

Appendix I

Best Practices for Construction Plan

EXAMPLE CONSTRUCTION SAFETY PROGRAM

FOR

THE BUFFALO NIAGARA MEDICAL CAMPUS – NORTH END

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INTRODUCTION

The purpose of this Safety Manual is to provide information, reference material and guidelines for on-the-job safety conditions, requirements and procedures.

Specific project requirements will be added to this manual by way of an appendix. The Head Office must approve all changes.

RESPONSIBILITIES ON THE JOB

Senior management is responsible for safety through every phase of project construction. All job sites must issue a safety policy stating compliance with Federal and State laws and provided safety rules is a must for all employees. A summary of this policy must form part of a safety orientation program for each new employee and must be signed and acknowledged by each new employee.

THE PROJECT MANAGER

The Project Manager has the following duties and responsibilities:

- 1) Overall safety of the project.
- 2) Providing the management support, leadership and direction necessary for the overall implementation and execution of this Safety Program.
- 3) Planning and executing all work in a manner that promotes compliance with the stated objectives of this Safety Program.
- 4) Ensure that a copy of all pertinent safety legislation is on site.
- 5) Complying with all applicable Federal and State Safety Codes and Regulations.
- 6) Authorizing the immediate action necessary to correct any substandard safety condition existing, reported or personally observed.
- 7) Complying with all of the provisions of the Contract applicable to safety and accident prevention requirements.
- 8) Ensuring that safety is an integral part of the formal agenda discussed at all meetings with Owners and sub-trades.
- 9) Taking an active role in all supervisory meetings and all safety meetings as required by the Safety Coordinator.
- 10) Appointing a management representative to accompany any governmental site/safety inspection officer on his/her inspection tour.
- 11) Cooperating with the insurance company and any regulatory agencies.

THE PROJECT SUPERINTENDENT

The Project Superintendent has the following duties and responsibilities:

- 1) To work in conjunction with the Project Manager and Project Engineer to assure the safest possible conditions exist on the site.
- 2) Provide the management support, leadership and direction necessary for overall implementation and execution of this Safety Manual.

- 4) Comply with all applicable Federal, State and Local Safety Codes and Regulations.
- 5) Authorize the immediate action necessary to correct any substandard safety condition; reported or personally observed.
- 6) Comply with all the provisions of the Contract applicable to safety and accident prevention requirements.
- 7) Taking an active role in all supervisory meetings and all safety meetings.
- 8) To ensure a safety orientation program is in effect.
- 9) Cooperate with the Insurance Company, OSHA and other regulatory agencies and their representatives and inspectors.
- 10) To ensure Job Foremen are aware of the proper safe procedures for completing all assigned tasks.
- 11) Assist the Safety Coordinator with any accident investigation in his/her area of responsibility.

THE JOB FOREMEN

The Job Foremen, as representatives of management, must make certain good safe practices are followed, have a basic knowledge of Federal or State Safety requirements and set an example for other employees to follow.

The Job Foremen have the following duties and responsibilities:

- 1) Ensuring that the Company orientation is given to all employees starting under himself/herself.
- 2) Instructing employees under his/her supervision in safe work practices and work methods at the time employees are given work assignments.
- 3) Supplying and enforcing the use of proper protective equipment and suitable tools for the job.
- 4) Continuously checking to see that no unsafe practices or conditions are allowed to exist on any part of his/her job.
- 5) Acquainting his/her employees with all applicable safety requirements and seeing that they are enforced.
- 6) Setting a good example for his/her employees.
- 7) Seeing that prompt first aid is administered to an injured employee and that all employees know the locations of first aid stations on site and are familiar with the first aid and emergency procedures.

- 8) Initial investigation of any accident and completion of the Accident Report and any required Witness Statements and submission to the office at, or prior to completion of the work shift during which the accident took place and, further to assist the Superintendent in making a complete investigation of accidents to determine facts necessary to take corrective action.
- 9) Assist the Superintendent in promptly supplying information for completing all the required Accident Report Forms.
- 10) Holding weekly safety meetings (“Tool Box Meetings”) with his/her employees to:
 - a) Discuss observed unsafe work practices or conditions, as well as specific topics provided by Safety Coordinator.
 - b) Review the accident experience of his/her crew and discuss correction of the accident causes. Discuss positives, not just negatives.
 - c) Encourage safety suggestions from his/her employees and report them to the Project Superintendent.
- 11) Immediate reporting to the Project Superintendent of any violations of job safety/security.
- 12) Cooperating with all safety representatives having jurisdiction at the Project site.

THE EMPLOYEE

The employee performing the work must realize that doing the job safely is as much a part of job performance as technical knowledge. Safety rules and laws are for the protection of the worker and for his/her own welfare and must be followed.

Each employee has the following duties and responsibilities:

- 1) Each employee has a duty to take reasonable care to protect the health and safety of himself/herself and other workers present while he/she is working.
- 2) The employee shall cooperate with his/her employer for the purpose of protecting the health and safety of himself/herself, other workers on site and the public on or near the site, and any other personnel on site.
- 3) No employee shall carry out work or operate a tool, appliance or equipment if, on reasonable and probably grounds he/she believes that it will cause an immediate danger to the employee, other workers on site, and any other personnel on site.
- 4) The Project manager reserves the right to remove any employee from the site who appears to be under the influence of alcohol or drugs.
- 5) Employees shall report any injuries to their immediate supervisor without delay.
- 6) Each employee shall ensure that his/her personal protective equipment is in working order. If this equipment is defective in any manner, the employee must inform his/her supervisor to obtain new personal protective equipment.

- 7) Employees must attend and must contribute to the weekly "Tool Box" meetings.
- 8) Employees must cooperate with all safety representatives having jurisdiction at the project sites.
- 9) When arriving at a new site, the employee shall be familiar with the specific site safety rules by completing the on site orientation program. This will also include the locations of the site, first aid station, and any other emergency equipment as required.
- 10) If in doubt about performing a task in a safe and proper manner, the employee must ask his/her supervisor for directions to complete the task in a safe and proper manner.

SAFETY POLICY

It is the policy of the construction company to perform all work in the safest possible manner, consistent with good construction practices. The safety of all employees, the general public and related properties are the responsibility of all personnel.

THREE PRIMARY GOALS

1. To ensure the safest conditions possible exist on all our projects.
2. To prevent accidents from occurring.
3. To promote the immediate care and rehabilitation of our workers.

GOAL 1

To ensure that the safest conditions exist on our projects, all personnel must understand and adhere to the Occupational Health and Safety Act and any other State and Federal regulations that govern a project. The Project Manager reserves the right to remove anyone from a project that causes an unsafe condition to exist.

GOAL 2

Any incident that could have resulted in an accident causing injury or equipment damage is to be reported to supervisory personnel immediately for investigation. All incidents are to be investigated with the emphasis placed on prevention of a similar incident.

GOAL 3

To promote the care and rehabilitation of our injured. It is essential that the best initial medical care and emergency response be available on each project. It is the responsibility of supervisory personnel to ensure that the required first aid facilities are located adjacent to the job. This, coupled with a functional emergency response plan, gives the injured worker a greater chance to return to the work forces with a minimum delay.

SECTION A – SAFETY REGULATIONS

GENERAL SAFETY RULES

- 1) All employees are to ensure that they know how to complete their job in a safe and proper manner. If in doubt, consult your supervisor.
- 2) Report all observed unsafe acts, tools or conditions to your supervisor. Red tag all defective equipment immediately.
- 3) Immediately report all injuries on the job to your supervisor, no matter how small they may seem. If serious, get medical attention immediately.
- 4) Obey all security and safety rules and regulations that are implemented by the Owner and either posted on the job site or otherwise communicated to employees.
- 5) No intoxicating beverages or illegal drugs are to be brought on site. Employees on duty who appear to be under the influence of alcohol or drugs shall be subject to dismissal. Notify your supervisor of all doctors prescribed medication.
- 6) It is the duty of all employees to assist new employees in becoming familiar with the work site and to point out any potential safety concerns to them.
- 7) If an employee has any medical/emotional condition(s) that may affect his/her safe performance on the site, he/she has a duty to inform the supervisor of this condition.
- 8) Obey all warning signs and tags. Warning tags are not be removed from any equipment without proper approval.
- 9) Do not tamper with, alter, or bypass safety devices such as barriers, cones, lockouts, alarms or emergency equipment.
- 10) Obey all traffic lights; you are not exempt just because you are working.
- 11) If an item of protective equipment is required for the job you are doing, consider the proper use of that equipment (hard hats, safety glasses, vests, hearing protection) a condition of employment.
- 12) Sensible clothing must be worn when working on the jobsite. (Minimum - no less than: ANSI Approved HARD HAT, SHORT SLEEVED SHIRT, LONG PANTS, AND ANSI APPROVED SAFETY SHOES).
- 13) Do not operate any equipment unless it is your job to do so and you have been instructed by your supervisor to operate it. Always operate in a safe manner.
- 14) Only employees with valid operator's licenses shall operate Company vehicles and all Company vehicles are to be operated in accordance with the

manufacturer's instructions and applicable municipal and State regulations. The use of seat belts is mandatory in all Company vehicles and equipment.

- 15) Maintain good housekeeping in your area, this will help prevent accidents. Pull or bend all nails in material.
- 16) Special care should be taken when handling chemicals, fuels and oils. Report all chemical, fuel and oil spills to your supervisor (no matter how small).
- 17) All on-site chemical containers must be properly labeled and all employees must become familiar with their proper handling and storage. Read, understand and comply with the Material Safety Data Sheets.
- 18) Use the proper tool for the proper job. If you have any questions, ask your supervisor.
- 19) Wash hands after handling chemicals, and always wash before eating, drinking or smoking. Contamination could be picked up if you fail to do so.
- 20) You will be working very close to the general public; they are not familiar with the hazards of our work so look out for them.
- 21) For safety reasons, the behaviors listed below are not appropriate for the work site and will not be tolerated:
 - a) Running or throwing things.
 - b) Fighting, scuffling or horseplay.
 - c) Gambling or stealing
- 22) Firearms or ammunition are not permitted on-site and are cause for immediate dismissal.
- 23) Only ANSI approved hard hats are allowed on-site.
- 24) Only qualified trained employees are to use power activated tools. High impact safety goggles/glasses must be worn when using any power-activated tools.
- 25) Employees who use chain saws shall also wear safety chaps and safety glasses. Make sure that your footing is good and there are no obstacles (vines, etc.) that would make running the chain saw unsafe.
- 26) Do not use compressed air to blow dust from clothing, never point an open air hose at others. Do not work on air lines while they are under pressure. Shut off all valves and drain the line before working on it.
- 27) All employees shall obey all "No Smoking" regulations and smoke only in areas designated by the company or posted as a "Smoking Permitted" area.
- 28) No holes, trenches or shafts are to be left open at any time unless an employee is present.

- 29) Keep alert around moving equipment. Wear red or orange vests when on the ground; establish eye contact with the equipment operator before you enter the work operation. Never assume the operator sees you or knows what you are about to do. Never park vehicles directly behind equipment; stay back 200 feet.
- 30) Lift correctly; use your legs - not your back. Get help for heavy lifts or use equipment to move the object.
- 31) Be alert for pinch points when setting chokers or winch cables, when working around articulating equipment such as loaders, backhoes or cranes.
- 32) Never oil, grease or crawl under a running piece of equipment. Shut it off and lock it out until your work is finished.
- 33) Know where First Aid Kits and fire extinguishers are located. Fill out First Aid Logs, where required.
- 34) Correct unsafe acts or conditions immediately, or report them to your supervisor. The first rule of safety is "Never walk past an unsafe act or condition, stop and correct it".
- 35) All work over 6 feet above the ground requires scaffold and handrail, or the use of a safety lanyard.
- 36) Climb down from equipment - do not jump.
- 37) Use tag lines on all suspended loads.
- 38) When excavating, the material will be slick and grades steep. Proper use of brakes and retarders and safe traveling speeds will reduce the possibility of an accident.
- 39) Roads will be narrow and turnouts may be necessary. The empty vehicle will yield to the loaded vehicle.
- 40) When in the vicinity of the backhoe, watch for the bucket and the house when swinging. Make sure that the operator knows where you are.
- 41) Use horn signals when operating trucks. Two blasts for forward and three blasts for backing.
- 42) Do not get off equipment until all attachments are on the ground and the parking brake is set.
- 43) Do not park on steep ground. Block tires or use berms for parking.
- 44) When getting off of equipment, be alert for slippery or uneven ground next to the equipment.

- 45) Ear protection shall be worn by all operators of dozers, loaders and backhoes. Employees using chain saws, chipping and jackhammers shall also wear ear protection.

