

# ACCIDENT PREVENTION PROGRAM

## FOR CONSTRUCTION

**Accurate Painting Company**

Client Number **A202336**



### **Construction Safety Standards**

#### **General Rules - MIOSHA-R 408.410**

#### **Rule 101—Scope**

This part sets forth general rules for the safe use, operation, and maintenance of equipment, and for safe work practices pertaining to all employers and employees performing construction operations, except that where a specific rule is set forth in another part, the general rule is preempted.

#### **Rule 102—Definitions**

- **"Accident Prevention Program"** means the program by which an employer provides instruction and safety training to an employee in the recognition and avoidance of hazards.
- **"Aisle"** means a designated path of travel for equipment and employees.
- **"Approved"** means approval by the director of the department of consumer and industry services or by the director's duly designated representative.
- **"Confined Space"** means a space that, because of its physical construction, could be subject to the accumulation of loose materials or explosive, toxic, or flammable contaminants or could have an oxygen deficient atmosphere. All of the following are examples of confined spaces:
  - Storage Tanks
  - Process Vessels
  - Bins
  - Boilers
  - Ventilation Ducts
  - Sewers
  - Underground Utility Vaults
  - Tunnels after construction is completed
  - Pipelines
- **"Equivalent"** means an alternate design or feature that provides at least as effective degree of safety or a greater degree of safety.
- **"Hazard"** means a condition or procedure that is causing or is likely to cause serious physical harm or death to an employee.
- **"Potable water"** means water that is in compliance with the provisions of Act No. 399 of the Public Acts of 1976, as amended, being §325.1001 et seq. of the Michigan Compiled Laws.
- **"Qualified Employee"** means one who, by knowledge, training, and experience, has successfully demonstrated to the employer his or her ability to solve or resolve problems relating to the subject matter, the work, or the project.

## **Rule 114—Employer Responsibilities; Accident Prevention Program**

- An employer will develop, maintain, and coordinate with employees an accident prevention program, a copy of which will be available at the worksite.
- An accident prevention program will, at a minimum, provide for all of the following:
  - Designation of the qualified employee or person who is responsible for administering the program.
  - Instruction to each employee regarding the operating procedures, hazards, and safeguards of tools and equipment when necessary to perform the job.
  - Inspections of the construction site, tools, materials, and equipment to assure that unsafe conditions which could create a hazard are eliminated.
  - Instruction to each employee in the recognition and avoidance of hazards and the regulations applicable to his or her work environment to control or eliminate any hazards or other exposure to illness or injury.
  - Instruction to each employee who is required to handle or use known poisons, toxic materials, caustics, and other harmful substances regarding all of the following:

The potential hazards.

Safe handling.

Use.

Personal hygiene.

Protective measures.

Applicable first aid procedures to be used in the event of injury.

- Instruction to each employee if known harmful plants, reptiles, animals, or insects are present regarding all of the following:

The potential hazards.

How to avoid injury.

Applicable first aid procedures to be used in the event of injury.

- Instruction to each employee who is required to enter a confined space regarding all of the following:

The hazards involved.

The necessary precautions to be taken.

The use of required personal protective equipment.

Emergency equipment.

The procedures to be followed if an emergency occurs.

- Instruction in the steps or procedures to be followed in case of an injury or accident or other emergency.

## **Rule 115—Employer Responsibilities Generally**

- An employer will identify as unsafe a machine, powered tool, or piece of equipment that is damaged or defective. The machine, tool, or equipment will be locked out, made inoperable, or be physically removed from the jobsite.
- An employer will not permit any of the following:
  - The use of damaged or defective machinery, tools, materials, or equipment that could create a hazard.
  - The operation of machinery, equipment, and special tools, except by a qualified employee.
  - An employee other than the operator to ride any piece of moving equipment not covered by a specific standard, unless there is a seat or other safety feature provided for use by the employee. Acceptable safety features could include a guardrail, enclosure, or a seat belt.

- An employer will not knowingly permit an employee to work while under the influence of intoxicating beverages or substances which could impair the employee's ability to perform a task in a safe manner.
- Employees not specifically covered by Part 16. Power Transmission and Distribution, Part 17. Electrical Installations, or Part 30. Telecommunications of the construction safety standards commission standards, being R 408.41601 et seq., R 408.41701 et seq., and R 408.43001 et seq. of the Michigan Administrative Code, will not be allowed by the employer to work or be closer to energized electrical line, gear, or equipment exposed to contact than the minimum clearance prescribed in table 1.
- Table 1 reads as follows:
- An employer will comply with all the rules of this part.

<b><i>VOLTAGE</i></b>	<b><i>MINIMUM EMPLOYEE CLEARANCE</i></b>
To 50 kv	10 ft.
Over 50	10 ft. + .4 inch per kv

#### **Rule 116—Employee Responsibilities**

- An employee will immediately report hazardous conditions or equipment to the employer.
- An employee will not do any of the following:
  - Engage in any act which would endanger another employee.
  - Work while under the influence of intoxicating beverages or substances which would impair his or her ability to perform a task in a safe manner.
  - Remove a guard or other safety device from a machine or equipment, except for authorized servicing purposes. The guard or other safety device will be replaced or equivalent guarding will be provided before the machine or equipment is returned to normal operation.

#### **Rule 118—Leased and Rental Equipment**

The employer of the operator is responsible for the condition and operation of rented, leased, or loaned equipment.

#### **Rule 119—Housekeeping and Disposal of Waste Materials**

- Materials, including scrap and debris, will be piled, stacked, or placed in a container in a manner that does not create a hazard to an employee.
- Garbage capable of rotting or becoming putrid will be placed in a covered container. Container contents will be disposed of at frequent and regular intervals.
- The floor of a work area or aisle will be maintained in a manner that does not create a hazard to an employee.
- Combustible scrap and debris will be removed in a safe manner from the work area at reasonable intervals during the course of construction. A safe means will be provided to facilitate this removal.
- Material which may be dislodged by wind and that could create a hazard when left in an open area will be secured.

#### **Rule 120 — Work in Hazardous Spaces**

When an employee enters a hazardous space, such a bin, silo, hopper, or tank, that contains bulk or loose material which could engulf the employee, the employee will wear a safety belt or a safety harness and a lanyard affixed by a rope grab to a lifeline, all components of which will be in compliance with the requirements of Part 45. Fall Protection, being R 408.44501 et seq. of the Michigan Administrative Code. The uppermost elevation of the stored material will not be higher than the shoulder height of the employee.

#### **Rule 121—Confined or Enclosed Spaces; Testing; Neutralizing Hazard**

- An employee required to enter into confined or enclosed spaces will be instructed as to the nature of the hazards involved, the necessary precautions to be taken, and in the use of required protective and emergency equipment. The employer will comply with any specific rules that apply to work in dangerous or potentially dangerous areas.

- Before an employee enters a manhole, well, shaft, tunnel, or other confined space where the atmosphere might be hazardous due to a condition such as a deficiency of oxygen, or might be toxic in excess of the maximum allowable limits prescribed by the department of consumer and industry services, the atmosphere will be tested and the results recorded. The records will be maintained at the job site. If the atmosphere is hazardous, either sufficient ventilation to eliminate the hazard will be provided or respiratory equipment prescribed by the department of consumer and industry services will be worn.
- If an atmosphere is found to be explosive, sparks, flame, and other sources of ignition will be prohibited, and ventilation will be provided until the hazard has been reduced and maintained at or below the maximum allowable limits prescribed by the department of consumer and industry services.

### **Rule 122—Boilers and Pressure Vessels**

- The installation, inspection, testing, marking, and certification of a pressure vessel will be as prescribed in section viii on unfired pressure vessels of the ASME boiler and pressure vessel code of 1989, which is adopted by reference in these rules and may be inspected at the Lansing office of the Department of Consumer and Industry Services.
- An employer will not use a boiler to perform construction operations unless the employer has a valid certification issued by the boiler division of the Michigan Department of Consumer and Industry Services.

### **Rule 123—Guarding, Belts, Gears, Pulleys, Sprockets, and Moving Parts**

Means of power transmission, such as, but not limited to, belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating, or moving parts of equipment, will be guarded as prescribed in the general industry safety standards commission standard, Part 7. Guards for Power Transmission, being R 408.10701 et seq. of the Michigan Administrative Code, if the part is exposed to contact by an employee or otherwise constitutes a hazard.

### **Rule 125—Aisles and Floors**

When equipment and employees use the same aisle, dock, or doorway, clearances will be provided and maintained to assure safe passage for the equipment and employees.

### **Rule 126—Derailers, Bumper Blocks, and Clearance Signs**

- Where rolling railroad cars on a spur track could make contact with a rail car being loaded or unloaded, repaired, or serviced, or enter a building, work or traffic area, derailleurs, bumper blocks, a blue flag or blue light, or other equivalent protection will be used.
- A visible "close clearance" sign will be used to indicate close clearance between a rail car and an adjacent fixed object if the fixed object is located less than 8 ½ feet from the center of a straight track or less than 9 feet from the center of a curved track.

### **Rule 127—Machine Installation and Guarding**

- A machine will be located so that there will be space for an employee to handle the material and operate the machine without interference to or from another employee or machine.
- A machine installed on a bench, table, or stand will be designed or secured to prevent unintentional movement or tipping.
- The power source of any machine that is to be repaired, serviced, or set up, where unexpected motion or an electrical or other energy source would cause injury, will be locked out by each employee doing the work, except when motion is necessary during setup, adjustment, or troubleshooting. Any residual pressure will be relieved before and during the work. A machine connected by a cord and plug to an electric power source will be considered in compliance if the plug is disconnected and tagged and the disconnection is within view of the operation.



- Where 1 or more crews are working on the same machine with a single energy source, 1 of the following provisions will be complied with:
  - Each employee will place his or her lock as prescribed above.
  - An authorized employee of each crew will be responsible for placing the lock for ascertaining that his or her crew is clear of the machine before removing the lock.
  - A supervisor will place a departmental lock for which he or she has the only key, and he or she will ascertain that all crews are clear from the machine before removing the lock.
  - The tagging referred to will be as prescribed in Part 22. Signals, Signs, Tags, and Barricades, being R 408.42201 et seq. of the Michigan Administrative Code.
  - When unexpected motion would cause injury, provision will be made to prevent a machine from automatically restarting upon restoration of power after a power failure.
  - Blades of a fan which is located within 8 feet of a floor or working level and which is used for ventilation or cooling of an employee, will be guarded with a firmly affixed or secured guard. Any opening in the guard will have not more than 1 of its dimensions more than 1 inch, and the distance to the blade will be not less than that prescribed in table 2.
  - An employee will not place his or her body beneath equipment such as a machine, or materials, that is supported only by a jack, overhead hoist, chain fall, or any other temporary single supporting means, unless safety stands, blocks, or another support system that is capable of supporting the total imposed weight is used to protect the employee if the temporary single supporting means fails.
  - Table 2 reads as follows:

<b><i>SMALLEST DIMENSION IN GUARD (INCHES)</i></b>	<b><i>MINIMUM DISTANCE FROM GUARD TO BLADE</i></b>
0 Up to and including 1/4 of an inch	1/2 of an inch
More than 1/4 of an inch up to and including 3/8 of an inch	1 1/2 inches
More than 3/8 of an inch up to and including 1/2 of an inch	2 1/2 inches
More than 1/2 of an inch up to and including 3/4 of an inch	4 inches
More than 3/4 of an inch up to and including 1 inch	6 times the smallest dimension

### **Rule 128—Sanitation**

- All of the following provisions apply to potable water:
  - A supply of potable water will be available to employees in all places of employment.
  - A container used to distribute drinking water will be constructed of impervious nontoxic materials, will be clearly marked as to its contents, and will not be used for any other purpose. Containers will be serviced so that sanitary conditions are maintained.
  - A portable container used to dispense drinking water will be closed and equipped with a tap.
  - Dipping water from a container or drinking from a common cup is prohibited.
  - Where single-service cups (cups to be used once) are supplied, a sanitary container for the unused cups will be provided. A receptacle for disposing of used cups will be provided and emptied as often as is necessary.
- Both of the following provisions apply to non-potable water:
  - An outlet for non-potable water, such as water for industrial or fire fighting purposes only, will be identified by signs that are in compliance with the requirements of construction safety standard, part 22. Signals, Signs, Tags, and Barricades, to indicate clearly that the water is not to be used for drinking, washing, or cooking purposes.

- There will be no connection between a system furnishing potable water and a system furnishing nonpotable water.

### **Rule 129—Toilets at Construction Sites**

- Toilets at construction sites will be provided for employees as follows:
  - 1 to 20 employees – 1 toilet.
  - 21 to 40 employees – 2 toilets.
  - 41 or more employees – 1 additional toilet for each additional 40 or less employees.
- A jobsite that is not provided with a sanitary sewer will be provided with 1 of the following toilet facilities, unless prohibited by local codes:
  - A privy, if use of the privy will not contaminate groundwater or surface water.
  - A chemical toilet.
  - A recirculating toilet.
  - A combustion toilet.
- The requirements of this rule for sanitation facilities will not apply to a mobile crew that has transportation readily available to nearby toilet facilities.
- To assure sanitation, a toilet will be serviced and maintained on a regular basis.
- A toilet will be supplied with toilet paper.

### **Rule 130—Washing Facilities**

An employer will supply washing facilities for employees who are engaged in the application of paint, coatings, herbicides, or insecticides or in other operations where contaminants may be harmful to employees. The facilities will be in close proximity to the worksite and will be equipped to enable employees to remove paint, coatings, herbicides, insecticides, or other harmful contaminants.

### **Rule 131—Food Handling**

All employee food service facilities and operations will be in compliance with the provisions of part 129 of the food service and sanitation requirements of Act No. 368 of the Public Acts of 1978, as amended, being §333.12901 et seq. of the Michigan Compiled Laws. The food service and sanitation requirements are available from the Michigan Department of Agriculture, 611 W. Ottawa St., P.O. Box 30017, Lansing, Michigan 48909, at no charge as of the time of adoption of this rule.

### **Rule 132—Medical Services and First Aid**

- An employer will ensure the availability of medical personnel for advice and consultation on matters of occupational health.
- Before beginning a project, provision will be made for prompt medical attention in case of serious injury.
- A person who has a valid certificate in first aid training will be present at the worksite to render first aid. A certificate is valid if the requirements necessary to obtain the certificate for first aid training meet or exceed the requirements of the United States bureau of mines, the American red cross, the guidelines for basic first aid training programs, or equivalent training.
- Where a remote location or a single employee worksite exists, an employer will provide a written plan that includes alternate methods of assuring available treatment for employees at a remote location or single-employee worksite. The plan will be communicated to all affected employees.
- An employer will assure that there are first aid supplies at each jobsite and that the supplies are readily accessible.
- The contents of a first aid kit will be approved by a consulting physician. First aid kit supplies will be sealed in individual packages, stored in a weatherproof container, and checked by an employer or designated person before being sent out on each job and at least weekly on each job to ensure that expended items are replaced.

- An employer will provide proper equipment for the prompt transportation of an injured person to a physician or hospital and a communication system for contacting the necessary emergency service. The telephone numbers of a physician, hospital, or emergency service will be conspicuously posted at the jobsite.

### **Rule 133—Illumination**

- A minimum illumination intensity of 10 foot-candles will be provided on a jobsite where construction work is being performed.
- A minimum illumination intensity of 5 foot-candles will be provided to areas on a jobsite where work is not being immediately performed but where workers may pass through.
- A minimum illumination intensity of 50 foot-candles will be provided for first aid stations and infirmaries.
- For areas or operations not covered by subrules (1) to (3) of this rule, refer to the American National Standard A11.1-1965, R 1970, Practice for Industrial Lighting, for recommended values of illumination, which is adopted by reference in this rule.

### **Rule 134—Temporary Sleeping Quarters**

- When temporary sleeping quarters are provided, they will be heated, ventilated, and lighted.

### **Key Points of the OSH Act**

The United States Congress finds that personal injuries and illnesses arising out of work situations impose a substantial burden upon, and are a hindrance to, interstate commerce in terms of lost production, wage loss, medical expenses, and disability compensation payments.

The United States Congress declares it to be its purpose and policy, through the exercise of its powers to regulate commerce and to provide for the general welfare, to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources in the following manner:

- By encouraging employers and employees in their efforts to reduce the number of occupational safety and health hazards at their places of employment and to stimulate employers and employees to institute new and to perfect existing programs for providing safe and healthful working conditions.
- By providing that employers and employees have separate but dependent responsibilities and rights with respect to achieving safe and healthful working conditions.
- By authorizing the Secretary of Labor to set mandatory occupational safety and health standards applicable to businesses affecting interstate commerce.
- By building upon advances already made through employer and employee initiative for providing safe and healthful working conditions.
- By providing medical criteria which will assure insofar as practicable that no employee will suffer diminished health, functional capacity, or life expectancy as a result of his work experience.
- By providing for the development and promulgation (Enacting into Law) of occupational safety and health standards.
- By providing an effective enforcement program which will include a prohibition against giving advance notice of any inspection and sanctions for any individual violating this prohibition.
- By encouraging the States to assume the fullest responsibility for the administration and enforcement of their occupational safety and health laws.
- By providing for appropriate reporting procedures with respect to occupational safety and health which procedures will help achieve the objectives of OSHA and accurately describe the nature of the occupational safety and health problem.
- By encouraging joint labor-management efforts to reduce injuries and disease arising out of employment.

## **29 USC 654 – Duties (The General Duty Clause)**

- Each employer will furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.
- Each employer will comply with occupational safety and health standards promulgated under OSHA.
- Each employee will comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to OSHA Act which are applicable to his own actions and conduct.

**NOTE:** From 29 USC 652 "Definitions" – The term "occupational safety and health standard" means a standard which requires conditions, or the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe or healthful employment and places of employment.

## **Safety Program Procedures**

1. Post the General Safety Rules in a prominent location at each location as well as your main facility.
2. Provide a copy of the Safety Program for all workplaces.
3. Add map of facility and evacuation route to the Emergency Response Program.
4. Post the Request for Training in a conspicuous location.
5. **Note** Accident Investigation Forms are included.
6. **Note** OSHA Log 300 included.
7. Bloodborne Pathogen section is included (annual training needs to be done for employees).
8. CPR & First Aid section included (this information is general in nature; no individual should ever exceed their level of first aid training).
9. Sample Material Safety Data Sheet included. Be sure to compile MSDSs for any chemicals the Company uses and make available to all employees in the office and at the workplace. Your Company is responsible for maintaining a current chemical inventory list.
10. Orientation Checklist - Initial Orientation must be conducted for all employees. (English/Spanish Orientation included). These forms are to be included and signed by all new hires. (Make copies for employees to sign at the orientation meeting.)
11. Safety Meeting Minutes. After any Safety Training, have employees sign the training roster, 3-hole punch the form, and file it in the manual.

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### Company Policy Statement and Program Components

#### **Accurate Painting Company**

**25140 Easy St.**

**Warren, Michigan 48089**

The designated safety coordinator for Accurate Painting Company is:

**Joe Badalamenti**

#### **Safety & Health Policy Statement**

The safety and health of our employees is the first consideration in operating this business. Without question, it is every employee's responsibility at all levels.

It is the intent of this Company to comply with all laws. To do this, we must constantly be aware of conditions in all work areas that can produce injuries. No employee is required to work at a job they know is not safe or healthful. Your cooperation in detecting hazards and, in turn, controlling them, is a condition of your employment. Inform your supervisor immediately of any situation beyond your ability or authority to correct.

Prevention of occupationally-induced injuries and illnesses is of such consequence that it will be given precedence over operating productivity, whenever necessary. To the greatest degree possible, management will provide all mechanical and physical activities required for personal safety and health, in keeping with the highest standards.

We will maintain an occupational accident prevention program conforming to the best practices of organizations of this type. To be successful, such a program must embody proper attitudes towards injury and illness prevention on the part of supervisors and employees. It also requires cooperation in all safety and health matters, not only between supervisor and employee, but also between each employee and their co-workers.

Our objective is an accident prevention 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 zero accidents and injuries.

#### **Our safety and health program includes:**

- Providing mechanical and physical safeguards to the maximum extent possible.
- Conducting a program of safety and health inspections to find and eliminate unsafe working conditions or practices, to control health hazards, and to fully comply with MIOSHA safety and health standards for every job.
- Training all employees in good safety and health practices.
- Providing necessary personal protective equipment, and instructions for proper use and care.
- Developing and enforcing safety and health rules, and requiring that employees cooperate with these rules as a condition of employment.
- Investigating, promptly and thoroughly, every accident to find out what caused it, and correct the problem so it will not happen again.

**We recognize that the responsibilities for occupational safety and health are shared:**

**This employer accepts responsibility** for leadership of the accident prevention program, for its effectiveness and improvement, and for providing the safeguards required to ensure safe work conditions.

**Supervisors are responsible** for developing proper attitudes toward safety and health in themselves and in those they supervise, and for ensuring that all operations are performed with the utmost regard for the safety and health of all personnel involved, including themselves.

**Employees are responsible** for wholehearted, genuine operations of all aspects of the accident prevention program – including compliance with the rules and regulations – and for continuously practicing safety and health while performing their duties.

Accurate Painting Company will see that all employees are properly instructed and supervised in the safe operation of any machinery, tools, equipment, process, or practice which they are authorized to use or apply while at work.

Production is never so urgent that we cannot take the time to do our work safely.

### **Program Goals**

The primary goal of Accurate Painting Company is to continue operating a profitable business while protecting employees from injuries or illness. This can be achieved by delegating responsibility and accountability to all involved in this Company's operation.

**Responsibility:** Having to answer for activities and results.

**Accountability:** The actions taken by management to insure the performance of responsibilities.

To reach our goal of a safe workplace everyone needs to take responsibility and be held accountable.

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Owner Name

Signature

Date



**Benefits of achieving our goals are:**

- Minimizing of injuries and accidents.
- Minimizing the loss of property and equipment.
- Elimination of potential fatalities.
- Elimination of potential permanent disabilities.
- Elimination of potential MIOSHA fines.
- Reductions in Workers' Compensation costs.
- Reductions in operating costs.
- Having the best "Safety and Health" conditions possible in the workplace.

This Company is committed to building an effective accident prevention plan, putting it in writing, and integrating it into the entire operation.

**Management Commitment**

The management of Accurate Painting Company is committed to the Company's safety policy, and to provide direction and motivation by:

- Appointing Safety Coordinator(s) and/or Safety Committee Chairmen.
- Establishing Company safety goals and objectives.
- Developing and implementing this written Accident Prevention Program.
- Ensuring total commitment to the Accident Prevention Program.
- Facilitating employees' safety training.
- Establishing responsibilities for management and employees to follow.
- Ensuring that management and employees are held accountable for performance of their safety responsibilities.
- Establishing and enforcing disciplinary procedures for employees.
- Reviewing the Accident Prevention Program annually, and revising or updating as needed.

**Labor & Management Accountability**

All employees, both labor and management, need to understand their responsibilities under MIOSHA rules and be held accountable for complying with the rules as well as the Company's related policies.

Remember, it is the employer's responsibility to provide a safe and healthful work environment for their employees. However, holding everyone accountable for their part in workplace safety and health is critical for a successful injury and illness prevention plan.

**Assignment of Responsibility****The Safety Coordinator(s)**

It will be the duty of the Safety Coordinator to assist the Supervisor/Foreman and all other levels of Management in the initiation, education, and execution of an effective safety program including the following:

- Introducing the safety program to new employees.
- Following up on recommendations, suggestions, etc., made at the "Weekly" safety meetings. All topics of safety concerns must be documented accordingly.
- Assisting the personnel in the execution of standard policies.
- Conducting safety inspections on a periodic basis.
- Addressing all hazards or potential hazards as needed.
- Preparing monthly accident reports and investigations.
- Maintaining adequate stock of first aid supplies and other safety equipment to insure their immediate availability.
- Making sure there is adequate number of qualified "First Aid Certified" people on the work site.
- Becoming thoroughly familiar with MIOSHA regulations and local and state safety codes.

- Defining the responsibilities for safety and health of all subordinates and holding each person accountable for their results through the formal appraisal system and where necessary, disciplinary procedures.
- Emphasizing to employees that accidents create unnecessary personal and financial losses.

## **Safety Committee and Safety Meetings**

The Committee will consist of representatives from management and non-management employees with the scheduled person as the chairman. The committee is a forum, created for the purpose of fostering safety and health through communication.

### **The responsibilities of Safety Committee Members include:**

- Discussing safety policies and procedures with management and making recommendations for improvements.
- Reviewing accident investigation reports on all accidents and “near-misses”.
- Identifying unsafe conditions and work practices and making recommendations for corrections.

**NOTE:** Refer to the succeeding section for instructions on Safety Committee protocols.

All employees of Accurate Painting Company will attend and participate in the “Weekly” safety meetings. The safety meeting will be conducted by the designated Safety Coordinator/Supervisor/Foreman. Problems that have arisen, or that are anticipated, will be discussed along with any other safety and health topics. The meeting will be kept a valuable educational experience by:

- Starting and stopping according to schedule.
- Keeping the meetings moving.
- Using illustrated material and demonstrations to make the point.
- Discussing each topic thoroughly, providing handouts if possible.
- Evaluating accidents, injuries, property losses, and “near misses” for trends and similar causes to initiate corrective actions.

The designated Safety Coordinator/Supervisor/Foreman must document all aspects of any safety and health training.

## **Employee Involvement**

Employees are required to work in compliance with the safety rules, report all accidents and near misses, and report all unsafe conditions or unsafe practices. To demonstrate this employer’s commitment to support the employees in these responsibilities, the employer will do the following:

### **Communication System:**

- Encourage employees to inform the employer about workplace hazards without fear of reprisal.
- Establish and maintain a centrally located “Safety Bulletin Board” where current, relevant information may be easily reviewed by employees.
- Schedule general employee meetings at which time safety is freely and openly discussed by those present. These meetings will be regular, scheduled, and announced to all employees and managers to achieve maximum attendance. The purpose of these meetings is safety, and the concentration will be on:
- Occupational accident and injury history at our work sites, with possible comparison to other locations in the Company.
- Feedback from the Safety Committee.
- Guest speakers concerned with workplace safety and health.
- When possible, brief audio-visual materials that relate to our business.
- Conduct training programs for communicating with employees.

- Provide a safety suggestion box so that employees, anonymously if desired, can communicate their concerns with management.
- Document all communication efforts to demonstrate that an effective communication system is in place.

## **Hazard Identification & Control**

Periodic inspections and procedures for correction provide methods of identifying existing or potential hazards in the workplace, and eliminating or controlling them. Hazard control is essential to an effective accident prevention plan. We will be sure to look at safe work practices and ensure that they are being followed, and that unsafe conditions or procedures are identified and corrected properly and promptly.

Employees are encouraged to report possible hazardous situations, knowing their reports will be given prompt and serious attention.

Workplace equipment and personal protective equipment will be maintained in good, safe working condition.

Hazards, where possible, will be corrected as soon as they are identified. For those that cannot be immediately corrected, a target date for correction will be set. The employer will provide interim protection for workers while hazards are being corrected. A written tracking system will be established to help monitor the progress of the hazard correction process.

## **Accident/Incident Investigation**

Employers and safety committees are required to investigate or assign responsibility for investigating accidents. Accidents/incidents will be investigated by trained individuals, with the primary focus of understanding why the accident or incident occurred, and what actions can be taken to preclude recurrence. The focus will be on solutions and never on blame. They will be in writing, and adequately identify the causes of the accident or near-miss occurrence.

## **Worker Training**

Training is another essential element of any accident prevention plan. MIOSHA rules require each employer to train workers for any job or task they are assigned.

Our plan includes training and instruction:

- For all employees when they are first hired.
- For all new employees for each specific task.
- For all employees given new job assignments for which training has not already been received.
- Whenever new substances, processes, procedures, or equipment are introduced into the workplace and present a new hazard.
- Whenever new personal protective equipment or different work practices are used on existing hazards.
- Whenever the employer is made aware of a new or previously unrecognized hazard.
- For all supervisors to ensure they are familiar with the safety and health hazards to which employees under their immediate direction and control may be exposed.

An effective safety and health plan requires proper job performance by everyone in the workplace.

As the employer, we must ensure that all employees are knowledgeable about the materials and equipment with which they work, what known hazards are present, and how they are controlled.

## **Periodic Program Evaluation**

A periodic review is scheduled to look at each critical component in our accident prevention program to determine what is working well and what changes, if any, are needed. All employees are encouraged to participate by keeping the employer informed of their concerns regarding the elements of this accident prevention program.

The success of this program is dependent upon two things: First, the employer must provide a safe and healthful environment in which the employee has the opportunity to work safe, and second, the employee must choose to work safe.

## **Supervisor/Foreman**

The Supervisors and/or Foremen will establish an operating atmosphere that insures that safety and health is managed in the same manner and with the same emphasis as production, cost, and quality control. This will be accomplished by:

- Regularly emphasizing that accident and health hazard exposure prevention are not only moral responsibilities, but also a condition of employment.
- Identifying operational oversights that could contribute to accidents which often result in injuries and property damage.
- Participating in safety and health related activities, including routinely attending safety meetings, reviews of the facility, and correcting employee behavior that can result in accidents and injuries.
- Spending time with each person hired explaining the safety policies and the hazards of his/her particular work.
- Ensuring that initial orientation of "new hires" is properly carried out.
- Making sure that if a "Competent Person" is required, that one is present to oversee, and instruct employees when necessary.
- Never short-cutting safety for expediency, or allowing workers to do so.
- Enforcing safety rules consistently, and following Company's discipline and enforcement procedures.
- Conducting daily job-site inspections and correcting noted safety violations.

## **Employees**

It is the duty of each and every employee to know the safety rules, and conduct his work in compliance with these rules. Disregard of the safety and health rules will be grounds for disciplinary action up to and including termination. It is also the duty of each employee to make full use of the safeguards provided for their protection. Every employee will receive an orientation when hired and receive a copy of any COMPANY Accident Prevention Program. Employee responsibilities include the following:

- Reading, understanding and following safety and health rules and procedures.
- Signing the Code of Safe Practices and any other policy acknowledgements.
- Wearing Personal Protective Equipment (PPE) at all times when working in areas where there is a possible danger of injury.
- Wearing suitable work clothes as determined by the supervisor/foreman.
- Performing all tasks safely as directed by their supervisor/foreman.
- Reporting ALL injuries, no matter how slight, to their supervisor/foreman immediately and seeking treatment promptly.
- Knowing the location of first aid, firefighting equipment, and safety devices.
- Attending any and all required safety and health meetings.
- Not performing potentially hazardous tasks, or using any hazardous material until properly trained, and following all safety procedures for those tasks.
- STOPPING AND ASKING QUESTIONS IF EVER IN DOUBT ABOUT THE SAFETY OF ANY OPERATION

### Safety Committee Policy Statement

#### **Policy Statement**

Accurate Painting Company Safety Committee members are:

Joe Badalamenti and Joe Badalamenti.

The Safety Committee will meet a minimum of 4 times per year.

#### **Introduction**

Accurate Painting Company is committed to accident prevention in order to protect the safety and health of all our employees. Injury and illness losses due to hazards are needless, costly and preventable. To prevent these losses, a joint management/worker safety committee will be established. Employee involvement in accident prevention and support of safety committee members and activities is necessary to ensure a safe and healthful workplace for all employees.

#### **Purpose**

The purpose of our safety committee is to bring workers and management together in a non-adversarial, cooperative effort to promote safety and health in the workplace. The safety committee will assist management and make recommendations for change.

#### **Organization**

There will be, in most cases, an equal number of employee and employer representatives. However, there may be more employee representatives than employer representatives if both groups agree. Employee representatives will be volunteers or elected by their peers. If no employees volunteer or are elected, they may be appointed by management. Employer representatives will be appointed. Safety committee members will serve a continuous term of at least one year. Committee membership terms will be staggered so that at least one experienced member is always on the committee.

#### **Extent of Authority**

It must be clearly understood that the safety committee advises management on issues that will promote safety and health in the workplace. Written recommendations are expected from the safety committee and they will be submitted to management. In turn, management will give serious consideration to the recommendations submitted and will respond in writing to the committee within a reasonable time.

#### **Functions**

- |  |   |
|--|---|
| • Committee meetings and employee involvement. | Evaluation of management commitment to workplace safety and health. |
| • Hazard assessment and control.               | Evaluation of accident and incident investigation program.          |
| • Safety and health planning.                  | Safety and health training.   |
| • Evaluation of accountability system.         |   |



## Recommendations

All recommendations submitted to management must be written and should:

- Be clear and concise.
- Provide reasons for implementation.
- Give recommended options.
- Show implementation costs and recommended completion dates.
- List benefits to be gained.

## Procedures

The committee's plan of action requires procedures by which the committee may successfully fulfill its role. Procedures developed should include but not be limited to:

- Meeting date, time, and location (Safety Committee Meeting Agenda).
- Election of chairperson and secretary.
- Order of business.
- Records (Safety Committee Meeting Minutes).

Duties of each member must include, but not be limited to:

- Reporting unsafe conditions and practices.
- Attending all safety and health meetings.
- Reviewing all accidents and near-misses.
- Recommending ideas for improving safety and health.
- Working in a safe and healthful manner.
- Observing how safety and health is enforced in the workplace.
- Completing assignments given to them by the chairperson.
- Acting as a work area representative in matters of health and safety.
- Others as determined by COMPANY safety and health needs.

## The Safety Coordinator(s) and/or Safety Committee Members

Accurate Painting Company has designated: Joe Badalamenti as the Company Safety Coordinator, with Company Safety Committee Members being: Joe Badalamenti and Joe Badalamenti

Safety Coordinator Joe Badalamenti
Safety Coordinator
Safety Coordinator
Safety Committee Chair
Safety Committee Vice-chairman
Safety Committee Alternate Chair/Vice-chair

Their cell phone and office phone numbers are:

Safety Person's Name	Office Phone #	Cell Phone #

It will be the duty of the Safety Coordinator to assist the Supervisor/Foreman and all other levels of Management in the initiation, education, and execution of an effective safety program.

## **Safety Committee Operations**

The purpose of a safety committee is to bring workers and managers together to achieve and maintain a safe, healthful workplace. Effective safety committees find solutions to problems that cause workplace accidents, illnesses, and injuries. And fewer accidents, injuries, and illnesses mean lower Workers' Compensation claims costs and insurance rates.

### **Understand a Safety Committee's Seven Essential Activities**

To create an effective safety committee, it must be built on a foundation of management commitment and must be accountable for achieving its goals. The committee must do the following:

- Involve employees in achieving the committee's goals.
- Identify workplace hazards.
- Review reports of accidents and near misses.
- Keep accurate records of committee activities.
- Evaluate its strengths and weaknesses.

#### **1. Commitment**

The committee will not survive without management support. Management demonstrates support by encouraging employees to get involved in achieving a safe, healthful workplace and by acting on the committee's recommendations.

Representatives demonstrate commitment by attending committee meetings, following through on their assigned tasks, and encouraging other employees to get involved in identifying hazards.

#### **2. Accountability**

Representatives should understand that the committee expects them to contribute; each representative shares responsibility for accomplishing safety committee goals, which benefit everyone who works for the COMPANY.

The safety committee is also responsible for monitoring how management holds employees accountable for working safely and for recommending ways to strengthen accountability.

#### **3. Employee Involvement**

To become effective, a safety committee needs help from everyone in The COMPANY. The safety committee must have a method for employees to report hazards and to offer safety suggestions.

#### **Ways the safety committee can encourage employees to get involved:**

- Encourage employees to report hazards and unsafe work practices to a safety-committee representative.
- Act on employee suggestions and recognize their contributions to a safer workplace.
- Promote the committee's activities and accomplishments.
- Make sure employees know that you are starting a safety committee. Tell them why you are starting the committee, describe its role in the Company's accident prevention program, and explain management's commitment to the committee.
- You can inform employees in a memo or a newsletter, by e-mail, or – better yet – meet with them to promote the committee and to answer questions.



#### **4. Hazard Identification**

- Ensure that representatives know how to recognize hazards and understand basic principles for controlling them.
- Focus on identifying hazards and unsafe work practices that are likely to cause serious injuries.
- Conduct thorough workplace inspections at least quarterly.
- Document hazards during quarterly inspections and discuss how to control them at regular safety-committee meetings.
- Include employer and employee representatives on the inspection team.

#### **5. Accident Investigation**

The committee must have a procedure for investigating all workplace accidents, illness, and deaths. It is not necessary for the committee to conduct accident investigations or to participate in investigations; however, the committee should ensure that management does so. The committee should also carefully review accident reports to help management identify accident causes and determine how to control them.

#### **6. Recordkeeping**

The following documents are required for the safety committee's file:

- Accurate minutes of each safety committee meeting
- Committee reports, evaluations, and recommendations
- Management's response to committee recommendations
- Employee safety suggestions and hazard concerns

#### **7. Evaluation**

An effective safety committee periodically evaluates their strengths and weaknesses, and the evaluation helps them set new goals.

At least once a year, schedule a safety-committee meeting to accomplish the following: identify the committee's achievements over the past 12 months, review essential activities, and set goals for the next 12 months.

#### **Start With Your Primary Place of Employment**

When you are starting a safety committee, you should do so at your Company's primary place of employment - the workplace where management controls the budget and can act on the safety committee's recommendations.

#### **Do you have mobile or satellite sites?**

If you have workplaces that are not primary places of employment – construction sites or field offices, for example – you can have one central safety committee at your primary place of employment that represents all of the other workplaces.

## Determine How Many Representatives will Serve on the Committee

The minimum number of representatives on your safety committee needs to be effective depends on the number of employees in your Company, for example:

Number of Employees	Number of Representatives
Up to 20	At least 2
More than 20	At least 4

Your safety committee can have more than the minimum number of representatives.

## Determine Who Will Serve on the Committee

Your safety committee should have an equal number of employee and employer representatives and must have a chairperson elected by the representatives.

### Other matters to consider about who will serve on the committee:

Employee representatives can volunteer to serve on the committee or their peers can elect them. If your collective bargaining agreement has procedures for selecting representatives, follow those procedures.

Employer representatives represent the employer. You can have more employee representatives on the committee than employer representatives if no one objects – but not a majority of employer representatives. You can choose any employee to serve as an employer representative.

- Representatives' jobs should reflect the Company's major job classifications.
- Representatives must be paid their regular wages for safety committee meetings and safety-related training sessions.
- Each representative must serve at least one year on the committee.

## How to Determine Who Does What on the Committee

Your safety committee must have a chairperson and a recorder – someone to take minutes at each meeting. The committee does not have to have a vice-chair; however, someone should be available to prepare an agenda and conduct committee business in the chair's absence. The following table summarizes the duties of the chairperson, vice-chair, recorder, and other committee representatives.

## Representatives' Duties and Responsibilities

### Chairperson

- Schedules monthly meetings
- Develops agendas for meetings
- Conducts monthly meetings

### Vice-chair

- Assumes chair's duties when the chair is absent
- Coordinates training for new representatives
- Performs other duties assigned by the chair

### Recorder

- Takes minutes at each meeting
- Distributes copies of minutes to representatives
- Posts minutes for other employees to review
- Maintains the safety-committee file
- Keeps minutes and agendas on file for three years

## **Other Committee Representatives**

- Report employees' safety and health concerns to the committee
- Report accidents, near miss incidents, and unsafe workplace conditions to the committee
- Suggest items to include in the monthly meeting agenda
- Encourage other employees to report workplace hazards and suggest how to control them
- Establish procedures for conducting quarterly workplace inspections and for making recommendations to management to eliminate or control hazards
- Help management evaluate the Company's accident prevention program and recommends how to improve it
- Establish procedures for investigating the causes of accidents and near-miss incidents

## **Set Practical Goals for the Committee**

### **Purpose and goals: put them in writing**

The purpose of your safety committee is to bring workers and managers together to achieve and maintain a safe, healthful workplace. But you will need to narrow the focus, set goals, and specify what the committee will do.

## **Train the Representatives**

### **What representatives need to know:**

Representatives must understand the purpose of the safety committee, how to apply MIOSHA's safety rules, and how to conduct safety-committee meetings. They must also have training in hazard identification and the principles of accident investigation.

Representatives should know whom to contact for information or for help on workplace safety-and-health matters. Two sources are your workers' compensation insurance carrier and MIOSHA.

Who can do the training? You can do the training if you are confident you can accomplish the objectives, or you can choose someone who has training experience and understands the objectives.

## **Hold Regular Meetings**

### **Require Participation**

Each representative must help the committee accomplish its goals. Make sure representatives understand that they will be committing to attending monthly meetings and to participating in committee activities.

### **Set a Repeating Meeting Schedule**

Your committee should meet at least once a month. Setting a regular time, date, and place for meetings - for example, 10 a.m.-noon, the first Tuesday of each month - makes it easier for everyone to remember.

## **Establish Ground Rules**

Ground rules keep meetings orderly and efficient. All representatives should understand them and the chairperson should enforce them. Important ground rules:

- |   |   |
|---|---|
| ▪ Keep the discussion focused on agenda topics.           | ▪ Cooperate to achieve effective solutions. |
| ▪ Listen to others and let them finish before responding. | ▪ Finish the meeting on time.               |

## **Follow a Written Agenda**

The agenda outlines the meeting's discussion topics. The chairperson should understand the agenda topics and keep the discussion focused on them. Send copies of the agenda to representatives a few days before the meeting so they can review it.

## **Take Accurate Minutes**

Accurate meeting minutes are important because they document the committee's accomplishments. The representative who has this responsibility should be able to grasp the main points of a discussion and record them quickly.

### **Meeting minutes should include the following:**

- A brief summary of the discussion of each topic
- A copy of committee reports, evaluations, and recommendations
- A copy of management's response to committee recommendations

Remember to send a copy of the minutes to each representative promptly after the meeting and to post a copy where other employees can see it. If your Company has field offices, send a copy to each field office. Keep a copy of each meeting's minutes on file for three years.

## **Conducting the Meeting**

Effective meetings start on time. Make sure the meeting room is ready; allow extra time if you need to set up tables, rearrange chairs, or clean up after others have met. Before getting down to business, start the meeting on the right track by doing the following:

- Distribute the agenda. Make sure everyone has a copy of the agenda and any other handouts.
- Review the ground rules. You may not need to review the ground rules at every meeting, but consider doing so for the benefit of guests and new representatives.
- Make introductions. No one likes to feel left out at a meeting. Welcome new representatives and guests.
- Review the minutes from the last meeting. Request additions or corrections to last month's minutes. Update the minutes to reflect the changes.
- Review the agenda topics. Give representatives and guests the opportunity to suggest changes or to add discussion topics to the agenda.

Unless the representatives agree to continue the meeting, end it at the scheduled time. You can discuss unfinished items during the next meeting or later with concerned representatives. Before you finish, thank guests for coming and schedule the next meeting.

## **How to Do It**

How to accomplish four important activities that helps you take care of safety committee business.

1. How to Write Bylaws
2. How to Prepare an Agenda
3. How to Record Minutes
4. How to Identify Workplace Hazards

## How to Write Bylaws

Bylaws state the committee's purpose, define its essential activities, and describe how it conducts its regular business. Your safety committee does not have to have bylaws, but they can give the committee stability as new representatives come on board and others leave.

Bylaws can be as simple or as complex as you want to make them. They are usually organized in sections; each section defines a specific committee function, as in the following example:

<b>What To Include In Your Safety Committee Bylaws</b>	
<b>Function</b>	<b>Information to Include</b>
<b>Name, Purpose, Goal, Objectives</b>	State committee's purpose, its goals, and its objectives. Make them clear and keep them brief.
<b>Membership</b>	<ul style="list-style-type: none"><li>• State how many representatives will serve on the committee.</li><li>• Describe how the representatives are selected to serve on the committee.</li><li>• State how long representatives will serve on the committee.</li></ul>
<b>Officers and Representatives: Duties and Responsibilities</b>	Describe duties and responsibilities of each: <ul style="list-style-type: none"><li>• The chair</li><li>• The vice-chair</li><li>• The recorder</li><li>• The other representatives</li></ul>
<b>Training</b>	State what the representatives need to know to fulfill their responsibilities and describe how they will receive their training.
<b>Meetings</b>	Define the following: <ul style="list-style-type: none"><li>• The schedule for regular committee meetings.</li><li>• Who must attend the meetings.</li><li>• The requirements for preparing and distributing the agenda and the minutes.</li><li>• The procedures for voting on committee decisions.</li></ul>
<b>Employee Involvement</b>	<ul style="list-style-type: none"><li>• State how the committee will involve employees in achieving a safe, healthful workplace.</li><li>• Describe how employees should report hazards and unsafe practices to the committee.</li><li>• Describe how employees can submit ideas for controlling or eliminating hazards.</li></ul>
<b>Accident Investigation</b>	<ul style="list-style-type: none"><li>• State the committee's role in investigating near-misses and accidents.</li><li>• Describe how representatives will review accidents and near-miss incidents.</li><li>• Describe how the committee will report recommendations for controlling hazards.</li></ul>
<b>Workplace Inspections</b>	<ul style="list-style-type: none"><li>• State how the committee will conduct regular workplace inspections.</li><li>• Include the schedule for quarterly workplace inspections.</li><li>• Identify who will conduct the inspections.</li><li>• Describe how the committee will report hazard-control recommendations to management.</li></ul>
<b>Evaluation</b>	State how the committee will evaluate the accident prevention program and assess its activities.

## ***Safety Committee Bylaws: An Example***

Although your safety committee does not have to have Bylaws, they can give the committee stability by stating, in writing, how the committee conducts its business. Bylaws can be as simple or complex as you want to make them. This example shows the bylaws of the imaginary **XYZ Construction Company's** safety committee.

### ***Name***

The name of the committee is the XYZ Safety Committee.

### ***Purpose***

The purpose of the XYZ Safety Committee is to bring all XYZ Construction Company employees together to achieve and maintain a safe, healthful workplace.

### ***Goal***

The goal of the XYZ Safety Committee is to eliminate workplace injuries and illnesses by involving employees and managers in identifying hazards and suggesting how to prevent them.

### ***Objectives***

The XYZ Safety Committee has four objectives:

- Involve employees in achieving a safe, healthful workplace.
- Promptly review all safety-related incidents, injuries, accidents, illnesses, and deaths.
- Conduct quarterly workplace inspections, identify hazards, and recommend methods for eliminating or controlling the hazards.
- Annually evaluate the XYZ Construction Company's accident prevention program and recommend to management how to improve the program.

### ***Representatives***

The XYZ Safety Committee will have ten voting representatives. Five of the representatives will represent employees and five will represent management. Employee representatives can volunteer or their peers can elect them. Management representatives will be selected by management.

Each representative will serve a continuous term of at least one year. Terms will be staggered so that at least one experienced representative always serves on the committee.

### ***Chair and Vice-chair***

The XYZ Safety Committee will have two officers: chair and vice-chair. One officer will represent labor and one officer will represent management.

### ***Terms of Service***

Chair and vice-chair will each serve a one-year term.

### ***Duties of the Chair***

The duties of the chair:

- Schedule regular committee meetings.
- Approve committee correspondence and reports.
- Develop written agenda for conducting meeting.
- Supervise the preparation of meeting minutes.
- Conduct the committee meeting.

### ***Duties of the Vice-chair***

The duties of the vice-chair:

- In the absence of the chair, assume the duties of the chair.
- Perform other duties as directed by the chair.

### ***Election of Chair and Vice-chair***

The election of a new chair or vice-chair will be held during the monthly committee meeting before the month in which the incumbent's term expires.

If the chair or vice-chair leaves office before the term expires, an election will be held during the next scheduled safety-committee meeting; the elected officer will serve for the remainder of the term.

### ***Training***

New representatives will receive training in safety-committee functions, hazard identification, and accident-investigation procedures.

### ***Meetings***

Monthly schedule — The XYZ Safety Committee will meet the third Tuesday of each month, except when the committee conducts quarterly workplace safety inspections.

### ***Attendance and Alternates***

Each representative will attend regularly scheduled safety committee meetings and participate in quarterly workplace inspections and other committee activities. Any representative unable to attend a meeting will appoint an alternate and inform the chair before the meeting. An alternate attending a meeting on behalf of a regular representative will be a voting representative for that meeting.

### ***Agenda***

The agenda will prescribe the order in which the XYZ Safety Committee conducts its business.

The agenda will also include the following when applicable:

- A review of new safety and health concerns
- A status report of employee safety and health concerns under review
- A review of all workplace near misses, accidents, illness, or deaths occurring since the last committee meeting.

### ***Minutes***

Minutes will be recorded at each committee meeting and distributed via e-mail to all XYZ Construction Company employees.

The committee will submit a copy of the minutes to the XYZ Construction Company personnel office; the office will retain the copy for three years. All reports, evaluations, and recommendations of the committee will be included in the minutes. The minutes will also identify representatives who attended monthly meeting, and representatives who were absent.

### ***Voting Quorum***

Six voting representatives constitute a quorum. A majority vote of attending representatives is required to approve all safety-committee decisions. Issues not resolved by majority vote will be forwarded to management for resolution.

### ***Employee Involvement***

The XYZ Safety Committee will encourage employees to identify workplace-health-and-safety hazards. Concerns raised by employees will be presented to the committee in writing; the committee will review new concerns at the next regularly-scheduled monthly meeting.

### ***Safety Log***

The committee will maintain a log of all employee concerns, including the date received, recommendations to management, and the date the concern was resolved.

### ***Response***

The committee will respond to employee concerns in writing and work with management to resolve them. The committee will present written recommendations for resolving concerns to management. Within 60 days of receipt of the written recommendations, management will respond in writing to the committee indicating acceptance, rejection, or modification of the recommendations.

### ***Incident and Accident Investigation***

The XYZ Safety Committee will review new safety- or health-related incidents at its next regularly-scheduled meeting. Safety-related incidents include work-related near misses, injuries, illnesses, and deaths. When necessary, the committee will provide written recommendations to management for eliminating or controlling hazards.

### ***Workplace Inspections***

The XYZ Safety Committee will conduct quarterly workplace inspections of all Company facilities in March, June, September, and December.

### ***Written Report***

The committee will prepare a written report for management that documents the location of all health or safety hazards found during inspection. The report will recommend options for eliminating or controlling the hazards.

Within 60 days of receipt of the written report, management will respond in writing to the committee, indicating acceptance, rejection, or proposed modification of the recommendations.

### ***Evaluation***

The XYZ Safety Committee will evaluate the Company's accident prevention program annually and provide a written evaluation of the program to management. The committee will also evaluate its own activities each December and use the evaluation to develop an action plan for the next calendar year.

**NOTE:** In the "Attachments" Chapter of this Accident Prevention Program you will find a master copy of the following forms for Company use:

- Safety Committee By-Laws
- Safety Committee Checklist



## **How to Prepare an Agenda**

### **The Purpose of the Agenda**

The agenda, usually prepared by the safety-committee chairperson, is an outline of topics the representatives will discuss during a monthly meeting. The agenda helps structure the meeting and reminds representatives of their responsibilities – for example, special reports or other assigned tasks.

### **Preparing the Agenda**

Most meetings should follow an agenda that includes the following topics:

- Introductions of new representatives and guests.
- Review of last meeting's minutes for addition or corrections.
- Old business – discussion of items not covered or resolved during the last meeting.
- New business – discussion of new items the committee needs to address or resolve.
- Employee suggestions – review and discussion of suggestions.
- Recommendations to management – review and discussion of recommendations to eliminate or control a hazard or to improve the Company's accident prevention program.
- Next meeting – date, location, and time in preparing the agenda, ask committee representatives if they have items to include under new business, employee suggestions, or recommendations to management. Keep the agenda as brief as possible.

### **Distributing the Agenda**

- Give committee representatives and other employees a chance to review the agenda three to five days before the meeting.
- Send copies of the agenda to committee representatives and management.
- Post the agenda where other employees can read it.

### **Using the Agenda**

After representatives, management, and other employees have had a chance to comment on the agenda, prepare the final version and make enough copies for everyone attending.

Use the agenda to guide the meeting. If you cannot cover every topic during the meeting, schedule them for the next meeting under old business.

**NOTE:** In the "Attachments" Chapter of this Accident Prevention Program you will find a master copy of the following forms for Company use:

- Safety Committee Meeting Agenda

## **How to Take Minutes**

### **Why Minutes are Important**

Minutes are the official record of the safety committee's activities, including recommendations to management and accomplishments. The content should be concise, clear, and well-organized.

**NOTE:** In the "Attachments" Chapter of this Accident Prevention Program you will find a master copy of the following forms for Company use:

- Safety Committee Meeting Minutes



## Who is Responsible for Minutes

Your committee should have a recorder who takes minutes at each meeting and, after the meeting, does the following:

- Distributes the minutes to representatives and management.
- Posts the minutes where other employees can read them.
- Keeps a copy of the minutes on file for three years.
- Ensures that all employees have the opportunity to respond to the minutes.

## What to Include in the Minutes

Organize the minutes so that they follow the meeting agenda. Information to include in the minutes:

- Date, time, and place of the meeting.
- Names of attending representatives, guests, and representatives unable to attend.
- A summary of each agenda item discussed.
- Employee suggestions and reports of hazards.
- The committee's recommendations to management.
- Management's response to committee recommendations.

After the meeting, review and edit the minutes. Type a clean copy and post it where employees are likely to see it, or distribute it to all employees.

Send a copy of the minutes to employees at mobile worksites or field offices.

Keep the minutes for at least three years. You can file them in a notebook or a computer.

## How to Identify Workplace Hazards

### What to Do and How to Do It

Effective safety committees prove their worth by helping management keep workplace hazards under control. But you cannot control hazards until you identify them.

- Get training on how to identify workplace hazards.
- Conduct quarterly workplace inspections.
- Discuss the hazards at monthly safety-committee meetings, document them in the minutes, and report them to management.

### Getting Trained

**Work with a mentor.** A safety-and-health specialist from your insurance carrier, for example, will attend a safety committee meeting, answer questions, and help representatives learn how to identify hazards.

**Know the rules.** Know what safety and health rules apply to your workplace. The rules can inform you about hazards and help you determine how to control them.

### Conducting Quarterly Workplace Inspections

- Successful inspections involve walking, talking, listening, and writing:
- Walk around the workplace. Look for hazards and unsafe work practices that are likely to cause serious injuries. Focus on hazards rather than rule violations.
- Talk to employees. Ask them about hazards and unsafe conditions; be concerned and listen carefully.
- Take notes. What is the hazard? Where is the hazard? How could the hazard cause an accident and what could be the result? Who could be affected by the hazard?
- Report your findings. Organize your notes and summarize the important information in a report to the safety committee.

## **Getting Other Employees Involved**

Concerned employees help the committee learn about workplace hazards and unsafe practices. Encourage them to report hazards and suggest how to control them.

## **Discussing Hazards at Safety Committee Meetings**

The safety committee receives information about workplace hazards from quarterly inspections, from concerned employees, and from management. But the committee also needs to discuss how that information will lead to a safer, healthier workplace and the discussion should take place during a safety-committee meeting.

## **Reporting Hazards to Management**

By reporting a hazard to management and recommending how to control or eliminate it, the committee acknowledges the hazard threatens a worker's safety.

## **A Safety Committee Evaluation Checklist**

After you get your safety committee started, use the following checklist to determine if it is necessary to do any fine-tuning to make it more effective.

**NOTE:** In the "Attachments" Chapter of this Accident Prevention Program you will find a master copy of the following forms for Company use:

- Safety Committee By-Laws
- Safety Committee Checklist
- Safety Committee Meeting Agenda
- Safety Committee Meeting Minutes

[illegible]

### General Safety Rules & Code of Safe Practices

Joe Badalamenti is responsible for the implementation and enforcement of the following safety rules. Disciplinary procedures will be enforced.

#### **Employee Safety Training & Disciplinary Procedures**

MIOSHA requires that employees be trained in the safe methods of performing their job. Accurate Painting Company is committed to instructing all employees in safe and healthful work practices. Awareness of potential hazards, as well as knowledge of how to control them, is critical to maintaining a safe and healthful work environment and preventing injuries. To achieve this goal, we will provide training to each employee on general safety issues and safety procedures specific to that employee's work assignment.

Every new employee will be given instruction by their foreman in the general safety requirements of their job.

A copy of our Code of Safe Practices will also be provided to each employee.

Tailgate or toolbox safety training will be conducted at least every 10 working days.

All training will be documented on the forms provided.

Managers, supervisors, and foremen will be trained at least twice per year on various accident prevention topics.

#### **Training provides the following benefits:**

- Makes employees aware of job hazards
- Teaches employees to perform jobs safely
- Promotes two way communication
- Encourages safety suggestions
- Creates interest in the safety program
- Fulfills MIOSHA requirements

#### **Employee training will be provided at the following times:**

- All new employees will receive a safety orientation their first day on the job.
- All new employees will be given a copy of the Code of Safe Practices and required to read and sign for it.
- All field employees will receive training at tailgate or toolbox safety meetings held at the jobsite.
- All employees given a new job assignment for which training has not been previously provided will be trained before beginning the new assignment.
- Whenever new substances, processes, procedures, or equipment that represent a new hazard are introduced into the workplace.
- Whenever the Company is made aware of a new or previously unrecognized workplace hazard.
- Whenever management believes that additional training is necessary.
- After all serious accidents.
- When employees are not following safe work rules or procedures.

**Training topics will include, but not be limited to:**

- Employee's safety responsibilities
- General safety rules
- Code of Safe Practices
- Safe job procedures
- Use of hazardous materials
- Use of equipment
- Emergency procedures
- Safe lifting and material handling practices
- Use of boom and scissor lifts
- Use of fall-protection
- Contents of safety program

**Documentation of Training**

All employee safety training will be documented on one of the following three forms:

- New Employee Safety Orientation
- Specialized, formal employee training plans (confined spaces, fall protection, lockout/tagout, first aid, etc.)
- Tailgate/Toolbox Safety Meeting Report

The following informal training methods will be used. Actual demonstrations of the proper way to perform a task will be used in most cases, for example:

- Tell them how to do the job safely
- Show them how to do the job safely
- Have them tell you how to do the job safely
- Have them show you how to do the job safely
- Follow up to ensure they are still performing the job safely

**Safety Communication**

Employee safety communication procedures are designed to develop and maintain employee involvement and interest in the Accident Prevention Program. These activities will also ensure effective communication between management and employees on safety related issues that is of prime importance to The Company.

The following are some of the safety communication methods that may be used:

- Tailgate/Toolbox safety training with employees that encourage participation and open, two-way communication.
- New employee safety orientation and provision of the Code of Safe Practices.
- Provision and maintenance of employee bulletin boards discussing safety issues, accidents, and general safety suggestions.
- Written communications from management or the Safety Coordinator, including memos, postings, payroll stuffers, and newsletters.
- Anonymous safety suggestion program.

Employees will be kept advised of highlights and changes relating to the safety program. The Foremen will relay changes and improvements regarding the safety program to employees, as appropriate. Employees will be involved in future developments and safety activities, by requesting their opinions and comments, as necessary.

All employee-initiated safety related suggestions will be properly answered, either verbally or in writing, by the appropriate level of management. Unresolved issues will be relayed to Joe Badalamenti, The Safety Coordinator.

All employees are encouraged to bring any safety concerns they may have to the attention of management. Accurate Painting Company will not discriminate against any employee for raising safety issues or concerns.

The Company also has a system of anonymous notification whereby employees who wish to inform the Company of workplace hazards without identifying themselves may do so by phoning or sending written notification.

## **Enforcement of Safety Policies**

The compliance of all employees with The Company's Accident Prevention Program is mandatory and will be considered a condition of employment.

The following programs will be utilized to ensure employee compliance with the safety program and all safety rules:

- Training programs
- Retraining
- Optional safety incentive programs
- Disciplinary action

### **Training Programs**

The importance of safe work practices and the consequences of failing to abide by safety rules will be covered in the New Employee Safety Orientation and at Tailgate/Toolbox Safety meetings. This will help ensure that all employees understand and abide by The Company's safety policies.

### **Retraining**

Employees that are observed performing unsafe acts or not following proper procedures or rules will be retrained by their foreman or supervisor. A Safety Contact Report may be completed by the supervisor to document the training. If multiple employees are involved, additional safety meetings will be held.

### **Safety Incentive Programs**

Although strict adherence to safety policies and procedures is required of all employees, the Company may choose to periodically provide recognition of safety-conscious employees and jobsites without accidents through a safety incentive program.

### **Disciplinary Action**

The failure of an employee to adhere to safety policies and procedures established by The Company can have a serious impact on everyone concerned. An unsafe act can threaten not only the health and well being of the employee committing the unsafe act but can also affect the safety of his/her coworkers and/or customers. Accordingly, any employee who violates any of the Company's safety policies will be subject to disciplinary action.

**Note:** Failure to promptly report any on-the-job accident or injury, on the same day as occurrence, is considered a serious violation of The Company's Code of Safe Practices. Any employee who fails to immediately report a work-related accident or injury, no matter how minor will be subject to disciplinary action.

Employees will be disciplined for infractions of safety rules and unsafe work practices that are observed, not just those that result in an injury. Often, when an injury occurs, the accident investigation will reveal that the injury was caused because the employee violated an established safety rule and/or safe work practice(s).

In any disciplinary action, the foreman should be cautious that discipline is given to the employee for safety violations, and not simply because the employee was injured on the job or filed a Workers' Compensation claim.

Violations of safety rules and the Code of Safe Practices are to be considered equal to violations of other Company policy. Discipline for safety violations will be administered in a manner that is consistent with The Company's system of progressive discipline. If, after training, violations occur, disciplinary action will be taken as follows:

- Oral warning. Document it, including date and facts on the "Safety Warning Report" form. Add any pertinent witness statements. Restate the policy and correct practice(s).
- Written warning. Retrain as to correct procedure/practice.
- Written warning with suspension.
- Termination

As in all disciplinary actions, each situation is to be carefully evaluated and investigated. The particular step taken in the disciplinary process will depend on the severity of the violation, employee history, and regard to safety. Foremen and supervisors should consult with the office if there is any question about whether or not disciplinary action is justified. Employees may be terminated immediately for willful or extremely serious violations. Union employees are entitled to the grievance process specified by their contract.

**Note:** Consistency in the enforcement of safety rules will be exercised at all times.

**NOTE:** In the "Attachments" Chapter of this Accident Prevention Program you will find a master copy of the following forms for Company use:

- Disciplinary Safety Warning
- Code of Safe Practices Receipt

# GENERAL SAFETY RULES

Accurate Painting Company employees will follow these safe practice rules, render every possible aid to safe operations, and report all unsafe conditions or practices to their supervisor.

Failure to abide by the Code of Safe Practices may result in disciplinary action up to and including termination.

Supervisors will insist that employees observe and obey every rule, regulation, and order necessary to the safe conduct of the work, and will take such action necessary to obtain compliance.

If you are unsure of the safe method to do your job, STOP and ask your supervisor. Ignorance is no excuse for a safety violation.

All employees will be given frequent accident prevention instructions. Instructions, practice drills and articles concerning workplace safety and health will be given at least once every \_\_\_\_\_ working days.

No one will knowingly be permitted to work while the employee's ability or alertness is impaired by fatigue, illness, and prescription or over the counter drugs. Employees who are suspected of being under the influence of illegal or intoxicating substances, impaired by fatigue or an illness, will be prohibited from working.

Anyone known to be under the influence of alcohol and/or drugs will not be allowed on the job while in that condition. Persons with symptoms of alcohol and/or drug abuse are encouraged to discuss personal or work-related problems with their supervisor/employer.

Employees should be alert to see that all guards and other protective devices are in proper places and adjusted, and will report deficiencies. Approved protective equipment will be worn in specified work areas.

Horseplay, scuffling, fighting and other acts that tend to have an adverse influence on the safety or well being of the employees are prohibited. Do not run in the workplace or in the shop or office area.

Work will be well-planned and supervised to prevent injuries when working with equipment and handling heavy materials. When lifting heavy objects, employees should bend their knees and use the large muscles of the leg instead of the smaller muscles of the back. Back injuries are the most frequent and often the most persistent and painful type of workplace injury.

Workers will not handle or tamper with any electrical equipment, machinery or air or water lines in a manner not within the scope of their duties, unless they have received instructions from their supervisor. Do not operate equipment that you are not familiar with. Do not attempt to use such equipment until you are fully trained and authorized.

Keep your work area clean, free of debris, electrical cords, and other hazards. Immediately clean up spilled liquids.

Always notify all other individuals in your area who might be endangered by the work you are doing.

A red tag system identifies equipment that is NOT to be operated, energized, or used. All lockout/tagout notices and procedures must be observed and obeyed.

Do not block exits, fire doors, aisles, fire extinguishers, first aid kits, emergency equipment, electrical panels, or traffic lanes.

Do not leave tools, materials, or other objects on the floor that might cause others to trip and fall.



Do not distract others while working. If conversation is necessary, make sure eye contact is made prior to communicating.

Employees will not enter manholes, underground vaults, chambers, tanks, silos, or other similar places that receive little ventilation, unless it has been determined that it is safe to enter.

Materials, tools, or other objects will not be thrown from buildings or structures until proper precautions are taken to protect others from the falling objects.

Employees will cleanse thoroughly after handling hazardous substances, and follow special instructions from authorized sources.

Gasoline or other flammable liquids will not be used for cleaning purposes.

No burning, welding, or other source of ignition will be applied to any enclosed tank or vessel, even if there are some openings, until it has first been determined that no possibility of explosion exists, and authority for the work is obtained from the foreman or superintendent.

Any damage to scaffolds, falsework, or other supporting structures will be immediately reported to the foreman and repaired before use.

Possession of firearms, weapons, illegal drugs or alcoholic beverages on Company or customer property or the workplace is strictly prohibited.

All injuries will be reported promptly to your supervisor so that arrangements can be made for medical and/or first-aid treatment.

## **Specific Safety Rules**

### **Electrical Safety**

Only trained, qualified, and authorized employees are allowed to make electrical repairs or work on electrical equipment or installations.

All electrical equipment and systems will be treated as energized until tested or otherwise proven to be de-energized.

All energized equipment and installations will be de-energized prior to the commencement of any work. If the equipment or installation must be energized for test or other purposes, special precautions will be taken to protect against the hazards of electric shock.

All equipment will be locked out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch, valve, or other energy-isolating device bearing a lock.

Safety grounds will always be used where there is a danger of shock from back feeding or other hazards.

Polyester clothing or other flammable types of clothing will not be worn near electrical circuits. Cotton clothing is much less likely to ignite from arc blast. Employees working on live circuits will be provided Nomex or equivalent fire resistant clothing.

Suitable eye protection must be worn at all times while working on electrical equipment.

Always exercise caution when energizing electrical equipment or installations. Take steps to protect yourself and other employees from arc blast and exploding equipment in the event of a fault.

All power tools will be grounded or double insulated. Tools with defective cords or wiring will not be used.

Metal jewelry should not be worn around energized circuits.

Extension and temporary power cords must be heavy duty and grounded. Frayed or defective cords will not be used.

Suitable temporary barriers or barricades will be installed when access to opened enclosures containing exposed energized equipment is not under the control of an authorized person.

Electrical installations must be protected from accidental contact by enclosures or tight fitting covers.

Circuits will not be overloaded with equipment or extension cords.

Metal measuring tapes, fish tapes, ropes or other metal devices are prohibited where they may contact energized parts of equipment or circuits.

## **Personal Protective Equipment (PPE)**

Use the correct PPE for each job assignment. If you do not know, ask.

PPE will be maintained in good condition and cleaned regularly.

PPE will be stored properly when not in use to protect it from damage.

Damaged or broken PPE must be returned to your foreman for replacement.

Hard hats must be worn on jobsites, when required.

ANSI approved safety glasses must be worn when working with power tools, compressed air or gasses, chemicals or any other item that creates an eye injury hazard.

Face shields with safety glasses are recommended when grinding or working with hazardous chemicals.

Employees must wear industrial work shoes in the shop and on the jobsite. The shoes must have complete leather uppers and skid resistant soles and be in good condition. Steel toe protection is recommended.

Athletic style shoes, tennis shoes, open toe shoes, plastic or vinyl shoes or shoes with decorative accessories are not allowed.

Hearing protectors must be worn when working with loud equipment such as cut off saws, chain saws, air hammers or grinders.

Back support belts should be worn for heavy lifting tasks. They do not help you lift more, but may provide some protection from back injuries.

Be sure the protective clothing you wear will not hamper or restrict freedom of movement due to improper fit.

Long pants of heavy-duty material must be worn. No shorts or sweat pants are allowed.

Do not wear loose, torn or frayed clothing, dangling ties, finger rings, dangling earrings, jewelry items, or long hair unless contained in a hair net, while operating any machine that could cause entanglement.

If required, wear NIOSH approved respirators when applying adhesives, paint, welding, grinding or working with chemicals. Read the MSDS to find out which types of respirators are required. Facial hair may not be permitted in certain circumstances.

## **Hazardous Materials and Chemicals**

Read all warning labels and Material Safety Data Sheets (MSDS) before using any chemicals. MSDS contain personal protective equipment and safety information and are available from your foreman.

Hazardous materials will be handled in accordance with the MSDS and label. If protective equipment is required, use it.

Eye protection must be worn when working with hazardous materials or chemicals.

Mixing of chemicals is prohibited at all times unless required by the label. Before you mix - review all MSDS.

Always wash your hands thoroughly after handling chemicals and before eating or smoking, even if you were wearing protective gloves.

Never use solvents for hand cleaning. Use the non-toxic hand cleaners provided.

