

Industrial Linings, Inc. Health and Safety Manual

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SECTION A: WORKPLACE POSTING REQUIREMENTS POLICY

1.0 Purpose

The purpose of this policy is to inform all employees of Industrial Linings, Inc. of their rights under various Federal, State, and Local laws by posting these requirements at each worksite

2.0 Scope

All employees who are under the direct supervision of Industrial Linings, Inc.

3.0 Requirements

Each worksite shall have the following documentation posted in a conspicuous place available for employees of Industrial Linings, Inc. to inspect.

1. Access to medical records
2. Child Labor Law
3. Employee Polygraph Protection Law
4. Equal Employment Opportunity
5. Family and Medical Leave Act
6. Federal Minimum Wage
7. Job Safety and Health Protection Act
8. Unemployment Compensation Act

SECTION B: STANDARD SAFETY RULES

The most valuable tool you can have to protect yourself from the hazards of your job is common sense. You must remain alert for yourself as well as for your fellow employees in order to avoid accidents, injuries, and health hazards. Remember, safety begins with you!

1. Follow instructions; take no chances; if you don't know, ask for safe job instruction
2. Report immediately to your supervisor any condition or practice you think might cause injury to employees or damage to equipment
3. Put everything you use or handle in its proper place. Disorder causes injury, wastes time, energy and material. Keep your work area clean and orderly.
4. Use the right tool and equipment for the job; use them in a safe manner.
5. Whenever you or the equipment you operate are involved in any accident that results in personal injury or damage to property – regardless of how minor – you must immediately report it to your supervisor. Get first aid as soon as possible.
6. Use, adjust and repair equipment only when authorized.
7. Wear proper eye protection whenever your eyes are exposed to danger. Use all other prescribed equipment regularly. Wear safe-toe shoes and safe clothing. Keep them in good condition.
8. Don't horseplay; avoid distracting others.
9. When lifting, bend your knees, grasp the load firmly, and then raise the load, keeping your back as straight as possible. Get help for heavy loads.

10. Obey all specific rules, signs and instructions.

Your life should be of the greatest importance to you and your family. Anything that can be done, whether at the management level of the employee level, is of maximum importance if it will prevent serious injury or have saved one life. Safety awareness and proper safety attitude will saves lives, prevent injuries, increase efficiency and reduce costs.

SECTION C: PROHIBITED ITEMS AND SUBSTANCES POLICY

1.0 Purpose

To prevent the possession or use of items or substances that could be detrimental to any Industrial Linings, Inc. employees or worksites.

2.0 Scope

All employees of Industrial Linings, Inc.

3.0 Policy

The following items and substances are prohibited on Industrial Linings, Inc. worksites and in the possession on Industrial Linings, Inc. employees at any place while performing assigned duties, except as expressly permitted by the company:

1. Drugs of any kind, including prescription and over-the-counter medications except as provided below
2. Intoxication beverages
3. Explosives, firearms, and other weapons

4.0 Searches

Anyone who enters Industrial Linings, Inc. worksites may be subject to searches for prohibited items and substances. When warranted and without prior notice, Industrial Linings, Inc. authorized employees or representatives may conduct searches of anyone on an Industrial Linings, Inc. worksite or any place while they are performing duties for the company. Such searches may include, but are not limited to, clothing being worn, desks, personal possessions, luggage, lockers and vehicles. Prohibited items and substances discovered may be turned over to law enforcement authorities.

5.0 Violations

Any employee who violates this policy or refuses to submit to properly authorized search will be subjected to disciplinary action including discharge.

Violation or refusal by a person who is not an employee will result in immediate and permanent expulsion from company property.

6.0 Prescription and Over-the-counter Medications

Any person may possess and use prescription and over-the-counter medications provided:

1. All such medication is kept in the original container or accompanied by an up-to-date prescription or prescription label
2. All prescription medications have been prescribed by a licensed physician for the person possessing the medication and used in strict accordance with the printed instructions
3. The user has consulted with his or her physician or approved Industrial Linings, Inc. medical personnel and has been advised by such physician or approved Industrial Linings, Inc. medical personnel that it is safe to work while using the medication
4. The user has notified his or her supervisor or responsible company representative of the possession and use of the medication and that a physician or approved Industrial Linings, Inc. medical personnel have advised that it is safe to work while using the medication

SECTION D: EMPLOYEE CONDUCT POLICY

1.0 Purpose

To assure that each employee conducts themselves in a manner acceptable to Industrial Linings, Inc. and their customers.

2.0 Scope

All employees of Industrial Linings, Inc.

3.0 Personal Conduct

1. All employees are expected to report in good conditions for work and in sufficient time to be prepared to assume the responsibilities of their job at the scheduled starting time
2. Perform any assigned work promptly, safely and efficiently
3. Use company time, tools and equipment carefully and productively
4. Deal courteously and honestly with the company, its associates, customers and their fellow employees
5. Conduct themselves at all times so that they reflect credit upon themselves and their company

Supplements to the work rules and examples of misconduct are listed below. Industrial Linings, Inc. reserves the right to apply disciplinary action up to and including discharge for other valid reasons.

Examples of misconduct, which could result in discharge for a single violation, are:

1. Sleeping while on duty

2. Possession or use of intoxicants, narcotics or barbiturates on an Industrial Linings, Inc. worksite at any time. Reporting to work or being on duty when under the influence of intoxicants, narcotics or barbiturates
3. Unauthorized possession of firearms, other weapons or explosives on Industrial Linings, Inc. property of worksites
4. Unauthorized removal, theft of Industrial Linings, Inc. property, materials, facilities or equipment or of any items of property of other employees
5. Fighting on company property at any time, or in any other place where you are engaged in performing your job assignment
6. Willful or careless abuse, damage or destruction of Industrial Linings, Inc. property, materials, facilities or equipment
7. Knowingly giving false information such as, falsification of time records, personnel records and other company records
8. Break of trust in respect to confidential information, other matters in connection with employment or Industrial Linings, Inc. business
9. Failure or refusal to perform assigned duties
10. Failure to observe and abide by safety rules and commonly recognized safe working practices

Examples of misconduct, which may result in disciplinary action less than discharge for a single violation, usually (1) one days suspension without pay, are:

1. Failure to report to work as scheduled or notified, excepting only for good and sufficient cause shown
2. Inattention to or neglect of duties
3. Failure to report promptly to supervisor any personal injury
4. Use of abusive language or otherwise violating rules of good conduct in relation with supervisors and fellow workers
5. Solicitations and distribution of literature during on-duty working time
6. Gambling in any form on Industrial Linings, Inc. worksites
7. Unexcused absences; each shift missed represents a separate violation

SECTION E: PRE-EMPLOYMENT PHYSICAL POLICY

1.0 Purpose

To assure that personnel hired by Industrial Linings, Inc. are capable of performing the task for which they could be employed. Also, to establish a baseline physical for each employee of Industrial Linings, Inc. in the event that the employee may need medical evaluation at some time in the future.