FLOOR AND WALL OPENINGS

- 1) Every floor or roof or opening must be protected with secured covers, guardrails or barricades to prevent accidental falls.
- 2) Every wall opening 30 in. x 18 in. or larger must be protected with guardrails and toe-boards, as per applicable OSHA Standards.
- 3) Immediately replace any barricades or other protection temporarily moved for work operations.

HOUSEKEEPING AND CLEAN UP:

Guidelines to follow:

- 1) Housekeeping and clean up is the responsibility of all employees.
- 2) Working areas are to be kept free from all debris and waste materials.
- 3) Nails protruding from lumber, boxes or barrels are to be pulled out or bent over.
- 4) Scraps of wire, welding rod, wood, nuts, washers and bolts should not accumulate. Remove them frequently and place them into proper containers.
- 5) Return all tools and other equipment to proper places after use.
- 6) Store oily rags, paint and other containers that have contained flammable liquids, carefully. They can cause fire. Use approved containers with lids.
- 7) Avoid spilling liquids. Wipe up all spills immediately.
- 8) Keep change rooms (Lunch Rooms) clean and free of debris.
- 9) Help keep toilets, washrooms, drinking fountains and lockers clean and sanitary. They are for your convenience and comfort.
- 10) The Job Foremen are to check with the Project Superintendent or Safety Coordinator prior to storing or disposing of containers of hazardous chemicals.

SAFETY EDUCATION AND TRAINING PROGRAM

These safety policies are to be used in conjunction with the corporate training program.

The aim of the corporate training is to promote safe working practices through the education of our workers in the procedures and equipment that is used in the construction industry. Employees shall participate in training programs prior to any exposure to respective types of hazards.

The corporate training program will be developed and implemented by the Safety Coordinator with the following topics as priority:

1. Employee Orientation
2. Hazard Communication Training
3. Fall Protection
4. Hoisting - (Erection and Maintenance)
5. Excavations

SECTION C- ACCIDENT INVESTIGATIONS/INDUSTRIAL INSURANCE CLAIMS

ACCIDENT INVESTIGATIONS

An accident is any unplanned and unwanted event which results in damage or injury or which could have resulted in damage or injury. Every accident is the result of a combination of causes. The purpose of an investigation is to find the causes so that corrective action can be taken to prevent a recurrence.

OSHA must be notified within 8 hours:

- Of any fatality resulting from an industrial accident
- In cases when 3 or more employees are hospitalized as a result of an accident

In the case where an accident results in an injury to any employee or other person, or to any vehicle, equipment or other property:

The Project Manager has the following duties and responsibilities:

- a) Ensure notification of all required agencies is complete as outlined in the applicable appendix of this manual.
- b) Assign a staff member to ensure that the investigation and the Accident Investigation Report are complete.
- c) Review all accident reports and ensure that preventative measures have been put in place.

The Project Engineer has the following duties and responsibilities:

- a) Ensure the injured workers receive the appropriate first aid.
- b) Activate the Emergency Response Plan as required.

The Project Superintendent has the following duties & responsibilities:

- a) Take immediate action to prevent further injury to workers and property.
- b) Coordinate the accident investigation ensuring that all Federal and State regulations are met.
- c) Review the Accident Investigation Report and in cooperation with the site staff, ensure that the proper preventative measures are put in place.
- d) Ensure that the proper reports are completed and forwarded to the Safety Coordinator.
- e) Review the accident cause and preventive measures during Safety Meetings.

- f) Ensure all witnesses complete a Witness Statement (Form 5B).
- g) Submit a copy of the completed Accident Reports to the Project Manager.

The Job Foreman has the following duties and responsibilities:

- a) Provide or arrange for immediate first aid to any injured worker and ensuring that no further injuries occur.
- b) In conjunction with the Project Superintendent and Safety Coordinator, complete the Accident Report (Form 5A).
- c) Review the accident and preventive measures with his/her crew.

The Employee has the following duties and responsibilities:

- a) Taking immediate action to prevent injury to himself/herself and when safe to do so, assist any injured worker.
- b) Assist the Foreman as required.

SPECIFIC POINTS WITH REGARD TO ACCIDENT INVESTIGATIONS

1. Take control of the scene and reassure the injured party.
2. Never leave an injured person alone!
3. Ensure that any injured person is cared for and an ambulance is called, if necessary.
4. Examine equipment/materials involved.
5. Interview people involved - all witnesses should be interviewed alone and signed statements obtained.
6. Analyze all available information to determine the causes.
7. Look for all causes; including all workers, equipment or system error or malfunction.
8. Ensure adequate photographic records are compiled.
9. Determine what corrective action will prevent recurrence.
10. Complete the Accident Report (Form 5A) and submit it to the Safety Coordinator by the end of the work shift during which the accident took place.

MINOR INJURIES

All injuries, no matter how minor, should be given first aid and a notation made in the First Aid Log and the Job Foreman's Site Report regarding who-when-where and treatment. Minor accidents can become major accidents. All accidents should be investigated, the cause determined and corrective action taken to prevent recurrence.

SECTION D – “RIGHT TO KNOW” CHEMICAL HAZARD COMMUNICATION

1. POLICY STATEMENT

In order to operate safely and productively, we must use certain materials that require specific precautions to be taken to protect our employees' health. Therefore, it shall be the established policy to communicate any hazards associated with handling hazardous materials to employees involved in those operations.

It will be the responsibility of management and supervisors to ensure that the proper information is obtained and disseminated to the appropriate employees.

It will be the employee's responsibility to follow safe practices as outlined in the Material Safety Data Sheets, labels or operating procedures.

This Hazard Communication Program is intended to supplement our normal safety activities.

The effectiveness of the Hazard Communication Program depends upon the active support and involvement of all personnel.

2. RESPONSIBILITIES

The following responsibilities are not all-inclusive but are designed to give guidance and initial program development. Since every jobsite is different, these responsibilities may vary as particular circumstances require.

This procedure is intended to cover those employees who are directly involved with handling of hazardous materials or supervision of those activities.

SAFETY COORDINATOR & CONSULTANT

- a. Ensure all management personnel are aware of the Hazard Communication Program.
- b. Periodically audit the Hazard Communication Program's progress.

SUPERINTENDENT

Jobsite management must ensure the following responsibilities are accomplished. The Safety Consultant is available for assistance and advice.

- a. Review operations to determine which jobs require hazard communication training.
- b. Follow up to ensure supervisors are carrying out prescribed Company policy.

- c. Provide and document training of employees in their handling of hazardous materials, and ensure up-to-date records are maintained on such training.
- d. Keep an up-to-date file of all Material Safety Data Sheets in the field office.
- e. Maintain an inventory of all hazardous chemicals to which employees may be exposed at the jobsite. This list must be dated and kept with Material Safety Data Sheets.
- f. Periodically review work areas for compliance with Company policy.
- g. Audit all records annually to ensure the most current Material Safety Data Sheets are on file and employee training is documented.
- h. Coordinate emergency procedures and Fire Department activities related to hazardous chemicals.
- i. Notify employees of any non-routine tasks that include hazardous materials.
- j. Ensure employees receive a copy of the Hazardous Communication Program and are informed where these hazardous chemicals are being used.

FOREMAN

- a. Identify all jobs or tasks requiring the use of hazardous chemicals, and list those chemicals.
- b. Maintain a file of Material Safety Data Sheets at the jobsite for hazardous chemicals that are used. Ensure they are available for review by employees using these materials.
- c. Explain safe use of hazardous chemicals to workers. Train them in safe use.
- d. Inspect engineering controls and personal protective equipment according to the required schedule.
- e. Make routine survey of the work areas to ensure compliance with hazardous materials regulations.
- f. Ensure required labeling practices are being followed. All hazardous chemical ingredients must be identified. Warnings of physical and health hazards must be adequate. When hazardous chemicals are transferred into portable containers, these must be labeled with contents and precautions.
- g. Enforce applicable safety and health rules and the Hazard Communication Program.

INDIVIDUAL EMPLOYEE

- a. Obey established safety rules.

- b. Use personal protective equipment as required by Company procedure.
- c. Inform your supervisor of:
 - 1. Any symptoms of over-exposure that may possibly be related to hazardous chemicals.
 - 2. Missing labels on containers.
 - 3. Malfunctioning safety equipment.
- d. Use approved labels on the containers. Never remove labels.
- e. Do not use unapproved containers for hazardous materials.
- f. Know the location of emergency equipment, First Aid supplies, emergency eyewash, etc.
- g. Know your role in emergency procedures.

3. TRAINING

All employees must be given a general overview of the Hazard Communication Program.

Training for employees who are required to handle hazardous chemicals will include, as a minimum the following areas:

- a. The Federal Hazard Communication Law.
- b. Identification of the hazardous chemicals to which employees are exposed.
- c. The availability and location of this written Hazard Communication Program (including list of chemicals) and Material Safety Data Sheets.
- d. The methods and observations that can be used to detect hazardous chemicals in the work place.
- e. Any physical or health hazards associated with the use of the hazardous chemical or mixture used in the work area.
- f. First Aid treatment.
- g. How to read Material Safety Data Sheets.
- h. Use of personal protective equipment.
- i. Proper operating procedures.
- j. Emergency procedures.

- k. Employee Rights under the Act.
- l. Hazards of chemicals to workers involved in non-routine tasks such as in confined space entry and the cleaning, maintenance, and repair of equipment.

4. MATERIAL SAFETY DATA SHEET (MSDS)

Material Safety Data Sheets are intended to outline the special precautions and controls necessary for handling hazardous materials.

- a. Each supplier of hazardous materials will be contacted and a MSDS will be obtained.
- b. A jobsite file will be maintained by the Safety Director.
- c. A hazardous chemical shall not be used unless the MSDS is in that jobsite file.
- d. Upon request, the MSDS will be immediately provided to any employee, employee's representative, physician, or representative of OSHA.
- e. An MSDS must be provided to other employers or subcontractors if their employees are exposed to hazardous chemicals. They, too, must receive training.

5. EMERGENCY RESPONSE

- 1. Any incident of over exposure or spill of a hazardous material must be reported to project management at once.
- 2. The project management team will be responsible for insuring that proper emergency response actions are taken in leak/spill situations.

6. PERSONAL PROTECTIVE EQUIPMENT

Required personal protective equipment is available from the project foreman. Any employee found in violation of personal protective equipment requirements may be subject to disciplinary actions up to and including discharge.

7. HAZARDS OF NON-ROUTINE TASKS

- 1. Supervisors will inform employees of any special tasks that may arise which could involve possible exposure to hazardous materials.
- 2. Review of safe work procedures and use of required personal protective equipment will be conducted prior to the start of such tasks. Where necessary, areas will be posted to indicate the nature of the hazard involved.

8. INFORMING OTHER EMPLOYEES

- 1. Other on site employees are required to adhere to the provisions of the hazard communication standard.

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

3. Other on site employers will be provided with a copy of our hazard communication program.

9. HAZARD MATERIAL SAFETY

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

a. Ensure Material Safety Data Sheets are received with initial shipment of a hazardous material.

b. Ensure labels are affixed to containers.

c. Store hazardous material in designated locations.

d. Use prescribed personal protective equipment when handling hazardous materials.

e. Report damaged containers or spills to the appropriate personnel immediately.

10. HAZARD COMMUNICATION

Required activities under the Standard may be categorized under the following headings:

- 1) Hazard Determination - Inventory
- 2) Material Safety Data Sheets - MSDS
- 3) Labels
- 4) Written Hazard Communication Program
- 5) Employee information & training
- 6) Unlabeled Pipes
- 7) Contractor Employees

A hazardous chemical means any chemical that is a physical hazard or health hazard.

Health hazard means a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals which are carcinogens, toxic, or highly toxic agents, reproductive toxins, irritants, corrosives, sensitized, hepatoxins, nephrotoxins, neurotoxins, agents which act on the hemotopoietic system, and agents which damage the lungs, skin, eyes or mucous membranes. Appendix A provides further definitions and explanations of the scope of health hazards covered by this section, and Appendix B describes the criteria to be

used to determine whether or not a chemical is to be considered hazardous for purposes of this standard.

Physical hazard means a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable or organic peroxide, or oxidizer, pyrophoric, unstable (reactive) or water-reactive.

MATERIAL SAFETY DATA SHEET ("MSDS")

The standard does not require that the MSDS be uniform in format, however, the following information must be included:

- Identity of the chemical
- Physical and chemical characteristics of the hazardous chemical
- Known acute and chronic health effects and related health information
- Exposure limits
- Whether the chemical is considered to be a carcinogen
- Precautionary measures
- Emergency and first aid procedures
- Identification of the organization responsible for preparing the MSDS
- Employee Training

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

- 1) Information on the hazard communication standard including:
 - a. An explanation of material safety data sheets (MSDS)
 - b. Labeling and warning systems
- 2) The location of hazardous materials that the employee may be exposed.
- 3) The properties of hazardous materials to which the employee may be exposed including the material's physical state, color, odor, etc.
- 4) The name or names of the substance, including the generic name, chemical name and/or trade name.
- 5) The level at which exposure to the substance is hazardous.
- 6) The symptoms of overexposure to a hazardous material and the appropriate medical emergency treatment.
- 7) The potential for flammability, explosion and reactivity of the substance.
- 8) Methods that may be used to detect the release of a hazardous material in the workplace.
- 9) The physical and health hazards associated with hazardous material.