Store all hazardous materials properly in suitable containers that are properly labeled.

Use chemicals only in well-ventilated areas.

When using secondary containers, ensure that they are labeled as to their contents and hazards.

Do not disturb any asbestos. STOP work and tell your foreman. If you are not sure, STOP and ask.

Do not cut or weld stainless steel or galvanized metal without respiratory protection. These items create toxic fumes.

Work with lead, asbestos, cadmium, and other toxic compounds require special precautions. Do not attempt to perform this work without special equipment and training.

## **Fire Prevention and Housekeeping**

Always take precautions to prevent fires which may be started, particularly from oily waste, rags, gasoline, flammable liquids, acetylene torches, improperly installed electrical equipment, and trash.

Firefighting equipment is to be inspected on a regular basis. All discharged, damaged or missing equipment is to be immediately reported to a supervisor. Tampering with fire equipment is prohibited.

Access to fire extinguishers must be kept clear at all times. Make note of the location of firefighting equipment in your work area.

Never use gasoline or flammable solvents for cleaning purposes.

Smoking is prohibited within 20 feet of where flammable substances are present.

In case of fire, employees will consider the safety of themselves and other individuals before saving property.

Keep your work areas free of debris. Remove useless material from the work area as fast as required to help reduce tripping hazards.

Maintain awareness of potential hazards when walking about the workplace.

Keep tools, materials and equipment out of walkways and stairways at all times.

Sharp wires or protruding nails must be kept bent.

Place tools and equipment so they will not fall from elevated areas.

Tie materials down at day's end so the wind will not blow it off the roof.

## **Fall Protection**

Fall protection, such as standard railings or a safety harness and lanyard, will be used at all times, when working 6 feet or more above the level below.

Floor and wall openings, unfinished balconies, elevator shafts and similar areas must be railed, covered, or barricaded to prevent falls.

Never remove fall protection rails, covers, or barricades without permission from your foreman and special precautions. Always replace these items when finished with your task.

All safety harnesses will be the full body type with a shock-absorbing lanyard attached to a substantial anchorage capable of supporting twice the maximum load. Lanyards will be attached at the wearer's upper back. Body belts are not to be worn as fall protection.

Read and obey all manufacturers' instructions relating to your fall arrest system (safety harness and lanyard).

Inspect all components of your harness and lanyard prior to each use and after a fall. Defective equipment is not to be used. Lanyards must be destroyed after a fall and never reused.

Safety harnesses and lanyards should limit free fall distance to less than 4 feet and prevent contact with any level or objects below you.

Never use any part of a fall arrest system, such as a harness or lanyard, to hoist materials or for any other purpose.

Safety harnesses and shock absorbing lanyards are required to be worn at all times while in boom lifts.

## **Ladder Safety**

Inspect the ladder before using it. If it is broken, throw it out. Never repair a broken ladder, get a new one. Keep portable stairways, ladders, and step stools in good condition and use them only in a safe manner.

Use the proper ladder for the job. Do not use "A" frame ladders as straight ladders. Make sure the ladder is tall enough to reach the work area. Do not use metal ladders for electrical work.

Do not place ladders in passageways, doorways, or any location where they might be hit or jarred, unless protected by barricades or guards.

Ladders should only be placed on hard level surfaces. Make sure the ladder feet are not placed on sandy, slippery, or sloping surfaces. Clean or sweep the area where the ladder feet will be and make sure the rubber feet are in good shape.

Ladder rungs and steps must be kept free of grease, oil, mud, or other slippery substances.

Arrange your work so you are able to face the ladder and use both hands while climbing. Do not carry tools or equipment while climbing a ladder. Climb the ladder, and then hoist the tools or equipment with a line or a hoisting device.

Avoid temporary ladders. Always use a commercially made, construction grade ladder of the proper length for the work being performed.

Secure portable ladders in place and at a pitch so the leveling indicator is in alignment or the distance from the wall to the base of the ladder is at least 1' for every 4' of height.

Straight ladders will be tied off the top of the ladder to prevent slipping.

Be aware of objects below you, move or cover sharp objects in case you fall. Cap or bend all rebar.

Do not stand on or work from the 2<sup>nd</sup> rung from the top or above. Also do not reach too far from the ladder. Keep your belt buckle between the side rails.

Extension ladders will extend at least 36" above the level being accessed.

On all ladders, do not step on cross bracing that is not intended to be used for climbing.

## **Scaffolds**

Scaffolds are to be erected, dismantled, altered, or repaired by the scaffold contractor ONLY.

Inspect scaffolds prior to use and report any damage immediately to your foreman. Do not use damaged scaffolds.

You are not permitted to ride on rolling scaffolds being moved.

Always use guard railings on all scaffolds regardless of height.

Use only high quality planking on scaffolds and be sure the planks are secure to prevent shifting.

Always apply caster brakes and use outriggers when scaffolds are stationary.

Do not use planks, buckets, ladders, guard rails or other equipment as a temporary means of obtaining greater height off the scaffold.

Be aware of the objects below you; move or cover sharp objects in case you fall. Cap or bend all rebar.

## **Lockout/Tagout**

All machinery and electrical equipment will be locked out and tagged prior to repair, cleaning, or adjustment unless power is necessary to perform the work. If so, other precautions, specified by your foreman, will be taken.

Use your own lock and key. No one else should have a key for your lock. Destroy all duplicate keys.

Maintain control of your key at all times to prevent unauthorized use.

Never remove another employee's lock or energize tagged equipment.

If multiple employees are working on the same equipment, each employee should install their own lock.

Notify all affected employees that lockout/tagout is required and reasoning.

If the equipment is operating, shut it down by the normal stopping procedure (depress stop button, open toggle switch, etc.).

Operate the switch, valve or other energy isolating devices so that the energy source(s) (electrical, mechanical, hydraulic, etc.) is disconnected or isolated from the equipment.

Stored energy, such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas or water pressure, etc. must also be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.

Lock-out all energy isolation devices with an individual lock.

After ensuring that no employees are exposed and as a check of having disconnected the energy sources, operate the push button or other normal operating controls to make certain the equipment will not operate.

**CAUTION:** Return operating controls to neutral position after the test. The equipment is now locked-out. Install red lock-out tag on operating controls.

After repair is complete and the equipment is ready for testing or normal operation, check the equipment to see that all cover plates and safety devices have been reinstalled.

When the equipment is clear, remove all locks and tags. The energy isolating devices may be operated to restore energy to the equipment.

### **Boom and Scissor Lifts**

Only trained and authorized employees are allowed to use boom or scissor lifts. If you are not trained, stay off.

Read and obey all manufacturers' instructions and safety precautions.

Inspect all lifts prior to use. Defective equipment will not be used.

A safety harness with shock absorbing lanyard must be worn while using boom lifts. Harnesses are not required for scissor lifts, provided guardrails are adequate and you do not leave the work platform.

Always stay inside the platform railing. Do not use planks or ladders to extend your reach.

Always lower the lift before moving.

Never use scissor lifts on uneven ground. They are designed for use primarily on concrete floors.

### **Hand and Power Tools**

Proper eye protection must be worn when using hand and power tools.

Know your hand and power tool applications and limitations. Always use the proper tool for the job.

Inspect cords and tools prior to use. Do not use tools that are faulty in any way. Exchange them for safe tools immediately.

Power tools must be grounded or double insulated. All power tools are to be plugged into a grounded GFCI outlet.

Do not use power tools in damp, wet, or explosive atmospheres.

Do not lift, lower or carry portable electrical tools by the power cord.

Keep all safety guards in place and in proper working order.

Use clamps or vises to secure work pieces.

Do not force hand power tools. Apply only enough pressure to keep the unit operating smoothly.

Return all tools and other equipment to their proper place after use.

Unplug all power tools before changing bits and/or grinding disks.

Never leave chuck keys in the tool during operation.

Do not use a screwdriver as a chisel.

Before using sledges, axes, or hammers, be sure the handles are securely fastened with a wedge made of sound material.

Do not use a handle extension or "cheater" on any wrench.

Files should be equipped with handles and should not be used as a punch or pry.

## **Trenching and Excavation**

All excavations and trenches 5 feet deep or greater must be shored, sloped or benched to protect workers from hazards of moving earth. All trenching must be done in accordance with OSHA regulations.

Always locate underground utilities before digging. Also contact regional notification center in advance.

Do not work under loads handled by lifting or digging equipment.

Ladders will be provided for access to trenches and excavations 4 feet deep or greater. Use them.

Keep all spoil piles a minimum of 2 feet from the edge of the trench.

Barricade trenches or use caution tape to warn others of their presence.

Inspect all trenches and excavations daily, before work, to look for signs of shifting earth.

## **Cranes and Rigging**

No employee is permitted to ride on loads, hooks, or slings of any crane, hoist or derrick.

Do not work or stand under any suspended load. Crane operators will avoid swinging loads over people.

Inspect all slings and chains prior to use. Do not use defective slings, chains, or rigging.

## **Welding and Cutting**

Make sure your welding equipment is properly installed, grounded, and in good working condition.

Always wear protective clothing suitable for the welding or cutting to be done.

Always wear proper eye protection when welding, brazing, soldering or flame cutting. Once you remove your welding helmet, put on safety glasses.

Keep your work area clean and free of hazards. Make sure that no flammable, volatile or explosive materials are in or near the work area.

Handle all compressed gas cylinders with extreme care. Keep caps on when not in use. Make sure that all compressed gas cylinders are secured to the equipment carriage, wall or other structural supports. When compressed gas cylinders are empty close the valve, install the cap and return to correct bottle storage area.

Store compressed gas cylinders in a safe place with good ventilation. Acetylene cylinders and oxygen cylinders should be kept at least 20 feet apart.

Do not weld or cut in confined spaces without special precautions and your foreman's authorization.

Do not weld on containers that have held combustibles or flammable materials.

Use mechanical exhaust ventilation at the point of welding when welding lead, cadmium, chromium, manganese, brass, bronze, zinc or galvanized metals. These metals are highly toxic and their fumes should not be breathed.

Make sure all electrical connections are tight and insulated. Do not use cables with frayed, cracked or bare spots in the insulation.

When the electrode holder or cutting torch is not in use, hang it on the brackets provided. Never let it touch a compressed gas cylinder.

Dispose of electrode and wire stubs in proper containers since stubs and rods on the floor are a safety hazard.



Use weld curtains to shield others from the light rays produced by your welding.

Make sure all compressed gas connections are tight and check for leaks. Do not use hoses with frayed or cracked spots.

Keep your leads orderly and out of walkways. Suspend them whenever possible.

DO NOT WELD if leads or machine are in or near water.

Make sure a portable fire extinguisher is nearby.

Keep your work area clean and free of hazards. When flame cutting, sparks can travel 30-40 feet. Do not allow flame cut sparks to hit hoses, regulators or cylinders.

Use oxygen and acetylene or other fuel gases with the appropriate torches and tips only for the purpose intended.

Never use acetylene at a pressure in excess of 15 pounds per square inch. Higher pressure can cause an explosion.

Never use oil, grease, or any other material on any apparatus or thread fitting in the oxyacetylene or oxyfuel gas system. Oil and grease in contact with oxygen will cause spontaneous combustion.

Always use the correct sequence and technique for assembling and lighting the torch.

Always use the correct sequence and technique for shutting off a torch.

## **Company Vehicles**

Only authorized employees are permitted to operate Company vehicles. Do not let anyone else drive your Company vehicle.

Company vehicles are to be used for Company business only. Personal, off duty and family use is prohibited.

Drive defensively and obey all traffic and highway laws.

Always wear your seat belt, whether the driver or a passenger.

Report all accidents to your supervisor as soon as possible and obtain a police report.

Keys must be removed from all unattended vehicles and the vehicles must be locked, unless parking inside the facility.

Do not jump from the cab or bed of Company vehicles. Always use the steps or a ladder.

Inspect your vehicle and report any defects or operating problems to your supervisor so that repairs can be made.

Smoking is prohibited during vehicle refueling.

If your driver's license is revoked or expired, immediately notify your supervisor and do not drive.

## **Traffic Safety**

All employees exposed to traffic hazards are required to wear orange flagging garments (shirts, vests, jackets) at all times.

When possible, construction vehicles are to be placed between the employees and traffic to prevent vehicles from entering the work area and hitting members of the crew.

All traffic controls will be established in accordance with the Manual of Traffic Controls for Construction and Maintenance Work Zones.

Traffic controls are to be properly maintained throughout the workday. Signs and cones must be kept upright, visible and in their proper position at all times.



- Disciplinary Safety Warning
- Code of Safe Practices Receipt
- Notes:
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[illegible]

## Chapter 4

### Accident Investigation Policy

Accurate Painting Company is committed to investigating all accidents/incidents. Joe Badalamenti is responsible for ensuring that accident investigation policy is followed.

Accidents and near miss incidents that result in personal injury, property damage, chemical spill, or other emergency situations will be immediately reported to the assigned supervisor at the time of the event and Emergency Medical Service, Fire Department, or Hazmat Services will be immediately summoned. Such events will be investigated and documented on the appropriate Company form. All forms will be fully completed and submitted to Joe Badalamenti for review and for discussion at the next scheduled Safety Committee meeting. These investigations demonstrate the company's commitment to providing a safe and healthful work environment.

Disciplinary Policy

will be enforced.

This company will investigate all lost-time injuries. Fatalities and catastrophes must be reported to MIOSHA within 8 hours. Serious accidents must be reported to MIOSHA within 24 hours.

To ensure that accidents will be reported, employees must be encouraged to participate in the "fact-finding" process. The point emphasized must be that "hazardous conditions" and "unsafe practices" are an indication of a much bigger problem with a breakdown in the accident prevention policy. The purpose of the accident investigation then becomes one that will uncover these system problems and provide solutions that will result in long term corrective action.

It is important to gather facts and interview witnesses as soon as possible after an accident to ensure the most accurate information is being recorded. The efficiency of the corrective measures is determined by the accuracy of the information gathered. The best place to conduct an interview is wherever the employee being interviewed feels most comfortable. The most important interviewing technique you can use to ensure accuracy is to "listen".

**Note:** Consider the event a "serious accident" if an employee is admitted to a hospital for treatment or observation as a result of injuries suffered from a workplace accident.

#### **Accident Causes**

Accidents occur when hazards escape detection during preventive measures, such as a job or process safety assessment, when hazards are not obvious, or as the result of combinations of circumstances that were difficult to foresee. A thorough accident investigation may identify previously overlooked physical, environmental, or process hazards, the need for new or more extensive safety training, or unsafe work practices.

The primary focus of any accident investigation should be the determination of the facts surrounding the incident and the lessons that can be learned to prevent future similar occurrences. The focus of the investigation should NEVER be to place blame. The process should be positive and thought of as an opportunity for improvement.



## **When Accident Investigations are Required**

As a general rule, investigations should be conducted for:

- All injuries (even the very minor ones).
- All accidents with potential for injury.
- Property and/or product damage situations.
- All “Near Misses” where there was potential for serious injury.

Near miss and incident reporting and investigation allow you to identify and control hazards before they cause a more serious incident. Accident/incident investigations are a tool for uncovering hazards that either were missed earlier or hazards where controls were defeated. However, it is important to remember that the investigation is only useful when its objective is to identify root causes. In other words, every contributing factor to the incident must be uncovered and recommendations made to prevent recurrence.

## **Accident Investigation Plan**

When a serious accident occurs in the workplace, everyone will be too busy dealing with the emergency at hand to worry about putting together an investigation plan, so the best time to develop effective accident investigation procedures is before the accident occurs.

**The plan should include procedures that determine:**

- Who should be notified of accident?
- Who is authorized to notify outside agencies? (fire, police, etc.)
- Who is assigned to conduct investigations?
- Training required for accident investigators:
- Who receives and acts on investigation reports?
- Timetables for conducting hazard correction.

## **Secure the Accident Scene**

For a serious accident, the first action the accident team needs to take is to secure the accident scene so material evidence is not moved or removed. Material evidence has a tendency to walk off after an accident. If the accident is quite serious, OSHA may inspect and require that all material evidence be marked and remain at the scene of the accident.

## **Gather Information**

The next step is to gather useful information about what directly and indirectly contributed to the accident. The following tools should be used to gather as much information as possible:

- Interview eye witnesses as soon as possible after the accident. Interview witnesses separately, never as a group.
- Interview other interested persons such as supervisors, co-workers, etc.
- Review related records such as:
  - Training records
  - Disciplinary records
  - Medical records (as allowed)
  - Maintenance records
  - OSHA 300 Log (past similar injuries)
  - Safety Committee records
- Document the scene with photographs, videotape, or sketches AND appropriate measurements.

## **Develop a Sequence of Events**

Use the information gathered to develop a detailed step by step description of the accident. Make sure the accident is documented in enough detail to enable an individual unfamiliar with the situation to envision the sequence of events. Do not just describe the accident itself; include a description of events that led up to the accident.

## Analyze the Accident

The next step is to determine the cause(s) of the accident. This is the most difficult step because first the events must be analyzed to discover surface cause(s) for the accident, and then, by asking “why” a number of times, the related root causes are uncovered. Remember, surface causes are usually pretty obvious and not too difficult to determine. However, it may take a great deal more time to accurately determine the weaknesses in the management system, or root causes, that contributed to the conditions and practices associated with the accident.

### More on surface causes:

The surface causes of accidents are those hazardous conditions and individual unsafe employee/manager behaviors that have directly caused or contributed in some way to the accident.

### Hazardous conditions may exist in any of the following categories:

- Materials
- Machinery
- Equipment
- Tools
- Chemicals
- Environment
- Workstations
- Facilities
- People
- Workload

It is important to know that most hazardous conditions in the workplace are the result of unsafe behaviors that produced them. Individual unsafe behaviors may occur at any level of the organization.

### Some example of unsafe employee/manager behaviors include:

- Failing to comply with rules
- Using unsafe methods
- Taking shortcuts
- Horseplay
- Failing to report injuries
- Failing to report hazards
- Allowing unsafe behaviors
- Failing to train
- Failing to supervise
- Failing to correct
- Scheduling too much work
- Ignoring worker stress

### More on root causes:

The root causes for accidents are the underlying system weaknesses that have somehow contributed to the existence of hazardous conditions and unsafe behaviors that represent surface causes of accidents. Root causes always pre-exist surface causes. Inadequately designed system components have the potential to feed and nurture hazardous conditions and unsafe behaviors. If root causes are left unchecked, surface causes will flourish!

### Root causes may be separated into two categories:

**System design weaknesses** — Missing or inadequately designed policies, programs, plans, processes, and procedures will affect conditions and practices generally throughout the workplace. Defects in system design represent hazardous system conditions.

**System implementation weaknesses** — Failures to initiate, carry out, or accomplish safety policies, programs, plans, processes, and procedures. Defects in implementation represent ineffective management behavior.

### **System Design Weaknesses**

- Missing or inadequate safety policies/rules
- Training program not in place
- Poorly written plans
- Inadequate process
- No procedures in place
- Develop Preventive Actions

### **System Implementation Weaknesses**

- Safety policies/rules are not being enforced
- Safety training is not being conducted
- Adequate supervision is not conducted
- Incident/Accident analysis is inconsistent
- Lockout/Tagout procedures are not reviewed annually

This is the most important piece of any investigation. All of the work done to this point culminates with recommendations to prevent similar accidents from happening in the future. Recommendations should relate directly to the surface and root causes of the accident. These recommendations should include recommended actions such as:

- Engineering controls (for example, local exhaust ventilation or use of a lift assisting device).
- Work practice controls (for example, pre-plan work, and remove jewelry and loose fitting clothing before operating machinery).
- Administrative controls (e.g., standard operating procedures or worker rotation).
- Personal protective equipment (for example, safety glasses or respirators).

It is crucial that, after making recommendations to eliminate or reduce the surface causes, that the same procedure is used to recommend actions to correct the root causes. If root causes are not corrected, it is only a matter of time before a similar accident occurs.

### **Summary**

A successful accident investigation determines not only what happened, but also finds how and why the accident occurred. Investigations are crucial as an effort to prevent a similar or perhaps more disastrous sequence of events. Research has shown that a typical accident is the result of many related and unrelated factors that somehow all come together at the same time. It is estimated that there are usually more than ten factors that contribute to a serious accident. Although, this combination of factors normally makes an investigation very time consuming and resource intensive, the good news is that the accident can normally be prevented by removing only a few of the contributing factors.

**NOTE:** In the "Attachments" Chapter of this Accident Prevention Program you will find a master copy of the following form for Company use:

- Accident Incident Report

# Emergency Response Plan & Fire Prevention Procedures

## **Fire Exits - MIOSHA-Part 6-R 408.106**

### **Plan for Workplace Emergencies**

Emergency planning is the first step, and it can be challenging even if your workplace has few employees. You will need to determine what emergencies could affect your workplace, who will lead and make decisions during an emergency, and what procedures will ensure that employees respond appropriately. These elements are the foundation of a workplace emergency plan.

Emergency planning may not prevent emergencies, but it can protect lives, equipment, and property over the long term. This guide will help you plan for workplace emergencies so that you and your coworkers respond appropriately when an unlikely event happens.

### **Does MIOSHA Require Employers to Have Emergency Plans?**

MIOSHA requires most employers to have emergency plans. Those that have more than 10 employees must have written plans. Those that have 10 or fewer employees do not have to put their plans in writing; however, they must ensure that their employees know what procedures to follow to protect themselves in an emergency.

### **Managing Workplace Emergencies**

#### **The Incident-Management System**

You can learn much about planning for workplace emergencies from professional emergency responders. When someone calls 911 to report an emergency, he or she connects with a local network of fire, police, and other emergency service professionals who will respond as efficiently as possible. This network is part of a larger incident-management system that can respond to an emergency and accomplish the following:

- Identify, locate, and determine the extent of the emergency.
- Determine the resources necessary to manage and control the emergency.
- Coordinate command-and-control responsibilities between police and fire departments, hospitals and other medical service providers, government agencies, and on-site responders.
- Establish and maintain communication between on-scene emergency responders and other emergency service providers.
- Provide for the safety of victims.

#### **An Incident-Management System for Your Workplace**

With thoughtful planning, you can create a small-scale version of the incident management system used by professional responders. Your workplace will be ready to respond to any emergency – from a heart attack to an earthquake – and manage it in the most effective, efficient way possible. The essential parts of this system are your employees, your emergency plan, communication and emergency-response equipment, and your workplace.

## **Developing an Emergency Plan**

Your goal is to create an emergency plan that ensures the well-being of everyone at your workplace in the most effective, efficient manner possible. But if you have never had to respond to a workplace emergency, how do you begin?

You begin by involving employees in the planning process, identifying emergencies that could affect your workplace, establishing an emergency chain of command, and developing emergency-response policy and procedures.

### **Involve Employees in the Planning Process**

Perhaps the most important element of emergency planning is getting employees involved in the planning process; when employees participate, they will take the plan seriously and be more likely to respond appropriately during an emergency. From the start, they should be aware that the purpose of the plan is to ensure their safety.

Form a team to help you develop the plan; ask for volunteers to join the team.

Review the plan with your employees to ensure that they know the procedures to follow to respond safely in an emergency. Each employee should have a copy of the plan or know where to obtain one.

Encourage employees to report workplace hazards and unsafe work practices that could contribute to an emergency.

### **Identify Emergencies that Could Affect Your Workplace**

Identify any external incident (outside your workplace) that could threaten employees or the public and any incident within your workplace that could cause an emergency.

Examples include the following:

- Earthquake: external
- Explosion: external or internal
- Fire: external or internal
- Hazardous-substance release: external or internal
- Medical: internal
- Weather-related event (hurricane, tornado, blizzard, etc.): external
- Threat of violence: external or internal

Keep in mind... Electrical, heating and cooling, and telecommunication-system failures can disrupt workplace activities and contribute to emergencies. What effect would each have on your workplace? Human error also contributes to many workplace emergencies; are your employees trained to do their jobs safely?

### **Establish a Chain of Command**

A chain of command links one person with overall responsibility for managing an emergency to others responsible for carrying out specific emergency-response tasks. A chain of command establishes who is in charge and ensures that everyone in the chain responds to emergencies in an organized way.

At the top of the chain is the emergency scene commander, a trained employee who has overall responsibility for managing emergencies.

Just below the emergency scene commander are the volunteer emergency scene coordinators.

In an organization that has multiple buildings or workplaces, the chain of command might also include a facility manager, an emergency director, and other management units.

At many small- to medium-sized workplaces, the chain of command consists of an emergency scene commander and one or two volunteer emergency scene coordinators.



## The Responsibilities of the Emergency Scene Commander

The emergency scene commander has overall command of a workplace emergency, including the following responsibilities:

- Assessing incidents to determine if it is necessary to order emergency response.
- Supervising emergency scene coordinators' activities during an emergency.
- Coordinating the activities of professional responders such as ambulance, police, and fire departments.
- Directing shutdown of critical workplace equipment or operations.
- Determining if an evacuation is necessary and managing an evacuation.

Keep in mind... The emergency scene commander should be an employee who has experience managing others, assessing complex events, and making effective decisions under difficult circumstances.

## The Role of the Emergency Scene Coordinators

Emergency scene coordinators are responsible for coordinating other employees' activities during an emergency (guiding them to appropriate exits and safe areas during an evacuation, for example) and for other emergency-response tasks for which they have volunteered and been properly trained.

Generally, each coordinator should be responsible for about 20 employees within a designated work area, as shown in the following table.

Number of Emergency Scene Responders for Typical Workplaces		
Total Employees in Workplace	Emergency Scene Commander	Emergency Scene Coordinator
11-19	1	1
20-49	1	1-2
50-99	1	2-5
100-249	1	5-12
250+	1	12+

Emergency scene coordinators must know how to respond to all emergencies identified in your emergency plan, the evacuation procedures for your workplace, and how to use emergency communication equipment. They should also know CPR, first aid, and how to respond to threats of violence. Their primary responsibilities include the following:

- Checking rooms and other enclosed spaces for employees who may be trapped or unable to evacuate during an emergency.
- Knowing who may need assistance during an evacuation and how to assist them.
- Coordinating the emergency activities of employees.
- Ensuring that employees understand how to respond to workplace emergencies.
- Knowing the workplace layout, appropriate escape routes, and areas that employees must not enter during an evacuation.
- Verifying that employees are in designated safe areas after an evacuation.

Keep in mind... Establishing a chain of command minimizes confusion during an emergency. An effective chain of command helps ensure that responders manage an emergency in the most efficient way possible.

## **Develop a Policy and Procedure for Responding to Emergencies**

### **The Policy**

Create a short written policy that states the purpose of the plan and emphasizes that you are committed to ensuring the safety of employees and others at your workplace during an emergency. The following is an example:

"It is the policy of this organization to protect employees from physical harm, harassment, and intimidation. To provide a safe working environment for all employees, this organization is committed to establishing an effective emergency plan. The plan is based on an "Incident Management System" (IMS) that consists of volunteer employees trained to respond to any workplace emergency. The system is modeled on the IMS system used by fire, police, and emergency medical-service responders. It provides for overall command and control of any emergency incident. It improves communication between IMS personnel and the fire, police, and medical personnel who respond to a call for help. And it provides appropriate emergency assistance during the first few minutes it takes for emergency responders to arrive."

### **The Procedures**

Procedures are instructions for accomplishing specific tasks. Emergency procedures are important because they tell employees exactly what to do to ensure their safety during an emergency. If your workplace has more than 10 employees, your emergency plan must describe in writing how you will accomplish each of the following tasks:

- Report emergencies to local fire and police departments.
- Inform the emergency chain of command of an emergency.
- Warn employees about an emergency.
- Conduct an orderly, efficient workplace evacuation.
- Assist employees, with disabilities or limited English-speaking skills during an evacuation.
- Shut down critical equipment, operate fire extinguishers, and perform other essential services during an evacuation.
- Account for employees at a designated safe area after an evacuation.
- Perform rescue and first aid that may be necessary during an emergency.

Keep in mind... If your workplace has 10 or fewer employees, you do not have to put these procedures in writing; however, you must ensure that employees know what procedures they must follow to protect themselves.

### **Other Critical Information**

Include the following in your procedures:

- The names of the emergency scene commander, the emergency scene coordinators, and others responsible for carrying out the plan, and how to contact them during an emergency.
- The name of the person who has the authority to order a workplace evacuation (typically, the emergency scene commander).
- The names and phone numbers of those who understand the emergency plan and will inform others about it (typically the emergency scene commander and the emergency scene coordinators).

## **Planning Considerations**

### **Accounting for Employees after an Evacuation**

Designate a meeting area a safe distance away from the emergency site and ensure that employees know they must meet there after they evacuate the workplace. An emergency scene coordinator should take a "Roll-Call" to identify employees not present.

Keep in mind... You will need to determine what information or assistance employees may need if they cannot return to the workplace after an evacuation.

### **Alerting Employees to an Emergency**

You can use a public address system, portable radio, an alarm, an air-horn, or any other means that you know will reach and warn all employees. Alarms must be distinctive, be recognizable by all employees, and have a back-up power supply in case the primary power fails.

Keep in mind... You may need alarms that employees can hear and see.

### **Conducting Employee Rescues**

It takes more than good intentions to save lives. Would-be rescuers can endanger themselves and those they are trying to rescue. During most emergencies, leave rescue work to professional responders who are appropriately trained and equipped. The exceptions? A catastrophe, such as a severe earthquake, may delay professional emergency responders for hours or days. Also, jobs such as handling hazardous substances or working in confined spaces could result in emergencies for which fire or police departments are not trained.

Find out what kind of emergencies local responders are trained and equipped to respond to. If they are unable to respond to emergencies unique to your workplace, your employees must be trained and able to respond promptly.

### **Coordinating with Multi-Employer Workplaces**

If you share a building or worksite with other employers, consider working with them to develop a building-wide emergency plan. If a building-wide plan is not feasible, you should ensure that your plan does not conflict with the plans of the other employers in the building.

### **Developing Quick-Response Teams**

A quick-response team consists of volunteer employees trained to handle workplace incidents that require immediate action, such as medical emergencies, threatening or violent people, and hazardous-substance releases. Consider the following in developing quick response teams:

- Types of incidents that require immediate action
- Roles and responsibilities of team members
- Communication and response procedures for the team

### **Educating Employees about Emergencies and Evacuations**

To protect themselves during an emergency, all employees must understand the following elements of their emergency plan:

- The roles of the emergency scene commander and coordinators.
- How to respond to threats and intimidation.
- The method(s) for warning employees of emergencies.
- The method for contacting employees' next of kin after an emergency.
- The procedure for summoning emergency responders.
- The location of safe meeting areas.
- How to respond to an emergency and to an order to evacuate.

- Educate new employees about the emergency plan when you hire them and keep all employees informed about any changes to the plan.
- Train emergency scene coordinators in first aid and CPR, bloodborne-pathogen protection, and how to use rescue equipment.
- Schedule regular drills so that employees can practice. Include outside fire and police departments in the drills when possible. Evaluate the effectiveness of each drill and identify activities that need strengthening. Share the results with all employees.

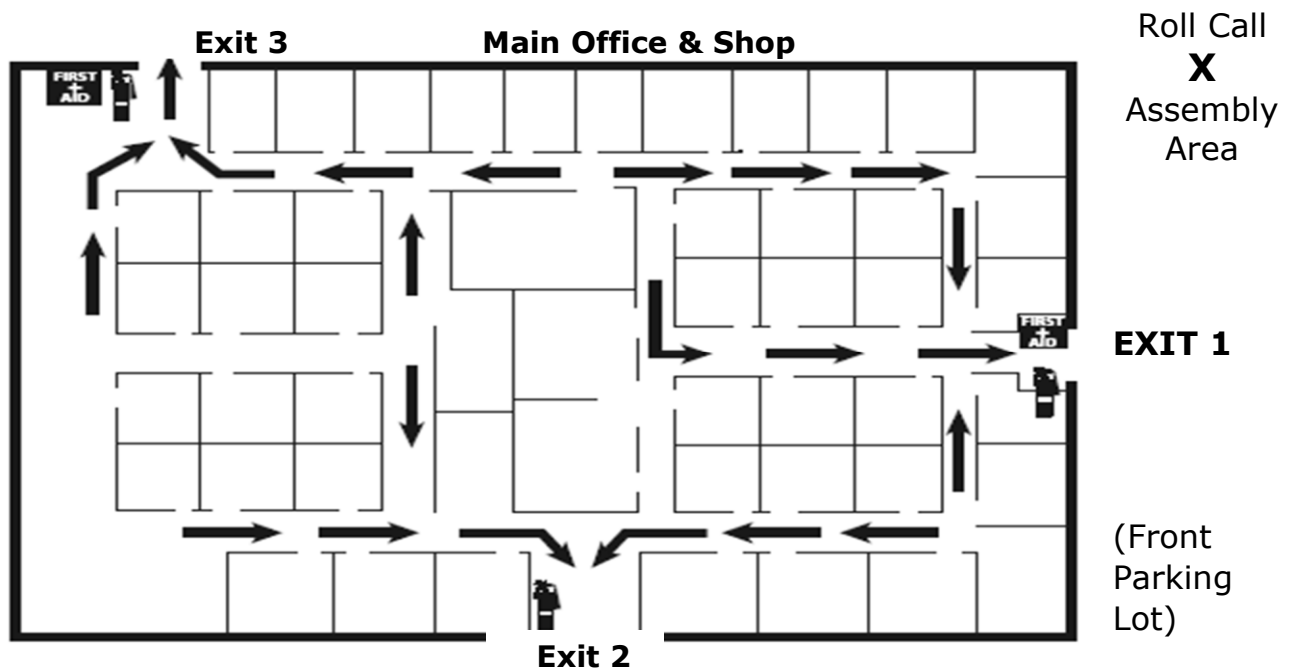
When a workplace emergency requires an evacuation, all employees must know to leave, what emergency exits to take, and where to meet. Employees may also need to know how to shut down critical equipment during an evacuation.

### Establishing Evacuation Exits

Your workplace should have a primary evacuation exit and an alternate exit. Post diagrams that show the evacuation routes and the exits where all employees will see them. Identify the exits and the exit routes in your plan. Be sure characteristics of exits:

- Are clearly marked, well lit, and visible under emergency conditions.
- Are wide enough to accommodate employees during an evacuation.
- Are unobstructed and clear of debris at all times.
- Are unlikely to expose employees to other hazards.

Keep in mind... An essential part of your emergency plan is an evacuation diagram – a floor plan of your building that shows evacuation exits and describes the emergency evacuation procedure. Mark the exit routes and the “Roll-Call” assembly area on the diagram so that they are easy to see, **for example:**



## **Exit Routes**

How would you escape from your workplace in an emergency? Do you know where all the exits are in case your first choice is too crowded? Are you sure the doors will be unlocked and that the exit access behind them will not be blocked during a fire, explosion, or other crisis? Knowing the answers to these questions could keep you safe during an emergency.

### **Workplace Exit Routes**

Usually, a workplace must have at least two exit routes for prompt evacuation. But more than two exits are required if the number of employees, size of the building, or arrangement of the workplace will not allow a safe evacuation. Exit routes must be located as far away as practical from each other in case one is blocked by fire or smoke.

### **Requirements for Exits**

Exits must be separated from the workplace by fire-resistant materials – that is, a one-hour fire-resistance rating if the exit connects three or fewer stories, and a two-hour fire-resistance rating if the exit connects more than three floors.

Exits can have only those openings necessary to allow access to the exit from occupied areas of the workplace or to the exit discharge. Openings must be protected by a self-closing, approved fire door that remains closed or automatically closes in an emergency.

- Keep the line-of-sight to exit signs clearly visible always.
- Install “EXIT” signs using plainly legible letters.

### **Safety Features for Exit Routes**

- Keep exit routes free of explosives or highly flammable furnishings and other decorations.
- Arrange exit routes so employees will not have to travel toward a high-hazard area unless the path of travel is effectively shielded from the high-hazard area.
- Ensure that exit routes are free and unobstructed by materials, equipment, locked doors, or dead-end corridors.
- Provide lighting for exit routes adequate for employees with normal vision.
- Keep exit route doors free of decorations or signs that obscure their visibility of exit route doors.
- Post signs along the exit access indicating the direction of travel to the nearest exit and exit discharge if that direction is not immediately apparent.
- Mark doors or passages along an exit access that could be mistaken for an exit “Not an Exit” or with a sign identifying its use (such as “Closet”).
- Renew fire-retardant paints or solutions when needed.
- Maintain exit routes during construction, repairs, or alterations.

### **Design and Construction Requirements**

- Exit routes must be permanent parts of the workplace.
- Exit discharges must lead directly outside or to a street, walkway, refuge area, public way, or open space with access to the outside.
- Exit discharge areas must be large enough to accommodate people likely to use the exit route.
- Exit route doors must unlock from the inside. They must be free of devices or alarms that could restrict use of the exit route if the device or alarm fails.
- Exit routes can be connected to rooms only by side-hinged doors, which must swing out in the direction of travel if the room may be occupied by more than 50 people.
- Exit routes must support the maximum permitted occupant load for each floor served, and the capacity of an exit route may not decrease in the direction of exit route travel to the exit discharge.
- Exit routes must have a ceiling height of at least 7 ft., 1/2 feet high.

- An exit access must be at least 28 inches wide at all points. Objects that project into the exit must not reduce its width.

## **Providing Medical Assistance and First Aid**

Is there a nearby emergency clinic or hospital that will admit victims of emergencies from your workplace? If not, make sure that emergency scene coordinators have appropriate first-aid training and supplies. The American Red Cross, insurance companies, and fire departments usually offer such training.

## **Recording Critical Employee Information**

After a medical emergency, an employee may be unable to contact next of kin or other relatives. You should have access to employees' home telephone numbers, the names and telephone numbers of family members they want you to contact, physician names and phone numbers, and information employees give you about their medical conditions or medications. Many employers keep this information with employees' permanent employment records and update it yearly.

## **Reporting Fire and Other Emergencies**

Your emergency plan must have a procedure for reporting fires and other emergencies to professional responders. Report all fires by calling 911. Fires are generally not reported to fire departments by fire alarms; most fire alarms warn only building occupants.

Keep in mind... The emergency scene commander should stay in a safe location to relay relevant information to professional emergency responders.

## **Selecting and Using Personal Protective Equipment**

Personal protective equipment includes clothing and equipment that protects emergency responders against specific hazards. Examples include work gloves, goggles, hard hats, and respirators.

Properly used, personal protective equipment offers protection against a hazard but does not eliminate the hazard. If it fails or is not appropriate for a particular task, the user risks exposure. Appropriate, effective protection depends on selecting, wearing, and using the equipment properly – which can be challenging. The following steps highlight the procedures for selecting personal protective equipment:

- Identify emergency-related hazards for which personal protective equipment may be necessary; for example, those responding to medical emergencies need protection from bloodborne pathogens.
- Determine which personal protective equipment will protect users from the hazards; for example, latex gloves and face shields may be necessary to protect responders from bloodborne pathogens.
- Determine who will use the equipment; it is critical that the equipment fit the user and not cause allergic reactions or other health problems.
- Determine the conditions under which responders will use the equipment; the equipment must not fail under those conditions.
- Ensure that emergency responders know how to use the equipment. Whether they are wearing hard hats or atmosphere-supplying respirators, responders must know how the equipment will protect them and when it will not protect them. Responders must know how to wear, use, and maintain the equipment, and how to discard contaminated equipment.

## **Types of Emergencies**

This section highlights emergencies that could affect workplaces and summarizes what to do when responding to them. Consider factors such as workplace size and location, number of employees, and the nature of their work in determining how to respond.

### **Earthquake**

During an earthquake, people in most workplaces are at greatest risk from collapsing ceilings, windows, light fixtures, and other falling objects. If you are indoors, the safest response is to take cover under sturdy furniture or to brace yourself against an inside wall. Stay away from windows, skylights, bookcases, and other heavy objects. Protect your head and neck.

#### **What to do:**

- If indoors, stay there. Take cover under sturdy furniture or against inside walls.
- Do not use elevators.
- Stay away from windows, skylights, and other objects that could fall.
- Use stairways to leave the workplace if the order is given to evacuate.
- Be ready to rescue victims; professional responders may not be able to respond; remove victims to a triage area if possible.

### **Explosion**

Any workplace that handles, stores, or processes flammable gasses, liquids, and solids is vulnerable. Explosions offer no warnings, causing disorganization and panic.

#### **What to do:**

- Try to establish communication with emergency scene coordinators.
- Assess damage to the workplace and estimate human casualties.
- Administer first aid if it is safe to do so.
- Do not use elevators.
- Evacuate following an established procedure.

### **Fire**

Invite a local fire department representative to your workplace to help you identify fire hazards and to discuss how your workplace should respond to a fire. It is the byproducts of fire – smoke and fire gasses – that kill. A quick, orderly evacuation is the most effective response to an out-of-control fire.

#### **What to do:**

- Pull the fire alarm (or set off the predetermined signal).
- Call 911; tell the dispatcher the location and the nature of the emergency.
- Inform an emergency scene coordinator.
- Do not use elevators.
- Permit only trained responders to use fire extinguishers.

Keep in mind... If you permit emergency scene coordinators or other employees to use fire extinguishers, train them or ensure that they are properly trained in their use.

### **Hazardous-Substance Release**

Hazardous substances include solvents, pesticides, paints, petroleum products, and heavy metals – any substance hazardous to health. Even if your workplace does not use hazardous substances, could it be affected by a nearby release or an accident on a local freeway? If so, make sure your emergency plan describes how the scene commander and coordinators will respond and notify fire and police departments.



**What to do:**

- Inform the emergency scene commander.
- Evacuate the area surrounding the release.
- Call 911; tell the dispatcher the location and the nature of the emergency.

If your workplace uses hazardous chemicals, MIOSHA's hazard communication rule requires you to inventory them, keep the manufacturer-supplied material safety data sheets, label the chemical containers, and train employees to protect themselves from the chemicals' hazards.

If your workplace is involved in hazardous-waste operations or responds to emergencies involving hazardous substances, you must have a written plan that describes how you will respond to hazardous-substance emergencies.

If employees must wear personal protective equipment during an emergency – chemical suits, gloves, hoods, boots, or respirators, for example – make sure that equipment will be available when they need it, that it fits them, and that they know how to use it.

**Medical**

The most likely workplace emergency is a medical emergency. A serious medical emergency such as cardiac arrest requires immediate attention – response time is critical. It is essential that medical first responders know how to perform first aid/CPR.

**What to do:**

- Call 911. Tell the dispatcher the location and the nature of the emergency.
- Do not move the victim.
- Notify an emergency scene coordinator for CPR or other first-aid tasks.
- Inform the emergency scene commander.
- Assist professional medical responders when they arrive.
- Inform the victim's supervisor.

Consider purchasing an automatic external defibrillator (AED) to treat victims in cardiac arrest. Until recently, AEDs were used primarily in hospitals and ambulances. Now they are portable, more affordable, and can be used by just about anyone after a short training session.

**Weather-Related Event**

Hurricanes, tornadoes, blizzards, and floods are likely to be the cause of weather-related workplace emergencies. Many communities experience floods following warm spring rain. Winter storms often bring strong winds, freezing rain, and snow that can cause structural damage and power outages.

**What to do:**

- Wait for instructions from the emergency scene commander; a power failure will slow communication.
- Tune a battery-powered radio to a station that broadcasts local news.
- Do not evacuate the workplace unless ordered to do so.

**Threats of Violence**

Threats of violence may be delivered in any form: face-to-face, by fax, e-mail, phone, or in writing. Threats can be directed toward the workplace or toward a specific person. Police departments, mental health professionals, and employee-assistance program counselors offer prevention information, security inspections, and employee training that help reduce the risk of workplace violence.



**What to do:**

- Inform an emergency scene coordinator.
- Activate a silent alarm if your workplace has one.
- Isolate the threatening person if it is possible to do so safely.
- Inform the emergency scene commander.

**Bomb Threats**

Take threats seriously. Do not use fire alarms or phones in the building – they generate radio waves that could trigger a bomb. If someone finds a package that may contain or that may be a bomb, he or she should note its size, shape, and whether it emits a sound, then notify the emergency scene commander. Call 911 from outside the building to report the emergency and determine if an evacuation is necessary. Use a communication method that does not generate radio waves to order the evacuation.

Consider offering threat-management training to one or more emergency scene coordinators and creating a threat quick-response team.

**Terrorism**

Although terrorist acts pose minimal risks to most workplaces, the devastating effects of recent acts have changed the perception of a “secure workplace” and added a new dimension to emergency planning. What distinguishes terrorist acts is the use of threats and violence to intimidate or coerce. Factors to consider in emergency planning include the following:

**How do others perceive the mission of your organization in the following contexts?**

- |                        |                           |
|------------------------|---------------------------|
| • Political activities | • Economic activities     |
| • Business activities  | • Social responsibilities |

**How vulnerable are your critical resources from terrorist attack?**

- Production machinery and equipment
- Mail and HVAC systems
- Electronic communication, power, data, and systems hardware
- Real estate and other physical property
- Finance and administrative transactions
- Employees at the workplace or at other locations

**Do You Need an Emergency Plan?**

Keep in mind... If your workplace has more than 10 employees, the plan must be in writing. If your workplace has 10 or fewer employees, the plan does not have to be written; however, you must ensure that employees know what procedures they must follow to protect themselves in an emergency.

## **MIOSHA Employee Emergency Plans and Fire Prevention Standards**

**(1)** An employer will assure that employees are informed of emergency escape procedures and emergency routes to approved means of egress.

**(2)** An employer will designate a sufficient number of persons to assist in the safe and orderly emergency evacuation of employees.

### **Employee Emergency Plan**

**(1)** All of the following information, at a minimum, will be included in an emergency plan:

**(a)** Emergency escape procedures and emergency escape route assignments.

**(b)** Procedures to be followed by employees who remain to operate critical plant operations before they evacuate.

**(c)** Procedures to account for all employees after emergency evacuation has been completed.

**(d)** Rescue and medical duties for those employees who are trained to perform them.

**(e)** The preferred means of reporting fires and other emergencies.

**(f)** The names or regular job titles of persons or departments who can be contacted for further information or explanation of duties under the plan.

**(2)** An employer will establish an employee alarm system which is in compliance with the provisions of O.H. rule 1910.165, employee alarm systems, and which is available, upon request, from the safety standards division of the Michigan department of consumer and industry services. If the employee alarm system is used for alerting fire brigade members or for other purposes, a distinctive signal for each purpose will be used.

**(3)** An employer will establish, in the emergency action plan, the types of evacuation to be used in emergency circumstances.

**(4)** Before implementing the emergency action plan, an employer will designate and train a sufficient number of persons to assist in the safe and orderly emergency evacuation of employees. The employer will review the plan, at the following times, with each employee to whom the plan applies:

**(a)** When the plan is developed.

**(b)** If an employee's responsibilities or designated actions under the plan change.

**(c)** If the plan is changed.

An employer will review, with each employee, upon initial assignment, those parts of the plan that the employee must know to protect the employee in an emergency. The written plan will be kept at the workplace and made available for employee review.

### **Fire Prevention Plan**

**(1)** This rule applies to all fire prevention plans that are required by a particular Michigan occupational safety and health act standard. The fire prevention plan will be in writing. Employers that employ less than 10 employees may communicate the plan orally to employees and need not maintain a written plan.

**(2)** All the following information, at a minimum, will be included in the fire prevention plan.

**(a)** All of the following information about major workplace fire hazards:

**(i)** A list of the major workplace fire hazards.

**(ii)** The proper handling and storage procedures for the items listed in standard.

**(iii)** The potential ignition source of the items listed in this standard, such as welding or smoking, and control procedures with respect to the potential sources of ignition.

**(iv)** The type of fire protection equipment or systems that are necessary to control a fire that involves the items specified in this standard.

**(b)** The names or regular job titles of those personnel who are responsible for the maintenance of equipment and systems that are installed to prevent or control fires or the sources of ignition.

**(c)** The names or regular job titles of those personnel who are responsible for the control of fuel source hazards.

**(3)** An employer will control the accumulations of flammable and combustible waste materials and residues so that they do not contribute to a fire emergency. The control procedures will be included in the written fire prevention plan.

**(4)** An employer will inform employees of the fire hazards of the materials and processes to which they are exposed.

**(5)** An employer will review, with each employee, upon initial assignment, those parts of the fire prevention plan that the employee must know to protect the employee in an emergency. The written plan will be kept in the workplace and made available for employee review.

**(6)** An employer will regularly and properly maintain, according to established procedures, equipment and systems that are installed on heat-producing equipment to prevent the accidental ignition of combustible materials. The maintenance procedures will be included in the written fire prevention plan.

## **Obstructions**

**(1)** A means of egress will be continuously maintained free of all obstructions or impediments to full instant use in case of fire or other emergency. A mirror will not be placed on an exit door or be placed in or adjacent to an exit in a manner to confuse the direction of exit.

**(2)** A lock, fastening device or barrier will not be installed or used on a means of egress in a manner that will prevent or hinder free escape from the inside of a building.

**(3)** A device or alarm to restrict the improper use of an exit will be so designed and installed that it cannot, even in case of failure, impede or prevent emergency use of an exit.

**(4)** Devices such as turnstiles and gates will not be placed so as to obstruct a means of egress.

**(5)** No combustible or flammable debris, waste or other material, the burning of which would render hazardous egress from the building will be placed, stored or kept on, under, at the bottom of, or adjacent to a means of egress or elevator. Where a means of egress is being obstructed by the placement of movable objects, aisles will be marked and railings or permanent barriers provided to protect the means of egress against encroachment.

## Exit Access & Discharge

- (1)** An exit access will not be through a room subject to locking.
- (2)** An exit access will be so arranged that it will not be necessary to travel through any area of high hazard occupancy in order to reach the nearest exit.
- (3)** The minimum width of an exit access will be at least equal to the required width of the exit to which it leads, but not less than 34 inches. The headroom clearance will be not less than 6 feet 8 inches from the floor.
- (4)** An exit discharge will discharge directly to a street, or to a yard, court or other open space of such size as to accommodate all employees leaving the building by that exit discharge to safe access to a street.
- (5)** Stairs and other exits will be arranged to make clear the direction of egress to the street. Where an exit stairs continues beyond the floor of discharge, it will be interrupted at the floor of discharge by a partition, door or other effective means.
- (6)** Exit access by the way of an exterior balcony, porch, gallery or roof will:
  - (a)** Be kept free from accumulations of snow and ice.
  - (b)** Be a permanent direct route without obstructions, such as railings, gates, barriers or other objects, that might divide the space into sections or rooms. Where furniture or other movable objects might block the path of travel, they will be secured in place or a standard barrier as prescribed in rule 231 of Part 2, Floor and Wall Openings, Stairways and Skylights, will protect the path of travel.
  - (c)** Have no dead-ends in the excess of 20 feet.
  - (d)** Comply with this part as to requirements for width and arrangement.

## Conclusion

The standards written on the previous pages (MIOSHA-Part 6-R 408.106-Fire Exits) are only sections of Part 6. They are meant to cover the basic requirements for completing an Employee Emergency Plan and Fire Prevention Plan.

For more detailed instruction on specific requirements as it relates to these plans, the entire standard will be considered.

## Where to Find More Information

MIOSHA-Department of Labor & Economic Growth [www.michigan.gov/mioshastandards](http://www.michigan.gov/mioshastandards)

Emergency management guide for business and industry; Federal Emergency Management Agency (FEMA), [www.fema.gov/library/bizindex.htm](http://www.fema.gov/library/bizindex.htm)

How to Plan for Workplace Emergencies and Evacuations; U.S. Department of Labor Occupational Safety and Health Administration, [www.osha.gov](http://www.osha.gov)

**NOTE:** In the "Attachments" Chapter of this Accident Prevention Program you will find a master copy of the following form for Company use:

- Emergency Action Plan

### Medical Services & First Aid

#### **Medical Services & First Aid - MIOSHA-Part 1-R 408.40132**

Accurate Painting Company is committed to the safety and health of our employees and ensures the ready availability of medical personnel for advice and consultation on matters of workplace health.

In the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees, a person or persons will be adequately trained to render first aid. Adequate first aid supplies will be adequately stocked and readily available to all employees.

First aid kits are located in/at: In the office, the jobsite, and the company vehicles.

#### **Policy Statement**

It is the policy of Accurate Painting Company that training in first aid response is not a general requirement for employment, but that local emergency medical services are utilized for primary emergency medical care.

Medical services for employee evaluations, employment requirements, and special conditions of work are provided to employees at no cost as specified by MIOSHA.

In areas where 911 service is not available, employees will be notified of phone numbers to contact local emergency response medical services. Joe Badalamenti will be responsible for posting of emergency phone numbers at all workplaces. The phone numbers will be conspicuously posted in all work locations.

Injured employees are to be transported to medical facilities by emergency medical services. If emergency medical service is not available in a timely manner, the injured employee will be transported to the nearest medical service in a company vehicle by the job foreman.

Joe Badalamenti is the designated first aid provider and is responsible for rendering first aid in the event of an injury requiring immediate response when emergency medical services are not available, and will also be responsible for first aid training of any employee required.

Eye wash bottles are available wherever eye wash stations are not, for any employee required to work in an environment where exposure to eye hazards may exist. Wash facilities or drench barrels are available at each jobsite for employees.

#### **First Aid Responsibility**

Accurate Painting Company will ensure that first-aid trained personnel are available to provide quick and effective first aid.

Joe Badalamenti is responsible for making sure that first-aid training contains required subjects.

- First aid training will be kept current and documented.
- Ensure appropriate first-aid supplies are stocked and readily available.
- First aid stations will be provided when required.
- Ensure emergency washing facilities are functional and readily accessible.
- Inspect and activate emergency washing facilities.
- Make sure supplemental flushing equipment provides sufficient water.

**NOTE:** Some workplaces may be covered by separate, industry-specific first-aid rules.

**Make sure your first-aid response plan:**

- Fits your work location, type of work, and environmental conditions.
- Identifies the available emergency medical services and access numbers and where they are posted.
- Describes the type of first-aid training employees receive, if applicable.
- Identifies the location(s) of first-aid supplies and/or first-aid stations.
- Identifies the contents of first-aid kits.
- Describes how first-aid supplies or kits will be inspected and maintained.
- Describes how injured or ill employees will have access to first-aid trained employees.

**Note:** Employers who require their employees to provide first aid must comply with MIOSHA requirements for "Occupational Exposure to Bloodborne Pathogens".

**Keep Current and Document Your First Aid Training**

**You must** keep a written record of your employees' first-aid training by keeping rosters, first-aid cards, or certificates. You may store your documentation on a computer, as long as the information is readily available when requested by MIOSHA personnel.

**Ensure Appropriate First Aid Supplies are Readily Available****You must:**

- Make sure first-aid supplies are readily available.

Make sure first-aid supplies at your workplace are appropriate to:

- Your occupational setting.
- The response time of your emergency medical services.

**Note:** First-aid kits from your local retailer or safety supplier should be adequate for most non-industrial employers.

**Make sure that first-aid supplies are:**

- Easily accessible to all your employees.
- Stored in containers that protect them from damage, deterioration, or contamination. Containers must be clearly marked, not locked, and may be sealed.
- Able to be moved to the location of an injured or acutely ill employee.

Determine the type and quantity of first aid supplies necessary to treat injured workers and where these supplies should be located for easy accessibility. Be sure to have an appropriate number of kits available and do not hesitate to call your local emergency response team.

**Eyewash/Washing Facilities**

Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body will be provided within the work area for immediate emergency use.

**Provide an emergency shower:**

- When there is potential for major portions of an employee's body to contact corrosives, strong irritants, or toxic chemicals.
- That delivers water to cascade over the user's entire body at a minimum rate of 20 gallons (75 liters) per minute for fifteen minutes or more.

**Provide an emergency eyewash:**

- When there is potential for an employee's eyes to be exposed to corrosives, strong irritants, or toxic chemicals.
- That irrigates and flushes both eyes simultaneously while the user holds their eyes open.
- With an on-off valve that activates in one second or less and remains on without user assistance until intentionally turned off.

- That delivers at least 0.4 gallons (1.5 liters) of water per minute for 15 minutes or more.

**Note:** You can determine whether chemicals in your workplace require emergency washing facilities by looking at the material safety data sheet (MSDS) or similar documents. The MSDS contains information about first-aid requirements and emergency flushing of skin or eyes.

### **Make sure emergency washing facilities:**

- Are located so that it takes no more than ten seconds to reach.
- Are kept free of obstacles blocking their use.
- Function correctly.
- Provide the quality and quantity of water that is satisfactory for emergency washing purposes.
  - If water in emergency washing facilities is allowed to freeze, they will not function correctly. Precautions must be taken to prevent such an occurrence.
  - The travel distance to an emergency washing facility should be no more than 50 feet (15.25 meters).
  - Training in the location and use of your emergency washing facilities is required under the employer chemical hazard communication rule.
  - All emergency washing facilities using “not fit for drinking” (non-potable) water must have signs stating the water is “not fit for drinking.”
  - For further information on the design, installation, and maintenance of emergency washing facilities, see American National Standards Institute (ANSI) publication Z358.1 - 1998, Emergency Eyewash and Shower Equipment.

### **Inspect and Activate Your Emergency Washing Facilities**

Make sure all plumbed emergency washing facilities are inspected once a year to make sure they function correctly. Inspections should include:

- Examination of the piping.
- Make sure water is available at the appropriate temperature and quality.
- Activation to check that the valves and other hardware work properly.
- Checking the water flow rate.

Make sure plumbed emergency eyewashes and hand-held drench hoses are activated weekly to check the proper functioning of the valves, hardware, and availability of water.

Make sure all self-contained eyewash equipment and personal eyewash units are inspected and maintained according to manufacturer instructions.

- Inspections to check proper operation must be done once a year
- Sealed personal eyewashes must be replaced after the manufacturer’s expiration date.

**Note:** Most manufacturers recommend replacing fluid in open self-contained eyewashes every 6 months. The period for sealed containers is typically 2 years.

### **Ensure Supplemental Flushing Equipment Provides Enough Water**

**Supplemental flushing equipment** cannot be used in place of required emergency showers or eyewashes.

- Make sure hand-held drench hoses deliver at least 3.0 gallons (11.4 liters) of water per minute for 15 minutes or more.
- Make sure personal eyewash equipment delivers only clean water or other medically approved eye flushing solutions.



## **First Aid Response Plan Considerations**

**Availability of emergency medical services** — Would your employees dial 911 or is there some other way to summon help?

**Response time of emergency medical services** — From the time an accident happened, how many minutes would it take trained medical people to get to an injured worker? Things to consider include:

How long would it take your employees to reach a phone to call 911? Are phones conveniently located in the work area or would they have to go to an office to call?

How far are the emergency medical services (hospital, fire station, etc.) from your work site?

How would emergency medical services get to your work site? They may only be 100 feet away, but if it is across a limited access road they may have to go 5 miles in one direction to turn around and come back.

How bad is traffic? Are back-ups common at certain times?

How available are emergency medical services? If there is only one ambulance and one medical team, they may be out on another emergency. It could take a long time for someone to respond to your call.

How large and complex is your work place? How difficult would it be for emergency services to find the place where the injured worker is? You may want the emergency service to go to a central location (such as a reception area) and receive directions from there.

Contact your local emergency medical service and get their answers to these questions. You may find their responses are different from what you would expect.

## **Develop your First Aid Response Plan and put it in Writing**

When developing and writing your first aid response plan, consider the following:

- Include the site and who is responsible for managing the plan. This includes updating the written plan as needed and making sure an adequate number of first aid trained employees available.
- Make sure a method is developed for summoning emergency medical services.
- Post a list of employees who are first aid trained.
- Describe the procedures employees should use to request first aid.
- Identify who is responsible for inspecting, stocking & maintaining first aid kits.

## **Train Your Employees**

The First Aid Response Plan will not be effective if your employees do not know about it. You need to make sure your employees are informed of the First Aid Response Plan and what it says. Remember to train new or temporary employees as part of their safety orientation before they start work.

## **Your Responsibility**

- Fit the First Aid Response Plan to your Business.
- Develop and Write your First Aid Response Plan.

**NOTE:** In the "Attachments" Chapter of this Accident Prevention Program you will find a master copy of the following form for Company use:

- First Aid Response Plan



## First Aid Kit Contents

During any serious injury situation, the first aid kit becomes the most vitally important toolbox at the workplace. Even if your people have had the finest first aid skills training available, these talents are mostly negated by the lack of emergency medical supplies to use when most needed.

The MIOSHA rule states: "First aid kit supplies will be sealed in individual packages, stored in a weatherproof container, and checked by an employer or designated person before being sent out on each job and at least weekly on each job to ensure that expended items are replaced."

The suggested contents of an excellent first aid kit include:

- Decent quality first aid handbook with illustrations. This is your important quick reference guide.
- PPE: 3-Pair latex gloves; surgical masks, dust masks, or other needed face protection; clear eye protection or face shield.
- Large, sterile gauze pads (6 each: 2X2's, 3X3's, and 4X4's), compress dressings (4X8), 3 each.
- Rolled gauze bandages: 2" and 3" wide, 3 each.
- Woven Bandages, Knuckle Bandages, Fingertip Bandages, and large box assorted sizes "Band-Aids."
- Two elastic wrap bandages (ace wrap).
- 6 burn treatment single-use packages, 0.5 g. application.
- 1 eye covering bandages (for two eyes)
- Alcohol, peroxide, alcohol swabs, antiseptic spray and ointment, burn gel or cream, pain relief tabs, cotton balls and Q-tips, Ammonia Inhalant.
- Surgical or athletic tape; 1" and 2" wide, 2 rolls each.
- Self-activating cold packs, 4x5 inches
- Good quality eye-wash solution, with eye cup. Liquid antiseptic hand soap.
- Mouth-to-mouth barrier for CPR
- Blunt-nose surgical scissors, tweezers, safety pins, and BioHazard Bags.

Although no official inventory list exists, thoughtful consideration should be given to the specific working conditions the people will be directed to and adjustments to your Company's first aid supplies should be made. Knowing what to do in a medical emergency is important, but so is knowing what not to do. Be sure you always know where your first aid kit is.

**NOTE:** All personnel using CPR & First Aid techniques should be certified in an appropriate training format before using these skills. Never exceed the level of your first aid training.

[illegible]

#### **MIOSHA-Part 554-R 325.700-Bloodborne Infectious Diseases**

##### **Policy Statement**

Accurate Painting Company is committed to the safety and health of our employees and prohibiting the spread of bloodborne pathogens. Therefore, the following bloodborne pathogens safety plan has been adopted. In the event an employee is exposed to bloodborne pathogens all measures within this program will be provided to eliminate the spread of disease.

##### **Exposure Determination**

All employees who, as a result of performing their job duties, must engage in activities where exposure to blood or other potentially infectious materials is reasonably anticipated are considered to have occupational exposure to bloodborne pathogen. Employees will take necessary precautions to avoid direct contact with body fluids.

The most common concern for spread of bloodborne pathogen in non-medical occupations is during the administration of first aid at the workplace. Employees designated as First Aid Responders are considered at risk of occupational exposure due to the nature of these duties (e.g., performing first aid, assisting bleeding victims, and resuscitation).

##### **Contaminated Equipment**

In order to prevent occupational exposure to blood or other potentially infectious material, all equipment or material that comes into contact with pathogens will be decontaminated. Contaminated equipment or other contaminated items are not to be placed or stored in areas where food is kept, and decontamination should be accomplished as soon as possible. Decontamination is not to take place in any area where food or drink is consumed. Cloths used to wipe contaminated equipment can be discarded as refuse unless they would somehow become contaminated to the extent that they would be considered regulated waste. A biohazard label is to be attached to any large contaminated equipment and is to state which portions are or remain contaminated. For smaller pieces of equipment, the biohazard label should be attached as above, and the piece of equipment should be placed in a bag prior to shipping.

##### **EXAMPLES OF CONTAMINATED EQUIPMENT OR MATERIAL:**

- Objects that may have been bled upon
- Bandages or gauze
- Equipment used during first aid

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

Although employees are expected to avoid the handling of blood or other potentially infectious materials as well as contact with surfaces or items contaminated with such materials during the course of first aid administration, it is likely that the employee will be exposed to blood. Therefore, personal protective equipment such as gloves will be provided in the first aid kit.

These gloves are not to be washed or decontaminated for reuse. First Aid Responders are to include disposable resuscitation masks as well. Such equipment is to be used for the employee's protection in cases where the employee is expected to provide ventilator assistance. Decontaminant will also be available to all employees to decontaminate equipment.

## **Hepatitis B Vaccination and Post-exposure Evaluation and Follow-up**

Accurate Painting Company offers the hepatitis B vaccine and vaccination series to personnel with duties that may require the employee to come in contact with blood (i.e. first aid administration). This Company also offers post-exposure evaluation and follow-up after an exposure incident to any employee who suffers an exposure incident while performing duties on the job. All medical evaluations and procedures are to be made available at no cost to employees, at a reasonable time and place.

Hepatitis B Vaccination is available to employees at any Public Health Service facility where physical examinations are performed. All employees, whose job duties involve occupational exposure, are to be offered the hepatitis B vaccination. The vaccine will be made available after receiving training regarding blood borne pathogens and within 10 days of initial assignment of the employee to duties with occupational exposure. Personnel, even after training, may decline to receive the hepatitis B vaccine. In such case, the declining employee is to sign the declination statement. The employee can receive the vaccine after signing the declination statement if a change of mind occurs and if duties still involve those with occupational exposure. Management will assure that each employee scheduled for immunization at a Public Health Service facility is provided with the written opinion. These materials are to be taken by the employee to the evaluating physician for completion. The written opinion should be returned to the company office where the employee is assigned. A copy of medical records related to hepatitis B vaccination should be obtained by the employee or first aid provider before departing the facility where vaccination takes place. The employee should insert this copy of such records in a copy of the medical questionnaire. Should an exposure incident occur, the medical questionnaire, including the hepatitis B related records, serves as the materials for the Evaluating Physician and is to be given to the evaluating physician.

**Post-exposure Evaluation and Follow-up** — Management will instruct the compliance officer to seek medical attention in the same manner that it would be sought should any injury occur. **In the event of an exposure incident:**

- The employee is to immediately wash any skin with soap and water and flush mucous membranes with water when such areas have had contact with blood or other potentially infectious materials.
- The employee should then seek medical attention. It must be realized that any exposure incident is an event for which immediate attention must be sought, as the effectiveness of prophylaxis depends on the immediacy of its delivery.
- In addition, the employee who has had an exposure incident is to report such incident to his or her supervisor as soon as possible.

**Information Provided to the Evaluating Physician** — Post-exposure evaluation and follow-up are to be provided to the employee consistent with the MIOSHA requirements of MIOSHA Part 554. Therefore, upon presenting for evaluation, the employee will give to the physician the Materials for the Evaluating Physician. The instructions for the physician describe the requirements of Part 554 and instruct the physician to give the physician's written opinion to the employee to return to the Company. The evaluation results will become a part of the employee's confidential medical records. Records regarding any exposure incidents of Technical Center personnel will be maintained in a confidential manner.

## **Communication of Hazards to Employees**

**Labels and Bags** — Biohazard labels must be affixed to bags containing any contaminated equipment or material. Bags will be disposed of as ordinary refuse unless in the rare instance when they are contaminated to the extent that they are considered regulated waste as defined by the standard.

Bags should be located in first aid kits and stocked regularly

### **Information and Training**

This employer will ensure that all employees with occupational exposure participate in a training program which must be provided at no cost to the employee and during working hours.

Training will be provided as follows:

- At the time of initial assignment to tasks where occupational exposure may take place.
- At least annually thereafter. Annual training for all employees will be provided within one year of their previous training.

This employer will provide additional training when changes such as modification of tasks or procedures or institution of new tasks or procedures affect the employee's occupational exposure. The additional training may be limited to addressing the new exposures created.

Material appropriate in content and vocabulary to educational level, literacy, and language of employees will be used.

The training program will contain at a minimum the following elements:

- An accessible copy of the regulatory text of this standard and an explanation of its contents.
- A general explanation of the epidemiology & symptoms of bloodborne diseases.
- An explanation of the modes of transmission of bloodborne pathogens.
- An explanation of the employer's exposure control plan and the means by which the employee can obtain a copy of the written plan.
- An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials.
- An explanation of the use and limitations of methods that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment.
- Information on the types, proper use, location, removal, handling, decontamination, and disposal of personal protective equipment.
- An explanation of the basis for selection of personal protective equipment.
- Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge.
- Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials.
- An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available.
- Information on the post-exposure evaluation and follow-up that the employer is required to provide for the employee following an exposure incident.
- An explanation of the signs and labels and/or color coding.
- An opportunity for interactive questions and answers with the person conducting the training session.

The person conducting the training will be knowledgeable in the subject matter covered by the elements contained in the training program as it relates to the workplace that the training will address.

## **Recordkeeping**

### **Medical Records**

This employer will establish and maintain an accurate record for each employee with occupational exposure to Bloodborne Pathogens.

This record will include:

- The name and social security number of the employee.
- A copy of the employee's hepatitis B vaccination status including the dates of all the hepatitis B vaccinations and any medical records relative to the employee's ability to receive vaccination as required.
- A copy of all results of examinations, medical testing, and follow-up procedures as required.
- This employer's copy of the healthcare professional's written opinion.
- A copy of the information provided to the healthcare professional.

### **Confidentiality**

This employer will ensure that employee medical records required are:

- Kept confidential.
- Not disclosed or reported without the employee's express written consent to any person within or outside the workplace except as may be required by law.