2.0 Scope

All potential employees of Industrial Linings, Inc.

3.0 Policy

Each prospective employee of Industrial Linings, Inc. will receive a physical exam at no cost to the prospective employee. A physician approved by Industrial Linings, Inc. management or management designee will perform the physical exam. The physical exam in no way implies the intent to hire. The physical exam is used to determine if the prospective employee is in good physical condition and capable of performing the task for which he or she is being considered for employment. The results of physical exams will be held as strictly confidential by Industrial Linings, Inc. and its' approved physicians. Any person who wishes to have the results of their physical exam should make a request in writing to the corporate management of Industrial Linings, Inc. After receiving a request, the results of the physical exam will be made available in a reasonable period of time.

Components of the physical exam are as follows:

1. Vital signs taken and accessed
2. Blood testing
3. Urine specimen and testing (Drug Screen)
4. Audiometric exam (optional)
5. Pulmonary function testing (optional)

SECTION F: DRUG SCREENING PROGRAM

1.0 Purpose

To assure a drug free workforce and a place of employment free from the potential hazards created by the use of illegal drugs or misuse of prescription drugs

2.0 Scope

All employees or prospective employees of Industrial Linings, Inc.

3.0 Policy

Industrial Linings, Inc. strictly prohibits the sale, distribution, use, possession or presence in body of illegal drugs or misuse of prescription drugs while working on an Industrial Linings, Inc. worksite

4.0 Pre-employment Testing

Each prospective employee of Industrial Linings, Inc. will be required as a condition of employment to submit to a drug screen. If the prospective employee's drug screen is determined to be positive and is in violation of the above stated policy, the prospective employee will be considered ineligible for employment until:

1. One year has expired from the date of the positive drug screen
2. The prospective employee submits to a second drug screening at his or her own expense and the test is determined to be negative by an Industrial Linings, Inc. approved testing site. If the second test is positive the prospective employee will be

ineligible for employment until the prospective employee completes a recognized drug rehabilitation program and submits to a drug screen at an approved testing site that is determined to be negative

5.0 Employee Drug Testing

As a condition of employment, Industrial Linings, Inc. employees may be subject to physical examinations or testing, including drug screening, by an approved Industrial Linings, Inc. physician or testing test. The following are examples of reasons or causes for which Industrial Linings, Inc. management, superintendents or supervisors may request exams or testing are:

1. If there is a reasonable cause to believe any employee is in violation of the drug screen policy
2. If an employee is involved in a job site incident or accident that results in or could have resulted in serious bodily injury or significant property loss
3. If an employee is selected at random as a part of the Industrial Linings, Inc. monitoring program
4. If the owner for which Industrial Linings, Inc. is working requests or requires drug screening

Employees determined to be in violation of the Industrial Linings, Inc. drug policy will be immediately discharged and ineligible for re-employment until:

1. The original drug screening has been determined to be in error
2. The employee successfully completes a recognized drug rehabilitation program and can successfully test negative at an approved Industrial Linings, Inc. testing site
3. Thirty (30) days from the date of the positive test has passed and the former employee submits to drug screening at an approved Industrial Linings, Inc. testing site at his or her own expense and the drug screen is determined to be negative

6.0 Assistance

Industrial Linings, Inc. recognizes that drug abuse and/or dependency are medical/behavioral conditions that can be successfully treated. Confidential assistance with these types of problems is available through public and private referral agencies. Information on these agencies will be made available at the Industrial Linings, Inc. corporate office or upon request at any Industrial Linings, Inc. worksite. Industrial Linings, Inc. urges any individual who may be in need of assistance to contact these agencies for help.

SECTION G: PERSONAL PROTECTIVE EQUIPMENT POLICY

1.0 Purpose

To assure that personal protective equipment (PPE) used by Industrial Linings, Inc. employees provides adequate protection for the hazards that exist and that the PPE meets or exceeds the requirements of the OSHA regulations.

2.0 Scope

All employees and worksites supervised by or under the direct control of Industrial Linings, Inc.

3.0 Procedure

A survey will be conducted to identify sources of hazards to workers and co-workers. Considerations will be given but not limited to the following categories:

1. Impact of tools or machinery with personnel or personnel with stationary objects
2. Penetration of objects, chemical or intense light through or into the eyes or body of personnel
3. Compression (roll over) by sources or objects that could roll or pinch causing harm to personnel
4. Chemical or product that could cause acute or chronic effects that might be harmful to personnel
5. Heat sources that could result in burns, eye injury or ignition of protective clothing
6. Harmful Dust that could cause respiratory problems or damage
7. Light (optical) Radiation such as welding, brazing, cutting, furnaces or intense light that could cause harm or serious physical damage

4.0 Data and Analysis

The data gathered as a part of the survey will be analyzed to determine the type, level of risk and seriousness of potential injury from each of the hazards found on the worksite.

5.0 Personal Protective Equipment Selection

Personal protective equipment will be selected to provide the necessary level of protection to prevent injury from all the hazards recognized during the data collection and analysis process. The equipment selected will be in accordance with the OSHA regulations.

6.0 Standard Personal Protective Equipment Requirement

1. Eye and face protection shall meet the ANSI Z-87.1 standard and impact resistant face shields will be required where needed
2. Head protection shall meet the ANSI Z-89.1 standard
3. Foot protection shall meet the ANSI Z-41.1 standard
4. Hand protection shall be used according to the task to be performed (i.e. gloves – chemical resistant, leather, welding, and lineman)

7.0 Maintenance and Cleaning

PPE must be properly cleaned and maintained as a part of its use. Cleaning allows the owner of the PPE an opportunity to sanitize and inspect the PPE periodically. Inspection should be thorough enough to assure that the PPE is in good condition and ready for future use. All defective or damaged PPE should be repaired or replaced. Damaged PPE that can be not be

site. The session is conducted by the job superintendent and includes information on how to interpret labels, hazard codes, symbols for personal protection equipment, and where to obtain further information if desired.

2.0 Employee Information and Training Programs

Industrial Linings, Inc. provides employees with information and training on hazardous chemicals in their work area, at the time of initial orientation, and whenever a new hazard is introduced to an employee in the work area.