10) The proper procedure for handling hazardous materials including information/instruction regarding the wearing of the appropriate personal protective equipment.

11) The proper emergency response actions to be taken in the event of a leak/spill situation.

LABELS

Each container of hazardous chemicals in the workplace will be labeled with the following information:

Identity of the hazardous chemical

Appropriate hazard warning

Name and address of the chemical manufacturer, importer, or other responsible party

Labels must be in English and may not be removed or defaced.

UNLABELED PIPES

Information regarding the hazards associated with materials contained in unlabeled pipes will be provided by owner.

OTHER CONTRACTORS

1. All other contractors will be advised of any chemicals that may be encountered.
2. All other contractors will be advised of any labeling, protective equipment and handling procedures.
3. All other contractors will be informed of the location of this program and all MSDS sheets.
4. All other contractors bringing hazardous chemicals onto the site must provide hazard information prior to the start of the job.

MSDS AT A GLANCE
Material Safety Data Sheet

A Guide for using a MSDS

IDENTIFY THE PRODUCT:

Trade Names
Chemical Name

Synonyms
Manufacturer's Name and Address

Composition Materials making up more than 1% of a mixture or 0.1% for recognized carcinogens.

Mixtures For acid or bases; refer to pH. If a component is a carcinogen or
a sensitizer, even very low concentrations are
important.

EVALUATE THE TOXICITY:

In the workplace, chemical exposures are not continuous so allowable limits are based on the Time Weighted Average (TWA) exposure for 40 hours per week. OSHA regulates air concentrations, but not skin exposure or ingestions.

Air Concentration is measured in several ways:

mg/m³ = milligrams per cubic meter of air (compared to 10 mg/m³ for non-toxic "nuisance" dusts)

ppm = parts per million in air

fcc = fibers (of asbestos) per cubic centimeter

Based on the toxicity of a chemical, several groups recommend maximum safe TWA air concentrations. These protect the average worker from recognized effects.

PEL Permissible Exposure Limit - legal limit

TLV Threshold Limit Value - recommended by ACGIH

STEL Short Term Exposure Limit maximum for a 15-minute excursion recommended by ACGIH

Ceiling Instantaneous maximum concentration

Carcinogens Several organizations evaluate information to determine whether a chemical is a carcinogen.

NTP U.S. National Toxicology Program

IARC International Association for Research on Cancer

ACGIH American Conference of Governmental Industrial Hygienists:

- Ala Human Carcinogen with an assigned TLV;
- Alb Human carcinogen, avoid all contact;
- A2 Suspect human carcinogen

HEALTH EFFECTS OF OVEREXPOSURE

This is the most direct source of toxicity information. Although chronic and acute effects of overexposure cannot be designated as trace secrets, this section is often incomplete.

HOW ARE YOU EXPOSED?

Routes of Exposure

SKIN EXPOSURE:

(Skin) a ACGIH designation following the TLV that indicates that skin absorption is primary route to exposure.

Solubility Water-soluble materials will not penetrate the skin quickly, while materials which are soluble in oil or organic solvents will rapidly enter the blood through the skin. Solubility will also effect how the chemical distributes within your body. Oil soluble chemical will concentrate in body fate and fatty organs like the brain, nerves and tests.

pH This indicates how acidic or caustic a mixture is. The range is from 1 (strong acid) to 14 (strong caustic) with 7 being neutral. Your skin is slightly acidic (pH=6.5), but will be damaged by prolonged exposures to mixtures with pH's of less than 5 or greater than 9. Caustic burns are usually more severe.

INHALATION:

How much of a volatile liquid you can inhale depends on its air concentration. The higher the air concentration, the greater the inhalation hazard. The evaporation can be characterized in several ways:

Vapor Pressure - Fraction of vapor in saturated air at a standard temperature. A vapor pressure of 20mmHg (millimeters of mercury) at 25⁰C means that with a temperature of 25⁰C, the fraction of vapor in the air is 20/760=2.6%. 760mmHg is the air pressure at sea level. Vapor pressure increases as the temperature is raised. Room temperature = 25C⁰.

Percent Volatile - Percent of a mixture that will evaporate.

Evaporation Rate/Volatility - Measured in comparison to another solvent. Greater than 1.0 is faster than standard solvent such as acetone or heptane.

Vapor Density - Weight per unit volume of a vapor. Vapor that is heavier than air (Density>1) will sink, resulting in high exposures in pits and below the level of the container. Vapor that is lighter than air (Density<1) will rise. Ventilation design should consider this factor.

Odor - ("Olfactory Threshold") - Concentration in air which you can smell the chemical. Is it above or below the PEL?

Physical Form (Dust vs. Liquid) - Can you inhale the material?

INGESTION:

Contaminated food or transferring material from your hands to mouth can result in significant exposure. Avoid smoking, eating, or keeping your lunch in an area where chemicals that represent ingestion hazards are handled.

HOW TO PREVENT HEALTH EFFECTS:

Protective Equipment - Discusses recommended respirators, gloves, etc. Training, or regular maintenance and fit tests may be required for some types of protective equipment. If the manufacturer does not specify type of equipment adequately, ASK.

First Air - In general; remove the source of exposure as quickly as possible. Fresh Air. Wash off skin.

Spill and Leak Procedures - Should be planned in advance and available in writing.

Extinguish Media and Fire Hazards - Should ignition sources and cigarette smoking be restricted? Are escape routes and fire control equipment adequate?

HOW MIGHT PROCESSES OR ACCIDENTS MODIFY HAZARDS?

Incompatibility - Materials that you should not allow to mix with or contact the product. A common example is chlorine bleach and acidic toilet cleaners that will release poisonous gas when mixed.

Hazard Decomposition Products - Products that are formed when the material is burned or breaks down, e.g. when you inhale the vapors through a burning cigarette. For example, Teflon™ releases poisonous hydrogen fluoride gas when burned. Smoking may be prohibited to prevent inhalation exposure to these materials.

SECTION E – PERSONAL PROTECTIVE EQUIPMENT (PPE)

GENERAL REMARKS

OSHA has finalized its updated rule on personal protective equipment (PPE), which went in effect on July 5, 1994. This standard has been adopted for General Industry and we will be carrying over its main principles for this project.

Under the new provisions of the standard, the Project Manager will be required to perform work place hazard assessment to determine the presence of hazards that necessitates the use of PPE. The developer then selects appropriate equipment to protect employees from those hazards. In addition, the developer will educate and train all affected employees in the proper use and maintenance of PPE. Each such employee shall be trained to know at least the following:

- When PPE is necessary
- What PPE is necessary?
- How to properly don, doff, adjust and wear PPE
- The limitations of PPE
- The proper care, maintenance, useful life and disposal of the PPE

It is necessary to remember, that PPE devices alone should not be relied on to provide protection against hazards, but should be used in conjunction with safeguards, engineering controls, sound operating practices, discipline and common sense.

Eye and Face Protection.

Each affected employee shall use appropriate (ANSI Z87.1-1989) eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acid or caustic liquids, chemical gases or vapors or potentially injurious light radiation. (Consult MSDS for chemical eye protection requirements).

Eye protection that provides side protection shall be used when there is a hazard from flying objects or particles.

Each affected employee who wears prescription lenses shall wear eye protection that incorporates prescription in its design, or shall wear eye protection that can be worn over the prescription lenses without disturbing the proper position of prescription lenses or the protective lenses.

Each affected employee shall use filter lenses that have a shade number appropriate for protection from injurious light radiation (see table at the end of this section).

Head Protection

Each affected employee shall wear protective helmets when working in the areas where there is a potential for injury to the head from falling objects or low overhead clearances.

Employees working near exposed electrical conductors should wear protective helmets designed to reduce electrical shock hazard.

Protective helmets purchased after July 5, 1994 shall comply with ANSI Z89.1-1986.

Foot Protection

Each affected employee shall wear protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and where employee's feet are exposed to electrical hazards.

Protective footwear purchased after July 5, 1994 shall comply with ANSI Z41-1991.

Hand Protection

The Developer shall select and require employees to use appropriate hand protection when employees' hands are exposed to hazards such as those from skin absorption of harmful substances (consult MSDS), severe cuts and lacerations, abrasions, punctures, chemical or thermal burns and harmful temperature extremes.

Hearing Protection

Hearing protection is required where noise level equals or exceeds exposure levels defined in section 16 of this Manual.

RESPONSIBILITIES

The Project Superintendent has the following duties and responsibilities:

- a) The Project Superintendent shall ensure that there is proper ANSI approved PPE on-site.
- b) The Project Superintendent shall ensure that all Foremen are aware of the Company policy on PPE and enforce the same.
- c) Procuring ANSI approved PPE that meet the specific job requirements.
- d) Establish a site-specific education program with regard to PPE.
- e) Enforce the use of PPE when required.

The Job Foreman has the following duties and responsibilities:

- a) Ensuring that his/her crew is supplied with adequate PPE.
- b) That his/her crew wears the supplied PPE when necessary.

The Employee has the following duties and responsibilities:

- a) Using the supplied PPE when required.
- b) Maintaining the same in good condition.

SECTION F – FALL PROTECTION

Fall Restraint and Fall Protection

FACT: Falls are one of the leading causes of work-related fatalities in the United States.

FACT: Fall protection is one of the most frequently cited violations by safety and health compliance inspectors at construction sites.

FACT: A safety program that employees take seriously can prevent falls.

There must be two guiding principles in a fall protection program: Fall Restraint and Fall Arrest. This section of the Company Accident Prevention Program constitutes the required written fall protection work plan.

GENERAL RULES

Any employee exposed to fall hazards of 6 feet or more who is not protected by a handrail must use an approved safety harness/belt, lanyard or lifeline, horizontal lines, catenary lines, or other approved means of protection unless covered by the OSHA Steel Erection Standard (29CFR1926 Sub part R). Approval should come from the project superintendent.

More than one approved fall protection system may be used.

Employees must use positive fall restraint or fall arrest at all times where employees are working at heights greater than 6 feet. Situations where fall restraint or fall arrest is necessary include, but are not limited to:

- * Within 6 feet of roof or leading edge
- * Scaffolds without handrails
- * Boatswain's chairs
- * Elevated loading doors or docks
- * Steep slopes
- * Floats
- * Swinging stages
- * Equipment and structures

Where wall openings are lower than 3 feet above working surface and there is a drop of more than 4 feet, they must be guarded with a standard and intermediate guardrail.

A standard guardrail should guard open-sided surfaces 4 or more feet above the adjacent floor or ground level.

Where dangerous equipment, chemical tanks, or similar hazards exist next to open-sided work areas, guardrails should be installed regardless of height.

Fall restraint and protection equipment must be inspected each time an employee puts it on to ensure the equipment is not flawed, worn out, or in any other condition

which could diminish equipment effectiveness--if fall restraint or fall arrest equipment is damaged, it may not work. Damaged equipment should be turned in to a supervisor.

A site supervisor or designated safety person should inspect the work area each morning with a checklist to see if there are any potential hazardous areas. Remove the hazard before beginning work.

Materials and debris should be removed so employees cannot trip or cause material and debris to fall through holes and endanger employees working below.

Access paths should always be kept clear to allow safe and efficient passage.

Employees must always pay attention to their working environment.

- Be responsible for your own safety--make sure you are aware of all potential fall hazards.
- Don't distract other employees, or let them distract you.
- Be alert for slippery conditions--not just snow and ice in cold weather, but for wet floors, spills, etc.
- Keep the bottom of your shoes free from oil or other substances that may contribute to a fall.

FALL RESTRAINT PROTECTION

Fall restraint protection consists of:

- Standard guardrails
- Safety belts/and or harnesses attached to securely rigged lanyards
- Safety monitor system

Note: Body belts are not acceptable as part of a fall arrest system.

All aspects of fall restraint equipment must be inspected prior to each use. Look for mildew, signs of wear, damage, and other deterioration. If fall restraint components' function or strength have been affected, remove the defective components and dispose of them where no employee would accidentally use them.

Safety belts and lanyard assemblies must be capable of withstanding a tensile loading of 4,000 pounds without cracking, breaking or taking any other type of permanent damage.

All fall restraint anchorage points must be able to support four times the intended load.

Do not use rope grab devices for fall restraint unless they are part of a complete fall restraint system designed for this purpose by a manufacturer.

Always use all the correct fall restraint components together per manufacturer's recommendations and instructions. Employers must ensure all components are compatible.

