

TIPS FOR PREVENTION:

- Acclimatization - Adjust yourself to the heat through short exposure periods followed by longer exposure until your body is accustomed to the heat. It may take 5-7 days of hot
weather exposure before the body undergoes changes that make heat more bearable.  
Drink lots of Water/Liquids - Replenish the fluid that your body is losing though sweating. Not only water, but critical electrolytes such as sodium, potassium and calcium are lost through sweating, so consider using electrolyte drinks to combat heat related disorders.  
Education - Know the signs and symptoms of heat stress disorders and *act quickly*.  
Use Your Head - *Do not* ignore possible symptoms of heat stress disorders. If you feel very hot, dizzy, nauseous or if your muscles cramp, stop and cool off!  

Heat Stress Disorders are serious. Workers who have ignored the symptoms have lost their lives. Humans have an ingenious system for regulating body temperature—a personal, "natural" air conditioner. We sweat, it evaporates through our skin, and we're cooled off. But this personal air conditioner can fail, and often does if we overexert when environmental temperatures are high.  

**Be Cool. Know what you have to do to Beat the Heat!**
TOOLBOX TALK 98

Subject: What You Need To Know About Welding & Cutting

Protecting yourself when performing welding operations depends on your understanding of the hazards involved and the proper way to control them. Control of welding hazards includes avoiding eye injury, respiratory protection, and ventilation of the work area, protective clothing and having safe equipment to use.

Eye hazards include exposure to ultraviolet and infrared light. Welders and their helpers should wear filter glasses with shades ranging from 2 to 14, depending on the type of welding being done, to protect their eyes. Unless a welding arc is behind a screen, not only the welder, but also people nearby may need eye protection. Other workers should be excluded within a 30 foot radius from gas or low powered arc welding, or also be protected with appropriate filter lenses. Heavy welding requires a 100 foot radius. Inert gas welding produces 5 to 30 times as much ultraviolet light as arc welding and requires shielding for even greater distances. Keep in mind that ordinary untreated plastic lenses absorb ultraviolet light very poorly and should not be relied on for protection.

Virtually all welding processes generate gases, fumes and dusts. Gases generated include carbon monoxide, carbon dioxide, ozone, and nitrous gases. Other gases may also be formed in the presence of chemicals which may be on the material being welded. For example 1,1,1 Trichloroethane generates phosgene gas when exposed to the heat of welding. Welding and cutting can also generate fumes from cadmium, lead, beryllium, arsenic, fluorides, nickel, cyanide, and other materials that can be hazardous if inhaled. Proper respiratory protection should always be worn when cutting or welding. The best type of protection to use can be determined by reading the Material Safety Data Sheet for the material being welded, or the manufacturer of the rod or flux being used.

Mechanical ventilation at the rate of 2,000 cubic feet per minute per welder is required if the area is more crowded than 10,000 cubic feet per welder; has a ceiling height of less than 16 feet; or in confined spaces where structural barriers significantly obstruct cross ventilation. Additional specific ventilation requirements are necessary for fluorine compounds, zinc, lead, beryllium, cadmium, mercury, and for stainless steel that is oxygen cut using either a chemical flux or iron powder or gas shielded arc cutting. Where it is not possible to provide this ventilation, airline respirators, hose masks, or self contained units must be used. Oxygen should never be used for ventilation.

All parts of the body should be protected from radiant energy, sparks, and molten metal splashes.
Clothing made from wool, or wool blends, is generally better than cotton. Some cutting operations such as inert-gas metal arc welding will cause exposed cotton clothing to rapidly deteriorate. Leather capes, jackets, leggings, and aprons provide additional protection especially in vertical or overhead operations. Use of dark clothing will help reduce reflected light.

All welding equipment should be inspected each day prior to use. Report any defects found in regulators, torches or electrical components to a person that is qualified to make the necessary repairs.
TOOLBOX TALK 99

Subject: Why A Written Safety Program

The formal safety program is a set of written documents that describe a company's safety policies, priorities, and responsibilities. The program is designed to bring structure and consistency into a firm's accident prevention efforts. Without a written document, you might as well have a construction crew without a blueprint, or a factory without a production plan.

However, just because a safety program is written, doesn't mean it is always followed. To be effective, everyone on the management team must understand what is expected of them and safety must be an ongoing, essential part of production. This means the entire workforce must have an occasional reminder of what accident prevention is all about. Key safety program elements are:

1. Management's Safety Policy - This is usually a simple but important statement, emphasizing that the safety and well being of employees is of the highest priority in the firm, and will be fully supported by top management.

2. Responsibilities of Management, Supervisors, and Employees - Safety responsibilities at every level of the organization must be clearly defined in writing and in training, so everyone has a fair and equal chance to live up to what is expected of them.

3. Safety Rules - A list of specific Safe Work Practices must be established for the safety of each individual and all co-workers. These "conditions of employment: can prevent accidents during production--but workers and companies often tend to forget them, unless they are enforced.

4. Disciplinary Policy - When any individual fails to follow established safety rules, the entire work team may be at risk. And when rules are ignored by many, the idea of consistent safe work practices "goes down the tube." The disciplinary policy defines how safety rules will be enforced fairly and consistently. The typical policy is a form of "Three Strikes and You're Out."

5. Specific Written Programs - Federal and State laws also require that critical jobsite hazards must be controlled through specific written programs and extra employee training. These include programs in Confined Space Entry, Lock out / Tag out, Fall Protection, Scaffolding Safety, Hazardous Materials, etc. Strict procedures are necessary to prevent exposures, fatalities or serious injuries, and must be followed to the letter.

6. Safety Meetings - Responsibilities and safety procedures are rarely followed by everyone without an occasional reminder. Like the vaccinations we got as kids, we all need booster shots for a good "take." Most worksites have a variety of hazards to discuss, and safety meetings provide this opportunity. Many hazardous industries hold them weekly.
Remember, though, you needn't wait for a safety meeting to correct a potentially hazardous situation.

Why a written safety program? As workers we need to know what is specifically required of us, to perform our job safely. As supervisors we need the tools and guidance to help us manage a safe production process. As management, we must continually protect our greatest asset--the workforce.