The job superintendent or his designee conducts initial training of new employees. The Hazard Communication Program is explained in detail. Material discussed includes:

1. The requirements of the hazard communication standard 29 CFR 1910.1200
2. Any operations in the employee's specific work area where hazardous chemicals are present
3. The location and availability of the written hazard communication program including the required list(s) of hazardous chemicals and material safety data sheets required
NOTE: Be sure to obtain/use MSDS sheets of all hazardous chemicals some of which might be mild steel, stainless steel, glues, paints, resins, oils, lubricants, silica, and also materials that might create a nuisance dust hazard such as various powders
4. Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring devices, visual appearance or odor of hazardous chemicals being released, ect.)
5. The potential physical and health hazards of the chemicals in the work area which include whether the chemicals are combustible, compressed gases, explosive, flammable, organic peroxides, oxidizers, pyrophoric, unstable (reactive) or water-reactive, carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins (liver), nephrotoxins (kidney), neurotoxins (nervous system), agents which act on the hematopoietic system (blood cell development), and agents which damage lungs, skin, eyes, or mucous membranes. Also discussed are possible routes of entry for hazardous chemicals such as inhalation, skin absorption, ingestion, and eye contact
6. The measures employees can take to protect themselves from these hazards including specific procedures to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used
7. The details of the hazard communication program developed by Industrial Linings, Inc., including an explanation of the labeling system and the material safety data sheets, and how employees can obtain and use the appropriate hazard information
NOTE: Video tapes, slides, pamphlets, and formal presentations may be used in addition to the specific training as described in paragraphs 4 through 7 above. Generalized training of hazards in the workplace may not be used

to substitute the required training of the physical and health hazards of the specific chemicals that the employees are exposed to.

As employees are introduced to unfamiliar hazardous chemicals in the workplace, the job superintendent or his designee trains them on the hazards of the specific chemicals.

Additionally, when new hazards are introduced into the workplace or new information on hazardous chemicals is obtained, this information is conveyed to employees through safety meetings.

3.0 Material Safety Data Sheets

Industrial Linings, Inc. maintains material safety data sheets, MSDS, for each hazardous chemical at each work site. Each material safety data sheet is in English and contains at the least following information:

1. The identity used on the label and, subject to the trade secret provisions of the Standard, the chemical and common name(s) of the hazardous ingredient(s)
2. The physical and chemical characteristics of the hazardous chemical (such as vapor pressure and flash point)
3. The physical hazards of the chemical, including potential for fire, explosion, and reactivity
4. The health hazards of the chemical, including signs and symptoms of exposure, and any medical conditions which are generally recognized as being aggravated by exposure to the chemical
5. The primary route(s) of entry
6. The permissible exposure limits (P.E.L) and the threshold limit values (T.L.V)
7. Whether the chemical has been listed as a carcinogen or found to be a potential carcinogen in information sources prescribed by the Standard
8. Any generally applicable precautions for safe handling and use, including appropriate hygienic practices, protective measures during repair and maintenance of contaminated equipment, and procedures for clean-up of spills and leaks
9. Any generally applicable control measures, such as appropriate engineering controls, work practices, or personal protective equipment
10. Emergency and first-aid procedures
11. The date of preparation of the material safety data sheet or the last revision to it

MSDS for all hazardous chemicals that Industrial Linings, Inc. uses, are obtained either from the distributor, directly from the manufacturer or provided by their subcontractor.

The job superintendent or his designee maintains copies of the required material safety data sheets for each hazardous chemical in the workplace. These copies are readily accessible during each work shift to the employees when they are in their work areas. An employee may review the copies of the MSDS by requesting them from the individual responsible for maintaining the MSDS file.

A master set of MSDS is kept at the corporate office. In addition, each job site shall keep the appropriate MSDS.

4.0 Hazards of Non-routine Tasks

Non-routine tasks are those which employees are assigned to perform periodically but not on a daily basis (i.e. paint booth cleaning, recharging of chemical milling tanks, ventilation bag house cleaning, confined space entry, pipe breaking, ect.). If the task does not expose the employees to different hazards, which they are routinely exposed to on a daily basis, additional training will not be conducted.

Employees involved in non-routine tasks are informed of all chemical exposures during the performance of the non-routine task. The information provided includes:

1. The common name and chemical name of each substance to which the employee may be exposed during performance of the task
2. The known physical and health hazards, both acute and chronic, of the chemicals
3. The safety measures and personal protection to be taken by the employee
4. Methods of detection in case of exposure or leakage

Before beginning a non-routine procedure, employees, involved in that procedure will attend a training session during which the, above information will be explained by the safety direction or supervisor.

SECTION I: LOCKOUT/TAGOUT PROGRAM

1.0 Purpose

To protect equipment and to ensure the safety of personnel working on equipment for maintenance, cleaning, inspection, ect.

2.0 Scope

This procedure establishes the minimum safety requirements to protect personnel and equipment where personnel are required to work on any type of power activated equipment begin serviced by, installed or repaired by Industrial Linings, Inc.

3.0 Personal Lock Requirement

All personnel working for Industrial Linings, Inc. will be issued a minimum of two safety locks. Each of these locks must be individually keyed, labeled or engraved with the persons name and be identifiable as belonging to an employee of Industrial Linings, Inc. In lieu of labeling or engraving for identification, a tag may be attached to the lock, provided the tag contains the above-required information.

4.0 Lockout/Tag out Application

Prior to beginning work, all energy sources (i.e. electrical, mechanical, hydraulic, pneumatic, chemical, thermal, etc.) must be brought to a "Zero Energy State". It will be the responsibility of all personnel working on any equipment that could inadvertently start or energized, to lockout or tag out the equipment. This will offer a high level of protection to all personnel working on the

equipment and prevent an inadvertent release of energy that could serious harm to personnel or equipment.

5.0 Lockout/Tag out Removal

When the job has been completed all personnel will remove all personnel lockout or tag out devices. **NEVER** remove anyone's lockout or tag out device and **NEVER** re-energize equipment unless you have been authorized to do so and have been property trained to re-energize the equipment.

SECTION J: CONFINED SPACE ENTRY PROGRAM

1.0 Purpose

To prevent unauthorized personnel entry and for ensuring safe entry and work within confined spaces by authorized personnel.

2.0 Scope

Applicable to all employees whose duties require entry into confined spaces.

3.0 Potential Hazards

Entry or working in confined spaces may pose the following unexpected hazards:

1. Oxygen deficiency
2. Hazardous gases
3. Power driven equipment
4. Difficulty in escaping

4.0 Responsibility

All supervisors are responsible for administrating this procedure and ensuring that their personnel are in compliance.