This employer will maintain the records for at least the duration of employment plus 30 years.

### **Employee Training Records**

Training records will include the following information:

- The dates of the training sessions.
- The contents or a summary of the training sessions.
- The names and qualifications of persons conducting the training.
- The names and job titles of all persons attending the training sessions.

Employee training records will be maintained for 3 years from the date on which the training occurred.

### **Availability**

This employer will ensure that all records required to be maintained will be made available upon request to MIOSHA for examination and copying.

Required employee training records will be provided upon request for examination and copying to employees, to employee representatives, and to MIOSHA.

Employee medical records required will be provided upon request for examination and copying to the subject employee, to anyone having written consent of the subject employee, and to MIOSHA.

### **Transfer of Records**

Whenever this employer is ceasing to do business, this employer will transfer all records subject to this section to the successor employer. The successor employer will receive and maintain these records.

Whenever this employer is ceasing to do business and there is no successor employer to receive and maintain the records, this employer will notify affected current employees of their rights of access to records at least three (3) months prior to the cessation of this employer's business.

Whenever this employer either is ceasing to do business and there is no successor employer to receive and maintain the records, or intends to dispose of any records required to be preserved for at least thirty (30) years, this employer will:

- Transfer the records to the Director of the National Institute for Occupational Safety and Health (NIOSH) if so required by a specific occupational safety and health standard.
- Notify the Director of NIOSH in writing of the impending disposal of records at least three (3) months prior to the disposal of the records.

Where this employer regularly disposes of records required to be preserved for at least thirty (30) years, this employer may, with at least (3) months notice, notify the Director of NIOSH on an annual basis of the records intended to be disposed of in the coming year.

### **Investigation of Exposure Incidents**

All exposure incidents will be investigated and proper accident/incident investigation procedures will be followed.

### ***DECLINATION STATEMENT***

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring Hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine, at no charge to myself. However, I decline Hepatitis vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee Signature\_\_\_\_\_ Date\_\_\_\_\_

### ***DECLINATION STATEMENT***

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring Hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine, at no charge to myself. However, I decline Hepatitis vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee Signature\_\_\_\_\_ Date\_\_\_\_\_

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Employee Signature\_\_\_\_\_ Date\_\_\_\_\_



## Evaluating Physician's Written Opinion

### To the Evaluating Physician:

After you have determined whether there are contra-indications to vaccination of this employee with Hepatitis B vaccine, please state in the space below only:

(A) \_\_\_\_ If vaccine was indicated

(B) \_\_\_\_ If vaccine was received.

(All other findings are to remain confidential and are not to be included on this page)

Please return this sheet to this employee:

(Name of Employee)\_\_\_\_\_

Thank you for your evaluation of this employee.

\_\_\_\_\_  
Physician's name (printed)

\_\_\_\_\_  
date

Physician's signature\_\_\_\_\_

### Instructions for the Evaluating Physician

This employee may have suffered an exposure incident to a Bloodborne Pathogen. In accordance with the standard's provision for post exposure evaluation and follow up, the employer submits to you for the following evaluations:

- A copy of MIOSHA Part 554, Bloodborne Infectious Diseases;
- A description of the exposed employee's duties as they relate to the exposure incident;
- Documentation of the routes of exposure and circumstances under which exposure occurred;
- Results of the source individual's blood testing, if available; and
- All medical records relevant to this employee's appropriate treatment, including vaccination status.

After completing the evaluation, please:

- Inform the employee regarding the evaluation results and any follow up needed;
- Complete the attached written opinion form and give it to the employee. (This form will be maintained in the office to which the employee is assigned); and
- Send a copy of all evaluation results and records to:

U.S. Department of Labor - OSHA Office of Occupational Medicine Room N3653 200 Constitution Avenue, NW Washington, DC 20210  
CONFIDENTIAL: MEDICAL RECORDS  
These copies will be maintained as part of the employee's confidential medical record in OSHA's Office of Occupational Medicine Medical Records Section.

Should you have any questions regarding the evaluations or medical records, please contact OSHA's Office of Occupational Medicine at (202) 219-5003.

Date exposure incident occurred? \_\_\_\_\_

Describe the circumstances under which the exposure incident occurred (what happened that resulted in the incident)

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What body fluid(s) were you exposed to? \_\_\_\_\_

What was the route of exposure (e.g., mucosal contact, contact with non-intact skin, percutaneous)? \_\_\_\_\_

Describe any personal protective equipment in use at time of exposure incident

Did PPE fail? \_\_\_\_\_ If yes, how? \_\_\_\_\_

Identification of source individual(s) (names) \_\_\_\_\_

Other pertinent information \_\_\_\_\_

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### Job Hazard Assessment

Accurate Painting Company is committed to providing a safe and hazard free workplace.

Joe Badalamenti will inspect all facilities and workplaces for hazards.

#### **Hazard Assessment Plan**

Accurate Painting Company performs inspections of the facility and workplace at least As needed. Hazard evaluations include inspection of the area as well as work practices.

During the course of inspection, if a job hazard is identified it is immediately corrected. If the hazard is not immediately correctable, all appropriate personnel are notified and the hazard is clearly identified by signs, barricades, or other warnings.

Hazard evaluations are to be appropriately documented using the following provided forms or any means necessary.

Accurate Painting Company employees will be adequately trained in the hazard identification process up to and including the care and proper use of personal protective equipment.

#### **What is a Job Hazard?**

A job hazard is the potential for harm. In practical terms, a job hazard is often associated with a condition or activity that, if left uncontrolled, can result in an injury or illness. Identifying job hazards and eliminating or controlling them as early as possible will help prevent injuries and illnesses.

#### **A Job Hazard Assessment**

A job hazard assessment is a technique that focuses on job tasks as a way to identify hazards before they occur. It focuses on the relationship between the worker, the task, the tools, and the work environment. Ideally, after you identify uncontrolled hazards, you will take steps to eliminate or reduce them to an acceptable risk level.

For a job hazard assessment to be effective, managers and supervisors must demonstrate their commitment to safety and health and follow through to correct any uncontrolled hazards identified. Otherwise, management will lose credibility and employees may hesitate to go to supervisors when dangerous conditions threaten them.

#### **Jobs Appropriate for Hazard Assessment**

A job hazard assessment can be conducted on many jobs in your workplace. Priority should go to the following types of jobs:

- Jobs with the highest injury or illness rates.
- Jobs with the potential to cause severe or disabling injuries or illness, even if there is no history of previous accidents.
- Jobs in which one simple human error could lead to a severe accident or injury.
- Jobs that are new to your operation or have undergone changes in processes and procedures.
- Jobs complex enough to require written instructions.

## Where to Begin

**Involve your employees.** It is very important to involve your employees in the hazard assessment process. They have a unique understanding of the job, and this knowledge is invaluable for finding hazards. Involving employees will help minimize oversights, ensure a quality assessment, and get workers to “buy in” to the solutions because they will share ownership in their accident prevention program.

**Review your accident history.** Review with your employees your workplace’s history of accidents and occupational illnesses that needed treatment, losses that required repair or replacement, and any “near misses” – events in which an accident or loss did not occur, but could have. These events are indicators that the existing hazard controls (if any) may not be adequate and deserve more scrutiny.

**Conduct a preliminary job review.** Discuss with your employees the hazards they know exist in their current work and surroundings. Brainstorm with them for ideas to eliminate or control those hazards.

**If any hazards exist** that pose an immediate danger to an employee’s life or health, take immediate action to protect the worker. Any problems that can be corrected easily should be corrected as soon as possible. Do not wait to complete your job hazard assessment. This will demonstrate your commitment to safety and health and enable you to focus on the hazards and jobs that need more study because of their complexity. For those hazards determined to present unacceptable risks, evaluate types of hazard controls.

**List, rank, and set priorities for hazardous jobs.** List jobs with hazards that present unacceptable risks, based on those most likely to occur and with the most severe consequences. These jobs should be your first priority for assessment.

**Outline the steps or tasks.** Nearly every job can be broken down into job tasks or steps. When beginning a job hazard assessment, watch the employee perform the job and list each step as the worker takes it. Be sure to record enough information to describe each job action without getting overly detailed. Avoid making the breakdown of steps so detailed that it becomes unnecessarily long or so broad that it does not include basic steps. You may find it valuable to get input from other workers who have performed the same job. Later, review the job steps with the employee to make sure you have not omitted something. Point out that you are evaluating the job itself, not the employee’s job performance. Include the employee in all phases of the assessment – from reviewing the job steps and procedures to discussing uncontrolled hazards and recommended solutions.

Sometimes, in conducting a job hazard assessment, it may be helpful to photograph or videotape the worker performing the job. These visual records can be handy references when doing a more detailed assessment of the work.

## Identifying Workplace Hazards

A job hazard assessment is an exercise in detective work. Your goal is to discover the following:

- What can go wrong?
- What are the consequences?
- How could it arise?
- What are other contributing factors?
- How likely is it that the hazard will occur?

To make your job hazard assessment useful, document the answers to these questions in a consistent manner. Describing a hazard in this way helps to ensure that your efforts to eliminate the hazard and implement hazard controls help target the most important contributors to the hazard.

**Good hazard scenarios describe:**

- Where it is happening? (environment)
- Who or what it is happening to? (exposure)
- What precipitates the hazard? (trigger)
- The outcome that would occur should it happen? (consequence)
- Any other contributing factors.

Rarely is a hazard a simple case of one singular cause resulting in one singular effect. More frequently, many contributing factors tend to line up in a certain way to create the hazard.

**Here is an example of a hazard scenario:**

In the metal shop (environment), while clearing a snag (trigger), a worker's hand (exposure) comes into contact with a rotating pulley. It pulls his hand into the machine and severs his fingers (consequences) quickly.

**To perform a job hazard assessment, you would ask:**

**What can go wrong?** The worker's hand could come into contact with a rotating object that "catches" it and pulls it into the machine.

**What are the consequences?** The worker could receive a severe injury and lose fingers and hands.

**How could it happen?** The accident could happen as a result of the worker trying to clear a snag during operations or as part of a maintenance activity while the pulley is operating. Obviously, this hazard scenario could not occur if the pulley is not rotating.

**What are other contributing factors?** This hazard occurs very quickly. It does not give the worker much opportunity to recover or prevent it once his hand comes into contact with the pulley. This is an important factor, because it helps you determine the severity and likelihood of an accident when selecting appropriate hazard controls. Unfortunately, experience has shown that training is not very effective in hazard control when triggering events happen quickly because humans can react only so quickly.

**How to Correct or Prevent Hazards**

After reviewing your list of hazards with the employee, consider what control methods will eliminate or reduce them. The most effective controls are engineering controls that physically change a machine or work environment to prevent employee exposure to the hazard. The more reliable or less likely a hazard control can be circumvented, the better. If this is not feasible, administrative controls may be appropriate.

This may involve changing how employees do their jobs. Discuss your recommendations with all employees who perform the job and consider their responses carefully. If you plan to introduce new or modified job procedures, be sure they understand what they are required to do and the reasons for the changes.

**Before Starting a Job Hazard Assessment**

The job procedures discussed in this chapter are for illustration only and do not necessarily include all the steps, hazards, and protections that apply to your industry. When conducting your own job safety assessment, be sure to consult the MIOSHA standards for your industry. Compliance with these standards is mandatory, and by incorporating their requirements in your job hazard assessment, you can be sure that your accident prevention program meets state standards.

## Review the Job Hazard Assessment

Periodically reviewing your job hazard assessment ensures that it remains current and continues to help reduce workplace accidents and injuries. Even if the job has not changed, it is possible that during the review process you will identify hazards that were not identified in the initial assessment. It is particularly important to review your job hazard assessment if an illness or injury occurs on a specific job.

Based on the circumstances, you may determine that you need to change the job procedure to prevent similar incidents in the future. If an employee's failure to follow proper job procedures results in a "close call or near miss," discuss the situation with all employees who perform the job and remind them of proper procedures. Any time you revise a job hazard assessment, it is important to train all employees affected by the changes in the new job methods, procedures, or protective measures adopted.

## When to Hire a Professional

If your employees are involved in many different or complex processes, you need professional help conducting your job hazard analyses. Sources of help include your insurance company, the local fire department, and/or private consultants with safety and health expertise. In addition, MIOSHA offers assistance through its regional and area offices and consultation services. Even when you receive outside help, it is important that you and your employees remain involved in the process of identifying and correcting hazards because you are at the workplace every day and most likely to encounter these hazards. New circumstances and a recombination of existing circumstances may cause old hazards to reappear and new hazards to appear. In addition, you and your employees must be ready and able to implement whatever hazard elimination or control measures a professional consultant recommends.

## Hazard Control Measures

Information obtained from a job hazard assessment is useless unless hazard control measures recommended in the assessment are incorporated into the tasks. Managers and supervisors should recognize that not all hazard controls are equal. Some are more effective than others at reducing the risk.

**The order of precedence and effectiveness of hazard control is the following:**

- Engineering controls.
- Administrative controls.
- Personal protective equipment.

**Engineering controls include the following:**

- **Elimination/minimization of the hazard** – Designing the facility, equipment, or process to remove the hazard, or substituting processes, equipment, materials, or other factors to lessen the hazard.
- **Enclosure of the hazard** using enclosed cabs, enclosures for noisy equipment, or other means.
- **Isolation of the hazard** with interlocks, machine guards, blast shields, welding curtains, or other means.
- **Removal or redirection of the hazard** such as with local and exhaust ventilation.

**Administrative controls include the following:**

- Written operating procedures, work permits, and safe work practices.
- Exposure time limitations (used most commonly to control temperature extremes and ergonomic hazards).
- Monitoring the use of highly hazardous materials.
- Alarms, signs, and warnings.
- The "Buddy" system.
- Training.

## Personal Protective Equipment

Protective equipment such as respirators, hearing protection, protective clothing, safety glasses, and hardhats is acceptable as a **control method** in the following circumstances:

- When engineering controls are not feasible or do not totally eliminate the hazard.
- While engineering controls are being developed.
- When safe work practices do not provide sufficient additional protection.
- During emergencies when engineering controls may not be feasible.

Use of one hazard control method over another higher in the control precedence may be appropriate for providing interim protection until the hazard is abated permanently. In reality, if the hazard cannot be eliminated entirely, the adopted control measures will likely be a combination of all three items instituted simultaneously.

### COMMON HAZARDS & DESCRIPTIONS

Hazards	Hazard Descriptions
<b>Chemical (Toxic)</b>	A chemical that exposes a person by absorption through the skin, inhalation, or through the blood stream that causes illness, disease, or death. The amount of chemical exposure is critical in determining hazardous effects. Check Material Safety Data Sheets (MSDS), MIOSHA Part 92, and/or OSHA 1910.1200 for chemical hazard information.
<b>Chemical (Flammable)</b>	A chemical that, when exposed to a heat ignition source, results in combustion. Typically, the lower a chemical's flash point and boiling point, the more flammable the chemical. Check MSDS for flammability information.
<b>Chemical (Corrosive)</b>	A chemical that, when it comes into contact with skin, metal, or other materials, damages the materials. Acids and bases are examples of corrosives.
<b>Explosion (Chemical Reaction)</b>	Self explanatory.
<b>Explosion (Over Pressurization)</b>	Sudden and violent release of a large amount of gas/energy due to a significant pressure difference such as rupture in a boiler or compressed gas cylinder.
<b>Electrical (Shock/Short Circuit)</b>	Contact with exposed conductors or a device that is incorrectly or inadvertently grounded, such as when a metal ladder comes into contact with power lines. 60Hz alternating current (common house current) is very dangerous because it can stop the heart.
<b>Electrical (Fire)</b>	Use of electrical power that results in electrical overheating or arcing to the point of combustion or ignition of flammables, or electrical component damage.
<b>Electrical (Static/ESD)</b>	The moving or rubbing of wool, nylon, other synthetic fibers, and even flowing liquids can generate static electricity. This creates an excess or deficiency of electrons on the surface of material that discharges (spark) to the ground resulting in the ignition of flammables or damage to electronics.
<b>Electrical (Loss of Power)</b>	Safety-critical equipment failure as a result of loss of power.
<b>Ergonomics (Strain)</b>	Damage of tissue due to overexertion (sprains and strains) or repetitive motion.



<b>Ergonomics (Human Error)</b>	A system design, procedure, or equipment that is error-provocative. (A switch goes up to turn something off).
<b>Fall (Slip, Trip)</b>	Conditions that result in falls (impacts) from height or traditional walking surfaces (such as slippery floors, poor housekeeping, uneven walking surfaces, exposed ledges, etc.)
<b>Fire/Heat</b>	Temperatures that can cause burns to the skin or damage to other organs. Fires require a heat source, fuel, and oxygen.
<b>Mechanical/ Vibration (Chaffing/ Fatigue)</b>	Vibration that can cause damage to nerve endings, or material fatigue that results in a safety-critical failure. (Examples are abraded slings and ropes, weakened hoses and belts.)
<b>Mechanical Failure</b>	Self explanatory; typically occurs when devices exceed designed capacity or are inadequately maintained.
<b>Mechanical</b>	Skin, muscle, or body part exposed to crushing, caught-between, cutting, tearing, shearing items or equipment.
<b>Noise</b>	Noise levels (>85 dBA 8 hr TWA) that result in hearing damage or inability to communicate safety-critical information.
<b>Radiation (Ionizing)</b>	Alpha, Beta, Gamma, neutral particles, and X-rays that cause injury (tissue damage) by ionization of cellular components.
<b>Radiation (Non-Ionizing)</b>	Ultraviolet, visible light, infrared, and microwaves that cause injury to tissue by thermal or photochemical means.
<b>Struck By (Mass Acceleration)</b>	Accelerated mass that strikes the body causing injury or death. (Examples are falling objects and projectiles.)
<b>Struck Against</b>	Injury to a body part as a result of coming into contact of a surface in which action was initiated by the person. (An example is when a screwdriver slips.)
<b>Temperature Extreme (Heat/Cold)</b>	Temperatures that result in heat stress, exhaustion, or metabolic slow down such as hypothermia.
<b>Visibility</b>	Lack of lighting or obstructed vision that results in an error or other hazard.
<b>Weather Phenomena (Snow/Rain/ Wind/Ice)</b>	Self explanatory.



## JOB HAZARD ASSESSMENT CHECKLIST

**The scope of your self-inspections should include the following:**

**Processing, Receiving, Shipping and Storage** — equipment, job planning, layout, heights, floor loads, projection of materials, materials-handling and storage methods, and training for material handling equipment.

**Building and Grounds Conditions** — floors, walls, ceilings, exits, stairs, walkways, ramps, platforms, driveways, and aisles.

**Housekeeping Program** — waste disposal, tools, objects, materials, leakage and spillage, cleaning methods, schedules, work areas, remote areas, and storage areas.

**Electricity** — equipment, switches, breakers, fuses, switch-boxes, junctions, special fixtures, circuits, insulation, extensions, tools, motors, grounding, and national electric code compliance.

**Lighting** — type, intensity, controls, conditions, diffusion, location, and glare and shadow control.

**Heating and Ventilation** — type, effectiveness, temperature, humidity, controls, and natural and artificial ventilation and exhaust.

**Machinery** — points of operation, flywheels, gears, shafts, pulleys, key ways, belts, couplings, sprockets, chains, frames, controls, lighting for tools and equipment, brakes, exhausting, feeding, oiling, adjusting, maintenance, lockout/tagout, grounding, work space, location, and purchasing standards.

**Personnel** — experience training, including hazard identification training; methods of checking machines before use; type of clothing; personal protective equipment; use of guards; tool storage; work practices; and methods of cleaning, oiling, or adjusting machinery.

**Hand and Power Tools** — purchasing standards, inspection, storage, repair, types, maintenance, grounding, use, and handling.

**Chemicals** — storage, handling, transportation, spills, disposals, amounts used, labeling, toxicity or other harmful effects, warning signs, supervision, training, protective clothing and equipment, and hazard communication requirements.

**Fire Prevention** — extinguishers, alarms, sprinklers, smoking rules, exits, personnel assigned, separation of flammable materials and dangerous operations, explosive-proof fixtures in hazardous locations, and waste disposal.

**Maintenance**, including tracking and abatement of preventive & regular maintenance — regularity, effectiveness, training of personnel, materials and equipment used, records maintained, method of locking out machinery, and general methods.

**Personal Protective Equipment** — type, size, maintenance, repair, storage, assignment of responsibility, purchasing methods, standards observed, training in care and use, rules of use, and method of assignment.

**Transportation** — motor vehicle safety, seat belts, vehicle maintenance, and safe driver programs.

**Review** — evacuation routes, equipment, and personal protective equipment.

## Job Safety Analysis (JSA)

Job safety analysis (JSA), also known as "job hazard analysis", is the first step in developing the correct procedure. In this analysis, each task of a specific job is examined to identify hazards and to determine the safest way to do the job.

Job safety analysis involves the following steps:

1. Select the job
2. Break down the job into a sequence of steps
3. Identify the hazards
4. Define preventive measures

The analysis should be conducted on all critical tasks or jobs as a first priority. Critical jobs include:

- those where frequent accidents and injuries occur
- those where severe accidents and injuries occur
- those with a potential for severe injuries
- new or modified jobs
- infrequently performed jobs, such as maintenance

Job safety analysis is generally carried out by observing a worker doing the job. Members of the joint health and safety committee should participate in this process. The reason for the exercise must be clearly explained to the worker, emphasizing that the job, not the individual, is being studied.

**NOTE:** In the "Attachments" Chapter of this Accident Prevention Program you will find a master copy of the following form for Company use:

- Job Safety Analysis

# Workplace Violence Prevention Program

### **Policy Statement**

Accurate Painting Company has adopted the following policy to deal with any violence that may occur on the Company's premises and to ensure the safety of our employees.

Joe Badalamenti is responsible for the implementation and enforcement of the workplace violence prevention program. In the event this policy is violated disciplinary procedures will be enforced and legal action taken as needed.

- Threats, threatening behavior, or acts of violence against employees, visitors, guests, or other individuals by anyone on Accurate Painting Company property will not be tolerated.
- Any person who makes threats, exhibits threatening behavior, or engages in violent acts on Company property will be removed from the premises as quickly as safety permits and will remain off Company premises and/or jobsites pending the outcome of an investigation.

### **Reporting**

- Management has assigned Joe Badalamenti as the contact person to report all incidents pertinent to this policy.
- Management and employees are responsible for notifying the contact person of any threats they have witnessed, received, or have been told that another person has witnessed or received. Personnel should also report behavior they regard as threatening or violent if that behavior is job-related or might be carried out on a company-controlled site.
- Accurate Painting Company response to incidents of violence will be fully investigated and documented as well as proper authorities being notified.
- Employees who apply for or obtain a protective or restraining order that lists company locations as protected areas must provide a copy of the petition and declarations used to seek the order and a copy of any temporary or permanent protective or restraining order that is granted. Accurate Painting Company has confidentiality procedures that recognize and respect the privacy of the reporting employee(s).

### **Compliance**

- Our safety policies are based on past experience and current standards, and are also an integral part of the company's personnel rules. This means that compliance with the policies is a condition of employment and must be taken seriously.
- Failure to comply with the company policy regarding Workplace Violence or the Code of Safe Practices is sufficient grounds for disciplinary action up to and including termination.
- Management will conduct a risk assessment to evaluate the risks of workplace violence and the strengths and weaknesses of the existing policies.

## Training

- **Management and supervisors will be trained;** and this training documented in the following areas:
  - How to properly deal with employee layoffs, job termination and disciplinary procedures.
  - How to recognize violent/dangerous situations and the appropriate measures to take.
  - How to prevent violence in the workplace.
  - The Company security and emergency response procedures.
  - How to respond to conflicts and problems in a manner that doesn't allow them to escalate.
- **Employees will be trained;** and this training documented in the following areas:
  - The rules for acceptable behavior and methods of discipline as outlined in the Company Code of Safe Practices.
  - Procedures for reporting workplace violence to the designated contact person.
  - Where to find a list of contacts and phone numbers available for all emergency situations.
  - How to identify potentially violent/dangerous situations or people and the company procedures that correspond.

## Program Review

This Workplace Violence Prevention Plan will be reviewed; and these reviews documented at least once a year or under the following circumstances:

- Following a workplace violence incident or report.
- Change in management.
- Change of contact person.
- To make needed changes or improvements to the policy.
- To identify new training or refresher training needs.

We here at Accurate Painting Company believe safety is the first priority. NO negative action will ever be taken for reporting hazardous, dangerous, potentially dangerous, or violent situations. Our employees and the information involved will always remain confidential.

## Workplace Violence Prevention Responsibilities

Joe Badalamenti is responsible for the implementation and enforcement of the workplace violence prevention program. While program success depends on the involvement of everyone, from ownership to employees, these responsibilities listed will be a guideline:

### Ownership/Contact Person

- Administers all aspects of the workplace violence prevention program.
- Develops procedures to identify and remove potential risk factors of workplace violence.
- Assists in the workplace violence prevention training of employees.
- Coordinate necessary training for new and existing employees.
- Conducts inspections to identify high risk positions or work practices.
- Implement programs and activities that will develop and maintain incentives for and motivation of employees.
- Decides disciplinary action for repeat violators of prescribed procedures.
- Develops and maintains incident investigation reporting procedures.
- Investigates serious or reportable incidents.





- Maintains all records and reports of accidents/incidents that have taken place during division business operations.
- Ensures that each employee's report of occupational injury or illness report is filed with the Workers' Compensation office within ten days of employee's notification of an occupational injury or illness.
- Processes all paperwork associated with accidents, on-site inspections, and in-house audits. Maintains permanent record for division and/or personnel files.
- Maintains all medical records, evaluations, and exposure monitoring records for the duration of employment and at least one year after.

### **Managers/Supervisors**

- Be familiar with high risk positions and appropriate procedures related to their area of responsibility.
- Directs, implements, and coordinates program procedures and activities within area of responsibility.
- Requires all employees supervised to use appropriate procedures for meeting the public.
- Ensures that engineering controls are available, maintained, and used correctly.
- Ensures that all employees within area of responsibility receive workplace violence prevention training as required.
- Ensures that employees are aware of and comply with requirements for workplace violence prevention practices.
- Investigates all incidents within area of responsibility. Reviews all accidents/incidents with workers involved. Insures that corrective action is taken immediately to eliminate the cause of the accident/incident.
- Ensures accident reports and Workers' Compensation forms are completed and submitted as appropriate.
- Conducts frequent and regular safety and health inspections of his/her work areas and ensures that no unsafe conditions exist in area of responsibility.
- Ensures that injuries are treated promptly and reported properly.
- Acts on reports of hazards or hazardous conditions reported to them by employees.

### **Employees**

- Be familiar with and comply with all proper workplace violence prevention procedures.
- Notify supervisor immediately of unsafe conditions, aggressive behavior, or incidents.
- Identify and assist or report "strangers" in your work area.
- Treat all "customers" with respect and be polite.

In consideration of the size of a company, these responsibilities may be shared further or consolidated. The main goal of our program is to ensure that the policies, procedures and training are followed for the safety and security of our company, its employees and the public.

### **Risk Assessment/Inspections**

This company has implemented procedures for conducting a risk assessment and inspection of the workplace and jobsites for compliance with this program. The purpose of the inspection is to identify hazards and unsafe practices before they cause an accident or incident.

The program is based on the results of the risk assessment and inspections and includes the following procedures:

- Examining past incidents.
- Reviewing our MIOSHA 300 log.
- Surveying our safety-and-health committee and workers at all levels regarding violent incidents, reported or not.

- Discussing findings with pertinent employees. Inviting their comments, suggestions, and particular needs.
- Ensuring recommended corrections/changes are communicated and discussed.
- Following up on changes, corrections, and other actions necessary.

## **New Hire & Termination Procedures**

Our company has in place new employee hiring procedures which will lower the risk of potential violence or harassment in the workplace.

Examples of procedures which can be further implemented include, yet are not limited to:

- Limiting access by former employees to the workplace.
- Requiring visitors to sign in and out at reception, wear identification badges, or be escorted.
- Increasing parking lot illumination or providing escorts and/or guards.
- Locking doors that lead from reception areas to work areas.
- Adding surveillance cameras, panic buttons, or metal detectors.

As part of our risk assessment procedures our company has put in place a screening procedure for the hiring of new employees. Hiring the right person, no matter the position, is an important step in preventing workplaces violence.

The following steps are considered during the hiring process, yet are not limited to these:

- Checking all work history statements made on job applications. This may be done internally or by an outside service.
- Developing open-ended job interview questions that help your interviewer make the most thorough assessments of candidates possible.
- Having an experienced interviewer or team conduct two interviews of every applicant, including those for entry-level jobs.
- Developing a screening system that is equitable, that allows our company to weigh potential liability.
- Using drug screening when it's felt necessary or required.
- Screening contract personnel assigned to work at our facility.
- Conversely, if our company assigns workers to other organizations, we consider their safety and security requirements.

Not all individuals distraught about job termination or layoff become violent; however, firings the cause of most of the violence that occurs in the workplace.

Management and supervisors will be trained to identify potential problems among workers, administer discipline as necessary, and terminate employees without causing the terminated employee to feel that the loss of this job is the "end of the line." Open communication from management can help employees facing termination for whatever reason.

Conducting exit interviews when employees retire, quit, or are transferred or terminated are also used to help identify potential violence-related problems.

Accurate Painting Company understands that violence may best be prevented by appropriate workplace security measures and caring for the people who work for our company through communication, adequate training, and a system for reporting and following up on incidents.

## **Training**

Training and education cannot be over-emphasized as a means of learning workplace violence prevention procedures. Knowledge of the appropriate procedures and rules, and how and when to function under these procedures, is essential to personal safety.

Our Company has implemented these training procedures for its management and employees.

### **Managers and Supervisors will be trained in:**

- The Company's Workplace Violence Prevention Program.
- Communication skills.
- Recognition of aggressive behavior.
- Dealing with employee layoffs, job terminations, and discipline; how to assess the violence potential of individuals; and how to take appropriate measures, such as arranging security.
- Violence prevention, our company's security procedures, and response procedures.
- Addressing problems and conflict promptly.

### **Employee Training Procedures:**

- All new employees will read and understand our policies and procedures, and will review them regularly.
- New employees will be provided orientation training and will be furnished information and literature covering the company's Workplace Violence Prevention Program and Code of Safe Practices.
- This orientation training will be provided prior to the employee's exposure to a hostile work environment.
- Appropriate individual job/task training will be provided.

### **Emergency Communication Plan**

Accurate Painting Company has adopted the following elements as our Internal Emergency Communication Plan:

- Employees have a means of alerting other workers of a dangerous situation and be able to provide information requested by emergency responders.
- A list of contacts, evacuation plans, and building plans where they're available to emergency responders (Company Emergency Action Plan).
- Keeping important phone numbers in several places (including off-site locations), available to all appropriate managers and employees.
- Encouraging victims of threats and violence outside the workplace to notify their supervisor about such incidents. Management will provide information (and a description or picture of the alleged threatener) to receptionists and other necessary personnel on a need-to-know basis and tell them what actions they should take if that individual seeks entry to the workplace or seeks contact with the employee involved.
- For environments with greater security risks, further measures may be added on a case by case basis.



## Incident Reporting

Accurate Painting Company trains its management and employees in knowing how and where to report violent acts or threats of violence. Our policy requires employees to report all threats or incidents of violence.

The following guidelines are used in a *threat-incident report*, which management will use to assess the safety of the workplace and to decide on a plan of action:

- Name of the person who made the threat and that person's relationship to the company and to the threatened party.
- Names of victims or potential victims.
- When and where the incident occurred and how it ended.
- What happened immediately prior to the incident and what may have contributed to the incident.
- The specific language of the threat.
- Behavior that indicates an intention to carry out the threat.
- A description of the threat-maker and his or her emotional state.
- Names of others directly involved and actions they took.
- Names of witnesses.
- What happened to involved parties after the incident.
- Names of supervisory staff involved and their response.
- Steps that have been taken to prevent the threat from being carried out.
- Suggestions for preventing such incidents.

## Incident Response

Accurate Painting Company has adopted the following procedures for incident response. These procedures are subject to evaluation and change to ensure the safety and security of our employees.

- When an incident occurs, necessary resources are brought together, which may include help from outside the company.
- When a threat is made, available sources are consulted to help evaluate the level of risk posed by the threat-maker.
- When appropriate, fitness-for-duty evaluations are obtained for employees exhibiting seriously dysfunctional behaviors at the workplace.
- When a threat has been made or an incident has occurred, the situation is evaluated and, if warranted, potential victims and/or the police will be notified.
- Accurate Painting Company respects the privacy and confidentiality rights of employees during investigations.
- Workplace risks are reviewed to determine whether additional security measures should be taken after a threat or violent incident.
- Increased worksite protection will be provided when threats of violence have been made, such as additional police or security patrols.
- Those who might be affected if the threat-maker carries out his or her threat are promptly notified.
- Increased protection to threatened employees is considered, such as new phone numbers, relocation, loan of a cellular phone, or a quick-response distress button.
- Potential victims are counseled on options available to them, such as obtaining a restraining order.

## **General Communication/Workplace Procedures**

These guidelines will be used to assist in training management and employees in the implementation of our program:

- BE POLITE.
- Do not get excited.
- Do not argue.
- Request a supervisor when feeling stressed or pressured.
- Utilize all training procedures.
- Report all incidents to the appropriate supervisor.
- Be observant of "strangers" in work areas.
- Be observant of persons with packages and other abnormalities.
- Escort the clients to their destination.
- Identify and communicate previous aggressive behavior or threats.
- Program emergency phone numbers into the telephone.
- Maintain a log of incidents with all relevant information.
- Utilize the "buddy system" when confronted with aggressive behavior.
- Interact in open and public areas with potentially violent persons.
- Request counseling after a stressful incident.
- Inform co-workers/supervisor of activity itinerary.
- Provide escorts for potential victims outside of the controlled work area.

### **Warning signs of potentially violent individuals:**

- Written, oral, or implied threats or intimidation.
- Fascination with weaponry or acts of violence.
- Theft or sabotage of projects or equipment.
- Alcohol or drug abuse in the workplace.
- Expressions of hopelessness or heightened anxiety.
- Intention to hurt self or others.
- Lack of concern for the safety of others.
- Externalization of blame.
- Irrational beliefs and ideas.
- Romantic obsession.
- Displays of excessive or unwarranted anger.
- Feelings of victimization.
- Inability to take criticism.
- New or increased sources of stress at home or work.
- Productivity and/or attendance problems.

### **What to do**

- Project calmness. Move and speak slowly, quietly, and confidently.
- Listen attentively and encourage the person to talk.
- Let the speaker know that you are interested in what he or she is saying.
- Maintain a relaxed yet attentive posture.
- Acknowledge the person's feelings and indicate that you can see he is upset.
- Ask for small, specific favors such as asking the person to move to a quieter area.
- Establish ground rules. State the consequences of violent or threatening behavior.
- Employ delaying tactics that give the person time to calm down. For example, offer a glass of water.
- Be reassuring and point out choices.
- Help the person break down big problems into smaller, more manageable problems.
- Accept criticism. When a complaint might be true, use statements such as; "You're probably right" or "It was my fault."
- If the criticism seems unwarranted, ask clarifying questions.
- Arrange yourself so that your exit is not blocked.

- Make sure there are three to six feet between you and the other person.

**What not to do**

- Do not make sudden movements that may seem threatening.
- Do not speak rapidly, raise your volume, or use an accusatory tone.
- Do not reject all demands.
- Do not make physical contact, jab your finger at the other person, or use long periods of eye contact.
- Do not pose in challenging stances: directly opposite someone, hands on hips, or with arms crossed.
- Do not challenge, threaten, or dare the individual. Never belittle the other person.
- Do not criticize or act impatient.
- Do not attempt to bargain with a threatening individual.
- Do not try to make the situation seem less serious than it is.
- Do not make false statements or promises you cannot keep.
- Do not try to impart a lot of technical or complicated information when emotions are high.
- Do not take sides or agree with distortions.
- Do not invade the individual's personal space.

**NOTE:** In the "Attachments" Chapter of this Accident Prevention Program you will find a master copy of the following form for Company use:

- Violent Incident Report Form
- Suspect & Vehicle Identification Sheet
- Employee Incident Report
- Record of Employee Training

## Sexual Harassment Company Policy

It is this Company's Policy that illegal sexual discrimination, unwelcome sexual advances, requests for sexual favors, and any other verbal, visual, or physical conduct of a sexual nature is strictly prohibited.

Requiring coworkers, subordinate employees, or prospective employees to submit to conduct of this nature, explicitly or implicitly, as a term or condition of employment, or used as a basis for any employment decisions is forbidden.

Any and all behavior that has the purpose or effect of unreasonably interfering with an individual's work performance, or creating an intimidating, hostile, or offensive work environment is hereby banned.

Sexual harassment can occur in a variety of circumstances, including but not limited to:

- The victim as well as the harasser may be a woman or a man. The victim does not have to be of the opposite sex.
- The harasser can be the victim's supervisor, an agent of the employer, a supervisor in another area, a co-worker, or a non-employee.
- The victim does not have to be the person harassed but could be anyone affected by the offensive conduct.
- Unlawful sexual harassment may occur without economic injury to or discharge of the victim.
- The harasser's conduct must be unwelcome.

Prevention is the best tool to eliminate sexual harassment in the workplace. Appropriate managers have been designated, rather than a direct supervisor, and other alternative routes provided to receive the filing of formal complaints of sexual harassment. If possible, it is requested that any victimized employee attempt to informally resolve a sexual harassment issue by directly informing the harasser that the conduct is unwelcome and must stop. If informal resolution is unsuccessful, the victim should use the formal complaint form and submit it to the designated manager of their choice. This Company will take immediate and appropriate action when any employee files a formal complaint.

This Company recognizes that the question of whether a particular course of conduct constitutes sexual harassment requires a factual determination. The Company also recognizes that false accusations of sexual harassment can have serious effects on innocent persons. If an investigation results in a finding that a person who has accused another of sexual harassment has maliciously or recklessly made false accusations, the accuser will be subject to appropriate sanctions, including discharge.

When investigating allegations of sexual harassment, this Company will look at the whole record: the circumstances, such as the nature of the sexual advances, and the context in which the alleged incidents occurred. A determination on the allegations is made from the facts on a case-by-case basis. **It is this Company's Policy that sexual harassment will not be tolerated.**

**NOTE:** In the "Attachments" Chapter of this Accident Prevention Program you will find a master copy of the following form for Company use:

- Sexual Harassment Complaint Form

[illegible]

### Hazard Communication Program

**Hazard Communication - MIOSHA Part 92-R 408.192**

**Adopted by Reference**

**Hazard Communication - 29 CFR-§1910.1200**

#### **Policy Statement**

Accurate Painting Company is committed to preventing accidents and ensuring the safety and health of our employees. We will comply with all applicable federal and state health and safety rules and provide a safe, healthful environment for all our employees. Our Company has adopted this policy for hazard communication from MIOSHA regulation.

Accurate Painting Company will ensure that all containers of hazardous chemicals are labeled, a current inventory list of all hazardous chemicals/material is maintained, and current Material Safety Data Sheets are available.

Joe Badalamenti is responsible for updating and maintaining this program and for compiling a current inventory of all chemical/material and updating MSDS as needed. All employees have free access to MSDS.

**MSDS are stored in/at:** In the office and on the jobsite.

Employees will be trained at the time of initial hiring in the safe use, and hazards of any chemicals they are required to use on the job. Joe Badalamenti is the administrator of the company hazard communication program, and will document all necessary training of employees.

Employees will be notified of any hazardous substances used by any company other than Accurate Painting Company in the workplace, and make MSDS available to employees.

All containers used on the job must be labeled for content and precautions if substance contained is hazardous. Materials will be left in their manufacturer's container, returned to the container immediately after use, or any unused portion disposed of properly. If labels become illegible for any reason, a new label must be affixed containing all required precautionary information, or the material disposed of properly

A list of all chemicals known to be used at the workplace will be available to all employees and kept in the office. MSDS for all chemicals used in the workplace by Accurate Painting Company are available to employees from their supervisor or in the office.

Changes of job assignments, changes in materials used, or any non-routine tasks involving hazardous substances or conditions will require notification and/or retraining of effected employees. Joe Badalamenti will inform or retrain employees of any new or additional hazards, detail methods of hazard abatement or elimination, and provide proper personal protective equipment or engineering controls necessary for the job. Notifications and retraining will be documented as to name of employee, date, description of action taken, and verification by Joe Badalamenti.

A copy of the company's hazard communication program is available to all employees, and will be kept at the workplace by the supervisor in charge, or in the office. Translations of the hazard communication program are available to non-English speaking employees upon request from Joe Badalamenti.

## **Introduction to the Hazard Communication Standard**

OSHA's Hazard Communication Standard (HCS) is based on a simple concept – that employees have both a need and a right to know the hazards and identities of the chemicals they are exposed to when working. They also need to know what protective measures are available to prevent adverse effects from occurring. OSHA designed the HCS to provide employees with the information they need to know.

The HCS addresses the issues of evaluating and communicating hazards to workers including issues such as chemical labeling, Material Safety Data Sheets (MSDS), a written program, and employee training requirements.

OSHA requires that all employers develop a written Hazard Communication Program and train their workers on the aspects the program covers. This is a difficult task for service companies since workplaces and tasks change frequently. In addition, other employers at the workplace affect employees' chemical exposures and necessitate clear communication between employers to ensure employee protection.

The HCS requires the development of a comprehensive list of hazardous chemicals used at the workplace as well as MSDS for these chemicals. Normal "consumer products" such as those available at local retail or home improvement stores are exempt from the labeling, MSDS, and training requirements of the HCS when used in the same quantity and manner as a normal consumer. For example, can of spray paint used with the same frequency or duration as would be expected at home would not be covered. However, the same spray paint used every day as part of the production process would be subject to the requirements of the hazard communication standard including MSDS, labeling, and training. Frequently overlooked items usually covered by HCS requirements in a workplace include: adhesives, gasoline, paint thinner, grease, cleaners, solvents, and sealers.

MSDS are usually very easy to obtain. **Retail stores (including hardware and home improvement stores) selling hazardous chemicals to employers having a commercial account are required to provide MSDS upon request.** MSDS are also usually available on manufacturers' web sites. In addition, there are a number of MSDS repositories available to the public on the internet including the following:

<http://www.siri.org>      <http://www.msds.com>      <http://www.msdsprovider.com>

## **General Information**

The management staff of Accurate Painting Company is committed to the prevention of incidents, exposures, or happenings that result in injury and/or illness and to comply with all applicable federal and state health and safety rules. In order to comply with the Occupational Safety and Health Administration (OSHA) the following written hazard communication program has been established.

All employees of this Company will participate in the Hazard Communication Program. A copy of this written program will be available at The Company's main office for review by any interested employee.

# HAZARD COMMUNICATION PROGRAM

## Container Labeling

Joe Badalamenti is responsible for container labeling procedures, reviewing, and updating. The labeling system to be used is as follows:

Accurate Painting Company will rely primarily on the use of the manufacturers' labels to meet the labeling requirement of the standard.

All chemicals on site will be stored in their original container with manufacturers' label attached.

Workers may dispense chemicals from original containers in small quantities for immediate use by a single employee on a single shift. These secondary containers will be labeled with at least the generic name of the product dispensed (e.g., paint, thinner, etc.). Excess chemical will be returned to the original container at the end of the shift or given for proper handling to the Safety Coordinator.

Joe Badalamenti will ensure that all containers are labeled with the manufacturers' label or equivalent containing the following information:

Chemical Name; Manufacturers' Name and Address; and Appropriate hazard warnings such as "Flammable", "Toxic", etc.

No unmarked containers of any size will be left in the work area unattended.

## Hazardous Chemical List & Material Safety Data Sheets

Copies of MSDS for all hazardous chemicals to which employees of this Company may be exposed and a master list of all the hazardous chemicals used in the workplace will be maintained by Joe Badalamenti.

This list of chemicals and MSDS will be available for employee review at any time.

Anyone purchasing new chemicals must request a copy of the MSDS. Joe Badalamenti will ensure that new MSDS are distributed to the appropriate workplaces. If MSDS are not available or new chemicals in use do not have an MSDS, immediately contact Joe Badalamenti.

## Employee Information and Training (Document training using provided forms.)

Prior to starting work, each new employee will attend a health and safety orientation and will receive information and training on the following:

- An overview of the requirements in OSHA's Hazard Communication Standard.
- Chemicals present at their workplace.
- Location and availability of the MSDS file and the written hazard communication program.
- Physical hazards and health effects of the hazardous chemicals.
- Methods used to determine the presence or release of hazardous chemicals in the work area.
- Methods to reduce or prevent exposure to these hazardous chemicals including safe work practices and personal protective equipment.
- Steps The COMPANY has taken to reduce or prevent exposure to these chemicals.
- Safety emergency procedures to follow if the employee is exposed to these chemicals.
- How to read labels and review MSDS to obtain appropriate hazard information.



Prior to introducing a new hazardous chemical into any operational section of Accurate Painting Company, affected employees will be given updated information and training for new chemical as outlined above.

### **Hazardous Non-Routine Tasks**

Periodically, employees must perform hazardous non-routine tasks. Before starting work on such projects, each affected employee will be given information by their supervisor about hazardous chemicals to which he or she may be exposed during such activity.

This information will include:

- Specific chemical hazards.
- Protective/safety measures employees can take.
- Measures THE COMPANY has taken to reduce the hazards, including ventilation, respirators, presence of another employee, and emergency procedures.

### **Informing Other Employers**

It is the responsibility of Joe Badalamenti to insure all employers on the workplace exchange the following information:

- Hazardous chemicals which employees may be exposed while on the workplace.
- Procedures for obtaining MSDSs from each employer
- Precautions employees should take to lessen the possibility of exposure.
- Location of written Hazard Communication programs for each Company.
- Contact information for the safety coordinator for each Company.

Each employer will be responsible for providing necessary hazard information to their affected employees.

**NOTE:** In the "Attachments" Chapter of this Accident Prevention Program you will find a master copy of the following forms for Company use:

- Hazardous Chemical List
- Hazardous Communication Training Acknowledgement and Updated Training
- Example MSDS Sheet

## UNDERSTANDING MATERIAL SAFETY DATA SHEETS

### Employer Responsibility

All employers with hazardous chemicals in their workplaces must prepare and implement a written hazard communication program. Employers must ensure that all containers are labeled, that employees are provided access to MSDS, and that an effective training program is conducted for all potentially exposed employees.

A vital part of an effective "Hazard Communication Program" is maintaining Material Safety Data Sheets (MSDS) and insuring employees have the necessary training to understand the terminology contained in MSDS. The following pages provide brief explanations of terminology that can be used during employee training.

Manufacturers, importers, distributors, and suppliers are required to provide you with Material Safety Data Sheets (MSDS) for each of their hazardous chemicals. As an employer or contractor, you are required to maintain a file of MSDS for the hazardous chemicals you use. According to OSHA, you will be able to determine if a substance is hazardous by referring to the MSDS and the label. The OSHA Standard specifies the information required on each data sheet, and all information must be written in English.

Review the MSDS you receive for accuracy and completeness, and make sure you have the latest version on file. When an MSDS includes new information or a new compound has been added to it, additional employee training is required.

### To ensure proper recordkeeping and maintenance of MSDS, you should:

- Make sure any employee who purchases supplies for your Company is on the lookout for MSDS.
- Include a request for an MSDS and a label that meets the requirements of the Hazard Communication Standard on all purchase orders.
- Ask for an MSDS for materials with labels indicating they are hazardous unless an MSDS is already on file.

To deal with a multi-employer situation, other contractors on the site may be asked to provide hazardous substance information for the chemicals they bring to the site.

While MSDS will appear in many different formats, they will contain essentially the same information. **An MSDS should contain the following information:**

### Identification

- Chemical name, as it appears on the label.
- Manufacturer's name and address.
- Emergency phone number in case of an emergency involving the substance.
- Date prepared and the signature of the preparer.

### Hazardous Ingredients/Identity Information

- **Hazardous Components:** Contains the specific chemical identity, its formula, and any common names it is known by.
- **OSHA Permissible Exposure Limits (PELs):** PEL is the permissible maximum amount or concentration of the chemical a person may be safely exposed to without harm.
- **American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV):** The TLV is the concentration of a chemical in the air that can be inhaled for five consecutive eight-hour workdays by most persons without harmful effects. It is generally expressed in parts per million or milligrams per cubic meter of air.
- **Other Exposure Limits:** Any other recommended limitation on the use of the chemical by any agency, scientific group, or organization should be included.

## Physical/Chemical Characteristics

- **Boiling Point:** The temperature at which a liquid boils.
- **Vapor Pressure (mm Hg):** Vapor pressure measures a liquid's tendency to evaporate. The higher the vapor pressure, the faster it will evaporate.
- **Vapor Density:** Indicates the weight of the vapor compared with the weight of an equal volume of air. If a vapor is heavier than air (vapor density greater than 1), it will sink to the ground. If it is lighter than air (vapor density less than 1), it will rise. For example, with flammable materials, when the vapor density is greater than 1, vapors tend to collect in the lowest spot. A contractor must be alert to vapors traveling to an ignition source, then flashing back to the vapor source. Under some circumstances chemical vapors may displace oxygen.
- **Solubility in Water:** Indicates whether the chemical can mix with water in any ratio without separating.
- **Appearance and Odor:** A brief description of the chemical's color and smell.
- **Specific Gravity:** Ratio of a material's weight to the weight of an equal volume of water. The specific gravity determines whether the material floats or sinks in water. Specific gravity values less than or equal to one indicate that water should NOT be used to extinguish a fire involving the substance unless the water comes from automatic sprinklers.
- **Melting Point:** Indicates the temperature at which a solid changes to a liquid.
- **Evaporation Rate:** Indicates temperatures at which a substance evaporates.

## Fire and Explosion Hazard Data

- **Flash Point:** Indicates the lowest temperature at which a liquid gives off enough vapor to ignite in air when exposed to flame. When the flash point is between 100 and 110o Fahrenheit (F), extra care must be taken in hot environments. The liquid's temperature could be high enough to be ignitable if an ignition source is introduced. Such sources might be cigarette smoking, electrical equipment and wiring, cutting and welding, or static electricity. A red diamond label is required on all liquids classified by OSHA as flammable (flash point values of 99.9o F or below).
- **Flammable Limits:** Indicates the range of vapor concentrations, which will explode when an ignition source is present. The "Lower Explosive Limit" (LEL) is the minimum amount of vapor in the air that can be ignited. The "Upper Explosive Limit" (UEL) is the maximum amount of vapor in the air that will sustain fire.
- **Extinguishing Media:** Materials suitable for putting-out a fire involving the identified chemical. These fire-fighting agents are water, fog, foam, alcohol foam, carbon dioxide, and dry chemical.

The four classes of fires are:

Class A -	paper, wood, straw, cloth
Class B -	flammable and combustible liquids
Class C -	fire involving energized electrical equipment
Class D -	combustible metals

Testing laboratories classify fire extinguishers based on the class of fire they are designed to put out. Each extinguisher type may contain a different extinguishing agent. For example:

Class A -	contain water
Class B -	contain carbon dioxide, foam, or dry chemical agents
Class C -	contain carbon dioxide or dry chemical agents
Class D -	contain highly specialized extinguishing compounds

- **Special Fire Fighting Procedures:** Indicates the chemical's special characteristics when it comes in contact with fire, such as whether it is difficult to put out; whether it will re-ignite spontaneously; whether it is extinguished by water or other fire-fighting agents. This subsection will also indicate any required protective equipment needed when fighting the fire. It will describe toxic materials given off by the chemical when it is burned.
- **Unusual Fire and Explosion Hazards:** Indicates any special types of hazards requiring attention. The description will indicate whether the chemical is difficult to extinguish, will re-ignite spontaneously, and how it reacts with water and other extinguishing agents. For example, if water is applied to a combustible liquid with a flash point above 212° F, it may foam violently or boil over, endangering workers and firefighters.

## Reactivity Data

- **Stability:** Indicates conditions that contribute to the stability or instability of a chemical when it is exposed to heat, pressure, or excessive shock during storage, use, misuse, or transport. Look to this section to identify specific conditions to be avoided. These warnings, for example, may be "reacts violently with water" or "avoid sudden shock."
- **Incompatibility (materials to avoid):** Indicates various materials or conditions you must keep the chemical away from to avoid adverse reactions. For example, a substance which ignites or explodes when it comes in contact with the chemical.
- **Hazardous Decomposition or By-products:** Indicates gases, or vapors, which are released when the chemical is burned or decomposes. It tells you what hazardous substances your employees may be exposed to as a result of heating, working with, or burning the chemical.
- **Hazardous Polymerization:** Polymerization is a chemical reaction where molecules of the chemical combined with molecules of another material to form a different material. This reaction is accompanied by the release of large amounts of energy that can produce fire or other hazards. Polymerization can occur when the chemical comes in contact with certain plastics, rubber, or coatings. This section of the MSDS will indicate possible storage conditions that could result in polymerization. It will also indicate any inhibitor—chemicals that can be added to prevent or delay polymerization—and the expected time period in which an inhibitor is used up.

## Health Hazard Data

- **Route(s) of Entry:** A chemical may enter the body either through inhalation, by contact with the skin or eyes, or by being swallowed.
- **Health Hazards:** Indicates any long-term (chronic) or short-term (acute) effects of a chemical on the human body.
- **Carcinogenicity:** Indicates whether the chemical causes cancer. It is important that your employees understand that not all hazardous substances cause cancer when an individual is exposed to them.
- **Signs and Symptoms of Exposure:** Indicates and describes the effects of exposure to the chemical (employee's appearance/behavior), the most common resulting sensations (headache, dizziness or nausea).

- **Medical Conditions Severely Aggravated by Exposure:** Indicates how the chemical will affect any pre-existing medical conditions.
- **Emergency and First Aid Procedures:** Indicates first aid procedures to use in order to reduce the hazardous effects of the chemical. The techniques covered will deal only with inhalation, eye contact, or skin contact with the chemical. You must emphasize that these are emergency procedures only. Exposed employees should be examined by a doctor immediately.

### Precautions for Safe Handling and Use

- **Steps to be Taken in Case Material is Released or Spilled:** Indicates precautions such as: "avoid breathing gases or vapors"; "avoid contact with liquids and solids"; "remove ignition sources"; "use special equipment for cleanups". This section also gives recommended techniques to use in controlling land or water spills.
- **Waste Disposal Methods:** Indicates how to dispose of the chemical and contaminated materials.
- **Precautions to Take in Handling and Storing:** Indicates safe handling and storage procedures to be taken to avoid hazardous reactions. This section will emphasize incompatibility and polymerization hazards, which could occur during storage or handling of the chemical.
- **Other Precautions:** Indicates special precautions to use in handling or disposing of the chemical.

### Control Measures

The measures described below should be taken whenever the chemical is handled or disposed of during normal use. They are not solely intended for emergencies or accidental spills.

- **Respiratory Protection:** If needed, specifies type of respirators required by OSHA when the chemical is used, even as a precautionary measure in non-emergency situations.
- **Ventilation:** Indicates ventilating systems needed to prevent over-exposure to the chemical. "Local exhaust ventilation" is a system with high speed and low volume that will capture a chemical quickly after it has been released. The objective is to prevent the substance from reaching the employee's breathing zone. "Mechanical (general) ventilation" is used to heat and/or cool an enclosed area in a permanent facility.
- **Protective Gloves:** Indicates whether or not gloves must be worn when the chemical is handled. If gloves are required for skin protection, the type of material they should be made of will be indicated.
- **Eye Protection:** Indicates appropriate eye protection such as face shields, safety goggles or glasses.
- **Other Protective Clothing or Equipment:** Indicates protective equipment (aprons and boots) and what material it should be made of to prevent skin contact.

**NOTE:** In the "Attachments" Chapter of this Accident Prevention Program you will find a master copy of the following form for Company use:

- Hazardous Chemical List
- Hazardous Communication Training Acknowledgement and Updated Training
- Example MSDS Sheet

The sample labels show the type of information you must list on containers of hazardous chemicals. You can copy and use these labels or you can make your own.

**Be sure your labels contain the following information:**

Name of Chemical

Physical Hazards

Health Hazards, Target Organs or Systems

Optional information, such as Personal Protective Equipment or Safe Handling

<div><h2>HAZARDOUS CHEMICAL</h2><p><b>NAME OF CHEMICAL:</b></p><hr/><p><i>Physical Hazards:</i></p><hr/><hr/><p><i>Health Hazards, Target Organs, or Systems:</i></p><hr/><hr/><p><i>Optional Information, such as Personal Protective Equipment or Safe Handling:</i></p><hr/><hr/></div>	<div><h2>HAZARDOUS CHEMICAL</h2><p><b>NAME OF CHEMICAL:</b></p><hr/><p><i>Physical Hazards:</i></p><hr/><hr/><p><i>Health Hazards, Target Organs, or Systems:</i></p><hr/><hr/><p><i>Optional Information, such as Personal Protective Equipment or Safe Handling:</i></p><hr/><hr/></div>
<div><h2>HAZARDOUS CHEMICAL</h2><p><b>NAME OF CHEMICAL:</b></p><hr/><p><i>Physical Hazards:</i></p><hr/><hr/><p><i>Health Hazards, Target Organs, or Systems:</i></p><hr/><hr/><p><i>Optional Information, such as Personal Protective Equipment or Safe Handling:</i></p><hr/><hr/></div>	<div><h2>HAZARDOUS CHEMICAL</h2><p><b>NAME OF CHEMICAL:</b></p><hr/><p><i>Physical Hazards:</i></p><hr/><hr/><p><i>Health Hazards, Target Organs, or Systems:</i></p><hr/><hr/><p><i>Optional Information, such as Personal Protective Equipment or Safe Handling:</i></p><hr/><hr/></div>

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# Chapter 11

## Personal Protective Equipment

### **Personal Protective Equipment - MIOSHA-Part 6-R 408.406**

The following list of personal protective equipment (PPE) is available to all employees and will be used as required by Federal, State, or Local regulations:

Hard hats, fall protection, safety goggles, safety glasses, respirators, ear plugs, steel toe boots and gloves.

Employees can request PPE equipment from Joe Badalamenti and the direct Supervisor.

### **Policy Statement**

Accurate Painting Company has implemented this safety program to ensure the protection of personnel from hazards on the job that may be safeguarded against by the proper use of Personal Protective Equipment. Joe Badalamenti and the direct Supervisor is the supervisor responsible for ensuring the following work practices are enforced.

Joe Badalamenti and the direct Supervisor will ensure that all employees are properly trained in the recognition and assessment of hazards and hazardous situations, the proper selection and use of personal protective equipment required for the hazard and to avoid, prevent, or abate such hazards.

Employees will be trained on initial hiring to use, maintain, clean and disinfect, store, and service PPE properly. Employees will receive refresher training on PPE at least annually, or as work requirements, changing job assignments, changing equipment, or environment warrants it. Any employee who demonstrates a lack of knowledge or understanding of any aspect of PPE use or maintenance will be re-trained. An employee must verify his/her understanding of training content as a condition of employment.

Joe Badalamenti and the direct Supervisor will do a hazard assessment of each jobsite prior to commencement of work to ascertain if hazards are present or likely to be encountered, what engineering controls may be implemented to minimize hazards, and what PPE is necessary for the performance of the job. Affected employees will be notified of hazards, engineering controls needed, and PPE required.

PPE will be provided for all work required by Accurate Painting Company and employees are required by Company Policy to use only proper company PPE at all times when required on the job or on company property. Failure to use PPE will result in disciplinary action against the violating employee.

PPE will be issued and fitted to each affected employee individually. Employees must demonstrate proficiency in donning and doffing equipment, and proper techniques of cleaning and maintaining their respective equipment.

PPE must be used, stored, and maintained in a sanitary condition. All PPE must be cleaned, disinfected, and stored according to manufacturer's recommendations.

Defective or damaged PPE will be immediately tagged "OUT OF SERVICE", removed from service, and replaced with serviceable equipment. PPE will be inspected by the individual employee at the beginning of each work shift.





# MIOSHA Personal Protective Equipment Standards

## Introduction

The Michigan Occupational Safety and Health Administration (MIOSHA) requires that employers protect their employees from workplace hazards that can cause injury. Controlling a hazard at its source is the best way to protect employees. Depending on the hazard or workplace conditions, MIOSHA recommends the use of engineering or work practice controls to manage or eliminate hazards to the greatest extent possible. For example, building a barrier between the hazard and the employees is an engineering control; changing the way in which employees perform their work is a work practice control. When engineering, work practice and administrative controls are not feasible or do not provide sufficient protection, employers must provide "Personal Protective Equipment" (PPE) to their employees and ensure its use. Personal protective equipment, commonly referred to as "PPE", is equipment worn to minimize exposure to a variety of hazards. Examples of PPE include such items as gloves, foot and eye protection, protective hearing devices (earplugs, muffs) hard hats, respirators and full body suits.

This information will help both employers and employees do the following:

- Understand the types of PPE.
- Know the basics of conducting a "Hazard Assessment" of the workplace.
- Select appropriate PPE for a variety of circumstances.
- Understand what kind of training is needed in the proper use and care of PPE.

The following information is general in nature and does not address all workplace hazards or PPE requirements. The information, methods and procedures in this guide are based on the MIOSHA requirements for PPE.

**Important Note:** This guide does not address PPE requirements related to respiratory protection as this information is extensive and is covered in detail in the "Respiratory Protection" Chapter.

## Requirement for PPE

To ensure the greatest possible protection for employees in the workplace, the cooperative efforts of both employers and employees will help in establishing and maintaining a safe and healthful work environment.

### In general, employers are responsible for:

- Performing a "hazard assessment" of the workplace to identify and control physical and health hazards.
- Identifying and providing appropriate PPE for employees.
- Training employees in the use and care of the PPE.
- Maintaining PPE, including replacing worn or damaged PPE.
- Periodically reviewing and evaluating the effectiveness of the PPE program.

### In general, employees should:

- Properly wear PPE.
- Attend training sessions on PPE.
- Care for, clean, and maintain PPE.
- Inform a supervisor of the need to repair or replace PPE.

Specific requirements for PPE are presented in many different MIOSHA standards, published in the General Industry Safety Standards and Occupational Health Standards. Some standards require that employers provide PPE at no cost to the employee while others simply state that the employer must provide PPE.

## The Hazard Assessment

A first critical step in developing a comprehensive safety and health program is to identify physical and health hazards in the workplace. This process is known as a "Hazard Assessment." Potential hazards may be physical or health-related and a comprehensive hazard assessment should identify hazards in both categories. Examples of physical hazards include moving objects, fluctuating temperatures, high intensity lighting, rolling or pinching objects, electrical connections, and sharp edges. Examples of health hazards include overexposure to harmful dusts, chemicals, or radiation.

The hazard assessment should begin with a walk-through survey of the facility to develop a list of potential hazards in the following basic hazard categories:

- Impact
- Penetration
- Compression (roll-over)
- Chemical
- Heat/Cold
- Harmful Dust
- Light (optical) Radiation
- Biological

In addition to noting the basic layout of the workplace and reviewing any history of occupational illnesses or injuries, things to look for during the walk-through survey include:

- Sources of electricity.
- Sources of motion such as machines or processes where movement may exist that could result in an impact between personnel and equipment.
- Sources of high temperatures that could result in burns, eye injuries or fire.
- Types of chemicals used in the workplace.
- Sources of harmful dusts.
- Sources of light radiation, such as welding, brazing, cutting, furnaces, heat treating, high intensity lights, etc.
- The potential for falling or dropping objects.
- Sharp objects that could poke, cut, stab or puncture.
- Biologic hazards such as blood or other potentially infected material.

When the walk-through is complete, supervisors should organize and analyze the data so that it may be efficiently used in determining the proper types of PPE required in the workplace. The employer should become aware of the different types of PPE available and the levels of protection offered. It is definitely a good idea to select PPE that will provide a level of protection greater than the minimum required to protect employees from hazards. The workplace should be periodically reassessed for any changes in conditions, equipment, or operating procedures that could affect occupational hazards. This periodic reassessment should also include a review of injury and illness records to spot any trends or areas of concern and taking appropriate corrective action. The suitability of existing PPE, including an evaluation of its condition and age, should be included in the reassessment.

Documentation of the hazard assessment is required through a written certification that includes the following information:

- Identification of the workplace evaluated.
- Name of the person conducting the assessment.
- Date of the assessment.
- Identification of the document certifying completion of the hazard assessment.

## Selecting PPE

All PPE clothing and equipment should be of safe design and construction, and should be maintained in a clean and reliable fashion. Employers should take the fit and comfort of PPE into consideration when selecting appropriate items for their workplace. PPE that fits well and is comfortable to wear will encourage employee use of PPE. Most protective devices are available in multiple sizes and care should be taken to select the proper size for each employee. If several different types of PPE are worn together, make sure they are compatible. If PPE does not fit properly, it can make the difference between being safely covered or dangerously exposed. It may not provide the level of protection desired and may discourage employee use.

MIOSHA requires that many categories of PPE meet or be equivalent to standards developed by the American National Standards Institute (ANSI). ANSI has been preparing safety standards since the 1920s, when the first safety standard was approved to protect the heads and eyes of industrial workers. Employers who need to provide PPE in the categories listed below must make certain that any new equipment procured meets the cited ANSI standard. Existing PPE stocks must meet the ANSI standard in effect at the time of its manufacture or provide protection equivalent to PPE manufactured to the ANSI criteria. Employers should inform employees who provide their own PPE of the employer's selection decisions and ensure that any employee-owned PPE used in the workplace conforms to the employer's criteria, based on the hazard assessment, MIOSHA requirements, and ANSI standards.

### **MIOSHA requires PPE to meet the following ANSI standards:**

- Eye and Face Protection: ANSI Z87.1-1989
- Head Protection: ANSI Z89.1-1986.
- Foot Protection: ANSI Z41.1-1991.

For hand protection, there is no ANSI standard for gloves but MIOSHA recommends that selection be based upon the tasks to be performed and the performance and construction characteristics of the glove material. For protection against chemicals, glove selection must be based on the chemicals encountered, the chemical resistance, and the physical properties of the glove material.

### **Training Employees in the Proper Use of PPE**

Employers are required to train each employee who must use PPE. Employees must be trained to know at least the following:

- When PPE is necessary.
- What PPE is necessary.
- How to properly put on, take off, adjust and wear the PPE.
- The limitations of the PPE.
- Proper care, maintenance, useful life and disposal of PPE.

Employers should make sure that each employee demonstrates an understanding of the PPE training as well as the ability to properly wear and use PPE before they are allowed to perform work requiring the use of the PPE. If an employer believes that a previously trained employee is not demonstrating the proper understanding and skill level in the use of PPE, that employee should receive retraining.

Other situations that require additional or retraining of employees include the following circumstances: changes in the workplace or in the type of required PPE that make prior training obsolete.

The employer must document the training of each employee required to wear or use PPE by preparing a certification containing the name of each employee trained, the date of training and a clear identification of the subject of the certification.

## **Eye and Face Protection**

MIOSHA requires employers to ensure that employees have appropriate eye or face protection if they are exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, potentially infected material, or potentially harmful light radiation.

Employers must be sure that their employees wear appropriate eye and face protection and that the selected form of protection is appropriate to the work being performed and properly fits each worker exposed to the hazard.

### **Prescription Lenses**

Employers must make sure that employees with corrective lenses either wear eye protection that incorporates the prescription into the design or wear additional eye protection over their prescription lenses. It is important to ensure that the protective eyewear does not disturb the proper positioning of the prescription lenses so that the employee's vision will not be inhibited or limited. Also, employees who wear contact lenses must wear eye or face PPE when working in hazardous conditions.

### **Eye Protection for Exposed Workers**

MIOSHA suggests that eye protection be routinely considered for use by carpenters, electricians, machinists, mechanics, millwrights, plumbers and pipefitters, sheet metal workers and tinsmiths, assemblers, sanders, grinding machine operators, sawyers, welders, laborers, chemical process operators and handlers, and timber cutting and logging workers. Employers of workers in other job categories should decide whether there is a need for eye and face PPE through a hazard assessment.

### **Examples of potential eye or face injuries include:**

- Dust, dirt, metal or wood chips entering the eye from activities such as chipping, grinding, sawing, hammering, the use of power tools or even strong wind forces.
- Chemical splashes from corrosive substances, hot liquids, solvents or other hazardous solutions.
- Objects swinging into the eye or face, such as tree limbs, chains, tools, or ropes.
- Radiant energy from welding, harmful rays from the use of lasers or other radiant light (as well as heat, glare, sparks, splash and flying particles).

### **Types of Eye Protection**

Selecting the most suitable eye and face protection for employees should take into consideration the following elements:

- Ability to protect against specific workplace hazards.
- Should fit properly and be reasonably comfortable to wear.
- Should provide unrestricted vision and movement.
- Should be durable and cleanable.
- Should allow unrestricted functioning of any other required PPE.

The eye and face protection selected for employee use must clearly identify the manufacturer. Any new eye and face protective devices must comply with ANSI Z87.1-1989 or be at least as effective as this standard requires.

An employer may choose to provide one pair of protective eyewear for each position rather than individual eyewear for each employee. If this is done, the employer must make sure that employees disinfect shared protective eyewear after each use. Protective eyewear with corrective lenses may only be used by the employee for whom the corrective prescription was issued and may not be shared among employees.

### **Some of the most common types of eye and face protection include:**

**Safety Spectacles** — These protective eyeglasses have safety frames constructed of metal or plastic and impact-resistant lenses. Side shields are available on some models.