Safety is a teamwork effort. Let's everyone remember the important part they play!
## SAFETY FORMS

<table>
<thead>
<tr>
<th>Form Title</th>
<th>Form Number</th>
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<td>SFT-W-50-3/00</td>
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<td>3. Notice To All Personnel</td>
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<td>19. Job Hazard Assessment / Analysis Form</td>
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STEBBINS ENGINEERING - CONFINED SPACE ENTRY PERMIT

JOB NO: ________________________________  ITEM (PERMIT) NO: ________________________________

PLANT __________________________________  LOCATION: ________________________________

DESCRIPTION OF VESSEL: ________________________________________________________________

NORMAL CONTENTS OF VESSEL: ____________________________________________________________

NATURE OF TASK TO BE PERFORMED: ______________________________________________________

PROBABILITY OF SPECIAL HAZARDS EXISTING:  

- TOXIC VAPORS [ ] [ ] [ ]
- FLAMMABLE OR COMBUSTIBLE GASES [ ] [ ] [ ]
- LACK OF OXYGEN [ ] [ ] [ ]
- ELECTRIC SHOCK [ ] [ ] [ ]
- INJURY FROM MECHANICAL EQUIPMENT [ ] [ ] [ ]
- ENGULFMENT HAZARDS [ ] [ ] [ ]

GAS TEST RESULTS:  

| GAS MONITOR USED: ____________________________________________________________________________ |
| DATE OF LAST CALIBRATION / MAINTENANCE: _________________________________ |
| NAME OF PERSON CONDUCTING TEST RESULTS: ______________________________________________________ |

GAS SAFETY CHECKLIST:  

- VESSEL DRAINED AND CLEANED [ ] [ ] [ ]
- VESSEL FLUSHED WITH WATER IF POSSIBLE [ ] [ ] [ ]
- LINE(S) BROKEN - CAPPED - BLANKED [ ] [ ] [ ]
- ADEQUATE VENTILATION PRESENT [ ] [ ] [ ]
- APPROVED LIGHTING [ ] [ ] [ ]
- LOCK-OUT / TAG-OUT PROCEDURE COMPLETE [ ] [ ] [ ]
- PROPER RESPIRATORY EQUIPMENT PROVIDED [ ] [ ] [ ]
- FULL BODY HARNESS AND LIFELINE AVAILABLE [ ] [ ] [ ]
- SAFETY SHOWER & EYE WASH STATION LOCATED [ ] [ ] [ ]
- REQUIRED PPE AVAILABLE [ ] [ ] [ ]

PERMIT EXPIRES: DATE: ________________________________  TIME: ________________________________

SUPERVISOR AUTHORIZING ENTRY: _____________________________________________________________

ATTENDANT(S): _____________________________________________________________

PERMIT CLOSED BY: ________________________________  TIME: ______________  DATE: ______________

***EVERYBODY MUST SIGN THE BACK OF THIS FORM WHEN ENTERING AND EXITING THE VESSEL***
## Confined Space Entry Permit

### Sign In and Out Log

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### Emergency Phone Numbers

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# Forklift Review Form

| Day  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Review List |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| A. Oil Level |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| B. Coolant Level |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| C. Fuel Cylinder Installation |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| D. Tire Pressure |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| E. Belt Condition |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| F. Hoses & Pulleys |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| G. Radiator Fins |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| H. Forks |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| I. Mast |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| J. Hoisting Chains |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| K. Gears |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| L. Horn |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| M. Fire Extinguisher |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| N. Temperature Gauge |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| O. Fuel Gauge |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| P. Brakes |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Q. Back-up Alarm |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| R. Lights |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| S. Battery |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| T. |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| U. |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| V. |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| W. |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| X. |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Y. |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Z. |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
## TELESPOCIC LIFT REVIEW FORM

<table>
<thead>
<tr>
<th>MILL:</th>
<th>LOCATION:</th>
<th>JOB #:</th>
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<tbody>
<tr>
<td>SUPT.:</td>
<td>OPERATOR:</td>
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</tbody>
</table>

### Review List

- **A.** Oil Level
- **B.** Coolant Level
- **C.** Fuel Cylinder Installation
- **D.** Tire Pressure
- **E.** Belt Condition
- **F.** Hoses & Pulleys
- **G.** Radiator Fins
- **H.** Extend Mast
- **I.** Basket Condition
- **J.** Hoisting Chains
- **K.** Gears
- **L.** Horn
- **M.** Fire Extinguisher
- **N.** Temperature Gauge
- **O.** Fuel Gauge
- **P.** Brakes
- **Q.** Back-up Alarm
- **R.** Lights
- **S.** Battery
- **T.**
- **U.**
- **V.**
- **W.**
- **X.**
- **Y.**
- **Z.**

### Day

| Day | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|-----|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

### Month

| Month | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|-------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

### Year

| Year | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
### CHERRY PICKER REVIEW FORM

**PLANT:**

**LOCATION:**

**JOB #:**

**SUPT.:**

**OPERATOR:**

#### MONTH:  YEAR:

| Day | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|-----|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| A.  Oil Level - Prior To Start |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| B.  Coolant Level - Prior To Start |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| C.  Gauges, Loose Bolts, Leaks |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| D.  Cracks, System Malfunction |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| E.  Hydraulic Oil Level |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| F.  Drain Air Tanks |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| G.  Drain Moisture from Gear Cases |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| H.  Equipment With Pet Cocks |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| I.  Check Cable Reying, Hook, & Block Conditions - Daily |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| J.  Check All Safety Devices |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| K.  Lube Pressure Fittings - Daily |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| L.  Check Heater |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| M.  Check Defroster |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| N.  Check Windshield Wipers |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| O.  Check Cab Doors |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| P.  Check Fire Extinguisher |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Q.  Auxiliary Winch |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| R.  Hydraulic Outriggers - Daily |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| S.  Check Points - Daily |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| T.  Check Engine - Daily |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| U.  Check Boom & Jib - Daily |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| V.  Load Capacity Decals |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| W.  Hand Signal Decals |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| X.  No Riders Decals (Both Sides) |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Y.  Extra Keys (In Trailer) |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Z.  Extra Parts (In Trailer) |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| a. Operators Manual (In Trailer) |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| b. General Appearance of Equip. |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| c. Record any Damages |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

### MONTHLY HOUR METER READINGS:

<table>
<thead>
<tr>
<th>BEGINNING OF MONTH</th>
<th>END OF MONTH</th>
<th>HOURS OF OPERATION</th>
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**KEY:**