Install guardrails around exposed openings, such as open areas in walls or floors.

- Guardrails must have top rails, mid-rails and toe-boards.
- Employees should never lean against guardrails.
- The job supervisor should be familiar with correct guardrail specifications and standards.

Floor holes must be covered.

- The cover or guard should be flush to the floor and able to support four times the maximum intended load.
- Post a sign that clearly states the potentially hazardous spot has a temporary cover.

A warning line system may be used for guarding low-pitched roof perimeters.

- Warning lines should be erected around all sides of the work area.
- The warning lines should not be erected any closer than 6 feet from the edge of the roof. When mechanical equipment is being used, the warning line must be 15 feet from the roof edge that is perpendicular to the direction of the mechanical equipment.

The warning line may be built of rope, wire, or chain supported on stanchions able to withstand a force of 16 pounds applied horizontally to the stanchion at 30 inches above roof.

- The line itself should be flagged at not more than 6-foot intervals with a high visibility material.
- The line should sag no less than 39 inches from the roof surface. The maximum height of the line should be no more than 45 inches.
- Slack in the line cannot be taken up in adjacent sections if a stanchion tips over.

If the Company uses a warning line system, supplemented with a safety monitor system, it must conform to regulations.

The warning line and safety monitor system can be used to protect employees working between the forward edge of the warning line and the leading edge of a low-pitched roof.

The warning line and safety monitor system cannot be used on surfaces exceeding a 4-in-12 pitch, or any surface with dimensions less than 45 inches by 45 inches. The warning line and safety monitor system cannot be used on unprotected sides and edges, but only on the leading edge of a low-pitched roof.

For a leading edge, there will be one safety monitor for every eight workers.

- If the supervisor uses this method, the codes must be strictly followed.
- The monitor will have no duties other than keeping watch at and around the leading edge, monitoring no more than eight employees.

FALL ARREST PROTECTION

Full body harness

- The harness should be worn at all times when an employee is exposed to a fall hazard.
- The harness must be worn per the manufacturer's directions and specifications.
- A designated employee should instruct all new employees in how to correctly put on, take off and store the harness.
- If an employee falls, the harness worn during the fall may not be effective for future falls. A qualified person should inspect the harness to determine whether the harness should be thrown out per manufacturer's recommendations.
- Each employee should periodically inspect his/her safety harness. Any defect such as worn areas or broken straps or snaps should be reported to the supervisor immediately.

Lanyard or lifeline used with the harness

- Lanyards should be connected to the belt by a double-action snap hook. There should be only one snap hook per "D" ring.
- Snap hooks should not be connected to each other.
- Lanyards, vertical drop lines, and horizontal drop lines must have a minimum tensile strength of 5,000 pounds.
- Self-retracting lanyards and lifelines that automatically limit free-fall distance from less than 2 feet should have a minimum tensile strength of 3,000 pounds.
- Lanyards should be periodically inspected for damage, wear, snags, etc. Employees with damaged or worn equipment should report to a supervisor immediately.
- Lanyards worn in a fall cannot be used again.
- Only one employee should be attached per vertical lifeline--two's a crowd.
- Make sure the lanyard or lifeline is not worn down or exposed to sharp objects on the job. This could cause a lanyard to unexpectedly break.

Safety nets

The net should not be lower than 10 feet beneath the working surface. There should be enough clearance room underneath the net so if an employee falls into the net he/she won't bounce to the ground.

The net should extend out at least 8 feet from the furthest projection of the working surface.

Don't automatically trust the safety net--each day before the first employee goes up to the working area, drop test a 400 pound bag of sand from the highest surface where employees will be working.

If materials or tools fall into the net, have an employee remove them immediately. The nets should be constructed per industry standards--the mesh should not exceed 36 square inches, or be longer than the 6 inches. The net border should be capable of supporting 5,000 pounds.

Catch Platforms

The platform should be constructed to easily support an employee in case of a fall. The platform must be built no more than 10 feet below the working space. The width of the platform must be the same distance of the fall, but even if the potential fall hazard is only 36 inches, the platform must be at least 45 inches wide. The platform must have standard guardrails on all open sides (see guardrail construction).

Safety harnesses, lanyards, lifelines or drop lines, independently attached, must be used for the following jobs if other equivalent protection is not provided:

Work in hoppers, bins, silos, tanks, or other confined spaces.
Work on hazardous slopes, dismantling safety nets, working on poles, working on boatswain's chairs at heights over 6 feet, swinging scaffolds, or other unguarded locations.

GUARDING LOW-PITCHED ROOF PERIMETERS

When employee's work on low-pitched roofs with a potential fall hazard greater than 10 feet, one or more of these methods must protect them from all unprotected sides and edges of the roof:

Fall restraint or fall arrest systems explained in the previous sections.
Warning line and safety monitor system, erected around all sides of the working area.
Employees working on low-pitched roofs should not store mechanical equipment in areas protected only by a safety monitor.

Employees are not required to use fall restraint or fall arrest systems at access points, such as stairways, ladders and ramps or when an employee is on a roof to inspect, investigate or estimate roof level conditions.

Rig all fall restraint systems so employees can move only as far as the edge of the roof.

Access points, materials handling areas, and storage areas must be connected to the working area by an access path marked with two standard warning lines. When the access is not being used, place a rope, wire or chain of the same strength and size as the warning line across the access path.

Roof edge materials handling and storage areas with a ground-to-eave height of over 10 feet must be protected from falling.

Do not store materials within 10 feet of the roof edge unless there are regulation guardrails installed at the roof edge.

Guardrails must be at least 4 feet on each side of the access path when they are used at hoisting areas.

Place a chain over the access path opening when no one is hoisting materials.

Do not attach safety belt or harness systems to the hoist.

LEADING EDGE CONTROL ZONE REQUIREMENTS

When employees work near a leading edge, the Company must establish a control zone.

The control zone must be established at least 6 feet back from the leading edge to protect employees who are not protected by fall arrest and fall restraint systems.

Put up standard warning line to separate the control zone from other work areas.

Each line has to be flagged or marked with a high-visibility material at intervals no wider than 6 feet.

The lines must have a minimum tensile strength of 500 pounds, and stanchions must be capable of resisting a force of 16 pounds without tipping over.

The employer can use a safety monitor in conjunction with a warning line system to guard against falls only when working on low-pitched roof or leading edge. Do not use a safety monitor system if weather conditions create additional hazards.

The supervisor must make sure this and other special systems are thoroughly addressed in any job-specific fall protection work plans.

The safety monitor must be trained in both safety monitor and warning line systems, and have control authority over work that relates to fall protection. The crew must easily recognize him by a special type of clothing, and do no other work except monitor the fall hazard. Other employees must be able to easily hear the safety monitor's voice and have a clear, unobstructed view of the monitor.

A safety monitor can only supervise eight employees at a time.

STAIRWAYS

Stairways pose a significant trip hazard to employees. The Company requires all personnel to exercise caution while using jobsite stairways.

GENERAL REQUIREMENTS

Employees should always use extra caution while climbing or descending stairways.

The Company will install adequate permanent or temporary stairways in all building or structures that are two or more stories or 24 feet or more in height or depth.

Stairways will have a minimum width of 30 inches and be equipped with handrails, treads, and landings.

Temporary stairs will have landings of at least 30 inches wide in the direction of travel on each level floor.

There should never be less than one landing for every 12 feet of vertical rise on temporary stairs.

The Company will provide stairways, ramps or ladders at all points where there are frequent break elevation of 19 inches or more in a heavily traveled passageway, entry or exit.

For buildings over three stories or 36 feet, the Company will provide at least two stairways.

Where there are two stairways and employees are performing work in the stairways, one of the stairways must be clear at all times for access between levels.

Employees should watch where they place their feet while using stairs.

Transport heavy or bulky loads away from stairways, or by means other than carrying them up or down a stairway.

Report a loose or missing handrail or tread to a supervisor immediately. If it is possible to temporarily connect the handrail, correct the hazard prior to reporting it.

Pick up all debris lying on a stairwell --even if it is not your mess.

Employees are not permitted to drag cords or loose materials in stairways. Package or coil materials so they can be carried safely without dragging.

Slippery materials, such as drywall mud or oil, should be cleaned up immediately after they are spilled.

If materials pose a trip hazard while employees are walking in stairways, the stairways should be closed.

The Company may use a safety monitor system to warn employees of hazardous stairway conditions if a particular stairway is the only access or if it cannot be closed.

STAIRWAY MAINTENANCE

Stairway components cannot have hazardous projections, such as protruding nails.

Keep stairway areas free of debris and other loose materials.

Slippery conditions on stairs must be eliminated as quickly as possible.

STAIRWAY CONSTRUCTION CHARACTERISTICS

Stairway components cannot have hazardous projections, such as protruding nails.

Keep stairway areas free of debris and other loose materials.

Slippery conditions on stairs must be eliminated as quickly as possible.

STAIRWAY CONSTRUCTION CHARACTERISTICS

Fill all permanent steel or other material stairways and landings with hollow pan-type tread to the level of the nosing with solid material.

This requirement does not apply during actual stairway construction.
After constructing the stairways, fill pans as soon as possible.
Secure all metal landings in place before filling.

All stair rise heights and tread width should be uniform.

This includes any foundation structure used as one or more treads of the stairs.

Temporary stair wooden treads must be built with full width.

Temporary stair landings should not be any less than 30 inches in the direction of travel at every 12 feet of vertical rise.

The Company will not permit spiral stairways, except for limited use and for secondary access situations where it is not feasible to install a temporary stairway.

Equip all winding stairways with a handrail, offset in such a way as to prevent employees from walking on parts of the treads less than 6 inches wide.

BUILDING TYPES

Wood frame building requirements

A stairway to a second or higher floor is completed prior to raising the studs to support the next higher floor.

A safe means of access and egress to roof and attic work areas, such as stairways, ramps or ladders.

Cleats will not be nailed to studs to provide access to and egress from roof or other work areas.

Steel frame building requirements

Stairways to extend to the uppermost floor that has been planked or decked.
Above that point, employees can use ladders.

Reinforced concrete or composite steel-concrete building requirements

Stairways to extend to the lowest floor, where a complete vertical shoring system is in place.

A minimum of two ladders at different locations for each floor.

Ladders can be used above elevations up to three floors above the completed shoring, but should not exceed to three floors.

In areas where space is limited, "ship's ladder" stairs may be used as employees use them per both the manufacturer's recommendations and the following requirements:

The stairs must be installed at an angle of 70 degrees or less.

The stairs must have a handrail on each side.

The stair must be able to withstand a minimum uniform load of 100 pounds per square foot with a design factor of 1.7.

The treads must be capable of carrying a minimum concentrated load of 300 pounds at the center of the tread-span or exterior arc with a design factor of 1.7.

If the stair is intended for a heavier load, its construction must allow for that loading.

STAIRWAY RAILINGS AND GUARDS

Throughout this section stair railings must have:

Similar construction to a standard railing.

A vertical height of between 30 inches and 34 inches from the upper surface to the top rail to the surface of the tread in line with the riser face at the forward edge of the tread.

A toe-board made of a substantial material with a vertical height no less than 4 inches from its top edge to the level floor, platform, and runway or ramp where a toe-board is required to protect workers below.

Paneling or screening from the floor to the intermediate or top rail when materials are piled high enough that the toe-board does not provide adequate protection

A railing similar to that of a standard guardrail, except it will be mounted to a wall or partition and will not have an intermediate rail.

A smooth surface on the top and both sides of the handrail

An adequate handhold or rail an employee can grab to avoid falling

Ends that have been constructed so they are not a projection hazard

A clearance of 3 inches between the handrail or railing and another object

The Company will provide each flight of stairs with standard railings or handrails per the following specifications:

One handrail on stairways less than 44 inches wide with both sides enclosed, on the right descending side.

One stair rail on the open side of stairways less than 44 inches wide with one open side.

One stair rail on each side of the stairways less than 44 inches wide.

One handrail on each enclosed side and one stair railing on each open side on stairways more than 44 inches wide but less than 88 inches wide.

One handrail on each enclosed side, one stair rail on each open side, and one intermediate handrail located midway of the width of stairways more than 88 inches wide.

SCAFFOLDING

Before any employee begins work on a project that requires the use of scaffolding--a temporary elevated platform and supporting structure designed to support workers and their materials--he/she should be thoroughly familiar with the various types of scaffolding and work rules.

COMMON SCAFFOLDING TYPES

Boatswain's chair: A seat attached to a suspended rope supported by slings that holds only one person in a sitting position.

Carpenters' bracket scaffold: A scaffold made of wood or metal brackets that support a platform. This is used for light to medium duty.

Float or ship scaffold: A scaffold hung by ropes from overhead support. The solid platform must be resting on and fastened to two parallel plank bearers that stand right-angled to the span.