**Goggles** — These are tight-fitting eye protection that completely cover the eyes, eye sockets and the facial area immediately surrounding the eyes and provide protection from impact, dust and splashes. Some goggles will fit over corrective lenses.

**Welding shields** — Constructed of vulcanized fiber or fiberglass and fitted with a filtered lens, welding shields protect eyes from burns caused by infrared or intense radiant light; they also protect both the eyes and face from flying sparks, metal spatter and slag chips produced during welding, brazing, soldering and cutting operations. MIOSHA requires filter lenses to have a shade number appropriate to protect against the specific hazards of the work being performed in order to protect against harmful light radiation.

**Laser safety goggles** — These specialty goggles protect against intense concentrations of light produced by lasers. The type of laser safety goggles an employer chooses will depend upon the equipment and operating conditions in the workplace.

**Face shields** — These transparent sheets of plastic extend from the eyebrows to below the chin and across the entire width of the employee's head. Some are polarized for glare protection. Face shields protect against nuisance dusts and potential splashes or sprays of hazardous liquids but will not provide adequate protection against impact hazards. Face shields used in combination with goggles or safety spectacles will provide additional protection against impact hazards.

Each type of protective eyewear is designed to protect against specific hazards. Employers can identify the specific workplace hazards that threaten employees' eyes and faces by completing a hazard assessment as outlined in the earlier section.

## **Welding Operations**

The intense light associated with welding operations can cause serious and sometimes permanent eye damage if operators do not wear proper eye protection. The intensity of light or radiant energy produced by welding, cutting or brazing operations varies according to a number of factors including the task producing the light, the electrode size and the arc current.

## **Head Protection**

Employers must ensure that their employees wear head protection if any of the following apply:

- Objects might fall from above and strike them on the head.
- They might bump their heads against fixed objects, such as pipes or beams.
- There is a possibility of accidental head contact with electrical hazards.

Whenever there is a danger of objects falling from above, such as working below others who are using tools or working under a conveyor belt, head protection must be worn. Hard hats must be worn with the bill forward to protect employees properly.

### **In general, protective helmets or hard hats should do the following:**

- Resist penetration by objects.
- Absorb the shock of a blow.
- Be water-resistant and slow burning.
- Have clear instructions explaining proper adjustment and replacement of the suspension and headband. Hard hats must have a hard outer shell and a shock-absorbing lining that incorporates a headband and straps that suspend the shell from 1 to 1 1/4 inches away from the head. This type of design provides shock absorption during an impact and ventilation during normal wear.

Protective headgear must meet ANSI Standard Z89.1-1986 (Protective Headgear for Industrial Workers) or provide an equivalent level of protection.

## Types of Hard Hats

In addition to selecting protective headgear that meets ANSI standard requirements, employers should ensure that employees wear hard hats that provide appropriate protection against potential workplace hazards. It is important for employers to understand all potential hazards when making this selection, including electrical hazards. This can be done through a comprehensive hazard assessment and an awareness of the different types of protective headgear available.

### Hard hats are divided into three industrial classes:

**Class G (Old Class A)** hard hats provide impact and penetration resistance along with limited voltage protection (up to 2,200 volts).

**Class E (Old Class B)** hard hats provide the highest level of protection against electrical hazards, with high-voltage shock and burn protection (up to 20,000 volts). They also provide protection from impact and penetration by flying/falling objects.

**Class C** hard hats provide lightweight comfort and impact protection but offer no protection from electrical hazards.

Another class of protective headgear on the market is called a “bump hat,” designed for use in areas with low head clearance. They are recommended for areas where protection is needed from head bumps and lacerations. These are not designed to protect against falling or flying objects and are not ANSI approved. It is essential to check the type of hard hat employees are using to ensure that the equipment provides appropriate protection. Each hat should bear a label inside the shell that lists the manufacturer, the ANSI designation and the class of the hat.

### Size and Care Considerations

Head protection that is either too large or too small is inappropriate for use, even if it meets all other requirements. Protective headgear must fit appropriately on the body and for the head size of each individual. Most protective headgear comes in a variety of sizes with adjustable headbands to ensure a proper fit (many adjust in 1/8-inch increments). A proper fit should allow sufficient clearance between the shell and the suspension system for ventilation and distribution of an impact. The hat should not bind, slip, fall off or irritate the skin.

Some protective headgear allows for the use of various accessories to help employees deal with changing environmental conditions, such as slots for earmuffs, safety glasses, face shields, and mounted lights. Optional brims may provide additional protection from the sun and some hats have channels that guide rainwater away from the face. Protective headgear accessories must not compromise the safety elements of the equipment.

Periodic cleaning and inspection will extend the useful life of protective headgear. A daily inspection of the hard hat shell, suspension system and other accessories for holes, cracks, tears, or other damage that might compromise the protective value of the hat is essential. Paints, paint thinners and some cleaning agents can weaken the shells of hard hats and may eliminate electrical resistance. Consult the helmet manufacturer for information on the effects of paint and cleaning materials on their hard hats. Never drill holes, paint, or apply labels to protective headgear as this may reduce the integrity of the protection. Do not store protective headgear in direct sunlight, such as on the rear window shelf of a car, since sunlight and extreme heat can damage them.

### Helmets with any of the following defects should be immediately replaced:

- Perforation, cracking, or deformity of the brim or shell;
- Indication of exposure of the brim or shell to heat, chemicals, or ultraviolet light and other radiation (in addition to a loss of surface gloss, such signs include chalking or flaking). It is a good idea to always replace a hard hat if it sustains an impact, even



if damage is not noticeable. Suspension systems are offered as replacement parts and should be replaced when damaged or when excessive wear is noticed. It is not necessary to replace the entire hard hat when deterioration or tears of the suspension systems are noticed.

## **Foot and Leg Protection**

### **Situations where an employee should wear foot and/or leg protection include:**

- When heavy objects or tools might roll onto or fall on the employee's feet.
- Working with sharp objects such as nails or spikes that could pierce the soles or uppers of ordinary shoes.
- Exposure to molten metal that might splash on feet or legs.
- Working on or around hot, wet, or slippery surfaces.
- Working when electrical hazards are present.

Safety footwear must meet ANSI minimum compression and impact performance standards in ANSI Z41-1991. All ANSI approved footwear has a protective toe and offers impact and compression protection, but the type and amount of protection is not always the same. Different footwear protects in different ways. Check the product's labeling or consult the manufacturer to make sure the footwear will protect the user from the hazards they face.

### **Foot and leg protection choices include the following:**

**Leggings** protect the lower legs and feet from heat hazards such as molten metal or welding sparks. Safety snaps allow leggings to be removed quickly.

**Metatarsal guards** protect the instep area from impact and compression. Made of aluminum, steel, fiber or plastic, these guards may be strapped to the shoes.

**Toe guards** fit over the toes of regular shoes to protect the toes from impact and compression hazards. They may be made of steel, aluminum or plastic. Combination foot and shin guards protect the lower legs and feet, and may be used in combination with toe guards when greater protection is needed.

**Safety shoes** have impact-resistant toes and heat-resistant soles that protect the feet against hot work surfaces common in foundry and other hot metal industries. The metal insoles of some safety shoes protect against puncture wounds. Safety shoes may also be designed to be electrically conductive to prevent the buildup of static electricity in areas with the potential for explosive atmospheres or nonconductive to protect workers from workplace electrical hazards.

### **Special Purpose Shoes**

Electrically conductive shoes provide protection against the buildup of static electricity. Employees working in explosive and hazardous locations such as explosives manufacturing facilities or grain elevators must wear conductive shoes to reduce the risk of static electricity buildup on the body that could produce a spark and cause an explosion or fire. Foot powder should not be used in conjunction with protective conductive footwear because it reduces the conductive ability of the shoes. Silk, wool, and nylon socks can produce static electricity and should not be worn with conductive footwear. Conductive shoes must be removed when the task requiring their use is completed.

**Note:** Employees exposed to electrical hazards must never wear conductive shoes.

Electrical hazard, safety-toe shoes are nonconductive and will prevent the wearer's feet from completing an electrical circuit to the ground. These shoes can protect against open circuits of up to 600 volts in dry conditions and should be used in conjunction with other insulating equipment and additional precautions to reduce the risk of a worker becoming a path for hazardous electrical energy.



The insulating protection of electrical hazard, safety-toe shoes may be compromised if the shoes become wet, the soles are worn through, metal particles become embedded in the sole or heel, or workers touch conductive, grounded items.

**Note:** Nonconductive footwear must not be used in explosive or hazardous locations.

### **Foundry Shoes**

In addition to insulating the feet from the extreme heat of molten metal, foundry shoes keep hot metal from lodging in shoe eyelets, tongues or other shoe parts. These snug-fitting leather or leather-substitute shoes have leather or rubber soles and rubber heels. All foundry shoes must have built-in safety toes.

### **Care of Protective Footwear**

As with all protective equipment, safety footwear should be inspected prior to each use. Shoes and leggings should be checked for wear and tear at reasonable intervals. This includes looking for cracks or holes, separation of materials, broken buckles or laces. The soles of shoes should be checked for pieces of metal or other embedded items that could present electrical or tripping hazards. Employees should follow the manufacturers' recommendations for cleaning and maintenance of protective footwear.

### **Hand and Arm Protection**

If a workplace hazard assessment reveals that employees face potential injury to hands and arms that cannot be eliminated through engineering and work practice controls, employers must ensure that employees wear appropriate protection. Potential hazards include skin absorption of harmful substances, chemical or thermal burns, electrical dangers, bruises, abrasions, cuts, punctures, fractures and amputations. Protective equipment includes gloves, finger guards and arm coverings, or elbow-length gloves.

Employers should explore all possible engineering and work practice controls to eliminate hazards and use PPE to provide additional protection against hazards that cannot be completely eliminated through other means.

### **Types of Protective Gloves**

It is essential that employees use gloves specifically designed for the hazards and tasks found in their workplace because gloves designed for one function may not protect against a different function even though they may appear to be an appropriate protective device.

### **Factors that may influence the selection of protective gloves for a workplace:**

- Type of chemicals handled.
- Nature of contact (total immersion, splash, etc.).
- Duration of contact.
- Thermal protection.
- Area requiring protection (hand only, forearm, or entire arm).
- Grip requirements (dry, wet, oily).
- Size and comfort.
- Abrasion/resistance requirements.

Gloves made from a wide variety of materials are designed for many types of workplace hazards.

### **In general, gloves fall into four groups:**

- Gloves made of leather, canvas or metal mesh.
- Fabric and coated fabric gloves.
- Chemical- and liquid-resistant gloves.
- Insulating rubber gloves.

## **Leather, Canvas, or Metal-Mesh Gloves**

**Sturdy gloves** made from metal mesh, leather, or canvas provide protection against cuts and burns. Leather or canvas gloves also protect against sustained heat. Leather gloves protect against sparks, moderate heat, blows, chips, and rough objects.

**Aluminized gloves** provide reflective and insulating protection against heat and require an insert made of synthetic materials to protect against heat and cold.

**Aramid fiber gloves** protect against heat and cold, are cut- and abrasive-resistant, and wear well.

**Synthetic gloves** of various materials offer protection against heat and cold are cut- and abrasive-resistant and may withstand some diluted acids. These materials do not stand up against alkalis and solvents.

## **Fabric and Coated Fabric Gloves**

Fabric and coated fabric gloves are made of cotton or other fabric to provide varying degrees of protection.

**Fabric gloves** protect against dirt, slivers, chafing, and abrasions. They do not provide sufficient protection for use with rough, sharp or heavy materials. Adding a plastic coating will strengthen some fabric gloves.

**Coated fabric gloves** are normally made from cotton flannel with napping on one side. By coating the un-napped side with plastic, fabric gloves are transformed into general-purpose hand protection, offering slip-resistant qualities.

These gloves are used for tasks ranging from handling bricks and wire to chemical laboratory containers. When selecting gloves to protect against chemical exposure hazards, always check with the manufacturer or review the product literature to determine the glove's effectiveness against specific workplace chemicals and conditions.

## **Chemical- and Liquid-Resistant Gloves**

Chemical-resistant gloves are made with different kinds of rubber: natural, butyl, neoprene, nitrile and fluorocarbon (viton); or various kinds of plastic: polyvinyl chloride (PVC), polyvinyl alcohol, and polyethylene. These materials can be blended or laminated for better performance. As a general rule, the thicker the glove material, the greater the chemical resistance; however, thick gloves may impair grip and dexterity, having a negative impact on safety.

### **Some examples of chemical-resistant gloves include:**

**Butyl gloves** are made of a synthetic rubber and protect against a wide variety of chemicals, such as peroxide, rocket fuels, highly corrosive acids (nitric acid, sulfuric acid, hydrofluoric acid, and red-fuming nitric acid), strong bases, alcohols, aldehydes, ketones, esters, and nitro compounds. Butyl gloves also resist oxidation, ozone corrosion and abrasion, and remain flexible at low temperatures. Butyl rubber does not perform well with aliphatic and aromatic hydrocarbons and halogenated solvents.

**Natural (latex) rubber gloves** are comfortable to wear, which makes them a popular, general-purpose glove. They feature outstanding tensile strength, elasticity, and temperature resistance. In addition to resisting abrasions caused by grinding and polishing, these gloves protect workers' hands from most water solutions of acids, alkalis, salts, and ketones. Latex gloves have caused allergic reactions in some individuals and may not be appropriate for all employees. Hypoallergenic gloves, glove liners, and powderless gloves are possible alternatives for workers who are allergic to latex gloves.

**Neoprene gloves** are made of synthetic rubber and offer good pliability, finger dexterity, high density and tear resistance.

They protect against hydraulic fluids, gasoline, alcohols, organic acids, and alkalis. They generally have chemical & wear resistance properties superior to those made of natural rubber.

**Nitrile gloves** are made of a copolymer and provide protection from chlorinated solvents such as trichloroethylene and perchloroethylene. Although intended for jobs requiring dexterity and sensitivity, nitrile gloves stand up to heavy use even after prolonged exposure to substances that cause other gloves to deteriorate. They offer protection when working with oils, greases, acids, caustics, and alcohols but are generally not recommended for use with strong oxidizing agents, aromatic solvents, ketones, and acetates.

### **Care of Protective Gloves**

Protective gloves should be inspected before each use to ensure that they are not torn, punctured or made ineffective in any way. A visual inspection will help detect cuts or tears but a more thorough inspection by filling the gloves with water and tightly rolling the cuff towards the fingers will help reveal any pinhole leaks. Gloves that are discolored or stiff may also indicate deficiencies caused by excessive use or degradation from chemical exposure. Any gloves with impaired protective ability should be discarded and replaced. Reuse of chemical-resistant gloves should be evaluated carefully, taking into consideration the absorptive qualities of the gloves. A decision to reuse chemically-exposed gloves should take into consideration the toxicity of the chemicals involved and factors such as duration of exposure, storage, and temperature.

### **Body Protection**

Employees who face possible bodily injury of any kind that cannot be eliminated through engineering, work practice, or administrative controls must wear appropriate body protection while performing their jobs. In addition to cuts and radiation, the following are examples of workplace hazards that could cause bodily injury:

- Temperature extremes.
- Hot splashes from molten metals and other hot liquids.
- Potential impacts from tools, machinery and materials.
- Hazardous chemicals.

Employers are required to ensure that their employees wear personal protective equipment only for the parts of the body exposed to possible injury. Examples of body protection include laboratory coats, coveralls, vests, jackets, aprons, surgical gowns, and full body suits.

If a hazard assessment indicates a need for full body protection against toxic substances or harmful physical agents, the clothing should be carefully inspected before each use, it must fit each worker properly, and it must function properly and for the purpose for which it is intended.

**Protective clothing comes in a variety of materials, each effective against particular hazards, such as:**

**Paper-like fiber** used for disposable suits protects against dust and splashes.

**Treated wool and cotton** adapts well to changing temperatures, is comfortable, fire-resistant, and protects against dust, abrasions, and irritating surfaces.

**Duck** is a closely woven cotton fabric that protects against cuts and bruises when handling heavy, sharp, or rough materials.

**Leather** is often used to protect against dry heat and flames.

**Rubber, rubberized fabrics, neoprene, and plastics** protect against certain chemicals and physical hazards. When chemical or physical hazards are present, check with the clothing manufacturer to ensure that the material selected will provide protection against the specific hazard.

## **Hearing Protection-MIOSHA Part 380**

Employee exposure to excessive noise depends upon a number of factors, including:

- The loudness of the noise as measured in decibels (dB).
- The duration of each employee's exposure to the noise.
- Whether employees move between work areas with different noise levels.
- Whether noise is generated from one or multiple sources.

Generally, the louder the noise, the shorter the exposure time before hearing protection is required. For instance, employees may be exposed to a noise level of 85 dB for 8 hours per day (unless they experience a Standard Threshold Shift) before hearing protection is required. On the other hand, if the noise level reaches 115 dB hearing protection is required if the anticipated exposure exceeds 15 minutes.

Noises are considered continuous if the interval between occurrences of the maximum noise level is one second or less. Noises not meeting this definition are considered impact or impulse noises (loud momentary explosions of sound) and exposures to this type of noise must not exceed 140 dB.

Examples of situations or tools that may result in impact or impulse noises are powder-actuated nail guns, a punch press, or drop hammers.

If engineering and work practice controls do not lower employee exposure to workplace noise to acceptable levels, employees must wear appropriate hearing protection. It is important to understand that hearing protectors reduce only the amount of noise that gets through to the ears. The amount of this reduction is referred to as attenuation, which differs according to the type of hearing protection used and how well it fits. Hearing protectors worn by employees must reduce an employee's noise exposure to within the acceptable limits.

Manufacturers of hearing protection devices must display the device's NRR on the product packaging. If employees are exposed to occupational noise at or above 85 dB averaged over an eight hour period, the employer is required to institute a hearing conservation program.

### **Some types of hearing protection include:**

**Single-use earplugs** are made of waxed cotton, foam, silicone rubber, or fiberglass wool. They are self-forming and, when properly inserted, they work as well as most molded earplugs.

**Pre-formed or molded earplugs** must be individually fitted by a professional and can be disposable or reusable. Reusable plugs should be cleaned after each use.

**Earmuffs** require a perfect seal around the ear. Glasses, facial hair, long hair or facial movements such as chewing may reduce the protective value of earmuffs.

MIOSHA requires that employers protect their employees from workplace hazards that can cause injury. Controlling a hazard at its source is the best way to protect employees. Depending on the hazard or workplace conditions, MIOSHA recommends the use of engineering or work practice controls to manage or eliminate hazards to the greatest extent possible. For example, building a barrier between the hazard and the employees is an engineering control; changing the way in which employees perform their work is a work practice control. When engineering, work practice and administrative controls are not feasible or do not provide sufficient protection, employers must provide PPE to their employees and ensure its use.

### Respiratory Protection Program

#### **Respiratory Protection - MIOSHA-Part 451-R 325.600**

#### **Adopted by Reference**

#### **Respiratory Protection – 29 CFR-§1910.134**

#### **Policy Statement**

Accurate Painting Company has implemented this policy to ensure that no employee is exposed to airborne hazards in excess of permissible exposure limits (PELs), or oxygen deficient atmospheres. Joe Badalamenti is the supervisor responsible for ensuring the following engineering controls and work practices are enforced.

Joe Badalamenti is the respiratory program administrator for Accurate Painting Company and will be responsible for the periodic evaluation of the program. The evaluation will be based on results of the air quality monitoring program, medical evaluations, changing work environment, equipment changes, work requirements, and employee responses. Respiratory equipment will be NIOSH certified only, and selection will be made by Joe Badalamenti based on identified and potential hazards, estimated exposures, and contamination information.

Accurate Painting Company will ensure that employees are trained in the proper selection for situation and fit, use, storage, and cleaning of respiratory equipment, and can demonstrate knowledge of at least the following:

- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator.
- What the limitations and capabilities of the respirator are.
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions.
- How to inspect, put on and remove, use, and check the seals of the respirator.
- What the procedures are for maintenance and storage of the respirator.
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
- The general requirements of OSHA §1910.134 Respiratory Protection.

#### **Retraining will be done annually, and when the following situations occur:**

- Changes in the workplace or the type of respirator render previous training obsolete.
- Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill.
- Any other situation arises in which retraining appears necessary to ensure safe respirator use.

Proper respiratory equipment, replacement elements, and any parts or equipment necessary for the functioning of the respiratory equipment will be available to employees at no cost.

Respiratory equipment will be maintained, cleaned, stored, and serviced per manufacturer's recommendations. Job foremen will supervise and ensure proper methods are used.

A medical examination for employees required to use respiratory equipment is required before use of the equipment, and will be provided at no cost to the employee. The medical questionnaire provided in Appendix C is mandatory for employees required to use respiratory protection.

Fit testing of the equipment to individual employees will follow OSHA guidelines listed in §1910.134 (f)(1-8) and is required before use of the equipment. Facial hair, glasses, etc. which might affect the seal of the respirator face piece are prohibited, and seal must be checked each time equipment is donned.

Periodic monitoring of the air quality in work areas will be performed to determine if, or where respiratory equipment will be required.

If employees are required to work in Immediately Dangerous to Life or Health (IDLH) atmospheres, the following procedures and controls must be in place:

- One employee or more is located outside the IDLH atmosphere.
- Visual, voice, or signal line communication is maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere.
- The employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue.
- Joe Badalamenti is notified before personnel enter the IDLH atmosphere, or before employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue.
- Employee(s) located outside the IDLH atmospheres will be equipped with:
  - Pressure demand or other positive pressure SCBA.
  - Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres.

SAR and SCBA equipment will only be filled by certified refilling facilities using grade D or better air.

Where possible, ventilation will be required for all enclosed work areas to ensure that airborne hazards do not exceed permissible limits.

The least hazardous or toxic materials which will allow the job required to be accomplished will be used in the performance of work.

Joe Badalamenti will document and keep all records of the respiratory program including medical, fit testing, air monitoring, and the current written program.



## **MANDATORY INFORMATION: For employees using respirators when not required under OSHA standards**

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

### **You should do the following:**

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

## **Respiratory Program Procedures**

### **General**

All employees will be provided a medical evaluation to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace.

The Company may discontinue an employee's medical evaluations when the employee is no longer required to use a respirator.

### **General Requirements**

We will identify and evaluate the respiratory hazard(s) in the workplace; this evaluation will include a reasonable estimate of employee exposures to respiratory hazard(s) and an identification of the contaminant's chemical state and physical form.

If we cannot identify or reasonably estimate the employee exposure, we will consider the atmosphere to be IDLH (atmospheres Immediately Dangerous to Life or Health). An appropriate respirator based on the respiratory hazard(s) to which the worker is exposed and workplace and user factors that affect respirator performance and reliability. We will select respirators from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user. The Company will select a NIOSH-certified respirator. The respirator will be used in compliance with the conditions of its certification.

## **Respirator Selection**

### **Respirators for IDLH Atmospheres**

The Company will provide the following respirators for employee use in IDLH atmospheres:

- A full face-piece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes.
- A combination full face-piece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.
- Respirators provided only for escape from IDLH atmospheres will be NIOSH-certified for escape from the atmosphere in which they will be used.
- All oxygen-deficient atmospheres will be considered IDLH. Exception: If our Company demonstrates that, under all foreseeable conditions, the oxygen concentration can be maintained within the ranges specified in Table II of this section (i.e., for the altitudes set out in the table), then any atmosphere-supplying respirator may be used.

### **Respirators for Atmospheres that are not IDLH**

Accurate Painting Company will provide a respirator that is adequate to protect the health of the employee and ensure compliance with all other OSHA statutory and regulatory requirements, under routine and reasonably foreseeable emergency situations. The respirator selected will be appropriate for the chemical state and physical form of the contaminant.

#### **For protection against gases and vapors, the Company will provide:**

- An atmosphere-supplying respirator.
- The respirator is equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant.
- If there is no ESLI appropriate for conditions in the Company's workplace, the Company implements a change schedule for canisters and cartridges that is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life. The Company will describe in the respirator program the information and data relied upon and the basis for the canister and cartridge change schedule and the basis for reliance on the data.

#### **For protection against particulates, the Company will provide:**

- An atmosphere-supplying respirator.
- An air-purifying respirator equipped with a filter certified by NIOSH under 30 CFR part 11 as a high efficiency particulate air (HEPA) filter, or an air-purifying respirator equipped with a filter certified for particulates by NIOSH under 42 CFR part 84.
- For contaminants consisting primarily of particles with mass median aerodynamic diameters (MMAD) of at least 2 micrometers, an air-purifying respirator equipped with any filter certified for particulates by NIOSH.

### **Use of Respirators**

This Company prohibits conditions (facial hair) that may result in face-piece seal leakage, prevents employees from removing respirators in hazardous environments, takes actions to ensure continued effective respirator operation throughout the work shift, and establishes procedures for the use of respirators in IDLH atmospheres or in interior structural firefighting situations.



## **Medical Evaluation Procedures**

This Company will identify a physician or other licensed health care professional (PLHCP) to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire.

The medical evaluation will obtain the information requested by the questionnaire.

All medical questionnaires and examinations are confidential and handled during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire is administered so that the employee understands its content. All employees are provided an opportunity to discuss the questionnaire and examination results with their physician or other licensed health care professional (PLHCP).

## **Medical Determination**

In determining the employee's ability to use a respirator, this Company will:

- Obtain a written recommendation regarding the employee's ability to use the respirator from the PLHCP. The recommendation will provide only the following information.
- Any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator.
- The need, if any, for follow-up medical evaluations.
- A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.

If the respirator is a negative pressure respirator and the PLHCP finds a medical condition that may place the employee's health at increased risk if the respirator is used, the Company will provide a PAPR if the PLHCP's medical evaluation finds that the employee can use such a respirator; if a subsequent medical evaluation finds that the employee is medically able to use a negative pressure respirator, then the Company is no longer required to provide a PAPR.

## **Program Evaluation**

Employees need to be medically cleared to wear respirators before commencing use. All respirators generally place a burden on the employee. Negative pressure respirators restrict breathing, some respirators can cause claustrophobia and self-contained breathing apparatuses are heavy. Each of these conditions may adversely affect the health of some employees who wear respirators. A physician or other licensed health care professional operating within the scope of his/her practice needs to medically evaluate employees to determine under what conditions they can safely wear respirators. This section requires the employer to conduct evaluations of the workplace to ensure that the written respiratory protection program is being properly implemented, and to consult employees to ensure that they are using the respirators properly.

Accurate Painting Company will conduct evaluations of the workplace as necessary to ensure that the provisions of the current written program are being effectively implemented and that it continues to be effective.

This Company will regularly consult employees required to use respirators to assess the employees' views on program effectiveness and to identify any problems. Any problems that are identified during this assessment will be corrected. Factors to be assessed include, but are not limited to:

- Respirator fit (including the ability to use the respirator without interfering with effective workplace performance).
- Appropriate respirator selection for the hazards to which the employee is exposed.
- Proper respirator use under workplace conditions the employee encounters.
- Proper respirator maintenance.

## **Medical Evaluation**

Using a respirator may place a physiological burden on employees that varies with the type of respirator worn, the job and workplace conditions in which the respirator is used, and the medical status of the employee. Accordingly, this section specifies the minimum requirements for medical evaluation that must be implemented to determine the employee's ability to use a respirator. Records of medical evaluations required by this section must be retained and made available in accordance with 29.CFR 1910.1020. The following is a synopsis of the some of the requirements of the standard.

Companies are to develop cartridge/canister change schedules based on available data or information. Such information includes the exposure assessment and information based on breakthrough test data, mathematically based estimates, and/or reliable use recommendations from the Company's respirator and/or chemical suppliers.

Reliance on odor thresholds and other warning properties will not be permitted as the primary basis for determining the service life of gas and vapor cartridges and canisters.

OSHA emphasizes that a conservative approach is recommended when evaluating service life testing data. Temperature, humidity, air flow through the filter, the work rate, and the presence of other potential interfering chemicals in the workplace all can have a serious effect on the service life of an air-purifying cartridge or canister.

## **Follow-up Medical Examination**

Accurate Painting Company will ensure that a follow-up medical examination is provided for an employee who gives a positive response to any question among questions 1 through 8 in Section 2, Part A of Appendix C or whose initial medical examination demonstrates the need for a follow-up medical examination. The follow-up medical examination will include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.

## **Additional Medical Evaluations**

At a minimum, Accurate Painting Company will provide additional medical evaluations that comply with the requirements of this section if:

- An employee reports medical signs or symptoms that are related to ability to use a respirator.
- A PLHCP, supervisor, or the respirator program administrator informs the employer that an employee needs to be reevaluated.
- Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation.
- A change occurs in workplace conditions (e.g., physical work effort, protective clothing, and temperature) that may result in a substantial increase in the physiological burden placed on an employee.

## Fit Testing

This Company requires that, before an employee may be required to use any respirator with a negative or positive pressure tight-fitting face-piece; the employee must be fit tested with the same make, model, style, and size of respirator that will be used. This paragraph specifies the kinds of fit tests allowed, the procedures for conducting them, and how the results of the fit tests must be used.

Accurate Painting Company will ensure that employees using a tight-fitting face-piece respirator pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT) as stated in this section.

This Company will ensure that an employee using a tight-fitting face-piece respirator is fit tested prior to initial use of the respirator, whenever a different respirator face-piece (size, style, model, or make) is used, and at least annually thereafter.

This Company will conduct an additional fit test whenever the employee reports, or the PLHCP, supervisor, or program administrator makes visual observations of, changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

If after passing a QLFT or QNFT, the employee subsequently notifies the program administrator, supervisor, or PLHCP that the fit of the respirator is unacceptable, the employee will be given a reasonable opportunity to select a different respirator face-piece and to be retested.

The fit test will be administered using an OSHA-accepted QLFT or QNFT protocol. The OSHA-accepted QLFT and QNFT protocols and procedures are contained in Appendix A of this section.

QLFT may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less.

If the fit factor, as determined through an OSHA-accepted QNFT protocol, is equal to or greater than 100 for tight-fitting half face-pieces, or equal to or greater than 500 for tight-fitting full face-pieces, the QNFT has been passed with that respirator.

Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators will be accomplished by performing quantitative or qualitative fit testing in the negative pressure mode, regardless of the mode of operation (negative or positive pressure) that is used for respiratory protection.

Qualitative fit testing of these respirators will be accomplished by temporarily converting the respirator user's actual face-piece into a negative pressure respirator with appropriate filters, or by using an identical negative pressure air-purifying respirator face-piece with the same sealing surfaces as a surrogate for the atmosphere-supplying or powered air-purifying respirator face-piece.

Any modifications to the respirator face-piece for fit testing will be completely removed, and the face-piece restored to NIOSH-approved configuration, before that face-piece can be used in the workplace.

### **Employees must pass one of the following fit test types:**

**QLFT** Only used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less may be used to test tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators if tested in the negative pressure mode.

**QNFT** May be used to fit test a tight-fitting half face-piece respirator that must achieve a fit factor of 100 or greater OR a tight-fitting full face-piece respirator that must achieve a fit factor of 500 or greater OR tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators if tested in the negative pressure mode.

### **Face-Piece Seal Protection**

Accurate Painting Company will not permit respirators with tight-fitting face-pieces to be worn by employees who have:

- Facial hair that comes between the sealing surface of the face-piece and the face or that interferes with valve function.
- Any condition that interferes with the face to face-piece seal or valve function.
- If an employee wears corrective glasses or goggles or other personal protective equipment, the employer will ensure that such equipment is worn
- In a manner that does not interfere with the seal of the face-piece to the face of the user.
- For all tight-fitting respirators, the employer will ensure that employees perform a user seal check each time they put on the respirator using the procedures in 29 CFR 1910.134 Appendix B-1 or procedures recommended by the respirator manufacturer that the employer demonstrates are as effective as those in Appendix B-1.

### **Continuing Respirator Effectiveness**

Appropriate surveillance will be maintained of work area conditions and degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, this Company will reevaluate the continued effectiveness of the respirator.

### **This Company will ensure that employees leave the respirator use area:**

- To wash their faces and respirator face-pieces as necessary to prevent eye or skin irritation associated with respirator use.
- If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the face-piece; or to replace the respirator, filter, cartridge, or canister elements.
- If the employee detects vapor or gas breakthrough, changes in breathing resistance, or leakage of the face-piece, the employer must replace or repair the respirator before allowing the employee to return to the work area.

### **Supplemental Information for the PLHCP**

The following information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee's ability to use a respirator:

- The type and weight of the respirator to be used by the employee.
- The duration and frequency of respirator use (including use for rescue and escape).
- The expected physical work effort.
- Additional protective clothing and equipment to be worn.
- Temperature and humidity extremes that may be encountered.
- Any supplemental information provided previously to the PLHCP regarding an employee need not be provided for a subsequent medical evaluation if the information and the PLHCP remain the same.
- This Company will provide the PLHCP with a copy of the written respiratory protection program and a copy of this section.

## Procedures for IDLH Atmospheres

For all IDLH atmospheres, this Company will ensure that:

- Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employee(s) and would not increase the overall risk resulting from entry.
- One employee or, when needed, more than one employee is located outside the IDLH atmosphere.
- Visual, voice, or signal line communication is maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere.
- The Company or designee is notified before the employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue.
- The Company or designee authorized to do so by the employer, once notified, provides necessary assistance appropriate to the situation.
- The employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue.
- Employee(s) located outside the IDLH atmospheres are equipped with:
  - Equivalent means for rescue where retrieval equipment is not required.
  - Pressure demand or other positive pressure SCBA, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA; and either.

**Note:** One of the two individuals located outside the IDLH atmosphere may be assigned to an additional role, such as incident commander in charge of the emergency or safety officer, so long as this individual is able to perform assistance or rescue activities without jeopardizing the safety or health of any firefighter working at the incident.

**Note:** Nothing in this section is meant to preclude firefighters from performing emergency rescue activities before an entire team has assembled.

## Maintenance and Care of Respirators

This paragraph requires the employer to provide for the cleaning and disinfecting, storage, inspection, and repair of respirators used by employees.

To ensure continuing protection from respiratory protective devices, it is necessary to establish and implement proper maintenance and care procedures and schedules. A lax attitude toward maintenance and care will negate successful selection and fit because the devices will not deliver the assumed protection unless they are kept in good working order.

### Cleaning and Disinfecting

This Company will provide each respirator user with a respirator that is clean, sanitary, and in good working order. The Company will ensure that respirators are cleaned and disinfected using the procedures in this section, or procedures recommended by the respirator manufacturer, provided that such procedures are of equivalent effectiveness. The respirators will be cleaned and disinfected at the following intervals:

- Respirators issued for the exclusive use of an employee will be cleaned and disinfected as often as necessary to be maintained in a sanitary condition.
- Respirators issued to more than one employee will be cleaned and disinfected before being worn by different individuals.
- Respirators maintained for emergency use will be cleaned and disinfected after each use.
- Respirators used in fit testing and training will be cleaned and disinfected after each use.

## **Procedures for Cleaning Respirators**

- Remove filters, cartridges, or canisters. Disassemble face-pieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.
- Wash components in warm (110° F maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.
- Rinse components thoroughly in clean, warm, preferably running water. Drain.
- When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following.
- Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 110° F.
- Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 110° F.
- Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.
- Rinse components thoroughly in clean, warm, preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on face-pieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
- Components should be hand-dried with a clean lint-free cloth or air-dried.
- Reassemble face-piece, replacing filters, cartridges, and canisters where necessary.

## **Recordkeeping**

The Company will establish and retain written information regarding medical evaluations, fit testing, and the respirator program. This information will facilitate employee involvement in the respirator program, assist the Company in auditing the adequacy of the program, and provide a record for compliance determinations by OSHA.

## **Storage**

This Company will ensure that respirators are stored as follows:

- All respirators will be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they will be packed or stored to prevent deformation of the face-piece and exhalation valve.
- In addition to the other requirements of this section, emergency respirators will be:
  - Kept accessible to the work area.
  - Stored in compartments or in covers that are clearly marked as on training emergency respirators.
  - Stored in accordance with any applicable manufacturer instructions.

## **Inspection**

This Company will ensure that respirators are inspected as follows:

- All respirators used in routine situations will be inspected before each use and during cleaning.
- All respirators maintained for use in emergency situations will be inspected at least monthly and in accordance with the manufacturer's recommendations, and will be checked for proper function before and after each use.
- Emergency escape-only respirators will be inspected before being carried into the workplace for use.



This Company will ensure that respirator inspections include the following:

- A check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the face-piece, head straps, valves, connecting tube, and cartridges, canisters or filters.
- Self-contained breathing apparatus will be inspected monthly. Air and oxygen cylinders will be maintained in a fully charged state and will be recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. The Company will determine that the regulator and warning devices function properly.
- A check of elastomeric parts for pliability and signs of deterioration.

For respirators maintained for emergency use, the Company will:

- Certify the respirator by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings, required remedial action, and a serial number or other means of identifying the inspected respirator.
- Provide this information on a tag or label that is attached to the storage compartment for the respirator, is kept with the respirator, or is included in inspection reports stored as paper or electronic files. This information will be maintained until replaced following a subsequent certification.

## **Fit Testing**

This Company will establish a record of the qualitative and quantitative fit tests administered to an employee including:

- The name or identification of the employee tested.
- Type of fit test performed.
- Specific make, model, style, and size of respirator tested.
- Date of test.
- The pass/fail results for QLFT or the fit factor and strip chart recording or other recording of the test results for QNFT.
- Fit test records will be retained for respirator users until the next fit test is administered.
- A written copy of the current respirator program will be retained by the employer.

All respirators that rely on a mask-to-face seal need to be annually checked with either qualitative or quantitative methods to determine whether the mask provides an acceptable fit to a wearer. The qualitative fit test procedures rely on a subjective sensation (taste, irritation, smell) of the respirator wearer to a particular test agent while the quantitative use measuring instruments to measure face-seal leakage. The relative workplace exposure level determines what constitutes an acceptable fit and which fit test procedure is required. For negative pressure air purifying respirators, users may rely on either a qualitative or a quantitative fit test procedure for exposure levels less than 10 times the occupational exposure limit. Exposure levels greater than 10 times the occupational exposure limit must utilize a quantitative fit test procedure for these respirators. Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators will be accomplished by performing quantitative or qualitative fit testing in the negative pressure mode.

Written materials required to be retained will be made available upon request to affected employees and to OSHA or designee for examination and copying.

## **Repairs**

Accurate Painting Company will ensure that respirators that fail an inspection or are otherwise found to be defective are removed from service, and are discarded or repaired or adjusted in accordance with the following procedures:

- Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and will use only the respirator manufacturer's NIOSH-approved parts designed for the respirator.
- Repairs will be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed.
- Reducing and admission valves, regulators, and alarms will be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer.

### **Discarding of Respirators**

Respirators that fail an inspection or are otherwise not fit for use and cannot be repaired must be discarded.

### **Breathing Air Quality and Use**

Accurate Painting Company will provide employees using atmosphere-supplying respirators (supplied-air and SCBA) with breathing gases of high purity. The Company will ensure that compressed air, compressed oxygen, liquid air, and liquid oxygen used for respiration accords with the following specifications and Compressed and liquid oxygen will meet the United States Pharmacopoeia requirements for medical or breathing oxygen; and Compressed breathing air will meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989, to include:

- Oxygen content (v/v) of 19.5-23.5%.
- Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less.
- Carbon monoxide (CO) content of 10 ppm or less.
- Carbon dioxide content of 1,000 ppm or less; and Lack of noticeable odor.
- The Company will ensure that compressed oxygen is not used in atmosphere-supplying respirators that have previously used compressed air.
- The Company will ensure that oxygen concentrations greater than 23.5% are used only in equipment designed for oxygen service or distribution.
- The Company will ensure that cylinders used to supply breathing air to respirators meet the following requirements.
- Cylinders are tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 173 and part 178).
- Cylinders of purchased breathing air have a certificate of assessment from the supplier that the breathing air meets the requirements for Grade D breathing air.
- The moisture content in the cylinder does not exceed a dew point of -50° F at 1 atmosphere pressure.
- The Company will ensure that compressors used to supply breathing air to respirators are constructed and situated so as to.
- Prevent entry of contaminated air into the air-supply system.
- Minimize moisture content so that the dew point at 1 atmosphere pressure is 10° F below the ambient temperature.
- Have suitable in-line air-purifying absorbent beds and filters to further ensure breathing air quality. Absorbent beds and filters will be maintained and replaced or refurbished periodically following the manufacturer's instructions.
- Have a tag containing the most recent change date and the signature of the person authorized by the employer to perform the change. The tag will be maintained at the compressor.
- For compressors that are not oil-lubricated, the Company will ensure that carbon monoxide levels in the breathing air do not exceed 10 ppm.
- For oil-lubricated compressors, the Company will use high-temps. or carbon monoxide alarm, or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply will be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.



- The Company will ensure that breathing air couplings are incompatible with outlets for non-irrespirable worksite air or other gas systems. No asphyxiating substance will be introduced into breathing air lines.
- The Company will use breathing gas containers marked in accordance with the NIOSH respirator certification standard, 42 CFR part 84.

### **Identification of Filters, Cartridges, and Canisters**

This Company will ensure that all filters, cartridges, and canisters used in the workplace are labeled and color coded with the NIOSH approval label and that the label is not removed and remains legible.

### **Training and Information**

This Company will provide effective training to employees who are required to use respirators. The training will be comprehensive, understandable, and recur annually and more often if necessary. This Company will also provide the basic information on respirators to employees who wear respirators when not required by this section or by the Company to do so.

This Company will ensure that each employee can demonstrate knowledge of at least the following:

- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator.
- What the limitations and capabilities of the respirator are.
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions.
- How to inspect, put on and remove, use, and check the seals of the respirator.
- What the procedures are for maintenance and storage of the respirator.
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
- The general requirements of this section.
- The training will be conducted in a manner that is understandable to the employee.
- This Company will provide the training prior to requiring the employee to use a respirator in the workplace.

An employer who is able to demonstrate that a new employee has received training within the last 12 months that addresses the elements specified is not required to repeat such training provided that, as required, "The employee can demonstrate knowledge of those elements." Previous training not repeated initially by the employer must be provided no later than 12 months from the date of the previous training.

### **Our employees are trained sufficiently to be able to demonstrate knowledge of at least these seven elements:**

1. Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator.
2. What the limitations and capabilities of the respirator are.
3. How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions.
4. How to inspect, put on, remove, use, and check the seals of the respirator.
5. What the procedures are for maintenance and storage of the respirator.
6. How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
7. The general requirements of 29 CFR 1910.134, Respiratory Protection.

**Retraining will be administered annually, and when the following situations occur:**

- Changes in the workplace or the type of respirator render previous training obsolete.
- Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill.
- Any other situation arises in which retraining appears necessary to ensure safe respirator use.
- The basic advisory information on respirators, as presented in this section, will be provided by the Company in any written or oral format, to employees who wear respirators when such use is not required by the employer.

## **Appendices**

### **Appendix 1—References**

The following documents are helpful references:

- 29 CFR 1910.134, Respiratory Protection, and Appendices.
- 42 CFR 84, Approval of Respiratory Protective Devices.
- ANSI Z88.2, Respiratory Protection.
- NIOSH Guide to Industrial Respiratory Protection.
- NIOSH Guide to the Selection and Use of Particulate Respirators.

### **Mandatory Fit Testing Procedures**

#### **A. Fit Testing Procedures-General Requirements.**

The Company will conduct fit testing using the following procedures. The requirements in this appendix apply to all OSHA-accepted fit test methods, both QLFT and QNFT.

1. The test subject will be allowed to pick the most acceptable respirator from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.
2. Prior to the selection process, the test subject will 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 an acceptable fit. A mirror will be available to assist the subject in evaluating the fit and positioning of the respirator. This instruction may not constitute the subject's formal training on respirator use, because it is only a review.
3. The test subject will be informed that he/she is being asked to select the respirator that provides the most acceptable fit. Each respirator represents a different size and shape, and if fitted and used properly, will provide adequate protection.
4. The test subject will be instructed to hold each chosen face-piece up to the face and eliminate those that obviously do not give an acceptable fit.
5. The more acceptable face-pieces are noted in case the one selected proves unacceptable; 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 the following item A. If the test subject is not familiar with using a particular respirator, the test subject will 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.
6. Assessment of comfort will include a review of 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.

7. The following criteria will 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.
8. The test subject will be informed that he/she is being asked to select the respirator that provides the most acceptable fit. Each respirator represents a different size and shape, and if fitted and used properly, will provide adequate protection.
9. The test subject will be instructed to hold each chosen face-piece up to the face and eliminate those that obviously do not give an acceptable fit.
10. The more acceptable face-pieces are noted in case the one selected proves unacceptable; 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 following points. If the test subject is not familiar with using a particular respirator, the test subject will 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.
11. Assessment of comfort will include a review of 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.
12. The following criteria will 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.
13. The test subject will conduct a user seal check, either the negative and positive pressure seal checks described or those recommended by the respirator manufacturer which provide equivalent protection. Before conducting the negative and positive pressure checks, the subject will 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 will be selected and retested if the test subject fails the user seal check tests.
14. The test will not be conducted if there is any hair growth between the skin and the face-piece sealing surface, such as stubble beard growth, beard, mustache or sideburns which cross the respirator sealing surface. Any type of apparel which interferes with a satisfactory fit will be altered or removed.
15. If a test subject exhibits difficulty in breathing during the tests, she or he will be referred to a physician or other licensed health care professional, as appropriate, to determine whether the test subject can wear a respirator while performing her or his duties.
16. If the employee finds the fit of the respirator unacceptable, the test subject will be given the opportunity to select a different respirator and to be retested.

17. Exercise regimen. Prior to the commencement of the fit test, the test subject will be given a description of the fit test and the test subject's responsibilities during the test procedure. The description of the process will include a description of the test exercises that the subject will be performing. The respirator to be tested will be worn for at least 5 minutes before the start of the fit test.
18. The fit test will be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use which would interfere with respirator fit.

### Test Exercises

**A.** The following test exercises are to be performed for all fit testing methods prescribed in this appendix, except for the CNP method. A separate fit testing exercise regimen is contained in the CNP protocol. The test subject will perform exercises, in the test environment, in the following manner.

1. **Normal breathing.** In a normal standing position, without talking, the subject will breathe normally.
2. **Deep breathing.** In a normal standing position, the subject will breathe slowly and deeply, taking caution so as not to hyperventilate.
3. **Turning head side to side.** Standing in place, the subject will slowly turn his/her head from side to side between the extreme positions on each side. The head will be held at each extreme momentarily so the subject can inhale at each side.
4. **Moving head up and down.** Standing in place, the subject will slowly move his/her head up and down. The subject will be instructed to inhale in the up position (i.e., when looking toward the ceiling).
5. **Talking.** The subject will 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 Rainbow Passage, count backward from 100, or 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.

6. **Grimace.** The test subject will grimace by smiling or frowning. (This applies only to QNFT testing; it is not performed for QLFT).
7. **Bending over.** The test subject will bend at the waist as if he/she were to touch his/her toes. Jogging in place will be substituted for this exercise in those test environments such as shroud type QNFT or QLFT units that do not permit bending over at the waist.
8. **Normal breathing.** Same as exercise (1). Each test exercise will be performed for one minute except for the grimace exercise which will be performed for 15 seconds. The test subject will be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator will be tried. The respirator will not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

## B. Qualitative Fit Test (QLFT) Protocols

### General

- A.** The employer will ensure that persons administering QLFT are able to prepare test solutions, calibrate equipment and perform tests properly, recognize invalid tests, and ensure that test equipment is in proper working order.
- B.** The employer will ensure that QLFT equipment is kept clean and well maintained so as to operate within the parameters for which it was designed.

### Isoamyl Acetate Protocol

- A. Odor Threshold Screening.** Odor threshold screening, performed without wearing a respirator, is intended to determine if the individual tested can detect the odor of isoamyl acetate at low levels.

**Note:** This protocol is not appropriate to use for the fit testing of particulate respirators. If used to fit test particulate respirators, the respirator must be equipped with an organic vapor filter.

1. Three 1 liter glass jars with metal lids are required.
2. Odor-free water (e.g., distilled or spring water) at approximately 25 deg. C (77 deg. F) will be used for the solutions.
3. The isoamyl acetate (IAA) (also known as isopentyl acetate) stock solution is prepared by adding 1 ml of pure IAA to 800 ml of odor-free water in a 1 liter jar, closing the lid and shaking for 30 seconds. A new solution will be prepared at least weekly.
4. The screening test will be conducted in a room separate from the room used for actual fit testing. The two rooms will be well-ventilated to prevent the odor of IAA from becoming evident in the general room air where testing takes place.
5. The odor test solution is prepared in a second jar by placing 0.4 ml of the stock solution into 500 ml of odor-free water using a clean dropper or pipette. The solution will be shaken for 30 seconds and allowed to stand for two to three minutes so that the IAA concentration above the liquid may reach equilibrium. This solution will be used for only one day.
6. A test blank will be prepared in a third jar by adding 500 cc of odor-free water.
7. The odor test and test blank jar lids will be labeled (e.g., 1 and 2) for jar identification. Labels will be placed on the lids so that they can be peeled off periodically and switched to maintain the integrity of the test.
8. The following instruction will be typed on a card and placed on the table in front of the two test jars (i.e., 1 and 2): "The purpose of this test is to determine if you can smell banana oil at a low concentration. The two bottles in front of you contain water. One of these bottles also contains a small amount of banana oil. Be sure the covers are on tight, and then shake each bottle for two seconds. Unscrew the lid of each bottle, one at a time, and sniff at the mouth of the bottle. Indicate to the test conductor which bottle contains banana oil".
9. The mixtures used in the IAA odor detection test will be prepared in an area separate from where the test is performed, in order to prevent olfactory fatigue in the subject.
10. If the test subject is unable to correctly identify the jar containing the odor test solution, the IAA qualitative fit test will not be performed.
11. If the test subject correctly identifies the jar containing the odor test solution, the test subject may proceed to respirator selection and fit testing.

## **B. Isoamyl Acetate Fit Test**

1. The fit test chamber will be a clear 55-gallon drum liner suspended inverted over a 2-foot diameter frame so that the top of the chamber is about 6 inches above the test subject's head. If no drum liner is available, a similar chamber will be constructed using plastic sheeting. The inside top center of the chamber will have a small hook attached.
2. Each respirator used for the fitting and fit testing will be equipped with organic vapor cartridges or offer protection against organic vapors.
3. After selecting, donning, and properly adjusting a respirator, the test subject will wear it to the fit testing room. This room will be separate from the room used for odor threshold screening and respirator selection, and will be well-ventilated, as by an exhaust fan or lab hood, to prevent general room contamination.
4. A copy of the test exercises and any prepared text from which the subject is to read will be taped to the inside of the test chamber.
5. Upon entering the test chamber, the test subject will be given a 6-inch by 5-inch piece of paper towel, or other porous, absorbent, single-ply material, folded in half and wetted with 0.75 ml of pure IAA. The test subject will hang the wet towel on the hook at the top of the chamber. An IAA test swab or ampoule may be substituted for the IAA wetted paper towel provided it has been demonstrated that the alternative IAA source will generate an IAA test atmosphere with a concentration equivalent to that generated by the paper towel method.
6. Allow two minutes for the IAA test concentration to stabilize before starting the fit test exercises. This would be an appropriate time to talk with the test subject; to explain the fit test, the importance of his/her cooperation, and the purpose for the test exercises; or to demonstrate some of the exercises.
7. If at any time during the test, the subject detects the banana-like odor of IAA, the test is failed. The subject will quickly exit from the test chamber and leave the test area to avoid olfactory fatigue.
8. If the test is failed, the subject will return to the selection room and remove the respirator. The test subject will repeat the odor sensitivity test, select and put on another respirator, return to the test area and again begin the fit test procedure described in (b) (1) through (7) above. The process continues until a respirator that fits well has been found. Should the odor sensitivity test be failed, the subject will wait at least 5 minutes before retesting. Odor sensitivity will usually have returned by this time.
9. If the subject passes the test, the efficiency of the test procedure will be demonstrated by having the subject break the respirator face seal and take a breath before exiting the chamber.
10. When the test subject leaves the chamber, the subject will remove the saturated towel and return it to the person conducting the test, so that there is no significant IAA concentration buildup in the chamber during subsequent tests. The used towels will be kept in a self-sealing plastic bag to keep the test area from being contaminated.

**Saccharin Solution Aerosol Protocol.** The entire screening and testing procedure will 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.



1. During threshold screening as well as during fit testing, subjects will 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.
  2. The test enclosure will have a  $\frac{3}{4}$ -inch hole in front of the test subject's nose and mouth area to accommodate the nebulizer nozzle.
  3. The test subject will don the test enclosure. Throughout the threshold screening test, the test subject will breathe through his/her slightly open mouth with tongue extended. The subject is instructed to report when he/she detects a sweet taste.
  4. Using a DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent, the test conductor will spray the threshold check solution into the enclosure. The nozzle is directed away from the nose and mouth of the person. This nebulizer will be clearly marked to distinguish it from the fit test solution nebulizer.
  5. The threshold check solution is prepared by dissolving 0.83 gram of sodium saccharin USP in 100 ml of warm water. It can be prepared by putting 1 ml of the fit test solution (see (b) (5) below) in 100 ml of distilled water.
  6. To produce the aerosol, the nebulizer bulb is firmly squeezed so that it collapses completely, then released and allowed to fully expand.
  7. Ten squeezes are repeated rapidly and then the test subject is asked whether the saccharin can be tasted. If the test subject reports tasting the sweet taste during the ten squeezes, the screening test is completed. The taste threshold is noted as ten regardless of the number of squeezes actually completed.
  8. 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 test subject reports tasting the sweet taste during the second ten squeezes, the screening test is completed. The taste threshold is noted as twenty regardless of the number of squeezes actually completed.
  9. If the second response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the saccharin is tasted. If the test subject reports tasting the sweet taste during the third set of ten squeezes, the screening test is completed. The taste threshold is noted as thirty regardless of the number of squeezes actually completed.
  10. The test conductor will take note of the number of squeezes required to solicit a taste response.
  11. If the saccharin is not tasted after 30 squeezes (step 10), the test subject is unable to taste saccharin and may not perform the saccharin fit test.
- Note:** If the test subject eats or drinks something sweet before the screening test, he/she may be unable to taste the weak saccharin solution.
12. If a taste response is elicited, the test subject will be asked to take note of the taste for reference in the fit test.
  13. Correct use of the nebulizer means that approximately 1 ml of liquid is used at a time in the nebulizer body.
  14. The nebulizer will get thoroughly rinsed in water, shaken dry and refilled at least each morning and afternoon or at least every four hours.

## **B. Saccharin solution aerosol fit test procedure.**

1. The test subject may not eat, drink (except for plain water), smoke, or chew gum for 15 minutes before the test.
2. The fit test uses the same enclosure described in 3. (a) above.
3. The test subject will don the enclosure while wearing the respirator selected. The respirator will be properly adjusted and equipped with a particulate filter(s).
4. A second DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent is used to spray the fit test solution into the enclosure. This nebulizer will be clearly marked to distinguish it from the screening test solution nebulizer.
5. The fit test solution is prepared by adding 83 grams of sodium saccharin to 100 ml of warm water.
6. As before, the test subject will breathe through the slightly open mouth with the tongue extended, and report if he/she tastes the sweet taste of saccharin.
7. The nebulizer is inserted into the hole in the front of the enclosure and an initial concentration of saccharin fit test solution is sprayed into the enclosure using the same number of squeezes (either 10, 20 or 30 squeezes) based on the number of squeezes required to elicit a taste response as noted during the screening test. A minimum of 10 squeezes is required.
8. After generating the aerosol, the test subject will be instructed to perform the exercises.
9. Every 30 seconds the aerosol concentration will be replenished using one half the original number of squeezes used initially (e.g., 5, 10, or 15).
10. The test subject will indicate to the test conductor if at any time during the fit test the taste of saccharin is detected. If the test subject does not report tasting the saccharin, the test is passed.
11. If the taste of saccharin is detected, the fit is deemed unsatisfactory and the test is failed. A different respirator will be tried and the entire test procedure is repeated (taste threshold screening and fit testing).
12. Since the nebulizer has a tendency to clog during use, the test operator must make periodic checks of the nebulizer to ensure that it is not clogged. If clogging is found at the end of the test session, the test is invalid.

## **Bitrex™ (Denatonium Benzoate) Solution Aerosol Qualitative Fit Test Protocol.**

**The Bitrex™** (Denatonium benzoate) solution aerosol QLFT protocol uses the published saccharin test protocol because that protocol is widely accepted. Bitrex is routinely used as a taste aversion agent in household liquids which children should not be drinking and is endorsed by the American Medical Association, the National Safety Council, and the American Association of Poison Control Centers. The entire screening and testing procedure will be explained to the test subject prior to the conduct of the screening test.

**A. Taste Threshold Screening.** The Bitrex taste threshold screening, performed without wearing a respirator, is intended to determine whether the individual being tested can detect the taste of Bitrex.

1. During threshold screening as well as during fit testing, subjects will wear an enclosure about the head and shoulders that is approximately 12 inches in diameter by 14 inches tall. The front portion of the enclosure will be clear from the respirator and allow free movement of the head when a respirator is worn. An enclosure substantially similar to the 3M hood assembly, parts #14 and #15 combined, is adequate.



2. The test enclosure will have a  $\frac{3}{4}$  inch hole in front of the test subject's nose and mouth area to accommodate the nebulizer nozzle.
3. The test subject will don the test enclosure. Throughout the threshold screening test, the test subject will breathe through his or her slightly open mouth with tongue extended. The subject is instructed to report when he/she detects a bitter taste.
4. Using a DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent, the test conductor will spray the Threshold Check Solution into the enclosure. This Nebulizer will be clearly marked to distinguish it from the fit test solution nebulizer.
5. The Threshold Check Solution is prepared by adding 13.5 milligrams of Bitrex to 100 ml of 5% salt (NaCl) solution in distilled water.
6. To produce the aerosol, the nebulizer bulb is firmly squeezed so that the bulb collapses completely, and is then released and allowed to fully expand.
7. An initial ten squeezes are repeated rapidly and then the test subject is asked whether the Bitrex can be tasted. If the test subject reports tasting the bitter taste during the ten squeezes, the screening test is completed. The taste threshold is noted as ten regardless of the number of squeezes actually completed.
8. If the first response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the Bitrex is tasted. If the test subject reports tasting the bitter taste during the second ten squeezes, the screening test is completed. The taste threshold is noted as twenty regardless of the number of squeezes actually completed.
9. If the second response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the Bitrex is tasted. If the test subject reports tasting the bitter taste during the third set of ten squeezes, the screening test is completed. The taste threshold is noted as thirty regardless of the number of squeezes actually completed.
10. The test conductor will take note of the number of squeezes required to solicit a taste response.
11. If the Bitrex is not tasted after 30 squeezes (step 10), the test subject is unable to taste Bitrex and may not perform the Bitrex fit test.
12. If a taste response is elicited, the test subject will be asked to take note of the taste for reference in the fit test.
13. Correct use of the nebulizer means that approximately 1 ml of liquid is used at a time in the nebulizer body.
14. The nebulizer will be thoroughly rinsed in water, shaken to dry and refilled at least each morning and afternoon or at least every four hours.

#### **B. Bitrex Solution Aerosol Fit Test Procedure**

1. The test subject may not eat, drink (except plain water), smoke, or chew gum for 15 minutes before the test.
2. The fit test uses the same enclosure as that described in 4. (a) above.
3. The test subject will don the enclosure while wearing the respirator selected. The respirator will be properly adjusted and equipped with any type particulate filter(s).
4. A second DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent is used to spray the fit test solution into the enclosure. This nebulizer will not be clearly marked to distinguish it from the screening test solution nebulizer.
5. The fit test solution is prepared by adding 337.5 mg of Bitrex to 200 ml of a 5% salt (NaCl) solution in warm water.

6. As before, the test subject will breathe through his or her slightly open mouth with tongue extended, and be instructed to report if he/she tastes the bitter taste of Bitrex.
7. The nebulizer is inserted into the hole in the front of the enclosure and an initial concentration of the fit test solution is sprayed into the enclosure using the same number of squeezes (either 10, 20 or 30 squeezes) based on the number of squeezes required to elicit a taste response as noted during the screening test.
8. After generating the aerosol, the test subject will be instructed to perform the exercises in section I. A. 14. of this appendix.
9. Every 30 seconds the aerosol concentration will be replenished using one half the number of squeezes used initially (e.g., 5, 10 or 15).
10. The test subject will indicate to the test conductor if at any time during the fit test the taste of Bitrex is detected. If the test subject does not report tasting the Bitrex, the test is passed.
11. If the taste of Bitrex is detected, the fit is deemed unsatisfactory and the test is failed. A different respirator will be tried and the entire test procedure is repeated (taste threshold screening and fit testing).

**Irritant Smoke (Stannic Chloride) Protocol.** This qualitative fit test uses a person's response to the irritating chemicals released in the "smoke" produced by a stannic chloride ventilation smoke tube to detect leakage into the respirator.

#### **A. General Requirements and Precautions**

1. The respirator to be tested will be equipped with high efficiency particulate air (HEPA) or P100 series filter(s).
2. Only stannic chloride smoke tubes will be used for this protocol.
3. No form of test enclosure or hood for the test subject will be used.
4. The smoke can be irritating to the eyes, lungs, and nasal passages. The test conductor will take precautions to minimize the test subject's exposure to irritant smoke. Sensitivity varies, and certain individuals may respond to a greater degree to irritant smoke. Care will be taken when performing the sensitivity screening checks that determine whether the test subject can detect irritant smoke to use only the minimum amount of smoke necessary to elicit a response from the test subject.
5. The fit test will be performed in an area with adequate ventilation to prevent exposure of the person conducting the fit test or the build-up of irritant smoke in the general atmosphere.

**B. Sensitivity Screening Check.** The person to be tested must demonstrate his or her ability to detect a weak concentration of the irritant smoke.

1. The test operator will break both ends of a ventilation smoke tube containing stannic chloride, and attach one end of the smoke tube to a low flow air pump set to deliver 200 milliliters per minute, or an aspirator squeeze bulb. The test operator will cover the other end of the smoke tube with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.
2. The test operator will advise the test subject that the smoke can be irritating to the eyes, lungs, and nasal passages and instruct the subject to keep his/her eyes closed while the test is performed.
3. The test subject will be allowed to smell a weak concentration of the irritant smoke before the respirator is donned to become familiar with its irritating properties and to determine if he/she can detect the irritating properties of the smoke. The test

operator will carefully direct a small amount of the irritant smoke in the test subject's direction to determine that he/she can detect it.

### **C. Irritant Smoke Fit Test Procedure**

1. The person being fit tested will don the respirator without assistance, and perform the required user seal check(s).
2. The test subject will be instructed to keep his/her eyes closed.
3. The test operator will direct the stream of irritant smoke from the smoke tube toward the face-seal area of the test subject, using the low flow pump or the squeeze bulb. The test operator will begin at least 12 inches from the face-piece and move the smoke stream around the whole perimeter of the mask. The operator will gradually make two more passes around the perimeter of the mask, moving to within six inches of the respirator.
4. If the person being tested has not had an involuntary response and/or detected the irritant smoke, proceed with the test exercises.
5. The exercises identified in section I. A. 14. of this appendix will be performed by the test subject while the respirator seal is being continually challenged by the smoke, directed around the perimeter of the respirator at a distance of six inches.
6. If the person being fit tested reports detecting the irritant smoke at any time, the test is failed. The person being retested must repeat the entire sensitivity check and fit test procedure.
7. Each test subject passing the irritant smoke test without evidence of a response (involuntary cough, irritation) will be given a second sensitivity screening check, with the smoke from the same smoke tube used during the fit test, once the respirator has been removed, to determine whether he/she still reacts to the smoke. Failure to evoke a response will void the fit test.
8. If a response is produced during this second sensitivity check, then the fit test is passed.

**D. Quantitative Fit Test (QNFT) Protocols.** The following quantitative fit testing procedures have been demonstrated to be acceptable: Quantitative fit testing using a non-hazardous test aerosol (such as corn oil, polyethylene glycol 400 [PEG 400], di-2-ethyl hexyl sebacate [DEHS], or sodium chloride) generated in a test chamber, and employing instrumentation to quantify the fit of the respirator; Quantitative fit testing using ambient aerosol as the test agent and appropriate instrumentation (condensation nuclei counter) to quantify the respirator fit; Quantitative fit testing using controlled negative pressure and appropriate instrumentation to measure the volumetric leak rate of a face-piece to quantify the respirator fit.

#### **1. General**

- A. The employer will ensure that persons administering QNFT are able to calibrate equipment and perform tests properly, recognize invalid tests, calculate fit factors properly and ensure that test equipment is in proper working order.
- B. The employer will ensure that QNFT equipment is kept clean, and is maintained and calibrated according to the manufacturer's instructions so as to operate at the parameters for which it was designed.

## 2. Generated Aerosol Quantitative Fit Testing Protocol

### A. Apparatus

1. **Instrumentation.** Aerosol generation, dilution, and measurement systems using particulates (corn oil, polyethylene glycol 400 [PEG 400], di-2-ethyl hexyl sebacate [DEHS] or sodium chloride) as test aerosols will be used for quantitative fit testing.
2. **Test chamber.** The test chamber will be large enough to permit all test subjects to perform freely all required exercises without disturbing the test agent concentration or the measurement apparatus. The test chamber will be equipped and constructed so that the test agent is effectively isolated from the ambient air, yet uniform in concentration throughout the chamber.
3. When testing air-purifying respirators, the normal filter or cartridge element will be replaced with a high efficiency particulate air (HEPA) or P100 series filter supplied by the same manufacturer.
4. The sampling instrument will be selected so that a computer record or strip chart record may be made of the test showing the rise and fall of the test agent concentration with each inspiration and expiration at fit factors of at least 2,000. Integrators or computers that integrate the amount of test agent penetration leakage into the respirator for each exercise may be used provided a record of the readings is made.
5. The combination of substitute air-purifying elements, test agent and test agent concentration will be such that the test subject is not exposed in excess of an established exposure limit for the test agent at any time during the testing process, based upon the length of the exposure and the exposure limit duration.
6. The sampling port on the test specimen respirator will be placed and constructed so that no leakage occurs around the port (e.g., where the respirator is probed), a free air flow is allowed into the sampling line at all times, and there is no interference with the fit or performance of the respirator. The in-mask sampling device (probe) will be designed and used so that the air sample is drawn from the breathing zone of the test subject, midway between the nose and mouth and with the probe extending into the face-piece cavity at least 1/4 inch.
7. The test setup will permit the person administering the test to observe the test subject inside the chamber during the test.
8. The equipment generating the test atmosphere will maintain the concentration of test agent constant to within a 10 percent variation for the duration of the test.
9. The time lag (interval between an event and the recording of the event on the strip chart or computer or integrator) will be kept to a minimum. There will be a clear association between the occurrence of an event and its being recorded.
10. The sampling line tubing for the test chamber atmosphere and for the respirator sampling port will be of equal diameter and of the same material. The length of the two lines will be equal.
11. The exhaust flow from the test chamber will pass through an appropriate filter (i.e., high efficiency particulate filter) before release.
12. When sodium chloride aerosol is used, the relative humidity inside the test chamber will not exceed 50 percent.
13. The limitations of instrument detection will be taken into account when determining the fit factor.
14. Test respirators will be maintained in proper working order and be inspected regularly for deficiencies such as cracks or missing valves and gaskets.

## **B. Procedural Requirements**

5. When performing the initial user seal check using a positive or negative pressure check, the sampling line will be crimped closed in order to avoid air pressure leakage during either of these pressure checks.
6. The use of an abbreviated screening QLFT test is optional. Such a test may be utilized in order to quickly identify poor fitting respirators that passed the positive and/or negative pressure test and reduce the amount of QNFT time. The use of the CNC QNFT instrument in the count mode is another optional method to obtain a quick estimate of fit and eliminate poor fitting respirators before going on to perform a full QNFT.
7. A reasonably stable test agent concentration will be measured in the test chamber prior to testing. For canopy or shower curtain types of test units, the determination of the test agent's stability may be established after the test subject has entered the test environment.
8. Immediately after the subject enters the test chamber, the test agent concentration inside the respirator will be measured to ensure that the peak penetration does not exceed 5 percent for a half mask or 1 percent for a full face-piece respirator.
9. A stable test agent concentration will be obtained prior to the actual start of testing.
10. Respirator restraining straps will not be over-tightened for testing. The straps will be adjusted by the wearer without assistance from other persons to give a reasonably comfortable fit typical of normal use. The respirator will not be adjusted once the fit test exercises begin.
11. The test will be terminated whenever any single peak penetration exceeds 5 percent for half masks and 1 percent for full face-piece respirators. The test subject will be refitted and retested.
12. Calculation of fit factors.
  - (i) The fit factor will be determined for the quantitative fit test by taking the ratio of the average chamber concentration to the concentration measured inside the respirator for each test exercise except the grimace exercise.
  - (ii) The average test chamber concentration will be calculated as the arithmetic average of the concentration measured before and after each test (i.e., 7 exercises) or the arithmetic average of the concentration measured before and after each exercise or the true average measured continuously during the respirator sample.
  - (iii) The concentration of the challenge agent inside the respirator will be determined by one of the following methods:
    - (A) Average peak penetration method means the method of determining test agent penetration into the respirator utilizing a strip chart recorder, integrator, or computer. The agent penetration is determined by an average of the peak heights on the graph or by computer integration, for each exercise except the grimace exercise. Integrators or computers that calculate the actual test agent nitration into the respirator for each exercise will also be considered to meet the requirements of the average peak penetration method.
    - (B) Maximum peak penetration method means the method of determining test agent penetration in the respirator as determined by strip chart recordings of the test. The highest peak penetration for a given exercise is taken to be representative of average penetration into the respirator for that exercise.
    - (C) Integration by calculation of the area under the individual peak for each exercise except the grimace exercise. This includes computerized integration.