5.0 Definitions

- A. Confined Space – a space that has any one of the following characteristics:
 1. Limited openings for entry and exit
 2. Unfavorable natural ventilation
 3. Not designed for continuous worker occupancy
- B. Authorized Entrant – a person who is authorized to enter a confined space. The name of the authorized entrant(s) will be shown on the Entry Permit
- C. Attendant – an individual whose primary responsibility is to remain immediately outside the entrance of the confined space and monitor the authorized entrants
- D. Entry – the act by which a person intentionally passes through an opening into a confined space. Entry is any action resulting in any part of the employee's face

- breaking the plane of the opening of the confined space. The person entering is the entrant
- E. Oxygen Deficient Atmosphere – an atmosphere containing more than 19.5 percent oxygen by volume
 - F. Oxygen Enriched Atmosphere – an atmosphere containing more than 20 percent oxygen volume
 - G. Blanking/Blinding – absolute closure of pipe, line or duct to prevent the transfer, movement or passage of any material
 - H. Isolation – process whereby the confined space is removed from service and completely protected against the possible release of material or energy

6.0 Responsibilities of the Attendant

- 1. The attendant will have an air horn on his person or within arms reach at all times
- 2. The attendant's main responsibility is to get help in case of emergency and at no time will the attendant leave his post except to summon help
- 3. The attendant shall never enter the confined space unless he is properly relieved by another attendant

In case of an emergency:

- 1. The attendant will sound the air horn to summon help from any personnel in the area
- 2. In the event no one is in the area, the attendant will proceed immediately to find help
- 3. Maintain effective communication with authorized entrants during entry and be alert for hazards to workers
- 4. Insure all personnel have all safety equipment according to the Confined Space Entry Permit
- 5. Account for all personnel working in the confined space
- 6. Prevent fouling of air or life lines
- 7. Normal assistance in handling material, tools, messages, ect.
- 8. Order authorized entrants to evacuate the confined space immediately when:
 - i. Alarms are activated from monitoring system
 - ii. Evacuation alarms are activated or in case of fire
 - iii. Authorized entrants show behavioral effects of hazard exposure
 - iv. An uncontrolled hazard is detected within the confined space
 - v. The attendant must leave the immediate area of the entrance to the confined space

7.0 Responsibilities of the Supervisor

Before authorizing entry, the supervisor shall:

- 1. Ensure that the Pre-Entry requirements of the Confined Space Procedure are satisfied before allowing entry into the confined space
- 2. Terminate the entry upon becoming aware of any condition not-permitted or upon completion of permit work

3. Assure that each authorized entrant is informed of the hazards which may be faced during entry; recognize the signs, symptoms and consequences of exposure to a hazard

8.0 Duties of Authorized Entrants

1. Authorized entrants will wear appropriate personal protective equipment, such as respirators or clothing, needed for safe entry and exit as outlined in the Confined Space Entry Permit.
2. Authorized entrants will exit the permit space when:
 - i. The attendant orders evacuation
 - ii. An evacuation alarm or monitoring alarms are activated
 - iii. The authorized entrants perceive that they are in danger
3. If authorized entrants are evacuated from the confined space, they will assemble together at a safe distance from the confined space for accountability.
4. Authorized entrants will maintain effective communication with the attendant

9.0 Determining Equipment Needed for Confined Space Entry

1. The supervisor shall be responsible for determining what type of equipment is needed for confined space entry
2. In determining what type of harness/life line (if needed) is essential for a specific entry, considerations will be given to:
 - i. The size of the space and opening
 - ii. The location of the opening to the space
 - iii. Obstacles within the space
 - iv. The number of workers entering the space
 - v. The type of retrieval equipment available
 - vi. Whether or not a rescue of the workers would be vertical or horizontal.
If a vertical rescue would be required from the confined space, and the depth of the space is more than 5 feet, a mechanical lifting device is needed
3. Barricades or covers should be placed at the entrance to the confined space if a potential exists for workers or objects falling into the confined space. If it is appropriate, workers themselves shall wear fall arresting equipment when entering the confined space. Safety harnesses shall be worn in confined spaces where required; no safety belts shall be allowed
4. Explosion proof lighting and air-powered tools shall be used where materials used and/or installed in the confined space could permit explosive and/or flammable vapors. Only intrinsically safe electronic devices (i.e. beepers, radios, monitors, ect.) shall be permitted in confined spaces.
5. Special equipment may be required in order to safely enter and exit the confined space

10.0 Entry Into Confined Spaces

Pre-Entry

1. Confined spaces will be emptied and purged to place it in a safe condition prior to entry
2. All process lines, natural gases, steam, ect., entering a confined space will be blinded or disconnected prior to entry. All shut off valves to those lines will be tagged out
3. Fresh air ventilating systems (i.e. air movers) shall be installed before any work or inspection is performed
4. All power drive units to confined spaces will be locked out and tagged out
5. Confined spaces will be checked for combustible gases, toxic vapors and oxygen deficiency before entry and ensure monitoring for these hazards during the course of the work.
6. The oxygen indication must not exceed 21 percent and a minimum of 19.5 percent must be present at all times
7. Concentration of combustible gases shall be less than 10 percent of the LEL (Lower Explosive Limit)
8. If toxic gases exist, the confined space shall be monitored for those contaminants according the OSHA guidelines. Respirators shall be worn when toxics exceed the OSHA action level for those contaminants

Entry Procedure

1. If the confined space to be entered is classified as a permitted confined space, a Confined Space Entry Permit shall be signed by each person entering the confined space before entry, including the attendant
2. A copy of the Confined Space Entry Permit shall be kept outside the confined space with attendant at all times
3. A monitoring system for atmospheric hazards shall be in place to ensure worker safety inside the confined space. The attendant shall be instructed that if any alarms from the monitoring system are activated, then the attendant is to order everyone from the confined space immediately
4. One attendant is required to remain outside the confined space and continuously monitor the person(s) in the confined space

11.0 Training

Personal responsible for supervising, entering or participating in confined space entry and rescue shall be adequately trained in their functional duties prior to any confined space entry. Training shall include:

1. An explanation of the general hazards associated with confined spaces
2. The reason for, proper use, and limitations of personal protective equipment and other safety-related devices required for entry into confined spaces
3. An explanation of the permit system and other procedural requirements for conducting a confined space entry
4. How to respond to emergencies
5. Duties and responsibilities as a member of a confined space entry team

Training for atmospheric monitoring personnel shall include trainings in the proper use of atmospheric monitoring instruments. This shall include field calibration, basic knowledge of the work being performed and the anticipated hazardous contaminants.

Training for emergency rescue personnel shall include the use of emergency rescue equipment and these personnel shall conduct a confined space rescue once a year.

12.0 Other Requirements

There shall be NO SMOKING in confined spaces at any time.

No person will enter a permitted confined space without the express permission of his or her supervisor and a completed Confined Space Entry Permit.

This procedure does not apply to drainage ditches, shallow pits, dikes and sumps less than 4 feet deep.

