



## Environmental, Health and Safety Program and Procedures (EHSP)

### Company History

Expert Technology Choice Corp., was incorporated by our President and CEO Jose Martin Almontes in Miami, Florida. Our personnel has more than 35 years of experience in the environmental and general industry field. We are Environmental, Health & Safety, base behaviour company and water conservation is our passion. Our company is based in Miami, Florida, USA.

We are a Water Conservation Company with a simple concept of business and that is, that our employees are family and our work environment is peaceful and work should be fun. We are professionals and love what we do; therefore, our clients and their properties are treated with the utmost respect and love to go home to our family safe and sound.

### PREFACE

The procedures and policies set forth in this Environmental, Health and Safety Program (EHSP) are the result of several years experience within the general industry. While it is recognized that no program can encompass all situations and scenarios, this EHSP is presented as a guideline for the safe and environmentally sound performance of our assigned jobs. It is Expert Technology Choice Corp. intention to provide our employees with safe equipment and working conditions. It

is our expectation that all personnel working for Expert Technology Choice Corp. will perform their duties in accord with our high standards and the high standards of our clients.

Our most valuable assets are our employees. All employees have the right to return home to their loved ones without injury in the workplace. No employee has the right to place his or her life and health in jeopardy. Further, the safe performance of your duties will reduce the risk of injury to your co-workers, our clients property, their employees and the members of the surrounding community. A shortcut in procedure will prove to be the fastest route to disaster.

This EHSP, combined with training provided by Expert Technology Choice Corp., tool box talks conducted by Expert Technology Choice Corp. initial site training and periodic refresher training will help to emphasize our commitment to your safety and the continued safe operation and viability of Expert Technology Choice Corp. You can do your part by reviewing and familiarizing yourself with the contents of this EHSP, and maintaining a focus on the safe performance of yourself and your co-workers in the workplace.

While this EHSP, constitutes the Expert Technology Choice Corp. safety and environmental policies and procedures, many of our client organizations maintain their own safety, health and environmental procedures. During your assignment with Expert Technology Choice Corp. your compliance with our clients policies, as well as Expert Technology Choice Corp. policies, is mandated. You are cautioned to pay particular attention to instructions provided in our clients safety, health and environmental policies as well as the instructions and restrictions indicated on work permits issued by our clients. The policies and procedures set forth in this EHSP, and the policies and procedures of our clients are not open to variation without the express approval of the authorized Corporate Health and safety Director (CHSD), and the client's designated safety representative.

Regardless of Expert Technology Choice Corp. continued commitment to a safe and environmentally sound work place, our goal cannot be achieved without the cooperation, vigilance and safe performance of our employees. While "the craftsman is known by his tools," the "contractor is known by his operation." Safe and environmentally sound work practices are both the tool of an excellent craftsman and a measure of the operation of the contractor.

### **Expert Technology Choice Corp. Safety and Environmental Policy**

The management of Expert Technology Choice Corp. is firmly committed to the preservation of the safety and health of our employees, our clients employees and their facilities. Our relations with our neighbors and the neighbors of our clients mandate that we be equally concerned with the preservation of the environment. We are committed to the safe and environmentally sound conduct of our day to day operation and believe that there can be no exceptions. We at Expert Technology Choice Corp. strongly believe in a Safety Culture and that "Safety is a Core Value" and a mindset.

As managers and employees of Expert Technology Choice Corp. we must work together to identify, evaluate and eliminate hazards in our work place. We believe that all accidents are preventable and the exercise of good judgment, awareness and adherence to established

environmental, safety and health procedures will lead us to the optimum goal of a safe and environmentally sound workplace.

Expert Technology Choice Corp. will comply with all applicable federal and state laws as well as industry standards and good work ethics. We will continue to provide a quality company and work force to our clients. We will continue to strive to maintain and improve upon our record as a trusted and responsible member of our community.

Expert Technology Choice Corp. will continue to work with our competitors to share information regarding health, safety and the environment in an effort to learn the lessons taught by mistakes. It is our intention, through our commitment, the vigilance and awareness of our employees, to consistently improve our performance.

Expert Technology Choice Corp. recognizes individual contributions toward the obtaining of our goal and apply that recognition to the evaluation of an individual's performance of their job. We know in our hearts that a strong and safety culture and safety being a core value all employees can return safely and unharmed to their loved ones at the end of each day. If we accept these responsibilities as mutual responsibilities we will achieve the goal of a safe, healthy and environmentally sound work place. The price of failure is paid in human suffering as well as dollars and cents.

Jose Martin Almontes, President and CEO, Expert Technology Choice Corp.

## **INSTRUCTIONS**

This program is a controlled document prepared specifically for Expert Technology Choice Corp. It may not be reproduced, in whole or in part, without the express authorization of Expert Technology Choice Corp.

Policies and procedures will be updated, periodically, as federal, state, corporate and client safety and environmental requirements change. A complete review of this EH&S procedure and policy program will be conducted on a two year schedule. Suggestions for changes or additions are requested, at any time, from our employees and clients. A form is included as an attachment to this document and should be completed and forwarded to:

### **Expert Technology Choice Corp.**

Miami, Florida USA

CEL. # +1 (786) 412-2930

President and CEO Mr. Jose Martin Almontes

E-mail: [ms@experttechnologychoice.com](mailto:ms@experttechnologychoice.com)

[www.experttechnologychoice.com](http://www.experttechnologychoice.com)

This program will be maintained at Expert Technology Choice Corp., office and at each job site and accessible to our employees, their representatives and our clients at all times.

Where ever feasible, reference to specific Occupational Safety and Health Administration (OSHA) Standards are included in this EHSP. For more specific information, contact the Expert Technology Choice Corp. Health & Safety Director Mr. Francesco V. Rinaldi at the previously indicated address or by calling +1 (786) 412-2930.

Thank you,

CHSD, Mr. Francesco V. Rinaldi  
*Expert Technology Choice Corp. Health & Safety Director*

## **GENERAL HEALTH AND SAFETY POLICY**

It is Expert Technology Choice Corp., Philosophy that “Safety is a Core Value and a mindset”; therefore, accident prevention shall be considered of primary importance in all phases of operations and administration. It is our intention to provide safe and healthy working conditions and to establish and insist upon safe practices at all times by all employees. The prevention of accidents is an objective affecting all levels of our company and its operations. It is, therefore, a basic requirement that each supervisor make the safety of all employees an integral part of his or her regular management function. It is equally the duty of each employee to accept and follow established safety regulations and procedures.

Every effort will be made to provide adequate training to employees. However, if an employee is ever in doubt about how to do a job or task safely, it is his or her duty to ask a qualified person for assistance. Employees are expected to assist management in accident prevention activities. Unsafe conditions must be reported immediately. Fellow employees that need help should be assisted. Everyone is responsible for the housekeeping duties that pertain to their jobs. Every injury that occurs on the job, even a slight cut or strain, must be reported to their supervisors and/or the Health and Safety Director as soon as possible. Under no circumstances should an employee leave our facility without reporting an injury. Safety is everyone's business.

It is our commitment that everything possible will be done to protect you from accidents, injuries and/or occupational disease while on the job. Safety is a cooperative undertaking requiring an ever-present safety consciousness on the part of every employee. If an employee is injured, positive action must be taken promptly to see that the employee receives adequate treatment. No one likes to see a fellow employee injured by an accident. Therefore, all operations must be planned to prevent accidents

A safe and healthful workplace is one of our highest priorities; it is therefore, that all employees and managers practice our Safety culture and keeping in mind that “Safety is a Core Value”. While we cannot anticipate every workplace hazard, the following general principals should guide your

conduct. To be safe, you must never stop being safety conscious. Study the guidelines contained in this program. Discuss the workplace situation with your immediate supervisor and attend all company sponsored training and safety meetings. Read all posters and warnings. Accept responsibility for the safety of others. If you don't understand any policy, please ask your supervisor, project safety officer or the Health and Safety Director.

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## 1.0 ENVIRONMENTAL HEALTH AND SAFETY PROGRAM OBJECTIVE

While no Environmental Health and Safety Program (EHSP) can guarantee an accident free work place, following the safety procedures set forth in this manual will significantly reduce the risk of danger to you and your co-workers. State and federal laws, as well as Expert Technology Choice Corp. policy, make the health and safety of our employees the first consideration in operating our business. Health and safety in our business must be a part of every operation. ***Without question it is every employee's responsibility at all levels.***

Our Environmental Health and Safety Program is designed to prevent injuries, illnesses and accidents in the workplace. The primary purpose of the program is to ensure the health and safety of our workers. It is our intent to comply with all laws concerning the operations of the business and the health and safety of our employees and the public. To do this, we must constantly be aware of conditions in all work areas that can produce or lead to injuries. ***We firmly believe that accidents and injuries are caused; therefore, we can prevent them.*** No employee is required to work at a job known to be unsafe or dangerous to his or her health. Your cooperation in detecting hazards, reporting dangerous conditions and controlling workplace hazards is a condition of employment. Inform your supervisor immediately of any situation beyond your ability or authority to correct. Employees will not be disciplined or suffer any retaliation for reporting a safety violation in good faith.

Our objective is an Environmental Health and Safety Program that will reduce the number of injuries and illnesses to an absolute minimum, not merely in keeping with, but surpassing, the best experience of operations similar to ours. ***Our goal is nothing less than zero lost time accidents and injuries.*** Management is responsible and accountable for achieving that goal and each of you is responsible for your safety and the safety of your fellow employees.