- (D) The calculation of the overall fit factor using individual exercise fit factors involves first converting the exercise fit factors to penetration values, determining the average, and then converting that result back to a fit factor. This procedure is described in the following equation:

**Overall Fit Factor =**

Number of exercises:

$$1/ff1 + 1/ff2 + 1/ff3 + 1/ff4 + 1/ff5 + 1/ff6 + 1/ff7 + 1/ff8$$

Where ff1, ff2, ff3, etc. are the fit factors for exercises 1, 2, 3, etc.

9. The test subject will not be permitted to wear a half mask or quarter face-piece respirator unless a minimum fit factor of 100 is obtained, or a full face-piece respirator unless a minimum fit factor of 500 is obtained.
10. Filters used for quantitative fit testing will be replaced whenever increased breathing resistance is encountered, or when the test agent has altered the integrity of the filter media.

**3. Ambient aerosol condensation nuclei counter (CNC) quantitative fit testing protocol.** The ambient aerosol condensation nuclei counter (CNC) quantitative fit testing (Portacount™) protocol quantitatively fit tests respirators with the use of a probe. The probed respirator is only used for quantitative fit tests. A probed respirator has a special sampling device, installed on the respirator that allows the probe to sample the air from inside the mask.

A probed respirator is required for each make, style, model, and size that the employer uses and can be obtained from the respirator manufacturer or distributor. The CNC instrument manufacturer, TSI Inc., also provides probe attachments (TSI sampling adapters) that permit fit testing in an employee's own respirator. A minimum fit factor pass level of at least 100 is necessary for a half-mask respirator and a minimum fit factor pass level of at least 500 is required for a full face-piece negative pressure respirator. The entire screening and testing procedure will be explained to the test subject prior to the conduct of the screening test.

**A. Portacount Fit Test Requirements**

1. Check the respirator to make sure the sampling probe and line are properly attached to the face-piece and that the respirator is fitted with a particulate filter capable of preventing significant penetration by the ambient particles used by the fit test (e.g. NIOSH 42 CFR 84 series 100, 99 or 95 particulate filter) per manufacturer's instruction.
2. Instruct the person to be tested to don the respirator for five minutes before the fit test starts. This purges the ambient particles trapped inside the respirator and permits the wearer to make certain the respirator is comfortable. This individual will already have been trained on how to wear the respirator properly.
3. Check the following conditions for 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 the respirator to slip; Self-observation in a mirror to evaluate fit and respirator position.
4. Have the person wearing the respirator do a user seal check. If leakage is detected, determine the cause. If leakage is from a poorly fitting face-piece, try another size of the same model respirator, or another model of respirator.
5. Follow the manufacturer's instruction for operating the Portacount and proceed with the test.



6. The test subject will be instructed to perform the exercises in section I. A. 14. of this appendix.
7. After the test exercises, the test subject will be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator will be tried.

## **B. Portacount Test Instrument**

1. The Portacount will automatically stop and calculate the overall fit factor for the entire set of exercises. The overall fit factor is what counts. The Pass or Fail message will indicate whether or not the test was successful. If the test was a Pass, the fit test is over.
2. Since the pass or fail criterion of the Portacount is user programmable, the test operator will ensure that the pass or fail criterion meet the requirements for minimum respirator performance in this Appendix.
3. A record of the test needs to be kept on file, assuming the fit test was successful. The record must contain the test subject's name; overall fit factor; make, model, style, and size of respirator used; and date tested.
4. Controlled negative pressure (CNP) quantitative fit testing protocol. The CNP protocol provides an alternative to aerosol fit test methods. The CNP fit test method technology is based on exhausting air from a temporarily sealed respirator face-piece to generate and then maintain a constant negative pressure inside the face-piece. The rate of air exhaust is controlled so that a constant negative pressure is maintained in the respirator during the fit test. The level of pressure is selected to replicate the mean inspiratory pressure that causes leakage into the respirator under normal use conditions. With pressure held constant, air flow out of the respirator is equal to air flow into the respirator. Therefore, measurement of the exhaust stream that is required to hold the pressure in the temporarily sealed respirator constant yields a direct measure of leakage air flow into the respirator.
5. The CNP fit test method measures leak rates through the face-piece as a method for determining the face-piece fit for negative pressure respirators. The CNP instrument manufacturer, Dynatech Nevada, also provides attachments (sampling manifolds) that replace the filter cartridges to permit fit testing in an employee's own respirator.
6. To perform the test, the test subject closes his or her mouth and holds his/her breathe, after which an air pump removes air from the respirator face-piece at a pre-selected constant pressure. The face-piece fit is expressed as the leak rate through the face-piece, expressed as milliliters per minute. The quality and validity of the CNP fit tests are determined by the degree to which the in-mask pressure tracks the test pressure during the system measurement time of approximately five seconds. Instantaneous feedback in the form of a real-time pressure trace of the in-mask pressure is provided and used to determine test validity and quality. A minimum fit factor pass level of 100 is necessary for a half-mask respirator and a minimum fit factor of at least 500 is required for a full face-piece respirator. The entire screening and testing procedure will be explained to the test subject prior to conduct of the screening test.



## A. CNP Fit Test Requirements

1. The instrument will have a non-adjustable test pressure of 15.0 mm water pressure.
2. The CNP system defaults selected for test pressure will be set at -15 mm of water (-0.58 inches of water) and the modeled inspiratory flow rate will be 53.8 liters per minute for performing fit tests.

**Note:** CNP systems have built-in capability to conduct fit testing that is specific to unique work rate, mask, and gender situations that might apply in a specific workplace. Use of system default values, which were selected to represent respirator wear with medium cartridge resistance at a low-moderate work rate, will allow inter-test comparison of the respirator fit.

3. The individual who conducts the CNP fit testing will be thoroughly trained to perform the test.
4. The respirator filter or cartridge needs to be replaced with the CNP test manifold. The inhalation valve downstream from the manifold either needs to be temporarily removed or propped open.
5. The test subject will be trained to hold his or her breath for at least 20 seconds.
6. The test subject will don the test respirator without any assistance from the individual who conducts the CNP fit test.
7. The QNFT protocol will be followed according to section I. C. 1. of this appendix with an exception for the CNP test exercises.

## B. CNP Test Exercises

1. **Normal breathing.** In a normal standing position, without talking, the subject will breathe normally for 1 minute. After the normal breathing exercise, the subject needs to hold head straight ahead and hold his or her breath for 10 seconds during the test measurement.
2. **Deep breathing.** In a normal standing position, the subject will breathe slowly and deeply for 1 minute, being careful not to hyperventilate. After the deep breathing exercise, the subject will hold his or her head straight ahead and hold his or her breath for 10 seconds during test measurement.
3. **Turning head side to side.** Standing in place, the subject will slowly turn his or her head from side to side between the extreme positions on each side for 1 minute. The head will be held at each extreme momentarily so the subject can inhale at each side. After the turning head side to side exercise, the subject needs to hold head full left and hold his or her breath for 10 seconds during test measurement. Next, the subject needs to hold head full right and hold his or her breath for 10 seconds during test measurement.
4. **Moving head up and down.** Standing in place, the subject will slowly move his or her head up and down for 1 minute. The subject will be instructed to inhale in the up position (i.e., when looking toward the ceiling). After the moving head up and down exercise, the subject will hold his or her head full up and hold his or her breath for 10 seconds during test measurement. Next, the subject will hold his or her head full down and hold his or her breath for 10 seconds during test measurement.
5. **Talking.** The subject will 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 Rainbow Passage, count backward from 100, or recite a memorized poem or song for 1 minute. After the talking exercise, the subject will hold his or her head straight ahead and hold his or her breath for 10 seconds during the test measurement.

6. **Grimace.** The test subject will grimace by smiling or frowning for 15 seconds
7. **Bending Over.** The test subject will bend at the waist as if he or she were to touch his or her toes for 1 minute. Jogging in place will be substituted for this exercise in those test environments such as shroud-type QNFT units that prohibit bending at the waist. After the bending over exercise, the subject will hold his or her head straight ahead and hold his or her breath for 10 seconds during the test measurement.
8. **Normal Breathing.** The test subject will remove and re-don the respirator within a one-minute period. Then, in a normal standing position, without talking, the subject will breathe normally for 1 minute. After the normal breathing exercise, the subject will hold his or her head straight ahead and hold his or her breath for 10 seconds during the test measurement. After the test exercises, the test subject will be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of a respirator will be tried.

### **CNP Test Instrument.**

The test instrument will have an effective audio warning device when the test subject fails to hold his or her breath during the test. The test will be terminated whenever the test subject failed to hold his or her breath. The test subject may be refitted and retested.

A record of the test will be kept on file, assuming the fit test was successful. The record must contain the test subject's name; overall fit factor; make, model, style and size of respirator used; and date tested.

### **User Seal Check Procedures (Mandatory)**

The individual who uses a tight-fitting respirator is to perform a user seal check to ensure that an adequate seal is achieved each time the respirator is put on. Either the positive and negative pressure checks listed in this appendix, or the respirator manufacturers recommended user seal check method will be used. User seal checks are not substitutes for qualitative or quantitative fit tests.

### **Face-piece Positive and/or Negative Pressure Checks**

- A. **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 up 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.
- B. **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. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. 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.
- C. **Manufacturer's Recommended User Seal Check Procedures.** The respirator manufacturer's recommended procedures for performing a user seal check may be used instead of the positive and/or negative pressure check procedures provided that the employer demonstrates that the manufacturer's procedures are equally effective.

## **Respirator Cleaning Procedures (Mandatory)**

These procedures are provided for employer use when cleaning respirators. They are general in nature, and the employer as an alternative may use the cleaning recommendations provided by the manufacturer of the respirators used by their employees, provided such procedures are as effective as those listed here.

Equivalent effectiveness simply means that the procedures used must accomplish the objectives set forth in Appendix B-2, i.e., must ensure that the respirator is properly cleaned and disinfected in a manner that prevents damage to the respirator and does not cause harm to the user.

### **Procedures for Cleaning Respirators**

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

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

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

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

- Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43° C (110° F); or,
- Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 43° C (110° F); or,
- Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.

Rinse components thoroughly in clean, warm (43° C [110° F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on face-pieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.

Components should be hand-dried with a clean lint-free cloth or air-dried.

Reassemble face-piece, replacing filters, cartridges, and canisters.

Test the respirator to ensure that all components work properly.

## **Voluntary Respirator Use**

### **Where Respirator Use is Not Required-§1910.134(c)(2)**

1. An employer may provide respirators at the request of employees or permit employees to use their own respirators, if the employer determines that such respirator use will not in itself create a hazard. If the employer determines that any voluntary respirator use is permissible, the employer will provide the respirator users with the information contained in Appendix D to this section ("Information for Employees Using Respirators When Not Required Under the Standard"); and
2. In addition, the employer must establish and implement those elements of a written respiratory protection program necessary to ensure that any employee using a respirator voluntarily is medically able to use that respirator, and that the respirator is cleaned, stored, and maintained so that its use does not present a health hazard to the user.

**EXCEPTION:** *Employers are not required to include in a written respiratory protection program those employees whose only use of respirators involves the voluntary use of filtering facepieces (dust masks).*

### **APPENDIX D TO § 1910.134 (MANDATORY) Information for Employees Using Respirators When Not Required Under the Standard**

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

#### **You should do the following:**

- Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.
- Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
- Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
- Keep track of your respirator so that you do not mistakenly use someone else's respirator.

### **Respirator Medical Evaluation Questionnaire (Mandatory)**

#### **Administration of the medical questionnaire and examinations**

The medical questionnaire and examinations will be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire will be administered in a manner that ensures that the employee understands its content. The employer will provide the employee with an opportunity to discuss the questionnaire and examination results with the PLHCP.

# Respirator Medical Evaluation Questionnaire (Mandatory)

## To the Employee:

Can you read? (check one) ☐ Yes ☐ No

Your employer must allow you to answer the questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health care professional who will review it.

**Part A. Section 1.** (Mandatory) The following information must be provided by every employee who has been selected to use any type of respirator (please print).

1. Today's Date: \_\_\_\_\_
2. Your Name: \_\_\_\_\_
3. Your Age: \_\_\_\_\_ 4. Sex (circle one): Male Female
5. Your Height: \_\_\_\_\_ 6. Your Weight: \_\_\_\_\_
7. Your Job Title: \_\_\_\_\_
8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code)? ( ) \_\_\_\_\_
9. The best time to phone you at this number? AM / PM
10. Has your employer told you how to contact the health care professional who will review this questionnaire (check one)? ☐ Yes ☐ No
11. Check the type of respirator you will use (you can check more than one category)?
  - a. \_\_\_\_\_ N, R, or P disposable respirator (filter-mask, non-cartridge type only).
  - b. \_\_\_\_\_ other type (for example, half- or full-face-piece type, powered-air purifying, supplied-air, self-contained breathing apparatus).
12. Have you worn a respirator (check one)? ☐ Yes ☐ No  
If "yes," what type(s): \_\_\_\_\_  
\_\_\_\_\_

**Part A. Section 2.** (Mandatory) Questions 1 thru 9 below must be answered by every employee selected to use any type of respirator (please check "yes" or "no").

1. Do you now smoke tobacco, or smoked tobacco in the last month? ☐ Yes ☐ No
2. Have you ever had any of the following conditions?
  - a. Seizures (fits): ☐ Yes ☐ No
  - b. Diabetes (sugar disease): ☐ Yes ☐ No
  - c. Allergic reactions that interfere with your breathing: ☐ Yes ☐ No
  - d. Claustrophobia (fear of closed-in places): ☐ Yes ☐ No
  - e. Trouble smelling odors: ☐ Yes ☐ No

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

- a. Asbestosis: ☐ Yes ☐ No
- b. Asthma: ☐ Yes ☐ No
- c. Chronic bronchitis: ☐ Yes ☐ No
- d. Emphysema: ☐ Yes ☐ No
- e. Pneumonia: ☐ Yes ☐ No
- f. Tuberculosis: ☐ Yes ☐ No
- g. Silicosis: ☐ Yes ☐ No
- h. Pneumothorax (collapsed lung): ☐ Yes ☐ No
- i. Lung cancer: ☐ Yes ☐ No
- j. Broken ribs: ☐ Yes ☐ No
- k. Any chest injuries or surgeries: ☐ Yes ☐ No
- l. Any other lung problem that you've been told about: ☐ Yes ☐ No

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

- a. Shortness of breath: ☐ Yes ☐ No
- b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline: ☐ Yes ☐ No
- c. Shortness of breath when walking with other people at an ordinary pace on level ground: ☐ Yes ☐ No
- d. Have to stop for breath when walking at own pace on level ground: ☐ Yes ☐ No
- e. Shortness of breath when washing or dressing yourself: ☐ Yes ☐ No
- f. Shortness of breath that interferes with your job: ☐ Yes ☐ No
- g. Coughing that produces phlegm (thick sputum): ☐ Yes ☐ No
- h. Coughing that wakes you early in the morning: ☐ Yes ☐ No
- i. Coughing that occurs mostly when you are lying down: ☐ Yes ☐ No
- j. Coughing up blood in the last month: ☐ Yes ☐ No
- k. Wheezing: ☐ Yes ☐ No
- l. Wheezing that interferes with your job: ☐ Yes ☐ No
- m. Chest pain when you breathe deeply: ☐ Yes ☐ No
- n. Any other symptoms that might be related to lung problems: ☐ Yes ☐ No

**5. Have you ever had any of the following cardiovascular or heart problems?**

- a. Heart attack: ☐ Yes ☐ No
- b. Stroke: ☐ Yes ☐ No
- c. Angina: ☐ Yes ☐ No
- d. Heart failure: ☐ Yes ☐ No
- e. Swelling in your legs or feet (not caused by walking): ☐ Yes ☐ No
- f. Heart arrhythmia (heart beating irregularly): ☐ Yes ☐ No
- g. High blood pressure: ☐ Yes ☐ No
- h. Any other heart problem that you've been told about: ☐ Yes ☐ No

**6. Have you ever had any of these cardiovascular or heart symptoms?**

- a. Frequent pain or tightness in your chest: ☐ Yes ☐ No
- b. Pain or tightness in your chest during physical activity: ☐ Yes ☐ No
- c. Pain or tightness in your chest that interferes with your job: ☐ Yes ☐ No
- d. In the past 2 years, have you noticed your heart skip/miss a beat? ☐ Yes ☐ No
- e. Heartburn or indigestion that is not related to eating: ☐ Yes ☐ No
- f. Any other symptoms that you think may be related to heart or circulation problems: ☐ Yes ☐ No

**7.** Do you currently take medication for any of the following problems?

- a. Breathing or lung problems: ☐ Yes ☐ No    b. Heart trouble: ☐ Yes ☐ No  
c. Blood pressure: ☐ Yes ☐ No    d. Seizures (fits): ☐ Yes ☐ No

**8.** If you have ever used a respirator, have you ever had any of the following problems?

(If you have never used a respirator, check the following space and go to question 9:)

- a. Eye irritation: ☐ Yes ☐ No    b. Skin allergies or rashes: ☐ Yes ☐ No  
c. Anxiety: ☐ Yes ☐ No    d. General weakness or fatigue: ☐ Yes ☐ No

e. Any other problem that interferes with your use of a respirator: ☐ Yes ☐ No

**9.** Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire? ☐ Yes ☐ No

Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-face-piece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.

**10.** Have you ever lost vision in either eye (temporarily or permanently)? ☐ Yes ☐ No

**11.** Do you currently have any of the following vision problems?

- a. Wear contacts: ☐ Yes ☐ No    b. Wear glasses: ☐ Yes ☐ No  
c. Color blind: ☐ Yes ☐ No    d. Any other eye/vision problem: ☐ Yes ☐ No

**12.** Have you ever had injury to your ears, including a broken ear drum? ☐ Yes ☐ No

**13.** Do you currently have any of the following hearing problems?

- a. Difficulty hearing: ☐ Yes ☐ No    b. Wear a hearing aid: ☐ Yes ☐ No  
c. Any other hearing or ear problem: ☐ Yes ☐ No

**14.** Have you ever had a back injury? ☐ Yes ☐ No

**15.** Do you currently have any of the following musculoskeletal problems?

- a. Weakness in any of your arms, hands, legs, or feet: ☐ Yes ☐ No  
b. Back pain: ☐ Yes ☐ No  
c. Difficulty fully moving your arms and legs: ☐ Yes ☐ No  
d. Pain/stiffness when leaning forward or backward at the waist: ☐ Yes ☐ No  
e. Difficulty fully moving your head up or down: ☐ Yes ☐ No  
f. Difficulty fully moving your head side to side: ☐ Yes ☐ No  
g. Difficulty bending at your knees: ☐ Yes ☐ No  
h. Difficulty squatting to the ground: ☐ Yes ☐ No  
i. Climbing a flight of stairs or a ladder carrying more than 25 lbs: ☐ Yes ☐ No  
j. Any other muscle or skeletal problem that interferes with using a respirator:  
☐ Yes ☐ No



**Part B.** Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.

**1.** In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen? Yes / No

If "yes," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you are working under these conditions: ☐ Yes ☐ No

**2.** At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes, or dust), or have you come into skin contact with hazardous chemicals? ☐ Yes ☐ No

If "yes," name the chemicals if you know them: \_\_\_\_\_

Have you ever worked with any of the materials, or under any of the conditions, listed below? (e.g., grinding or welding this material):

a. Silica (e.g., in sandblasting): ☐ Yes ☐ No

c. Other hazardous exposures: ☐ Yes ☐ No

e. Coal (for example, mining): ☐ Yes ☐ No

g. Iron: ☐ Yes ☐ No

i. Dusty environments: ☐ Yes ☐ No

b. Asbestos: ☐ Yes ☐ No

d. Beryllium: ☐ Yes ☐ No

f. Aluminum: ☐ Yes ☐ No

h. Tin: ☐ Yes ☐ No

j. Tungsten/cobalt: ☐ Yes ☐ No

If "yes," describe these exposures: \_\_\_\_\_

**4.** List any second jobs or side businesses you have: \_\_\_\_\_

**5.** List your previous occupations: \_\_\_\_\_

**6.** List your current and previous hobbies: \_\_\_\_\_

**7.** Have you been in the military services? ☐ Yes ☐ No

If "yes," were you exposed to biological or chemical agents (either in training or combat)? ☐ Yes ☐ No

**8.** Have you ever worked on a HAZMAT team? ☐ Yes ☐ No

**9.** Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications): Yes / No

If "yes," name the medications if you know them: \_\_\_\_\_

**10.** Will you be using any of the following items with your respirator(s)?

a. HEPA Filters: ☐ Yes ☐ No

b. Cartridges: ☐ Yes ☐ No

c. Canisters (for example, gas masks): ☐ Yes ☐ No

**11.** How often are you expected to use the respirator(s) (check "yes" or "no" for all answers that apply to you)?

- a. Escape only (no rescue): ☐ Yes ☐ No      b. Emergency rescue only: ☐ Yes ☐ No  
c. Less than 5 hours per week: ☐ Yes ☐ No      d. 2 to 4 hours per day: ☐ Yes ☐ No  
e. Less than 2 hours per day: ☐ Yes ☐ No      f. Over 4 hours per day: ☐ Yes ☐ No

**12.** During the period you are using the respirator(s), is your work effort:

**a. Light** (less than 200 kcal per hour)? ☐ Yes ☐ No

If "yes," how long does this period last during the average shift: \_\_\_\_\_ hrs. \_\_\_\_\_ min.

Examples of a light work effort are sitting while writing, typing, drafting, or performing light assembly work; or standing while operating a drill press (1-3 lbs.) or controlling machines.

**b. Moderate** (200 to 350 kcal per hour): ☐ Yes ☐ No

If "yes," how long does this period last during the average shift: \_\_\_\_\_ hrs. \_\_\_\_\_ Min.

Examples of moderate work effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; walking on a level surface about 2 mph or down a 5-degree grade about 3 mph; or pushing a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.

**c. Heavy** (above 350 kcal per hour)? ☐ Yes ☐ No

If "yes," how long does this period last during the average shift: \_\_\_\_\_ hrs. \_\_\_\_\_ Min.

Examples of heavy work are lifting a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).

**13.** Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using the respirator? ☐ Yes ☐ No

If "yes," describe this protective clothing and/or equipment: \_\_\_\_\_

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**14.** Will you be working under hot conditions (temps. exceeding 77° F)? ☐ Yes ☐ No

**15.** Will you be working under humid conditions? ☐ Yes ☐ No

**16.** Describe the work you will be doing while using your respirator(s): \_\_\_\_\_

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**17.** Describe any special or hazardous conditions you might encounter when you are using your respirator(s) (for example, confined spaces, life-threatening gases)

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**18.** Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator(s):

Name of first toxic substance: \_\_\_\_\_

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Estimated maximum exposure level per shift: \_\_\_\_\_

Duration of exposure per shift: \_\_\_\_\_

Name of second toxic substance: \_\_\_\_\_

Estimated maximum exposure level per shift: \_\_\_\_\_

Duration of exposure per shift: \_\_\_\_\_

Name of third toxic substance: \_\_\_\_\_

Estimated maximum exposure level per shift: \_\_\_\_\_

Duration of exposure per shift: \_\_\_\_\_

Name of any other toxic substances you will be exposed to while using your respirator: \_\_\_\_\_

**19.** Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, and security):

**20.** Additional Comments: \_\_\_\_\_

Employee Name	Employee Signature	Date
---------------	--------------------	------

Physician Name	Physician Signature	Date
----------------	---------------------	------

***Accurate Painting Company***  
**Respiratory Protection Program**  
***Employee Acknowledgment***

By my signature below, I acknowledge that I have received instruction and have read the Accurate Painting Company Respiratory Protection Program. I have been given the opportunity to ask questions and have received answers, instruction, and clarification to my questions. I understand the contents of and agree to follow Accurate Painting Company company policy regarding this Respiratory Protection Program.

Respiratory Protection Program received on \_\_\_\_\_, 20 \_\_\_\_

\_\_\_\_\_  
Printed Name of Employee

\_\_\_\_\_  
Signature of Employee

\_\_\_\_\_  
Date

\_\_\_\_\_  
Social Security Number

\_\_\_\_\_  
Printed Name of Trainer

\_\_\_\_\_  
Signature of Trainer

\_\_\_\_\_  
Date

cc: Employee file

# INFORMATION FOR EMPLOYEES USING RESPIRATORS

## ***When Not Required Under 29 CFR 1910.134***

**To the employer:** The statement below must be read by all employees using respirators not required under the Respiratory Protection Standard

**To the employee:** Can you read? Yes ☐ No ☐

Your employer is required to have you read the statement below if you are using respirators not required under the Respiratory Protection Regulation. Ensure you keep a copy of this form for your personal records.

### **EMPLOYEE INFORMATION**

Employee Name:	Work Location:
Facility:	ID/Clock Number:
Job Title:	Dept./Phone:

**CERTIFICATION:** I certify that I have read and understand the below Respiratory Protection Statement as required by the Occupational Safety and Health Administration (OSHA).

**Employee Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

### ***OSHA RESPIRATORY PROTECTION STATEMENT***

#### **To The Respirator User:**

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

#### **You Should Do The Following:**

Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.

Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.

Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.

Keep track of your respirator so that you do not mistakenly use someone else's respirator.

### **FORM RETENTION INFORMATION**

### **ATTACHMENTS**

Retention File:	Location:	*Yes <input type="checkbox"/> No <input type="checkbox"/>
Date Filed:	Filed By:	*See Following Pages <input type="checkbox"/>

RESPIRATOR INSPECTION RECORD		
<b>OWNER INFORMATION</b>		
<i>Owner's Name (if individually issued):</i>		
<i>Company Name</i>	<i>Department</i>	
<i>Employee ID # (if applicable)</i>	<i>Work Phone</i>	
<b>RESPIRATOR INFORMATION</b>		
<i>Type of Respirator</i>		
<i>Manufacturer</i>	<i>Model #</i>	
<i>Size #</i>	<i>Respirator ID #</i>	
<i>Date of Inspection</i>	<i>Time</i>	
<b>INSPECTION CRITERIA</b>		
<b>Estimated Frequency</b> (Check all that apply):		
<input type="checkbox"/> Hourly <input type="checkbox"/> Twice each Shift <input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Before Use <input type="checkbox"/> After Use		
This inspection is being conducted <b>PRIOR</b> to use.		Initials
This inspection is being conducted <b>AFTER</b> use.		Initials
<b>COMPONENT:</b>	<b>DEFECTS FOUND:</b>	<b>CORRECTIVE ACTION TAKEN:</b>
Cartridge Holder:		
Cartridge Threads/Fittings:		
Cartridge/Canister:		
Cartridge Filter:		
Connections:		
Elastomeric Parts Deteriorating?		
Elastomeric Parts Pliable?		
Exhalation Valve Assembly:		
Facepiece:		
Gaskets:		
Harness Assembly:		
Headbands:		
Hose Assembly:		
Inhalation Valve:		
Nose Cup Valves:		
Speaking Diaphragm:		
Other:		
<b>Comments</b>		
<i>Inspector's Name</i>		<i>Title</i>
<i>Signature</i>		<i>Date</i>
<b>FORM RETENTION INFORMATION</b>		<b>ATTACHMENTS</b>
Retention File: Location:		*Yes <input type="checkbox"/> No <input type="checkbox"/>
Date Filed: Filed By:		*See Following Pages <input type="checkbox"/>

<b>RESPIRATOR CLEANING RECORD</b>	
<b>OWNER INFORMATION</b>	
<i>Owner's Name (if individually issued):</i>	
<i>Company Name</i>	<i>Department</i>
<i>Employee ID # (if applicable)</i>	<i>Work Phone</i>
<b>RESPIRATOR INFORMATION</b>	
<i>Type of Respirator</i>	
<i>Manufacturer</i>	<i>Model #</i>
<i>Size #</i>	<i>Respirator ID #</i>
<i>Date of Inspection</i>	<i>Time</i>
<b>CLEANING REQUIREMENTS FOR TIGHT FITTING RESPIRATORS</b>	
<b>Estimated Frequency</b> (Check all that apply):	
<input type="checkbox"/> Hourly <input type="checkbox"/> Twice each Shift <input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Before Use <input type="checkbox"/> After Use	
<b>COMPONENT</b>	<b>CLEANING REQUIREMENTS</b>
Cartridge Holder:	
Cartridge Threads/Fittings:	
Cartridge/Canister:	
Cartridge Filter:	
Connections:	
Elastomeric Parts Deteriorating?	
Elastomeric Parts Pliable?	
Exhalation Valve Assembly:	
Facepiece:	
Gaskets:	
Harness Assembly:	
Headbands:	
Hose Assembly:	
Inhalation Valve:	
Nose Cup Valves:	
Speaking Diaphragm:	
<b>Respirator Cleaning Procedures (Mandatory)</b> These procedures are provided for employee use when cleaning respirators. They are general in nature, and the employee as an alternative may use the cleaning recommendations provided by the manufacturer of the respirators, provided such procedures are as effective as those listed in 29 CFR 1910.134 Appendix B-2. Equivalent effectiveness simply means that the procedures used must accomplish the objectives set forth below. <b>Procedures for Cleaning Respirators:</b> 1. Remove filters, cartridges, or canisters. Disassemble facepieces by removing speaking diaphragms, demand and pressure - demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts. 2. Wash components in warm (110 deg. F maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt. 3. Rinse components thoroughly in clean, warm (110 deg. F maximum), preferably running water. Drain. 4. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following: <ul style="list-style-type: none"> <li>• Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 110 deg. F.</li> <li>• Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 110 deg. F.</li> <li>• Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.</li> </ul> 5. Rinse components thoroughly in clean, warm (110 deg. F maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed. 6. Components should be hand-dried with a clean lint-free cloth or air-dried. 7. Reassemble facepiece, replacing filters, cartridges, and canisters where necessary. 8. Test the respirator to ensure that all components work properly.	
<i>Inspector's Name</i>	<i>Title</i>
<i>Signature</i>	<i>Date</i>
<b>FORM RETENTION INFORMATION</b>	<b>ATTACHMENTS</b>
Retention File: Location:	*Yes <input type="checkbox"/> No <input type="checkbox"/>
Date Filed: Filed By:	*See Following Pages <input type="checkbox"/>



# RESPIRATOR INSPECTION

## Straps

- Check connections to face piece.
- Check for continued elasticity.
- Check connections for neck and top of head.

## Face piece

- Check overall shape for deformities.
- Check all metal pieces for bending.
- Check sealing surfaces for elasticity.
- Assure that there are no tears, scratches or other damage to the sealing surface.

## Valves

- Check inhalation valves for flexibility and proper seating.
- Check exhalation valve for presence, flexibility, and proper seating.
- Assure that exhalation valve sealing surfaces are smooth and undamaged.

## Valve Cover

- Check for presence of exhalation valve cover.
- Check exhalation valve cover for cracks.

## Gaskets

- Check cartridge holders for gasket presence.
- Check gasket surface for smoothness.
- Check cartridge fitting/housing for cracks or anything preventing proper cartridge seating.

## Cartridges

- Check that cartridge is correct cartridge for the task/job.
- Check that cartridge edge or bead that seats against the cartridge holder gasket is smooth and undamaged.
- Check that cartridge has just been removed from sealed packaging or has adequate remaining use time for intended task/job.

## Overall

- Check whole assembly for damage or wear

# FULLFACE RESPIRATOR FIELD INSPECTION

## Straps

- Check connections to face piece.
- Check for continued elasticity.
- Check connections for neck and top of head.

## Face piece

- Check overall shape for deformities.
- Check all metal pieces for bending.
- Check sealing surfaces for elasticity.
- Assure that there are no tears, scratches, or other damage to the sealing surface.

## Lens

- Check lens for flaws or cracks.
- Check lens holder for cracks and deformities.
- Check lens holder for secure seal against lens edge.

## Valves

- Check inhalation valves for presence, if accessible on this model respirator.
- Check inhalation valves for flexibility and proper seating, if accessible on this model respirator.
- Check exhalation valve for presence, flexibility, and proper seating, if accessible on this model.
- Assure that exhalation valve sealing surfaces are smooth and undamaged, if accessible.

## Valve Cover

- Check exhalation valve cover for presence, if accessible on this model respirator.
- Check exhalation valve cover for cracks, if accessible on this model respirator.

## Amplifier

- If equipped with voice amplifier, check for continued function.

## Gaskets

- Check cartridge holders for gasket presence.
- Check gasket surface for smoothness.
- Check cartridge fitting/housing for cracks or anything that would prevent proper cartridge seating.

## Cartridges

- Check that cartridge is correct cartridge for the task/job.
- Check that cartridge edge or bead that seats against the cartridge holder gasket is smooth and undamaged.
- Check that cartridge has just been removed from sealed packaging or that the use log on these cartridges reflects adequate remaining use time for the intended task/job.

## Canister hose

- Check canister hose assembly for flexibility and wear.
- Check canister hose connections for damage and wear.

## Canister belt

- Check canister belting and harness assembly for damage and wear.
- Check all connections for smooth operation.

## Canister

- Check that canister is correct canister for the task/job.
- Check that the canister connection point is smooth and damaged.
- Check that the canister seal has just been removed or that the log on this canister reflects adequate remaining use time for the intended task/job.
- If Type N canister, check that the window shows the catalyst is still working.

## Overall

- Check whole assembly for damage or wear.

Inspected by:

Date:

Identify Respirators Checked:

# ***Accurate Painting Company***

## **EMPLOYEE MEDICAL RELEASE**

***For Respiratory Protection Use***

Physician's Full Name

Telephone Number

Street Address

City

State

Zip

I, \_\_\_\_\_, examined

Physician's Name

Employee's Name

Employee's Social Security Number

Date of Examination

***As a result of this examination, I find that this employee is:***

***Approved***

***Not  
Approved***

***For:***

☐☐

The use of negative pressure respiratory protection.

☐☐

The use of positive pressure respiratory protection.

☐☐

The use of self-contained breathing apparatus.

☐☐

The wearing of protective clothing such as a Tyvek suit when wearing respiratory protection.

Comments/Observations: \_\_\_\_\_

Physician's Signature

Date

cc: Personnel file

[illegible]

#### **Occupational Noise Exposure - MIOSHA-Part 380-R 325.601**

##### **Policy for Occupational Noise Exposure**

Accurate Painting Company has implemented this policy to ensure that no employee is exposed to noise levels in excess of the action levels as listed in the following regulations. The following engineering controls and work practices will be enforced.

##### **Policy Statement**

Upon initial hiring, employees will be trained in the hazards presented by excessive noise levels in the workplace, and the use and care of hearing protection devices. Training will be repeated annually and updated to reflect changes in personal protective equipment (PPE) and work requirements.

Employees will be required to wear hearing protection in work areas whenever employee noise exposures equal or exceed an 8-hour time-weighted average sound level (TWA) of 85 decibels measured on the A scale (slow response) or, equivalently, a dose of fifty percent.

Audio monitoring will be implemented if it is believed noise levels in work areas are approaching or exceed action level limits. If monitoring results indicate exposures equaling or exceeding safe limits, an employee will be included in a hearing conservation program. A baseline audiogram will be done within 6 months of exposure with the employee required to cease work and avoid high noise levels for at least 14 hours prior to the test. An audiogram will be performed at least annually on employees in the hearing conservation program, and if comparison indicates a standard threshold shift, the employee will be notified of this fact, in writing, within 21 days of the finding.

If a standard threshold shift occurs, the following procedures will be implemented:

- Employees not using hearing protectors will be fitted with hearing protectors, trained in their use and care, and required to use them.
- Employees already using hearing protectors will be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary.
- The employee will be referred for a clinical audiological evaluation or an otological examination, as appropriate, if additional testing is necessary or if it is suspected that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors.
- The employee will be informed of the need for an otological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected.

Audiometric evaluation and testing conducted by a licensed physician using the guidelines contained in Part 380, is available to all employees whose work requirements equals or exceeds an 8 hr. time-weighted average 85 decibels on a regular basis at no cost to the employee.

Hearing protection is available at no cost to all employees upon request from the job-site foreman or Company office.

A record of all audio testing and monitoring will be kept at the Company office and maintained as required. Evaluations will be done for suitable hearing protection from the noise levels encountered in the workplace. These records, as well as information on these MIOSHA regulations and appendices will be available to employees upon request.

## Introduction

This chapter describes what you can do at your workplace to control noise that can damage your coworkers' or employees' hearing. It is about developing **strategies** to prevent or control workplace noise and is organized in four sections.

- **Sound and Noise** — gives you basic information about sound and noise.
- **Controlling Workplace Noise** — describes noise-control tools and suggests how to use them to develop a noise-control strategy for your workplace.
- **Your Program for Success** — shows you how to fit a noise-control strategy into a successful workplace safety-and-health program.
- **Rules to Work by** — gives you an overview of MIOSHA's hearing conservation requirements.

## Sound and Noise: Overview

### Sound

Sound is what you hear. Of course, a dog can hear sounds that you cannot and you can feel the sound of a jet as it prepares to take off. However, most of us, in our everyday lives, relate sound with what we hear.

### Noise

Noise is sound that you do not want to hear. One person's noise may be another person's music, but there is a point at which noise becomes a problem for all of us: when it is so loud that it destroys our ability to hear sounds that we want to hear.

**About this Section:** This section tells you about the following topics:

- How is sound measured?
- How does hearing work?
- How loud is too loud?
- What happens when noise is too loud?
- How can I tell if my hearing is damaged?
- How can I tell when workplace noise is dangerous?

### How is sound measured?

Sound is measured in two ways: **decibels** and **frequency**.

## Decibels

Decibels indicate the pressure of sound. Sound waves transfer that pressure from place to place and are measured in units on a *logarithmic* scale, shown below.

<b>Decibels</b>	<b>Increase in Sound Intensity</b>
<b>100</b>	$10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 = 10,000,000,000$
<b>90</b>	$10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 = 1,000,000,000$
<b>80</b>	$10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 = 100,000,000$
<b>70</b>	$10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 = 10,000,000$
<b>60</b>	$10 \times 10 \times 10 \times 10 \times 10 \times 10 = 1,000,000$
<b>50</b>	$10 \times 10 \times 10 \times 10 \times 10 = 100,000$
<b>40</b>	$10 \times 10 \times 10 \times 10 = 10,000$
<b>30</b>	$10 \times 10 \times 10 = 1,000$
<b>20</b>	$10 \times 10 = 100$
<b>10</b>	$10 \times 1 = 10$
<b>1</b>	1

*For each 10 decibel increase in sound level, you increase sound intensity by a factor of 10.*

## Frequency

Frequency is related to a sound's **pitch** and is measured in units called **hertz (Hz)**, or cycles per second. The pitch of a sound — how high or low it seems — is how you perceive its frequency.

The higher a sound's pitch, the higher its frequency. Children usually have the best hearing and can often distinguish frequencies ranging from the lowest note on a pipe organ (about 20 Hz), to the trill of a dog whistle (20,000 Hz).

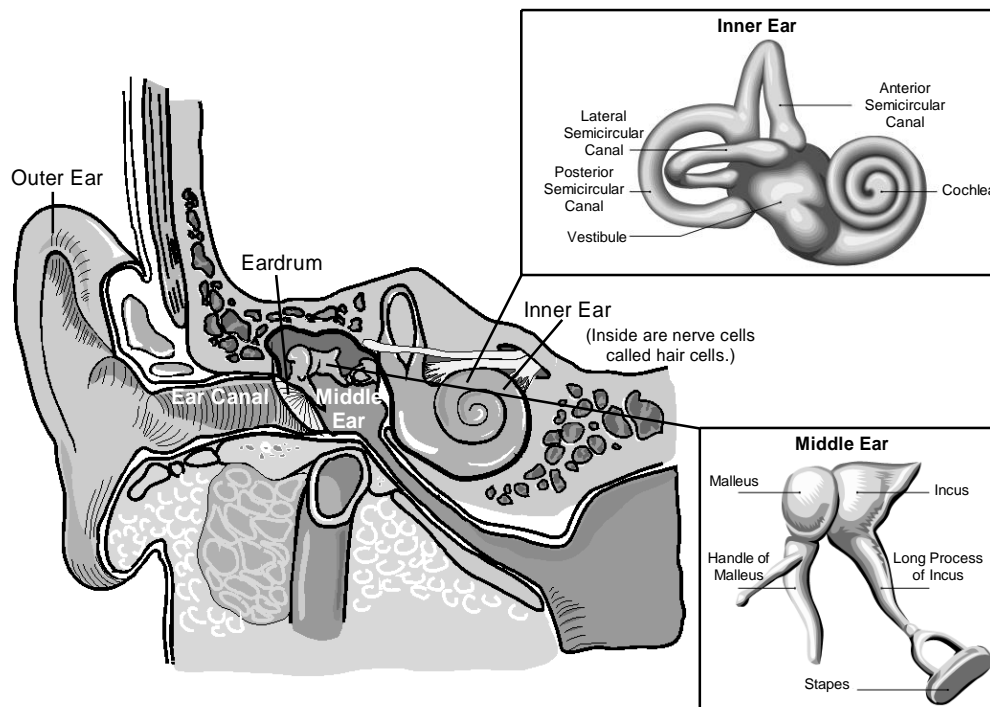
Human hearing is most sensitive to frequencies between 3,000 to 4,000 Hz. That is why those with damaged hearing have difficulty understanding higher-pitched voices and other sounds in the 3,000- to 4,000-Hz range.

## How does hearing work?

The ear has three main parts: **the outer ear, middle ear, and inner ear**. The outer ear opens to the ear canal. The **eardrum** separates the ear canal from the middle ear. Small bones in the middle ear transfer sound to the inner ear. The inner ear contains the nerve endings that lead to the brain.

## Waves and Vibrations

All sounds produce waves. Sound waves, which funnel through the opening in your outer ear, travel down the ear canal, and strike your eardrum, causing it to vibrate. The vibrations pass the small bones of the middle ear, which transmit them to sensory cells — called **hair cells** — in the inner ear. The vibrations become nerve impulses and go directly to the brain, which interprets the impulses as sound.



## How loud is too loud?

### Guidelines

People differ in their sensitivity to noise and there is no way to determine who is at risk for hearing damage. Factors such as sound pressure, frequency, and exposure time all play a role in determining whether noise is harmful or just annoying.

You should consider your hearing at risk if noise affects you in one of the following ways:

- You have to shout above noise to make yourself heard
- You have ringing in your ears for several hours after exposure to noise
- You have difficulty hearing normal sounds for several hours after exposure to noise

### Exposure Times and Noise Levels

Most hearing specialists agree: You can damage your hearing if you are continually exposed to noise levels greater than 85 decibels over an eight-hour period. As noise levels rise above 85 decibels, the safe exposure time falls dramatically, as shown below.

#### Maximum Exposure Times, Without Hearing Protection

Duration per day, Sound level dBA, hours slow response	
8-----	85
6-----	92
4-----	95
3-----	97
2-----	100
1-1/2-----	102
1-----	105
1/2-----	110
1/4 or less -----	115

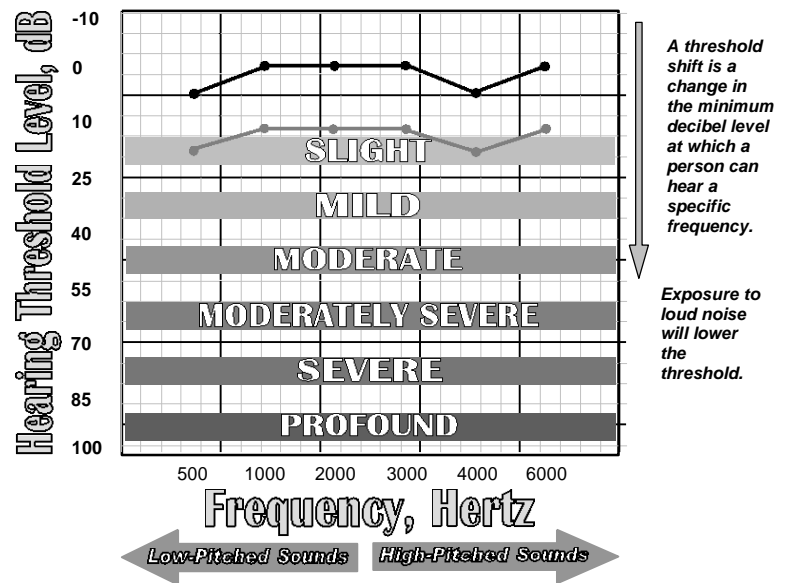


## What happens when noise is too loud?

### Shifting Thresholds

When noise is too loud, it can damage the sensitive hair cells in your inner ear. Those hair cells are the foot soldiers for your hearing. As the number of damaged hair cells increases, your brain receives fewer impulses to interpret as sound. When you damage hair cells, you damage hearing.

While a single exposure to loud noise — such as a shotgun blast — can damage your hair cells, it probably will not destroy them. You may experience ringing in your ears and some sounds may be muffled, but your hair cells will recover and so will your hearing. This is called a temporary threshold shift.



On the other hand, repeated exposures to loud noise — hundreds of shotgun blasts — will damage hair cells to the point that they cannot recover. Because the damage is permanent, the result is called a permanent threshold shift. There is no treatment — no medicine, no surgery, not even a hearing aid — that will restore it. When you destroy hair cells, you destroy hearing.

## How can I tell if my hearing is damaged?

### Signs and Symptoms

Hearing loss is painless and gradual. It usually develops over several years — you might not even notice the loss during those years. Sometimes overexposure to loud noise can trigger ringing or other sounds in your ears, called tinnitus. While tinnitus may be a symptom of damaged hearing, it can also be caused by infections, medications, and impacted ear wax. The only way to know for sure if noise has damaged your hearing is to have a hearing examination by a certified audiometric technician, audiologist, otolaryngologist, or physician.

If you can answer “yes” to any of the following questions, your hearing may be at risk.

- At your workplace, are you exposed to loud noise without hearing protection?
- Do you shout to a coworker at arm's length because of the noise around you?
- Off the job, are you exposed to noise from firearms, motorcycles, snowmobiles, power tools, or loud music without hearing protection?
- Do you need to turn up the television or radio volume to hear it?
- Do you ask people to repeat sentences?
- Do you feel your hearing is not as good as it was 10 years ago?
- Have family members noticed a problem with your hearing?

## How can I tell when workplace noise is dangerous?

### Signs and Symptoms

If you are not sure whether the noise in your workplace is dangerously loud, ask yourself: “Is normal conversation difficult because of the noise?” “Have coworkers also complained about the noise?” These are symptoms of a noise problem.

## Sound Surveys

There is really only one way to tell when workplace noise is dangerous. Have the noise evaluated by someone trained to do a sound survey. (Anyone trained to use a sound-level meter and a dosimeter should be able to conduct a survey.)

There are three types of sound surveys:

- **Basic Survey** — The surveyor uses a sound-level meter to identify areas in the workplace that may put workers' hearing at risk.
- **Detailed Survey** — The surveyor uses a sound-level meter and a dosimeter to monitor and estimate an individual worker's daily exposure to noise.
- **Engineering Survey** — The surveyor measures noise levels produced by machinery in different operating modes to find ways to eliminate or control excessive noise.

## Survey Objectives

An effective noise survey should give you enough information to understand a noise problem — to identify it and to determine how to control it. It is important to narrow the survey's focus so that you are not overwhelmed with more information than you need to make a good decision.

## Controlling Workplace Noise

### Overview

Though some people may tell you otherwise, there is more to noise control than buying products off the shelf at your local safety-supply store. Do you really need to spend money on noise-control products? This section describes what to consider before you decide.

### Where to Control Noise

If you have a workplace noise problem, there are three points at which you can bring it under control:

- At the source. What is causing the noise?
- Along the sound path. How does sound move from the source to the listener?
- At the listener. Who is affected by the noise?

### How to Control Noise

There are seven tools you can use to accomplish the task:

- |                          |                           |
|--------------------------|---------------------------|
| ▪ Exposure Monitoring    | ▪ Administrative Controls |
| ▪ Audiometric Testing    | ▪ Hearing Protectors      |
| ▪ Education and Training | ▪ Record Keeping          |
| ▪ Engineering Controls   | ▪ Developing a Strategy   |

This section describes each of the noise-control tools and suggests how you can use them to develop a noise-control strategy.

- |   |  |
|---|--|
| • What You Should Know About Exposure Monitoring    | • Using Administrative Controls            |
| • What You Should Know About Audiometric Testing    | • Using Hearing Protectors                 |
| • What You Should Know About Education and Training | • What You Should Know About Recordkeeping |
| • Using Engineering Controls                        |  |

## What You Should Know About Exposure Monitoring

### Exposure Monitoring as a Noise-Control Tool

If employees are exposed to noise levels that exceed 85 decibels averaged over an eight-hour period, then you must reduce their exposure. How do you know if the noise levels exceed 85 decibels? Exposure monitoring can help you answer the question; it can help you determine if noise in your workplace is too loud, where it is too loud, when it is too loud, and whose hearing may be at risk.

Anyone trained to use a dosimeter can monitor noise exposure levels for individual employees over a specific time period, such as an eight-hour day. This person can also use a sound-level meter to survey noise levels of work tasks and machines at specific times during the workday.

#### Strategy Overview

Exposure monitoring gives you the information to determine if individual employees are exposed to noise that exceeds 85 decibels averaged over an eight-hour period. It can help you identify the following:

- The location of the noise.
- The cause of the noise.
- The employee or employees affected by the noise.

## What You Should Know About Audiometric Testing

### Audiometric Testing as a Noise-Control Tool

Audiometric testing determines whether an employee's hearing is stable or getting worse over time. The testing instrument is called an audiometer and the result of the test — the **audiogram** — is a graph showing an employee's hearing ability at different sound-frequency levels. An employee's baseline audiogram establishes a baseline or reference for comparing to the employee's future audiograms.

- Employees who are exposed to noise that exceed 85 decibels averaged over an eight-hour day must have baseline audiometric tests.
- At least annually, after the baseline test, employees must be re-tested if they are exposed above the 85-decibel limit.
- The results of each employee's annual audiogram must be compared to the baseline audiogram to determine if the employee's hearing has changed.
- If the comparison indicates a change in the employee's hearing, the employee must be notified within 21 days of the finding.
- Only a certified audiometric technician, audiologist, otolaryngologist, or physician can perform an audiometric test.

#### Strategy Overview

Audiometric testing can tell you how effectively you are controlling workplace noise. If employees are overexposed, you will see the results as **threshold shifts** when you compare their baseline audiograms to their annual audiograms.

If employees are overexposed, you will need to determine how and why the overexposure is occurring.

## What You Should Know About Education and Training

### Education and Training as a Noise-Control Tool

Informed employees know about workplace hazards, how to recognize the hazards, and how to control their exposure. The best way to inform them — and to keep them informed — is through education and training.

Employees who are exposed to noise levels that exceed 85 decibels averaged over an eight-hour period must understand the following concepts:

- Why 85-decibel-level noise can damage their hearing.
- The purpose of audiometric testing.
- The purpose of hearing protectors and how to use them properly.

## **Strategy Overview**

If your workplace has noise levels that exceed 85 decibels, education and training, exposure monitoring, and audiometric testing are probably the most important tools of your noise-control strategy.

Education and training inform employees about noise hazards, while exposure monitoring and audiometric testing identify the hazards. Together, these tools help you eliminate noise hazards or keep them under control.

## **Using Engineering Controls**

### **Advantages & Disadvantages**

When you replace a noisy machine with a quiet one, modify it to make it quieter, or change the sound path so that dangerous noise never reaches the listener, you are using an engineering control.

Workplace safety-and-health specialists will tell you that engineering controls are the best way to control noise. That is true if the engineering control is effective, practical, and affordable for your workplace.

For example, if you have an old, noisy, electric hand drill, you can replace it with a newer, quieter one — a practical, affordable engineering control. If you have a large, noisy chipper/shredder, however, replacing it may not be practical. Instead, you might isolate the noise by enclosing the shredder or block the noise by constructing a barrier between the shredder and the listener.

- When you double the distance between the listener and the sound source, you decrease the sound pressure level by six decibels. For example, a hazardous 96-decibel noise source at five feet is a safe 84 decibels at 20 feet.
- When you reduce the dropping height of materials collected in bins and boxes, you can quiet noisy material conveying systems. Also, consider the following low-cost controls:
- Match the conveyer speed to the flow of materials to keep the material from vibrating.
- Use rigid containers or line them with damping materials such as plastic or rubber.
- Plates dropping off a roller belt onto a stacking platform can be noisy. Reduce the drop height and you will decrease the noise.

## **Strategy Overview**

Applying effective, practical, affordable engineering controls to a noise problem is challenging because there are no ready-to-order solutions — you have to tailor them to your workplace. You are more likely to find an engineering-control solution when you have accomplished the following:

- Understand what is causing the noise.
- Determine how the noise is reaching the listener.
- Identify the most appropriate point, or points, at which to control the noise: at the source, along the sound path, or at the listener.

## **Using Administrative Controls**

### **Advantages & Disadvantages**

To administer an activity means to manage it. Unlike engineering controls — which prevent hazardous noise from reaching a worker — administrative controls manage workers' activities to reduce exposure. Closely related to administrative controls are work-practice controls, which emphasize safe work practices and procedures.

Administrative and work-practice controls are usually less expensive to carry out than engineering controls; that is because there are no significant capital costs involved in changing or modifying equipment. In some cases, administrative controls have reduced employee exposure to noise and increased productivity by rotating employees through a demanding, noisy task. Work-practice controls also improve employee performance by emphasizing safe work practices.

On the other hand, administrative controls and work-practice controls usually are not as effective as engineering controls because they do not control the noise source. Noisy machines are still noisy and the exposure hazard is still present.

### **Applying Administrative Controls: Examples**

Examples of administrative and work-practice controls include the following:

- Reducing the time employees spend working in noisy areas — for example, rotating two or more employees so that each is exposed to noise levels less than 85 decibels, averaged over an eight-hour day.
- Shutting down noisy equipment when it is not needed for production.
- Ensuring that employees maintain their equipment to keep it running smoothly and quietly.
- Ensuring that employees know how to perform tasks and operate equipment at safe noise levels.
- Using warning signs to identify work areas where noise exceeds safe levels.
- Teaching employees appropriate methods for eliminating or controlling noise.
- Encouraging employees to report noise hazards to supervisors.

### **Strategy Overview**

If you cannot eliminate or control dangerous noise at the source or along the sound path with an engineering control, you may be able to reduce it at the listener with an administrative control. However, if an administrative control will not reduce employee exposures to safe levels, you will need to consider another noise-control tool: hearing protectors.

### **Using Hearing Protectors**

There are two types of hearing protectors: ear plugs and earmuffs. Both types decrease the pressure of sound that reaches the eardrum and are the next line of defense against noise when you cannot reduce exposures to safe levels with engineering or administrative controls.

Ear plugs fit in the outer ear canal. To be effective, they must totally block the ear canal with an airtight seal. They are available in different shapes and sizes and can be custom made. An earplug must be snugly fitted so that it seals the entire circumference of the ear canal. An improperly fitted, dirty, or worn-out plug will not seal and can irritate the ear canal.

Earmuffs fit over the entire outer ear to form an air seal — they will not seal around eyeglasses or long hair — and are held in place by an adjustable headband. The headband must hold earmuffs firmly around the ear.

### **How Effective are Hearing Protectors?**

Properly fitted earplugs and muffs reduce noise levels 15 to 26 decibels. Better earplugs and muffs are approximately equal in sound reduction, though earplugs are more effective for reducing low-frequency noise and earmuffs for reducing high-frequency noise. Using earplugs and muffs together adds more protection against higher noise levels (above 105 decibels) than either used alone.

Hearing protectors are effective only when employers and employees understand how to select, wear, and care for them.

- Ensure that employees are properly fitted with appropriate hearing protectors.
- Have an adequate supply of hearing protectors available.
- Educate employees how to wear and care for hearing protectors.
- Respond promptly to employees' questions about hearing protectors.
- Replace protectors when they are damaged, dirty, or worn out.

Remember that hearing protectors control noise, they do not eliminate it — they are effective only if you wear them for the entire time that you are exposed to hazardous noise.

### **How do I select hearing protectors?**

Focus on the three C's: **comfort**, **convenience**, and **compatibility**. Do not expect employees to wear hearing protectors that are uncomfortable, difficult to use, or that interfere with their work. Employees should decide, with the help of a person trained in fitting hearing protectors, which types and sizes are appropriate.

Most hearing protectors are labeled with a noise reduction rating (NRR) indicating a protection level in decibels. However, these ratings are not reliable outside of a laboratory — which is where they received the rating — so you should not use them solely in making a selection decision. More important are factors that favor comfort, convenience, and compatibility:

- Easy to place and remove
- Simple to care for
- Constructed with non-allergenic material
- Will not interfere with eyeglasses or hard hats

### **Do I have to provide hearing protectors to my employees?**

If you are an employer, you must provide hearing protectors, at no cost, to employees exposed to workplace noise that exceeds 85 decibels, averaged over an eight-hour period. In addition, those who receive hearing protectors must have the opportunity to do the following:

- Select appropriate hearing protectors from a variety of types that are compatible with their work tasks.
- Be properly fitted with the hearing protectors they select.
- Be trained in the use and care of their hearing protectors.

Before you invest in hearing protectors, determine whether you can use engineering controls or administrative controls to lower noise levels below the 85-decibel limit.

## **What You Should Know About Recordkeeping**

### **Recordkeeping as a Noise-Control Tool**

You cannot control workplace noise without reliable information. Accurate records document what you have done to control noise and inform you when you may need to change your strategy to keep noise under control.

### **Strategy Overview**

You might think of record keeping as a separate activity, but it ties together critical information about all the other tools you use to eliminate or control workplace noise.



The table below summarizes the critical record-keeping information for each noise-control tool.

Noise-Control Tool	What it Covers	Critical Recordkeeping Information	Retention Period
<b><i>Exposure Monitoring</i></b>	Sound survey	The date of survey, instruments used, areas surveyed, noise hazards identified, employees affected, employees with exposure levels exceeding 85 decibels over an eight-hour period.	2 years
<b><i>Audiometric Testing</i></b>	Baseline and annual audiograms	Name and job classification of each affected employee, employee test results, tester's name, test date, audiometer calibration date, test room background sound pressure	Until the employee's termination date
<b><i>Education and Training</i></b>	Hearing conservation concepts	Names of employees who received training, training dates, who presented the training.	No minimum period
<b><i>Engineering Controls</i></b>	Feasibility survey	Results of feasibility surveys, controls used, start date, noise reduction achieved.	No minimum period
<b><i>Administrative Controls</i></b>	Feasibility survey	Results of feasibility surveys, controls used, start date, noise reduction achieved, employees affected.	No minimum period
<b><i>Hearing Protectors</i></b>	Selection and fitting	Date of initial hearing protector fitting for each employee, size and brand of hearing protector selected, name of person who assisted with fitting.	No minimum period

## Your Program for Success

### Workplace Occupational Noise Program

A program is simply a means for achieving a goal. Your workplace program is what you and your employees do to achieve and maintain a safe, healthful workplace. A workplace program is just a concept, but it is an important one. Think for a moment about how you control injuries and illnesses at your workplace. Your workplace program reflects how you manage the safety and health of your employees.

### Elements of a Successful Program

Look at any business that has a safe, healthful workplace and you will find the following elements:

- Managers are committed to making the program work.
- Employees are held accountable for following safe work practices.
- Employees are involved in the program.
- Employees know how to identify and control hazards.
- Employees know how to investigate near-miss incidents and accidents.
- Employees and managers are educated and trained in safe work practices.
- Managers review the program regularly to ensure that it stays effective.

### Noise Control and Your Workplace Program

An effective workplace program covers all the bases: when you identify workplace hazards, control them effectively, investigate accidents and avoid repeating them, and train employees how to do their jobs safely, you are already complying with most workplace requirements. The following table shows how a noise-control strategy fits into a successful workplace safety program.



<b>PROGRAM for SUCCESS</b>	
<b>Safety Program Element</b>	<b>Noise-Control Strategy</b>
<b>Management Commitment</b>	Be committed to achieving and maintaining a low-noise workplace — where noise exposure levels do not exceed 85 decibels averaged over a typical eight-hour work period.
<b>Hazard Identification</b>	Identify noise hazards by conducting sound surveys to monitor actual noise levels in the workplace and to determine the location of noise hazards, the cause of the hazards, and the employees affected.
<b>Hazard Control</b>	When noise levels exceed 85 decibels averaged over an 8-hour period, determine what method or methods — engineering controls, administrative controls, or hearing protectors — will reduce the noise to safe levels.
<b>Accountability</b>	Determine who should be responsible for identifying noise hazards, applying appropriate control methods, conducting monitoring and audiometric testing, and keeping accurate records of monitoring and testing results.
<b>Accident Investigation</b>	Keep accurate records of all employee exposures and audiometric tests. Review the records to determine if you are controlling noise hazards or if you need to strengthen the controls.
<b>Education and Training</b>	Educate employees about the purpose of audiometric testing, monitoring, and hearing protectors; train employees how to use and care for hearing protectors.
<b>Employee Involvement</b>	<ul style="list-style-type: none"> <li>• Require all employees exposed to noise levels exceeding 85 decibels, averaged over an eight-hour day to participate in training.</li> <li>• Inform employees about their monitoring and audiometric test results.</li> <li>• Encourage employees to report noise hazards and to offer solutions for controlling them.</li> </ul>
<b>Program Review</b>	Evaluate each of the above elements periodically to ensure that you're achieving and maintaining a low-noise workplace.

## **Rules to Work By**

### **Overview: MIOSHA's Hearing Conservation Rules**

If employees at your workplace are exposed to noise levels above an 8-hour time-weighted average of 85 decibels you must have a hearing conservation program.

The program must include monitoring, audiometric testing, and training, and must accomplish the following:

- Allow employees to observe the monitoring process.
- Inform affected employees about their monitoring results.
- Provide appropriate hearing protectors to affected employees.
- Maintain accurate monitoring, audiometric testing, and training records.
- Allow employees to review monitoring, audiometric testing, and training records.

## The Rules by Topic and Number

OSHA's hearing conservations rules apply to general industry and construction employers. The table below identifies the rules by topic and number.

Part 380-Occupational Noise Exposure	
Topic	Rule Number
Monitoring Program	R 325.60107
Employee Notification	R 325.60109
Noise Exposure Determination	R 325.60110
Audiometric Testing	R 325.60112-20
Hearing Protectors	R 325.60121
Hearing Protector Attenuation	R 325.60122
Training	R 325.60123
Access to Information and Training	R 325.60124
Record Keeping	R 325.60125

## Key Words Defined

<b>Administrative Control</b>	A method of controlling workplace hazards by managing workers' activities to reduce exposure.
<b>Audiogram</b>	A graph showing individual hearing ability as a function of frequency.
<b>Decibel</b>	A unit of sound-pressure level, abbreviated dB.
<b>Dosimeter</b>	A device worn by a worker for determining the worker's accumulated noise exposure based on sound level and time and calculated by a pre-determined integration formula.
<b>Earmuff</b>	Personal protective equipment that fits over both ears and forms an air seal.
<b>Earplug</b>	Personal protective equipment that fits in the outer ear canal; to be effective they must totally block the ear canal with an air-tight seal.
<b>Eardrum</b>	A membrane in the ear canal between the external ear and the middle ear.
<b>Engineering Control</b>	A method of controlling a workplace hazard by modifying or eliminating the source of exposure so that it is no longer hazardous.
<b>Frequency</b>	The number of times per second that the sine wave of sound repeats itself, or that the sine wave of a vibrating object repeats itself. Now expressed in hertz (Hz), formerly in cycles per second (cps).
<b>Hair cell</b>	Sensory cells in the inner ear that transforms the mechanical energy of sound into nerve impulses.
<b>Hearing</b>	The subjective human response to sound.
<b>Hearing Protectors</b>	Personal protective equipment that decreases the pressure of sound that reaches the eardrum; includes earplugs and earmuffs.
<b>Hertz</b>	Unit of measurement of frequency, numerically equal to cycles per second, abbreviated Hz.
<b>Inner Ear</b>	The inner portion of the ear involved in hearing and balance.
<b>Logarithm</b>	The exponent that indicates the power to which a number must be raised to produce a given number. For example, for the base 10 logarithm, used in acoustics, 2 is the logarithm of 100.

<b>Middle Ear</b>	The middle portion of the ear consisting of the eardrum and an air-filled chamber lined with mucus membrane.
<b>Noise</b>	1. Sound that is noticeably unpleasant. 2. Sound that is undesired or that interferes with one's hearing.
<b>Noise-Induced Hearing Loss</b>	Sounds of sufficient intensity and duration that damage one's hearing ability.
<b>Outer Ear</b>	The external portion of the ear including the canal leading to the eardrum.
<b>Permanent Threshold Shift</b>	A permanent decrease in hearing ability a specified frequency as compared to a previously established reference level.
<b>Pitch</b>	The property of a sound that is determined by the frequency of the waves producing it; the highness or lowness of sound.
<b>Sound</b>	1. The sensation perceived by the sense of hearing. 2. Mechanical radiant energy transmitted by waves in a material medium such as air, and the objective cause of hearing.
<b>Sound-Level Meter</b>	An instrument that uses a microphone, amplifier, and output meter to measure sound levels.
<b>Sound Survey</b>	Describes a variety of methods of measuring sound levels; including basic survey, detailed survey, and engineering survey; includes monitoring exposure levels at the listener over extended time periods, such a an eight-hour work day.
<b>Temporary Threshold Shift</b>	A temporary impairment of hearing ability.
<b>Tinnitus</b>	Ringing in the ear or noise sensed in the head. Onset may be due to an acoustic trauma and persist in the absence of acoustical stimulation (in which case it may indicate a lesion of the auditory system).
<b>Work-Practice Control</b>	A type of administrative control; emphasizes safe work practices and procedures.

#### **Tools - MIOSHA-CSS Part 19-R 408.419**

#### **Hand & Portable Powered Tools - MIOSHA-GISS Part 38-R 408.138**

##### **Policy Statement**

Accurate Painting Company has adopted the following procedures for the safe use of hand and power tools. Supervisors and employees will be trained in the proper use of any tool they are not familiar with.

Joe Badalamenti and the direct Supervisor is responsible for ensuring that employees are properly trained and follow the procedures outlined in this chapter.

Employees will notify Joe Badalamenti and the direct Supervisor if any equipment is defective or in need of repair.

##### **Employer Responsibilities**

- Ensure that employees have been trained in the use of tools before authorizing their use.
- Maintain, or require to be maintained, tools free of defects that could cause injury to an employee.

##### **Employee Responsibilities**

- Use proper personal protective equipment.
- Report defective tools to the employer.
- Not use a tool for other than its designed or approved use.

##### **General**

Regardless of ownership, a tool or part of a tool with a defect that could cause an injury will be replaced or repaired before use.

When a guard is provided on a tool, it will not be made inoperative. It may be removed only for repair, service, or setup, and it will be replaced before the tool is returned to use.

All means of power transmission and reciprocating and rotating parts of a tool, such as belts, gears, sprockets, shafts, pulleys, and chains, will be guarded if exposed to contact.

Hand tools or portable powered tools will not be left on a scaffold, ladder, or work platform after the completion of the work operation or day. Before the scaffold, ladder, or work platform is moved, all tools will be removed or properly secured against displacement.

Racks, bins, or tool chests will be provided for the storage of tools, and any sharp or pointed edges will be arranged so as not to create a hazard.

A tool will be visually inspected by the user for safe operation before each daily use and, when found defective, will be removed from service and tagged.

A tool that is used in a potentially explosive atmosphere will be designed and approved for such atmosphere.

A safety device or operating control will not be made inoperative, except for the removal of lock-on control devices.

## Portable Powered Tools

A hand-held powered circular saw which has a blade diameter of more than 2 inches; an electric, hydraulic, or pneumatic chain saw; and a percussion tool without positive accessory holding means will be equipped with a constant-pressure switch or control that shuts off the power when the pressure is released. A gasoline-powered, hand-operated tool will be equipped with a constant pressure throttle control. A throttle position lock may be provided for starting only.

All of the following tools will be equipped with a constant pressure switch or control and may have a lock-on control if the tool can be turned off by a single motion of the same finger or fingers that turn it on without release of the grip on the tool:

- A hand-held powered drill. Reciprocating saw.
  - Tapper. Saber saw.
  - Fastener driver. Scroll saw.
  - Grinder with a wheel more than 2 inches in diameter. Jigsaw with a blade shank more than a nominal ¼ inch.
  - Similarly operating power tool.
- Disc sander with a disc more than 2 inches in diameter.
- Belt sander.

The lock-on control of a drill of more than 3/8-inch capacity will not be used when the drill is held in the hand to drill, clean, or enlarge a hole.

All of the following hand-held powered tools may be equipped with either a positive on-off control or other control.

- A platen sander. Nibbler.
- Grinder with a wheel 2 inches or less in diameter. Shear.
- Disc sander with discs 2 inches or less in diameter. Saber saw.
- Router. Scroll saw.
- Planer. Jigsaw with a blade shank of nominal 1/4 inch or less.
- Laminate trimmer.