- "S" for **SATISFACTORY**
- "AN" for **ADJUSTMENT NEEDED**
- "AM" for **ADJUSTMENT MADE**
# RESPIRATOR REVIEW REPORT

**DIVISION**  

**ADDRESS**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SERIAL NO.</th>
<th>REVIEW DATE</th>
<th>REVIEWER'S SIGNATURE</th>
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## MAINTENANCE RECORD

**MST RESPIRATORY PROTECTOR**

<table>
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<tr>
<th>MODEL #</th>
<th>SERIAL #</th>
<th>DATE</th>
<th>MAINTENANCE PERFORMED</th>
<th>PERFORMED BY</th>
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RESPIRATOR FIT TEST RECORD

A. EMPLOYEE NAME: ___________________________ DATE: ___________________________
   EMPLOYEE SSN#: ___________________________ TITLE: ___________________________

B. JOB NAME & LOCATION: _________________________________________________________
   JOB NUMBER: ___________________________________________________________________

C. RESPIRATOR SELECTED: ___________________________ SIZE: _______________________
   MANUFACTURER: __________________________________________________________________
   NIOSH APPROVAL NUMBER: ___________________________ MODEL: _______________________

D. CONDITIONS WHICH WOULD AFFECT RESPIRATOR FIT:
   _______ CLEAN SHAVEN _______ FACIAL SCAR
   _______ ½ DAY BEARD GROWTH _______ DENTURES ABSENT
   _______ 2+ DAY GROWTH _______ GLASSES
   _______ MOUSTACHE _______ NONE
   COMMENTS: _____________________________________________________________________

E. FIT CHECKS:
   NEGATIVE-PRESSURE: _______ PASS _______ FAIL _______ NOT DONE
   POSITIVE PRESSURE: _______ PASS _______ FAIL _______ NOT DONE

F. FIT TESTING:
   QUANTITATIVE: _______ FIT FACTOR: _______
   QUALITATIVE: _______ ISOAMYL ACETATE _______ PASS _______ FAIL
   _______ IRRITANT SMOKE _______ PASS _______ FAIL
   TEST 1: NORMAL BREATHING: _______ PASS _______ FAIL
   TEST 2: DEEP BREATHING: _______ PASS _______ FAIL
   TEST 3: TURNING HEAD SIDE TO SIDE: _______ PASS _______ FAIL
   TEST 4: MOVING HEAD UP AND DOWN: _______ PASS _______ FAIL
   TEST 5: TALKING: _______ PASS _______ FAIL
   TEST 6: GRIMACE: _______ PASS _______ FAIL
   TEST 7: BENDING OVER: _______ PASS _______ FAIL
   TEST 8: REPEAT TEST 1: _______ PASS _______ FAIL
   COMMENTS: _____________________________________________________________________

G. EMPLOYEE ACKNOWLEDGMENT OF TEST RESULTS:
   EMPLOYEE SIGNATURE: ___________________________ DATE: ________________________
   TEST CONDUCTED BY: ___________________________ DATE: _________________________
RESPIRATOR MEDICAL EVALUATION QUESTIONNAIRE

TODAY’S DATE: ______________

**PART A**
{Employee Information}

<table>
<thead>
<tr>
<th>NAME:</th>
<th>Last</th>
<th>First</th>
<th>Middle</th>
<th>SOCIAL SECURITY NO.:</th>
<th>DATE OF BIRTH:</th>
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<tr>
<td>ADDRESS:</td>
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<tr>
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<td>STATE:</td>
<td>ZIP:</td>
<td>HEIGHT:</td>
<td>WEIGHT:</td>
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<td>PHONE NUMBER:</td>
<td>Area Code:</td>
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| SEX: | AGE: |
| Male / Female | |

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<thead>
<tr>
<th>BEST TIME TO CALL:</th>
<th>JOB TITLE:</th>
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<td>AM / PM</td>
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</table>

1. Has your employer told you how to contact the health care professional who will review this questionnaire? [ ] [ ]

2. Have you worn a respirator before? [ ] [ ]
   If “yes” what type(s)__________________________________________________
   ___________________________________________________________________

3. Check the type of respirator you will use (check all that apply).
   A. ____ N, R, or P disposable respirators (filter-mask, non-cartridge type only).
   B. ____ Other Type(s): (example: half or full-face piece type, PAPR, supplied-air, or SCBA)

**PART B**
{Employee Medical Information}

Answer questions 4 thru 13 by placing a (T) check mark in the appropriate box.

4. Do you currently smoke tobacco, or have you smoked tobacco in the last month? [ ] [ ]

5. Have you ever had any of the following conditions?
   A. Seizures (fits): [ ] [ ]
   B. Diabetes (sugar disease): [ ] [ ]
   C. Allergic reactions that interfere with your breathing: [ ] [ ]
   D. Claustrophobia (fear of closed-in places): [ ] [ ]
   E. Trouble smelling odors: [ ] [ ]
   If “yes” please explain: ________________________________________________
Respirator Medical Evaluation Questionnaire continued….

6. Have you ever had any of the following pulmonary or lung problems?
   A. Asbestosis:
   B. Asthma:
   C. Chronic Bronchitis:
   D. Emphysema:
   E. Pneumonia:
   F. Tuberculosis:
   G. Silicosis:
   H. Pneumothorax (collapsed lung):
   I. Lung cancer:
   J. Broken Ribs:
   K. Any chest injuries or surgeries:
   L. Any other lung problem that you’ve been told about:
   If “yes” please explain: ____________________________________________________

7. Do you currently have any of the following symptoms of pulmonary or lung illness?
   A. Shortness of breath:
   B. Shortness of breath when walking fast on level ground or walking up a slight hill or incline:
   C. Shortness of breath when walking with other people at an ordinary pace on level ground:
   D. Have to stop for breath when walking at your own pace on level ground:
   E. Shortness of breath when washing or dressing yourself:
   F. Shortness of breath that interferes with your job:
   G. Coughing that produces phlegm (thick sputum):
   H. Coughing that wakes you early in the morning:
   I. Coughing that occurs mostly when you are lying down:
   J. Coughing up blood in the last month:
   K. Wheezing:
   L. Wheezing that interferes with your job:
   M. Chest pain when you breathe deeply:
   N. Any other symptoms that you think may be related to lung problems:
   If “yes” please explain: ____________________________________________________

8. Have you ever had any of the following cardiovascular or heart problems?
   A. Heart Attack:
   B. Stroke:
   C. Angina:
   D. Heart Failure:
   E. Swelling in your legs or feet (not caused by walking):
F. Heart arrhythmia (heart beating irregularly): □ □
G. High blood pressure: □ □

Respirator Medical Evaluation Questionnaire continued….