To achieve our goals, we have established a comprehensive and realistic Environmental Health and Safety Program; based on our past experience, sound engineering practice, employee training and enforcement of health and safety regulations to prevent unreasonable health and safety risks. To be successful, such a program must embody the proper attitudes toward injury and illness prevention not only on the part of supervisors and employees, but also between each employee

and his or her co-workers. Management will provide all mechanical and physical facilities and equipment required for personal health and safety in keeping with this program.

Your safety and the safety of others around you requires a constant vigilance on your part. It is up to you to determine the location and operation of safety equipment and to be aware of those architectural features important to safety. (i.e.; fire extinguishers, First aid kits, eye-washing stations, what doors people can use to escape from their work location in case of fire or major accident, etc.) Any safety problem in the work location, whether potential or immediate, should be dealt with and/or reported to your immediate supervisor or the Health and Safety Director as soon as possible. Remember, much of the responsibility for workplace safety must rest on the individual employee. The best method of protection is prevention.

## **2.0 RESPONSIBILITY FOR SAFETY AND HEALTH**

All employees of Expert Technology Choice Corp., are responsible for working safely and maintaining a safe and healthful work environment.

### **2.1 Health and Safety Director**

The Health and Health & Safety Director is Francesco V. Rinaldi, he can be reached by calling his personal telephone number +1 (786) 675-8035. Mr. Francesco V. Rinaldi is responsible for the overall implementation and maintenance of Expert Technology Choice Corp., Environmental Health and Safety Program. His duties in this area include, but are not limited to:

- Ensuring that managers are trained in workplace safety and health hazards to which employees under their immediate direction or control may be exposed, as well as applicable laws, regulations and Expert Technology Choice Corp., safety rules and policies.
- Ensuring that employees are trained in accordance with this Program.
- Inspecting, recognizing, and evaluating workplace hazards on a continuing basis.
- Developing methods for abating workplace hazards.
- Ensuring that workplace hazards are abated in a timely and effective manner.

As the Health and Safety Director Francesco V. Rinaldi, may assign all or some of these tasks to other individuals within the organization. Nevertheless, the Health and Safety Director remains ultimately responsible for the implementation and maintenance of our Health and Safety Program.

### **2.2 Supervisors**

Each supervisor employed by Expert Technology Choice Corp., has a responsibility to protect employees from injury or job-related illness. Each individual manager will be held accountable for personally reacting to workplace hazards and protecting employees from their danger until they can be eliminated.

Each supervisor will also be held accountable for reporting directly to the Health and Safety Director, any hazard that might even remotely be considered serious or a threat to people who might encounter it. The Supervisor shall take it upon themselves to vacate all personnel from any area where an imminent hazard exists and cannot be immediately eliminated. Any personnel who remain in the area to correct the hazard must be supplied with proper safeguards for the situation.

In addition to their other duties, supervisor shall conduct periodic inspections of every employee's work area. The manager shall retain these inspection records, and a copy sent to the office of the Health and Safety Director. Inspections shall be made no less frequently than once a month, but may be conducted more frequently if appropriate.

Supervisors shall maintain all appropriate written records of employee training, including training in appropriate accident and illness prevention, safety procedures, and safety inspection improvement needs.

Supervisors will be responsible for taking appropriate disciplinary action with any employee who openly violates Expert Technology Choice Corp., safety policies or procedures. Disciplinary action may also be taken against employees who fail to comply with hazard reporting procedures, or any other violation of the intent of this Environmental Health and Safety Program. That disciplinary action may include dismissal of the employee.

## **2.3 Employees**

Every employee is responsible for maintaining a safe work environment for himself or herself, and for all other employees. Individual work areas are to be kept neat and clean and free of hazards, which might cause injury or illness to the primary occupant or to others.

Employees will also be given opportunities to participate in meetings on the subject of workplace safety, conduct safety inspections, and make recommendations about improving the nature of safety in the work environment.

Each individual on Expert Technology Choice Corp., payroll must take personal responsibility for reporting any hazardous condition immediately. If it is possible to eliminate the hazard, the employee is expected to do so. If additional assistance, or management involvement is necessary to eliminate the hazard, it should be sought in a timely fashion, which is directly related to the nature and urgency of the hazard.

## **3.0 GENERAL HEALTH AND SAFETY**

### **3.1 Prevention and Control of Workplace Hazards**

Occupational Safety and Health Act (OSHA) requires that all employees be provided with a safe and healthful place of employment. Identification of hazardous conditions may be accomplished at the planning and design stage, as a result of workplace inspections, or by employee reports. All recognized safety and health hazards shall be eliminated or controlled as quickly as possible, subject to priorities based upon the degree of risk posed by the hazards. The preferred method of

hazard abatement shall be through application of engineering controls or substitution of less hazardous processes or materials. Total reliance on personal protective equipment is acceptable only when all other methods are proven to be technically and/or economically infeasible.

### **3.1.1 Principles of Hazard Control**

#### ***3.1.1.1 Reduction***

The risk of injury or illness may be reduced by replacement of an existing process, material, or equipment with a similar item having more limited hazard potential. Some examples include: brush painting instead of spray painting to reduce inhalation hazards, welding instead of riveting to reduce noise levels, use of safety cans instead of bottles to store flammable liquids, etc. Care must be exercised in any substitution to ensure that the substitute materials are technically acceptable and to avoid introducing new or unforeseen hazards.

#### ***3.1.1.2 Isolation***

Hazards can also be controlled by isolation whenever an appropriate barrier or guard is placed between the hazard and an individual who may be affected by the hazard. This isolation can be in the form of physical barriers, time separation, or distance. Examples include machine guards, electrical insulation, glove boxes, acoustical containment, and remote controlled equipment.

#### ***3.1.1.3 Administrative Control***

This method of hazard mitigation depends on effective operating practices that reduce the exposure of individuals to chemical or physical hazards. These practices may take the form of limited access to high hazard areas, preventive maintenance programs to reduce the potential for leakage of hazardous substances, or adjusted work schedules, which involve a regimen of work in high hazard and low hazard areas. Adjusted work schedules are appropriate only when the hazard is recognized as having a limit below which nearly all workers may be repeatedly exposed without adverse effect.

#### ***3.1.1.4 Personal Protective Equipment***

This method of hazard control is least preferred because personal protective devices may reduce a worker's productivity, while affording less effective protection against the recognized hazard than other methods of control. Nevertheless, there are instances where adequate levels of risk reduction cannot be achieved through other methods, and personal protective devices must be used, either alone or in conjunction with other protective measures.

### **3.1.2 Development of Hazard Control Recommendations**

The following possible actions will be considered when recommendations are developed for prevention or reduction of hazards:

- Avoiding, eliminating, or reducing deficiencies by engineering design, material selection or substitution;
- Isolating hazardous substances, components, and operations from other activities, areas, personnel, and incompatible materials;
- Incorporating "fail-safe" principles where failures would disable the system or cause a catastrophe through injury to personnel, damage to the equipment, or inadvertent operation of critical equipment;
- Relocating equipment/components so that personnel access during operation, maintenance, repair or adjustment shall not result in exposure to hazards such as chemical burns, electrical shock, electromagnetic radiation, cutting edges, sharp points, or toxic atmospheres;
- Providing suitable warning and notes of caution concerning required personnel protection in operation, assembly, maintenance, and repair instructions;
- Providing distinctive markings on hazardous components, equipment, or facilities;
- Requiring use of personal protective equipment when other controls do not reduce the hazard to an acceptable level;
- Monitoring exposure to insure that engineering controls effectively reduce the hazard; and
- Training employees to recognize hazards and take appropriate precautionary measures.

### **3.2 Hazard Reporting**

Identification and reporting of potentially unsafe or unhealthful working conditions is the responsibility of all Expert Technology Choice Corp., employees. All Expert Technology Choice Corp., employees are encouraged to report unsafe or unhealthful working conditions to their immediate supervisor who will promptly investigate the situation and take appropriate corrective actions. Supervisors will contact the Health and Safety Director for assistance as necessary. Supervisors will keep the reporting employee informed of all actions taken.

Any employee may submit a written report of an unsafe or unhealthful working condition directly to the Health and Safety Director.

The Health and Safety Director will investigate all reports of hazards brought to its attention. The Health and Safety Director will provide an interim or complete response in writing to the originator of the report of hazard. If the investigation validates the reported hazard, the complete response shall include a summary of the action taken for abatement. If no significant hazard is found to exist, the reply shall include the basis for that determination.

If the originator of the report of a hazardous condition is dissatisfied with the assessment of the alleged hazard made by the Health and Safety Director or with actions taken to abate a confirmed hazard, he/she shall be encouraged to confer with the Health and Safety Director to discuss the matter further.

### 3.3 Hazard Assessment

Injuries in the workplace often occur because employees are not adequately trained in the proper job procedure. Establishing proper job procedures is accomplished by conducting a job hazard analysis. Improving how work is performed reduces injuries, improves absenteeism rates promotes an increase in productivity. Job hazards pose a serious problem for exposed workers. Expert Technology Choice Corp., will ensure that operations having a potential for employee injury are evaluated and controlled. We understand that engineering solutions, where feasible, are the preferred method of control for workplace hazards. The focus of the Job Safety Analysis is to eliminate hazards from the workplace. This is accomplished whenever possible by redesigning the workstation, work methods, or tool(s) to reduce the hazards associated with the demands of the job. This program will whenever possible research into currently available controls and technology. PPE will be a last choice.