The operating control on a hand-held power tool will be located so as to prevent accidental operation.

## Electric-Powered Tools

An electric-powered tool, such as a saw, drill motor, and router, will be grounded. This does not pertain to ungrounded electrical systems. Ground fault circuit interrupters will be used with ungrounded electrical systems.

A portable, power-driven circular saw will be equipped with a guard above and below the base plate or shoe. The upper guard will cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work. When the saw is withdrawn from the work, the lower guard will return automatically and instantly to the covered position.

- A cracked, bent, or damaged saw blade will not be used.
- The size and shape of the bore of the saw blade will provide the proper fit of arbors or proper adapters.
- An electric-powered tool will not be left running unattended.
- An extension cord to an electric-powered tool will be located so as to minimize tripping hazards.
- The trailing cord of a portable powered tool will not be used to hoist or lower the tool.
- A powered tool will be disconnected from its power source when it is serviced or when

the point of operation device is changed by a device or tool.

When not grounded or double-insulated, an electrically powered hand tool used for the installation of power transmission and distribution systems will be connected to the power supply by means of an isolating transformer or other isolated power supply.

## **Pneumatic-Powered Tools**

Pneumatic tools will be kept in good operating condition and be thoroughly inspected before use. Attention should be given to the control and exhaust valves, hose connections, and die and tool holders.

A portable pneumatic grinder or drill will be equipped with a means to maintain the speed of the grinder or drill at not more than the tool's rated speed.

Safety clips or retainers will be installed on pneumatic impact tools to prevent dies and tools from being accidentally expelled from the barrel.

Pressure will be shut off by means of a valve and exhausted from lines before disconnecting the lines from tools or connections, except when using a quick makeup coupling.

Safety fasteners will be provided at connections between tools and hose lines and at all quick makeup-type connections to prevent accidental disengagement.

The rated pressure capacity of hoses, pipes, filters, valves, and fittings will be not less than the rated pressure capacity of the tool. The pneumatic tool and its accessories will not be operated at a pressure that is more than the rated capacity.

Hoses will not be laid over ladders, stairways, scaffolds, ramps, or runways in a manner that creates a tripping hazard.

Defective hoses or connections will be removed from service.

A hose will not be used for hoisting or lowering a pneumatic-powered tool.

A pneumatic-powered tool that has a hose which has an inside diameter of more than 1/2 of an inch will have a safety device at the source of supply or branch line to reduce the pressure in case of hose failure.

An airless spray gun that atomizes paint and fluids at a pressure of more than 1,000 pounds per square inch will be equipped with an automatic or visible manual safety device that prevents the pulling of the trigger to release the paint or fluid until the safety device is manually released.

Air supply lines to a pneumatic grinder will be equipped with a moisture accumulator and oiler.

A pneumatic hose used on or around electrically energized lines or equipment will be located so that it does not become part of the electrical circuit.

Abrasive blast cleaning nozzles will be equipped with an operating valve that can only be held open manually. A support will be provided on which the nozzle may be mounted when it is not in use.

## **Cleaning with Compressed Air**

Compressed air will not be used for blowing dirt or dust from the hand, face, or clothing.

Air pressure at the discharge end of a portable air gun or hose used for cleaning will not exceed 30 pounds per square inch gauge (p.s.i.g.), except the pressure may exceed 30 p.s.i.g., when sandblasting, cleaning concrete forms, or for joint cleaning. When air pressure exceeding 30 p.s.i.g. is used for concrete forms or joint cleaning, a pipe extension of not less than 4 feet will be used at the end of the hose.

When air under pressure is used to remove chips or dust, a chip guard, such as a fixed or removable shield, safely located, will be provided to protect the operator and any employee in an adjoining area.



The employee using air under pressure will use the personal protective equipment provided to protect against hazards created by the operation.

### **Powered Staplers and Nailers**

A portable powered stapler or nailer that is capable of driving a fastener which has a diameter of more than .0475 inch, 18 gauge A.W.G., at more than 75 feet per second will be designed so that the operator is required to make not less than 2 separate operations to activate the tool, with 1 operation being to place the tool against the work surface.

The design will prevent the discharge of the stapler or nailer when loaded or when dropped.

A portable powered stapler or nailer will not be pointed or discharged at other than the workpiece.

The operator of the portable powered stapler or nailer and those employees within the striking distance of its fastener will wear eye protection.

A positive actuation of the operator control will be required to propel each fastener from a powered stapler or nailer.

When relieving a jam-up of a fastening device, the source of power will be disconnected.

Before use, a portable powered stapler and nailer will be tested for safe operation.

### **Hand Tools**

A pipe, socket, end, or adjustable wrench or pliers having sprung or worn jaws that allow slippage will not be used.

Impact tools such as, but not limited to, a drift pin, chisel, wedge, or hammer, will be kept free of mushroomed heads.

A wooden handle of a hand tool that is split, cracked, or splintered will not be used.

A measuring tape or device that is metal or contain conductive strands will not be used when working on or near electrically energized parts.

### **Axes, Hatchets, Hammers and Mauls**

An axe, hatchet, hammer or maul handle will be replaced when it becomes cracked, broken or splintered. A wood handle will be secured with wedges or equivalent means.

### **Chisels, Punches, Star Drills, Drift Pins and Wedges**

A chisel, punch, star drill, drift pin or wedge with a metal striking end will not be used when the end becomes mushroomed. The striking end will be ground with a crowned radius and beveled edge.

The working end of a chisel, punch, star drill, drift pin or wedge will be maintained as designed.

### **Files and Rasps**

A file or rasp with a tang will be equipped with a handle fitted and secured to the tang, when in use.

### **Knives**

A fixed blade knife will be carried in a sheath, in a tray or other equivalent protective means.

A folding knife which cannot be locked in place will not be used in a manner where the blade could fold on the fingers.

## **Pliers**

Pliers with sprung jaws, a worn face or worn joint pin will be replaced.

## **Screwdrivers**

An object being worked on with a screwdriver will not be held in the hand, on the lap or under the arm, except when protection is afforded by the object or other means.

A screwdriver used for electrical work will be equipped with a nonconductive handle. The shank and fasteners will not project through the handle.

A blade type screwdriver will be maintained with a flat tip at right angles to the shank and have almost parallel faces.

A screwdriver with 1 of the following defects will not be used:

- Split or broken handle.
- Cracked or broken blade.
- Loose shank in handle.
- Worn blade.
- Bent shank of a straight screwdriver.

## **Wrenches**

A wrench with spread, distorted or cracked jaws will not be used.

A wrench, except a wrench designed for that purpose, will not be subjected to hammering.

## **Powder-Actuated Tools**

### **Operator's Qualifications**

An operator of a powder-actuated tool will be trained to clean the tool correctly and to recognize any worn or defective part or defective operation. The operator will be able to use the powder-actuated tool safely under varying conditions, know the limitations of its use, and demonstrate competence by actually operating the tool in the presence of the persons who issue the operator's card.

The operator will be familiar with the provisions of these rules and the instructions provided by the manufacturer for operation and care of the powder-actuated tool to be operated, and be able to read the instructions.

### **Operators' Cards**

An operator of a powder-actuated tool will have an operators' card that should be in the operator's possession at all times while using the tool and be presented upon request or an employer may establish and maintain at the jobsite a list of employees qualified to operate a powder-actuated tool.

- Failure to comply with any of these rules is sufficient cause for the immediate surrender of an operator's card to the employer.
- The purpose of the card is to certify that the operator has completed the required training to become a qualified operator.
- The card should be of a size, approximately 2 1/2 by 3 1/2 inches, that readily fits into a wallet.
- The face of the card should include the following test and bear the signature of the issuer of the card.

**QUALIFIED OPERATOR  
POWDER-ACTUATED  
FASTENING TOOLS**

Date \_\_\_\_\_

Serial Number \_\_\_\_\_

This certifies that (name of operator) has received the prescribed training in the operation of powder-actuated fastening tools manufactured by (name of manufacturer)

Model(s) \_\_\_\_\_

(Authorized Issuer) \_\_\_\_\_

(Signature of Operator) \_\_\_\_\_

- A statement should be provided on the card as follows: "I have received instruction in the safe operation of powder-actuated fastening tools of the makes and models specified, and I agree to conform to the rules governing their use."
- A note should be printed on the card as follows: "Revocation of Card — Failure to comply with any rule for safe operation of powder-actuated fastening tools is sufficient cause for the immediate surrender of the card to the employer."
- The manufacturer of a powder-actuated tool should establish an appropriate program to instruct its employees, dealers, and distributors in the proper technical training and testing of operators and the issuance of operator's cards. Operators' cards may be issued by either of the following:
  - A dealer or distributor of powder-actuated tools, who has been authorized by the tool manufacturer to issue such cards.
  - An authorized employee of a powder-actuated tool manufacturer.

**Tool Operation**

An operator and assistant using a powder-actuated tool will be safeguarded by means of eye protection. Head and face protection will be used, as required by the working conditions. Eye protection and head and face protection will be provided for by the employer.

Before using a powder-actuated tool, the operator will inspect it to determine to the operator's satisfaction that it is clean, that all moving parts operate freely, and that the barrel is free from obstructions. A tool found not to be in proper working order, or that develops a defect during use, will be immediately removed from service and tagged, and not used until repaired.

- A powder-actuated tool will not be loaded until just prior to the intended firing time. An unattended powder-actuated tool will not be left loaded.
- A powder-actuated tool will not be left unattended in a place where it is available to unauthorized persons.
- Neither a loaded nor an empty powder-actuated tool will be pointed at any employee, and hands should be kept clear of the open barrel end.
- A fastener will not be driven:
  - Through an existing hole, unless a positive guide is used to secure accurate alignment.
  - Into a material which can be easily penetrated, unless the material is backed by a substance that will prevent the fastener from passing completely through and creating a flying missile hazard on the other side.
  - Into a very hard or brittle material, such as cast iron, glazed tile, surface hardened steel, glass block, live rock, face brick, or hollow tile, unless designed for such use. Before fastening any questionable material, the operator will determine its suitability by using a fastening as a center punch. If the fastener point does not

easily penetrate, is not blunted, and does not fracture the material, initial test fastenings will then be made pursuant to the tool manufacturer's recommendations.

- Directly into material, such as brick or concrete, closer than 3 inches from the unsupported edge or corner, or into a steel surface closer than 1/2 inch from the unsupported edge or corner, unless a special guard, fixture, or jig is used. As an exception, a low velocity powder-actuated tool may drive no closer than 2 inches from the edge in concrete or 1/4 inch in steel. When fastening other material such as a 2 inch by 4 inch wood section to a concrete surface, a fastener of no greater than 7/32 inch shank diameter may be driven not closer than 2 inches from the unsupported edge or corner of the work surface.
- A fastener will not be driven into a spalled area caused by an unsatisfactory fastening.
- A powder-actuated tool will be used with the correct guard, shield, or attachment recommended by the manufacturer.

### **Testing and Servicing**

- A powder-actuated tool will be tested each day before loading to see that safety devices are in proper working order.
- The method of testing will follow the manufacturer's recommended procedure.
- A powder-actuated tool owner will have the tool serviced and inspected at regular intervals by competent service personnel and will not permit the tool to be altered or repaired, except by competent repair people.

### **Defects and Misfires**

In case of a misfire, the operator will hold the powder-actuated tool in the operating position for not less than 30 seconds. The operator will then try to operate the tool a second time. The operator will wait another 30 seconds, holding the tool in the operating position, then the operator will proceed to remove the explosive load in strict accordance with the manufacturer's instructions. Misfired cartridges should be placed carefully in a metal container filled with water and returned to the supervisor for disposal.

### **Woodworking Machinery**

A woodworking machine will have a disconnect switch that can be locked in the off position. This does not apply to hand-held tools. The employer will establish and maintain a lockout procedure. A machine connected to an electrical source by a plug-in cord will be considered in compliance if the plug is disconnected and tagged.

The vibration of a machine will not create a hazard to the operator.

An arbor and mandrel will have a firm and secure bearing.

The frames and all exposed metal parts of electric woodworking machinery will be grounded. A portable motor driving an electric tool will be grounded unless it has approved double insulation.

A woodworking machine will not automatically restart upon restoration of power after a power failure.

Operating controls will be located within reach of the operator while the operator is at the regular work station, making it unnecessary to reach over the cutters. The controls will be installed so as to eliminate the danger of accidental activation. This does not apply to a constant pressure control used only for setup purposes.

All woodworking machines will be provided with point of operation guards.

### **Stationary Circular Saws**

An automatic cut-off saw that strokes continuously without the operator being able to control each stroke will not be used.

Lugs will be cast on saw frame or tables or another means will be provided to limit the saw blade size that can be mounted so as to avoid overspeed caused by mounting a saw larger than intended.

The operating speed as designated by the manufacturer will be etched or otherwise permanently marked on a circular saw blade more than 20 inches in diameter. A saw blade will not be operated at a higher speed than shown on the blade. When a marked saw blade is retensioned for a different speed, the marking will be corrected to show the new speed.

A hand-fed circular rip saw will have a spreader to prevent material from squeezing the saw or being thrown back at the operator. The spreader will be made of steel, or its equivalent, and will be thinner than the saw kerf and slightly thicker than the saw disk. It will be at least 1 inch wide at the table to provide adequate stiffness or rigidity to resist any reasonable side thrust or blow tending to bend or throw it out of position. The spreader will be attached so it will remain in true alignment with the saw, even when either the saw or table is tilted. It should be placed so there is not more than a 1/2 inch space between the spreader and the back of the saw when the largest saw is mounted in the machine. A spreader need not be used in connection with grooving, dadoing, or rabbeting. On the completion of such operations, the spreader will be replaced immediately.

A hand-fed circular rip saw will have nonkickback fingers or dogs located to oppose the thrust or tendency of the saw to pick up the material or to throw it back at the operator. They will be designed to provide holding power for all the thicknesses of material being cut.

The practice of inserting wedges between the saw disk and the collar to form what is commonly known as a wobble saw is prohibited.

Combs, featherboards, or suitable jigs will be provided at the work place for use when a guard cannot be used, as in dadoing, grooving, jointing, moulding, and rabbeting.

A cracked, bent, or damaged saw blade will not be used.

The bore of a saw blade will be of proper size and shape to properly fit arbors or proper adapters.

### **Circular Table Saw Guards**

A circular table saw will have a hoodtype guard covering the blade at all times when not in use. When in use, the hood type guard will enclose that part of the blade above the table and that part of the blade above the material by adjusting automatically to the thickness of the material being cut, or it may be a fixed or manually adjusted hood-type guard if the hood remains in contact with the material.

A hood-type guard will be made of 14-gauge metal or thicker. Plastic may be used if it can resist blows and strains incidental to reasonable operation, adjusting, and handling, and is designed to protect the operator from flying splinters and broken saw teeth. The guard will be made of material soft enough so that it will be unlikely to cause tooth breakage.

The hood will be mounted so that its operation is positive, reliable, and in true alignment with the saw. The mounting will be of sufficient strength to resist any reasonable side thrust or other force tending to throw it out of line.

Where a hood-type guard cannot be used because of unusual shapes or cuts, a jig or fixture providing equal safety to the operator will be used. On the completion of these operations, the guard will be replaced immediately.

A push stick will be used when cutting short or narrow stock.

## Radial Arm Saws; Guards, Spreaders, and Stops

The upper hood of a radial arm saw will completely enclose the upper portion of the blade down to a point that includes the end of the saw arbor. The upper hood will be constructed in a manner and of not less than 14-gauge sheet metal or equivalent material that protects the operator from flying splinters and broken saw teeth and deflects sawdust away from the operator. The sides of the lower exposed portion of the blade will be guarded to the full diameter of the blade by a device that automatically adjusts itself to the thickness of the stock and remains in contact with the stock being cut to give the maximum protection possible for the operation being performed.

Nonkickback fingers or dogs will be located on both sides of each radial arm saw blade used for ripping to oppose the thrust or tendency of the saw to pick up the material or to throw it back toward the operator. They will be designed to provide adequate holding power for all thicknesses of material being cut.

An adjustable stop will be provided to prevent the forward travel of the blade beyond the position necessary to complete the cut in repetitive operations. A limit chain or other equally effective device will be provided to prevent the saw blade from sliding beyond the edge of table or the table at that place will be extended to eliminate overrun.

The cutting head of a radial arm saw will return gently, without rebound, to the starting position when released by 1 of the following means:

- Sloping the unit.
- A counterweight system. This system will not use fiber and synthetic rope or springs.

Ripping and ploughing will be against the direction in which the saw turns. The direction of the saw rotation will be conspicuously marked on the hood. In addition, a permanent label colored standard danger red, not less than 1 1/2 inches by 3/4 inch, will be affixed to the rear of the guard at approximately the level of the arbor, reading as follows: **DANGER: Do Not Rip or Plough From This End."**

## Band Saws

All portions of the band saw blade will be enclosed or guarded, except for the working portion of the blade between the bottom of the guide and the table.

A band saw wheel will be fully encased. The outside periphery of the enclosure will be solid. The front and back of the band wheels will be enclosed by solid material, wire mesh, or perforated metal.

A guard for the portion of the blade between the sliding guide and the upper saw wheel guard will protect the saw blade at the front and outer side. The guard will be self-adjusting to raise and lower with the guide. The sliding blade guide will be kept to within 1/4 inch of the workpiece.

A band saw will not be stopped by thrusting a piece of wood against the cutting edge of the teeth when the power is off.

A horizontal band saw will have all portions of the saw blade enclosed, except for the working portion of the blade.

## **Stationary Machine Tools**

Machine tools, such as band saws, drill presses, and pipe-cutting and pipe-threading machines, which are set up on a construction project in a temporary stationary position will have a stop device which is within reach of the operator's designated position and will have power on/off switch. The switch will be located and guarded so as to prevent unintentional activation by contact with objects or part of the body.

A foot control will be provided with a cover or guard that is capable of preventing accidental activation.

Frames of electrically driven or supplied machines will be grounded.

Band saws and other machinery requiring warm-up for safe operation will be permitted to warm up before being put into operation when temperatures are below 45 degrees Fahrenheit.

The use of cracked, bent, or otherwise defective parts, such as saw blades, cutters, and knives, is prohibited.

Bases or frames of temporary stationary machinery will be secured by fasteners made of slip-resistant materials to prevent movement or upset.

## **Fuel-Powered Tools**

A fuel-powered tool will be stopped before being refueled, serviced, or maintained.

When using a fuel-fired powered tool in an enclosed area, the toxic fumes will be exhausted.

A fuel-fired tool's moving parts, such as a flywheel, rotating screen, or clutch, will be guarded.

A fuel-fired portable tool will be moved a minimum of 10 feet from the place where it was refueled before starting.

An engine throttle control provided on a fuel-powered tool will be located so that it can be operated only while the operator maintains a secure grip on the tool.

A fuel-fired tool will have a guard that protects the throttle lever from inadvertent contact.

A centrifugal clutch, if provided on a fuel-fired tool, will have a throttle control, carburetor, and clutch system so that if the throttle control is released, the engine idle speed will become lower than the clutch disengagement speed, allowing the driven components to come to a complete stop.

A chain saws chain will be stopped if it is not being used for sawing. A chain saw will be carried by the top handle with the guide bar to the rear.

The use of a chain saw to open a hole in a solid object, such as a floor, wall, or panel, is prohibited.

A manual chain oiler control, if provided on a chain saw, will be located so that it can be operated without the operator relinquishing a secure grip on the saw.

A chain saws chain will be guarded adjacent to the handle area. Sawdust from a chain saw will be directed away from the operator.



## Abrasive Wheels

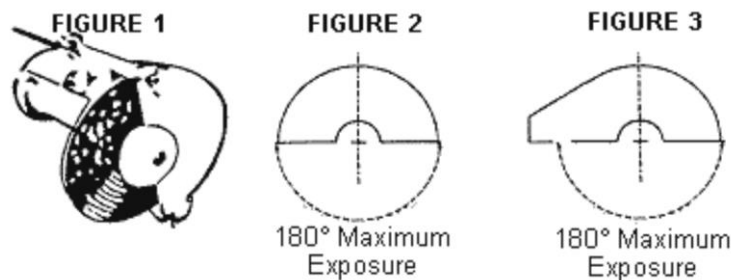
Except for the following operations or tools, an abrasive wheel will be provided with a guard which covers the spindle end, nut, and flange projections as well as the periphery:

- Internal grinding while within the work being ground.
- Mounted wheels that are not more than 2 inches in diameter.
- A cup wheel operated at less than 500 revolutions per minute.
- A tuck point grinder wheel. Such wheel will be guarded as shown in figure 1.
- Masonry or concrete saws. Such saws may have the spindle end nut and flange guarded as shown in figure 2 or 3.

An abrasive wheel will not be run at a speed which is greater than the rated speed on the wheel.

A cracked or broken abrasive wheel will not be used.

Eye protection will be provided to, and used by, each employee operating an abrasive wheel. Eye protection will comply with the provisions of the construction safety standard.



## Offhand Grinders; Safety Devices

Offhand grinders will be equipped with either a work rest or a device that prevents the workpiece from jamming between the abrasive wheel and the wheel guard.

A work rest will be adjusted and maintained to within 1/8 of an inch (0.3175 cm) of the abrasive wheel.

A work rest will be designed and constructed of metal that is capable of supporting the workpiece. A work rest will be of rigid construction and designed to be adjustable to compensate for wheel wear.

## Hand-Held Grinders; Safety Devices

A guard on a right angle head or vertical portable grinder will have the guard located between the operator and the abrasive wheel during use.

A cup wheel on a portable grinder will be protected by a band-type or revolving cup guard.

[illegible]

### Lockout/Tagout-Controlling Hazardous Energy

#### **Control of Hazardous Energy Sources - MIOSHA-Part 85-R 408.185**

#### **Adopted by Reference**

#### **The Control of Hazardous Energy - 29 CFR §1910.147**

#### **Company Policy for the Control of Hazardous Energy**

Accurate Painting Company has adopted this program for Lockout/Tagout procedures for the control of hazardous energy threats.

Accurate Painting Company will enforce the following engineering controls and work practices in order to eliminate or minimize the hazards of an unexpected release of hazardous energy:

Accurate Painting Company will provide training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees. Training will include the following:

Each authorized employee will receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy possible in the workplace, and the methods and means necessary for energy isolation and control.

Each employee will be instructed in the purpose and use of the energy control procedure.

All other employees whose work operations are, or may be, in an area where energy control procedures are utilized, will be instructed in the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.

Retraining will be provided for all employees whenever there is a change in their job assignments, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures. Additional retraining will also be conducted whenever a periodic inspection reveals, or when the employer has reason to believe, that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures. The retraining will reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.

The employer will certify that employee training has been accomplished and is being kept up-to-date. The certification will contain each employee's name and dates of training.

The Lockout /Tagout procedures for Accurate Painting Company are administered by Joe Badalamenti and will be those described in the procedures defined in this chapter.

Each employee is responsible for ensuring that proper procedure is used on his/her specific job, the program is under the direct supervision of the job foreman at each work location.

In situations in which lockout or tagout devices must be temporarily removed from the energy isolating device and the machine or equipment energized to test or position the machine, equipment or components, the following sequence of actions will be followed:

- Clear the machine or equipment of tools and materials.
- Remove employees from the machine or equipment area.
- Remove the lockout or tagout devices.
- Energize and proceed with testing or positioning.
- De-energize all systems and reapply lockout according to proper procedure to continue the servicing and/or maintenance.

When service or maintenance is performed by a crew or other group, they will use the job foreman's lock for lockout procedure to ensure a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device. Each member of the crew will attach his/her personal lock to the foreman's lock at the beginning of the procedure required, and remove their personal lock as their part in the procedure is complete. In the event a shift change is required during a lockout procedure, the affected employee will secure his/her lock on the control before removal of the previously used lock.

Failure to comply with proper Lockout/Tagout procedures is grounds for disciplinary action. It will be grounds for immediate termination of employment with Accurate Painting Company for any unauthorized removal of warning tags or lockout devices. The performance of Lockout/Tagout procedures will be inspected/evaluated at least annually by Joe Badalamenti for compliance with company policy. Inspections will be documented and date, equipment, and employee(s) reviewed will be recorded.

Lockout procedures are to be utilized over tagout procedures, where possible.

Locks used for (LOTO) will be clearly marked with identification of the employee applying the device.

## **Purpose**

This procedure establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It will be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before employees perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could cause injury.

## **Compliance with this Program**

All employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout. The authorized employees are required to perform the lockout in accordance with this procedure. All employees, upon observing a machine or piece of equipment which is locked out to perform servicing or maintenance will not attempt to start, energize, or use that machine or equipment.

# Company Lockout/Tagout Policy

## Purpose

Accurate Painting Company has established this "Lockout/Tagout Policy and Procedure" to provide maximum safety protection to our employees whenever they must service or perform maintenance on machinery and equipment.

## Scope

These procedures must be used by all employees authorized to service or maintain our equipment to ensure that machines or equipment is completely isolated from all potentially hazardous energy sources. All employees affected in any way by servicing and maintenance activities must also be knowledgeable of lockout/tagout procedures.

## Application

These procedures must be followed whenever unexpected energizing, star-up or release of stored energy could cause injury. These procedures do not apply when servicing or maintenance of equipment during normal production operations unless:

- Guards, or other safety devices, must be removed or bypassed.
- An employee places him/herself in an area where work on materials, etc., is actually being performed.
- An employee places him/herself in any area considered dangerous during the normal operating cycle.

## Compliance

All supervisors are responsible and accountable for the use of safe lockout/tagout procedures by all employees under their supervision. Compliance with lockout/tagout procedures is mandatory. Non-compliance with these procedures is considered a violation of an employee's condition of employment.

## Authorization

Employees who are properly trained and certified on equipment maintenance and lockout/tagout procedures, and approved by the facility manager, are authorized to implement lockout/tagout procedures as appropriate.

# Lockout/Tagout Procedures

## Preparation for Lockout

### Review

Prior to lockout, the authorized employee(s) will review the lockout/tagout procedures for each machine/piece of equipment. As a minimum the following information will be reviewed:

- Types and magnitudes of energy.
- Hazards posed by that energy.
- Methods to effectively control the energy.

Particularly close attention must be given to energies (such as gravity, electrical, high pressure) that can be stored or re-accumulated after shut-down.

### Notification

Prior to shutdown all affected employees will be notified to clear their work area and/or any other area that might be hazardous.

## Lockout/Tagout

### Shutdown

Machinery and equipment will be shut down in an orderly manner using the shutdown checklist procedures on the associated lockout/tagout procedures for each machine/piece of equipment. If more than one authorized employee is involved in shutdown, the maintenance team leader will make sure all assistants have accomplished their tasks and are aware that shutdown will occur.

### Isolation

All energy isolation devices will be located and operated to completely de-energize and isolate the equipment. The authorized employee, or team leader will verify operation of each energy isolation device.

## Applying Lockout/Tagout Devices

**Lockout devices** — will be used to secure energy isolating devices unless the machinery or equipment is not capable of being locked out. Only authorized employees will affix lockout/tagout devices. Lockout devices must be able to hold energy isolation devices in a “safe” or “off” position.

**Tagout devices** — will be used only if machinery or equipment is not capable of being locked out. Tags will clearly state that moving energy isolating devices from the “safe” or “off” position is strictly prohibited. If a tag cannot be affixed to the energy isolating device, it will be located as close as safely possible to the device so that the tag is obvious to anyone attempting to operate the device.

**Lockout/Tagout materials and hardware** — will be provided by the employer. Each lockout/tagout device will be used only for lockout/tagout.

### Lockout devices will have the following characteristics:

- Capable of withstanding harsh environments
- Standardized within the Company. Same color, shape, size, etc.
- Prevent removal without excessive force
- Singularly identify the user
- Uniquely keyed

In addition, tagout devices will also have the following characteristics:

- Non-reusable
- Attachable by hand
- Self-locking
- Non-releasable with not less than 50 LB locking strength
- Design/characteristics at least equivalent to a one-piece, all environment-tolerant nylon cable tie.

**Stored Energy** — Immediately after applying lockout or tagout devices, the authorized employee will ensure all potentially hazardous stored or residual energy is relieved, disconnected, restrained, and otherwise rendered safe.

If stored energy can be re-accumulated, the authorized employee will verify that the energy is isolated until maintenance is complete or the energy no longer exists.

**Verification of Isolation** — Before starting work on a machine or equipment that is locked or tagged out, the authorized employee will verify that the machinery or equipment is actually isolated and de-energized.

### **Release from Lockout or Tagout**

The authorized employee will follow the procedures below prior to removing lockout or tagout devices and restoring energy:

- **Equipment** — Make sure machinery or equipment is properly re-assembled. Inspect machinery or equipment to make sure nonessential items have been removed.
- **Employees** — Make sure all employees are safely positioned outside danger zones. Notify affected employees that lockout/tagout devices have been removed and that energy is going to be re-applied.
- **Removing lockout/tagout devices** — Only the authorized employee who applied the lockout/tagout device may remove that device. Exception: When the authorized employee is not at the facility and all reasonable efforts have been made to inform the employee that their lockout/tagout device has been removed:
  - The owner is authorized and will remove the device following procedures in this section.
  - Each owner will be trained in proper lockout/tagout procedures.
  - The owner will ensure the authorized employee has this knowledge before he/she resumes work.

### **Testing/Positioning Machines or Equipment**

Whenever lockout/tagout devices are removed to test or position machines and equipment, or their components, the authorized employee will complete the following procedures in the sequence presented:

- Clear the machine or equipment of tools and materials.
- Remove employees from danger zones.
- Remove lockout/tagout devices.
- Energize and proceed with testing or positioning.
- De-energize all systems and re-apply lockout/tagout devices.



## Outside Personnel (Contractors, etc.)

- Outside servicing personnel contracted to perform maintenance or other services covered by these lockout/tagout procedures will not begin work until the owner is satisfied that their lockout/tagout procedures are at least equivalent to Company procedures.
- The owner will also ensure Company employees understand and comply with contracted personnel lockout/tagout procedures.

## Shift/Personnel Changes

When a shift change occurs during a lockout/tagout procedure, the following procedures will be followed:

- The on-coming authorized employee(s) will attach lockout/tagout devices and verify complete isolation.
- The on-coming authorized employee(s) will receive a comprehensive briefing on the maintenance being performed from the off-going authorized employee(s).
- The off-going authorized employee(s) will remove their lockout/tagout devices.

**Special Procedure:** In the event that communication between off-going and on-coming authorized employee(s) is impossible and work is to be done on the equipment/machinery by the on-coming authorized employee(s), then the following procedures must be followed:

- The off-going authorized employee(s) will each check out a “department” lock from the maintenance department and record in the checkout log the status and condition of the equipment in question.
- The off-going authorized employee(s) will attach the “department” lock to the equipment/machinery and remove their personal lock.
- The on-coming authorized employee(s), upon realization there is a “department” lock in place on the equipment/machinery to be worked on, will go to the maintenance department and read the checkout log, and sign for the appropriate key.
- The on-coming authorized employee(s) will attach their personal lock to the equipment/machinery and remove the “department” lock.
- The on-coming authorized employee(s) will immediately return the “department” lock and key to the maintenance department and sign in the key and lock.

## Training

**Training in Lockout/Tagout** — will be provided to all employees who may be in an area where energy control procedures are used. This training will make sure that the purpose and function of the energy control program are understood and that employees gain the needed knowledge and skills to safely apply, use, and remove energy controls. As a minimum, training will include:

- Authorized employees must be able to recognize: hazardous energy sources, type and magnitude of energy in the workplace, and methods and means necessary to isolate and control the energy.
- Affected employees must be able to recognize: purpose and use of the energy control procedures.
- Other employees must be able to recognize: procedures and prohibitions of the energy control program.

**Training for Tagout Devices** — Further training on tagout systems need to emphasize that:

- Tags are warning devices only and do not provide a physical restraint that lockout devices provide.

- Tags must not be removed without the authorized employee's approval, and should never be bypassed, ignored, or otherwise defeated.
- Tags must be legible, and understandable by all employees.
- Tags must be able to withstand environmental conditions in the workplace.
- Tags may give employees a false sense of security.
- Tags must be securely attached to prevent being accidentally detached during use.

**Retraining** — Employees will be retrained at the following times:

- Initial assignment.
- Change in job assignment.
- Change in machinery or equipment.
- Change in operating procedures.

## Inspections

Annual inspection on lockout/tagout procedures will be conducted by an authorized employee other than the one(s) using the control procedure being inspected.

- The purpose of the inspection is to correct any deviations or inadequacies in the procedures.
- The inspector and authorized employee must review responsibilities under the energy control procedure.
- The owner will certify that the inspection was conducted. Elements of the certification include:
  - Identification of equipment or machinery.
  - Date of inspection.
  - Employees included in the inspection.
  - Person performing inspection.

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CEO/Owner Signature

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Date

## What is “Lockout/Tagout”?

“Lockout/Tagout” refers to specific practices and procedures to safeguard employees from the unexpected energization or startup of machinery and equipment, or the release of hazardous energy during service or maintenance activities. This requires, in part, that a designated individual turns off and disconnects the machinery or equipment from its energy source(s) before performing service or maintenance and that the authorized employee(s) either lock or tag the energy-isolating device(s) to prevent the release of hazardous energy and take steps to verify that the energy has been isolated effectively. If the potential exists for the release of hazardous stored energy or for the reaccumulation of stored energy to a hazardous level, the employer must ensure that the employee(s) take steps to prevent injury that may result from the release of the stored energy.

Lockout devices hold energy-isolation devices in a safe or “off” position. They provide protection by preventing machines or equipment from becoming energized because they are positive restraints that no one can remove without a key or other unlocking mechanism, or through extraordinary means, such as bolt cutters. Tagout devices, by contrast, are prominent warning devices that an authorized employee fastens to energy-isolating devices to warn employees not to reenergize the machine while he or she services or maintains it. Tagout devices are easier to remove and, by themselves, provide employees with less protection than do lockout devices.

FORMS OF HAZARDOUS ENERGY	
<i>Energy Form</i>	<i>Description</i>
<b>Potential</b>	Stored energy that can be drawn upon to do work. Suspended loads, compressed springs, and pressurized hydraulic systems are examples. Potential energy can be converted to kinetic energy and many of the other energy forms below.
<b>Kinetic</b>	Energy resulting from moving objects such as released loads and uncoiling springs. When these objects are released, their potential energy is converted to kinetic energy.
<b>Flammable</b>	Energy converted from the combustion of gasses, liquids, solid chemicals, and vapors.
<b>Chemical</b>	The capacity of a substance to do work or produce heat through a change in its composition. Chemical energy can be converted from gasses, liquids, solid chemicals, and vapors.
<b>Electrical</b>	Energy generated through the conversion of other forms such as mechanical, thermal, or chemical energy. Energy stored between plates of a charged capacitor is an example of potential electrical energy. Typical electrical energy sources include open buss bars, motors, and generators.
<b>Thermal</b>	Energy transferred from one body to another as the result of a difference in temperature. Heat flows from the hotter to the cooler body. Sources include mechanical work, radiation, chemical reactions, and electrical resistance.

## Lockout/Tagout Concerns

Employees can be seriously or fatally injured if machinery they service or maintain unexpectedly energizes, starts up, or releases stored energy. OSHA’s standard on the Control of Hazardous Energy (Lockout/Tagout) spells out the steps employers must take to prevent accidents associated with hazardous energy. The standard addresses practices and procedures necessary to disable machinery and prevent the release of potentially hazardous energy while maintenance or servicing activities are performed.

Two other OSHA standards also contain energy control provisions. In addition, some standards relating to specific types of machinery contain de-energization requirements (requiring the switches to be “open and locked in the open position” before performing preventive maintenance on overhead and gantry cranes). These provisions apply in conjunction with the other machine-specific standards to assure that employees will be adequately protected against hazardous energy.

### **When OSHA Standards Apply**

If your employees service or maintain machines where the unexpected startup, energization, or the release of stored energy could cause injury, the standards likely apply to you. The standards apply to all sources of energy, including, but not limited to: mechanical, electrical, hydraulic, pneumatic, chemical, and thermal energy.

Controlling hazardous energy in installations for the exclusive purpose of power generation, transmission, and distribution, including related equipment for communication or metering, is covered by 29 CFR 1910.269.

### **When OSHA Standards do not Apply**

The standard does not apply to general industry service and maintenance activities in the following situations, when:

- Exposure to hazardous energy is controlled completely by unplugging the equipment from an electric outlet and where the employee doing the service or maintenance has exclusive control of the plug. This applies only if electricity is the only form of hazardous energy to which employees may be exposed. This exception encompasses many portable hand tools and some cord and plug connected machinery and equipment.

An employee performs hot-tap operations on pressurized pipelines that distribute gas, steam, water, or petroleum products, for which the employer shows the following:

- Continuity of service is essential.
- Shutdown of the system is impractical.
- The employee follows documented procedures and uses special equipment that provides proven, effective employee protection.
- The employee is performing minor tool changes or other minor servicing activities that are routine, repetitive, and integral to production, and that occur during normal production operations. In these cases, employees must have effective, alternative protection.

CRITERIA FOR LOCKOUT & TAGOUT DEVICES	
<i>Criterion</i>	<i>Description</i>
<b>Singularly Identified</b>	This means that any employee who sees a lockout or tagout device recognizes it and does not mistake its purpose. Each lock or tag must identify the employee who attached it and can only be used on an energy-isolating device. Each lock must have a unique key or combination; this means that only the employee who uses the lock must have the key or the combination to that lock.
<b>Durable</b>	Lockout devices must work under the environmental conditions in which they are used. Tagout device warnings must remain legible even when they are used in wet, damp, or corrosive conditions.
<b>Standardized</b>	Lockout and tagout devices must be designated by color, shape, or size. Tagout devices must have a standardized print and warning format.
<b>Substantial</b>	Lockout devices and tagout devices must be strong enough that they cannot be removed inadvertently. Tagout devices must be attached with a single-use, self-locking material such as a nylon cable tie.

### **Lockout/Tagout Requirements that Apply to Service & Maintenance Operations**

The standard applies to the control of hazardous energy when employees are involved in service or maintenance activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining or servicing machines or equipment. These activities include lubricating, cleaning or unjamming machines, and making adjustments or tool changes, where the employees may be exposed to hazardous energy.

If a service or maintenance activity is part of the normal production operation, the employee performing the servicing may be subjected to hazards not normally associated with the production operation itself. Although machine guarding provisions cover most normal production operations, workers doing service or maintenance activities during normal production operations must follow lockout/tagout procedures if they:

- Remove or bypass machine guards or other safety devices
- Place any part of their bodies in or near a machine's point of operation
- Place any part of their bodies in a danger zone associated with machine operations

Work involving minor tool changes and adjustments or other servicing activities that are routine, repetitive, and integral to the use of the production equipment and that occur during normal production operations are not covered by the lockout/tagout standard. This exception is limited, however, and applies only when economic considerations prevent the use of prescribed energy-isolation measures and when the employer provides and requires alternative measures to ensure effective, alternative protection.

Whenever the standard is applicable, the machinery must be shut off and isolated from its energy sources, and lockout or tagout devices must be applied to the energy-isolation devices. In addition, the authorized employee(s) must take steps to verify that he or she has effectively isolated the energy. When there is stored or residual energy, the authorized employee(s) must take steps to render that energy safe. If the possibility exists for reaccumulation of stored energy to hazardous levels, the employer must ensure that the worker(s) perform verification steps regularly to detect such reaccumulation before it has the potential to cause injury.

## OSHA's Requirements

OSHA's standard establishes minimum performance requirements for controlling hazardous energy. The standard specifies that employers must establish an energy-control program to ensure that employees isolate machines from their energy sources and render them inoperative before any employee services or maintains them.

As part of an energy-control program, employers must:

- Establish energy-control procedures for removing the energy supply from machines and for putting appropriate lockout or tagout devices on the energy-isolating devices to prevent unexpected re-energization. When appropriate, the procedure also must address stored or potentially re-accumulated energy.
- Train employees on the energy-control program, including the safe application, use, and removal of energy controls.
- Inspect these procedures periodically (at least annually) to ensure that they are being followed and that they remain effective in preventing employee exposure to hazardous

If employers use tagout devices on machinery that can be locked out, they must adopt additional measures to provide the same level of employee protection that lockout devices would provide. Within the broad boundaries of the standard, employers have the flexibility to develop programs and procedures that meet the needs of their individual workplaces and the particular types of machines being maintained or serviced.

PROCEDURE FOR SHUTTING DOWN EQUIPMENT AND CONTROLLING HAZARDOUS ENERGY	
<i><b>Critical Step</b></i>	<i><b>Action</b></i>
<b>1</b>	Prepare to shut down the equipment — Each authorized employee who shuts down equipment must know the type and magnitude of the energy, its hazards, and how to control the energy. All affected employees must know that the equipment is being serviced and that it will be shut down and locked out for the duration of the service work. (An authorized employee is one who locks out or tags out the energy-isolating device and services the equipment. An affected employee may use the equipment or work in the area where the equipment is being serviced under a lockout or tagout procedure.
<b>2</b>	Shut down the equipment — If the equipment is operating, shut it down as you normally would.
<b>3</b>	<ul style="list-style-type: none"><li>• De-energize the equipment: isolate or block the hazardous energy — The method(s) you use depends on the form of energy and the means available to control it.</li><li>• To isolate the energy</li><li>• Disconnect motors that power the equipment.</li><li>• De-energize electrical circuits by disconnecting the power source from the circuit.</li><li>• To block the energy</li><li>• Block fluid flow in hydraulic, pneumatic, or steam systems with control valves or by capping or blanking the lines.</li><li>• Block equipment parts that could be moved by gravity.</li></ul>

4	<p>Dissipate any potential (stored) energy — Some forms of energy must also be dissipated after equipment has been de-energized. Capacitors; coiled springs; elevated machine members; rotating flywheels; and air, gas, steam, chemical, and water systems are sources of hazardous stored energy. If the energy could return to a hazardous level, you must make sure that it remains isolated from the equipment until all service work is finished.</p> <ul style="list-style-type: none"> <li>• Vent pressurized fluids until internal pressure levels reach atmospheric levels.</li> <li>• Discharge capacitors by grounding them.</li> <li>• Release or block tensioned springs.</li> <li>• Ensure that all moving parts have stopped completely.</li> </ul>
5	<ul style="list-style-type: none"> <li>• Lock out or tag out the energy-isolating device — If you can lock out the energy-isolating device, then you must lock it out. If you tag out the device, you must ensure that your tag will be as effective as a lock.</li> <li>• To lock out the device — Attach your lock and a personal identification tag to the device.</li> <li>• The lock must hold the energy-isolating device in a “safe” or “off ” position.</li> <li>• To tag out the device — Attach the tag to the device or as close to it as possible. The tag must clearly state that changing the energy-isolating device from the “safe” or “off ” position is prohibited.</li> </ul>
6	<ul style="list-style-type: none"> <li>• Verify that the equipment is isolated from the hazardous energy — Before servicing locked-out or tagged-out equipment, verify that the equipment is, in fact, de-energized and isolated from all energy sources.</li> <li>• Verify that the equipment is isolated or disconnected from all energy sources.</li> <li>• Verify that no one is near the equipment.</li> <li>• Push the start button or engage the normal operating control(s) to make certain the equipment will not operate.</li> <li>• Return operating control(s) to neutral or “off ” position after verifying that the equipment does not start.</li> </ul>

### What Energy-Control Procedures Must Include

Employers must develop, document, and use procedures to control potentially hazardous energy. The procedures explain what employees must know and do to control hazardous energy effectively when they service or maintain machinery. If this information is the same for the various machines used at a workplace, then a single energy-control procedure may suffice. For example, similar machines (those using the same type and magnitude of energy) that have the same or similar types of control measures can be covered by a single procedure. Employers must develop separate energy-control procedures if their workplaces have more variable conditions such as multiple energy sources, different power connections, or different control sequences that workers must follow to shut down various pieces of machinery.

The energy-control procedures must outline the scope, purpose, authorization, rules, and techniques that employees will use to control hazardous energy sources, as well as the means that will be used to enforce compliance. These procedures must provide employees at least the following information:



- A statement on how to use the procedures.
- Specific procedural steps to shut down, isolate, block, and secure machines.
- Specific steps designating the safe placement, removal, and transfer of lockout/tagout devices and identifying who has responsibility for the lockout/tagout devices.
- Specific requirements for testing machines to determine and verify the effectiveness of lockout devices, tagout devices, and other energy-control measures.

### **What Workers Must Do Before Beginning Service or Maintenance Activities**

Before beginning service or maintenance, the following steps must be accomplished in sequence and according to the specific provisions of the employer's energy-control procedure:

- Prepare for shutdown.
- Shut down the machine.
- Disconnect or isolate the machine from the energy source(s).
- Apply the lockout or tagout device(s) to the energy-isolating device(s).
- Release, restrain, or otherwise render safe all potential hazardous stored or residual energy. If a possibility exists for re-accumulation of hazardous energy, regularly verify during the service and maintenance that such energy has not re-accumulated to hazardous levels.
- Verify the isolation and de-energization of the machine.

### **What Workers Must Do Before Removing Lockout/Tagout Device(s) and Re-energizing Machinery or Equipment**

Employees who work on de-energized machinery may be seriously injured or killed if someone removes lockout/tagout devices and reenergizes machinery without their knowledge. Thus, it is extremely important that all employees respect lockout and tagout devices and that only the person(s) who applied these devices remove them.

Before removing lockout or tagout devices, the employees must take the following steps in accordance with the specific provisions of the employer's energy-control procedure:

- Inspect machines or their components to assure that they are operationally intact and that nonessential items are removed from the area.
- Check to assure that everyone is positioned safely and away from machines.

After removing the lockout or tagout devices but before reenergizing the machine, the employer must assure that all employees who operate or work with the machine, as well as those in the area where service or maintenance is performed, know that the devices have been removed and that the machine is capable of being reenergized. In the rare situation in which the employee who placed the lockout/tagout device is unable to remove that device, another person may remove it under the direction of the employer, provided that the employer strictly adheres to the specific procedures outlined in the standard.

## PROCEDURE FOR REMOVING LOCKOUT OR TAGOUT DEVICES AND RE-ENERGIZING EQUIPMENT

<b>Critical Step</b>	<b>Action</b>
<b>1</b>	Inspect the repair or maintenance work — Make sure you have all your work tools and that you have replaced all equipment components.
<b>2</b>	Tell coworkers that you are removing the lockout or tagout device — Check the work area to ensure that all workers are clear of the area.
<b>3</b>	Check the equipment power controls — Verify that the equipment power controls are in a neutral or off position.
<b>4</b>	Remove the lockout or tagout device — The person who attached the device must also remove it.
<b>5</b>	Re-energize the equipment.

### How and When to Use Lockout

You must use a lockout program (or tagout program that provides a level of protection equal to that achieved through lockout) whenever your employees engage in service or maintenance operations on machines that are capable of being locked out and that expose them to hazardous energy from unexpected energization, startup, or release of stored energy. The primary way to prevent the release of hazardous energy during service and maintenance activities is by using energy-isolating devices such as manually operated circuit breakers, disconnect switches, and line valves and safety blocks. Lockout requires use of a lock or other lockout device to hold the energy-isolating device in a safe position to prevent machinery from becoming reenergized. Lockout also requires employees to follow an established procedure to ensure that machinery will not be reenergized until the same employee who placed the lockout device on the energy-isolating device removes it.

### Determine if the Energy-Isolating Device Can Be Locked Out

- An energy-isolating device is considered “capable of being locked out” if it meets one of the following requirements:
- Is designed with a hasp or other part to which you can attach a lock such as a lockable electric disconnect switch.
- Has a locking mechanism built into it.
- Can be locked without dismantling, rebuilding, or replacing the energy-isolating device or permanently altering its energy-control capability, such as a lockable valve cover or circuit breaker blockout.

### If Equipment Can Not Be Locked Out

Sometimes it is not possible to lock out the energy-isolating device associated with the machinery. In that case, you must securely fasten a tagout device as close as safely possible to the energy-isolating device in a position where it will be immediately obvious to anyone attempting to operate the device. You also must meet all of the tagout provisions of the standard. The tag alerts employees to the hazard of re-energization and states that employees may not operate the machinery to which it is attached until the tag is removed in accordance with an established procedure.

### Other Options

If it is possible to lock out an energy-isolating device, employers must use lockout devices unless they develop, document, and use a tagout procedure that provides employees with a level of protection equal to that provided by a lockout device. In a tagout program, an employer can attain an equal level of protection by complying with all tagout-related provisions of the standard and using at least one added safety measure that prevents unexpected reenergization. Such measures might include

removing an isolating circuit element, blocking a controlling switch, opening an extra disconnecting device, or removing a valve handle to minimize the possibility that machines might inadvertently be reenergized while employees perform service and maintenance activities.

### **When Tagout Devices Can Be Used Instead of Lockout Devices**

When an energy-isolating device cannot be locked out, the employer must modify or replace the energy-isolating device to make it capable of being locked out or use a tagout system. Whenever employers significantly repair, renovate, or modify machinery or install new or replacement machinery, however, they must ensure that the energy-isolating devices for the machinery are capable of being locked out.

Tagout devices may be used on energy-isolating devices that are capable of being locked out if the employer develops and implements the tagout in a way that provides employees with a level of protection equal to that achieved through a lockout system.

When using a tagout system, the employer must comply with all tagout-related provisions of the standard and train employees in the limitations of tags, in addition to providing normal hazardous energy control training for all employees.

### **Limitations of Tagout Devices**

A tagout device is a prominent warning that clearly states that the machinery being controlled must not be operated until the tag is removed in accordance with an established procedure.

Tags are essentially warning devices and do not provide the physical restraint of a lock. Tags may evoke a false sense of security. For these reasons, OSHA considers lockout devices to be more secure and more effective than tagout devices in protecting employees from hazardous energy.

### **Requirements for Lockout/Tagout Devices**

Whether lockout or tagout devices are used, they must be the only devices the employer uses in conjunction with energy-isolating devices to control hazardous energy. The employer must provide these devices and they must be singularly identified and not used for other purposes. In addition, they must have the following characteristics:

**Durable enough to withstand workplace conditions.** Tagout devices must not deteriorate or become illegible even when used with corrosive components such as acid or alkali chemicals or in wet environments.

**Standardized according to color, shape, or size.** Tagout devices also must be standardized according to print and format. Tags must be legible and understandable by all employees. They must warn employees about the hazards if the machine is energized, and offer employees clear instruction such as:

- "Do Not Start"
- "Do Not Open"
- "Do Not Close"
- "Do Not Energize"
- "Do Not Operate"

**Substantial enough to minimize the likelihood of premature or accidental removal.** Employees should be able to remove locks only by using excessive force with special tools such as bolt cutters or other metal-cutting tools. Tag attachments must be non-reusable, self-locking, and non-releasable, with a minimum unlocking strength of 50 pounds. Tags must be attachable by hand, and the device for attaching the tag should be a one-piece nylon cable tie or its equivalent so it can withstand all environments and conditions.

**Labeled** to identify the specific employees authorized to apply and remove them.

## What Employees Need to Know About Lockout/Tagout Programs

Training must ensure that employees understand the purpose, function, and restrictions of the energy-control program. Employers must provide training specific to the needs of “authorized,” “affected,” and “other” employees.

**“Authorized”** employees are those responsible for implementing the energy-control procedures or performing the service or maintenance activities. They need the knowledge and skills necessary for the safe application, use, and removal of energy-isolating devices. They also need training in the following:

- Hazardous energy source recognition.
- The type and magnitude of the hazardous energy sources in the workplace.
- Energy-control procedures, including the methods and means to isolate and control those energy sources.

**“Affected”** employees (usually machine operators or users) are employees who operate the relevant machinery or whose jobs require them to be in the area where service or maintenance is performed. These employees do not service or maintain machinery or perform lockout/tagout activities.

- Affected employees must receive training in the purpose and use of energy-control procedures. They also need to be able to do the following:
- Recognize when the energy-control procedure is being used.
- Understand the purpose of the procedure.
- Understand the importance of not tampering with lockout or tagout devices and not starting or using equipment that has been locked or tagged out.

**All other employees** whose work operations are or may be in an area where energy-control procedures are used must receive instruction regarding the energy-control procedure and the prohibition against removing a lockout or tagout device and attempting to restart, reenergize, or operate the machinery.

In addition, if tagout devices are used, all employees must receive training regarding the limitations of tags.

TRAINING FOR AUTHORIZED & AFFECTED EMPLOYEES		
<i><b>Employees</b></i>	<i><b>The Nature of Their Work</b></i>	<i><b>What Their Training Must Include</b></i>
<i><b>Authorized</b></i>	Those who lock out or tag out the equipment and who do the maintenance work on the equipment.	<ul style="list-style-type: none"><li>• How to find and recognize hazardous energy sources.</li><li>• The types and magnitudes of energy used in the workplace.</li><li>• How to isolate energy sources.</li></ul>
<i><b>Affected</b></i>	Those who may use equipment serviced under lockout or tagout procedures and other employees who work in area affected by the procedures. (An affected employee becomes an authorized employee when that employee’s duties includes service or maintenance work on equipment.)	<ul style="list-style-type: none"><li>• The purpose of energy-control procedures.</li><li>• How energy-control procedures are applied.</li><li>• How energy-control procedures will protect them.</li></ul>

## When Training is Necessary

The employer must provide initial training before starting service and maintenance activities and must provide retraining as necessary. In addition, the employer must

certify that the training has been given to all employees covered by the standard. The certification must contain each employee's name and dates of training.

Employers must provide retraining for all authorized and affected employees whenever there is a change in the following:

- Job assignments.
- Machinery or processes that present a new hazard.
- Energy-control procedures.

Retraining also is necessary whenever a periodic inspection reveals, or an employer has reason to believe, that shortcomings exist in an employee's knowledge or use of the energy-control procedure.

### **When Power is needed to Test or Position Equipment**

OSHA allows the temporary removal of lockout or tagout devices and the re-energization of the machine only in limited situations for particular tasks that require energization—for example, when power is needed to test or position machines, equipment, or components. However, this temporary exception applies only for the limited time required to perform the particular task requiring energization. Employers must provide effective protection from hazardous energy when employees perform these operations.

The following steps must be performed in sequence before re-energization:

- Clear tools and materials from machines.
- Clear employees from the area around the machines.
- Remove the lockout or tagout devices as specified in the standard.
- Energize the machine and proceed with testing or positioning.
- Deenergize all systems, isolate the machine from the energy source, and reapply energy-control measures if additional service or maintenance is required.

The employer must develop, document, and use energy-control procedures that establish a sequence of actions to follow whenever re-energization is required as a part of a service or maintenance activity, since employees may be exposed to significant risks during these transition periods.

PROCEDURE FOR TEMPORARY REMOVAL OF LOCKOUT & TAGOUT DEVICES	
<b><i>Critical Step</i></b>	<b><i>Action</i></b>
<b>1</b>	Clear all tools or other materials near the equipment.
<b>2</b>	Make sure no workers are near the equipment.
<b>3</b>	Remove the lockout or tagout devices.
<b>4</b>	Energize the equipment.
<b>5</b>	Shut down the equipment.

### **Using Outside Contractors for Service or Maintenance Procedures**

If an outside contractor services or maintains machinery, the onsite employer and the contractor must inform each other of their respective lockout or tagout procedures. The onsite employer also must ensure that employees understand and comply with all requirements of the contractor's energy-control program(s).

## When a Group Performs Service or Maintenance Activities

When a crew, department, or other group performs service or maintenance, they must use a procedure that provides all employees a level of protection equal to that provided by a personal lockout or tagout device. Each employee in the group must have control over the sources of hazardous energy while he or she is involved in service and maintenance activities covered by the standard. Personal control is achieved when each authorized employee affixes a personal lockout/tagout device to a group lockout mechanism instead of relying on a supervisor or other person to provide protection against hazardous energy.

GROUP LOCKOUT-THE GROUP LOCKBOX VARIATION	
<i><b>Step</b></i>	<i><b>Activity</b></i>
<b>1</b>	An authorized employee secures each energy-isolating device with a personal lock.
<b>2</b>	The same authorized employee places the key that fits each lock in a group lock box with a multi-lock hasp.
<b>3</b>	The other authorized employees in the group secure the lockbox – they attach their personal locks to the box – before beginning their service work.
<b>4</b>	After each employee finishes service work on the equipment, that employee removes his personal lock from the lockbox.
<b>5</b>	After all the employees have finished their service work and removed their personal locks from the lockbox, the authorized employee who placed the key in the box removes it.
<b>6</b>	The authorized employee uses the key to remove the locks on the energy-isolating devices.

## When a Shift Changes During Machine Service or Maintenance

Employers must make sure that there is a continuity of lockout or tagout protection. This includes the orderly transfer of lockout or tagout device protection between outgoing and incoming shifts to control hazardous energy. When lockout or tagout devices remain on energy-isolation devices from a previous shift, the incoming shift members must verify that the machinery is effectively isolated and deenergized.

## Review of Lockout/Tagout Procedures

Employees are required to review their procedures at least once a year to ensure that they provide adequate worker protection. As part of the review, employers must correct any deviations and inadequacies identified in the energy-control procedure or its application.

### What a Review Should Involve

The periodic inspection is intended to assure that employees are familiar with their responsibilities under the procedure and continue to implement energy-control procedures properly. The inspector, who must be authorized and not involved in the particular control procedure being inspected, must be able to determine the following:

- Employees are following steps in the energy-control procedure.
- Employees involved know their responsibilities under the procedure.
- The procedure is adequate to provide the necessary protection, and what changes, if any, are needed.

For a lockout procedure, the periodic inspection must include a review of each authorized employee's responsibilities under the energy-control procedure being inspected. Where tagout is used, the inspector's review also extends to affected employees because of the



increased importance of their role in avoiding accidental or inadvertent activation of the machinery. In addition, the employer must certify that the designated inspectors perform periodic inspections. The certification must specify the following:

- Machine or equipment on which the energy-control procedure was used.
- Date of the inspection.
- Names of employees included in the inspection.
- Name of the person who performed the inspection.

## **Commonly Used Terms**

**Affected Employee** — An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

**Authorized Employee** — A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under the standard.

**Capable of Being Locked Out** — An energy-isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy-isolating devices are capable of being locked out, if lockout can be achieved, without the need to dismantle, rebuild, or replace the energy-isolating device or permanently alter its energy control capability.

**Energized** — Connected to an energy source or containing residual or stored energy.

**Energy-Isolating Device** — A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: a manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit-type devices are not energy-isolating devices.

**Energy Source** — Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

**Hot Tap** — A procedure used in the repair, maintenance, and services activities, which involve welding on a piece of equipment (pipelines, vessels, or tanks) under pressure, in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

**Lockout** — The placement of a lockout device on an energy-isolating device, in accordance with an established procedure, ensuring that the energy-isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

**Lockout Device** — A device that uses a positive means such as a lock, either key or combination type, to hold an energy-isolating device in the safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.

**Normal Production Operations** — The utilization of a machine or equipment to perform its intended production function.



**Servicing and/or Maintenance** — Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubricating, cleaning or unjamming machines or equipment and making adjustments or tool changes where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

**Setting Up** — Any work performed to prepare a machine or equipment to perform its normal production operation.

**Tagout** — The placement of a tagout device on an energy-isolating device, in accordance with an established procedure, to indicate that the energy-isolating device and the equipment being controlled may not be operated until the tagout device is removed.

**Tagout Device** — A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy-isolating device in accordance with an established procedure, to indicate that the energy-isolating device and the equipment being controlled may not be operated until the tagout device is removed.

# Company Lockout/Tagout Audit

This audit covers the servicing and maintenance of machines and equipment in which the unexpected start up of the machines or equipment, or release of stored energy could cause injury to employees. Mark your item choices in the boxes: Y=Yes, N=No.

## Energy Control Program

Y/N

- ☐ ☐ Has the employer established an energy control program consisting of energy control procedures, employee training and periodic inspections?
- ☐ ☐ Is a responsible person appointed to monitor the effectiveness of the energy control program?

## Lockout/Tagout

- ☐ ☐ Is a tagout system used only if an energy isolating device is not capable of being locked out?
- ☐ ☐ Can the employer prove that the utilization of a tagout system will provide full employee protection?
- ☐ ☐ Whenever replacement or major repair, renovation or modification of a machine or equipment is performed, and whenever new machines or equipment are installed, are energy isolating devices for such machine or equipment designed to accept a lockout device?

## Energy Control Procedure

- ☐ ☐ Are written procedures in place, documented and used for the control of potentially hazardous energy?

**Exception:** The employer need not document the required procedure for a particular machine or equipment, when all of the following elements exist:

- The machine or equipment has no potential for stored or residual energy or re-accumulation of stored energy after shut down which could endanger employees.
  - The machine or equipment has a single energy source which can be readily identified and isolated.
  - The isolation and locking out of that energy source will completely de-energize and de-activate the machine or equipment.
  - The machine or equipment is isolated from that energy source and locked out during servicing or maintenance.
  - A single lockout device will achieve a locked-out condition.
  - The lockout device is under the exclusive control of the authorized employee performing the servicing or maintenance.
  - The servicing or maintenance does not create hazards for other employees.
  - The employer, in utilizing this exception, has had no accidents involving the unexpected activation or re-energizing of the machine or equipment during servicing or maintenance.
- ☐ ☐ Do procedures clearly and specifically outline the scope, purpose, authorization, rules and techniques to be utilized for the control of hazardous energy, and the means to enforce compliance? Do procedures include:
    - A specific statement of the intended use of the procedure.
    - Specific procedural steps for shutting down, isolating, blocking and securing machines or equipment to control hazardous energy.
    - Specific procedural steps to place, remove, and transfer lockout devices/ tagout devices and the responsibility for them.

- Specific requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices, tagout devices, and other energy control measures.

### **Protective Materials and Hardware**

Y/N

- ☐ ☐ Are locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners, or other hardware provided by the employer for isolating, securing or blocking of machines or equipment from energy sources?
- ☐ ☐ Are lockout devices and tagout devices singularly identified; the only device(s) used for controlling energy, and not used for other purposes?
- ☐ ☐ Are lockout and tagout devices capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected?
- ☐ ☐ Are tagout devices constructed and printed so that exposure to weather conditions or wet and damp locations will not cause the tag to deteriorate or the message on the tag to become illegible?
- ☐ ☐ Are tags made so that they will not deteriorate when used in corrosive environments such as areas where acid and alkali chemicals are handled and stored?
- ☐ ☐ Are lockout and tagout devices standardized within the facility in at least one of the following criteria: color; shape; or size; and additionally, in the case of tagout devices, print and format
- ☐ ☐ Are lockout devices substantial enough to prevent removal without the use of excessive force or unusual techniques, such as the use of bolt cutters or other metal cutting tools?
- ☐ ☐ Are tagout devices, including their means of attachment, substantial enough to prevent inadvertent or accidental removal?
- ☐ ☐ Are the means of attaching tagout devices of a non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds?
- ☐ ☐ Is the general design and basic characteristics of the means of attachment at least equivalent to a one-piece, all environment-tolerant nylon cable tie?
- ☐ ☐ Do lockout devices and tagout devices indicate the identity of the employee applying the device(s)?
- ☐ ☐ Do tagout devices warn against hazardous conditions if the machine or equipment is energized and include a legend such as the following: Do Not Start. Do Not Open. Do Not Close. Do Not Energize. Do Not Operate?
- ☐ ☐ Does each person's lock have either a key or combination which is unique to that device?

### **Periodic Inspection**

- ☐ ☐ Does the employer conduct a periodic inspection of the energy control procedure at least annually?
- ☐ ☐ Is the periodic inspection performed by an authorized employee other than the one(s) utilizing the energy control procedure being inspected?
- ☐ ☐ Is the periodic inspection conducted to correct any deviations or inadequacies identified?

- □ Does the periodic inspection include a review, between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected?
- □ Does the employer certify in writing that the periodic inspections have been performed?

**Note:** The certification must identify the machine or equipment on which the energy control procedure was being utilized, the date of the inspection, the employees included in the inspection, and the person performing the inspection.

### **Training and Communication**

Y/N

- □ Does the employer provide training to make sure that the purpose and function of the energy control program is understood by employees, and that the knowledge and skills required for the safe application, use, and removal of the energy controls are acquired by employees?
- □ Does the training include the following:
  - Authorized employees. The recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
  - Affected employees. The purpose and use of the energy control procedure.
  - All other employees. General lockout/tagout program and procedures, and the prohibition relating to attempts to restart or re-energize machines or equipment which are locked out or tagged out.
- □ When a tagout system is used, employees should be trained that:
  - Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock.
  - When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.
  - Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.
  - Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.
  - Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.
  - Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.

### **Employee Retraining**

- □ Is retraining provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures?
- □ Is additional retraining conducted whenever a periodic inspection reveals, or whenever the employer has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures?
- □ Does retraining re-establish employee proficiency and introduce new or revised control methods and procedures, as necessary?

- ☐ ☐ Does the employer certify that employee training has been accomplished and is being kept up-to-date, and does the certification contain each employee's name and dates of training?

### **Energy Isolation**

Y/N

- ☐ ☐ Is lockout or tagout performed only by the authorized employees who are performing the servicing or maintenance?

### **Notification of Employees**

- ☐ ☐ Are affected employees notified by the employer or authorized employee of the application and removal of lockout or tagout devices?
- ☐ ☐ Is notification given before the controls are applied, and after they are removed from the machine or equipment?

### **Application of Controls**

- ☐ ☐ Are established procedures for the application of energy control (the lockout or tagout procedures) being accomplished in proper sequence?

### **Step One: Preparation for shutdown**

- ☐ ☐ Does the authorized employee have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy before turning off a machine or equipment?

### **Step Two: Machine or equipment shutdown**

- ☐ ☐ Are machines or equipment turned off or shut down using orderly, established procedures?

### **Step Three: Machine or equipment isolation**

- ☐ ☐ Are all energy isolating devices needed to control the energy to the machine or equipment physically located and operated in such a manner as to isolate the machine or equipment?

### **Step Four: Lockout or tagout device application**

- ☐ ☐ Are lockout or tagout devices affixed to each energy isolating device by authorized employees?
- ☐ ☐ Are lockout devices affixed in a manner that will hold the energy isolating devices in a "safe" or "off" position?
- ☐ ☐ Are tagout devices, where used, affixed in such a manner as will clearly indicate that the operation or movement of energy isolating devices from the "safe" or "off" position is prohibited?
- ☐ ☐ Where tagout devices are used with energy isolating devices designed with the capability of being locked, is the tag fastened at the same point at which the lock would have been attached? (Remember using tags is not allowed unless full employee protection can be proved.)
- ☐ ☐ Where a tag cannot be affixed directly to the energy isolating device, is the tag located as close as safely possible to the device, and in a position that will be immediately obvious to anyone attempting to operate the device?
- ☐ ☐ Following the application of lockout or tagout devices to energy isolating devices, is all potentially hazardous stored or residual energy relieved, disconnected, restrained, and otherwise rendered safe?

- □ If there is a possibility of re-accumulation of stored energy to a hazardous level, is isolation verification continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists?
- □ Prior to starting work on machines or equipment that have been locked out or tagged out, does the authorized employee verify that isolation and de-energizing of the machine or equipment have been accomplished?

### **Release from Lockout or Tagout**

Y/N

- □ Before lockout or tagout devices are removed and energy is restored to the machine or equipment, are the following actions taken?
  - The work area is inspected to ensure that non-essential items have been removed and that machine or equipment components are operationally intact.
  - The work area is checked to make sure all employees have been safely positioned or removed.
  - Before lockout or tagout devices are removed and before machines or equipment are energized, affected employees are notified that the lockout devices have been removed.
  - After lockout or tagout devices have been removed and before a machine or equipment is started, affected employees are notified that the lockout or tagout device(s) have been removed.
- □ Is each lockout or tagout device removed from each energy isolating device by the employee who applied the device?
- □ When the authorized employee who applied the lockout or tagout device is not available to remove it, is the device removed under the direction of the employer using specific procedures? Do those procedures include:
  - Verification by the employer that the authorized employee who applied the device is not at the facility;
  - Making all reasonable efforts to contact the authorized employee to inform them that their lockout or tagout device has been removed; and
  - Ensuring that the authorized employee has this knowledge before he/she resumes work at that facility.

### **Testing or Positioning of Machines, Equipment or Components Thereof**

- □ When lockout or tagout devices must be temporarily removed to test or position the machine, equipment or component, is the following sequence of actions followed:
  - Clear the machine or equipment of tools and materials.
  - Remove employees from the machine or equipment area.
  - Remove the lockout or tagout devices.
  - Energize and proceed with testing or positioning.
  - De-energize all systems and reapply energy control measures to continue the servicing and/or maintenance.

### **Outside Personnel (contractors, etc.)**

Y/N

- ☐ ☐ Whenever outside servicing personnel are to be engaged in activities, does the on-site employer and the outside employer inform each other of their respective lockout or tagout procedures?
- ☐ ☐ Does the on-site employer make sure that his/her employees understand and comply with the guidelines and restrictions of the outside employer's energy control program?

### **Shift or Personnel Changes**

- ☐ ☐ Are specific procedures used during shift or personnel changes to ensure continuity of lockout or tagout protection?
- ☐ ☐ Do shift change procedures include the orderly transfer of lockout or tagout device protection between off-going and on-coming employees?