H. Any other heart problem that you’ve been told about: □ □
If “yes” please explain: ___________________________________________

9. Have you ever had any of the following cardiovascular or heart symptoms?
A. Frequent pain or tightness in your chest: □ □
B. Pain or tightness in your chest during physical activity: □ □
C. Pain or tightness in your chest that interferes with your job: □ □
D. In the past two years, have you noticed your heart skipping or missing a beat: □ □
E. Heartburn or indigestion that is not related to eating: □ □
F. Any other symptoms that you think may be related to heart or circulation problems: □ □
If “yes” please explain: ___________________________________________

10. Do you currently take medication for any of the following problems?
A. Breathing or lung problems: □ □
B. Heart Trouble: □ □
C. Blood Pressure: □ □
D. Seizures (fits): □ □
If “yes” please explain: ___________________________________________

11. If you’ve used a respirator, have you ever had any of the following problems?
A. Eye irritation: □ □
B. Skin allergies or rashes: □ □
C. Anxiety: □ □
D. General weakness or fatigue: □ □
E. Any other problem that interferes with your use of a respirator: □ □
If “yes” please explain: ___________________________________________

12. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire: □ □

13. Have you ever worked with any of the materials, or under any of the conditions, listed below:
A. Asbestos: □ □
B. Silica (e.g., in sandblasting): □ □
C. Tungsten / cobalt (e.g., grinding or welding this material): □ □
D. Beryllium: □ □
E. Coal (e.g., mining):
F. Iron:
G. Aluminum:
H. Tin:
I. Dusty environments:

Respirator Medical Evaluation Questionnaire continued….

J. Any other hazardous exposures:
If “yes” please explain: ____________________________________________________

14. 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: If “yes” please list: __________________________________________
________________________________________________________________________

15. How often are you expected to use the respirator(s), answer all that apply?
A. Escape only (no rescue):
B. Emergency rescue only:
C. Less than 5 hours per week:
D. Less than 2 hours per day:
E. 2 to 4 hours per day:
F. Over 4 hours per day:

16. Describe the work you’ll be doing while you’re using your respirator(s): _____________
________________________________________________________________________

17. Will you be wearing protective clothing and/or equipment when you are using your respirator:
If “yes” please list: ________________________________________________________
________________________________________________________________________

PART C
{For Employees wearing Full-face piece Respirators}

The following part must be answered by every employee who has been selected to use either a full-face piece 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.

Answer questions 18 thru 23 by placing a (T) check mark in the appropriate box.

18. Have you ever lost vision in either eye (temporarily or permanently)?
If “yes” please explain: ____________________________________________________

19. Do you currently have any of the following vision problems?
A. Wear contact lenses: ☐ ☐
B. Wear glasses: ☐ ☐
C. Color blind: ☐ ☐
D. Any other eye or vision problem: ☐ ☐
If “yes” please explain: ____________________________________________________

Respirator Medical Evaluation Questionnaire continued….

20. Have you ever had an injury to your ears, including a broken ear drum? ☐ ☐
    If “yes” please explain: ____________________________________________________

21. Do you currently have any of the following hearing problems?
    A. Difficulty hearing: ☐ ☐
    B. Wear a hearing aid: ☐ ☐
    C. Any other hearing or ear problem: ☐ ☐
    If “yes” please explain: ____________________________________________________

22. Have you ever had a back injury: ☐ ☐
    If “yes” please explain: ____________________________________________________

23. Do you currently have any of the following musculoskeletal problems?
    A. Weakness in any of your arms, hands, legs, or feet: ☐ ☐
    B. Back Pain: ☐ ☐
    C. Difficultly fully moving your arms and legs: ☐ ☐
    D. Pain or stiffness when you lean forward or backward at the waist: ☐ ☐
    E. Difficultly fully moving your head up or down: ☐ ☐
    F. Difficultly fully moving your head side to side: ☐ ☐
    G. Difficultly bending at your knees: ☐ ☐
    H. Difficultly squatting to the ground: ☐ ☐
    I. Climbing a flight of stairs or a ladder carrying more than 25 lbs.: ☐ ☐
    J. Any other muscle or skeletal problem that interferes with using a respirator: ☐ ☐
    If “yes” please explain: ____________________________________________________
**Pre-job safety training package**

**GENERAL SAFETY RULES**

1) Follow instructions; don’t take chances. If you don’t know, ask your Superintendent.
2) Wear approved Personal Protective Equipment as directed, air hoods, respirators, safety harness, face shield, hard-toe shoes and safety glasses. Keep them in good condition and clean daily.
3) Whenever you or the equipment you operate is involved in an accident - regardless of how minor report it immediately to your Supervisor. Get first aid promptly.
4) Report immediately any condition or practice you think may cause injury to employees or damage to equipment or property.
5) Stack materials in stable and self-supporting piles, clear of aisles and access ways to prevent sliding or falling and threat of injury to nearby workers or damage.
6) Use the proper tools and equipment for the job and observe safety instructions. Use, adjust, alter and repair equipment only when authorized.
7) When lifting, bend your knees, grasp the load firmly, and then raise the load keeping your back as straight as possible. Lift with your legs, not your back. Get help for loads you cannot handle.
8) Put everything you use in its proper place. Disorder causes injury and wastes time, energy and materials. Keep your work area clean and orderly. Use good housekeeping practices.
9) Don’t horseplay, avoid distracting others.
10) Obey all rules, signs and instructions.
11) Do not smoke in "NO SMOKING" areas.
12) Know where the nearest fire extinguisher is and familiarize yourself with its use.
13) Do not ride on forklifts or other construction equipment.
14) Keep all guard rails, toe boards, etc. in place.
15) Keep all flammable liquids (acetone, ketone, gasoline, etc.) in properly marked safety cans.
16) Wear gloves when handling staging material, debris, acid, chemical, etc.
17) Wear and use fall protection equipment when erecting and dismantling any scaffolding.
18) Follow the Company’s confined space program when entering a confined space.
19) Superintendent and Foreman shall be in charge of enforcing the safety rules.