Job Safety Analysis consists of recording the steps required to accomplish the job, if the job is complex, it should be broken down into detailed segments. Each step will be reviewed in the order of occurrence as the employee is observed performing the job. Each segment will be reviewed in proper sequence. Expert Technology Choice Corp., has developed Job Safety Analysis for typical operations. These Job Safety Analysis may be found in **Company Program—Job Safety Analysis**.

Where engineering controls and job safety analyses do not eliminate all job hazards, employees will (where appropriate) wear personal protective equipment (PPE). This include items such as hard hats, face shields, safety goggles, glasses, hearing protection, foot guards, gloves, etc.

#### 3.3.1 Guarding Hazards

When people interact with machines, lots of things happen. Wheels turn. Engines hum. Stock gets cut, punched, or molded. Finished pieces are ejected. Work gets done. Other things can happen, too. Because machines or various parts of them move, fingers, hands, hair, jewelry, or loose clothing can get caught in the machinery. Sparks or fragments of material can fly and hurt anyone in their path. Too much noise from production equipment can cause workers to lose concentration, temporarily causing them to abandon sound safety practices.

Each year, a substantial number of occupational injuries—including those resulting in permanent partial disability—involve machinery. The risk is to both equipment operators and maintenance workers injured while repairing equipment or performing other non-operating tasks.

One way to think about the problem (and solutions) is to view machine hazards as coming from one of three areas:

- The point of operation or contact at which the cutting, shearing, punching, or other work takes place
- Any moving part
- Power transmission equipment (which includes any part that transmits energy to the sections of the machine that perform work).

OSHA deals with the issue of machine guarding primarily in 29 CFR 1910.211–. 222. The general regulation (29 CFR 1910.212) says: "One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of generation, ingoing nip points, rotating parts, flying chips, and sparks. The guard shall be such that it does not offer an accident hazard in itself." OSHA recommends that machine guards should:

- Prevent contact. That means keeping all body parts away from all moving parts of a machine.
- Be secure. Workers should not be able to easily remove the device.
- Protect the equipment from falling objects. By so doing, the guard protects the worker. A small object that falls into a fast-moving machine can become a dangerous projectile.
- Allow for safe, efficient lubrication. A system for lubricating the machine without removing the safeguards means that a maintenance worker enters the danger area fewer times. That means less risk.
- NOT create an additional hazard. A guard with rough metal edges, for example, presents its own risk.
- NOT interfere with work tasks. Workers will predictably find a way to override a safeguard that keeps them from working in a comfortable or efficient manner.

Among machines mentioned by OSHA as usually requiring point-of-operation guards are: guillotine cutters, shears, alligator shears, power presses, milling machines, power saws, jointers, portable power tools, and forming rolls and calendars. The law requires that point-of-operation guards be designed to prevent the operator from having any body part in the danger zone during the machine's operating cycle. In addition, OSHA's lockout/tagout regulation requires employer energy control programs to prevent injuries from unexpected energization, start-up, or release of stored energy.

### **3.4 Personal Protective Equipment**

Engineering controls shall be the primary methods used to eliminate or minimize hazard exposure in the workplace. When such controls are not practical or applicable, personal protective equipment shall be employed to reduce or eliminate personnel exposure to hazards.

Personal protective equipment (PPE) will be provided, used, and maintained when it has been determined that its use is required and that such use will lessen the likelihood of occupational injuries and/or illnesses. The Health and Safety Director will recommend and/or provide necessary protective equipment where there is a reasonable probability that the use of the equipment will prevent or reduce the severity of injuries or illness.

All personal protective clothing and equipment will be of safe design and construction for the work to be performed. Only those items of protective clothing and equipment that meet National Institute

of Occupational Safety and Health (NIOSH) or American National Standards Institute (ANSI) standards will be procured or accepted for use.

### **3.4.1 Eye and Face Protection**

Due to providing our services to different facilities there may be different types of hazards and risks; it is therefore, that all our Expert Technology Choice Technicians must follow our client's safety protocol and receive as a minimum orientations and training. The majority of occupational eye injuries can be prevented by the use of suitable/approved safety spectacles, goggles, or shields. Approved eye and face protection shall be worn at all times. Typical hazards that can cause eye and face injury are:

- Splashes of toxic or corrosive chemicals, hot liquids, and molten metals;
- Flying objects, such as chips of wood, metal, and stone dust;
- Fumes, gases, and mists of toxic or corrosive chemicals; and

Prevention of eye accidents requires that all persons who may be in eye hazard areas wear protective eyewear. This includes employees, visitors, contractors, or others passing through our facility. If these personnel wear prescription glasses, they shall be provided with a suitable eye protector to wear over them.

- |                                 |                                      |
|---------------------------------|--------------------------------------|
| ➤ Stranding Area                | ➤ Assembly Area                      |
| ➤ Fitting Area                  | ➤ Twin Wire Area                     |
| ➤ Conduit Cutting/Stamping Area | ➤ Grinding Area                      |
| ➤ Extrusion Area                | ➤ Electrical Cutting Area            |
| ➤ Warehouse Area                | ➤ Office Personnel (Production Area) |

Emergency eyewash stations will be located where the actual work is being performed and shall be located where they are easily accessible to those in need.

### **3.4.2 Hearing Protection**

Hearing protection devices are the first line of defense against noise in environments where engineering controls have not reduced employee exposure to safe levels. Hearing protective devices can prevent significant hearing loss, but only if they are used properly. The most popular hearing protection devices are earplugs, which are inserted into the ear canal to provide a seal against the canal walls. Earmuffs enclose the entire external ears inside rigid cups. The inside of the muff cup is lined with acoustic foam and the perimeter of the cup is fitted with a cushion that seals against the head around the ear by the force of the headband.

Preformed earplugs and earmuffs should be washed periodically and stored in a clean area, and foam inserts should be discarded after each use. It is important for you to wash hands before handling pre-formed earplugs and foam inserts to prevent contaminants from being placed in the ear, which may increase your risk of developing infections. Also, check hearing protective devices for signs of wear or deterioration. Replace devices periodically.

Employees working in the stranding areas are required to wear hearing protection at all time. Expert Technology Choice Corp., will supply hearing protection to all employees working in areas of high noise.

The Health and Safety Director maintains a supply of a variety of disposable foam ear inserts and earmuffs.

### **3.4.3 Hand Protection**

Skin contact is a potential source of exposure to toxic materials; it is important that the proper steps be taken to prevent such contact. Gloves should be selected on the basis of the material being handled, the particular hazard involved, and their suitability for the operation being conducted. One type of glove will not work in all situations.

Most accidents involving hands and arms can be classified under four main hazard categories: chemicals, abrasions, cutting, and heat. There are gloves available that can protect workers from any of these individual hazards or any combination thereof.

Gloves should also be worn whenever it is necessary to handle rough or sharp-edged objects, and very hot or very cold materials. The types of glove materials to be used in these situations include leather, welder's gloves, aluminum-backed gloves, and other types of insulated glove materials.

Careful attention must be given to protecting your hands when working with tools and machinery. Power tools and machinery must have guards installed or incorporated into their design that prevent the hands from contacting the point of operation, power train, or other moving parts. Do not wear gloves around moving machinery, such as drill presses, mills, lathes, and grinders.

### **3.4.4 Safety Shoes**

Safety shoes shall be worn in the Stranding and Warehouse areas, and other areas as determined by the Health and Safety Director. All safety footwear shall comply with ANSI Z41-1991, "American National Standard for Personal Protection - Protective Footwear." Safety shoes or boots with steel toes are required to be worn in work areas where carrying or handling materials such as packages, objects, parts or heavy tools, which could be dropped; and for other activities where objects might fall onto the feet.

Safety shoes or boots with puncture protection are required where sharp objects such as nails, wire, tacks, screws, large staples, scrap metal etc., could be stepped on by employees causing a foot injury.

### **3.5 Safety and Health Signs and Tags**

Signs and tags are not intended as substitutes for preferred abatement methods such as engineering controls, substitution, isolation, or safe work practices. Rather, they are additional safety guidance and increase the employee's awareness of potentially hazardous situations. Tags are temporary means of warning all concerned of a hazardous condition, defective equipment, etc. Tags are not to be considered as a complete warning method, but should only be used until a positive means

can be employed to eliminate the hazard; for example, a "Do Not Start" tag is affixed to a machine and is used only until the machine can be locked out, de-energized, or inactivated.

Danger signs shall be used where an immediate hazard exists and specific precautions are required to protect personnel or property. The sign shall be of red, black, and white colors.

Danger tag shall be placed on a damaged ladder or other damaged equipment, and immediate arrangements made for the ladder/equipment to be taken out of service and sent to be repaired.

Caution signs shall be used to warn of a potential hazard or to caution against unsafe practices, and to prescribe the precaution that will be taken to protect personnel and property from mishap probability. The sign shall be of yellow and black colors.

Exit signs shall be utilized to clearly identify the means of egress from a building or facility. Where the exit is not apparent, signs shall have an arrow indicating the direction of the exit.

Any Expert Technology Choice Corp. employee who becomes aware of an unsafe condition will immediately advise the work area supervisor of that condition. The supervisor will determine whether a tag or sign is needed and, if so, that the appropriate sign or tag is posted or attached as required. They will coordinate the placement of tags, with the Health and Safety Director, if the responsible supervisor is not available; the employee will contact the Health and Safety Director and request assistance.

The supervisor will evaluate the situation and initiate appropriate corrective action. The supervisor, in coordination with the Project Safety Officer, is responsible for removing the sign or tag only after the unsafe condition has been corrected.