Manually propelled mobile scaffold: A portable rolling scaffold supported by casters.

Suspended scaffold: A scaffold supported from above, with the platform supported at more than two points by steel wire cables suspended by outriggers, which are anchored to the steel or concrete frame of the building. The scaffold is outfitted with a hoisting drum or machine so the platform can be raised or lowered.

Tube and coupler scaffold: A scaffold made from lengths of metal tubing, with a base to support the posts, and special devices called "couplers" which lock the tubular components together.

Tubular welded frame scaffold: Similar to the tube and coupler scaffold, made from pre-fabricated welded posts and horizontal bearers with intermediate members.

Two point suspension scaffold or swinging scaffold: A scaffold with its platform supported by hangers or stirrups at two points from overhead supports, which allows the platform to be raised or lowered by tackle or a hoisting machine.

WORK RULES FOR ALL SCAFFOLD TYPES

The first and easiest rule to remember about scaffolding is: Every day, inspect the scaffold thoroughly for damage or wear before an employee begins to work on it.

Both supervisors and employees must always inspect all scaffold components each day they begin work. Immediately report hazardous conditions.

To get the scaffold, use the designated safe access. If no safe access has been provided, report this condition immediately to your supervisor.

Do not climb to the platform on bracing or frames not designed for climbing.

When you climb on the access, do it safely.

Clean your shoes free of grease, dirt, or debris before climbing.

Use both hands and face the rungs going up or down.

Do not carry any materials when climbing.

Do not let hands go until good footing is established and platform access is available.

Keep one hand firmly on the frame or ladder at all times.

Do not work on slippery platform.

Do not overload work platforms with materials.

Never remove any component of a completed scaffold, except when directed by a supervisor. If a component is removed, replace it immediately.

If there are overhead hazards, provide overhead protection.

Wire, synthetic, or fiber rope used for scaffold suspension must be able to support at least six times the intended load.

Never use shore or lean-to-scaffolds.

WORK RULES FOR ROLLING SCAFFOLDS

The general scaffold work rules above also apply to rolling scaffolds. In addition, the following rules must be carefully observed:

Employees must never ride a manually propelled rolling scaffold while it is being moved.

Do not construct a bridge between rolling scaffold towers with planks or stages.

While working, do not lean over scaffold guardrails to extend your working area.

Secure all materials on scaffold before moving it.

Before an employee moves a scaffold, he/she must make sure the floor surface is clear of all obstacles, obstructions and holes. Move all electrical cords. Employees should also keep their eyes open for potential overhead obstacles.

Never move rolling scaffolds by pulling the top section. Always move by pushing the scaffold base.

Use rolling scaffolds only on a level base.

BEFORE ERECTING ANY TYPE OF SCAFFOLD

Evaluate all jobsite conditions

Inspect ground conditions for the strength of the supporting structure. Frame spacing and mudsill size can be assessed only after the total weight the scaffold will hold and the strength of the supporting soil or structure is determined by a supervisor or qualified person.

The scaffold's footings or anchorage should be sound and rigid, capable of carrying the maximum intended load without settling or displacement.

Look at the overhead obstructions, such as electric power lines or other obstacles. Do not erect any scaffold without first determining if the working conditions require overhead protection. If required, install or put it in place before erecting the scaffold.

Consider on-site weather conditions, such as wind, rain or snow. Provide weather protection where weather will influence the safety of employees working on the scaffold.

Consider the scaffold height

A stationary or fixed scaffold should be no more than 125 feet in height. If the stationary scaffold needs to be higher, a professional engineer must design it.

A portable or rolling scaffold should be no more than 60 feet in height. If the portable scaffold needs to be higher, a professional engineer must design it.

Inspect all scaffold equipment for damage and wear

Inspect wood planks to ensure it has been graded for scaffold use. Not all types and grades of lumber can be used for scaffolding. Wood should be sound, straight grained, with no splits, holes or saw cuts.

If any scaffold or its components such as braces, brackets, trusses, screw legs, couplers, ladders, etc. is damaged or weakened in any way, it must be repaired or replaced immediately.

All scaffold assembly must comply with local, state and federal safety requirements

The scaffold must be assembled under the supervision of a qualified person. The appropriate safety gear, including hardhat, must be worn at all times while erecting, moving, dismantling or using scaffolding.

ERECTION OF A FIXED OR STATIONARY SCAFFOLD

General Guidelines

Make sure that mudsills are a suitable size to support and maintain the intended weight load for the scaffold. If employees are not sure whether the mudsills are sufficient, they must check with their supervisor.

Mudsills should be level, and in complete contact with the supporting foundation.

If scaffolding is erected on soft ground or fill, the surface must be stabilized. Employees should verify stabilizing methods with their supervisor.

Base plates or screw jacks with base plates must rest securely on both the sills and legs of the scaffolding.

If the foundation is uneven, correct the situation by using screw jacks with base plates. Do not use unstable objects such as loose bricks, pieces of scrap lumber, barrels, blocks, etc.

Never force scaffolding members to fit. If connections cannot be easily made, plumb and level scaffold.

Keep scaffold plumb and level during erection.

When the scaffold height exceeds four times the minimum base width, the scaffold must be secured with stability bracing.

Place ties as near as possible to horizontal members.

Place the bottom tie no more than four times the minimum base width. After this, ties must be placed, at a minimum, every 26 vertical feet.

Place vertical ties at the ends of scaffold runs. The intervals between the vertical ties should not exceed 30 feet.

Place the uppermost tie as close to the top of the scaffold as possible, but no higher than four times the minimum base width of the scaffold from the top.

Install ties as erection progresses. Do not take ties down until the scaffold is dismantled to their height.

Restrain circular scaffolds built around or within a structure from tipping by using “stand off” bracing segments.

On a freestanding tower, base plate the legs at the standard intervals to prevent tipping or overturning.

Work platforms must be completely planked with scaffold-grade wood or factory-built laminated planks. The planks must be in good condition.

The work platform will be at least 18 inches wide, unless specifically required or exempted.

Every plank must overlap the support by a minimum of 6 inches or the planks must be cleated.

The planks should not protrude beyond the support by more than 18 inches.

Overhangs should be separated from the main work platform by guardrails so that employees do not walk over them.

On continuous runs, the planks must extend over the supports and overlap each other by a minimum of 12 inches.

Scaffold plank spans of a full thickness, 2 inches by 10 inches, should never exceed 10 feet.

Firmly secure planks and platforms in case of windy weather or other emergency conditions.

Evenly distribute materials and employees on planks or the platform.

Only one employee should stand on a plank at a time.

The scaffold must be able to easily support, without fail, four times the maximum intended load.

At each open side and end of the scaffold there must be a standard guardrail. The top rail cannot be higher than 42 inches or less than 36 inches above the work platform.

Install mid-rails halfway between the platform and the top rail on all guardrails.

Toe-boards must be at least 4 inches in height on all guardrails.

If personnel work, pass under, or move around the scaffold, the scaffold must have a screen between the toe-board and the guardrail that extends along the entire opening.

This screen will prevent materials from falling off the platform and accidentally hitting persons.

The screen must be No. 18 gauge U.S. Standard wire 1/2 inch mesh, or the equivalent.

If employees use access ladders, they must extend at least 3 feet above the work platform.

Do not place materials on side and end brackets. Brackets are meant to support people only.

Before using the scaffold, a qualified person should thoroughly inspect the complete structure to determine whether it complies with all safety codes.

All nuts and bolts should be tightened.

The scaffold should be level and plumb.

Platforms must be fully planked.

Guardrails, and if necessary toe-boards, should be in place and securely fastened.

Safe access must be provided.

ERECTION OF ROLLING SCAFFOLDS

Employees should take these additional precautions when erecting and using rolling scaffolds.

The scaffold height must not exceed four times the minimum base dimension. Employees should use outrigger frames or outrigger units to increase the base width dimension when necessary.

Casters must be secured to frame legs or screw jacks with a nut and bolt or similar fasteners. The weight of the tower cannot exceed the weight capacity of the casters.

Screw jacks must not extend more than 12 inches above the caster base.

The scaffold must be kept level and plumb at all times.

Use horizontal/diagonal bracing on a rolling scaffold at the bottom and the top of the tower, and every 20 foot interval in between.

Fabricated planks with hooks can replace the top diagonal brace. Cross-brace all rolling scaffold frames.

On the platform, employees must use only prefabricated plank or cleated plank.

Firmly lock all casters when the scaffold is not being moved.

LADDERS

General Requirements

Employees must inspect the ladders each day prior to use.

If ladders have broken rungs, split rails, worn or broken safety feet, frayed or damaged ropes, report them to a supervisor. The supervisor will remove them from service for repair or disposal.

Place ladders on a firm surface at least 1/4 of their length away from the base of the structure they lean against.

Place a 2-inch x 6-inch board under all ladders that are equipped with spurs.

Use ladders that are an adequate length for the job.

Never add a makeshift extension to a ladder.

Employees should not work from the top two rungs or steps.

Secure all ladders that are in use to prevent movement.

Never place a ladder against a windowpane.

If workers use a ladder in a location where it could be struck, station a watcher at the bottom of the ladder. Do not leave a ladder unattended in this kind of location if it is not being used.

Lock, block or guard all doorways while ladders are used in front of them.

Barricade all ladders used in corridors, stairwells, or aisles.

Never use metal ladders or wire-reinforced wooden ladders near energized electrical equipment.

Do not use ladders in a horizontal position as runways or scaffolds.

Ladders used to ascend or descend from one level to another must extend at least 3 feet above the upper landing.

Workers on ladders must use suitable hoisting equipment to lift or lower heavy or bulky items.

Never over-reach while working on a ladder.

Ladders are to be used by only one person at a time.

PORTABLE WOODEN LADDERS

Stepladder: A self-supporting portable ladder with flat steps and a hinged back with a non-adjustable length. To determine the stepladder's size measure the overall length of the ladder along the front edge of the side rails.

Supervisors should make sure employees recognize the different applications and uses for assorted portable stepladders.

An employee should always check with his/her supervisor if there is a question about the stability, type or use of a stepladder.

Stepladders should never be longer than 20 feet in length.

Types of stepladders:

Type 1: Industrial stepladder, 3 to 20 feet. Used for heavy duty, such as utilities, contractors, and other industrial use.

Type 2: Commercial stepladder, 3 to 12 feet. Used for medium duty, such as painters, offices, and light industrial work.

Type 3: Household stepladder, 3 to 6 feet. Used for light duty, such as light household use.

If the superintendent is building a stepladder, he/she must be familiar with the requirements of the stepladder construction. The stepladder manufacturer or dealer should be consulted to ensure complete compliance.

Extension ladder: Adjustable non-self-supporting portable ladder consisting of two or more sections. The length of the ladder changes with the guides or brackets hooked to the sections on each side. To determine an extension ladder's size, add the sum of the side rail section lengths.

The minimum length between side rails of an extension ladder (and straight ladder) is 12 inches.

The length of single or individual ladder sections should not be larger than 30 feet.

Two-section ladders should not be longer than 48 feet.

Ladders with more than two sections should not be longer than 60 feet.

TEMPORARY WOODEN LADDERS

When building temporary wooden ladders, the supervisor and employees should be aware of the following wood characteristics:

Wood irregularities: Natural characteristics in or on the wood which could lessen its durability, strength or utility.

Cross grain: The slope or cross grain is a deviation of the fiber direction from a line which lies parallel to the sides of the piece.

Knot: A branch or limb imbedded in the tree that has been sawed through during its manufacture. Knots are classified according to their size, quality, and occurrence. The size is determined by the average diameter of the surface of the piece of wood.

Pitch pockets: An opening containing or which has contained either solid or liquid pitch, which extends parallel to the wood's annual growth ring.

Bark pockets: An opening containing bark between the annual growth rings.

Shake: A separation along the grain. Usually occurs between the annual growth rings.

Check: A lengthwise separation of the wood. Usually occurs across the annual growth rings.

Wane: Bark or lack of wood on the corner of the piece.

Decay: Disintegration of wood substance caused by wood-destroying fungi. It is also called rot or rot.

Compression failure: Deformation or buckling of wood fibers caused by excessive compression along the grain.

Wood ladder material requirements: Supervisors should be familiar with the minimum requirements for the construction, care and use of common types of portable wood ladders, so they can insure employee safety under conditions of normal ladder use.

Wood parts should not have moisture content of more than 15 percent.

Do not use wood with knots in the narrow faces of the side rails.

If the knots are tight and sound less than 1/2 inch back from either edge and do not occur more than once in any 3 feet of ladder length.

It is best to use knot-free lumber for side rails.

Do not use wood that has knots over 1/8 inch in diameter for the ladder rungs.

Wood used for wide-faced flat steps and cleats must be free of knots.

Use lumber with no knots for rungs and cleats.