*****

I __________________________ have read, understand and will abide by THE COMPANY’s General Safety Rules.

______________________________________________         __________________________
(Signature)                                                     (Date)

Location ____________________________________  Job #(#s):

____________________________________
(Plant, City and State)
**Pre-job safety training package**

**HAZARDOUS MATERIALS (FIELD)**

I, ____________________________, have received training in the use of the hazardous products that I have circled and initialed below.

The hazards of these products are listed in their Material Safety Data Sheets (MSDS).

These MSDS have been fully explained to me and are on file in the office and are available for my review at any time. I can access this information through the job supervisor.

<table>
<thead>
<tr>
<th>COMPANY PRODUCTS</th>
<th>COMPANY PRODUCTS</th>
<th>COMPANY PRODUCTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ 11. AM-9 PUMPING FLUID</td>
<td>[ 31. FURAGLAS CATALYST</td>
<td>[ 61. UNHARDENED PORTLAND CEMENT</td>
</tr>
<tr>
<td>[ 12. AR-196 ACCELERATOR SOLUTION</td>
<td>[ 32. HYDROMET 49 LIQUID</td>
<td>[ 62. URETHANE CONCRETE SEALER</td>
</tr>
<tr>
<td>[ 13. AR-196 CONCRETE RESIN</td>
<td>[ 33. HYDROMET 49 POWDER</td>
<td>63. ADEKA KBA-1510</td>
</tr>
<tr>
<td>[ 14. AR-196 CONCRETE RESIN CATALYST</td>
<td>[ 34. HYDROMET 50 LIQUID</td>
<td>[ 64. ADKEKA P-201</td>
</tr>
<tr>
<td>[ 15. AR-196 RESIN</td>
<td>[ 35. HYDROMET 50 POWDER</td>
<td>[ 65. HILTI HIT150</td>
</tr>
<tr>
<td>[ 16. AR 96 POWDER</td>
<td>[ 36. M1 RESIN AND HARDENER</td>
<td>[ 66. HILTI HIT-RE500</td>
</tr>
<tr>
<td>[ 17. AR-20 ACCELERATOR SOLUTION</td>
<td>[ 37. MDP CATALYST</td>
<td>[ 67. PENNROVEL</td>
</tr>
<tr>
<td>[ 18. AR-20-C POWDER</td>
<td>[ 38. NUROFAST 3MFR HARDENER</td>
<td>[ 68. PENNGUARD BRICK</td>
</tr>
<tr>
<td>[ 19. AR-20-QC LIQUID</td>
<td>[ 39. NUROFAST 3MFR PASTE</td>
<td>[ 69. PENNGUARD MASTIC</td>
</tr>
<tr>
<td>[ 20. AR-25-HT LIQUID</td>
<td>[ 40. NUROFAST 52 HARDENER</td>
<td>[ 70. METHYL ETHYL KETONE</td>
</tr>
<tr>
<td>[ 21. AR-25-HT POWDER</td>
<td>[ 41. NUROFAST 52 CF PASTE</td>
<td>[ 71. FIBERGLASS MAT</td>
</tr>
<tr>
<td>[ 22. AR-500 CONCRETE RESIN</td>
<td>[ 42. NUROFAST 52 PASTE</td>
<td>[ 72. ACETONE</td>
</tr>
<tr>
<td>[ 23. AR-500 CONCRETE RESIN CATALYST</td>
<td>[ 43. NUROFAST ACCELERATOR SOLUTION</td>
<td>[ 73. ACETYLENE</td>
</tr>
<tr>
<td>[ 24. AR-500 RESIN</td>
<td>[ 44. NUROFAST CONCRETE PRIMER</td>
<td>[ 74. BLACK BEAUTY</td>
</tr>
<tr>
<td>[ 25. AV-248 RESIN</td>
<td>[ 45. SCI BRICK</td>
<td>[ 75. BYK-S 740</td>
</tr>
<tr>
<td>[ 26. AV-249 CATALYST</td>
<td>[ 46. SCI TILE</td>
<td>[ 76. CAB-O-SIL TS 720</td>
</tr>
<tr>
<td>[ 27. CD-3000 POWDER</td>
<td>[ 47. SEMAG AGGREGATE</td>
<td>[ 77. PERKADOX 40E</td>
</tr>
<tr>
<td>[ 28. CD-3000 RESIN</td>
<td>[ 48. SEMAG BRICK</td>
<td>[ 78. CITROL</td>
</tr>
<tr>
<td>[ 29. CARBON BRICK</td>
<td>[ 49. SEMAG MORTAR OR GROUT</td>
<td>[ 79. DIESEL FUEL</td>
</tr>
<tr>
<td>[ 30. COLDSEAL HARDENER</td>
<td>[ 50. SEMCO BRICK</td>
<td>[ 80. MURIATIC ACID</td>
</tr>
<tr>
<td>[ 31. COLDSEAL RESIN</td>
<td>[ 51. SRM FLOOR TOPPING AGGREGATE</td>
<td>[ 81. OXYGEN</td>
</tr>
<tr>
<td>[ 32. EPOXY CONCRETE SEALER, PART A</td>
<td>[ 52. SRM FLOOR TOPPING HARDENER</td>
<td>[ 82. PROPANE</td>
</tr>
<tr>
<td>[ 33. EPOXY CONCRETE SEALER, PART B</td>
<td>[ 53. SRM FLOOR TOPPING RESIN</td>
<td>[ 83. SILICIA SAND</td>
</tr>
<tr>
<td>[ 34. EPOXY PUMPING FLUID, PART A</td>
<td>[ 54. SRM MORTAR, PART A</td>
<td>[ 84. UNLEADED GASOLINE</td>
</tr>
<tr>
<td>[ 35. EPOXY PUMPING FLUID, PART B</td>
<td>[ 55. SRM MORTAR, PART B</td>
<td>[ 85. __________________________</td>
</tr>
<tr>
<td>[ 36. ES BLOCK</td>
<td>[ 56. SRM PRIMER HARDENER</td>
<td>[ 86. __________________________</td>
</tr>
<tr>
<td>[ 37. FE-95 HARDENER</td>
<td>[ 57. SRM PRIMER RESIN</td>
<td>[ 87. __________________________</td>
</tr>
<tr>
<td>[ 38. FE-95 RESIN</td>
<td>[ 58. SULFURGLAS HARDENER</td>
<td>[ 88. __________________________</td>
</tr>
<tr>
<td>[ 39. FRP INSERT</td>
<td>[ 59. SULFURGLAS RESIN</td>
<td>[ 89. __________________________</td>
</tr>
<tr>
<td>[ 40. FRP PUTTY</td>
<td>[ 60. UNHARDENED CONCRETE</td>
<td></td>
</tr>
</tbody>
</table>