## **4.0 COMMUNICATION OF SAFETY AND HEALTH**

### **4.1 General Information**

Expert Technology Choice Corp., will use a variety of ways to communicate with its employees about safety. From time to time there may be "Safety Bulletins" issued to call attention to certain issues or hazards either on or off the job.

All employees will be expected to attend training on our Environmental Health and Safety Program to learn about our procedures. You can also expect that you will be asked to attend meetings on the subject of safety, and perhaps even to make presentations at such meetings.

### **4.2 Safety Meetings**

All supervisors will conduct safety meetings every quarter. During these meetings, each manager shall discuss with employees under his or her direct supervision such issues as:

- New hazards that have been introduced or discovered in the workplace.

- Causes of recent accidents or injuries and the methods adopted by Expert Technology Choice Corp. to prevent similar incidents in the future.
- Any health or safety issue deemed by the manager to require reinforcement.

### **4.3 Postings**

You will see posted around the office, from time to time, safety posters designed to increase your awareness of safety and its importance to all of us.

### **4.4 Training**

Expert Technology Choice Corp., has training requirements designed to instruct each employee on general safety procedures as well as on safety procedures specific to each job. These training requirements are described in greater detail below:

#### **4.4.1 General**

Awareness of potential health and safety hazards, as well as knowledge of how to control such hazards, is critical to maintaining a safe and healthful work environment and preventing injuries, illnesses, and accidents in the workplace. Expert Technology Choice Corp., is committed to instructing all employees in safe and healthful work practices. To achieve this goal, we will provide training to each employee with regard to general safety procedures and with regard to any hazards or safety procedures specific to that employee's work assignment.

#### **4.4.2 Training Schedule**

Training will be provided upon hiring; whenever an employee is given a new job assignment for which training has not previously been provided; whenever new substances, processes, procedures or equipment which represent a new hazard are introduced into the workplace; and whenever Expert Technology Choice Corp., is made aware of a new or previously unrecognized hazard.

## **5.0 ENFORCEMENT OF THE HEALTH AND SAFETY PROGRAM**

The safe and efficient work practices of this company require a spirit of teamwork and cooperation from all employees. Also required are uniform standards of expected behavior. Employees who refuse or fail to follow the standard set forth in the Expert Technology Choice Corp., Environmental Health and Safety Program and/or Regulatory standards; will subject themselves to disciplinary action up to, and including discharge. In cases not specifically mentioned, employees are expected to use good judgment and refer any questions to their supervisors. Employees found refusing to comply with or in violation of the Expert Technology Choice Corp., Environmental Health and Safety Program may be subject to one of the following disciplinary actions:

### **5.1 1st Offense/Verbal Warning**

Safety and supervisory personnel may give employees a verbal warning for a known unsafe act, procedural, or operational infraction.

## **5.2 2nd Offense/Written Warning**

A written warning will be issued automatically for a second verbal warning for an unsafe act. The written warning will become part of the employee's permanent personnel record.

## **5.3 3rd Offense/Suspension and/or Discharge**

The immediate supervisor will be consulted to determine if a lesser form of discipline is warranted. The employees' rebuttal (if provided) will be considered along with the severity of the act, the supervisors' recommendation and any other supporting information provided at the time of the time of the hearing.

## **6.0 INCIDENT REPORTING AND INVESTIGATION**

Incident reporting will ensure an immediate report on all incident/accidents and to provide an effective follow-up for corrective action in order to eliminate unsafe practices and unsafe conditions. Every effort should be made that all information recorded is accurate and reveals all that is known about the cause of any accident. Even though the greatest proportion of accident reports are simple first aid cases, they should all be investigated as a means of avoiding future injuries and reports completed as outlined in this procedure. The employee's Supervisor must complete an Incident Report/Investigation Form within one day of the incident.

Immediately or Within 8 hours after the occurrence of an employment accident which is fatal to one or more employees or which results in hospitalization, Expert Technology Choice Corp., shall report the accident either orally or in writing to the nearest Occupational Safety and Health Administration area office. The report shall relate the circumstances of the accident, the number of fatalities, and the extent of any injuries.

Incident investigations are the primary tool used by our company to identify the areas responsible for accidents. The results of each investigation will be submitted to management for review. A written report should be prepared from notes and diagrams made at the scene, or direct eyewitness statements as near to the actual time of observation as possible. If a formal police report or other official investigation is conducted by any government agency, get the name and badge number of the official, or a business card, and find out when a copy of the official report will be available to the public.

When reporting or investigating an incident, keep in mind that the information you are obtaining may be the only information available several years later down the line. Be objective and as thorough as possible; remember this is a fact-finding mission not a fault finding one. Do not use information unless it is from the injured employee or from a direct witness.

The Safety Committee will review all Incident Report/Investigations and management responsible for the department involved ensuring pertinent information is transmitted to all concerned and remedial action taken.

Expert Technology Choice Corp., will maintain a log and summary of all recordable occupational injuries and illnesses by calendar year. Each recordable injury and illness will be entered on the

log and summary as early as practicable but no later than 6 working days after receiving information that a recordable injury or illness has occurred.

## **7.0 GENERAL CODE OF SAFE WORK PRACTICES**

All employees shall follow these safe practices rules, render every possible aid to safe operations, and report all unsafe conditions or practices to their supervisors and/or the Health and Safety Director.

No one shall knowingly be permitted or required to work while the employee's ability or alertness is so impaired by fatigue, illness, or other causes that it might unnecessarily expose the employee or others to injury. Never start on any hazardous job without being completely familiar with the safety techniques, which apply to it. Check with your supervisor if in doubt.

Reporting for work or performing work under the influence of drugs or intoxicating substances such that the employee's job performance or safety of the employee or of others may be adversely affected is strictly prohibited.

All injuries are to be reported to your immediate supervisor promptly so that adequate medical attention may be given. An Incident Report/Investigation Form shall be completed and faxed the representative division within 24 hours.

Horseplay, scuffling, and other acts which tend to have an adverse influence on the safety or wellbeing of the employees shall be prohibited.

Employees shall not operate equipment unless they are authorized and training to do so and shall ensure that all guards and other protective devices are in proper places and adjusted prior to operation, and shall report deficiencies promptly to their supervisors. Safeguards are not to be altered or removed from tools and equipment.

Approved eye and/or face protection suitable for the conditions encountered are to be worn when working near welding operations, grinding, chipping, or wire brushing, or when working with acids or other harmful substances. Hearing protection shall be worn whenever a noise hazard is present at the work site. Hard Hats are to be worn at all times on site.

All tools and equipment shall be maintained in good condition. Broken or defective equipment shall be taken out of service and/or replace. Employees will inspect equipment prior to using them.

Portable electric tools shall not be lifted or lowered by means of the power cord. Ropes shall be used. Electric cords shall not be exposed.

Never repair or adjust any machine or equipment unless you are specifically authorized to do so. Never oil, clean, repair, or fuel any machine while it is in operation. Never repair or adjust any electrically driven machine without properly locking/tagging the main switch.

Loose or frayed clothing, or long hair, dangling ties, finger rings, etc., shall not be worn around moving machinery or other sources of entanglement.

Do not place equipment and materials so as to block emergency exit routes, fireboxes, sprinkler shutoffs, machine or electrical control panels, or fire extinguishers.

Good housekeeping must be maintained at all times.

Sometimes smoking is not permitted on some areas of the facility, except in designated areas

## **8.0 SPECIFIC CODE OF SAFE PRACTICES**

### **8.1 Work Areas**

Work sites must be clean and orderly. Spills must be reported and cleaned up immediately. All combustible scrap, debris and waste must be stored safely and removed promptly. Waste containers must be covered. Oily and paint soaked rags are combustible and should be discarded in sealed metal containers only. Make sure all pits and floor openings are either covered or otherwise guarded. Fire extinguishers must remain accessible at all times. Work sites shall be kept free of debris, floor storage and electrical cords.

### **8.2 Personal Protective Equipment Clothing**

Where there is a danger of flying particles or corrosive materials, employees must wear protective goggles and/or face shields. Employees are required to wear safety glasses at all times in areas where there is a risk of eye injuries. Employees who need corrective lenses are required to wear only approved safety glasses, protective goggles, or other medically approved precautionary procedures when working in areas with harmful exposures, or risk of eye injury. Employees are required to wear protective gloves, aprons, shields and other means provided in areas where they may be subject to cuts, corrosive liquids and/or harmful chemicals. Hard hats must be worn in areas subject to falling objects, and at all times while at construction sites. Appropriate footwear including steel-toed shoes must be worn in an area where there is any risk of foot injuries from hot, corrosive, poisonous substances, falling objects, and crushing or penetrating action. When necessary employees must use the approved respirators that are provided for regular and emergency use. All safety equipment must be maintained in sanitary condition and ready for use. Report any defective equipment immediately. Food may not be eaten in work areas, or in places where there is any danger of exposure to toxic materials or other health hazards. In cases of Cleaning toxic or hazardous materials, protective clothing provided must be worn.