Portable rung ladders: There are four types of portable rung ladders--single ladder, two-section extension ladder, and trestle and extension trestle ladder.

Single ladders should never be longer than 30 feet.

Two-section extension ladders should never exceed 60 feet in length. This type of ladder must have two sections that are built in such a way that the upper section can be raised or lowered.

Discourage employees from constructing or using sectional ladders. Consult a supervisor before beginning construction.

The sections of extension trestle ladders should be no longer than 20 feet.

Special-purpose ladders: In addition to the requirements below, each of these ladders must conform to all conditions, regulations and specifications.

Painters stepladders cannot be longer than 12 feet.

Masons ladders cannot be longer than 40 feet.

Jacobs ladders, which are portable ladders made with side rails of rope, wire, chain, etc., with rigid rungs, cannot be longer than 30 feet.

CARE OF LADDERS

Ladders must be kept in good condition at all times. Before each shift they should be inspected.

The joint between the steps and side rails must be tight.

The hardware and the fittings must be securely attached.

The moveable parts should be capable of moving freely without binding or excessive play.

Replace all frayed and worn ropes.

Safety feet must be in good condition.

The supervisor should confirm that all ladders pass the safety stability test. The ladders should not be used if they do not pass the maximum deflection test.

Store ladders so they are easy to both access and inspect.

Prevent accident danger for employees retrieving ladders by storing the ladders in an orderly manner, easy to access and inspect.

Wood ladders should be stored in an area where they are not exposed to the elements and have good ventilation.

Do not store ladders near radiators, stoves, steam pipes or other places where they would be exposed to excessive heat or excessive dampness.

When ladders are stored horizontally, they should be supported at enough points so they will not sag or permanently set.

When employees carry ladders on vehicles, they should support the ladders so they do not sag, and fasten them securely to minimize chafing and road shock.

Keep all ladder rungs clean of grease and oil.

The ladder should be free from structural defects and accident hazards, such as sharp edges, burrs, knots, cuts and loose joints.

Inspect ladders daily before use. If a ladder develops defects, it must be taken for service and marked for repair or destruction.

If a ladder is scheduled for repair or destruction, clearly mark or tag it as "DANGEROUS, DO NOT USE." It must be removed from the jobsite immediately.

Supervisors must perform a formal ladder inspection once a week. The results must be written and filed in on-site storage.

If ladders are exposed to the following conditions, they should be inspected immediately, and if necessary removed from general use.

If ladders tip over, look for side-rail or bends, or excessively dented rungs. Check each rung-to-rail connection, hardware connection, and rivet for shear.

If ladders are exposed to excessive heat such as fire, inspect for any apparent damage. Test the ladder for deflection and strength characteristics, and confirm with a supervisor that the ladder is in good conditions. If the supervisor is still unsure, refer the ladder to the manufacturer.

If ladders are exposed to certain acids or alkali solutions, they should be coated with a protective solution such as asphalt or varnish.

If ladders are covered with grease and oil, clean all slippery equipment with solvents or by steam cleaning.

USE OF LADDERS

Ladders should be used by one person at a time, *unless specified otherwise by the manufacturer.*

Employees should check with their supervisor prior to loading ladders with more than one person.

When climbing up or down, an employee should always face the ladder.

Employees should not carry tools and materials while they climb up and down ladders if they interfere with the use of both hands.

Employees must check their shoes for oil, grease or other slippery substances before they use ladders.

Do not put a ladder on an unstable base, such as a barrel or box, to extend the ladder height. Employees must use ladders that are tall enough for the job.

Install all ladders with safety shoes. If ladders with no safety shoes or spikes are used on hard, slick surfaces, employees should use a foot-ladder board.

Do not splice short ladders together to make longer ladders.

Place the ladder so it does not slip. If there is a chance that it could move, lash or hold the ladder in position. The tops of all extension ladders should be secured by tying off.

Use only 3/4 of the total length of the ladder.

When employees need to get on a roof, make sure they use a ladder that extends at least 3 feet above the eave, gutter, or roof line (point of support).

Employees should use extra caution when mounting or dismounting the ladder at a roof or platform. An employee should hang on to the ladder until both feet are firmly planted and balance is attained for the transition.

If an employee is doing any type of work that requires both hands, he/she must wear a safety belt, and attach the safety lanyard to the ladder, after checking that both the top and bottom are secured.

Lock, block, or guard all doorways while ladders are used in front of them.

When traffic on a construction site is heavy, or where construction is two stories or greater, use two separate ladders for ascending and descending.

Do not use faulty or broken ladders. If they are damaged, the supervisor must send them to be repaired or disposed of.

Place portable ladders where they have a secure footing.

Never place a ladder against a windowpane. Instead, attach a board across the back of the ladder that extends across the window and provides firm support against the building walls or window frames.

Employees shall not use the bracing on the back of the stepladder's legs to climb.

Employees working on stepladders should not stand on the step higher than the third step from the top.

On two-section extension ladders, employees should use the following overlap ratio for the two extensions.

Up to and including 36 feet, use 3 feet of overlap.

Over 36 feet and up to and including 48 feet, use 4 feet of overlap

Over 48 feet and up to and including 60 feet, use 5 feet of overlap

While employees adjust extension ladders, the user should not be standing on the ladder. Instead, the user should watch the ladder being adjusted from the ground, so he/she can make sure all locking devices are properly closed.

When employees use long ladders, there is often a tendency for the ladder to spring when weight is applied, especially if the ladder is an extension ladder. Whenever possible, employees should brace the ladder so it does not spring.

Window washers should equip the middles and tops of their ladder with safety shoes if the ladders are going to be used for the bottom section.

In situations where employees are using only one broad ladder, provide a center rail and clearly mark each side "up" and "down".

Do not use ladder rungs to support more than one section of plank. No more than two persons should work on a planking section at one time.

While two persons work on the same plank section, they should try to schedule their work so their weight is distributed evenly across the plank.

FLOOR AND WALL OPENINGS AND OPEN SIDED PLATFORMS

Throughout this section, all standard guardrails must have:

A top rail, intermediate rail, toe-board, and posts

A vertical height of between 36 inches to 42 inches from the upper surface of the top rail to the floor, platform, and runway or ramp level.

An intermediate rail halfway between the top rail and the floor, platform, runway or ramp. Smooth surface lumber on the entire railing structure.

Rail ends that do not overhang the terminal posts, except where the overhang does not cause a projection hazard.

If employees regularly apply stress above normal levels to the rails, the Company will use heavier stock, space the posts closer, brace the posts and use other similar means to increase guardrail safety.

Employees must anchor posts and frame members so the completed guardrail structure is capable of withstanding at least a 200-pound load applied in any direction at any point on the top rail, with a minimum rail deflection.

Note: The following are the minimum guardrail requirements for various materials.

Wood railings: posts must be of 2 inch x 4 inch stock, with spacing of 8 feet or less, the top rail of 2 inch x 4 inch stock, and the intermediate rail of 1 inch x 6 inch stock.

Pipe railings: Posts, tops and intermediate railings must be at least 1 1/2 inch nominal OD diameter. Posts should be spaced no more than 8 feet on the centers.

Structural steel railings: Posts, tops and intermediate railings must be 2 inch x 2 inch x 3/8 inch angles, or angles which have the equivalent bending strength. Posts should be spaced no more than 8 feet on the centers.

Wire rope railings: Top and intermediate railings must be at least 1/2 inch fiber core rope or the equivalent. The rope will be stretched taut. Posts should be no more than 8 feet on the centers.

Throughout this section, all *floor opening covers* must:

Support the maximum potential load, and at the very least support 200 pounds, with a safety factor of four.

Have covers that are recessed to conform to the level of the surrounding floor, or be flush with the opening perimeter.

Have fastening devices to secure the cover so it cannot be accidentally removed.

Be monitored at the opening if the cover is removed. The monitor should advise all employees in the area of the hazard, and shall not perform other duties while monitoring employees.

Throughout this section, all *wall opening protection* must:

Have barriers constructed and mounted so they are able to withstand a load of at least 200 pounds applied in any direction (except upward), with a minimum deflection at the top rail or its corresponding member.

Have screens constructed and mounted so they are able to withstand a load of at least 200 pounds applied horizontally at any point on the near side of the screen. The screens can be of solid construction, grill work with 8 inches long or less openings, or slat work with openings 4 inches wide or less with no length restrictions.

GUARDING FLOOR OPENINGS AND FLOOR HOLES

Guard floor openings with a standard railing and toe-boards cover.

Provide a railing on all exposed sides, except at stairwell entrances.

Guard floor holes with a standard rail that includes either:

A standard toe-board on all exposed sides; or

A floor hole cover of standard strength and construction, secured so it doesn't get accidentally knocked off.

When the cover is not in place, protect the floor hole with a standard railing.

If it is necessary to remove the cover of a floor opening, and no handrail has been put into place, the Company will station a monitoring person at the opening until the cover is replaced.

The monitor will not perform any other task while he/she is monitoring the opening. His/her sole duties will be to advise people of the hazard, and to prevent exposure to the fall hazard.

All vehicle service pits must have either a cover or a removable-type standard guardrail.

Cover or guard vehicle service pits when they are not in use.

If the Company uses the vehicle pits frequently, the pit perimeters will be painted with a high-visibility, luminescent, skid-resistant paint, and the lines kept unobstructed.

Guard platforms and ladder-way floor openings with standard rails and toe-boards on all exposed sides, except at the opening entrance.

The railing passage should have a swinging gate, or be offset so an employee can't walk directly into the opening.

Guard hatchways and chute floor openings with one of the following:

Hinged covers and a standard railing with one exposed side.

Note: When employees aren't using the opening, close the cover or use removable guardrails.

A removal railing on two sides of the opening and a fixed railing with toe-boards on all other exposed sides.

Note: When employees aren't using the opening, keep the removable railing in place by a hinge or by mounting it so it is easily replaceable.

Guard all manhole openings with covers.

Protect the manhole opening with guardrails whenever the cover is not in place.

Guard all pits and trap-door openings with standard-strength covers.

Use removable railings to protect pit or trap openings while a cover is not in place.

When a skylight is unable to sustain the weight of a 200-pound person with a safety factor of four, and there is a possibility that employees could fall through, guard the skylight on all exposed sides with standard guardrails.

The Company will provide a platform when doors or gates open directly onto a stairway.

The swing of any door or gate will not reduce the effective platform width to less than 20 feet.

GUARD WALL OPENINGS

When a wall opening has a drop of more than 4 feet, and the bottom of the opening is less than 3 feet above the working surface, it will be guarded per the following applicable regulations:

If a standard rail or intermediate rail will effectively reduce the danger of employees falling in relation to the height and position of the opening, use either or both. Both rails should be constructed.

When the bottom of a wall opening is less than 4 inches above the working surface, protect it with a standard toe-board or an enclosing screen of either solid construction or screens that can withstand a horizontal force of 200 pounds.

An extension platform built outside a wall opening on which employees hoist materials must have standard guardrails or equivalent protection on all of its exposed sides.

One side of the extension platform can have removable railings so employees can load and access materials.

If a chute is attached to a platform opening, employees must guard the opening just as though the chute opening were a wall opening by using top and intermediate rails.

In this instance a toe-board is not required.

GUARDING OPEN-SIDED SURFACES

All open-sided floors, platforms, or surfaces higher than 4 feet above an adjacent working surface or ground level must have standard guardrails or the equivalent protection on all exposed sides, except where there is an entrance to a ramp, stairway or fixed ladder.

Install toe-boards on guardrails if employees must pass under the open sides, or if there is equipment that could create falling material hazards.

Runways higher than 4 feet above the floor or ground level must have a guardrail on all open sides.

If employees use tools, machine parts, or material on the runway, construct toe-boards on each exposed side.

When employees using a runway are exposed to machinery, electrical equipment, or equivalent potential hazards, provide additional guarding to protect employees from the hazards of exposure to machinery or equipment.

Use a standard guardrail and toe-board on all open-sided floors, walkways, platforms or runways or adjacent to dangerous equipment, pickling or galvanizing tanks, degreasing units and other such hazards regardless of the height.

SECTION G – ELECTRICAL SAFETY

With electricity, we are dealing with something that cannot be seen and is still the most useful power controlled by man. It is useful but can be a very destructive power to both man and material if the proper precautions are not taken. The danger is always there and we must know what means of protection can be used to eliminate the hazards. All electrical work must be carried out according to the applicable State Regulations.

TEMPORARY ELECTRICAL INSTALLATIONS

Only qualified and licensed electricians shall be allowed to perform any kind of electrical work. Job Foremen have the responsibility of making certain that electricians have been provided with and use the proper protective equipment.

The Developer has developed and implements either an “Assured Grounding Program” for all extension cords and power tools or uses Ground Fault Circuit Interrupters.