SECTION K: RESPIRATOR PROTECTION PROGRAM

The Industrial Linings, Inc. Respiratory Protection Program is designed to meet and exceed requirements of 29 CFR 1910.134, ANSI Z88.2-1992 for Respiratory Protection.

Respiratory protection is usually considered a secondary method of protection to be used when engineering and administrative controls cannot reduce an airborne toxic hazard below acceptable safe limits or engineering controls are not available.

1.0 Program Administration

The job superintendent or his qualified designee is responsible to administer the Respirator Protection Program. He or she shall assist the employee(s) in selecting the appropriate respirator required to address the potential hazardous situation. Areas and jobs listed for respirator usage are described in Appendix 1. The job superintendent or his qualified designee by training and experience has the knowledge necessary to supervise and monitor the respirator program.

2.0 Physiological and Psychological Limitations for Respirator Wearers

A physician shall determine whether or not an individual has any medical conditions that preclude or limit the use of a respirator. Medical examinations shall be coordinated through the job superintendent or his qualified designee and include the use of Medical Evaluation forms. Medical clearances shall be pre-respirator wear and annually thereafter. The Industrial Linings, Inc. corporate office shall maintain all respirator medical clearance examinations and inform the job superintendent or his qualified designee of the employee's to wear a respirator.

The job superintendent or his qualified designee in consultation with the employee's supervisor shall advise the physician of the following conditions to aid in the determination of the appropriate medical evaluation.

- i. Types of respirators for normal and emergency use.
- ii. Typical work activities, environmental conditions, frequency and duration of usage

- iii. Hazards for which the respirator equipment will be worn to include potential for oxygen deficient environments
- iv. Any other pertinent conditions such as wearing Class A or B protective suits or bunker gear

3.0 Respirator Selection

The selection of the proper type(s) of respirators shall be based upon:

- i. The nature of the hazardous operation or process
- ii. The type of respiratory hazard (including physical properties, oxygen deficiency, concentrations of toxic material, established PEL or TLV or IDLH and physiological effect on the body).
- iii. The location of the hazard in relation to the nearest area with respirable air
- iv. The period or time for which the respiratory protection must be worn
- v. The activities of workers in the hazardous area
- vi. The physical characteristics and functional capabilities and limitations of the various respirators
- vii. The assigned protection factors (ANSI Z88.2-1992) Appendix 2

4.0 Training

Each individual issued a respirator shall be given initial and annual training that shall include explanations and discussions of:

- i. The respiratory hazard and the effect on the wearer if the respirator is not worn properly
- ii. The engineering and administrative controls being used and the need to provide respiratory protection
- iii. The reason for the particular respirator selected
- iv. The functions, capabilities and limitations of the selected respirator
- v. The method of donning the respirator and checking its fit and operation
- vi. The proper wearing of the respirator
- vii. Respirator maintenance, inspection, and storage procedures
- viii. Recognizing and handling emergency situations
- ix. Applicable governmental regulations for specific substances

The job superintendent or his qualified designee and the Industrial Linings, Inc. corporate office shall maintain all training records.

5.0 Respirator Fit

Each individual shall be fit tested before being assigned a tight fitting respirator to include air-supplied respirators. Each person shall conduct a fit test of the respirator each time the respirator is donned by “negative-positive fit test”

procedure. The Industrial Linings, Inc. corporate office shall maintain all fit test records.

6.0 Maintenance, Inspection and Storage

Maintenance cleaning and storage is the responsibility of each employee issued a respirator. Industrial Linings, Inc. provides training, cleaning materials and parts for all issued respirators.

- i. Maintenance shall be according to the manufacturer's instructions and on a schedule to insure that the respirator is clean, sanitary, and functional. After each usage, the respirator shall be inspected and any damaged parts replaced
- ii. Respirators shall be cleaned after each use with the cleaning solution or pads issued by Industrial Linings, Inc. Each employee shall inspect the respirator prior to its use to assure that it is in proper working condition
- iii. Respirators shall be stored in a plastic bag and located in a clean area that has adequate room to prevent respirator distort
- iv. Cartridge and filter replacements are issued by Industrial Linings, Inc. Cartridges should not be removed from the factory sealed plastic container until the respirator is ready for use. Chemical cartridges should be changed after one week or sooner if breathing is difficult, odor is detected or the potential hazard is classified as extremely toxic
- v. The job superintendent or his qualified designee monthly shall inspect SCBA's. All records will be maintained by Industrial Linings, Inc. corporate office

7.0 Program Evaluation

The Respirator Protection Program shall be evaluated annually to determine its effectiveness and efficiency. A sampling of end user employees should be included in the evaluation. More frequent evaluations may be performed as need arises.

APPENDIX I

This section is in accordance with Appendix 0 to CFR 1926.62 - Qualitative and Quantitative Fit Test Protocols.

1. Fit Test Protocols

The employer shall include the following provisions in the fit test Procedures. These provisions apply to both qualitative fit testing (QLFT) and quantitative fit testing (QNFT) permissible for compliance with paragraph (f)(e)(ii) of §1926.62. All testing is to be conducted annually.

- a. The test subject shall be allowed to pick the most comfortable respirator from

a selection including respirators of various sizes from different manufacturers. The selection shall include at least three sizes of elastomeric face pieces of the type of respirator that is to be tested, i.e., three sizes of half mask; or three sizes of full-face piece. Respirators of each size must be provided from at least two manufacturers.

- b. Prior to the selection process, the test subject shall be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to determine a comfortable fit. A mirror shall be available to assist the subject in evaluating the fit and positioning the respirator. This instruction may not constitute the subject's formal training on respirator use, as it is only a review.
- c. The test subject shall be informed that he or she is being asked to select the respirator, which provides the most comfortable fit. Such respirator represents a different size and shape, and if fitted, maintained and used properly, will provide adequate protection.
- d. The test subject shall be instructed to hold each face piece up to the face and eliminate those, which obviously do not give a comfortable fit.
- e. The more comfortable face pieces are noted; the most comfortable mask is donned and worn at least five minutes to assess comfort. Assistance in assessing comfort can be given by discussing the points in item 6 below. If the test subject is not familiar with using a particular respirator, the test subject shall be directed to don the mask several times and to adjust the straps each time to become adept at setting proper tension on the straps
- f. Assessment of comfort shall include reviewing the following points with the test subject and allowing the test subject adequate time to determine the comfort of the respirator:
 - position of the mask on the nose
 - room for eye protection
 - room to talk
 - position of mask on face and cheeks
- g. The following criteria shall be used to help determine the adequacy of the respirator fit:
 - chin properly placed
 - adequate strap tension; not overly tightened
 - fit across nose bridge
 - respirator of proper size to span distance from nose to chin
 - tendency of respirator to slip
 - self-observation in mirror to evaluate fit and respirator position
- h. The test subject shall conduct the negative and positive pressure fit checks as described below or in ANSI Z88.2-1980. Before conducting the negative or positive pressure test, the subject shall be told to seat the mask on the face by moving the head from side-to-side and up and down slowly while taking in a few slow deep breaths. Another face piece shall be selected and retested if the test subject fails the fit check test.