### **8.3 Combustible Materials**

All combustible scrap, debris and waste materials (oily rags, etc.) must be stored in covered metal receptacles and removed from the work site promptly. Proper storage to minimize the risk of fire, including spontaneous combustion must be practiced. Only approved containers and tanks are to be used for the storage and handling of flammable and combustible liquids. All connections on drums and combustible liquid piping, vapor and liquid must be kept tight. All flammable liquids should be kept in closed containers when not in use (e.g., parts-Cleaning tanks, pans, etc.). Liquefied petroleum gas must be stored, handled, and used in accordance with safe practices and

standards. No smoking signs must be posted on liquefied petroleum gas tanks. Liquefied petroleum storage tanks should be guarded to prevent damage from vehicles. All solvent wastes and flammable liquids should be kept in fire-resistant, covered containers until they are removed from the work site. Fuel gas cylinders and oxygen cylinders must be separated by distance, fire resistant barriers, etc., while in storage. Fire extinguishers will be 20 lb. ABC and placed in areas where they are to be used. Fire extinguishers must be mounted within 75 ft. of outside areas containing flammable liquids, and within 10 ft. of any inside storage area for such materials. "NO SMOKING" rules will be enforced in areas involving storage and use of hazardous materials. "NO SMOKING" signs have been posted where appropriate in areas where flammable or combustible materials are used and/or stored. Safety cans must be used for dispensing flammable or combustible liquids at point of use. All spills of flammable or combustible liquids must be reported and cleaned up promptly.

#### **8.4 Hazardous Substances**

When hazardous substances are used in the workplace, the hazard communication program with new standard of Globally Harmonized System of Classification, labeling chemicals and indexed set of Safety Data Sheets dealing with Safety Data Sheets (SDS), labeling and employee training will be in operation. SDS materials will be readily available for each hazardous substance used. A training program plus regular question and answer sessions on dealing with hazardous materials will be given to keep employees informed. The program will include an explanation of what an SDS is and how to use and obtain one; SDS contents for each hazardous substance or class of substances; explanation of the "Right to Know"; identification of where employees can see the employer's written hazard communication program and where hazardous substances are present in their work area; the health hazards of substances in the work area, how to detect their presence, and specific protective measures to be used; as well as informing them of hazards of non-routine tasks and unlabeled pipes.

#### **8.5 General Fire Safety**

Portable fire extinguishers are provided in adequate number and type (5 to 10 lb. ABC) and are located throughout the facility. Fire extinguishers are mounted in readily accessible locations. Fire extinguishers are recharged regularly and the date of last inspection noted on their tags. Extinguishers should be placed free from obstructions or blockage. All extinguishers must be fully charged and in their designated places unless in use. All employees are periodically instructed in the use of extinguishers and fire protection procedures.

#### **8.6 Machine Guarding**

All equipment and machinery should be securely placed and anchored when necessary, to prevent tipping or other movement that could result in personal injury. Electrical power to each machine shall be capable of being locked out for maintenance, repair or security. All manually operated valves and switches controlling the operation of equipment and machines must be clearly identified and readily accessible. All moving chains and gears must be properly guarded. The supervisor will instruct every employee in the work area on the methods provided to protect the operator and other employees in the machine area from hazards created by the operation of a machine, such as nip points, rotating parts, flying chips and sparks. The machinery guards must be secured and

arranged so they do not present a hazard. All radial arm saws must be arranged so that the cutting head will gently return to the back of the table when released.

### **8.7 Lockout/Tagout Procedures**

All machinery or equipment capable of movement must be de-energized or disengaged and blocked or locked out during cleaning, servicing, adjusting or setting up operations, whenever required. The lockout procedure requires that stored energy (i.e. mechanical, hydraulic, air) be released or blocked before equipment is locked out for repairs. Appropriate employees are provided with individually keyed personal safety locks. Employees are required to keep personal control of their key(s) while they have safety locks in use. Employees must check the safety of the lockout by attempting a start up after making sure no one is exposed. Where the power disconnecter does not also disconnect the electrical control circuit, the appropriate electrical enclosures must be identified. The control circuit can also be disconnected and locked out. In some cases while setting up Ozone generators and Dehumidifiers in mechanical rooms it may be necessary to perform such procedures; therefore, always have someone competent with you to perform lock/out and tag/out.

### **8.8 Electrical**

Equipment such as electrical tools or appliance must be grounded or of the double insulated type. Extension cords being used must have a grounding conductor. If ground-fault circuit interrupters are installed on each temporary AC circuit at locations where construction, demolition, modifications, alterations are being performed, suitable disconnecting switches or plug connectors must protect temporary circuits with permanent wiring at the junction. Personnel must be aware of the following: Exposed wiring and cords with frayed or deteriorated insulation must be repaired or replaced. Flexible cords and cables must be free of splices or taps. Clamps or other securing means must be provided on flexible cords or cables at plugs, receptacles, tools, and equipment. The cord jacket must be held securely in place. All cord, cable and raceway connections must be intact and secure. In wet or damp locations, electrical tools and equipment must be appropriate for the use or location, or otherwise protected.

### **8.9 Material Handling**

In the handling of materials, employees must know the following: There must be safe clearance for equipment through aisles and doorways. Vehicles must be shut off and brakes must be set prior to loading or unloading. Containers of combustibles or flammable, when stacked while being moved, must be separated by dunnage sufficient to provide stability. Trucks and trailers will be secured from movement during loading and unloading operations. Hand trucks must be maintained in safe operating condition. Hooks with safety latches or other arrangements will be used when hoisting materials, so that slings or load attachments won't accidentally slip off the hoist hooks. Securing chains, ropes, chokers or slings must be adequate for the job to be performed. When hoisting material or equipment, provisions must be made to assure no one will be passing under the suspended loads.

### **8.10 Portable Power Tools**

Portable power tools pose a special danger to employees because they are deceptively small and light, yet they can do great bodily harm if used improperly or poorly maintained. These rules apply

to all power tools, but are especially important when handling portable saws, drills and power screwdrivers. Check your equipment before you use it. All grinders, saws and similar equipment should be equipped with appropriate safety guards. Power tools should not be used without the correct shield, guard, or attachment, recommended by the manufacturer. Portable circular saws must be equipped with guards above and below the base shoe.

Circular saw guards should be checked periodically and before each use to assure they are not wedged up, thus leaving the lower portion of the blade unguarded. All rotating or moving parts of equipment should be guarded to prevent physical contact. All cord-connected, electrically operated tools and equipment should be effectively grounded or of the approved double insulated type. Effective guards must be in place over belts, pulleys, chains, sprockets, on equipment such as concrete mixers, air compressors, etc.

If portable fans are provided, they must be equipped with full guards or screens having openings 1/2 inch or less. Do not attempt to lift heavy objects without proper equipment. Hoisting equipment will be made available for lifting heavy objects, with hoist ratings and characteristics appropriate for the task. Power tools are either battery operated or wired. If battery operated, don't under-estimate their power. A small electric drill or power screwdriver can cause a severe injury if it lands in the wrong place. Typically used with extension cords, the more powerful hard-wired equipment presents a double safety problem: the actual equipment plus its electrical power source. Ground-fault circuit interrupters must be provided on all temporary electrical 15 and 20-ampere circuits used during periods of construction. Pneumatic and hydraulic hoses on power-operated tools should be checked regularly for deterioration or damage.

### **8.11 Tool Maintenance**

Faulty or improperly used hand tools are a safety hazard. All employees shall be responsible for ensuring that tools and equipment (both company and employee-owned) used by them or other employees at their workplace are in good condition. Hand tools such as chisels, punches, etc., which develop mushroom heads during use, must be reconditioned or replaced as necessary. Broken or fractured handles on hammers, axes and similar equipment must be replaced promptly. Worn or bent wrenches should be replaced regularly. Appropriate handles must be used on files and similar tools. Check your tools often for wear or defect. Jacks must be checked periodically to assure they are in good operating condition. Tool handles must be wedged tightly into the heads of tools. Tool cutting edges should be kept sharp enough so the tool will move smoothly without binding or skipping. When not in use, tools should be stored in a dry, secure location.

### **8.12 Ladders**

Check ladders each and every time before you climb. Ladders should be maintained in good condition: joints between steps and side rails should be tight; hardware and fittings securely attached; and movable parts operating freely without binding or undue play. Non-slip safety feet are provided on each ladder. Ladder rungs and steps should be free of grease and oil. Employees are prohibited from using ladders that are broken, missing steps, rungs, or cleats, or that have broken side rails or other faulty equipment. It is prohibited to place a ladder in front of doors opening toward the ladder except when the door is blocked open, locked or guarded. It is prohibited to place ladders on boxes, barrels, or other unstable bases to obtain additional height. Face the ladder when ascending or descending. Be careful when you climb a ladder. When portable rung

ladders are used to gain access to elevated platforms, roofs, etc., the ladder must always extend at least 3 feet above the elevated surface and secured. It is required that when portable rung or cleat type ladders are used, the base must be so placed that slipping will not occur, unless it is lashed or otherwise held in place. All portable metal ladders must be legibly marked with signs reading "CAUTION" - "Do Not Use Around Electrical Equipment." Only adjust extension ladders while standing at a base (not while standing on the ladder or from a position above the ladder). Metal ladders should be inspected for tears and signs of corrosion. Rungs of ladders should be uniformly spaced at 12 inches, center to center.

### **8.13 Floor and Wall Openings**

Be careful when working near floor and wall openings. All floor openings (holes) should be guarded by a cover, guardrail or equivalent barrier on all sides except at the entrance to stairways and ladders. Toe boards must be installed around the edges of a permanent floor opening. Before beginning work at a new location, inspect it to insure that all floor openings, which must remain open, such as floor drains, are covered with grates or similar covers.



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**EXPERT TECHNOLOGY CHOICE CORP.**  
**PLUMBING FIXTURES INSTALLATION & SAFETY PROCEDURES**



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The safety concerns for plumbers are varied. They involve lifting, welding, chemicals, asbestos, and burst steam pipes. The best premise for any safe operation is to know how to use the machines worked with.