DATE: ___________________________ BY: ___________________________

TRAINER

DATE: ___________________________ BY: ___________________________

EMPLOYEE

SAFETY\MANUAL\FIELD\FORMS\SFT-W-50.doc updated 3/14 Form SFT-W-50-3/00
As you know, THE COMPANY has a POLICY prohibiting the use of illegal and unauthorized drugs, including alcohol. Furthermore, THE COMPANY states that an employee may be required to submit to a urine drug screen and/or blood and plasma test or a complete physical examination when THE COMPANY has a reasonable suspicion that an employee shows signs of intoxication, is under the influence of drugs, or where other conditions are present that would lead a prudent supervisor to be concerned about the employee’s safety or the safety of others that may be affected by an employee’s condition.

Please read and respond to the following instructions and information carefully.

If you are taking any medication that would impair your ability to safely perform your job, please indicate below:

<table>
<thead>
<tr>
<th>MEDICATION TAKEN</th>
<th>DATE LAST TAKEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
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<tr>
<td>2.</td>
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<tr>
<td>3.</td>
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<td>4.</td>
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<td>5.</td>
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</tbody>
</table>

I have read and understand THE COMPANY’s POLICY on unauthorized and illegal drugs and alcohol, and I consent to both the drug screen and any other employment physical examination as may be required by this COMPANY. I agree in submitting to these tests and the testing agency is hereby authorized by me to provide the results of these tests to THE COMPANY, and I further agree to hold THE COMPANY, its agents, directors, officers, and employees harmless from any and all liability in connection with the testing for drug and/or alcohol content.

________________________________________  ______________________________
Location (Mill, City and State)             Job Number

________________________________________
Employee’s Signature

______________________________
Date

______________________________
Witness’ Signature

______________________________
Date
**NOTICE TO ALL PERSONNEL**
**READ CAREFULLY**
**SEARCH CONSENT FORM**

It is the Policy of **STEBBINS** and its affiliated or subsidiary companies to absolutely prohibit the use, possession, concealment, transportation or distribution of illegal and unauthorized items, drugs, look-alike, alcoholic beverages, weapons, ammunition, drug paraphernalia or stolen property while entering, on or leaving companies premises, work areas, work locations or while in the course and scope of employment of **STEBBINS**.

For your protection, and for the protection of others with whom you will be working, you are requested to submit your person, personal effects, vehicles, belongings and all items to a search. If any items prohibited on **STEBBINS** premises are found or if you refuse to submit to a search of yourself and/or your effects, you will be denied access to any of **STEBBINS** and its affiliates or subsidiary companies’ facilities or premises. **STEBBINS** will also undertake such disciplinary action in accordance with **STEBBINS POLICY**.

A statement of **STEBBINS** and its affiliated or subsidiary companies’ **POLICY** is on display on/at these **STEBBINS** premises and you should read and understand the **POLICY** statement prior to signing this notice.

Your signature below constitutes your consent to search of your person, personal effects and property for illegal drugs, look-a-likes, alcohol, weapons, ammunition, drug paraphernalia or stolen property.

**LOCATION:** __________________________________           **DATE:** _________________
   (Plant, City, and State)

<table>
<thead>
<tr>
<th>PRINT NAME</th>
<th>SIGNATURE</th>
<th>COMPANY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
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<tr>
<td>2.</td>
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<td>3.</td>
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<tr>
<td>4.</td>
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</tbody>
</table>

__________________________  ______________________________
SUPERVISOR’S SIGNATURE          WITNESS
Pre-job safety training package

EQUAL EMPLOYMENT OPPORTUNITY

&

SEXUAL HARASSMENT

SUBJECT: EQUAL EMPLOYMENT OPPORTUNITY

It is the policy of this Company to maintain a business atmosphere which actively encourages and promotes Equal Employment Opportunity for all qualified persons without regard to race, color, religion, creed, sex/gender, age, national origin, disability or veteran status.

SUBJECT: POLICY AGAINST HARASSMENT

The COMPANY does not tolerate harassment of any of our employees, applicants or customers. Any form of harassment related to an individual’s race, religion, color, sex/gender, age, national origin, disability or citizenship status is a violation of this policy and will be treated as a disciplinary matter. For these purposes, the term “harassment” includes:

(1.) Offensive remarks, comments, jokes or slurs pertaining to an individual’s race, color, sex/gender, religion, age, national origin, disability, or citizenship status, (2.) Offensive sexual remarks, sexual advances or requests for sexual favors regardless of the gender of the individuals involved, (3.) Offensive physical conduct, including touching, regardless of the gender of the individuals involved. (4.) Offensive pictures, drawings or photographs or other communications, including e-mail and (5.) Threatening reprisals for an employee’s refusal to respond to requests for sexual favors or for reporting a violation of this policy.

Violation of this policy will subject an employee to disciplinary action, up to and including immediate discharge. Therefore, if you have any questions about what constitutes harassing behavior or what conduct is prohibited by this policy, please discuss them with your supervisor or the Watertown Human Resources Director. Our supervisors and managers are also covered by this policy and are prohibited from engaging in any form of harassing conduct. No supervisor or other member of management has the authority to suggest to any employee or applicant that that individual’s employment or advancement will be affected in any way by the individual’s entering into (or refusing to enter into) any form of personal relationship with him or her. Harassment of our employees in connection with their work by non-employees is also a violation of this policy. Any employee who experiences or observes any harassment of an employee by a non-employee should report such harassment to his or her supervisor. Appropriate action will be taken. If you feel that you are being harassed by another employee or by anyone else, you should tell that individual how you feel - no matter who it is. We also ask that you report the matter to your supervisor so that we can ensure that the conduct is stopped. If the problem involves your supervisor or if you do not feel that the matter can be discussed with your supervisor, you should immediately report the problem to the Human Resources Director in Watertown, New York. You may be assured that your complaint will be kept as confidential as possible and you will not be penalized in any way for reporting a harassment problem. If, at any time, you feel that your complaint is not being handled properly, please contact the Watertown Human Resources Director again immediately. We are serious about enforcing our policy against harassment. However, we cannot resolve a harassment problem unless we know about it. Therefore, it is your responsibility to bring any such problems to our attention so that we can take whatever steps are necessary to correct it.