Positive pressure check: Close off the exhalation valve and exhale gently into the face piece. The face fit is considered satisfactory if a slight positive pressure can be built inside the face piece without any evidence of outward

leakage of air at the seal. For most respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.

Negative pressure check: Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), inhale gently so that the face piece collapses slightly, and hold the breath for ten seconds. If the face piece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

- i. The test shall not be conducted if there is any hair growth between the skin and the face piece sealing surface, such as stubble beard growth, beard, or long sideburns which cross the respirator sealing surface. Any type of apparel, which interferes with a satisfactory fit, shall be altered or removed.
- j. If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician to determine whether the test subject can wear a respirator while performing her or his duties
- k. If at any time within the first two-week for use the respirator becomes uncomfortable, the test subject shall be given the opportunity to select a different face piece and to be retested.
- l. The employer shall maintain a record of the fit test administered to an employee. The record shall contain at least the following information:
 - name of employee
 - type of respirator
 - brand, size or respirator
 - date of test
 - where QNFT issued: the fit factor, strip chart recording or other recording of the results of the test. The record shall be maintained until the next fit test is administered.
- j. Exercise regimen. Prior to the commencement of the fit test, the test subject shall be given a description of the fit test and the test subject's responsibilities during the test procedure. The description of the process shall include a description of the test exercises that the subject will be performing. The respirator to be tested shall be worn for at least 5 minutes before the start of the fit test.
- k. Test Exercises. The test subject shall perform exercise, in the test environment, in the manner described below:
 - Normal breathing. In a normal standing position, without talking, the subject shall breathe normally.
 - Deep breathing. In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as to not hyperventilate.
 - Turning head side to side. Standing in place, the subject shall slowly turn his/her head from side to side between

the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side

- Moving head up and down. Standing in place, the subject shall slowly move his/her head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).
- Talking. The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared text such as the as the Rainbow Passage (see below), count backward from 100, recite a memorized poem or song.

Rainbow Passage

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.

- Grimace. The test subject shall grimace by smiling or frowning.
- Bending over. The test subject shall bend at the waist as if he/she were to touch his/her toes. Jogging in place shall be substituted for this exercise in those test environments such as shroud type QNFT units, which prohibit bending at the waist.
- Normal breathing. Same as exercise 1. Each test exercise shall be performed for one minute except for the grimace exercise, which shall be performed for 15 seconds. The test subject shall be questioned by the test conduct or regarding the comfort of the respirator upon completion of the protocol. If it has become uncomfortable, another model of respirator shall be tried.

2. Qualitative Fit Test (QLFT) Protocols

The employer shall assign specific individuals who shall assume full responsibility for the implementing the respirator qualitative fit test program.

- a. The employer shall ensure that persons administering QLFT are able to prepare test solutions, calibrate equipment and perform test properly, recognize invalid tests, and assure that test equipment is in proper working

order.

- b. The employer shall assume that QLFT equipment is kept clean and well maintained so as to operate at the parameters for which it was designed.

3. Saccharin Solution Aerosol Protocol

The entire screening and testing procedure shall be explained to the test subject prior to the conduct of the screening test.

- a. Taste threshold screening. The saccharin taste threshold screening, performed without wearing a respirator, is intended to determine whether the individual being tested can detect the taste of saccharin.

During threshold screening as well as during fit testing, subjects shall wear an enclosure about the head and shoulders that is approximately 12 inches in diameter by 14 inches tall with at least the front portion clear and that allows free movements of the head when a respirator is worn. An enclosure substantially similar to the 3M hood assembly, parts # FT 14 and # FT 15 combined, is adequate. The test enclosure shall have a 3/4-inch hole in front of the test subject's nose and mouth

area to accommodate the nebulizer nozzle.

The test subject shall don the test enclosure. Throughout the threshold-screening test, the test subject shall breathe through his/her wide-open mouth with tongue extended. Using a DeVilbiss Model 40 Inhalation Medication Nebulizer the test conductor shall spray the threshold check solution into the enclosure. This nebulizer shall be clearly marked to distinguish it from the fit test solution nebulizer. The threshold check solution consists of 0.83 grams of sodium saccharin USP in 1 cc of warm water. It can be prepared by putting 1 cc of the fit test solution in 100 cc of distilled water. To produce the aerosol, the nebulizer bulb is firmly squeezed so that it collapses completely, then released and allowed to fully expand. Ten squeezes are repeated rapidly and then the test subject is asked whether the saccharin can be tasted. If the first response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the saccharin is tasted. If the second response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the saccharin is tasted. The test conductor will take note of the number of squeezes required to solicit a taste response. If the saccharin is not tasted after 30 squeezes, the test subject may not perform the saccharin fit test. If a taste response is elicited, the test subject shall be asked to take note of the taste for reference in the fit test. Correct use of the nebulizer means that approximately 1 cc of liquid is used at a time in the nebulizer body. The nebulizer shall be thoroughly rinsed in water, shaken dry, and refilled at least each morning and afternoon or at least every four hours.

4. Saccharin Solution Aerosol Fit Test Procedure

The test subject may not eat, drink (except plain water), or chew gum for 15

minutes before the test.

- a. The fit test uses the same enclosure described in this appendix. The test subject shall don the enclosure while wearing the respirator selected in this appendix. The respirator shall be properly adjusted and equipped with a particulate filter(s). A second DeVilbiss Model 40 Inhalation Medication Nebulizer is used to spray the fit test solution into the enclosure. This nebulizer shall be clearly marked to distinguish it from the screening test solution nebulizer. The fit test solution is prepared by adding 83 grams of sodium saccharin to 100 cc of warm water. As before, the test subject shall breathe through the wide-open mouth with tongue extended. The nebulizer is inserted into the hole in the front of the enclosure and the fit test solution is sprayed into the enclosure using the same number of squeezes required to elicit a taste response in the screening test. After generating the aerosol the test subject shall be instructed to perform the exercises stated above. Every 30 seconds the aerosol concentration shall be

replenished using one half the number of squeezes as initially. The test subject shall indicate to the test conductor if at any time during the fit test the taste of saccharin is detected. If the taste of saccharin is detected, the fit is deemed unsatisfactory and a different respirator shall be tried. Successful completion of the test protocol shall allow the use of the tested respirator in contaminated atmospheres up to 10 *times* the PEL. In other words, this protocol may be used for assigned protection factors no higher than 10.