### POWER MITRE SAW

There is a high incidence of injury for those who use a 'chopsaw.' Do not hurry when cutting; keep downward motion smooth; and don't 'push' the blade through the wood, as this is unnecessary for effective cutting. Take time to check the area for any obstructions. Also, the placement of the guide hand must not be overlooked. Along with a power brake, this saw has a 'dead man' switch positioned just before the trigger, which, when depressed, shuts off the saw.

### DRILL PRESS

Make sure that the bit is sharp before installing it. Do not leave the key in the chuck and do not adjust the height of the drill press with a piece of wood. Take the time and effort to bend down and reach under to adjust the height of the platform. Clamp objects that could spin or move.

### ASBESTOS

If you know something contains asbestos, **DO NOT go near it.** Report the location of the asbestos to Environmental Health Services. Supervisors should contact proper personnel if asbestos needs to be removed in the job area. **Asbestos removal can only be done by people trained and certified in the procedure.**

### HAND TOOLS

Review the GENERAL WORK RULES (Chapter 2), General Equipment Safety section (see page 2-9) of this manual.

### SAFETY PRECAUTIONS FOR POOL WORK

- ☐ Do not wear steel-toed boots/shoes or other types of heavy-duty work boot/shoe on decks. Any footwear worn must be covered with paper booties (available in Stores/Warehouse). The booties will prevent bacteria and sharp objects (glass and stones) from being tracked into the pool area.
- ☐ Wear a mask and eye protection to avoid any dust.
- ☐ Store soda ash, aluminum, and sodium bicarbonate in places that are high and dry.
- ☐ Refer to the GENERAL WORK RULES (Chapter 2), Lifting, Carrying, and Handling Safety Section (see page 2-8)

## TRAVEL IN HAZARDOUS, ISOLATED, OR CONFINED SPACE AREA

Review the CONFINED SPACED ENTRY PROGRAM (Chapter 18) of this manual. You must contact the plumbing foreman before entering any of these areas.

When traveling in isolated areas alone, people must know your whereabouts at all times. Use the checkout board in the plumbing office and tell someone in the department of your location and expected time of return. The dispatcher may be contacted.

### Travel in Steam Tunnels

- ☐ Review CONFINED SPACE ENTRY PROGRAM of this manual.
- ☐ Coordinate entry with Heating Plant personnel. Use the buddy system.
- ☐ Contact dispatcher before leaving, provide estimated time of return, and check in at time of return.
- ☐ Take any necessary equipment such as a flashlight.
- ☐ Check with heating plant for any asbestos location.

#### Hazards to Avoid

- ☐ Avoid any chemicals that you may find under sinks. Do not move the container; ask the resident to move it. Lay down mats to protect yourself against chemical burns.
- ☐ Beware of uncovered steam pipes. Consider any exposed steam pipe to be hot.
- ☐ Inform Dispatch of these pipes so they can be covered accordingly.
- ☐ Lighting is often inadequate. Prepare for this situation by carrying a trouble light into the area in which you will be working.

## SAFETY PROCEDURES FOR MECHANICAL SERVICES

Due to the overlapping duties and the demise of the Mechanical Services section in Trades, HVAC, welding, and sheet metal duties are presented together in this chapter because of their close proximity to each other. People in these shops (Electrical, Environment, and Plumbing) should read the other shops' information due to the overlapping of duties. For example, both HVAC and Welding use the oxyacetylene torch, so personnel in both shops should know how to use it safely. Working with sheet metal, personnel use brazing, welding, and soldering.

The Electrical Shop, having taken over the functions of Motor Shop, cares for the proper functioning of airflow through the buildings on campus. While the heating and cooling of the buildings have only minimal safety hazards, jobs that involve maintenance of a fume hood can be extremely hazardous. This

section will provide information necessary to feel comfortable with the duties that you are asked to perform, with information on fall safety and roof access.

As a worker in HVAC, you will be asked to use ropes and slings, hydraulic rigging, "come-alongs," and block and tackle rigging. After setting up any of this equipment, step back and check to see that it is correct. Avoid any unnecessary hazards. Work efficiently and safely. Do not rush during work.

Usual attire has been discussed in the general section of this manual. Wear steel-toed, leather boots/shoes. The only exception is when working on the cooling towers; wear athletic shoes, as the surface is slippery. Proper footwear is a personal responsibility. See GENERAL WORK RULES ( Chapter 2), Safety Shoes Section (see page 3).

## **The next three sections discuss the different facets of HVAC and any hazardous information of which you should be aware.**

### **HEATING**

There are three types of heating: hot water, steam, and gas forced air. These sources of energy are potentially dangerous. The hot water temperature is 180 degrees Fahrenheit and can scald the skin; a steam leak can cause burns; and natural gas is highly combustible. You must be aware of the potential for explosion.

When working on pumps and motors, you will often be working in water. There are boots available, including hip waders that should be worn. After putting on the appropriate gear, be sure to lock out the circuit prior to any work. And, as a safety precaution, carry a meter even after the circuit is dead. There is always a possibility that the pump or motor is still energized. Act on the side of caution. And be aware of the Lockout/Tagout procedure in Chapter 27.

If asbestos is encountered when performing work, discontinue work and report it to your supervisor immediately. Asbestos should not be disturbed. Only qualified, certified personnel may handle asbestos-containing materials.

### **VENTILATION AND ROOF ACCESS**

Be familiar with the new procedures concerning Roof Access and clearances (see Chapter 25). The major concern of working with ventilation is fume hoods, because of their previous contents. Ask lab occupants what chemicals have been sent up the hood. If in doubt, or if a clear answer is not available, radio the shop supervisor and make him/her aware of the situation. Also contact the Building Proctor. Be familiar with other hoods attached to the ducts.

Ventilation work is performed on rooftops, some with restricted access. Always be aware of your body position.

If you must bring to the shop any potentially contaminated materials, for instance, a fan housing, at the very minimum, run water on it. If decontamination is required, contact Environmental Health Services (EHS) prior to transport or handling for a sample survey.

### **AIR CONDITIONING AND REFRIGERATION**

The main safety hazards when working with air conditioning and refrigeration are Freon, electrical components, displaced oxygen levels due to large Freon leaks, and heavy components and equipment. Any hazardous condition encountered must be reported to your supervisor.

When transferring large volumes of Freon (larger than 30 lb. container) and/or working in a confined space, oxygen detectors should be used. Respiratory equipment (oxygen bottle and mask) should be readily available when working with, loading, or recovering Freon due to the hazard of phosgene gas, an odorless, green toxin.

#### Should a major Freon leak occur:

- ☐ Evacuate the area immediately.
- ☐ Call 911. CSUPD will contact all non-university agencies requiring notification (Poudre Fire Authority, etc.)
- ☐ Contact Environmental Health Services
- ☐ Radio the shop supervisor to notify him/her of the situation
- ☐ Poudre Fire Authority will gain control of the building and will not release it until the oxygen level is safe for re-entry.

#### SAFE USE OF OXYACETYLENE CUTTING TOOL

The main dangers of oxyacetylene cutting are fire, burns, and toxic fumes. If a person feels dizzy or nauseated, or has blurred vision, they should discontinue the job and get some fresh air.

#### PRECAUTIONS

- ☐ When using oxyacetylene torches, make sure that a multipurpose dry-chemical fire extinguisher is readily available and in working condition. It is recommended that a 10 lb. (4A.40BC) portable extinguisher be on hand.
- ☐ When using torch indoors, use only in a well-ventilated place.
- ☐ Wear welding goggles and protective clothing including gloves and welding shield. Keep gloves, hands, and clothing free of oil and grease. Wear gloves to handle hot metal.
- ☐ Avoid breathing toxic fumes like galvanized metal fumes, and some paint fumes.
- ☐ Use welding shield for jobs on campus that can be seen from passersby.
- ☐ Do not leave a burning torch unattended.
- ☐ Cut or weld at least 5 feet away from cylinders.
- ☐ Always use regulators; do not use oxygen or acetylene directly from cylinders. Be sure that the regulators used are of the proper design for the cylinder.
- ☐ Use flint lights, **NOT MATCHES**, for lighting torch.
- ☐ Use hoses designated for oxygen and acetylene only.

- ⚠ Do not use oil on regulators, torches, fittings, or any equipment surface that may come in contact with oxygen. Be especially careful not to oil or grease oxygen fittings. These substances will ignite with a violent explosion.
- ⚠ Do not use compressed oxygen to clean off clothing, as compressed oxygen is not compressed air. Oxygen speeds up combustion, and if clothes become oxygen-soaked, they will need only a spark to burst into flames.
- ⚠ Do not breathe compressed oxygen directly from cylinder or hose.
- ⚠ Use soap and paintbrush to test connections for leaks.
- ⚠ Do not use acetylene at pressures higher than 15 pounds per square inch (psi). Acetylene becomes unstable and highly explosive when pressure is over 15 psi.
- ⚠ Do not cut or weld directly on gravel or concrete.
- ⚠ Keep heat, flames, and sparks away from combustibles.
- ⚠ Do not cut or weld on containers that have been used to store combustible materials unless containers have been properly cleaned and purged. Containers that fall into this category are ones that once contained nitrogen, carbon dioxide, or argon.