Inspector's Name

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Date

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#### **Fixed & Portable Ladders - MIOSHA-Part 11-R 408.411**

Joe Badalamenti is responsible for the implementation and enforcement of the following safety rules as they apply to ladder & stairway safety.

Accurate Painting Company will ensure that each employee has been trained by a competent person in the following areas.

- The nature of fall hazards in the work area.
- The correct procedures for erecting, maintaining, and disassembling the fall protection systems to be used.
- The proper construction, use, and placement of, and care in handling, ladders.
- The maximum intended load-carrying capacities of ladders that are used.
- The rules contained in MIOSHA Part 11.

Retraining will be provided for each employee as necessary so that the employee maintains the understanding and knowledge acquired through compliance with these rules.

#### **Introduction**

Most ladder falls involve portable ladders that move, tilt, or shift while a worker is climbing or descending. Unstable or slippery base surfaces are the primary reasons ladders fail.

Other reasons include a misstep or a slip of the foot, loss of balance, an overreach, and being struck by a vehicle or other object.

Workers can reduce ladder fall risks by doing the following:

- Frequently inspect & maintain ladders.
- Match tasks to appropriate ladders.
- Set up ladders correctly.
- Climb & descend ladders properly.

Employers, too, have a responsibility for training workers so they understand these safe work practices and can use them effectively. This chapter will help promote safe work practices for portable ladders, and we encourage you to use it as a basic reference.

#### **Ladder Ratings**

There are many types of portable ladders, but they all receive one of four ratings, based on their maximum working load (the maximum weight they can safely support). Before you use a ladder, check its rating and be sure not to subject it to a load greater than its rated capacity.

<b><i>Rating</i></b>	<b><i>Working Load</i></b>
Extra heavy duty (I-A)	300 pounds
Heavy duty (I)	250 pounds
Medium duty (II)	225 pounds
Light duty (III)	200 pounds

## Types of Portable Ladders

Portable ladders are either non-self-supporting (such as the straight ladder) or self-supporting (such as the standard step ladder). Within one of these two categories, you are likely to find the right size, shape, and type of ladder to accomplish your task.

### Non-Self-Supporting Ladders

#### Single Portable or Straight Ladder

The single portable or straight ladder is indispensable for general use. It is the most common type of portable ladder and has the widest range of applications. When used on slippery surfaces, this ladder must have slip-resistant feet or be secured to prevent it from sliding.

Rubber or neoprene ladder shoes are recommended for smooth, dry surfaces, and spikes are recommended for snow or ice. Single portable ladders must not be longer than 30 feet and are intended for use by only one worker at a time. Such ladders are available in wood, metal, and reinforced fiberglass.

#### Extension or Section Ladder

Extension ladders offer the greatest length in a general purpose ladder. The ladder consists of two or more sections that travel in guides or brackets, allowing adjustable lengths. The sections must be assembled so that the sliding upper section is on top of the lower section. Each section must overlap its adjacent section a minimum distance, based on the ladder's overall length.

The overall length is determined by the lengths of the individual sections, measured along the side rails. The table shows the minimum overlap for ladders up to 60 feet long.

<b><i>Ladder Length</i></b>	<b><i>Overlap</i></b>
Up to and including 36 feet	3 feet
Over 36 through 48 feet	4 feet
Over 48 through 60 feet	5 feet

**Note:** Install positive stops on individual ladder sections to ensure the required overlap.

Extension ladders are made of wood, metal, or reinforced fiberglass. Wood ladders cannot have more than two sections and must not exceed 60 feet. Metal and fiberglass ladders can have as many as three sections; however, the overall length must not exceed 72 feet. Individual sections of any extension ladder must not be longer than 30 feet. Extension ladders are for use by only one person at a time.

Make sure extension ladders have non-slip bases if there is a chance the ladder can slip. Cord-face ladder shoes are recommended for wet surfaces, rubber or neoprene ladder shoes for smooth dry floor surfaces, and steel spikes for ice or snow. Be careful if you use an extension ladder on oily, metal, or concrete surfaces. Place the ladder securely and tie it off to prevent it from slipping.

### Self-Supporting Ladders

#### Standard Stepladder

The standard stepladder, a general purpose ladder, has flat steps and a hinged back. It is self-supporting and nonadjustable. An industrial model, designed for heavy service demands, has oversize back legs, heavy-duty flat steps, and knee braces that increase rigidity and durability.

Standard stepladders should be used only on surfaces that offer firm, level footing such as floors, platforms, and slabs. They are available in metal, wood, or reinforced fiberglass versions, and are intended to support only one worker at a time. Remember not to stand on, or work from, the top step. The ladders must have a metal spreader or locking arms. They cannot be longer than 20 feet, measured along the front edge of the side rails.

## **Two-Way Stepladder**

The two-way stepladder is similar to the industrial standard stepladder; however, each side of this ladder has a set of steps. The extra set of steps offers convenience and versatility: One person can work from either side or two people can work from the ladder at the same time — one on each side.

## **Platform Ladder**

The platform ladder is a special-purpose ladder that has a large stable platform from which you can work at the highest standing level. The ladder's length is determined by the length of the front edge of the side rail from the bottom of the ladder to the base of the platform. The length of a platform ladder cannot exceed 20 feet.

## **Trestle Ladder**

A trestle ladder is a self-supporting portable ladder that has two sections hinged at the top, forming equal angles with the base. A variation of the trestle ladder, the extension trestle ladder, includes a vertically adjustable single ladder that can be locked in place. (The single extension section must lap at least three feet into the base section.) Trestle ladders are used in pairs to support planks or staging. The rungs are not intended to be used as steps.

The angle of spread between open front and back legs must be 5 ½ inches per foot of length. The length cannot be more than 20 feet, measured along the front edge of the side rails. Rails must be beveled at the top and have metal hinges to prevent spreading. Metal spreaders or locking devices are also required to keep the rails in place.

## **Selecting Ladders**

Ladders come in different types because workers who use them have different needs. In the previous section, major types of portable ladders were identified and the tasks for which they are appropriate. However, many of the special-purpose ladders were omitted, which are usually variations of general purpose ladders, designed to meet a special need.

Examples include: platform, trolley, side-rolling, shaft, and manhole ladders. The important point: You are likely to save time and energy and reduce your risk of injury if you choose the right ladder for your task or job.

## **Using Ladders**

Ladders are easier and safer to use when you match them with the appropriate task. Still, most portable-ladder accidents happen when workers do one or more of the following: fail to inspect ladders regularly, place ladders inappropriately, or ignore safe practices when climbing or descending. The guidelines below address each of these issues.

### **At the Beginning of Each Job**

- Select the appropriate ladder for your task or job.
- Inspect the ladder before you use it. Make sure it is in sound condition — clean and undamaged.

### **Placing a Ladder**

- Move the ladder near the work you are doing.
- Angle the ladder properly. The base should extend not less than one-fourth the ladder's length. The minimum slope should be 50 degrees.
- Place a solid rest for the rail tops across window openings.
- Protect the base of a tall, occupied ladder if it could be struck by vehicles or pedestrians.

## **Avoid**

- Never place a ladder in front of an unlocked, unguarded door.
- Never place a ladder on boxes, tables, trucks, or other moveable objects.

## **Securing a Ladder**

- Nail or lash a ladder in place if it will be used repeatedly in the same spot.
- Select a ladder that will extend at least 36 inches above the access area it is serving.

## **Avoid**

- Working on ladders in exposed areas during a severe storm or strong wind.
- Working on ladders covered with ice or snow.
- Using a portable ladder if an approved stairway could be used instead.

## **Ascending and Descending**

- Face the ladder at all times.
- Grasp the side rails with both hands; you have a better chance of avoiding a fall if a rung or step fails.
- Raise and lower heavy, awkward loads with a hand line or hoist.
- Attach light, compact tools or materials to the ladder or to yourself.

## **Avoid**

- Sliding down the ladder.
- Climbing when your hands or shoes are slippery.
- Using your hands for carrying items.
- Carrying awkward loads when ascending or descending a ladder.
- Placing tools or materials on a ladder if they could fall off.

## **Metal Ladders**

Make sure steps and rungs have a skid-resistant surface that minimizes the risk of slipping. ("Skid resistant" means corrugated, knurled, dimpled, or coated with skid-resistant material.)

## **Avoid**

Using any ladder with conductive side rails near exposed, energized equipment. (Such ladders must be permanently, legibly marked with the words, **"WARNING — Do Not Use Around Energized Electrical Equipment."**)

## **Precautions**

- Place both feet firmly on the ladder rungs and steps.
- Make sure only one person stands on, or works from, a standard ladder. (Use a scaffold or a second ladder if two or more people are doing the same task.)
- Immediately inspect any ladder that has collapsed, tipped over, or been exposed to oil or grease. Clean and repair the ladder if necessary.
- Remove defective ladders from service. Tag or mark defective ladders with the words: "Dangerous, Do Not Use."
- Make sure an extension ladder extends at least 36 inches above an access landing.
- Keep the area around the top and bottom of a ladder free of debris.
- Keep the load on the ladder (including yourself) below its maximum load capacity.

## **Do Not**

- Do not paint ladders. Paint conceals defects. Use transparent preservatives instead.
- Do not use ladders with broken, patched, oily, or cracked rails, rungs, or steps.
- Do not reach out over the side rails, lean, or turn excessively on a ladder.
- Do not use a ladder as guy, brace, or skid.
- Do not stand or sit on the top two steps of a stepladder.
- Do not use a self-supporting ladder without first opening it up and securing the metal spreader or locking device.
- Do not load a ladder beyond its maximum load capacity.

## **Transporting Ladders**

Some ladders are easier to move than others. Here are a few guidelines to help you protect ladders and the people who use them.

When you hand-carry a ladder, keep the front end elevated, especially around blind corners, in aisles, and through doorways. You will reduce the chance of striking another person with the front of the ladder.

When you transport a ladder in a truck or trailer, place it parallel to the bed. Avoid tossing, throwing, or dropping it in the bed.

If you transport a long ladder on a short truck bed over long distances, support the ladder so it will not sag or bend.

Drive slowly over rough terrain. Tie the ladder securely to eliminate nicking, gouging, chafing, and road shock.

## **Storing Ladders**

Another way to prolong a ladder's life is to store it properly. Here are some useful storage tips:

- The storage area should be well ventilated.
- Wood ladders should not be exposed to moisture or excessive heat. Avoid storing ladders near stoves, steam pipes, or radiators.
- Store straight or extension ladders in flat racks or on wall brackets. Make sure there are enough brackets to support the ladder so that it does not sag. If the ladder rails have a lateral curve, the wall brackets should match the curve.
- Store stepladders vertically, in a closed position, to reduce the risk of sagging or twisting. Secure stored ladders so that they will not tip over if they are struck.
- Store ladders, especially wood ladders, promptly after using them. Exposure to moisture and sun will shorten the life of a wood ladder.

## **Maintaining and Repairing Ladders**

Neglected ladders quickly become unsafe ladders. Step bolts slacken, step sockets and other joints work loose, hole sizes increase — eventually the ladder becomes twisted and unstable.

Periodic maintenance extends a ladder's life and saves replacement costs. Maintenance includes regular inspection of the ladder, repairing damage and tightening step bolts and other fastenings.

Replace lower steps on wooden ladders when one-fourth of the step surface is worn away. Typically, the center of a step receives the most wear. (Mineral abrasive or other skid-resistant material reduces wear.)

- Do not use cleats to repair rung ladders.
- Do not paint a wood ladder — paint conceals defects.

Consider stocking repair parts if you use different types of ladders. Typical parts include ladder bolts, related hardware, and lower steps or rungs (which wear out faster than upper steps or rungs).

### **Improving Slip Resistance**

Slip-resistant materials are often used on industrial ladder treads. Notable is the anti-slip treatment on metal platform ladders used in file and parts rooms, tool cribs, and frozen-food lockers. The obvious benefit of slip-resistant material is that it reduces fall risks when a worker is climbing or descending.

### **Ladder Hazards Checklist**

Begin your work with a ladder that will not let you down. Use the checklist below to make sure the ladders you use are hazard free.

Are ladders kept in good condition?

Are the joints between steps and side rails tight, all hardware and fittings securely attached, and movable parts operating freely without binding or excessive play?

Are non-slip safety feet on each single or multiple-section portable rung-type ladder?

Are ladder rungs and steps kept free of grease and oil?

Are workers instructed to face the ladder when ascending/descending it?

Are workers prohibited from using ladders that have missing steps, rungs, cleats, broken side rails, or other faulty parts?

Are workers instructed not to stand or step on the top step of any portable ladder?

When portable ladders are used to reach elevated platforms and roofs, does the ladder extend at least 36 inches above the elevated surface?

Are portable metal ladders legibly marked with signs reading "CAUTION — Do Not Use Around Electrical Equipment" or equivalent wording?

Are steps, rungs, or cleats of ladders spaced no more than 12 inches apart?

Are portable ladders secured or lashed to prevent displacement when they are used?

Are wood cleats attached to the side rails of job-made ladders in one of the following ways:

- By housing the cleats into the side rails by at least one-half inch.
- By securing wood strips (same thickness as the cleats) to the side rails between each cleat.
- By securing the cleats to the side rails with bolts.

Is there at least seven inches of space behind the cleats to allow secure footing?

### **Ladder Training**

Employers have a responsibility to ensure that their employees understand how to inspect and use ladders correctly. Use the following checklist to evaluate the training employees receive.

Have you provided a training program for each employee who uses a ladder?

Does the training enable each employee to recognize and minimize ladder hazards?

Has each employee been trained by a competent person in the following areas, when applicable?

The nature of fall hazards in the work area?

How to correctly use, place, handle, and maintain ladders?

The maximum load-carrying capacities of ladders used?

MIOSHA requirements for the types of ladders that will be used?

### Fall Protection Program

**MIOSHA-Part 45-R 408.445**

**Adopted by Reference**

**Duty to have Fall Protection - 29 CFR-§1926.501**

**Fall Protection Systems – Criteria and Practices - 29 CFR-§1926.502**

**Training Requirements - 29 CFR-§1926.503**

#### **Company Policy for Fall Protection**

Accurate Painting Company has implemented this policy to ensure that proper safe work practices and procedures are followed to protect employees from the fall hazards. Joe Badalamenti is designated as the Program Administrator responsible for managing and supervising the Fall Protection Program. The following work practices, procedures, and engineering controls will be enforced as an integral part of our Company safety policy:

Our Company will provide to our employees at no cost fall protection such as guardrails, safety nets, or personal fall arrest systems whenever our employees are exposed to potential falls to lower levels from heights of six feet or greater. This includes work near and around excavations.

**Exception:** When the standard methods of protection are not feasible or a greater hazard would be created. Scaffolds, ladders, or vehicles will only be used when appropriate fall protection is in place.

This Company provides a training program for each employee who might be exposed to fall hazards. Training will enable each employee to recognize the hazards of falling and will instruct each employee in the procedures to follow to minimize these hazards. Joe Badalamenti will maintain written certification records showing the following:

- Who was trained, the types of training, and dates of training.
- Signature of person providing training and the date it was determined training was deemed adequate.

Joe Badalamenti will ensure that all employees who participate in work where fall hazards are present are trained in recognition of fall hazards, fall protection procedures, equipment, and work practices. Employees will be certified upon completion of training in the following areas:

- The nature of fall hazards in the work area.
- The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used.
- The role of each employee in the safety monitoring system when this system is used.
- The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, personal fall restraint systems, slide guard systems, positioning devices, and other protection to be used.
- The limitations on the use of mechanical equipment during the performance of roofing work.
- The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection.
- The role of employees in the fall protection work plan.



Fall protection will be required at all times for employees working at heights of 6 feet or above. The fall protection system used will be appropriate for the specific work location or situation where it is required.

Joe Badalamenti is designated the competent person in charge of the Company Fall Protection Program and will specify a fall protection system for each worksite. Joe Badalamenti will supervise implementation of the fall protection system and inspect the system prior to use.

A "Safety Monitoring System" will be implemented where no alternative measure is feasible. In the event a conventional fall protection system is deemed inappropriate, Joe Badalamenti will designate the work area a controlled access zone, and will assign a competent person to monitor the safety of other employees and will ensure that the safety monitor complies with the following requirements. The assigned safety monitor will:

- Be competent to recognize fall hazards.
- Warn the monitored employees when it appears they are unaware of a fall hazard or is acting in an unsafe manner.
- The safety monitor will be on the same walking/working surface and within visual sighting distance of the employees being monitored.
- The safety monitor will be close enough to communicate orally with the employee being monitored.
- The safety monitor will have no other responsibilities that could take his/her attention from the monitoring function.

Any accidents or incidents involving Accurate Painting Company employees will be reported immediately to the supervisor for the work location. All accidents/incidents will be investigated under the guidelines of the Company Accident Investigation Program and changes will be implemented to the Fall Protection Plan as necessary.

All materials and equipment purchased and used for fall protection will comply with ANSI and ASTM standards required for that equipment.

## What is Fall Protection?

You accomplish fall protection by doing the following:

- Make fall protection part of your Accident Prevention Program.
- Identify and evaluate fall hazards.
- Eliminate fall hazards, if possible.
- Train workers to recognize fall hazards.
- Use appropriate equipment to prevent falls and to protect workers if they do fall.
- Inspect and maintain fall protection equipment before and after using it.
- Become familiar with Subpart M fall protection rules.

## Preventing and Controlling Falls

- What is a fall protection system?
  - Warning-line systems for roofing work
  - Safety monitoring for roofing work
  - Catch platforms
  - Covers for holes
  - Fences and barricades
  - Protecting workers from falling objects
- What to consider when selecting a fall protection system
  - Personal fall-arrest systems
  - Personal fall-restraint systems
  - Positioning-device systems
- Guardrail systems
- Safety-net systems

## What is a Fall Protection System?

If workers will be exposed to fall hazards that you cannot eliminate, you will need to prevent falls from occurring or ensure that if workers do fall, they are not injured. A fall protection system is designed to prevent or arrest falls. The table below shows the fall protection systems covered in §1926.500 – Subpart M.

## FALL PROTECTION SYSTEMS

Type of fall protection system	What it does
Personal fall-arrest system	Arrests a fall
Personal fall-restraint system	Prevents a fall
Positioning-device system	Positions a worker and limits a fall to two feet
Guardrail system	Prevents a fall
Safety-net system	Arrests a fall
Warning-line system for roofing work	Warns a worker of a fall hazard
Slide-guard system for roofing work	Prevents workers from sliding down sloped roofs

## Other Fall Protection Methods

The following methods may also be appropriate for preventing falls:

**Safety monitoring for roofing work** – A method in which a person – rather than a mechanical system – warns roofers when they are in danger of falling. The monitor, who must be a competent person, is responsible for recognizing the hazards and warning workers about them.

**Catch platforms** – Though not covered in Subpart M, catch platforms are an acceptable method of protecting workers from falls.

**Covers for holes** – Simple and effective when they are properly installed, rigid covers prevent workers from falling through temporary holes, openings, and skylights in walking/working surfaces.

**Fences and barricades** – Use a fence or similar barricade to keep people away from wells, pits, and shafts.



## **What to Consider When Selecting a Fall Protection System**

Appropriate fall protection systems have the following characteristics:

- They are affordable.

- They offer the least interference with workers' tasks or activities.

- They prevent falls or protect workers who do fall.

Wherever possible, eliminate fall hazards. Identify hazards that you cannot eliminate and evaluate each one. The evaluation will help you determine appropriate fall protection systems for your work site. Consider the following:

- What is the fall distance from the walking/working surface to the next lower level?

- How will the workers move – horizontally, vertically, or in both directions – to do their tasks?

- How will workers be promptly rescued if they are suspended in a personal fall-arrest system?

- How many workers are exposed to the hazard?

- What tasks and work areas are associated with the hazard?

- Are secure anchorages available or can they be easily installed near the hazard?

- Are there other hazards near the work area, such as overhead power lines?

## **Personal Fall-Arrest Systems**

A personal fall-arrest system consists of an anchorage, connectors, and a full-body harness that work together to stop a fall and to minimize the arrest force. Other parts of the system may include a lanyard, a deceleration device, and a lifeline. The personal fall-arrest system is effective only if you know how all of the components work together to stop a fall.

**Before using a personal fall-arrest system, workers must be instructed in the following:**

- How to select and install a secure anchorage.

- How to select and use connectors.

- How to put on and use a full-body harness.

- How to correctly attach and use a lanyard.

- When a deceleration device is necessary.

- How to erect and use a lifeline.

- The correct procedures for using retractable devices.

- How to estimate fall distances.

- How to avoid swing falls.

- How to inspect and maintain the system.

- How you will be promptly rescued if you fall.

## **The Anchorage**

An anchorage is a secure point of attachment for lifelines, lanyards, or deceleration devices. How can you be sure that an anchorage is secure? An anchorage for a personal fall-arrest system must support at least 5,000 pounds. Anchorages that cannot support 5,000 pounds must be designed and installed under the supervision of a qualified person and must be able to maintain a safety factor of at least two – twice the impact force of a worker free-falling six feet. If you do not know how much weight an anchorage will support, have a qualified person check it before you trust your life to it. Anchorage strength is critical, but is not the only factor to consider. Also important:

**Anchorage connector** – Unless an existing anchorage has been designed to accept a lanyard or lifeline, you will need to attach an anchorage connector – a device that provides a secure attachment point. Examples include tie-off adapters, hook anchors, beam connectors, and beam trolleys. Be sure that the connector is compatible with the lanyard or lifeline and appropriate for the work task.

**Attachment point** – The anchorage can be used only as the attachment point for a personal fall-arrest system; it cannot be used to support or suspend platforms.

**Location** — The anchorage should be located directly above the worker, if possible, to reduce the chance of a swing fall.

**Fall distance** — Because a personal fall-arrest system does not prevent a fall, the anchorage must be high enough above a worker to ensure that the arrest system, and not the next lower level, stops the fall. Consider free-fall distance, lanyard length, shock-absorber elongation, and body-harness stretch in determining the height of an anchorage. Free-fall distance is the distance a worker falls before a personal fall-arrest system begins to stop the fall.

**Connectors** — An anchorage, a lanyard, and a body harness are not useful until they are linked together. Connectors do the linking; they make the anchorage, the lanyard, and the harness a complete system. Connectors include carabiners, snap hooks, and D-rings.

**Carabiner** — This high-tensile alloy steel connector has a locking gate and is used mostly in specialized work such as window cleaning and high-angle rescue. Carabiners must have a minimum tensile strength of 5,000 pounds.

**Snap hook** — A hook-shaped member with a keeper that opens to receive a connecting component and automatically closes when released. Snap hooks are typically spliced or sewn into lanyards and self-retracting lifelines. Snap hooks must be high-tensile alloy steel and have a minimum tensile strength of 5,000 pounds. Use only locking snap hooks with personal fall-arrest systems; locking hooks have self-locking keepers that will not open until unlocked.

**D-ring** — D-rings are the attachment points sewn into a full-body harness. D-rings must have a minimum tensile strength of 5,000 pounds.

**The full-body harness** — The full-body harness has straps that distribute the impact of a fall over the thighs, waist, chest, shoulders, and pelvis. Full-body harnesses come in different styles, many of which are light and comfortable. Before you purchase harnesses, make sure that they fit those who will use them, that they are comfortable, and that they are easy to adjust. A full-body harness should include a back D-ring for attaching lifelines or lanyards and a back pad for support. Never use a body belt as part of a personal fall-arrest system.

### **When purchasing a full-body harness for a personal fall-arrest system.**

Keep the following in mind:

The harness must be made from synthetic fibers.

The harness must fit the user. It should be comfortable and easy to adjust.

The harness must have an attachment point, usually a D-ring, in the center of the back at about shoulder level. The D-ring should be large enough to easily accept a lanyard snap hook.

Chest straps should be easy to adjust and strong enough to withstand a fall without breaking.

Use only industrial full-body harnesses (not recreational climbing harnesses).

The harness must be safe, reliable, and it should meet ANSI standards for product design, development, and production.

## **Lanyards**

A lanyard is a specially designed flexible line that has a snap hook at each end. One snap hook connects to the body harness and the other connects to an anchorage or a lifeline. Lanyards must have a minimum breaking strength of 5,000 pounds. They come in a variety of designs, including self-retracting types that make moving easier and shock absorbing types that reduce fall-arrest forces. Do not combine lanyards to increase length or knot them to make them shorter.

## **Deceleration Devices**

Deceleration devices protect workers from the impact of a fall and include shock-absorbing lanyards, self-retracting lifelines or lanyards, and rope grabs.

**Shock-absorbing lanyard** – A shock absorber reduces the impact on a worker during fall arrest by extending up to 3.5 feet to absorb the arrest force. Subpart M rules limit the arrest force to 1,800 pounds but a shock-absorbing lanyard can reduce the force even more – to about 900 pounds. Because a shock-absorbing lanyard extends up to 3.5 feet, it is critical that the lanyard stops the worker before the next lower level. Allow about 20 vertical feet between the worker's anchorage point and the level below the working surface. Always estimate the total distance of a possible fall before using a shock-absorbing lanyard.

**Example:** Lanyard length (6 feet) + deceleration distance (3.5 feet) + worker's height (6 feet) + safety margin (3 feet) = 18.5 vertical feet from anchorage to lower level.

Never use a shock-absorbing lanyard if the shock absorber is even partially extended or if the lanyard has arrested a fall.

**Self-retracting lanyard/lifeline** – Self-retracting lanyards and lifelines offer more freedom to move than shock-absorbing lanyards. Each has a drum-wound line that unwinds and retracts as the worker moves. If the worker falls, the drum immediately locks, which reduces free-fall distance to about two feet – if the anchorage point is directly above the worker. Some self-retracting lanyards will reduce free-fall distance to less than one foot. Self-retracting lanyards are available in lengths up to 20 feet.

Self-retracting lifelines, which offer more freedom, are available in lengths up to 250 feet. Self-retracting lanyards and lifelines that limit free-fall distance to two feet or less must be able to hold at least 3,000 pounds with the lanyard (or lifeline) fully extended. Self-retracting lanyards that do not limit free-fall distance to two feet must be able to hold at least 5,000 pounds with the lanyard (or lifeline) fully extended. Beware of swing falls! If you use a self-retracting lanyard or lifeline, work below the anchorage to avoid a swing fall. The farther you move away from the anchorage, the farther you will fall and the greater your risk of swinging back into a hard object.

Swing falls are hazardous because you can hit an object or a lower level during the pendulum motion.

**Rope grab** — A rope grab allows a worker to move up a vertical lifeline but automatically engages and locks on the lifeline if the worker falls. When using a rope grab, keep the following in mind:

- The rope grab must be compatible with the lifeline.

- The rope grab must be correctly attached to the lifeline (not upside down).

- Keep the lanyard (between the rope grab & body harness) as short as possible.

- Keep the rope grab as high as possible on the lifeline.

## Lifelines

A lifeline is a cable or rope that connects to a body harness, lanyard, or deceleration device, and at least one anchorage. There are two types of lifelines, vertical and horizontal.

**Vertical lifeline** – A vertical lifeline is attached to an overhead anchorage and must be connected directly to a worker's full-body harness, lanyard, retractable device, or rope grab; it must have a minimum breaking strength of 5,000 pounds.

When a worker needs to move horizontally, however, a vertical lifeline can be hazardous due to the potential for a swing fall – the pendulum motion that results when the worker swings back under the anchor point. A swing fall increases a worker's risk of striking an object or a lower level during the pendulum motion.

**Horizontal lifeline** – Unlike a vertical lifeline, the horizontal lifeline stretches between two anchorages. When you connect a lanyard or rope grab to the horizontal lifeline, you can move about freely, thus reducing the risk of a swing fall. However, horizontal lifelines are subject to much greater loads than vertical lifelines. If horizontal lifelines are not installed correctly, they can fail at the anchorage points. For this reason, horizontal lifelines must be designed, installed, and used under the supervision of a qualified person.

**Horizontal lifelines and sag angles** – Any load on a horizontal lifeline will cause it to deflect, or sag. The sag angle is a horizontal lifeline's angle of deflection when it is subjected to a load, such as a falling worker. Reducing the sag angle (making a horizontal lifeline too tight) actually increases the force on the line during a fall. As you tighten a horizontal lifeline, you increase the impact load dramatically!

**Example:** When the sag angle is 15 degrees, the force on the lifeline and anchorages subjected to a load is about 2:1. However, if you decrease the sag angle to five degrees, the force increases to about 6:1. To reduce loads on a horizontal lifeline, increase the sag angle or connect to the lifeline with a shock-absorbing lanyard.

## Safe Practices for Personal Fall-Arrest Systems

Do not tie knots in rope lanyards and lifelines; knots can reduce strength by 50 percent.

Do not tie lifelines or lanyards directly to I-beams; the cutting action of beam edges can reduce the rope's strength by 70 percent.

Know how the "sag angle" of a horizontal lifeline can affect arrest forces on the anchorages.

Remember that horizontal lifelines must be designed, installed, and used under the supervision of a qualified person.

Think about the potential for a swing fall whenever you connect a lifeline to a personal fall-arrest system.

Remember that a shock-absorbing lanyard will elongate before arresting a fall. The fall distance includes lanyard length (before the shock absorber extends), deceleration distance (shock-absorber extension), worker height, and a safety margin (allow three feet).

## Personal Fall-Restraint Systems

Unlike the personal fall-arrest system, which is designed to stop a fall, a personal fall-restraint system prevents a worker from reaching an unprotected edge and thus prevents a fall from occurring. The system consists of an anchorage, connectors, and a body harness or a body belt. The attachment point to the body belt or full body harness can be at the back, front, or side D-rings.



The anchorage for a fall-restraint system must support at least 3,000 pounds or be designed and installed with a safety factor of at least two. If you are not sure how much an anchorage will support, have a qualified person evaluate it.

### **Positioning-Device Systems**

Positioning-device systems make it easier to work with both hands free on a vertical surface such as a wall or concrete form. Positioning-device systems are also called Class II work-positioning systems and work-positioning systems. The components of a positioning-device system – anchorage, connectors, and body support – are similar to those of a personal fall-arrest system. However, the systems serve different purposes.

A positioning-device system provides support and must stop a free fall within two feet; a personal fall-arrest system provides no support and must limit free-fall distance to six feet.

**Anchorage** – Positioning-device systems must be secured to an anchorage that can support at least twice the potential impact of a worker's fall or 3,000 pounds, whichever is greater.

**Connectors** – Connectors must have a minimum strength of 5,000 pounds. Snap hooks and D-rings must be proof-tested to a minimum load of 3,600 pounds without deforming or breaking.

**Body support** – A body belt is acceptable as part of a positioning-device system. However, it must limit the arresting force on a worker to 900 pounds and it can only be used for body support. A full-body harness is also acceptable and must limit the arrest force to 1,800 pounds. Belts or harnesses must have side D-rings or a single front D-ring for positioning.

### **Guardrail Systems**

A guardrail system consists of a top rail, mid-rail, and intermediate vertical member. Guardrail systems can also be combined with toe-boards that prevent materials from rolling off the walking/working surface.

### **Retrieval/Rescue of Suspended Workers**

#### **Responding to Falls – Prompt Rescue is Required**

The best strategy for protecting workers from falls is to eliminate the hazards that cause them. When you cannot eliminate the hazards, you must protect workers with an appropriate fall protection system or method. If a worker is suspended in a personal fall-arrest system, you must provide for a prompt rescue.

"Prompt" means without delay. A worker suspended in a harness after a fall can lose consciousness if the harness puts too much pressure on arteries. A worker suspended in a body harness must be rescued in time to prevent serious injury. If a fall-related emergency could happen at your work site, you should have a plan for responding to it promptly. Workers who use personal fall-arrest systems must know how to rescue themselves immediately after a fall or they must be promptly rescued.

#### **Emergency Response Plan**

The following guidelines explain plans for responding promptly to falls and other emergencies.

**Effective plans do not need to be elaborate.** The plan must show that you have thought about how to eliminate and control hazards and that workers know how to respond promptly if something goes wrong.

**Get others involved in planning.** When other workers participate, they will contribute valuable information, take the plan seriously, and be more likely to respond effectively during an emergency. Key planning objectives:

- Identify the emergencies that could affect your site.
- Establish a chain of command.
- Establish procedures for responding to the emergencies.
- Identify critical resources and rescue equipment.
- Train on-site responders.

Identify emergencies that could affect your workplace. Identify any event that could threaten worker safety or health. Two examples:

- A worker suspended in a full-body harness after a fall.
- A worker on a scaffold who contacts an overhead power line.

**Identify critical resources and rescue equipment.** Prompt rescue will not happen without trained responders, appropriate medical supplies, and the right equipment for the emergency.

**First-aid supplies.** Every worksite needs medical supplies for common injuries. Does your site have a first aid kit for injuries that are likely to occur? Store the supplies in clearly marked, protective containers and make them available to all shifts.

**Rescue equipment.** Identify on-site equipment that responders can use to rescue a suspended worker. Extension ladders and mobile lifts are useful and available at most sites. Determine where and how each type of equipment would be most effective during a rescue. Make sure the equipment will permit rescuers to reach a fall victim, that it is available when rescuers need it, and that rescuers know how to use it. Will your longest ladder reach a suspended worker? If not, what equipment will reach the worker? When equipment is needed for a rescue, will workers know where it is and how to use it? Think about seasonal and environmental conditions and how they may affect rescue equipment and those who use it. Equipment that works for summer rescues may not work for winter rescues.

**Train on-site responders.** An effective emergency-response plan ensures that on-site responders know emergency procedures, know how to use available rescue equipment, and – if necessary – know how to contact off-site responders. Workers who use personal fall-arrest systems and who work alone must know how to rescue themselves. Those who work at a remote site may need a higher level of emergency training than those who work near a trauma center or a fire department.

**Establish a chain of command.** All workers must know their roles and responsibilities during an emergency. A chain of command links one person with overall responsibility for managing an emergency to those responsible for carrying out specific emergency response tasks. Ensure that back-up personnel can take over when primary responders are not available.

**Establish procedures for responding to emergencies.** Procedures are instructions for accomplishing specific tasks. Emergency procedures are important because they tell workers exactly what to do to ensure their safety during an emergency. Your emergency response plan should include the following procedures – preferably in writing – that describe what people must know and do to ensure that a fallen worker receives prompt attention:

- How to report an emergency.
- How to rescue a suspended worker.
- How to provide first aid.

After an emergency, review the procedures; determine if they should be changed to prevent similar events and revise them accordingly.

## **Responding to Falls – Before On-Site Work Begins**

Identify emergencies that could affect your work site.

Establish a chain of command.

Document procedures for responding to emergencies and make sure they are available at the site.

Post emergency-responder phone numbers and addresses at the work site.

Identify critical resources and rescue equipment. Train on-site responders.

Identify off-site responders and inform them about any conditions at the site that may hinder a rescue effort.

Identify emergency entry and exit routes. Make sure responders have quick access to rescue and retrieval equipment, such as lifts and ladders.

## **During On-Site Work**

Identify on-site equipment that can be used for rescue and retrieval, such as extension ladders and mobile lifts.

Maintain a current rescue-equipment inventory at the site. Equipment may change frequently as the job progresses.

Re-evaluate and update the emergency-response plan when work tasks change.

## **When an Emergency Occurs**

First responders should clear a path to the victim. Others should direct emergency personnel to the scene. You can use 911 for ambulance service; however, most 911 responders are not trained to rescue a worker suspended in a personal fall-arrest system.

Make sure only trained responders attempt a technical rescue.

Prohibit all nonessential personnel from the rescue site.

Talk to the victim; determine the victim's condition, if possible.

If you can reach the victim, check for vital signs, administer CPR, attempt to stop bleeding, and make the victim comfortable.

## **After an Emergency**

Verbally by telephone or in person, report any work-related fatalities or the in-patient hospitalization of three or more employees as a result of a work-related incident to your Area Office of OSHA within eight hours.

Identify equipment that may have contributed to the emergency and put it out of service.

Have a competent person examine equipment. If equipment is damaged, repair or replace it. If the equipment caused the accident, determine how and why.

Document in detail the cause of the emergency.

Review emergency procedures. Determine how the procedures could be changed to prevent similar events; revise the procedures accordingly.

## **Training Workers about Fall Protection**

Workers need to know about workplace hazards to which they may be exposed, how to recognize the hazards, and how to minimize their exposure. The best way for them to learn is through training. Training ensures that they know about the hazards and can demonstrate how to protect themselves from falling. Some employers assume that they can train their employees simply by showing them a fall protection training video or giving them a safe work practices guide, but that is not training.

## **Employers Responsibility**

Employers are responsible for ensuring that employees can recognize fall hazards and that they know how to protect themselves before they are exposed to fall hazards. You cannot assume they know how to protect themselves from falls. If they are starting work on a new site, for example, they might not recognize fall hazards or know how to protect themselves unless they are properly trained.

## **Required Training for Employees Exposed to Fall Hazards**

Workers who could be exposed to fall hazards must be trained to recognize the hazards and to know the procedures that minimize the hazards.

**The training format** – As an employer, you can determine the training format. What is important is that, through training, your employees can recognize fall hazards and know procedures to minimize the hazards.

**Who can do the training** – It is important that the trainer knows the hazards at the work site, knows how to eliminate or control the hazards, and knows how to teach workers to protect themselves. That is why the trainer must be a competent person. (Recall that a competent person is one who can identify work-site hazards and who has management authority to control them.) The trainer must know and be able to explain the following:

- The nature of fall hazards at the work site.

- Procedures for erecting, maintaining, and disassembling fall protection systems.

- How to use and operate fall protection systems.

- The role of each employee who may be affected by a safety-monitoring system.

- The restrictions that apply to mechanical equipment used during roofing work.

- The procedure for handling and storing materials and for erecting protection from falling objects.

- Rescue/retrieval procedures for fall suspended workers.

- The requirements of OSHA 1926.500 Subpart M.

**When to train** – Employees must be trained before they begin tasks that could expose them to fall hazards or before they use fall protection systems. They must be retrained when you have reason to believe they do not recognize fall hazards, when they do not follow safe practices for using fall protection systems, and when changes in the workplace or in the fall protection systems used make their previous training obsolete.

Accurate Painting Company has a written Company Accident Prevention Program that details its responsibilities under OSHA's Fall Protection regulations, §1926.500 Subpart M. In accordance with §1926.503, all employees of Accurate Painting Company will be trained by a competent person prior to any job assignment where fall protection is required. The training will enable each employee to recognize fall hazards and to follow appropriate procedures that minimize the hazards.

This record certifies that the following employees have been trained to recognize fall hazards and to use appropriate fall protection systems and methods to minimize exposure to the hazards.

[illegible]

## Inspecting and Maintaining Equipment

### Caring for Equipment

When you use ladders, scaffolds, aerial lifts, and fall protection systems you expect to get your job done safely, but do you pay attention to the condition of the equipment. Inspect personal fall arrest equipment frequently, keep it clean, store it properly, and it will not let you down.

**Inspecting fall-arrest, fall-restraint, and positioning-device systems** — Each time you use a personal fall-arrest, restraint, or positioning-device system, inspect the components for damage or excessive wear. Replace any component that looks damaged. Do not use a personal fall-arrest system that has arrested a fall unless a competent person has determined that the system is safe to use.

**Harness, lifeline, and anchorage** — Inspect these components regularly. The table below highlights what to look for.

Inspecting Harness, Lifeline, and Anchorage	
Component	What to look for
Harness webbing	Frayed edges, broken fibers, pulled stitches, cuts, burns, and chemical damage
Harness D-rings	Cracks, breaks, and rough or sharp edges; the D-ring should pivot easily
Harness buckles	Excessive wear, frayed or cut fibers, broken stitching
Harness grommets	Loose, bent, or broken grommets, & punched holes not made by the manufacturer
Lifelines	Wear or deterioration
Anchorage and anchorage connectors	Look for abrasion and damaged threads or swages. Inspect stitching and loops on synthetic slings for cuts, cracks, or frayed and broken stitching. Look for excessive kinks or damaged steel fibers.

**Snap hooks** — Look for cracks, excessive wear, and corrosion. The snap-hooks should open easily and close firmly. Keeper locks must prevent it from opening when closed.

**Lanyards** — Inspect each time before use. The table below shows what to look for.

Inspecting Lanyards	
Type of lanyard	What to look for
Wire rope lanyard	Cuts, frayed strands, or excessive wear
Web lanyard	Cuts, discoloration, cracks, frayed or broken stitching
Rope lanyard	Frayed or cut fibers. The entire length of the rope should have the same diameter.
Shock-absorbing lanyard	Cuts, discoloration, cracks, frayed or broken stitching. Remove a lanyard from service if any part of the warning label is exposed.

**Self-retracting lifelines** — Look for cuts, frayed strands, or excessive wear in the line and damage to the housing. If the unit needs service, check the manufacturer's recommendations. Do not try to repair it yourself.

**Guardrail systems** — Frequently inspect manila, plastic, or synthetic rope used for top rails or mid-rails to ensure that the rope meets the minimum strength and rail height requirements of Subpart M. [See §1926.502(b)]

### Summary: Inspecting, Cleaning, and Storing Equipment

Always follow manufacturers' instructions and warnings.

Always inspect equipment before using it. Look for damaged or missing parts. Labels, warnings, and other instructions should be readable.

If equipment looks like it needs repair, remove it from service and have a competent person examine it.

Have a competent person regularly inspect equipment.

Mark equipment with a unique code or item number. I. D. numbers make it easier to keep track of the equipment and to document maintenance or repair.

## **Cleaning Equipment**

Wash synthetic rope and body harnesses in soapy water to remove dirt; rinse them with clean water. Air-dry at room temperature.

Do not use cleaning solvents; solvents can damage synthetic material.

Do not lubricate moving parts unless the manufacturer requires it; lubricants attract dirt.

Do not remove information labels and warnings; make sure they are still legible after cleaning.

## **Storing Equipment**

Follow manufacturer's instruction for storing equipment. Store equipment in an area that is clean, dry, and moisture-free; avoid excessive heat, light, oil, and corrosive chemicals.

## **Using a Fall Protection Plan**

A fall protection plan enables workers doing *leading-edge work, pre-cast concrete erection work, or residential-type construction work* to use alternative fall protection systems or methods when conventional systems are not feasible. Under these special circumstances, properly documented fall protection plans give employers the flexibility to use more appropriate methods of fall protection. However, employers must be able to show that conventional systems are not practical or that they pose a greater safety hazard to workers than other fall protection alternatives. In addition, the fall protection plan must meet the following requirements:

A qualified person must prepare the plan specifically for the site where the work will be performed.

The plan must document why conventional fall protection systems are not feasible and show how alternative methods will reduce or eliminate fall hazards.

The plan must describe all measures that will be taken to minimize or eliminate fall hazards at the worksite.

The employer must designate the work area as a controlled-access zone.

Employers who do not use either alternative fall protection measures or conventional systems must use a safety-monitoring system to protect workers in the controlled-access zone.

## **OSHA's requirements for fall protection plans are covered in Subpart M.**

An effective fall protection plan can protect workers from fall hazards and enhance the overall level of safety at a job site. If you are required to use a "Site Specific Fall Protection Work Plan", use the following guidelines and forms to keep your plan in line with OSHA's requirements.

## **Explain Why Conventional Systems Cannot Be Used**

Before you can use a fall protection plan, you must explain why conventional protection methods – guardrails, safety nets, personal fall-arrest, or fall-restraint systems – are infeasible or would pose a greater safety hazard to workers than your proposed method. Consider using scaffolds, catch platforms, or aerial lifts. If you cannot eliminate the hazard, you must also explain why. Be specific!

## **The following three examples help illustrate the point.**

**If anchors capable** of holding 5,000 pounds are not available you must also explain why personal fall-arrest systems with 2:1 safety factors or fall restraint systems will not protect workers.



**If you believe** that having workers erect guardrails creates a greater hazard than an alternative method, you must explain why. You must demonstrate why erecting and dismantling guardrail systems creates a greater hazard than your alternative method and why you cannot use personnel platforms, personal fall-arrest, or fall-restraint systems.

**If you feel** that guardrail systems are not feasible because you cannot anchor them in a finished surface, you must also consider free-standing guardrail systems that will not put holes in the finished surface. If you cannot use free-standing systems, you must explain why.

### **Describe How Your Alternative Method Will Protect Workers**

**Describe specifically how** your alternative fall protection method will reduce or eliminate fall hazards. Include workers' tasks, the fall hazards they will encounter, the location of hazards, and how you intend to protect them from the hazards. You can list your responses in a table such as the one below.

<b>ALTERNATIVE FALL PROTECTION METHODS</b>			
<b>The worker's task</b>	<b>The type of fall hazard (such as a floor opening or unprotected edge)</b>	<b>The location of the fall hazard</b>	<b>Alternative protection (how it will reduce or eliminate the fall hazard)</b>

### **Appoint a Qualified Person to Prepare the Plan**

A qualified person is one who has extensive knowledge, training, and experience with fall protection systems. A qualified person must know how to design, use, and install fall protection systems; the limitations of fall protection systems; and fall hazards associated with work tasks and processes. A qualified person must prepare a site-specific fall protection plan and approve any changes to the plan. Be sure that the plan identifies the following:

**The construction** activity (leading-edge, residential, or pre-cast concrete).

**The site** address where you will use the plan

**The name** of the person who prepared the plan (must be a qualified person)

**The date** the qualified person prepared the plan

## **Establish Controlled-Access Zones**

### **Where Conventional Protection Cannot Be Used**

Your fall protection plan must identify each area where you cannot use guardrails, safety nets, or personal fall-arrest systems, and you must designate those areas as controlled-access zones. In addition, you must do the following:

- Describe how you will limit access to controlled-access zones, including procedures that authorize workers to enter controlled-access zones.

- Describe how you will identify controlled-access zones and how you will separate them from other work areas.

- Identify all workers who will enter controlled-access zones.

### **Assign Supervisory Responsibility to a Competent Person**

A competent person is someone who can identify hazardous conditions and appropriate applications for a fall protection system and who has authority to correct hazards. A competent person must know the site-specific fall protection plan, how to perform work tasks safely, and the hazards associated with those tasks. You must designate a competent person to implement the fall protection plan.

### **Document Accountability**

Your fall protection plan must describe how workers and supervisors will comply with its requirements.

### **Establish a Training Program**

Everyone covered by a fall protection plan must be trained by a competent person. Be sure to document the names of those who receive fall protection training and their training dates. The training program must cover the following:

- Fall hazards that workers will encounter.

- Types of systems that will protect workers from falls.

- Workers' responsibilities under the fall protection plan.

- Procedures for assembling, maintaining, and disassembling personal fall arrest systems.

- How workers should comply with the plan.

- Retraining procedures when the plan changes, tasks change, or when workers are not following the plan.

### **Update the Plan When Site Conditions Change**

When worksite conditions change and affect how workers are protected from falling, you must update your fall protection plan so that it addresses the changes. An on-site qualified person must approve the changed plan. The updated plan must:

- Describe the site-condition changes that required the update.

- Include the qualified person's reasons for the update.

- Include the date the qualified person approved the plan changes and the person's signature.

### **Investigate Accidents**

If a worker covered by the fall protection plan fell or had a "near miss" incident, you must investigate the accident and, if necessary, change the plan so that similar events will not happen again. The plan must describe near misses or accidents and how to prevent future incidents.

## **Keep the Plan at the Job Site**

A copy of the fall protection plan must be kept, with all approved changes, at the job site. **NOTE:** A blank “Site Specific Fall Protection Work Plan” follows this section.

## **Fall Protection Systems, Criteria, and Practices — 1926.502**

**The requirements in 1926.502 cover installing, constructing, and using these fall protection systems and methods:**

- Guardrail systems — 1926.502(b)
- Safety-net systems — 1926.502(c)
- Personal fall-arrest systems — 1926.502(d)
- Personal fall-restraint systems — 1926.760
- Positioning-device systems — 1926.502(e)
- Warning-line systems for roofing work — 1926.502(f)
- Covers for holes in walking/working surfaces — 1926.502(i)
- Protection from falling objects — 1926.502(j)

# SITE-SPECIFIC FALL PROTECTION WORK PLAN

**This Fall Protection Work Plan** enables workers performing operations with fall hazards to use alternative fall protection systems or methods when conventional systems are not feasible. Under these special circumstances, properly documented fall protection plans give Accurate Painting Company the flexibility to use more appropriate methods of fall protection when conventional systems are not practical or that they pose a greater safety hazard to workers than other fall protection alternatives. This fall protection plan meets the following requirements:

**A qualified person** prepared the plan specifically for the site where the work will be performed.

**The plan documents** why conventional fall protection systems are not feasible and show how alternative methods will reduce or eliminate fall hazards.

**The plan describes** all measures that will be taken to minimize or eliminate fall hazards at the worksite.

## **This Fall Protection Work Plan is specific for the following project:**

Location of Job: \_\_\_\_\_

Date plan prepared or modified: \_\_\_\_\_

Plan prepared by: \_\_\_\_\_

Plan approved by: \_\_\_\_\_

Plan supervised by: \_\_\_\_\_

**Statement of Company Policy:** Accurate Painting Company is dedicated to protecting employees from workplace injuries and illnesses. Company management and supervisors are responsible for identifying and correcting hazards on the job. All employees are responsible for working safely. This plan supplements our existing "Accident Prevention Program."

This Plan addresses the use of conventional fall protection at a number of areas on this project and identifies specific activities that require unconventional means of fall protection. These activities include:

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Each employee will be trained in these procedures and will strictly adhere to them except when doing so would expose the employee to greater hazards. If, in the employee's opinion, this is the case, the employee is to notify the competent person of his or her concern and have the concern addressed before proceeding.

It is the responsibility of \_\_\_\_\_, Competent Person to implement this Fall Protection Work Plan. Work operations will be checked frequently and safety policy and procedures will be enforced.

The Crew Foreman, \_\_\_\_\_, is responsible for correcting unsafe practices or conditions immediately.

Designated "First Aid Trained" personnel on this site include: \_\_\_\_\_.

In the event of serious injury, company personnel are directed to call 911 or local Emergency Medical Services at: \_\_\_\_\_.

It is the responsibility of Joe Badalamenti to ensure that all employees understand and adhere to the procedures of this plan and follow the instruction of the crew supervisor. It is the responsibility of the employee to alert management to unsafe or hazardous conditions or practices that may cause injury to employees.

Any changes to the Fall Protection Work Plan must be approved by the Qualified Person,

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Appropriate fall protection systems will be used on this job when the risk of fall exists. These processes will be conducted by employees trained to do this type of work and trained to recognize the fall hazards. This plan details how fall-hazards will be minimized by Accurate Painting Company. Following are the specific requirements for fall protection on this project:

This Fall Protection Plan must be kept at the jobsite at all times when operations are in progress.

The implementation of the fall protection plan will be under the supervision of a competent person.

The personal fall arrest system will include, but not limited to, an anchorage, connectors, and a body harness used to arrest an employee in a fall from the working level.

A personal fall-restraint system will be used to prevent a worker from reaching an unprotected edge and thus prevent a fall from occurring. The system will consist of an anchorage, connectors, and a body harness or a body belt. The attachment point to the body belt or full body harness will be at the back, front, or side D-rings.

An anchorage will be used to secure a point of attachment for lifelines, lanyards or deceleration devices. The anchorage will be located directly above the worker, if possible, to reduce the chance of a swing fall. The anchorage will be high enough above a worker to ensure that the arrest system, and not the next lower level, stops the fall. This will make the anchorage, the lanyard, and the harness a complete system. Connectors include carabiners, snap hooks, and D-rings.

A body harness will be secured about the person in a manner that distributes the fall arrest forces over at least the thighs, pelvis, waist, chest, and shoulders with a means for attaching the harness to other components of the fall arrest system.

A connector will be used to couple (connect) parts of the personal fall arrest system or positioning device system together.

A deceleration device such as a rope, grab, ripstitch lanyard, specially woven lanyard, tearing or deforming lanyards, automatic self-retracting lifelines/lanyards will be used to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.

A lanyard (flexible line of rope, wire, or strap that generally has a connector at each end) will be used for connecting the body harness to a deceleration device, lifeline, or anchorage.

A lifeline (compact consisting of a flexible line for connection to an anchorage at one end to hang vertically, or for connection to anchorages at both ends to stretch horizontally), will be used as a means for connecting other components of a personal fall arrest system to the anchorage.

A body belt, which will only be used as a positioning device, will be secured about the waist and attached to a lanyard, lifeline, or deceleration device.

A positioning device system (body harness system) may be used to allow an employee to be supported on an elevated vertical surface and work with both hands free while leaning backwards.

A rope grab (deceleration device that travels on a lifeline and automatically, by friction, engages the lifeline and locks) will be implemented to arrest a fall.

A self-retracting lifeline/lanyard (deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under minimal tension during normal employee movement and which, after onset of a fall, automatically locks the drum) may be used to arrest the fall.

In the event an employee falls, the employer will investigate the circumstances of the fall to determine if the fall protection plan needs to be changed (e.g. new practices, procedures, or training) and will implement those changes to prevent similar types of falls.

Work on or from scaffolds will be prohibited during storms or high winds unless a qualified person has determined that it is safe for employees to be on the scaffold and those employees are protected by a personal fall arrest system.

Appropriate Personal Protective Equipment, such as hard hats, will be worn at all times when falling objects hazards exist.

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Additional Information:

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**This Fall Protection Work Plan approved by:**

Name: \_\_\_\_\_ Title: \_\_\_\_\_

(Please Print)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Fall Protection Work Plan must be kept at the jobsite at all times when operations are in progress.**

# FALL HAZARD ASSESSMENT

Job Name:		Location:							
Date Assessed:	Related Operating Procedures Reviewed: <input type="checkbox"/> YES <input type="checkbox"/> NO	Location Marked and Entry Controlled: <input type="checkbox"/> YES <input type="checkbox"/> NO							
<b>FALL HAZARD ASSESSMENT CHECKLIST</b>									
1. Can an employee enter the area without restriction and perform work?		<input type="checkbox"/> YES	<input type="checkbox"/> NO						
2. Are fall prevention systems such as cages, guardrails, toeboards, and manlifts in place		<input type="checkbox"/> YES	<input type="checkbox"/> NO						
3. Have slipping and tripping hazards been removed or controlled?		<input type="checkbox"/> YES	<input type="checkbox"/> NO						
4. Have visual warnings of fall hazards been installed?		<input type="checkbox"/> YES	<input type="checkbox"/> NO						
5. Can the distance a worker could fall be reduced by installing platforms, nets etc.?		<input type="checkbox"/> YES	<input type="checkbox"/> NO						
6. Are any permanently installed floor coverings, gratings, hatches, or doors missing?		<input type="checkbox"/> YES	<input type="checkbox"/> NO						
7. Does the location contain any other recognized safety and or health hazards?		<input type="checkbox"/> YES	<input type="checkbox"/> NO						
8. Is the space designated as a Permit Required Confined Space?		<input type="checkbox"/> YES	<input type="checkbox"/> NO						
9. Have anchor points been designated and load tested?		<input type="checkbox"/> YES	<input type="checkbox"/> NO						
<b>Assessment Information:</b> (indicate specifics with initials)									
Initials	Hazard	Remarks/Recommendations							
	Total potential fall distance:								
	Number of workers involved:								
	Frequency of task:								
	Obtainable anchor point strength:								
	Required anchor point strength: (not less than 5000 lbs)								
<b>Additional Requirements:</b>									
<b>Potential environmental conditions that could impact safety:</b>									
Initials	Condition	Remarks/Recommendations							
<b>Possible required structural alterations:</b>									
Initials	Alteration	Remarks/Recommendations							
<b>Possible task modification that may be required:</b>									
Initials	Task	Remarks/Recommendations							
<b>Training requirements:</b>									
Initials	Requirement	Remarks/Recommendations							
<b>Personal protective equipment required:</b>									
Initials	Requirement	Remarks/Recommendations							
Comments:									
<div style="display: flex; justify-content: space-between; align-items: center;"> <span><input type="checkbox"/> <b>Approved</b></span> <span><b>AUTHORIZATION</b></span> </div> <p>I certify that I have conducted a Fall Hazard Assessment of the above designated location and have detailed the findings of the assessment on this form.      * Further detailed on attachment:   <input type="checkbox"/> YES   <input type="checkbox"/> NO</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; padding-bottom: 5px;">Title:</td> <td style="width: 25%; border: none; padding-bottom: 5px;">Date:</td> <td style="width: 25%; border: none; padding-bottom: 5px;">Time:</td> </tr> <tr> <td style="border: none; padding-bottom: 5px;">Name:</td> <td colspan="2" style="border: none; padding-bottom: 5px;">Signature:</td> </tr> </table>				Title:	Date:	Time:	Name:	Signature:	
Title:	Date:	Time:							
Name:	Signature:								



# **FALL PROTECTION PROGRAM EMPLOYEE ACKNOWLEDGEMENT**

By my signature below, I acknowledge that I have received instruction and have read the Accurate Painting Company Fall Protection Program. I have been given the opportunity to ask questions and have received answers, instruction, and clarification to my questions. I understand the contents of and agree to follow Accurate Painting Company policy with regard to the Fall Protection Program.

Fall Protection Program received on \_\_\_\_\_, 20 \_\_\_\_

Printed Name of Employee\_\_\_\_\_

\_\_\_\_\_  
Signature of Employee

\_\_\_\_\_  
Date

\_\_\_\_\_  
Social Security Number

\_\_\_\_\_  
Printed Name of Trainer

\_\_\_\_\_  
Signature of Trainer

\_\_\_\_\_  
Date

cc: Employee Personnel File

# CERTIFICATION

## Employee Training For Fall Protection

Accurate Painting Company certifies that the following employee has been trained in the understanding, knowledge, and skills necessary for the safe performance of duties assigned in areas of fall protection hazards.

\_\_\_\_\_ has demonstrated proficiency in the following areas of fall protection:

The nature of fall hazards in the work area.

The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used.

The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, personal fall restraint systems, slide guard systems, positioning devices, and other protection to be used.

The role of each employee in the safety monitoring system when this system is used.

The limitations on the use of mechanical equipment during the performance of roofing work.

The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection.

The role of employees in the fall protection work plan.

\_\_\_\_\_  
**Employee Trained By**

\_\_\_\_\_  
**Date of Training**

\_\_\_\_\_  
**Signature of Trainer**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Employee Signature**

\_\_\_\_\_  
**Date**

cc: Employee Personnel File

[illegible]

# Chapter 18

## Scaffolds & Work Platforms

### **Scaffolds & Scaffold Platforms - MIOSHA-Part 12-R 408.412**

### **Aerial Work Platforms - MIOSHA Part 32-R 408.432**

#### **Policy Statement**

Accurate Painting Company has implemented this policy to ensure that no employee is exposed to hazards while doing work requiring the use of scaffolds.

Joe Badalamenti is the supervisor responsible for ensuring the following engineering controls, training requirements, and safe work practices are enforced to protect our employees from hazards associated with the erecting and use of scaffolds:

Joe Badalamenti will ensure that each employee who performs work on a scaffold is trained by a person qualified in scaffold safety. The training will enable employees to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize the hazards. Training includes the following applicable areas:

- The nature of any electrical hazards, fall hazards, and falling object hazards in the work area.
- The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used.
- The proper use of the scaffold and the proper handling of materials on the scaffold.
- The maximum intended load and the load-carrying capacities of the scaffolds used.
- Any other safety topics deemed pertinent to the particular work-site, scaffold system, or fall protection systems being used.

Joe Badalamenti will ensure that each employee involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold is trained by a competent person to recognize any hazards associated with the work in question. Training includes the following applicable topics:

- The nature of scaffold hazards.
- The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold being used.
- The design criteria, maximum intended load-carrying capacity, and intended use of the scaffold.
- Any other safety topics deemed pertinent to the particular work-site, scaffold system, or fall protection systems being used.

Retraining is required when Joe Badalamenti has reason to believe that an employee lacks the skill or understanding needed to safely perform work that involves the erection, use, or dismantling of scaffolds. The employee will be retrained so that the required proficiency is regained. Retraining is required in all of the following situations:



- Where changes at the worksite present a hazard about which an employee has not been previously trained.
  - Where changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained.
  - Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the required skill, knowledge, and proficiency for the work involved.
- A scaffold will be designed, constructed, erected, and used in accordance with MIOSHA requirements. All scaffold used at Accurate Painting Company will be designed by a qualified person.
  - Scaffold will not be erected, moved, dismantled, or altered, except under the supervision of a competent person.
  - A scaffold and its components will be capable of supporting, without failure, not less than 4 times the maximum intended load.
  - A scaffold will not be loaded to more than the designed working load.

Joe Badalamenti will ensure that all scaffolding systems, components, and fall protection systems used will be inspected for visible defects by a competent person prior to use, before each work shift begins, after erecting or moving, periodically throughout the work day, and after any occurrence that could affect a scaffold's structural integrity. Any scaffold, including accessories such as braces, brackets, trusses, screw legs, ladders, or platforms, that is damaged or weakened from any cause will be immediately repaired or replaced. Any scaffold or accessories that are repaired will have at least the original designed strength of the scaffold or accessory.

Any system or component of a system which is found to have a defect in manufacturing or design, damage, excessive wear, weathering, or corrosion will be immediately removed from service and tagged to indicate that it is not to be used with a prominent tag which states:

- An employee on a scaffold who is exposed to an overhead hazard of falling material will be protected with overhead protection sufficient to prevent injury.
- All load-carrying wood members of scaffold framing will be a minimum of 1,500 psi fiber stress value.
- The poles, legs, or uprights of scaffolds will be plumb and will be securely and rigidly braced to prevent swaying and displacement.
- The support for a scaffold will be sound, rigid, and capable of carrying the maximum intended load without settling or displacement. Leveling jack adjusting screws, when used, will not extend more than 18 inches below the base of the scaffold.
- Scaffold poles, legs, posts, frames, and uprights will bear on base plates and mud sills or other adequate firm foundation.
- Scaffold components that are not compatible will not be intermixed.
- Unstable objects, such as barrels, boxes, pallets, brick, or concrete blocks, will not be used to support a scaffold or work platform.
- Makeshift devices such as boxes and barrels will not be used on top of scaffold platforms to increase the working level height of employees.

Ladders will not be used on a scaffold to increase the working level height of employees, except on a large area scaffold where Joe Badalamenti has required the following procedures and conditions are satisfied:

- When the ladder is placed against a structure that is not a part of the scaffold, the scaffold will be secured against the sideways thrust exerted by the ladder.
- The platform units will be secured to the scaffold to prevent the units from moving.
- Either the ladder legs will be on the same platform or another means will be provided to stabilize the ladder against unequal platform deflection.
- The ladder legs will be secured to prevent them from slipping or being pushed off the platform.
- Hazards created on a scaffold from the accumulation of excess tools, materials, and debris will not be permitted.
- Work on or from scaffolds is prohibited during storms or high winds unless a competent person has determined that it is safe for employees to be on a scaffold and that the employees are protected by a personal fall arrest system. Wind screens will not be used unless the scaffold is secured against the anticipated wind forces imposed.
- Scaffold will be kept free of slippery conditions such as those caused by ice, snow, oil, grease, or other slippery compounds.
- Employees are not permitted within 10 feet of energized electrical lines.

Joe Badalamenti will ensure that before a scaffold is erected within 10 feet of an electrical line, the utility or property owner will be consulted. An electrical line or electrical apparatus will be considered energized unless the property owner or utility indicates it is de-energized and the line or apparatus is visibly grounded. If de-energizing is impractical and the equipment is exposed to contact by an employee, the minimum clearances shown in Table 1 below will be maintained between the scaffold, employee, or material, whichever is closer.

**Table 1:**

<b><i>Insulated Lines</i></b>		
<b><i>Voltage</i></b>	<b><i>Minimum Distance</i></b>	<b><i>Alternatives</i></b>
Less than 300 volts	3 feet	2 times the length of the line insulator, but not less than 10 feet.
300 volts to 50 kilovolts	10 feet	
More than 50 kilovolts	10 feet plus 0.4 inches for each kilovolt over 50 kilovolts	

Appropriate guardrail systems will be installed on any open side or end of a scaffold work platform that is 10 or more feet above the floor or ground.

Joe Badalamenti will ensure that a competent person determines the feasibility and safety of providing fall protection for employees erecting or dismantling supported scaffolds. Accurate Painting Company will provide fall protection for employees erecting or dismantling supported scaffolds where the installation and use of the protection is feasible and does not create a greater hazard.

If vertical lifelines are used, they will be fastened to fixed, safe points of anchorage and will be protected from sharp edges and abrasion. Safe points of anchorage include structural members of buildings, but not any of the following:

- Standpipes
- Vents
- Other piping systems
- Electrical conduit
- Outrigger beams



- If horizontal lifelines are used, they will be secured to 2 or more structural members of the scaffold.
- If wood planks are used for a work platform, then the planks will be scaffold-grade lumber that has a minimum of 1,500 pounds psi fiber stress value. The planks will be not less than 2 inches by 10 inches.
- The platform will consist of a minimum of 2 planks laid side by side. Each platform on all working levels of scaffolds will be fully planked or decked between uprights where practicable. Spaces between the platform and the uprights will not be more than 9 ½ inches.
- Platform planks will be laid with their edges together so the platform is tight and does not have spaces through which tools or fragments of materials can fall.
- Planking will extend over the end bearer not less than 6 inches, but not more than 12 inches and will be cleated or otherwise fastened to prevent shifting and will be uniform in thickness. Where planks are lapped, each plank will lap its bearer not less than 6 inches to provide a minimum overlap of 12 inches. Hook-on type manufactured platforms may be used if secured to the bearer.
- Where a scaffold turns a corner, the planks will be laid to prevent tipping. The planks that meet the corner bearer at an angle will be laid first and will extend over the diagonally placed bearer far enough to have a good bearing, but not far enough to tip. The planks that run in the different direction will be laid so as to extend over the rest on the first layer of planks.
- When moving a platform to the next level, employees will leave the old platform undisturbed until the new platform supports have been set in place and are ready to receive the platform planks.
- Wood platform components will not be covered with opaque finishes. Platform edges may be covered or marked for identification. A platform may be coated periodically with wood preservatives, fire-retardant finishes, and slip-resistant finishes. Such coating may not obscure the top or bottom wood surfaces.
- The front of a platform will not be more than 14 inches from the face of the work unless a guardrail system is erected along the front edge, or unless a personal fall arrest system is used. **Exception:** The maximum distance from the face of the work for plastering and lathing will not be more than 18 inches.
- When scaffold is occupied by employees, slippery conditions that occur on the platform will be eliminated as soon as possible after the condition occurs.
- Joe Badalamenti will ensure that in addition to wearing a hard hat, employees on a scaffold will be provided additional protection from falling hand tools, debris, and other small objects through the installation of toeboards, screens, or guardrail systems or the erection of debris nets, catch platforms, or canopy structures that contain or deflect the falling objects.
- If there is a danger of tools, materials, or equipment falling from a scaffold and striking employees below, then one of the following provisions will apply:
  - The area below the scaffold to which objects can fall will be barricaded and employees will not be permitted to enter the hazard area.
  - Toeboards will be erected along the edge of a platform that is more than 10 feet above lower levels. The toeboards will span a distance sufficient to protect employees below. If toeboards are used, they will satisfy the following requirements:
    - Be capable of withstanding, without failure, not less than 50 pounds of force applied in any downward or horizontal direction at any point along the toeboard.
    - Be not less than 3 ½ inches high from the top edge of the toeboard to the level of the walking/working surface.
    - Toeboards will be securely fastened in place at the outermost edge of the platform and have not more than ¼ inch of clearance above the walking/working surface.

- Toeboards will be solid or have openings of not more than 1 inch in the greatest dimension.
  - If tools, materials, or equipment are piled to a height higher than the top edge of the toeboard, then paneling or screening extending from the toeboard or platform to the top of the guardrail will be erected for a distance sufficient to protect employees below.
  - A guardrail system will be installed with openings small enough to prevent the passage of potential falling objects.
  - A canopy structure, debris net, or catch platform that is strong enough to withstand the impact forces of potential falling objects will be erected between the falling object hazard and employees.

Only qualified and competent personnel are permitted to make repairs or modifications to a scaffold system or its components. Non-qualified personnel may create more hazards. Disciplinary action for non-qualified repair or modification will be enforced.

Any violation of the above policy, misuse of scaffolds, or misconduct while working on scaffolds will be subject to disciplinary action within the scope of company policy, up to and including termination of employment.

## General Scaffold Safety

It will be the responsibility of all users to read and comply with the following common sense guidelines which are designed to promote safety in the erecting, dismantling and use of Scaffolds. These guidelines do not purport to be all-inclusive nor to supplant or replace other additional safety and precautionary measures to cover usual or unusual conditions. If these guidelines in any way conflict with any state, local, federal or other government statute or regulation, said statute or regulations will supersede these guidelines and it will be the responsibility of each user to comply therewith.

### A Quick Tour of R 408.412 (Part 12)

R 408.412 requirements identify what workers and employers need to know to use all types of scaffolds safely. Specifically, the requirements:

- Regulate the design, construction, and use of scaffolds.
- Update previous scaffolding standards.
- Set performance-oriented criteria to protect workers from injury.
- Cover specific types of scaffolds.
- Allow employers flexibility in using fall protection systems.
- Extend fall protection to erectors and dismantlers.
- Strengthen training for workers.
- Identify conditions under which workers must be retrained.

Part 12 covers all scaffolds used in construction, alteration, repair, and demolition work, but does not apply to crane- or derrick-suspended personnel platforms. The table on the next page shows how Part 12 is organized and what requirements are covered under each of its major parts.