I have read and will abide by the above Company Policies.

Employee Signature:________________________________________________Date:________________________
Pre-job safety training package

SCAFFOLD TRAINING FORM

SCAFFOLD USER TRAINING

Federal regulations require that all scaffold users be trained by a Competent Person before they are allowed to utilize any scaffolding. This form is to document the training you have received as a scaffold user, or as a scaffold erector/dismantler. Initial and date each section as you complete the applicable training.

<table>
<thead>
<tr>
<th>Training Topic</th>
<th>Training Date</th>
<th>Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>A general overview of all applicable scaffold regulations and standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical hazards, fall hazards and falling object hazards in the work area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correct procedures for electrical hazards, erecting, maintaining and disassembling the fall protection and falling object protection systems.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proper use of scaffolds and proper material handling on scaffolds.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum intended load and load capacities of the scaffold in use.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The PPE required and the fall protection method to be used.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other pertinent requirements (list):</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SCAFFOLD ERECTOR\DISMANTLER TRAINING

As a person assigned to erect or dismantle scaffold, I have received training on all the above Scaffold User Training topics as well as the additional training listed below:

<table>
<thead>
<tr>
<th>Training Topic</th>
<th>Training Date</th>
<th>Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trained in all user topics.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The nature of scaffold hazards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correct procedures for erecting, dismantling, moving, operating, repairing, inspecting and maintaining the scaffold in use.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design criteria, maximum intended load-carrying capacity, and intended use of the scaffolding on this job.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The purpose of guys, ties, and braces and when they must be used.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other pertinent requirements (list):</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

________________________________________________
Location (Mill, City and State) ____________________________
________________________________________________
Employee’s Signature _______________________________________________________________________________________

Job Number __________________________________________________________________________________________

________________________________________________
Trainers Signature ______________________________________________________________________________________

SAFETY\MANUAL\FIELD\FORMS\SFT-W-51.doc

Form SFT-W-51-3/00
## STEBBINS FIRST REPORT OF ACCIDENT/INJURY/ILLNESS

**SAFETY DEPARTMENT USE ONLY:**

<table>
<thead>
<tr>
<th>SAFETY DEPARTMENT USE ONLY:</th>
<th>CLAIM NUMBER: __________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST AID: ☐ RECORDABLE: ☐ LOST TIME: ☐</td>
<td></td>
</tr>
<tr>
<td>FILE NUMBER: _______ NO. OF DAYS LOST: _______ NO. OF DAYS RESTRICTED WORK: _______</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** THIS FORM IS TO BE COMPLETED AND SIGNED BY THE SUPERINTENDENT & INJURED WORKER

1. **DIVISION:** _____________________________________________________________

2. **NATURE OF BUSINESS:** ________________________________________________

3. **LOCATION OF ACCIDENT:** ______________________________________________
   NAME OF PLANT

<table>
<thead>
<tr>
<th>CITY</th>
<th>STATE</th>
<th>ZIP CODE</th>
<th>COUNTY</th>
</tr>
</thead>
</table>

4. **JOB NUMBER** _______________ **JOB SITE TELEPHONE NUMBER:** (____) __________

5. **DATE OF INJURY:** _______________ **DAY:** __________ **TIME:** __________

6. **A. DATE STOPPED WORK BECAUSE OF THIS INJURY:** ____________________________
   **B. WAS INJURED PAID IN FULL FOR THIS DAY?** ☐YES ☐NO

7. **INJURED’S FULL NAME:** ________________________________________________
   **FIRST** | **MIDDLE** | **LAST**

8. **INJURED’S ADDRESS:** __________________________________________________
   STREET NAME & NUMBER

<table>
<thead>
<tr>
<th>CITY</th>
<th>STATE</th>
<th>ZIP CODE</th>
<th>COUNTY</th>
</tr>
</thead>
</table>

9. **INJURED’S TELEPHONE NO.** (____) ________________________________________

10. **MARTIAL STATUS:** ☐SINGLE ☐MARRIED ☐DIVORCED ☐MALE ☐FEMALE #DEPENDENTS____

11. **BIRTH DATE:** _______________ **AGE:** _______ **SPEAKS ENGLISH?** ☐YES ☐NO

12. **NATIONALITY:** ______________________ **SOCIAL SECURITY NUMBER:** ________

13. **OCCUPATION WHEN INJURED:** ______________________ **REGULAR OCCUPATION:** ______________________

14. **HOW LONG EMPLOYED WITH COMPANY (JOB ONLY):** _______________ **DATE HIRED:** _______________

15. **WAGES PER HOUR:** _______ **HOURS WORKED PER DAY:** _______ **NO. OF DAYS WORKED PER WEEK:** _______

16. **SHIFT WORKED:** _______________ **START TIME OF SHIFT:** _______________ **FINISH TIME OF SHIFT:** _______________

17. **AMOUNT PAID FOR WEEKLY BOARD AND LODGING:** __________________________

18. **MACHINE, TOOL OR THING CAUSING INJURY:** ____________________________

19. **WAS SAFETY APPLIANCE PROVIDED?** ☐YES ☐NO **WAS IT IN USE?** ☐YES ☐NO

20. **NAME OF SAFETY APPLIANCE(S) IN USE:** ____________________________

   (CONTINUED ON REVERSE SIDE)
21. WAS ACCIDENT CAUSED BY THE INJURED’S FAILURE TO USE OR OBSERVE THE SAFETY APPLIANCE OR
REGULATIONS?  □ YES  □ NO