## Safety Rules for Operating Hi-Ranger (Aerial Lift)

*See HI-RANGER (AERIAL LIFT) SAFETY PROCEDURES, Chapter 21 of this manual.*

### SHEET METAL

- ⚠ Always be aware of your environment. Keep the work areas as clean as possible; clean up metal scraps immediately after using any of the cutters.
- ⚠ When carrying an object that weighs more than 50 pounds, use one of the two-wheelers (dolly).
- ⚠ If you use the solvent tank, put on the rubber gloves found on the tank.
- ⚠ When soldering or welding in the shop, remember to turn on the exhaust fan.
- ⚠ When welding, lens' light-resistance should be rated #9- #11

## PLUMBING 12-5 Safe Use of the Machines in the Shop

**BAND SAW:** Use the light provided on the saw at all times. Use a push stick to guide wood through the saw rather than guiding it with your hands.

**BRAKE MACHINE:** The brake machine bends metal. As the arms move, there is a chance of being hit below the belt. When using the machine make sure that the area is clear of personnel. If someone else is using the machine, stay clear of its operation.

**SHEARS:** The shears cut metal. They are relatively safe to operate, but always be aware of your hand position. Keep hands away from the blades as you depress the footplate. Immediately after using the machine, clean up the scraps.

**GRINDER:** Wear gloves and full-face shield provided at the grinder. Use only the front of the grinding wheel, not the side. This will avoid wearing down the wheel and causing it to break.



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**EXPERT TECHNOLOGY CHOICE CORP.**  
**FALL PROTECTION PROGRAM**  
**OSHA 29 CFR 1926.500-503 SUBPART M**



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- **FALL PROTECTION**

**2.1 OSHA References:** 29 CFR 1926 Subpart M (500- 503)

**2.2 General:** The purpose of this program is to prevent work-related injuries resulting from falls. The prevention of these incidents will be accomplished by the use of fall prevention and fall arrest methods, the training of effected employees and aggressive enforcement by all levels of management.

**2.3 Application:** This policy applies to all company employees who may be exposed to fall hazards in the course of their daily activities. This program also applies to non-site personnel, visitors or any individual on site exposed to a fall hazard. Unless otherwise specified, fall protection is required at elevations of 6 ft. or greater for the following work activities.

Examples of areas were employees may have to be protected include but are not limited to the following:

- Leading edges
  - Hoist areas
  - Holes in walk surface
  - Framework and reinforcing steel
  - Ramps, runways, and other walkways
  - Excavations
  - Working over Dangerous equipment
  - Roofing work on low or steep sloped roofs
  - Precast concrete construction
  - Wall openings
  - Scaffolds
  - Aerial lifts
  - Overhand brick laying
- **Subcontractor's Plans:** Subcontractor plans will meet or exceed the requirements of this program. Plans must be submitted to the company project manager before beginning work. Site-specific plans must be submitted for any specialized fall protection. In an example:
    - Controlled access zones
    - Warning line system
    - Safety Monitoring System
  - **Responsibilities:** In addition to responsibilities previously outlined in the Site Safety Program, the site safety coordinator or designated competent person for fall protection will be responsible for the training of all effected company employees and enforcement of the company policy.
  - **Training:** The instructor shall be adequately trained in the fall protection system in use and shall be responsible for training all potentially exposed employees during the new employee orientation. In the event a new system is employed, additional training on this system will commence immediately for all effected employees.
    - Training will include, at a minimum:
      - The company fall program requirements.
      - Identification and elimination of fall hazards on the job site.
      - Safe work in hazardous areas.
      - Hazards associated with working near fall hazards.

- Selection, use, care and inspection of fall protection equipment.
- All training must be documented in the following manner:
  - The date of training.
  - The employees printed name and signature.
  - The printed name and signature of trainer.
  - The specific subjects covered in the training session.
  - Testing results (if any).
- **Retraining:** When the employer has reason to believe that any effected employee who has already been trained does not have the understanding and skill required under employee training, the employer shall retrain each such employee. Circumstances where retraining is required include:
  - Changes in the workplace where previous training is obsolete.
  - Changes in the type of fall protection systems or equipment where previous training is obsolete.
  - Inadequacies in an employee knowledge or use of fall protection system or equipment indicate that the employee has not retained the training provided.
- **Accountability and Enforcement:** All field personnel will be held accountable for the enforcement and compliance with this program. Documented safety inspections, repeat discrepancies, accident investigation and implementation of accident investigation recommendations will provide the criteria for effectiveness of enforcement. Failure to comply with this policy will result in the following:
  - **First offense:** A written warning notice will be issued to the employee or employing subcontractor.
  - **Second offense:** The employee will be dismissed from the work site.
  - **Subcontractors:** Subcontractor's who fail to effectively enforce fall protection requirements or whose employees consistently violate fall protection requirements will be requested to leave the work site for failure to comply with contract requirements.
- **Hazard Identification And Elimination:**
  - Compliance with fall protection requirements will be a mandatory item for all documented safety inspections. Fall protection inspections will focus on the following hazards:
    - Scaffolds
    - Ladders
    - Steel Erection
    - Roofing
    - Floor holes
    - Open sided floors
    - Aerial lifts
  - The hazard identification process shall begin in the pre-bid phase with review of the scope of work, blueprints and drawings. Where feasible, pre-planning will be accomplished to prevent employees from being exposed to fall hazards. The following pre-planning steps must be considered:
    - Order and install stairways with the guardrails already attached.

- Request the designer/architect specify proper anchor points for fall arrest systems.
- Do not cut opening in the floors or ceilings until the material is being installed, eliminating the need for hole covers.
- Attach all guardrails on open sided floors before employees are allowed to work on that level.
- Install stairs, guardrails, and other fall protection equipment early in the construction phase.
- Require subcontractors to install fall protection systems on horizontal industrial steel prior to installation.
- Maximize on ground assembly of structure or equipment.
- Plan for the utilization of aerial lifts for all steel erection and concrete pre-cast erection.
- Controlled access zones are not allowed for leading edge operation at company locations. The work method employed will include a horizontal lifeline behind the leading edge, designed for multiple employees, with retractable lanyards attached for employees working on the leading edge. Equipment used will not allow employee to travel into the fall zone of a leading edge.

○ **Conventional Fall Protection:**

- **Guardrails:** Guardrail systems incorporate a top rail at 42 inches, plus or minus 3 inches above the working platform, mid-rail and toe board. On all company projects, guardrails will be constructed of 2" X 4" construction grade lumber with posts no more than 8 feet on center; ¼" or greater wire cable, flagged every 6 feet with high visibility material; or 1.5 inch nominal diameter schedule 40 pipe with posts spaced no more than 8 foot on center. All guardrails shall be capable of supporting a 200-pound force in any direction with a maximum deflection of 3 inches. These guardrails will be placed in the following areas:
  - All stair systems.
  - All open sided floors.
  - Around all holes which are too large for hole covers.
  - On all elevator shaft openings.
  - On all excavations over six feet in elevation.
  - All scaffolding with working platforms over 6 feet.

- **Safety Nets:** Safety nets will be used only during steel erection activities, when working over water and on unique projects when other conventional systems (such as guardrails, hole covers, etc.) are not feasible. In the vent safety nets are employed, the following guidelines will be used:
  - Nets will be installed as close as possible under walking/working surface, but in no case will an employee be exposed to a fall of greater than 30 feet.
  - Safety Nets will extend outward from the outer most edge of the work surface in the following manner:

Fall Distance	Extension
Up to 5' fall	8-foot extension
More than 5' to 10' fall	10-foot extension
More than 10' (do not exceed 30')	13-foot extension

- Nets shall be installed in a manner that will prevent an individual from striking any object below the net.

- Nets will be installed, tested and inspected by a competent person. All nets will be initially drop tested with a 400-pound bag of sand as specified in the OSHA standard and tested each week thereafter. Results of the tests will be documented. Where tests are not feasible, a competent person must certify the compliance of the net.
  - Site safety personnel will inspect nets each day. Results of inspections shall be documented.
  - Nets will be inspected after any occurrence, which could affect its integrity, such as a steel member falling into the net or shock loading due to a fall.
  - Any materials, tools, scrap or equipment that falls into the net must be removed as soon as possible, but no later than the end of the work shift.
  - Safety net design and connections shall comply with OSHA standards and manufacturers recommendations.
  - Nets that are found to be out of compliance will be immediately identified and no work will be performed until the compliance issues are resolved.
- **Hole Covers:** A hole is defined as a gap or void 2 inches or more in its least dimension in a floor, roof or other walking /working surface. Employees must be protected from falling into or through holes, including skylights that are 6 feet or more above lower levels. Where holes exist, they must be equipped with guardrail systems as described above or covered with a hole cover as described below:
- Hole covers will be capable of supporting two times the maximum intended load. (For roadways and vehicles, two times the maximum axle load of the largest vehicle expected to pass). For plywood hole covers, the minimum requirement is ¾ CDX plywood.
  - All covers must be secured when installed so that wind, equipment or employees will not displace them.
  - All covers must have the words “DANGER – HOLE COVER” written on them in high impact, durable color.
  - All covers must be installed to eliminate any tripping hazard.
- **PERSONAL FALL ARREST SYSTEMS/EQUIPMENT:**
- **Harness and Lanyard:** Only 4-point suspension harness and shock absorbing lanyards shall be used. Lanyards shall be equipped with locking snap hooks.
    - The designated competent person shall inspect equipment at time of issue and periodically throughout the project. The using employee shall inspect for defect and condition prior to use and on return after use. Damaged or defective equipment shall be tagged and removed from the work site or destroyed and disposed. Shock absorbing lanyards and harness that have experienced a shock load; pitting, chaffing, burn holes or chemical exposure shall be immediately destroyed and disposed to prevent accidental use.
    - All harnesses shall be properly fitted and worn. Equipment users shall be trained and instructed in the proper selection, care, use and inspection of fall protection equipment.