SECTION L: HAND AND POWER TOOLS PROGRAM

1.0 Purpose

To proactively prevent all hand and power tool related injuries by identifying and correcting hazards caused by defects, improper application or incorrect use.

2.0 Scope

Applicable to all personnel working *for* Industrial Linings Inc.

3.0 Hazard Recognition

Tools are such a common part of our lives and in today's work place, it is difficult to remember that they may pose potential hazards. All tools are manufactured with safety in mind but, tragically, a serious accident often occurs before steps are taken to search out and avoid or eliminate tool-related hazards.

4.0 Hand Tools

The greatest hazards posed by hand tools usually results from misuse and improper maintenance. Listed below are some common examples:

1. Using a screwdriver as a chisel may cause the tip of the screwdriver to break and send flying fragments towards the user or other employees
2. A loose, cracked, or splintered wooden handle on a hammer or an axe could cause the head of the tool to fly off and strike the user or another worker
3. A wrench with sprung jaws might slip and cause injury to the user.
4. Impact tools such as chisels, wedges, or drift pins which have mushroomed heads might shatter on impact and send sharp fragments flying
5. Employees are cautioned to keep tools such as saw blades, knives and other sharp objects away from aisle areas and other employees working in close proximity. Knives and scissors should be kept sharp because dull tools can be more hazardous than sharp ones
6. Appropriate personal protective equipment, eg., safety goggles, gloves, etc., should be worn due to hazards that may be encountered while using hand tools
7. Work areas must be kept as clean and dry as possible to prevent accidental slippage or trip hazards when using hand tools
8. Sparks produced by iron or steel hand tools can be a dangerous ignition source when working around flammable substances. *Where* this hazard exists, sparks-resistant tools made from brass, plastic, aluminum, or wood should be used to prevent possible explosions

5.0 Power Tools

Power tools can be hazardous when improperly used. Power tools are divided into several different categories based on the following power sources they use: electric, pneumatic, liquid fuel, hydraulic, and powder-actuated. Personnel using power tools should observe the following general precautions:

1. Never carry a tool by the cord or hose
2. Never yank the cord or the hose to disconnect it from the receptacle
3. Keep cords and hoses away from heat, oil, and sharp edges
4. Disconnect tools when not in use, before servicing, and when changing accessories such as blades, bits and cutters
5. All observers should be kept at a safe distance away from the work area
6. Secure work with clamps or a vise, freeing both hands to operate the power tool
7. Avoid accidental starting. The worker should not hold a finger on the switch button while carrying a plugged-in tool
8. Tools should be maintained with care. They should be kept sharp and clean for the best performance. Follow instructions in the user's manual for lubricating and changing accessories
9. Be sure to keep good footing and maintain good balance
10. Always wear the proper apparel. Loose clothing, ties, or jewelry can be caught in moving parts
11. All portable electric tools that are damaged shall be removed from service and tagged "DO NOT USE"

6.0 Electric Tools

Employees using electric tools must be aware of several dangers; the most serious is the possibility of electrocution.

To protect the user from shock, tools must either have three-wire cord with ground and be grounded, be double insulated, or be powered by a low-voltage isolation transformer. Three-wire cords contain two current-carrying conductors which connects to the tool's metal housing. The other end is grounded through a prong on the plug. Anytime an adapter is used to accommodate a two-hole receptacle, the adapter wire must be attached to a known ground. The third prong should never be removed from the plug. Double insulation is more convenient. The user and the tools are protected in two ways:

- a. By normal insulation on the wires inside
- b. By a housing that cannot conduct electricity to the operator in the event of a mal function.

Personnel using electric tools should observe the following general precautions:

1. Electric tools should be operated within their design limitations
2. Gloves and safety footwear are recommended during use of electric tools
3. When not in use, tools should be stored in a dry place
4. Work areas should be well lighted.

7.0 Pneumatic Tools

Pneumatic tools are powered by compressed air and include chippers, drills, hammers, and sanders. There are several dangers encountered in the use of pneumatic tools. The main one is the danger of getting hit by one of the tool attachments or by some kind of fastener the worker is using with the tool.

Personnel using pneumatic tools should observe the following general precautions:

1. Pneumatic tools that shoot nails, rivets, and or staples, and operate at pressures more than 100 pounds per square inch, must be equipped with a special device to keep fasteners from being ejected unless the muzzle is pressed against the work surface
2. Eye protection is required and face protection is recommended for employees working with pneumatic tools
3. Noise is another hazard. Working with noisy tools such as jackhammers requires proper effective use of ear protection. (For more information on noise, see OSHA publication 3074, Hearing Conservation)
4. When using pneumatic tools, employees must check to see that they are fastened securely to the hose to prevent them from becoming disconnected. A short wire or positive locking device attaching the air hose to the tool will serve as an added safeguard
5. Airless spray guns that atomize paints and fluids at high pressures (1,000 pounds or more per square inch) must be equipped with automatic or visual manual safety devices that will prevent pulling the trigger until the safety device is manually

released

6. If an air hose is more than one-half inch in diameter, a safety excess flow valve must be installed at the source of the air supply to shut off the air automatically in case the hose breaks
7. A safety clip or retainer must be installed to prevent attachments, such as chisels on a chipping hammer, from being unintentionally shot from the barrel
8. Screens must be set up to protect nearby workers from being struck by flying fragments around chippers, riveting guns, staplers, or air drills
9. Compressed air guns should never be pointed toward anyone. The user should never "dead-end" it against him or herself or anyone else
10. Heavy jackhammers can cause fatigue and strains; heavy rubber grips reduce these effects by providing a secure handhold
11. Workers operating a jackhammer must wear safety glasses, face shields, and safety shoes, which protect against injury if the hammer slips or falls.

8.0 Liquid-Fuel Tools

A third type of tool is fuel-powered, usually by gasoline. The most serious hazard with fuel-powered tools comes from fuel vapors that can burn or explode and give off dangerous exhaust fumes.

Personnel using liquid-fuel tools should observe the following general precautions:

- a. Before the tank for a fuel-powered tool is refilled, the user must shut down the engine and allow it to cool to prevent accidental ignition of hazardous vapors
- b. If a fuel-powered tool is used inside a closed area, effective ventilation and/or personal protective equipment is necessary to avoid breathing carbon monoxide. In addition, fire extinguishers must be available in the area.

9.0 Hydraulic Power Tools

The fluid used in hydraulic power tools must be an approved fire-resistant fluid and must retain its operating characteristics at the most extreme temperatures to which it will be exposed.