The Project Superintendent shall ensure that all entrances, exits, skip landing, stairwells and general areas are supplied with temporary lighting.

In addition to the above, the Project Superintendent shall light any areas that cause a safety concern.

The Job Foremen shall ensure that the temporary lighting is maintained.

The subcontractors shall be responsible for lighting up their specific work areas.

General Safety Guidelines

1. Do not overload circuits.
2. Use proper size wire for amps to be carried and also for grounding.
3. All circuits must be fused or circuit breakers installed to give adequate protection.
4. Wire must be protected from vehicle traffic.
5. Temporary wiring must not be hung over nails, re-bar or other metal objects.
6. Periodic inspections should be made of all temporary electrical systems to ensure they are all in a safe condition.
7. If a circuit is de-energized for any reason, tag and/or lock it “out of service” until it can be safely returned to service.
8. Wherever possible, an electric line should be de-energized before work is done on it no matter how small the voltage. Only qualified persons should do such work.

9. When working in or on energized substations, transmission lines, power plants, etc., use every safeguard necessary.
10. Men/women doing electrical work should wear approved electrical hard hats as well as other equipment.
11. Do not carry material on your shoulders or in arms while working around energized equipment.
12. Ground all electrical equipment and circuits.
13. All electrical equipment must meet State regulations and must be ANSI approved.

Know the hazards of electricity. It will help prevent injuries or even death!

Lockout/Tagout and Energy Control Procedures

In the interest of a safe work place and in compliance with safety standards, the Company has established a written energy control policy. The policy consists of:

An energy control procedure
Employee training

Periodic inspections to make sure employees servicing or performing maintenance on a machine, or equipment where an unexpected start-up could cause employee injury, have locked and/or tagged out the machine or equipment from the energy source.

The purpose of this program is to make sure employees disable all equipment and machines from their energy sources. This procedure can help prevent injuries caused by an unexpected equipment/machine start-up or the accidental release of stored energy. This section covers equipment and machines that could injure employees while they service and maintain them.

The lockout/tagout program applies to the control of energy during commissioning, testing, servicing and/or maintenance of machines.

Servicing and maintenance during normal production operations is covered by the Company's policy on lockout/tagout when:

An employee has to remove or bypass a guard or other type of safety device.
An employee had to put any part of his/her body into or near the machine's point of operation.

Special lockout/tagout should be used when working around:

Cord-connected and plug-connected electric equipment, if the plug is controlled solely by the employee doing the servicing or maintenance.

If possible, the plugged end of the cord should be brought to the immediate maintenance area so the employee performing maintenance can monitor it.

If it is not possible to bring the end to the work area, the plug end prongs should be taped and tagged.

Hot tap operations which involve transmission and distribution systems for substances such as gas, steam, water, or petroleum products, performed on pressurized pipelines if:

Service continuity is essential.
System shutdown is impractical.

In these cases, the Company uses equipment that will effectively protect employees from injury.

The procedures and equipment are those that have been recommended by the equipment manufacturer. All employees should check with their supervisors when they work under these conditions.

LOCKOUT/TAGOUT HARDWARE REQUIREMENTS

The Company will provide locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners or other hardware necessary to block, secure or isolate machines and equipment from energy sources.

LOCKOUT DEVICE REQUIREMENTS

Lockout devices must be durable and able to withstand any site conditions while they are being used.

Lockout devices must be standardized throughout the Company so all employees can easily recognize them, and understand how all lockout devices work. All lockout devices should be standardized per at least one of the following:

- Color
- Shape
- Size

Lockout devices must be substantial enough to prevent removal without the use of excessive force techniques.

Lockout devices must indicate the name of the employee who put it on the device.

TAGOUT DEVICE REQUIREMENTS

Tagout devices must be durable and capable of withstanding environmental conditions at the site.

Construct and print all tagout devices so that weather conditions or wet and damp locations won't cause the tag to deteriorate and the message to become illegible.

When tagout devices are exposed to corrosive conditions, such as areas where acid and alkali chemicals are handled and stored, they should be constructed of materials that will not deteriorate.

Tagout devices must be standardized throughout the Company so all employees can easily recognize them, and understand how all tagout devices work. All tagout devices should be standardized per at least one of the following:

- Color
- Shape
- Size

The supervisor should keep a written log of lockout devices issued to employees. The log should contain the name of the employee to whom the device was issued and where the device will be used.

Once a week, the supervisor should review the log, collect extra devices, and issue devices when necessary. If a weekly review is insufficient, the procedure should be done as often as needed.

Tagout devices must be substantial enough so they cannot be accidentally or inadvertently removed. The tagout devices must be:

- Of a non-reusable type
- Attached by hand
- Self-locking
- Non-releasable with a minimum locking strength of no less than 50 pounds
- At least equivalent in design to a none-piece, all environment-tolerant nylon cable tie

Tagout devices should indicate the identity of the employee attaching the device.

A warning about hazardous conditions if a machine or equipment is energized must be clearly readable on the tagout device. The tagout device should also have appropriate warnings such as "DO NOT START", "DO NOT OPEN", "DO NOT CLOSE", "DO NOT ENERGIZE", or "DO NOT OPERATE."

GENERAL REGULATIONS FOR LOCKOUT/TAGOUT

If the energy isolation device can be locked out, the employee should lock it out. If tagging out is preferable for some reason, the employee will first check with a supervisor before tagging it out.

The supervisor will confirm that a tagout system will be as effective at protecting employees as a lockout system, and will implement one of the following measures in addition to tagging out the energy device:

- Removing an isolating circuit element;
- Blocking a controlling switch;
- Opening an extra disconnection device; or
- Removing a valve handle to reduce the possibility of accidental or inadvertent energizing.

When the Company performs any major repair, replacement, renovation or modification on a machine or piece of equipment, and when new machines or equipment are installed, all energy-isolating devices have to be designed to use a lockout device.

The Company's policy is to develop, document and utilize procedures for the control of potential hazardous energy sources for each required piece of equipment and machinery.

These procedures should clearly outline the scope, purpose, authorizations, rules and techniques to control potentially hazardous energy sources. They include:

- A specific statement of the intended use of the procedure
- Precise steps for shutting down, isolating, blocking and securing machines or equipment to control hazardous energy.
- Exact procedural steps for the placement, removal and transfer of lockout or tagout devices and the employee(s) responsible for them.
- Requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices, tagout devices and other energy control tools.

Refer to the manufacturer's operating manual when procedure development is done in the field.

If all of the conditions listed below are met without a single exception, the Company will not prepare written procedures. Employees must check with their supervisor prior to working on any potentially energized equipment to see if the equipment meets all conditions:

- The machine or equipment has no potential for stored or residual energy, or potential for re-accumulated stored energy after shutdown.
- The machine or equipment has a single energy source that is easily identified and isolated.
- The machine or equipment is isolated from that energy source and locked out during servicing or maintenance.
- Isolating and locking out the energy source will completely de-energize and deactivate the machine or equipment.
- A single lockout device will shut down the machine or equipment.
- The authorized employee servicing or maintaining the machine or equipment is the sole person who has access to the lockout device.
- Service and maintenance does not create hazards for other employees.
- The company has no accidents involving inadvertent or accidental re-energizing of the machine or equipment during servicing and maintenance.

If a piece of equipment or machinery requires a written procedure, the established procedures will cover the following elements and actions, and will be done in the following sequence:

Shutdown preparation: Before an authorized employee turns off a machine, the employee must know:

The type and magnitude of the energy.
The energy hazards that must be controlled.
The method and means to control the energy.

Machine or equipment shutdown:

Shutdown the machine or equipment using the established procedures.
The Company will use an orderly shutdown procedure to minimize any danger or hazards to employees that may result from equipment stoppage.

Machine or equipment isolation: All of the energy isolating devices must be located and operated so they isolate the machine or equipment from the energy source.

Authorized employees are the only persons allowed to attach lockout or tagout devices to each energy-isolating device.

Attach all lockout devices so they will hold the energy isolating devices in a "safe" or "off" position.

Attach all tagout devices so they clearly indicate that operating or moving energy isolating devices from the "safe" or "off" position is prohibited.

Make sure tags are placed where the lockout devices would be attached.
If a tag can't be attached where the lock would be placed, attach the tag as close to the energy isolating device as safely possible, where it can be clearly read by a person attempting to operate the device.

After applying the lock or tag to energy isolating devices, relieve, disconnect, restrain or otherwise render safe all potentially hazardous stored or residual energy.

Verify energy isolation throughout service and maintenance if there is a chance there may be a re-accumulation of stored energy. Continue this practice until the job is complete, or until the possibility of energy re-accumulation no longer exists.

Before beginning work on locked out/tagged out machines or equipment, authorized employees should verify with their supervisor that isolation and de-energizing of the machine has been accomplished.

RELEASE FROM LOCKOUT/TAGOUT

Before any lockout or tagout devices are removed from equipment or machine, authorized employees must follow these procedures:

Inspect the work area to make sure nonessential items have been removed.
Make sure machine or equipment components are operationally intact.
Check the work area to determine that all employees are safely positioned or removed.

Affected employees are notified that the lockout/ tagout devices have been removed before any machine or equipment is started.

The employee who placed the lockout or tagout device is the only employee who can remove the device.

The only exception to this rule is when the authorized employee is unavailable to remove the device. In this case, a supervisor must direct the device removal per documented procedures and instructions from the Company's energy control program. The procedure must include verification that the authorized employee who attached the device is not on-site; that the Company makes all reasonable efforts to contact the authorized employee and tell him/her the device has been removed; and that the Company ensures that the authorized employee knows the device has been removed prior to him/her resuming work at the facility.

EMPLOYEE TRAINING AND COMMUNICATION

The Company will train all employees so that they thoroughly understand the purpose and function of the energy control program. Employees will be trained to:

Recognize all applicable hazardous energy sources.
Understand the type and magnitude of the energy at the work place.
Be knowledgeable about the means and methods necessary to isolate and control potentially hazardous energy.

All employees who work in the areas affected by lockout and tagout will be informed about the procedure and about the hazards related to attempts to restart or re-energize machines or equipment that have been locked or tagged out.

When a company uses a tagout system, employees need to be notified about the following limitations of tags and the false sense of security they often provide.

Tags do not provide a physical restraint on energy isolating devices.
Do not remove any tag without the permission of the authorized employee who placed it there.
Tags must be legible and easily understood by all employees in order to be effective.
Tags must be made of materials that are durable enough to withstand all environmental conditions in the workplace.
Securely attach all tags to energy isolating devices so they can't be inadvertently or accidentally knocked off.

All authorized and affected employees will be retrained when there is:

A change in their job assignments.
A change in machines.
A change in equipment processes which could pose additional hazards.
When there is a change in energy control procedures.

The Company will also provide retraining when there is a change in an energy control procedure due to deviations or inadequacies in the employee's knowledge or use of energy control procedures.

The retraining will help to re-establish employee proficiency in all energy control procedures.

The Company will certify that there has been training for each employee and keep all additional or subsequent training sessions updated in his/her employee file.

INSPECTIONS

The Company will conduct periodic inspections of all energy control procedures to make sure the regulations and standards are being followed.

An authorized employee other than the employee who usually performs the specific operation will conduct the inspections.

The goal of the inspection will be to correct any identified deviations or inadequacies.

When lockout is used for energy control, the inspection will include a review between the inspector and the employee who performs the specific operation of the complete steps of the energy control procedure.

When tagout is used for energy control, the inspection will include a review between the inspector and the employee who performs the specific operation of the limitations of the tagout procedure.

SECTION H – WELDING AND BURNING SAFETY

All welding and cutting must be carried out according to the applicable Federal Regulations.

WELDING & CUTTING GENERAL

1. Only experienced, properly qualified or certified (where required) persons shall be allowed to do any electrical or acetylene welding or cutting.
2. Whenever possible, move all objects to a safe place before heating, cutting or welding. Remove or effectively screen all fire hazards where the welding job is to take place.
3. Keep hoses, cables and all other equipment clear of passageways, ladders and stairs.
4. Do not cut or weld any steel drum or other vessel that might have contained flammables until it has been steam purged and tested. Flushing with water is not sufficient.
5. Do not apply heat to the inside surface of any piping or vessel unless it is open to the atmosphere to prevent pressure buildup, and adequately tested for gases and oxygen content.
6. Where it is necessary to catch falling sparks and slag, use glass fiber blankets or fire retardant welding tarpaulin.
7. As a minimum precaution, keep an appropriate type fire extinguisher available within a 10' radius from the burn site at all times. Designated person performing fire-watch duties is recommended.
8. Be sure there is sufficient general ventilation. Where welding fume and gasses can accumulate, use local exhaust ventilation to remove the contaminants.
9. In poorly ventilated areas, the gases can accumulate and displace the air causing an oxygen deficient atmosphere. Proper ventilation is required when using inert gases while welding.
10. All workers engaged in welding or burning operations must wear:

Flame retardant work clothing (preferred work clothing should be made of cotton or wool fibers).