22. DATE & TIME SUPERINTENDENT WAS NOTIFIED OF THIS INJURY: ________________

23. DESCRIBE THE EVENTS THAT LEAD UP TO THE ACCIDENT (PLEASE BE SPECIFIC): ________________

24. DESCRIBE ACCIDENT IN FULL DETAIL INCLUDING BODY PART AND INJURY SUSTAINED (ATTACH A
SEPARATE SHEET IF NECESSARY):


25. NAME OF WITNESSES TO ACCIDENT: ________________

26. IS THIS A RECURRING INJURY?  □ YES  □ NO  IF YES, EXPLAIN: ________________

27. HAS INJURED RETURNED TO WORK?  □ YES  □ NO
   IF YES, INDICATE DATE & TIME RETURNED: ________________  OCCUPATION: ________________  WAGE: ________________
   IF NO, INDICATE PROBABLE LENGTH OF DISABILITY: ________________

28. CHECK WHICH APPLY:  □ FIRST AID ONLY  □ DOCTOR’S OFFICE
   □ EMERGENCY ROOM/OUT PATIENT  □ HOSPITALIZED
   □ OFFERED & REFUSED MEDICAL TREATMENT  □ NO MEDICAL TREATMENT
   REQUIRED

29. DATE OF TREATMENT: ________________

30. NAME, ADDRESS AND TELEPHONE NUMBER OF HOSPITAL: ________________

31. NAME, ADDRESS AND TELEPHONE NUMBER OF DOCTOR: ________________

32. HAS INJURED DIED?  □ YES  □ NO  IF YES, DATE OF DEATH: ________________

I HAVE READ THE ABOVE COMPLETED ACCIDENT REPORT AND AGREE THAT THE STATED FACTS ARE TRUE.

INJURED WORKER’S SIGNATURE: ________________  DATE: ________________

SUPERINTENDENT’S SIGNATURE: ________________  DATE: ________________

RETURN COMPLETED FORM TO THE WATERTOWN SAFETY DEPARTMENT

SAFETY DEPARTMENT FOLLOW-UP BY: ________________  DATE: ________________
NEAR-MISS/HAZARDOUS CONDITIONS REPORT

(PLEASE SUBMIT THIS FORM TO THE WATERTOWN SAFETY DEPARTMENT)

SITE: ________________________________ JOB NUMBER: __________________________

USE THIS SECTION TO REPORT EVENTS THAT, UNDER SLIGHTLY DIFFERENT CIRCUMSTANCES, COULD HAVE OR WILL RESULT IN INJURY TO PERSONS OR DAMAGE TO PLANT EQUIPMENT/MATERIALS/ENVIRONMENT/PROCESS. THIS IS YOUR CHANCE TO HELP US STOP AN ACCIDENT BEFORE IT HAS A CHANCE TO GET SOMEONE OR SOMETHING. THIS FORM IS TO BE FILLED IN BY PERSON/PERSONS INVOLVED WITH THE EVENT.

I, ______________________________________      _____________________    ____________ wish to report a
Name                        Job Title             Date

NEAR-MISS/HAZARDOUS CONDITION at the _____________________________________________________
Plant, City, State

Describe what happened:
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

I think this could have or did injure/damage: (people, equipment, material, environment)
______________________________________________________________________________

I recommend the following actions:  ________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

CLOSED OUT: _________________________ REVIEWED BY: _____________________
(i.e. – all actions completed)              Safety Director               Supervisor’s Name
____________________________________            _______________________________
Date           Date

COMMENTS: __________________________ COMMENTS: _______________________
______________________________________ ____________________________________
______________________________________ ____________________________________
______________________________________ ____________________________________
RETURN TO WORK AGREEMENT

EMPLOYEE ACKNOWLEDGMENT OF WORK RESTRICTIONS

I, the undersigned, have been advised of the restriction outlined by my care-giver. I have read and understand my work restrictions, and agree to refrain from the specific activities detailed as beyond my abilities in my work restrictions. I further understand that it is my responsibility not to violate these restrictions without specific authorization in writing from my care-giver. I further agree that if anyone asks me to perform duties which will violate those restrictions, I will immediately notify the Superintendent or job site Manager, if necessary, of my restrictions concerning the requested duties. I understand that all Company policies and procedures are applicable to the return to work program, and that as a participant in the return to work program, I still must follow all other Company policies and procedures that do not violate my work restrictions.

____________________________         ___________          _____________________________
Printed Name                  Date                          Employees Signature

SUPERINTENDENT ACKNOWLEDGMENT OF WORK RESTRICTIONS

I, the undersigned, have been advised of the work restrictions outlined by the care-giver of the above-named employee. I have read and understand the work restrictions which must be observed by this employee. I further understand that it is my responsibility to assist this employee in observing those restrictions. I will not ask or expect this employee to perform any duties which would violate this work restriction. I understand and will adhere to the return to work policy and procedures as described in Section IV, Item 4 of the Company safety manual.

____________________________         ___________          _____________________________
Printed Name                        Date                                 Superintendents Signature

***NOTE***

The work limitation’s slip must be attached to this agreement in order to make it valid.
## JOB HAZARD ASSESSMENT / ANALYSIS FORM

### JHA #:

### Date:

### Page:

### Company:

### Plant:

### Location:

### Job#:

### Person Responsible for Completing JHA:

### Description of the work to be performed:

### Location of the work to be performed:

### Item Name or Number:

### Supervisor:

### People involved by Name & Craft:

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<tr>
<th>Name</th>
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### Required / Recommended Personal Protective Equipment:

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### Step No. | JOB STEP | POTENTIAL HAZARDS OR RISKS | RECOMMENDED ACTION
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# JOB HAZARD ASSESSMENT / ANALYSIS FORM

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<th>Step No.</th>
<th>JOB STEP</th>
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PERSONAL PUMP INSPECTION AND MAINTENANCE REPORTS

MILL: _______________________________    JOB#: _______________________________

LOCATION: _______________________________

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<th>MODEL</th>
<th>PUMP NO.</th>
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# AREA/PERSOAL SAMPLING PUMP CHART

MILL: ___________________________ TESTING FOR: __________________________________________

LOCATION: _________________________ JOB NO: __________________________

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<th>NAME</th>
<th>PUMP TYPE &amp; NO.</th>
<th>CASSETTE TYPE CAT. NO.</th>
<th>LAB #</th>
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