- Caution shall be used in selection of all fall protection equipment to ensure the proper length and application. Swing distance shall be considered when selecting connection points and lanyard or tether length.
- Fall protection anchor points shall be capable of sustaining 5000 lbs.
- Specifically engineered slings and or chokers used to provide anchor points for lanyards shall not extend the fall distance beyond 6 foot.

▪ **Self Retracting Lifelines:**

- Self-retracting lifelines are part of a complete fall protection system, which automatically limits the free fall distance to 2 feet or less, consists of:
  - An anchorage point capable of supporting 5000 lbs.
  - A locking type connector to mount the device to the anchorage point.
  - The self re-tracting lifeline with locking snap hook.
  - A 4-point suspension harness
- The installation of this device shall be directly over the work area.
  - Attached to an anchor point that is capable of sustaining 5000lbs.
  - Attached by locking snap hook to the harness “D” ring in the center of the wearers back.
  - Only one individual may be attached per unit.
- Before use, the unit shall be inspected for any indication of damage, wear or malfunction including worn cable or damaged locking snap hook.
  - Pull approx. four feet of cable out of the housing and allow to retract. Maintain a slight tension on the cable. The cable shall retract smoothly and completely. DO NOT ALLOW THE CABLE TO RETRACT FREELY.
  - Repairs and adjustments may not be accomplished in the field. Malfunctioning units will be tagged “do not use” and removed from the site immediately. Equipment subjected to a shock load will be tagged and removed from the site immediately.

○ **Selection And Installation Of Anchorage Points:**

- The selection of the proper anchorage point is critical to the effectiveness of fall protection. Anchorage points shall be:

- Capable of sustaining a load of 5000 lbs.
  - Located equal to or above the point of operation.
  - Located above the work area to minimize or eliminate “swing” in the event of fall.
- Anchorage points should be identified and installed prior to lifting and setting equipment in place.
  - Anchorage points selected should be positioned to allow employees to immediately connect fall protection equipment without unprotected travel from anchorage point to anchorage point.
- **Personal Fall Restraint System:** A fall restraint system physically restricts or stops the fall before it occurs. For example, a harness with a cable attached, which is short enough to halt the employee before they step over an open-sided floor is considered a fall restraint system. Fall restraint systems will meet the same requirements of the positioning system and personal fall arrest system. The anchorage point, however, must be capable of supporting 200 pounds.
  - **Positioning System:** Positioning systems shall conform to the following provisions:
    - Positioning devices shall be rigged to prevent a free fall more than 2 feet.
    - Shall be secured to an anchorage capable of supporting at least twice the potential impact load of an employee’s fall or 3000 lbs, which ever is greater.
    - Connectors shall be equipped with locking snap hooks and sized to be compatible with the member to which they are connected.

- **FLOOR AND WALL OPENINGS:** Slips, trips and falls are well known causes of workplace injuries. These injuries occur when employees fall through floor opening/sand wall openings. This section provides general guidelines for guarding off floor and wall openings. It is not possible, however, to cover all potential areas of concern. The OSHA Standard, other sections of barricading, housekeeping, etc., in this manual and our client procedures are additional resources and should be consulted.
- **General:**
  - All workplaces, passageways, storerooms and service rooms must be kept clean and orderly and in a sanitary condition.
  - Floors must be maintained, and drainage, platforms or mats must be provided for wet surfaces.
  - Floors must be free from protruding nails, splinter, holes, loose boards, etc.
  - Aisles and passageways must allow sufficient safe clearances for handling equipment, i.e. forklifts, hand trucks, pallet jacks, etc. They must be kept clear and in good condition.
  - Permanent aisles and passageways must be marked.
  - Cover and guardrails must be provided for open pits, tanks, vats, ditches, etc.
  - A load placed on any floor, roof, or other structure greater than that approved by the building official or indicated on the load approval plates installed on the facility.
- **Guarding Floor Openings And Holes:**
  - All floor openings large enough for an employee's foot to enter must be covered.
  - Stairway floor openings must be guarded with standard railings.
  - Ladder way openings or platforms must be guarded by a standard railing and toe board on all exposed sides.
  - Entrances to ladders from platforms or ladders from platforms must be guarded by a swinging gate or offset to prevent walking into the opening.
  - Hatchways and chute openings must be guarded by hinged floor coverings or removable railing with toe boards.
  - Hatchways equipped with hinged covers must be guarded when open.
  - Skylight floor openings and holes must be guarded by standard screens or railings.
  - Pits and trap door openings must be guarded by covers. When the cover is open, a person must constantly guard the hazard.
  - Manhole openings must be guarded by covers. When the cover is open, a person must constantly guard the hazard.
  - Temporary opening guarded must be guarded by a person in attendance.
  - Floor holes with fixed machinery must be protected so that there is no opening greater than 1 inch.

- Platform doors or gates that open directly on stairways must not reduce the effective platform width to less than 20 inches.
- **Wall Openings (30 Inches High and 18 Inches Wide):** These guidelines apply to wall openings with a drop of four (4) feet or more.
  - Openings must be guarded by rail, fence, barrier, and a removable toe board.
  - A grab handle will be provided on each side of the opening approximately four (4) feet above the floor.
  - Guards must be provided for extension platforms.
  - Chute wall openings must be guarded.
  - Window openings with a drop of over four (4) feet and less than three (3) feet above the platform must be guarded with standard grills or slats.
  - Temporary wall openings must be guarded.
  - If materials can fall through wall holes, toe boards or screens must be provided.
- **Open-Sided Floors, Platforms and Runways:** These guidelines apply when the open sided floor, platform or runway is four (4) feet or above ground.
  - Standard railing must be provided.
  - Toe boards must be provided if persons can pass beneath the opening, moving machinery is beneath the opening, or equipment is in a position that would create a hazard if contacted by falling materials.
  - Special purpose runways used for oiling, etc., over 18 inches wide, may be guarded on one side only when all other hazards are guarded against.
  - Standard railings must be provided above dangerous equipment i.e., tanks, vats, etc.
- **Stairways, Railings and Guards:** Stairs with four or more risers must be provided with protection.
  - Stairs with a width of less than 44 inches must be provided with a handrail on the right-side descending for enclosed stairs.
  - Stairs with a width of 44 inches must be protected on the open side.
  - Stairs of less than 44 inches must be protected on both sides when both sides are open.
  - Stairs of more than 44 inches and less than 88 inches must be protected on each side.
  - Stairs of more than 88 inches in width must be protected on each side and in the middle.
  - Winding stairs must be constructed so that the handrail prevents walking on tread with a width of less than 6 inches.
- **Standard Railings:**

- Standard railings consist of a top rail, intermediate rail (approximately halfway from surface to top rail), and posts and must be no higher than 42 inches.
  - Stair railing must not have a vertical height of more than 34 inches nor less than 30 inches.
  - Wood railings must be 2 inches by 4 inches and span must be six feet or less.
  - Pipe railings must not be less than 1 and ½ inches in diameter and the span must not be more than eight feet on center.
  - Structural steel railings must be 2 inches by 2 inches by 3/8 inches and span more than 8 feet on center.
  - Anchoring must be capable of withstanding 200 pounds applied to the top rail of approximately all railways.
  - Other acceptable railing must have a smooth-surfaced top rail, 200 pounds capacity and provide for equipment protection.
- **Toe Boards:** Must be four inches in vertical height, and no more than ¼ inch clearance from the floor. **NOTE: More vertical clearance must be provided if materials are to be stacked above the toe board.**
- **HANDRAILS:**
- Attachments to handrails must offer no obstruction to the user.
  - They must furnish an adequate handhold.
  - They must present no projection hazards into the walking or working area.
  - The height of the handrail must not be more than 34 inches nor less than 30 inches.
  - Handrails must be capable of withstanding a 200-pound force.
  - Wood handrails must be 2 inches in diameter.
  - Pipe handrails must be 1 and ½ inches in diameter.
  - All handrails must provide a 3-inch clearance from any object or wall.
- **Floor Opening Covers:**
- Trench/conduit covers in roads must be able to withstand a rear axle load of 20,000 pounds.
  - Manhole covers must withstand 20,000 pounds.
  - Covers must not project more than one inch above floor and no more than 30-degree angle.
  - Sky light screens must be capable of withstanding a 200-pound load
    - Must be installed to prevent deflection to break glass.
    - The grillwork opening must not be more than 4 inches.

- Slat work openings must not be more than 2 inches.
- Wall opening rails must be capable of withstanding 200-pound load.
- Wall opening grab handles must not be less than 12 inches.
  - Must provide for a 3-inch clearance.
  - Must allow for 3 inches of side clearance.
  - Must withstand a 200-pound load.
- Wall opening screens must withstand a 200-pound load.
  - Grillwork opening must not be more than eight inches.
  - Slat work openings must not be more than four inches.
- **Fall Protection Equipment:** All employees working in areas described in the preceding paragraphs and not protected in prescribed manner must be equipped with fall protection harness and lanyard. Care must be exercised in selection of shock absorbing lanyards to insure the proper length.
- **Replacement of Railings and Coverings:** All rails, covers, etc., removed for equipment installations will be immediately replaced. In no event shall a floor or wall opening be left unattended or unguarded in the appropriate manner.



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