The manufacturer's recommended safe operating pressure for hoses, valves, pipes, filters, and other fittings must not be exceeded.

10.0 Powder-Actuated Tools

Powder-actuated tools operate like a loaded gun and should be treated with the same respect and precautions. In fact, they are so dangerous that only specially trained employees must operate them.

Personnel using powder-actuated tools should observe the following general precautions:

1. These tools should not be used in an explosive or flammable atmosphere. Before using the tool, the worker should inspect it to determine that it is clean, that all moving parts operate freely, and that the barrel is free from obstructions
2. The tool should never be pointed at anybody
3. The tool should not be loaded unless it is to be used immediately. A loaded tool should not be left unattended, especially where it would be available to unauthorized persons
4. Hands should be kept clear of the barrel end. To prevent the tool from firing accidentally, two separate motions are needed to pull the trigger
5. The tools must not be able to operate until they are pressed against the work surface with a force, of at least 5 pounds greater than the total weight of the tool
6. If a powder-actuated tool misfires, the employee should wait at least 30 seconds, then try firing it again. If it still will not fire, the user should wait another 30 seconds so that the faulty cartridge is less likely to explode, then carefully remove the load. The bad cartridge should be put in water
7. Safety glasses and face shields are essential when using a powder-actuated tool
8. The muzzle end of the tool must have a protective shield or guard centered perpendicularly on the barrel to confine any flying fragments or particles that might otherwise create a hazard when the tool is fired. The tool must be designed so that this it will not fire unless it has this kind of safety device
9. All powder-actuated tools must be designed *for* varying powder charges so that the user can select a powder level necessary to do the *work* without excessive force
10. If the tool develops a defect during use it should be taken out of service immediately until it is properly repaired.

11.0 Power Abrasive Wheel Tools

Power abrasive grinding, cutting, polishing, and buffing wheels create special safety problems because they may throw off flying fragments.

Personnel using power abrasive wheel tools should observe the following general precautions:

1. Before an abrasive wheel is mounted, it should be inspected closely and sound-or ring-tested to be sure that it is free from cracks or *defects*. To test, wheels should be tapped gently with a light non-metallic instrument. If they sound cracked or dead, they could fly apart in operation and therefore must not be used. A sound and undamaged wheel will give a clear metallic tone or "ring"
2. To prevent the wheel from cracking, the user should be sure it fits freely on the spindle. The spindle nut must be tightened enough to hold the wheel in place, without distorting the flange. Follow the manufacturer's recommendations. Care must be taken to assure that the spindle wheel will not exceed the abrasive wheel specifications
3. Due to the possibility of a wheel disintegrating (exploding) during start-up, the employee should never stand directly in front of the wheel as it accelerates to full operating speed

4. Portable grinding tools need to be equipped with safety guards to protect workers not only from the moving wheel surface, but also from flying fragments in case of breakage
5. When using a powered grinder, always use eye protection, turn off the power when not in use, and never clamp a hand-held grinder in a vise.

12.0 Guards

Hazardous moving parts of a power tool need to be safeguarded. For example, belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating, or moving parts of equipment must be guarded if such parts are exposed to contact by employees.

Safety guards must never be removed while using a tool. For example, portable circular saws must be equipped with blade guards. An upper guard must cover the entire blade of the saw. A retractable lower guard must cover the teeth of the saw, except when it makes contact with the work material. The lower guard must automatically return to the covering position when the tool is withdrawn from the work.

13.0 Safety Switches

The following hand-held powered tools must be equipped with a momentary contact "on-off" control switch: drills, tapers, fastener drivers, horizontal, vertical and angle grinders with wheels larger than 2 inches in diameter, disc and belt sanders, reciprocating saws, saber saws, and other similar tools. These tools also may be equipped with a lock-on control provided that a single motion of the same finger or fingers that turn it on can accomplish turnoff.

The following hand-held powered tools may be equipped with only a positive "on-off" control switch: platen sanders, disc sanders with discs 2 inches or less in diameter, grinders with wheels 2 inches or less in diameter, routers, planers, laminate trimmers, nibblers, shears, scroll saws, and jigsaws with blade shanks 1.4 inches wide or less.

Other hand-held powered tools such as circular saws having a blade diameter greater than 2 inches, chain saws, and percussion tools without positive accessory holding means must be equipped with a constant pressure switch that will shut off the power when the pressure is released.

14.0 Fasteners

When using powder-actuated tools to apply fasteners there are some safety aspects to consider.

Personnel using fasteners should observe the following general precautions:

1. Fasteners must not be fired into material that would let them pass through to the other side
2. The fastener must not be driven into materials like brick or concrete any closer than 3 inches to an edge or corner
3. In steel the fastener must not come any closer than one-half inch from a corner or edge

4. Fasteners must not be driven into very hard or brittle materials which might chip or splatter, or make the fastener ricochet
5. An alignment guide must be used when shooting a fastener into an existing hole
6. A fastener must not be driven into a spalled area caused by an unsatisfactory fastening.

15.0 Jacks

Proper maintenance of jacks is essential for safety. All jacks must be inspected before each use and lubricated regularly. If a jack is subjected to an abnormal load or shock, it should be thoroughly examined to make sure it has not been damaged.

Personnel using jacks should observe the following general precautions:

1. A jack should never be used to support a lifted load. Once the load has been lifted, it must immediately be blocked up
2. Use wooden blocking under the base if necessary to make the jack level and secure. If the lift surface is metal, place a 1-inch thick hardwood block or equivalent between it and the metal jack head to reduce the danger of slippage
3. To set up a jack, make certain of the following:
 - a. The base rests on a firm level surface
 - b. The jack is correctly centered
 - c. The jack head bears against a level surface
4. The lift force is applied evenly.
4. All jacks -- lever, ratchet, and hydraulic jacks -- must have a device that stops them from jacking up too high. Also, the manufacturer's load limit must be permanently marked in a prominent place on the jack and should not be exceeded
5. Hydraulic jacks exposed to freezing temperatures must be filled with an adequate antifreeze liquid.

16.0 General Safety Precautions

Employees who use hand and power tools and who are exposed to the hazards of falling, flying, abrasive and splashing objects, or exposed to harmful dusts, fumes, mists, vapors, or gases must be provided with the particular personal equipment necessary to protect them from the hazard.

Following five basic safety rules can prevent all hazards involved in the use of power tools:

1. Keep all tools in good condition with regular maintenance
2. Use the right tool for the job
3. Examine each tool for damage before use
4. Operate according to the manufacturer's instructions
5. Provide and use the right protective equipment.

Employees and employers have a responsibility to work together to establish safe working procedures. If a hazardous situation is encountered, it should be brought to the attention of the proper individual immediately.