Leather gauntlet type gloves and arm protection.

An apron of leather or other suitable material for heavy work.

Eye and face protective equipment to protect against harmful radiation or particles of molten metal, or while chipping and grinding welds.

Substantial safety footwear made of leather or other equally firm material.

11. Whenever practicable, recently welded or flame cut work shall be marked "Hot" to prevent other workers from being burned.
12. Before entering a tank bin or other confined space, ensure confined space entry procedures are in place.
13. Never take gas cylinders into a confined space. Exception - compressed repairable air cylinders for self-contained breathing apparatus.
14. Take the torch and hoses outside the vessel whenever you shut off the flame to take any kind of rest or break. Close valves on torch as well as on the gas cylinders.
15. Protect any load bearing ropes or cables from the affects of welding operations.

GAS WELDING & CUTTING

1. When transporting gas cylinders:

Before hoisting, secure them on a cradle, sling board or pallet. The cylinders should never be lifted by the valve or cap or by simply rigging a sling around it. Secure the cylinders in a vertical position with the valve protective caps in place.

2. Cylinders must be stored upright and chained to the cart or wall. Do not store oxygen and acetylene bottles in the same area and protect them from physical damage.
3. Keep gas cylinders away from the actual welding or cutting operation so that sparks, hot slag or flame will not reach them.
4. Do not place cylinders where they can become part of an electrical circuit.
5. Keep oil and grease away from oxygen cylinders at all times.
6. Fuel gas hoses and oxygen hoses must be easily distinguishable from each other. Inspect the hoses before use; replace any that are not in perfect condition.
7. Keep all hoses; cables and other equipment clear of passageways, ladders and stairs.
8. Inspect torches each day for leaking shut off valves, hose couplings and tip connections. Ensure that safety devices to prevent reverse gas flow are working properly.
9. Ensure all pressure regulators and gauges are in proper working order.
10. Wear gloves and use goggles for eye protection.
11. Light torches by friction lighters - never with matches or from hot work.
12. Close the valves and cap them when cylinders are not in use.

13. Never store the torch in a box or cupboard while still connected to the cylinders.
14. Drain all torch hoses at the end of the workday.

ARC WELDING & CUTTING

1. Use only electrode holders specifically designed for arc welding and cutting. Do not place electrodes against gas cylinder to strike an arc.
2. Check that all cables, insulated connectors and ground connections are capable of handling the current and that the insulation is in good condition.
3. No arc welding must be carried out unless all workers exposed to radiation from the arc flash wear suitable eye protection or are protected by adequate fire resistant screens, curtains or partitions.
4. All welding work areas must be kept tidy to eliminate slipping or tripping hazards.

FIRE EXTINGUISHERS

- 1) An ample amount of fire extinguishers (ABC Type) will be available on site.
- 2) All extinguishers will be inspected every 6 months.
- 3) Any extinguisher found missing the seal, inspection tag or has been discharged will be reported to the project management team.

SECTION I – MATERIAL HANDLING

GENERAL SAFETY

1. Do not use ropes, chains or slings that are defective
2. Do not overload cranes, ropes, blocks or chains.
3. Do not ride loads.
4. Control the load by use of a tag line.
5. Stand clear of taut cables or hoists.
6. Keep hands or fingers away from rope blocks and sheaves.
7. Stay out from under overhead loads.
8. Store materials securely, not in aisles or walkways. Do not stack materials too high and ensure that pipe, drums and other materials that may roll are properly blocked before a second layer is stacked.
9. When storing material inside buildings under construction, do not place within 6 ft. of any hoist way or floor opening or within 10 ft. of an unfinished exterior wall.
10. Fasten down loads securely before shipping. When unloading, be absolutely sure before the rigging is released and the strapping cut so that any material that may roll or fall is blocked, or otherwise safely supported by a lift truck or other mobile equipment.
11. Always keep oily rags and flammable trash in covered metal containers.

HAZARDOUS MATERIAL HANDLING

All supervisors shall ensure that all personnel are provided with the proper equipment for handling hazardous materials and are instructed in its proper use. The site Specific Hazard Communication Program is attached (see appropriate Appendix).

SECTION J – MANUAL LIFTING

In the construction industry, a back injury is the most common of all injuries. The injury is generally caused by the lack of knowledge of HOW to lift.

The following are recommended safe practices for lifting and carrying heavy objects.

When a worker has to lift a heavy object and move it to another location, he/she should:

1. Inspect the location for tripping hazards.
2. Make sure the load is within your lifting capability. If not---GET HELP!
3. Set your feet solidly and well apart, with one foot slightly ahead of the other.
4. Crouch as close to the load as possible, with the legs bent at about a 90° angle at the knee.
5. Keep the back as straight as possible. It should not be arched.
6. To lift the object, straighten your legs, keeping your back as straight as you can.
7. Don't twist or turn while lifting.

Don't try to show how strong you are; you may pay for it for a long time!

SECTION K – CRANE & RIGGING

The Project Manager shall ensure that any crane owned or rented for use on-site shall be of adequate size to complete the lifts required. All cranes shall be operated in accordance with the manufacturer's procedures and recommended limits. All rented or owned cranes must meet the requirements of the applicable State regulations. All cranes will have an up-to-date annual inspection on file prior to being used on site.

The Project Manager is responsible for hiring a competent crane operator that is qualified. A copy of all certificates, records and maintenance logs shall be kept in the cab of the crane.

The Project Manager/Superintendent shall ensure that all specialty lifts, i.e.: those involving two or more cranes, special rigging or irregular loads, are designed, reviewed and all parties understand the procedures. Adequate communication must be maintained.

The operator is responsible for the safe operation of the crane. The operator will hold a current and appropriate license (specify State) for crane being operated.

Whenever there is doubt as to safety, no operator will operate, nor will he be requested to operate a crane until safety has been assured.

The crane operator is responsible for the following:

- 1) Daily maintenance checks as per manufacturer's specifications.
- 2) Complete monthly maintenance as required by the manufacturer. To be done by qualified mechanic. Monthly inspection forms to be completed and kept with unit.
- 3) Prior to each shift, checking the travel radius of the crane to ensure it is clear.
- 4) Ensuring that the manufacturer load chart is in the crane and that he operates the crane within its guidelines.
- 5) Complete the daily crane log in an accurate manner.
- 6) The crane operator shall never rig or operate a crane within limits as provided for in applicable statutory regulations.
- 7) The operator of a mobile crane shall ensure that the mobile crane is situated properly as per the manufacturers' specifications before starting a lift.
- 8) At the beginning of each shift, inspect the hoisting equipment, test limit switches, brakes and circuit breakers and any other safety devices. Report any defects immediately.

- 9) The operator will only take directions from one person at a time and, when in doubt, shall stop the load.

When required, the Superintendent shall ensure that a qualified signalman shall work with the crane operator. The crane operator shall ensure that the signalman:

- 1) Is knowledgeable in the proper hand signals and the operator is aware of the same;
- 2) Is aware of the actual weight of each load and informs the operator of this;
- 3) Checks each load to ensure that it is rigged properly; and
- 4) Maintains all rigging gear in good condition.

SECTION L – CRANE BOOM LOADING

Crane and rigging safety is of extreme importance in the construction industry. Much of this type of work is performed in congested areas, where the general public can easily become involved in an accident.

Hazardous loading of crane booms, which could lead to either overturning the crane or to buckling the boom, can be avoided if you understand crane ratings. Every construction crane should be provided with a chart showing its rated capacity. This rated capacity can be safely handled if you pay attention to the following points:

1. The safe load depends upon the boom length and the radius. Make sure that you know what length of boom you are using. Remember that radius is measured from the center of rotation, not from the boom foot pin.
2. The published load does not include the weight of the hook or material handling devices. Subtract the weight of equalizer jobs, concrete buckets, or job extension from the rated loads to determine the weight of material that can be handled.
3. Ratings are based on operating on firm ground, and in the case of mobile cranes, with the outriggers fully extended. Make sure that the crane is not operating on ground that is too soft or with outriggers that are not properly blocked and extended.
4. Ratings are based on operating on level ground. Operating on grades increases boom stress. If you pick up a load on the high side of a slope and swing to the low side, the radius will increase and can cause the crane to tip. If operating at high boom angles, a swing from the low side to the high side can cause the boom to collapse.
5. Avoid fast operations. Fast swings cause the load to swing out, thus increasing the radius. Rapid hoisting or braking of the load increases the boom stresses and can overload the rigging.
6. Do not handle heavy loads with a large surface area when there are high winds. Wind gusts can create an unstable condition.
7. Make sure the crane is properly rigged, has the correct counterweight, the proper boom, the right boom mounting position, the gantry properly rigged and has adequate parts of line.
8. Avoid traveling with a heavy load. The boom is subject to shock and bending stresses if moving over uneven ground and swinging of the load creates inertia forces that can cause collapse of the boom.
9. Do not use a crane with a bent or damaged boom. Booms must be straight and in good repair.

10. If in doubt as to the ability of a machine to lift a load, make sure that you attempt the lift in the most stable position. For example, with a truck crane, pick the load up over the rear where stability is greatest and then boom up before swinging over the side.

There are many safety devices available (such as overload indicators, boom back stops and level indicators) but in terms of reducing hazards, there is still a requirement for all crane users to understand load rating and to exercise intelligence, care and common sense.

Sample Problem

3/8" Single Chain or Wire Rope, Vendor Specifications 6,600 lbs. Lift to be made at 45° angle with double sling.

6,600	
6,600	
13,200	Total working strength of both 3/8" chains and rope sling
13,200	Strength of Sling
30	% of Reduction in strength at 45° angle
3,960	Total Reduction in points of 3/8" sling at 45° angle
13,200	
3,960	
9,240	Total Safe Working Strength of 3/8" Double Chain or Wire Rope sling at 45°

These reductions in safe working load limits are based on NEW wire, rope or chain. Wear must be considered which will reduce the safe workload even further. Inspect all wire, rope and chain for safe condition.

SECTION M – PORTABLE POWER TOOLS AND HAND TOOLS

All portable power tools must be ASA approved. Explosive actuated tools are to be operated only by a licensed operator. Where required, the operator must be trained and licensed for each make of tool. Manufacturers of these tools have qualified instructors and these people can schedule training.

Common sense when using any tool or equipment can help reduce injuries.

Power activated and electric hand tools that are not used in the prescribed manner or are defective cause many eye and hand injuries. Preventive maintenance should be scheduled for all kinds of tools and/or equipment. Any individual should never use tools or equipment until he has been trained in the proper use, care and hazards of each tool and piece of equipment.

The following are recommended safety procedures and/or precautions in the use and care of power and hand tools:

GENERAL SAFETY RULES

- 1) All tools should be kept in good repair, inspected daily and be ASA approved.
- 2) Tools should be used only for that which they were designed.
- 3) Defective or worn tools should be replaced.
- 4) Tools should never be dropped from one level to another.
- 5) Tools should not be left on scaffolds, platforms or other locations where a tripping or falling hazard is created.
- 6) Inspect cords of electrical tools daily. Do not pull tools by the cords. Keep cords out of water, oil or chemicals.
- 7) Keep sharp-edged tools sharp. Dull tools can be dangerous.
- 8) Only qualified persons who have passed the appropriate examinations and have such credentials in their possession shall be permitted to use explosive actuated tools. Safety glasses must be worn when explosive actuated tools are used.
- 9) All extension cords must be insulated with a three prong-grounding plug.
- 10) No safety guards installed by the manufacturer shall be removed or blocked.
- 11) Make sure grinding wheels are used within the RPM limit.
- 12) Air lines on pneumatic tools should not be disconnected until pressure is relieved.

- 13) Air line hose connections should be secured to prevent whipping action, should the connection fail under pressure.
- 14) All electrical equipment and tools should be properly grounded.
- 15) All power and hand tools are to be oiled and cleaned on a regular basis.

SECTION N – PUBLIC ACCESS AND EGRESS

Where practical, the Project Manager shall ensure that a project area is fenced off in a manner that controls public entry to the site.

Signs shall be posted advising all visitors to report to the Site Office. No unauthorized visitors shall be allowed on this site.

Only the Project Manager, Project Engineer, Project Superintendent or Safety Coordinator shall be allowed to authorize visitors on site.

All visitors must be provided with and wear personal protection equipment.

A sign shall be posted advising all personnel that a hazard exists due to the work being performed on-site. The signage shall be sufficient to advise all workmen and the general public of the hazard around the entire perimeter of the jobsite.

The Release (Form 7) shall be filled out by all visitors before allowing them on-site and all visitors shall sign in on the visitor's log.

All open excavations that are accessible by the public must be guarded with a fence or berm with a minimum height of 42 inches.