Sub Paragraph	Requirements Covered	
<b>408.41201-08</b>	<b>Scope &amp; Application — Definitions</b>	
<b>408.41209-19</b>	<b>General Requirements</b>	
	<ul style="list-style-type: none"> <li>• Capacity</li> <li>• Scaffold platform construction</li> <li>• Supported scaffolds</li> <li>• Suspension scaffolds</li> </ul>	<ul style="list-style-type: none"> <li>• Access</li> <li>• Use</li> <li>• Fall protection</li> <li>• Falling object protection</li> </ul>
<b>408.41220-64</b>	<b>Additional Requirements for Specific Scaffold Types</b>	
	<ul style="list-style-type: none"> <li>• Pole</li> <li>• Tube and coupler</li> <li>• Fabricated frame</li> <li>• Large area</li> <li>• Bricklayers' square</li> <li>• Horse</li> <li>• Form &amp; carpenters' bracket</li> <li>• Roof bracket</li> <li>• Pump jack</li> <li>• Ladder jack</li> <li>• Window jack</li> <li>• Crawling boards</li> </ul>	<ul style="list-style-type: none"> <li>• Trestle ladder</li> <li>• Single-point adjustable</li> <li>• Two-point adjustable</li> <li>• Multi-point adjustable</li> <li>• Catenary</li> <li>• Float</li> <li>• Interior hung</li> <li>• Needle beam</li> <li>• Multi-level suspended</li> <li>• Mobile</li> <li>• Repair bracket</li> <li>• Stilts</li> </ul>
<b>408.408.423 Part 32</b>	<b>Aerial Lifts</b>	
	<ul style="list-style-type: none"> <li>• General requirements</li> <li>• Specific requirements</li> <li>• Manually propelled elevating aerial platforms</li> <li>• Boom supported elevating work platforms</li> <li>• Self-propelled elevating work platforms</li> </ul>	

408.41209	Training Requirements	
	<ul style="list-style-type: none"> <li>• All workers</li> <li>• Erectors &amp; dismantlers</li> <li>• Retraining</li> </ul>	<ul style="list-style-type: none"> <li>• Qualified person</li> <li>• Competent person</li> </ul>

Part 12 frequently refers to **Competent Persons** and **Qualified Persons**. The terms apply to persons who have special skills and are given specific responsibilities.

### Competent Person

A competent person *can identify hazardous working conditions and has authorization to take prompt corrective measures to eliminate them*. The competent person, who has primary responsibility for supervising and directing all scaffolding erection, dismantling, and altering work, must:

- Know Part 12 requirements applicable to the types of scaffolds used.
- Be able to identify and correct hazards encountered in scaffold work.
- Be trained in the structural integrity of the types of scaffolds used.
- Have authority to promptly abate hazardous worksite conditions.

A competent person's duties can be shared as long as each person is qualified to perform the duty and has authority to promptly abate hazards. Only Competent Persons will:

- Determine feasible safe access for persons erecting and dismantling scaffolds.
- Inspect scaffolds and components for hazards before each work shift and after any event that could affect the scaffolds' structural integrity.
- Supervise and direct all scaffold erection, dismantling, and altering work.
- Determine the feasibility of providing fall protection for each scaffold erection and dismantling operation.
- Determine whether it is safe to work on scaffolds during storms or high winds.
- Determine whether scaffold components made from different metals can be used together.
- Determine whether scaffold components made by different manufacturers can be used together.
- Identify the cause and significance of a deteriorated scaffold component and correct the hazard.
- Inspect ropes used in suspension scaffolds and identify defects.
- Inspect manila or synthetic rope used for top rails or mid rails to make sure it meets the 200-pound capacity requirements.

**NOTE:** Many organizations offer training programs on Part 12 scaffolding requirements. However, attending one of these programs does not necessarily make one competent (or a competent person). Competency *must* be demonstrated; it is usually the result of many hours of in-class training and on-the-job experience.

### Qualified Person

A qualified person has a recognized degree, certificate, or professional standing - or by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve problems related to the subject, the work, or the project.

Scaffolds must be designed by a qualified person but not necessarily by an engineer. Exceptions: connections for mason's adjustable multi-point suspension scaffolds, pole scaffolds more than 60 feet high, coupler and fabricated-frame scaffolds more than 125 feet high, and outrigger scaffolds must be designed by a registered engineer.

## **Scaffold Capacities**

Scaffolds must be able to support their own weight and at least four times the maximum intended load applied to them. Unless otherwise noted in Part 12, scaffold components have to meet the 4-to-1 safety factor too, but only for that portion of the maximum intended load applied to them. The maximum intended load for a component depends on the scaffold type and its configuration. Note that scaffolds and components must be able to support four times the maximum intended load – not the rated load. The intended load includes workers, equipment, and supply loads. The intended load should never exceed the rated load unless the design is approved by an engineer and the manufacturer.

## **Direct Connections**

Direct connections and counterweights used to balance adjustable suspension scaffolds must resist at least four times the tipping force of the scaffold. A competent person who directs the rigging of the scaffold must calculate the potential loads. Safety factors for the counterweights, riggings, direct connections to roofs, floors, and suspension ropes of adjustable suspension scaffolds should be based on the rated load and the stall load of the hoist, not the maximum intended load.

## **Suspension Ropes, Hardware, and the Maximum Intended Load**

Suspension ropes and connecting hardware on non-adjustable suspension scaffolds must be able to support, without failure, at least six times the maximum intended load applied to them.

## **Stall Loads**

The stall load of any scaffold hoist cannot exceed three times its rated load. This safety factor ensures that suspension scaffold support systems are not overloaded.

## **Design by a Qualified Person**

Scaffolds must be designed by a qualified person and must be constructed and loaded in accordance with that design.

## **Working Safely on Scaffolds**

### **Platform Construction**

All scaffold platforms, except walkways and platforms used by erectors and dismantlers, must be fully decked or planked between the front uprights and the guardrail supports. The opening between the uprights and the planking cannot exceed one inch unless the employer demonstrates that a wider opening is necessary. (The maximum opening cannot exceed 9½ inches.)

### **Platform Gaps**

Platform units must be placed so that the spaces between the units do not exceed one inch — unless more space is necessary; for example, fitting around uprights with side brackets to extend platform width. The maximum opening cannot exceed 9½ inches.

### **Platform and Walkway Widths**

Platforms and walkways must be at least 18 inches wide. If work areas are too narrow for 18-inch platforms or walkways, workers can use narrower platforms but they must be protected from fall hazards by guardrails and/or personal fall arrest systems. MIOSHA allows 12-inch widths for ladder jack, top-plate bracket, roof bracket, and pump-jack scaffolds.

## **Front Edge of Platforms**

The front edge of a scaffold platform cannot be more than 14 inches from the face of a structure unless guardrails or personal fall arrest systems are used to protect workers from falling between the structure and the platform. There are two exceptions:

1. The front edge distance for outrigger scaffolds must be no more than 3 inches.
2. Scaffolds used for plastering and lathing work can be no more than 18 inches from the face of a structure.

## **Platform Lengths**

A platform 10 feet or less in length must extend at least 6 inches, but no more than 12 inches, beyond its support unless the excess length is guarded or can support workers and material without tipping. A platform longer than 10 feet can extend no more than 18 inches beyond a support unless the excess length is guarded or can support workers and material without tipping.

## **Abutted Planks**

When platform planks are abutted to create a long platform, each abutted end must rest on a separate support. Abutted planks touch end to end on separate support surfaces; they do not rest on one another.

## **Overlapped Planks**

Platform planks overlapped to create a long platform must overlap at least 12 inches over supports unless the planks are nailed together or otherwise restrained so they do not move.

## **Direction Changes**

Any platform that rests on a bearer at an angle other than a right angle must be laid first. Platforms that rest at right angles over the same bearer must rest on top of the first platform. Ensure platform planks are fully bearing to eliminate potential instability.

## **Paint (opaque) Finishes**

Wood platforms cannot be covered with opaque finishes, because opaque finishes cover defects in wood. Wood platform edges, however, may be marked for identification. Preservatives or slip-resistant and fire-retardant finishes are acceptable as long as the finish does not cover structural defects or make them hard to spot.

## **Mixed or Modified Components**

Scaffold components made by different manufacturers cannot be mixed unless they fit together easily and do not change the scaffold's integrity. Components made by different manufacturers cannot be modified to intermix unless a competent person approves.

## **Components Made From Different Metals**

Scaffold components made from different metals cannot be used together unless a competent person approves. If a competent person determines that mixing components made from different metals could reduce their strength, the employer must take corrective action. If a competent person cannot make the determination, then different metals must not be used.

## **Access to Scaffolds**

Employers must provide all workers with safe access to scaffolds and scaffold platforms. Workers must use ladders or stairways to reach platforms that are more than 2 feet above or below the access point. Do not use cross braces as a means of access. Note that permanent stairways or portable ladders must meet the requirements of the construction safety and health code.

## **Bottom Rung or Step**

The bottom step or rung of hook-on ladders, attachable ladders, and stairway-type ladders must be no more than 24 inches above or below the scaffold supporting level.

## **Rest Platforms**

Hook-on and attachable ladders on supported scaffolds more than 35 feet high must have rest platforms at 35-foot intervals; stairway-type ladders must have rest platforms every 12 feet. Integral prefabricated scaffold-access frames must have rest platforms every 35 feet.

## **Erecting and Dismantling**

Erectors and dismantlers must comply with the requirements summarized below:

- Means of access must be determined by a competent person. The competent person, designated by the employer, must determine if safe access is feasible at each stage of the erecting and dismantling process.
- Hook-on or attachable ladders must be installed as soon as possible after scaffold erection begins.
- End frames of tubular welded frame scaffolds that have parallel, level horizontal members may be used for access.
- Cross bracing is not an acceptable means of access.

## **Protecting Workers from Falling Objects**

Workers on scaffolds must wear hardhats and be protected by toeboards, screens, guardrail systems, debris nets, catch platforms, or canopies when falling objects are a potential hazard.

Hardhats cannot be the only means of protecting workers from falling objects. Be sure to secure all large objects that could fall onto a scaffold. Note that workers must wear hardhats only if falling objects are a potential hazard. If there is no hazard from falling objects, then hardhats are not required.

## **Persons Working Below**

If tools, materials, or equipment could fall from a scaffold and strike persons below, the area below the scaffold must be barricaded or a toeboard must be placed along the edge of the scaffold platform.

When tools, materials, or equipment are piled higher than the top edge of the toeboard, paneling or screening must protect persons below. Alternatively, guardrail systems, canopies, or catch platforms may be installed to retain materials.

## **Protecting Workers from Falling**

Workers on scaffolds more than 10 feet above a lower level must use fall protection. The employer has the option, in many cases, of protecting workers with guardrails or personal fall arrest systems.

On single-point or two-point adjustable suspension scaffolds, however, guardrails and personal fall arrest systems are required. On other types of scaffolds only personal fall arrest systems are allowed. Fall protection requirements for those who install suspension scaffold support systems on floors, roofs, and other elevated surfaces are included in Part 12.

Remember, when you work from a scaffold more than 10 feet above a lower level, you must be protected from falling. The following table shows fall protection required by Part 12 for various types of scaffolds.



<b>FALL PROTECTION REQUIRED</b>	<b>TYPE OF SCAFFOLD</b>
<b>Personal Fall-Arrest System</b>	<ul style="list-style-type: none"> <li>Boatswain's Chair</li> <li>Catenary Scaffold</li> <li>Float Scaffold</li> <li>Needle Beam Scaffold</li> <li>Ladder Jack Scaffold</li> </ul>
<b>Guardrails</b>	<ul style="list-style-type: none"> <li>Self-contained adjustable scaffold when platform is supported by the frame structure</li> <li>Walkways located within a scaffold</li> </ul>
<b>Personal Fall-Arrest System and Guardrails</b>	<ul style="list-style-type: none"> <li>Single-point adjustable suspension scaffold</li> <li>Two-point adjustable scaffold</li> <li>Self-contained adjustable scaffold when platform is supported by ropes</li> </ul>
<b>Personal Fall-Arrest System, Guardrails, or Grab-line</b>	<ul style="list-style-type: none"> <li>Crawling Board (chicken ladder)</li> </ul>
<b>Personal Fall-Arrest System or Guardrails</b>	<ul style="list-style-type: none"> <li>Overhand bricklaying on a supported scaffold</li> <li>All other types of types of scaffolds not identified in this table</li> </ul>

### **Personal Fall-Arrest Systems**

A personal fall arrest system consists of an anchorage, connectors, and a body harness. It may also include a lanyard, deceleration device, or lifeline. Persons who work from a boatswain's chair, catenary scaffold, float scaffold, needle beam scaffold, or ladder jack scaffold must be protected by a personal fall arrest system.

### **Personal Fall-Arrest Systems and Guardrails**

Workers on single-point or two-point adjustable suspension scaffolds must be protected by personal fall arrest systems and guardrail systems. Workers must also use personal fall arrest systems and guardrails on self-contained adjustable scaffolds that are supported only by ropes (with no safety catch to support the platform if the rope fails). The top edge of top rails on supported scaffolds and on all suspended scaffolds where both a guardrail and a personal fall arrest system are required must be between 38 inches and 45 inches above the platform surface.

### **Cross Bracing**

Cross bracing is acceptable in place of a midrail when the crossing point of two braces is between 20 inches and 30 inches above the work platform. Cross bracing can be used as a toprail when the crossing point is between 38 inches and 48 inches above the work platform. The end points at each upright must be no more than 48 inches apart. Cross bracing can be substituted for either the toprail or the midrail on a scaffold system – but not both. The crossing point must be at the appropriate toprail or midrail height.

### **Personal Fall-Arrest Systems for Erectors and Dismantlers**

Workers who erect or dismantle supported scaffolds must, if feasible, use fall protection. A competent person, designated by the employer, must make the feasibility determination at each stage of the erecting and dismantling process.

### **Lanyards and Personal Fall-Arrest Systems**

Personal fall arrest systems used on scaffolds must be attached by a lanyard to a vertical lifeline, horizontal lifeline, or structural member that will hold at least 5,000 pounds. A competent person should decide the most appropriate connection. When a lanyard is connected to a horizontal lifeline on a single-point or two-point adjustable suspension scaffold, the scaffold must have independent support lines and automatic locking devices that can stop the scaffold if the suspension ropes fail.



<b>Aerial Lifts - Fall Protection</b>	
<b>Type Of Lift</b>	<b>Fall-Protection Required</b>
Vehicle-mounted elevating and rotating work platforms (ANSI A92.2 devices)	Platforms other than buckets or baskets must include guardrail systems – guardrails, a midrail, and toeboards. Each person who works on a boom-supported platform must wear a body harness/belt and lanyard attached to the boom or basket. (Body belts may be used only for fall restraint.)
Manually propelled elevating aerial platforms (ANSI A92.3 devices)	The platform must have a guardrail at least 42 inches $\pm$ 3 inches above the floor, a midrail, and toeboards at least 4 inches high.
Boom-supported elevating work platforms (ANSI A92.5 devices)	The platform must have a guardrail at least 42 inches $\pm$ 3 inches above the floor, a midrail, and toeboards at least 4 inches high. Each worker on the platform must wear a body harness/belt and lanyard attached to the boom or platform.
Self-propelled elevating work platforms (ANSI A92.6 devices)	The platform must have a guardrail 42 inches $\pm$ 3 inches above the floor, a midrail, and toeboards at least 4 inches high.

## **Safe Work Practices**

### **Damaged Scaffolds and Components**

Any part of a damaged scaffold or component must be removed from service until it is repaired or replaced.

### **Erecting, Moving, Dismantling**

Scaffolds must be erected, moved, dismantled, or altered only under the supervision of a competent person. The competent person must be on the worksite to direct and supervise all scaffold erecting, dismantling, altering, and moving operations. Work must be performed only by trained, experienced persons selected by the competent person.

### **Horizontal Movement**

A scaffold cannot be moved horizontally when a worker is on it unless it has been designed by a registered professional engineer specifically for horizontal movement.

### **Load Capacities**

Scaffolds and scaffold components must not be loaded over their maximum intended loads or rated capacities. Remember that the maximum intended load for a component depends on the scaffold type and configuration. Scaffolds and components must be able to support four times their maximum intended load — not the rated load. The intended load includes workers, equipment, and supply loads. The intended load should never exceed the rated load unless the design is approved by an engineer and the manufacturer.

### **Ladders and Large Area Scaffolds**

Ladders can be used only on large area scaffolds; they cannot be used on other types of platforms to increase the working height. Large area scaffolds include pole scaffolds, tube and coupler scaffolds, systems scaffolds, or fabricated frame scaffolds erected over an entire work area.

### **Power Lines**

Workers must stay clear of power lines and any conductive material on the scaffold. The minimum clearance is 10 feet for all uninsulated lines and insulated lines more than 300 volts. The minimum clearance for insulated lines less than 300 volts is three feet.

### **Scaffold Inspection**

Scaffolds and components must be inspected by a competent person before each work day and after any incident that could weaken them.

## **Shore or Lean-To Scaffolds**

Shore or lean-to scaffolds are prohibited. They are not properly designed and are a potential safety hazard for anyone who works on them.

## **Slippery Scaffolds**

Working on a scaffold coated with snow, ice, or other slippery material is prohibited unless it is necessary to remove the slippery material.

## **Storms and High Winds**

Working on a scaffold is prohibited during storms or high winds unless a competent person has determined that it is safe to be on the scaffold and workers are protected by personal fall arrest systems or wind screens.

## **Suspension Ropes**

Suspension ropes must be protected from heat and acids or other corrosive substances or be made from material that will not be damaged by corrosive substances.

## **Tag Lines**

When a scaffold might be struck by a swinging load, tag lines or equivalent means must be used to control the load.

## **Supported Scaffolds**

MIOSHA defines a supported scaffold as one or more platforms supported by outrigger beams, brackets, poles, legs, uprights, posts, frames, or similar rigid support.

## **Height to Smallest Base Dimension**

Supported scaffolds with a height-to-smallest base-width ratio of more than 4-to-1 (including outrigger supports) must be restrained from tipping by ties, guys, braces, or equivalent means. "Equivalent means" refers to other designs, materials, or methods that provide an equal or greater degree of safety for workers.

## **Guys, Ties, and Braces**

Guys, ties, and braces must be installed where horizontal members support both inner and outer legs. They must be installed according to the manufacturer's recommendations or at the closest horizontal member to the 4-to-1 height and repeated vertically at least every 20 feet if the scaffold is up to 3 feet wide; every 26 feet if the scaffold is greater than 3 feet wide.

Be sure to use vertical and horizontal tie-ins to keep the scaffold from falling into or away from a structure. A qualified person must design the tie-ins.

## **Support Surface**

Poles, legs, posts, frames, and uprights must bear on base plates and mud sills or a firm foundation. The scaffold structure must be plumb and braced so that it does not sway. Footings must offer full support without settling. Base plates are always required on supported scaffolds; however, a concrete slab is considered a firm foundation and can be substituted for mudsills.

<b>SAFE PRACTICE CHECKLIST</b>	
<b>Access</b>	<ul style="list-style-type: none"> <li>• Maintain a safe access to scaffolds and scaffold platforms.</li> <li>• Do not climb cross braces to reach a scaffold platform.</li> <li>• Use ladders or stairways to reach platforms that are more than 2 feet above or below the access point.</li> </ul>
<b>Components and Connections</b>	<ul style="list-style-type: none"> <li>• Never use damaged scaffold components. Repair or replace them immediately. Make sure a competent person inspects the components before each work shift.</li> <li>• Do not modify components.</li> <li>• Do not mix components made by different manufacturers.</li> <li>• Never use damaged wire rope.</li> </ul>
<b>Environment</b>	<ul style="list-style-type: none"> <li>• Watch for electrical hazards, slippery platforms, and strong winds.</li> </ul>
<b>Erecting, Dismantling, and Moving</b>	<ul style="list-style-type: none"> <li>• Have only trained and experienced workers erect suspension scaffolds.</li> <li>• Never roll a scaffold by yourself while you are on it.</li> <li>• Never use wood outrigger systems.</li> </ul>
<b>Fall-Protection and Falling Objects</b>	<ul style="list-style-type: none"> <li>• Match fall protection systems with the appropriate type of scaffold.</li> <li>• Make sure platforms are guarded to keep workers and equipment from falling.</li> <li>• Do not drop anything from a scaffold.</li> </ul>
<b>Inspection</b>	<ul style="list-style-type: none"> <li>• Inspect components, connections, planks, and structures regularly for hazards.</li> </ul>
<b>Ladders</b>	<ul style="list-style-type: none"> <li>• Do not use ladders for any reason on a standard scaffold platform.</li> </ul>
<b>Leveling</b>	<ul style="list-style-type: none"> <li>• Keep the scaffold level, plumb, and square.</li> <li>• Do not use bricks, blocks, barrels or other unstable objects to level a scaffold.</li> </ul>
<b>Platforms</b>	<ul style="list-style-type: none"> <li>• Do not work on slippery platforms.</li> <li>• Never use a stage that is too long or too short for the job.</li> <li>• Planking must be sound and meet MIOSHA requirements.</li> <li>• Do not use makeshift methods to increase the working height of a scaffold platform.</li> </ul>

## **Rough-terrain Forklift Scaffolds**

You can use a forklift to support a platform only if the entire platform is attached to the forks and the vehicle is not moved when someone is on the platform. *Attached* means the platform is fastened to the forks with bolts or by an equally safe method. All scaffold capacity, construction, access, use, and fall protection requirements apply.

### **Follow these requirements for safe personnel lifting operations:**

Before an employee is elevated on a rough terrain forklift scaffold, a pre-lift meeting will be held to review the appropriate requirements and procedures to be followed. The pre-lift meeting will be attended by all of the following personnel:

- The person(s) responsible for the task to be performed.
- The signalperson.
- The lift operator.
- The personnel to be lifted.
- The scaffold platform will be attached to the forks by enclosed sleeves and will be secured against the back of the forks with a mechanical device so that the platform cannot tip or slip.
- The lifting carriage & forks will be secured to prevent them from tipping upward.
- Protection will be provided for personnel on the platform from moving parts and on lift trucks equipped with a lifting mast. The side of the platform adjacent to the mast

will be protected by a solid or mesh guard that is sufficient in height and width to prevent contact with moving parts of the mast. On trucks equipped with rotators, the rotation will be deactivated.

A work platform will be in compliance with all of the following requirements:

- Be of welded mild steel construction that has a minimum safety factor of 4 times the maximum intended load.
- Have a continuous guardrail system constructed as follows:
  - Have a top rail which is located not less than 36 inches, nor more than 42 inches, above the platform floor and which is constructed to withstand a minimum of 200 pounds of force in any direction.
  - Have a midrail which is installed at mid-height between the top rail and platform floor and which is constructed to withstand a 200-pound side thrust.
  - Have a toeboard which is not less than 4 inches in nominal height and which is installed not more than  $\frac{1}{4}$  of an inch above the floor around the periphery of the work platform. If the platform has a gate, then toeboard will also be installed on the gate.
  - Have a wood planking, steel plate, or a steel grating bolted or welded to the bottom of the platform and be maintained free of slip or trip hazards.
  - Have a permanently affixed sign on the platform that specifies the maximum number of passengers allowed, the work platform identification number, and the maximum rated load.
  - Be easily identifiable by high-visibility color or marking.
- An employee on a scaffold who is exposed to an overhead hazard of falling material or overhead projections will be protected with overhead protection that is sufficient to prevent injury.
- The lifting mechanism will operate smoothly through its entire lift range, both empty and loaded and all lift-limiting devices and latches will be functional.
- The work platform will be level when in use.
- If an employee is elevated in a platform on a variable reach lift truck, a personal fall arrest system, including the required anchorage is required and will be worn when an employee is elevated.
- The rough terrain fork truck or the lift truck will rest on firm footing. Leveling devices and outriggers will be used where provided on equipment.
- A trained operator will remain at the operator station of a lift truck to control the lift truck while an employee is elevated. The lift truck control or controls will be in neutral and the parking brake set. The operator of the lift truck scaffold platform will be able to see the elevated platform at all times.
- A lift truck platform will be returned to the ground before a lift truck is repositioned. The forklift will be moved as close to the work area as possible for final positioning. An employee will exit the landed platform and reboard the platform only after the lift truck repositioning is completed.
- A lift truck operator will keep his or her hands and feet clear of the controls that are not in use.
- The path that a lift truck platform travels will be clear of hazards, such as storage racks, scaffolds, overhead obstructions, and electrical lines. Distances will be maintained from electrical lines as required.
- A lift truck operator will lift and lower an employee smoothly, with caution, and either at the employee's request or after alerting the elevated employee of intended movement. An operator of a lift truck that has a telescopic boom will extend or retract the boom only at idle or near idle speed.
- The combined mass weight of the platform, load, and the employee will not be more than  $\frac{1}{3}$  of the rated capacity of the rough terrain forklift truck on which the platform is used.

- An employee will maintain firm footing on the platform floor. Railings, planks, ladders, or other materials will not be used on the platform to achieve reach or height.
- The guardrail system of the platform will not be used to support any of the following:
  - Materials
  - Other work platforms
  - Employees
- The platform will be lowered to ground level for an employee to enter or exit, except where elevated work areas are inaccessible or hazardous to reach. An employee may exit the platform with the knowledge and consent of the employer. When exiting to unguarded work areas, fall protection will be provided and used as required. An employee will not climb on any part of a lift truck when attempting to enter or exit the platform.
- A platform will not be modified if the modification is detrimental to its safe use.
- Floor dimensions parallel to the truck longitudinal centerline will not be more than 2 times the load center distance listed on the rough terrain forklift truck nameplate. The floor dimension width will not be more than the overall width of the truck measured across the load-bearing tires plus 10 inches on either side. The minimum space for each employee on the platform will be not less than 18 inches in either direction.
- A wood pallet will not be used as a platform for lift truck scaffolds.
- If arc welding is performed by an employee on the platform, then the electrode holders will be protected from contact with the metal components of the work platform.
- The only tools that are permitted on the work platform are hand tools and portable powered tools. Materials and tools will be secured to prevent displacement. The total weight of compressed gas cylinders will not be more than 20 pounds.
- A work platform will not be used during high winds, electrical storms, snow, ice, sleet, or other adverse weather conditions that could affect the safety of the employees on the work platform or the operator of the truck.
- An employee will keep all parts of his or her body inside the platform during raising, lowering, or repositioning of the platform.
- There will be a communication system between an employee on the work platform and the operator of the rough terrain forklift truck or a fork lift truck.

### **Inspection and Maintenance of Rough Terrain Forklift Trucks**

Before an employee is elevated on a rough terrain forklift truck platform, a trained operator or other qualified person will inspect all of the following items:

- Tire condition & inflation pressure.
- Steering mechanism.
- Warning devices.
- Lights.
- Brakes.
- Lift and tilt mechanisms, load engaging means, chains, cables, and limit switches.
- Fuel systems.
- Other work platforms.
- A forklift truck will not be operated if an unsafe condition is found before or during use until the truck has been restored to a safe operating condition.
- A rough terrain forklift truck and forklift trucks will be maintained according to the manufacturer's recommendations.

## Operator Training

Employers must ensure that an employee has been trained before being assigned as an operator of a rough terrain forklift truck that is used to elevate personnel. An employee will be trained in all of the following areas:

- The capabilities of the equipment and its attachments.
- The purpose, use, and limitations of the controls.
- How to make daily checks.

An employee will practice operating an assigned vehicle and perform the functions necessary for a particular job until proficiency is achieved.

## Operator Permits

Some jurisdictions require that permits be issued by the company to the operator of a rough terrain forklift performing personnel lifting operations. Follow these procedures:

- Employers must ensure that an operator has a valid permit to operate a rough terrain forklift or a forklift truck for elevating an employee. The operator will carry the permit or will have the permit available if it is requested by any regulating department representative, during working hours.
- A permit to operate a rough terrain forklift truck or a forklift truck is valid only for work performed for the employer who issued the permit. A permit may be issued for a period of not more than 3 years. A permit will contain:
  - Firm name.
  - Operator's name.
  - Date issued.
  - Date expiring.
  - Operator restrictions, if any.

If a restricted permit to operate is issued, then the permit will state the nature of the restriction.

The truck type an operator is trained on and qualified to operate.

## Types of Supported Scaffolds

### Bricklayer's Square Scaffolds

- Wood bricklayer's scaffolds must be reinforced with gussets on both sides of each corner.
- Install diagonal braces on all sides of each square.
- Install diagonal braces between squares on the rear and front sides of the scaffold.
- Do not exceed three tiers in height. One square must rest directly above the other.

### Crawling Boards (chicken ladders)

- Crawling boards must extend from the roof peak to the eaves when used for roof construction, repair, or maintenance.
- Crawling boards must be secured to the roof by ridge hooks or other means that meet equivalent strength and durability criteria.

### Fabricated Frame Scaffolds

- When you move platforms to the next level, leave the existing platform undisturbed until the new end frames have been set in place and braced.
- Frames and panels must be braced by cross, horizontal, or diagonal braces that secure vertical members together laterally.
- Join frames and panels together vertically by coupling or stacking pins.
- If uplift could displace scaffold end frames or panels, the frames or panels must be locked together vertically.
- Scaffolds more than 125 feet above their base plates must be designed by a registered professional engineer.



## **Form Scaffolds and Carpenter's Bracket Scaffolds**

- Brackets, except those for wooden bracket-form scaffolds, must be attached to the supporting formwork or structure by: nails; a metal stud attachment device; welding; hooking over a secured structural supporting member; or, for carpenter's bracket scaffolds, by a bolt extending through to the opposite side of the structure's wall.
- Wooden bracket-form scaffolds must be an integral part of the form panel.
- Folding type metal brackets, when extended, must be either bolted or secured with a locking-type pin.

## **Horse Scaffolds**

- Scaffolds must not be constructed more than two tiers or 10 feet high, whichever is less.
- When you arrange horses in tiers, place each horse directly over the horse in the tier below. The legs of each horse must be nailed down or otherwise secured to prevent displacement. Each tier must be cross braced.

## **Ladder Jack Scaffolds**

- Platforms must not exceed 20 feet in height.
- All ladders used to support ladder jack scaffolds must meet the requirements of Part 11, Fixed & Portable Ladders.
- Job-made ladders cannot be used to support ladder jack scaffolds.
- The ladder jack must be designed and constructed to bear on the side rails and ladder rungs or on the ladder rungs alone.
- Ladders that support ladder jacks must be placed, fastened, or equipped with devices to prevent slipping.
- Scaffold platforms must not be bridged one to another.

## **Mobile Scaffolds**

- When a freestanding mobile scaffold is used, the height will not be more than 4 times the minimum base dimension.
- Outriggers, when used, may be considered as part of the base dimension. The outriggers will be installed on both sides of the scaffold at each frame line.
- Locking devices will be used to secure the casters to the frame or adjusting screw. The adjusting screw will not extend more than 12 inches. The casters will be provided with a positive locking device to prevent movement of the scaffold. The device will be used when the scaffold is in use, except where the work platform is 4 feet or less from the floor.
- Vertical members of the scaffold will be braced by cross bracing and diagonal bracing. Not less than 2 horizontal diagonal braces will be installed, 1 as close to the casters as possible, at intervals of not more than 4 times the least-based dimension. The horizontal diagonal brace may be omitted on a scaffold that is specifically designed to absorb racking.
- A scaffold platform will cover the full width of the scaffold, except for a necessary entrance opening. A platform will be secured in place. A platform will not extend outward beyond the base supports of the scaffold unless outrigger frames or equivalent devices are used to ensure stability.
- A ladder or stairway that is provided on a manually propelled mobile scaffold will be affixed or built into the scaffold and will be so located that, when in use, the ladder or stairway does not have a tendency to tip the scaffold. A landing platform will be provided at intervals of not more than 30 feet.
- Only manual force will be used to move a scaffold. The force will be applied near or as close to the base as practical, except for a scaffold with a work platform that is 4 feet or less from the floor.



- When being used, a mobile scaffold will rest upon a suitable footing and will stand plumb. Where leveling of the scaffold is necessary, screw jacks or an equivalent means will be used.
- An employer will not allow an employee to ride on a mobile scaffold, unless all of the following conditions exist:
  - The floor or surface is within 3 degrees of level and is free from pits, holes, or obstructions.
  - The minimum base dimension of the scaffold when ready for rolling is not less than  $\frac{1}{2}$  of the height.
  - The casters are equipped with rubber or similar resilient tires.
  - All tools and materials are secured or removed from the platform before the mobile scaffold is moved.
  - The scaffold is equipped with guardrails on all sides.
  - Before a scaffold is moved, each employee on the scaffold will be made aware of the move.
- A mobile scaffold will be in compliance with the applicable provisions regarding scaffold platforms and frame members.
- A power system used to propel a mobile scaffold will be designed for such applications. A forklift, truck, similar motor vehicle, or add-on motor will not be used to propel a scaffold unless the scaffold is designed to be propelled by these types of applications.
- If a power system is used to propel a scaffold, then the propelling force will be applied directly to the wheel and will not produce a speed of more than 1 foot per second.
- Personnel will not be on any part of a powered mobile scaffold that extends outward beyond the wheels, casters, or other supports.
- A powered mobile scaffold will be stabilized to prevent tipping during movement.

### **Outrigger Scaffolds**

- The inboard end of outrigger beams, measured from the fulcrum point to the extreme point of anchorage, must be not less than 1.5 times the outboard end in length.
- Outrigger beams fabricated in the shape of an I-beam or channel must be placed so that the web section is vertical.
- The fulcrum point of outrigger beams must rest on secure bearings at least 6 inches in each horizontal dimension.
- Outrigger beams must be secured in place and braced at the fulcrum point against tipping.
- Securely anchor the inboard ends of outrigger beams. Use braced struts bearing against sills that contact the overhead beams or ceiling, or use tension members secured to the floor joists underfoot.
- The entire supporting structure must be securely braced to prevent horizontal movement.
- Platform units must be secured to outriggers.
- Scaffolds and scaffold components must be designed by a registered professional engineer.

### **Plasterer's, Decorator's, and Large Area Scaffolds**

These scaffolds must be constructed in accordance with the requirements for pole scaffolds, tube-and-coupler scaffolds, or fabricated frame scaffolds.

### **Pole Scaffolds**

- Pole scaffolds more than 60 feet in height must be designed by a registered professional engineer.
- When you move platforms to the next level, leave the existing platform undisturbed until new bearers are set and braced.

- Install cross bracing between the inner and outer sets of poles on double pole scaffolds.
- Install runners and bearers on edge.
- Install diagonal bracing in both directions across the entire inside face of double-pole scaffolds that support loads of 50 pounds or more per square foot.
- Extend runners over a minimum of two poles. Support by bearing blocks securely attached to the poles.
- Install diagonal bracing in both directions across the entire outside face of double- and single-pole scaffolds.
- Extend bearers a minimum of 3 inches beyond the outside edges of runners.
- Do not splice braces, bearers, and runners between poles.
- Where you splice wooden poles, square the ends. Make sure that wood splice plates are on at least two adjacent sides and that they extend at least 2 feet on either side of the splice.

### **Pump Jack Scaffolds**

- Pump jack brackets, braces, and accessories must be fabricated from metal plates and angles. Each pump jack bracket must have two positive gripping mechanisms.
- Secure poles to the structure with rigid triangular bracing.
- Workbenches must not be used as scaffold platforms.
- Wood poles must be straight-grained and free of shakes, large loose (or dead) knots, and other defects.
- Wood poles constructed in two continuous lengths must be joined together with the seam parallel to the bracket.
- If two-by-fours are spliced to make a pole, mending plates must be installed at all splices to maintain the full strength of the member.

### **Roof Bracket Scaffolds**

- Scaffold brackets must fit the pitch of the roof and provide a level support for the platform.
- Anchor brackets with nails or secure with first-grade manila rope at least  $\frac{3}{4}$  inch diameter.

### **Step, Platform, and Trestle Ladder Scaffolds**

- Scaffold platforms must not be any higher than the second-highest rung or step of the ladder supporting the platform.
- All ladders used in conjunction with step, platform, and trestle ladder scaffolds must meet the pertinent requirements of Part 11, Fixed & Portable Ladders. Do not use job-made ladders.
- Ladders that support step, platform, and trestle ladder scaffolds must be placed, fastened, or equipped with devices to prevent slipping.
- Scaffolds must not be bridged one to another.

### **Stilts**

- A worker may wear stilts only on a large-area scaffold.
- When workers use stilts on a large-area scaffold protected by guardrails, the guardrail height must be increased an amount equal to the height of the stilts.
- Stilts can be used only on surfaces that are flat and free of pits, holes, and other obstructions.
- Keep stilts properly maintained. Any alteration of the original equipment must be approved by the manufacturer.

### **Tube and Coupler Scaffolds**

- When you move platforms to the next level, leave the existing platform undisturbed until new bearers are set and braced.

- Install transverse bracing forming an “X” across the width of the scaffold, at every third set of posts horizontally, and every fourth runner vertically.
- On straight-run scaffolds, make sure longitudinal bracing across the inner and outer rows of posts is installed diagonally in both directions. The bracing must extend from the base of the end posts upward to the top of the scaffold at approximately a 45-degree angle.
- When you cannot attach bracing to posts, attach it the runners as close to the post as possible.
- Install bearers transversely between posts.
- Extend bearers beyond the posts and runners. They must have full contact with the coupler.
- Install runners along the length of the scaffold on both the inside and outside posts at level heights.
- Interlock runners on straight runs in continuous lengths and couple them to each post. The bottom runners and bearers must be located as close to the base as possible.
- Couplers must be made from a structural metal such as drop-forged steel, malleable iron, or structural-grade aluminum.
- Tube and coupler scaffolds more than 125 feet in height must be designed by a registered professional engineer.

### **Window Jack Scaffolds**

- Scaffolds must be securely attached to the window opening.
- Use the scaffold to work only at the window opening through which the jack is placed.
- Do not use window jacks to support planks placed between one window jack and another.

### **Suspension Scaffolds**

MIOSHA defines a suspension scaffold as one or more platforms suspended by ropes or other non-rigid means from an overhead structure.

### **Support Device Load Requirements**

Support devices such as outrigger beams, cornice hooks, and parapet clamps must rest on surfaces that can support at least four times the scaffold’s load when the scaffold operates at the rated load of the hoist (or at least 1.5 times the scaffold load at the stall capacity of the hoist, whichever is greater).

### **Outrigger Beams**

Outrigger beams must be made of structural metal or material of equivalent strength and must be restrained. The outrigger beams must be secured directly to the supporting surface or stabilized by counterweights. Because masons’ multi-point adjustable suspension scaffolds bear heavy loads, their supporting outrigger beams cannot be stabilized by counterweights; the supporting surface could become dangerously overloaded.

Outrigger beams must have stop bolts or shackles at both ends and be securely fastened with the flanges turned out when channel iron beams are used in place of I-beams. Bearing supports must be perpendicular to the beam center line. Outrigger beams must be set and maintained with the web vertically. The shackle that attaches the rope to the outrigger beam must be placed directly over the center line of the stirrup.

### **Direct Connections**

A competent person must evaluate all direct connections and confirm that scaffold-supporting surfaces can support the imposed loads. An engineer must design masons’ multi-point adjustable suspension scaffold connections.

## **Counterweights**

Counterweights must be used only for their intended purpose and must not be changed or moved until the scaffold is dismantled. Sand and other flowable material cannot be used as a counterweight. Solid materials such as large concrete or lead blocks designed to be used as counterweight are acceptable, however.

## **Hoists and Related Equipment**

Winding drum hoists must have at least four wraps of the suspension rope at the lowest point of scaffold travel. When other types of hoists are used, the suspension ropes must be long enough so the scaffold can be lowered without the rope end passing through the hoist.

Gasoline-powered equipment and hoists cannot be used on suspension scaffolds.

Suspension scaffold hoists must have an operating brake and an automatic braking device or locking pawl that engages when a hoist makes a sudden change in momentum or an accelerated over-speed.

Manually operated hoists must descend with a positive crank force.

## **Suspension Wire Rope**

Repaired wire rope cannot be used for suspension rope. The load end of wire suspension ropes must be fitted with properly sized thimbles and secured by eye splicing or equivalent means. A competent person must check wire ropes for defects before each work-shift. Damaged rope must be replaced. Swaged attachments or spliced eyes on wire suspension ropes cannot be used unless they are made by a rope manufacturer or a qualified person.

## **Securing Scaffolds**

Two-point and multi-point suspension scaffolds must be secured if they could sway; a competent person must make the determination. Window cleaners' anchors cannot be used to secure suspension scaffolds.

## **Safety Devices**

Emergency escape and rescue devices cannot be used as working platforms. This requirement does not apply to systems that function as suspension scaffolds and as emergency/rescue devices.

## **Tiebacks**

Tiebacks must be at least as strong as suspension ropes and must be secured to a structurally sound anchorage on the building or structure. Do not use standpipes, vents, other piping systems, or electrical conduit for anchorages. Be sure to install tiebacks perpendicular to the face of the building or structure or use opposing angle tiebacks. Do not install single tiebacks at an angle to the face of a building or structure. Support devices such as cornice hooks, roof hooks, or parapet clamps must also be secured by properly installed tiebacks.

## **Types of Suspension Scaffolds**

### **Catenary Scaffolds**

- No more than one platform can be placed between consecutive vertical pickups and no more than two platforms must be used on a catenary scaffold.
- Platforms supported by wire ropes must have hook-shaped stops on each end to prevent them from slipping off the wire ropes. These hooks must be placed so that they will prevent the platform from falling if one of the horizontal wire ropes breaks.
- Wire ropes must not be tightened so much that a scaffold load will overstress them.
- Wire ropes must be continuous, without splices between anchors.

### **Float Scaffolds**

- The platform must be supported by at least two bearers, each of which must project 6 or more inches beyond the platform on both sides. Each bearer must be securely fastened to the platform.
- Rope connections must keep the platform from shifting or slipping.

### **Interior Hung Scaffolds**

- Scaffolds must be suspended only from a roof or other structural members such as ceiling beams.
- Inspect overhead supporting members such as roofs or ceiling beams before erecting the scaffold.
- Connect suspension ropes and cables to overhead supporting members by shackles, clips, or thimbles.

### **Multi-Level Suspended Scaffolds**

- Scaffolds must be equipped with additional independent support lines equal to the number of supported points, as strong as the suspension ropes, and rigged to support the scaffold if the suspension rope(s) fail.
- Independent support lines and suspension ropes must not be attached to the same anchorage points.
- Supports for platforms must be attached directly to the support stirrup and not to any other platform.

### **Multi-Point Adjustable Suspension Scaffolds**

- When you use two or more scaffolds, they must not be bridged to one another unless they are designed to be bridged, the bridge connections are articulated, and the hoists are properly sized.
- If bridges are not used, you can go from one platform to another only when the platforms are the same height and are abutting.
- Scaffolds must be suspended from metal outriggers, brackets, wire rope slings, or hooks.

### **Needle Beam Scaffolds**

- Scaffold support beams must be installed on edge.
- Use ropes or hangers for supports. One end of a needle beam scaffold, however, may be supported by a permanent structural member.
- Ropes must be securely attached to the needle beams.
- The support connection must prevent the needle beam from rolling or becoming displaced.
- Platform units must be securely attached to the needle beams. Cleats and overhang are not acceptable.

### **Repair Bracket Scaffolds**

- Brackets must be secured by one or more wire ropes at least ½-inch in diameter.
- Attach each bracket to the securing wire rope (or ropes) by a locking device that will keep the bracket and the rope from separating.
- Each bracket, at the contact point between the supporting structure and the bottom of the bracket, must have a shoe (heel block or foot) that will prevent the bracket from moving laterally.
- Platforms must be secured to the brackets so they do not move or separate from the brackets.
- If you place a wire rope around a structure to anchor a personal fall arrest system for workers erecting or dismantling a scaffold, the wire rope must meet Subpart M and must be of at least 5/16-inch diameter.
- Each wire rope used to secure brackets in place or as a personal fall arrest system anchorage must be protected from damage.

- Use a turnbuckle at least 1 inch in diameter to tension wire ropes that secure brackets in place or that anchor personal fall arrest systems.
- Each turnbuckle must be connected to the other end of its rope by an appropriately sized eye-splice thimble.
- Do not use U-bolt wire rope clips on any wire rope to secure brackets or to anchor personal fall arrest systems.
- Do not drop materials over the outside of the supporting structure.
- Erect scaffolds only one direction around a structure.

### **Single-Point Adjustable Suspension Scaffolds**

- If two single-point adjustable suspension scaffolds are combined to form a two-point adjustable suspension scaffold, the scaffold must comply with the requirements for two-point adjustable suspension scaffolds.
- Under most circumstances, the supporting rope between the scaffold and the suspension device must be kept vertical.
- Boatswain's chair tackle must consist of correctly sized ball bearings or bushed blocks containing safety hooks and properly "eye-spliced" minimum 5/8-inch diameter first-grade manila rope.
- Boatswain's chair seat slings must be reeved through four corner holes in the seat, must cross each other on the underside of the seat, and must be rigged to prevent slippage which could cause an out-of-level condition.
- Boatswain's chair seat slings must be a minimum of 5/8-inch diameter rope that will satisfy the strength, slip resistance, and durability of first-grade manila rope.
- When workers use a heat-producing process such as gas or arc welding, boatswain's chair seat slings must be a minimum of 3/8-inch wire rope.
- Non-cross-laminated wood boatswain's chairs must be reinforced on their undersides by cleats securely fastened to prevent the boards from splitting.

### **Two-Point Adjustable Suspension Scaffolds**

- Platforms must not be more than 36 inches wide unless they are designed by a qualified person.
- Platforms must be securely fastened to hangers.
- The blocks for fiber or synthetic ropes must consist of at least one double and one single block. The sheaves of all blocks must fit the size of the rope used.
- Platforms must be ladder-type, plank-type, beam-type, or light-metal-type.
- Do not bridge or connect two-point scaffolds to one another when raising or lowering them unless the bridge connections are attached and the hoists are properly sized.
- You can go from one platform to another only when the platforms are at the same height, are abutting, and you use walk-through stirrups specifically designed for this purpose.



## **Vehicle Mounted Elevating & Rotating**

### **Work Platforms (Aerial Lifts) Part 32-R 408.432**

This type of equipment falls in the Scaffold category. An aerial lift is an extensible or articulating device designed to position workers and handle materials. Aerial lifts can be powered or manually operated and do not necessarily rotate about a vertical axis.

Joe Badalamenti is designated by Accurate Painting Company as the competent person in authority over all aerial device work procedures. Joe Badalamenti will ensure that all safety measures and systems are in place and correctly installed, all safety procedures are adhered to, and ensure regular inspections of the operational site and aerial equipment are made. Accurate Painting Company has implemented and will enforce the following work practices and procedures to assure that no employee will be exposed to hazards during aerial lift work operations:

- Joe Badalamenti will confirm and verify that all employees are trained in and familiar with required work practices and procedures in the use of any equipment required, proper PPE, and safety procedures which must be followed to safeguard personnel involved in aerial lifting operations or who work in the vicinity of aerial lifting operations.
- Only trained and authorized personnel will be permitted to operate equipment.
- Each work platform will be inspected, maintained, repaired, and kept in proper working order according to the manufacturer's maintenance and repair manuals.
- Any work platform not in safe operating condition must be removed from service until repaired. All repairs will be made by qualified service persons conforming to the manufacturer's operating, maintenance, and repair manuals.
- Modifications or alterations of work platforms will be made only with written permission of the manufacturer or any other equivalent entity.
- Each work platform will be equipped with a mechanical parking brake, which will hold the unit on any slope it is capable of climbing. When possible, wheel chocks will be installed before using an aerial lift on an incline.

The following information will be displayed on all work platforms in a clearly visible, accessible area and in as permanent a manner as possible:

- Warnings, cautions, or restrictions for safe operation in accordance with ANSI requirements.
- The rated work load will be clearly displayed at each entrance to the platform.

#### **Before using the work platform, the operator must:**

- Read and understand the manufacturer's operating instructions and safety rules, and be trained by a qualified person on the contents of the manufacturer's instructions and safety rules.
- Read and understand all decals, warnings, and instructions on the work platform.
- On a daily basis, before the work platform is used, it must be given a thorough inspection, which must include:
  - Inspection for defects such as cracked welds, hydraulic leaks, damaged control cable, loose wire connections, and tire damage.
  - Inspection of functional controls for proper operation.

Any suspect items discovered through inspection must be carefully examined and a determination made by a qualified service person as to whether they constitute a safety hazard. All unsafe items must be corrected before further use of the work platform.



**Before the work platform is used, the operator must survey the immediate work area for hazards such as:**

- Untamped earth fills.
- Ditches.
- Dropoffs or holes.
- Debris.
- Bumps & floor obstructions.
- Overhead obstructions and high-voltage conductors.
- Other possible hazardous conditions

**Before each elevation of the work platform, the operator must:**

- Check for overhead obstructions and high-voltage conductors. A minimum distance of ten feet from energized high-voltage conductors must be maintained at all times between the conductors and the operator and platform equipment.
- Ensure that the load and its distribution on the platform are in accordance with the manufacturer's rated capacity. The manufacturer's recommended load limits must never be exceeded.
- Ensure that outriggers and stabilizers are used if the manufacturer's instructions require their use.
- Ensure that guardrails are properly installed and gates are closed.

**Before and during driving while the platform is elevated, the operator will:**

- Be required to look in the direction of, and keep a clear view of, the path of travel and assure that the path of travel is firm and level.
- Maintain a safe distance from obstacles, debris, drop-offs, holes, depressions, ramps, overhead obstacles, or other hazards to safe elevated travel.
- The operator must limit travel speed according to conditions. Conditions to be observed are: Ground surface, congestion, slope, location of personnel, and other factors that may create a hazard of collision or injury to personnel.
- Stunt driving and horseplay is prohibited.
- Personnel must maintain a firm footing on the platform while working thereon unless they are secured by safety harness and lanyard devices fixed to manufacturer-approved anchor points. Use of railings or planks, ladders or any other device on the work platform for achieving additional height is prohibited.
- The operator will immediately report defects or malfunctions which become evident during operation and must stop use of the work platform until correction has been made.
- Altering/disabling safety devices or interlocks is prohibited.

Part 32-R 408.432 covers vehicle-mounted elevation and rotating aerial lifts (ANSI A92.2 device). However, ANSI has additional rules covering three types of aerial lifts:

**Manually propelled elevating aerial platforms (ANSI A92.3 device)**

**Boom-supported elevating work platforms (ANSI A92.5 device)**

**Self-propelled elevating work platforms and scissor lifts (ANSI A92.6 device)**

These additional rules require workers to have the manufacturer's operation manual with the lifts when they use them and to follow all operating and maintenance instructions.

### **Field Modifications**

Aerial lifts may be "field modified" provided the manufacturer certifies in writing that modifications conform to all applicable provisions of ANSI A92.2 and MIOSHA requirements.

### **Ladder and Tower Trucks**

Aerial ladders must be secured in the lower traveling position before they can be transported on highways.

## **Extensible and Articulating Boom Platforms**

Lift controls must be tested before platforms are used. Workers must stand firmly on the floor of the basket & wear a body belt and a lanyard attached to the boom or basket.

Body belts are acceptable in this case, as part of a tether system. However, body belts are not acceptable as part of a personal fall arrest system.

## **Electrical Tests**

All electrical tests must conform to ANSI A92.2-1969 section 5.

## **Bursting Safety Factor**

ANSI A92.2-1969, section 4.9, applies to all critical hydraulic and pneumatic components. Critical components are those in which a failure would result in a free fall or free rotation of the boom.

## **Welding Standards**

Welding work must conform to the following standards:

**Standard Qualification Procedure, AWS B3.0-41**

**Recommended Practices for Automotive Welding Design, AWS D8.4-61**

**Standard Qualification of Welding Procedures and Welders for Piping and Tubing, AWS D10.9-69**

**Specifications for Welding Highway and Railway Bridges, AWS D2.0-69**

## **Training Requirements**

Each person who works from a scaffold must be trained to recognize hazards associated with that scaffold and to control or minimize the hazards. Training must cover:

- Electrical hazards, such as overhead power transmission lines.
- Fall hazards and methods to control the hazards.
- Falling object hazards and methods to protect persons from falling objects.
- How to use the scaffold's walkways, platform components, and access areas.
- The scaffold's load capacity and the types of loads appropriate for the scaffold.
- The requirements of Part 12 that apply to the Scaffold.

## **Workers Who Erect or Dismantle Scaffolds**

Workers who erect, disassemble, move, or maintain a scaffold must be trained by a competent person. Training must cover:

- Scaffold hazards.
- Erecting, disassembling, moving, and maintenance procedures.
- Design criteria, maximum intended load-carrying capacity, and use.

## **Retraining**

When an employer has reason to believe a worker lacks the skill or knowledge to safely use, erect, or dismantle a scaffold, the employer must retrain the worker. Other reasons for retraining include worksite changes that create new hazards and changes in the types of scaffolds, fall protection, or falling object protection used.

The following table summarizes the training requirements for persons who work from scaffolds and persons who erect or dismantle scaffolds.

## Summary of Training Requirements for Scaffold Users

Those Who Work from Scaffolds		Those Who Erect and Dismantle Scaffolds
<b>Critical Scaffold Issues</b>	<ul style="list-style-type: none"> <li>Falling objects</li> <li>Fall protection</li> <li>Material handling on scaffolds</li> <li>Scaffold load capacities</li> </ul>	<ul style="list-style-type: none"> <li>Scaffold design criteria</li> <li>Scaffold erecting, disassembling, moving, and maintenance procedures</li> <li>Scaffold erecting, disassembling and, moving hazards</li> <li>Scaffold load capacities</li> </ul>
<b>What They Need to Know</b>	<ul style="list-style-type: none"> <li>How to use appropriate fall protection systems</li> <li>How to control scaffold hazards</li> <li>How to use scaffold walkways, platform components, and access areas</li> <li>Maximum-intended and load-carrying capacities of scaffolds</li> <li>Part 12 requirements</li> </ul>	<ul style="list-style-type: none"> <li>Hazards involved in erecting/dismantling</li> <li>Erection/dismantling planning procedures</li> <li>How to deal with electrical hazards</li> <li>How to inspect components</li> <li>Appropriate design criteria</li> <li>Maximum-intended and load-carrying capacities of scaffolds</li> <li>Part 12 requirements</li> </ul>
<b>Who Can Train Them</b>	<ul style="list-style-type: none"> <li>Any person who has training and experience in the above critical scaffold issues and who can teach the issues to scaffold users.</li> <li>Part 12 refers to a person with these skills as a qualified person.</li> </ul>	<ul style="list-style-type: none"> <li>Any person who has training and experience in the above critical scaffold issues who can teach the issues to erectors/dismantlers, and who has authority to control scaffold hazards.</li> <li>Part 12 refers to a person with these skills as a competent person.</li> </ul>
<b>How Often to Train Them</b>	<ul style="list-style-type: none"> <li>Before beginning a new job</li> <li>Whenever changes at the worksite present new hazards</li> <li>Whenever they fail to demonstrate skills related to any of the critical scaffold issues</li> </ul>	<ul style="list-style-type: none"> <li>Before they begin a new job</li> <li>Whenever changes at the worksite present new hazards</li> <li>Whenever they fail to demonstrate skills related to any of the critical scaffold issues</li> </ul>

Effective training programs do not just happen. They require careful planning, explicit goals and objectives, dedicated instructors, and motivated students. It does not matter whether the activity is athletics, academics, or occupational safety and health.

### The underlying training concepts are similar:

- Design a training program
- Conduct training,
- Evaluate training effectiveness
- Improve training through feedback

#### 1. Design a Training Program

##### Determine whether a worksite problem can be solved by training.

Will training solve the problem or are hazards or engineering problems causing injuries? Training is most effective when it focuses on what workers need to know to do their jobs safely. Training is especially helpful for inexperienced workers, new workers, and workers unfamiliar with special processes and equipment.

## **Identify training needs**

Establish what the worker is expected to do and identify hazardous tasks. Analyze each task to determine what the worker must learn to do a job safely.

## **Design learning activities**

Learning activities enable workers to demonstrate that they have acquired desired skills and knowledge. The activities should simulate actual job tasks as closely as possible. Learning activities can be group-oriented, with lectures, role playing, and demonstrations. Or they can be designed as self-paced activities for individual workers. Ultimately, the design depends on the employer's creativity and training resources.

## **2. Conduct the Training**

Plan the training structure and format. Consider the number, frequency, and length of sessions. Determine instructional techniques and who will do the training. Make sure the training is well-organized and has clearly defined objectives. Give workers an overview of what they will learn. Relate training materials to tasks and jobs. Include hands-on experience and role-playing activities, if possible. Reinforce learning by summarizing objectives and key concepts. Be sure to let workers participate in discussions and ask questions.

## **3. Evaluate Training Effectiveness**

How do you know training is accomplishing your objectives? Develop a plan to objectively evaluate training effectiveness. Ask workers what they've learned through training. Ask supervisors if workers are accomplishing training goals. Examine trends in your injury or illness statistics for changes that training may have influenced.

## **4. Improve Training through Feedback**

Collect and evaluate feedback from workers, supervisors, and others affected by the training. When you are sifting through what people had to say about the training, consider these questions:

- Did the training focus on critical elements of the job?
- Were major gaps in workers' knowledge or skills covered?
- Were the training objectives presented clearly?
- Did the objectives state the performance levels expected of workers?
- Did learning activities simulate actual work tasks?
- Were learning activities appropriate for the knowledge and skills the jobs required?
- Were training materials organized and presented clearly?
- Were workers motivated to learn?
- Were workers encouraged to participate and to ask questions?

Adjust the training program if the feedback warrants a change.

## **Handling Emergencies**

Employers must establish procedures to ensure that a worker who falls from a scaffold receives immediate attention. Emergency procedures should be fully documented before workers begin work or use fall arrest or restraint systems. Emergency procedures should identify key rescue and medical personnel, equipment available for rescue, communications procedures, retrieval methods, and first-aid requirements.

The following lists identify safe practice guidelines for developing emergency response planning procedures, responding to emergencies, and investigating accidents.

## **Planning Guidelines – Before On-Site Work Begins**

- Make the fire department or emergency responders aware of the job specifications at the site and any factors that may slow response time.
- Create one or more joint training sessions between key onsite personnel and emergency responders.
- Document the rescue plan and make sure it is posted at the worksite.
- Mark the job site with signs and note the easiest access routes on & off the site.

## **As On-Site Work Progresses**

- Identify on-site equipment that can be used for rescue and retrieval. Examples: boom-lifts, ladders, and forklifts.
- Maintain a current equipment inventory at the site. Equipment may change frequently as the job progresses.
- Evaluate and update the emergency response plan if onsite work tasks change.

## **Emergency Response Actions**

- Call 9-1-1 or other emergency numbers indicated on the emergency response plan. Use 9-1-1 for ambulance service but remember that most 9-1-1 responders are not trained to rescue an injured worker suspended in a personal fall-arrest system. Rescue procedures must ensure prompt response to a suspended worker. The 9-1-1 number does not ensure prompt response. First responders should clear a path to the victim. Others should be sent to direct emergency personnel to the scene.
- Make sure only qualified personnel attempt a technical rescue.
- Prohibit all non-essential personnel from the rescue area.
- Talk to the victim; if possible, determine the victim's condition.
- If the victim is accessible: Comfort and check vital signs. If necessary: Administer CPR, attempt to stop bleeding.
- Do not attempt a solo rescue if the victim is suspended. Wait for trained emergency responders.

## **Accident Investigation Guidelines**

- Report fatalities and catastrophes to MIOSHA within eight hours.
- Report injuries requiring overnight hospitalization to MIOSHA within 24 hours.
- Identify all equipment associated with the accident and put it out of service until the accident investigation is complete.
- Document what went wrong, step by step.
- Review the fall protection plan; determine how the plan could be changed to prevent similar accidents; revise the plan accordingly.
- Have a qualified person examine equipment associated with the accident; if damaged, repair or replace it. If it contributed to the accident, determine how and why, and then replace it.
- Do not disturb the scene of a fatality or catastrophe.

## SCAFFOLD SAFETY RULES

The following are common sense rules designed to promote safety when using scaffolding. These rules are based on MIOSHA Standards and are intended to deal with some of the many practices and conditions encountered in the use of scaffolding. The rules do not purport to be all-inclusive or to supplant or replace other additional safety and precautionary measures to cover usual or unusual conditions. They are not intended to conflict with, or supersede, any statute or regulation; reference to specific provisions should be made by the user.

1. Post these scaffolding safety rules in a conspicuous place and be sure that all persons who erect, dismantle, or use scaffolding are aware of them.
2. Follow all state, local, and federal codes, ordinances, and regulations pertaining to scaffolding.
3. Inspect all equipment before using – Never use any equipment that is damaged or deteriorated in any way.
4. Keep all equipment in good repair. Avoid using rusted equipment – the strength of rusted equipment is not known.
5. Inspect erected scaffolds regularly to be sure that they are maintained in safe condition.
6. Consult your scaffolding supplier when in doubt – scaffolding is his business, **Never Take Chances.**

- A. Provide adequate sills for scaffold posts and use base plates.
- B. Use adjusting screws instead of blocking to adjust to uneven grade conditions.
- C. Plumb and level all scaffolds as the erection proceeds. Do not force braces to fit – level the scaffold until proper fit can be made easily.
- D. Fasten all braces securely.
- E. **DO NOT** climb cross braces. An access (climbing) ladder, access steps, frame designed to be climbed or equivalent safe access to the scaffold will be used.
- F. On wall scaffolds, place and maintain anchors securely between structure and scaffold at least every 30' of length and 25' of height.
- G. When scaffolds are to be partially or fully enclosed, specific precautions must be taken to assure frequency and adequacy of ties attaching the scaffolding to the building due to increased load conditions resulting from effects of wind and weather. The scaffolding components to which the ties are attached must also be checked for additional loads.
- H. Free standing scaffold towers must be restrained from tipping by guying or other means.
- I. Equip all planked or staged areas with proper guardrails, midrail, and toeboards along all open side and ends of scaffold platforms.
- J. Power lines near scaffolds are dangerous – use caution and consult the power service company for advice.
- K. **DO NOT** use ladders or makeshift devices on top of scaffolds to increase the height.
- L. **DO NOT** overload scaffolds.
- M. Planking:
  1. Use only lumber that is properly inspected and graded as scaffold plank.
  2. Planking will have at least 12" of overlap and extend 6" beyond center of support, or be cleated at both ends to prevent sliding off supports.
  3. Fabricated scaffold planks and platforms unless cleated or restrained by hooks will extend over their end supports

- N. For rolling scaffold, the following additional rules apply:
  1. DO NOT ride rolling scaffolds.
  2. Secure or remove all material and equipment from platform before moving scaffold.
  3. Caster brakes must be applied at all times when scaffolds are not being moved.
  4. Casters with plain stems will be attached to the panel or adjustment screw by pins or other suitable means.
  5. DO NOT attempt to move a rolling scaffold without sufficient help – watch out for holes in floor and overhead obstructions.
  6. DO NOT extend adjusting screws on rolling scaffolds more than 12".
  7. Use Horizontal diagonal bracing near the bottom and at 20' intervals measured from the rolling surface.
  8. DO NOT use brackets on rolling scaffolds without consideration of overturning effect.
  9. The working platform height of a rolling scaffold must not exceed four times the smallest base dimension unless guyed or otherwise stabilized.
- O. Additional rules for "Putlogs" and "Trusses":
  1. DO NOT cantilever or extend putlogs/trusses as side brackets without thorough consideration for loads to be applied.
  2. Putlogs/trusses should extend at least 6" beyond point of support.
  3. Place proper bracing between putlogs/trusses when the span of putlog/truss is more than 12".
- P. All brackets will be seated correctly with side brackets parallel to the frames and end brackets at 90 degrees to the frames. Brackets will not be bent or twisted from normal position. Brackets (except mobile brackets designed to carry materials) are to be used as work platforms only and will not be used for storage of material or equipment.
- Q. All scaffolding accessories will be used and installed in accordance with the manufacturers recommended procedure. Accessories will not be altered in the field. Scaffolds, frames, and their components, manufactured by different

[illegible]



### Excavation Operations & Heavy Equipment

#### **Excavation, Trenching & Shoring - MIOSHA-Part 9-R 408.409**

##### **Policy Statement**

Accurate Painting Company has adopted this program for the safety of employees when working in or around trenches and excavations.

Joe Badalamenti is designated as the competent person for Accurate Painting Company in authority over all excavation operations. Joe Badalamenti will ensure that all safety measures and systems are in place and correctly installed, all safety procedures are adhered to, and make regular inspections of the work site.

Accurate Painting Company will implement and enforce the following engineering controls, procedures, and work practices to ensure that no employee is exposed to hazards from excavations being performed or existing at the jobsite:

- Joe Badalamenti will ensure that all employees are trained in and familiar with required work practices and excavation procedures to safeguard personnel involved in trenching operations or who work in the vicinity of excavation operations.

##### **Locating Underground Utility Installations**

- Accurate Painting Company will not excavate in a street, highway, public place, a private easement of a public utility, or near the location of a public utility facility owned, maintained, or installed on a customer's premises, without having first ascertained the location of all underground facilities of a public utility in the proposed area of excavation.
- Upon receiving the information from the public utility, Accurate Painting Company personnel will exercise reasonable care when working in close proximity to the underground utilities. If the utilities are or likely to be exposed, only hand digging will be employed in such circumstances and any support reasonably necessary for protection of the utilities will be provided on the construction site.
- When any contact with or damage to any pipe, cable, or any other underground utility occurs, Accurate Painting Company will immediately notify the utility company. If an energized electrical cable is severed, an energized conductor is exposed, or dangerous fluids or gases are escaping from a broken line, Joe Badalamenti will evacuate personnel from the immediate area until the utility company representative arrives.
- While an excavation is open, underground utilities will be protected, supported, or removed as necessary to safeguard employees.

##### **Surface Encumbrances**

- All surface encumbrances such as trees, boulders, rock fragments, or other obstructions whose movement could cause injury to an employee will be removed or supported.
- Excavations that personnel are required to enter will have spoil piles and other material stored and retained not less than 2 feet from the excavation edge.

- When a shoring system is used, the system will be designed and used to resist the added pressure when heavy equipment, material handling equipment, or material is located near an excavation.
- When mobile equipment is utilized or permitted adjacent to an excavation where the operator's vision is restricted, stop logs, barricades, or a signal person will be used.

### **Inspections**

- Daily inspections of excavations, the adjacent areas, and protective systems will be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection will be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections will also be made after every rainstorm or other hazard increasing occurrence. These inspections are required when employee exposure can be reasonably anticipated.
- Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees will be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

### **Access and Egress**

- Lateral travel along the wall of a trench to a ladder or other means of egress will not exceed 25 feet.
- An excavation four feet or more in depth and occupied by an employee will be provided with either a ladder extending not less than 3 feet above the top as a means of access or with a ramp meeting the following requirements:
  - Structural ramps that are used solely by employees as a means of access or egress from excavations will be designed by a competent person. Structural ramps used for access or egress of equipment will be designed by a competent person qualified in structural design, and will be constructed in accordance with the design.
  - Ramps and runways constructed of two or more structural members will have the members connected together to prevent displacement. Structural members used for ramps and runways will be of uniform thickness.
  - Cleats or other appropriate means used to connect runway structural members will be attached to the bottom of the runway or will be attached in a manner to prevent tripping.
  - Structural ramps used in lieu of steps will be provided with cleats or other surface treatments on the top surface to prevent slipping.
  - An earth ramp may be used in place of a ladder if:

The ramp material will be stable.

The sides of the excavation above the ramp will be maintained to the maximum allowable slope or sheeted or shored along the means of egress.

The degree of angle of the ramp will not be more than 45 degrees.

Vertical height between the floor of the trench and the toe of the ramp will not exceed 30 inches.

### **Exposure to Vehicle Traffic**

- Employees exposed to public vehicular traffic will be provided with, and be required to, warning vests or other suitable garments marked with or made of reflectorized or high-visibility material.
- A sidewalk will not be undermined unless it is shored to support a live load of at least 125 pounds per square foot.
- Employees who are routed from a sidewalk or walkway into a roadway to detour excavations will be protected on all sides by regulation guardrails or barricades.

- If an employee or equipment is required or permitted to cross a trench or ditch, a walkway, ramp, or bridge will be provided and will have a designed capacity of not less than 3 times the imposed load. Regulation guardrails will be installed.
- If equipment is routed across or onto a roadway, protection will be provided using regulation signals, signs, or barricades.
- An open cut into a roadway will be provided with a regulation barricade on all sides. Warning lights will be provided during hours of darkness.

### **Walkways**

- Walkways will be provided where employees or equipment are required or permitted to cross over excavations. Regulation guardrails will be provided where walkways are 6 feet or more above lower levels.
- A walkway or sidewalk will be kept clear of excavated material and other obstructions.
- The walkways and sidewalks will be lighted if used during hours of darkness.
- A walkway or sidewalk that is adjacent to an excavation will be separated from the excavation and protected by an appropriate guardrail.

### **Exposure to Falling Loads**

Personnel will not be permitted under loads handled by lifting or digging equipment. Employees will be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped with regulation protection for the operator during loading and unloading operations.

### **Mobil Equipment Warning Systems**

When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system will be utilized such as barricades, hand or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.

### **Hazardous Atmospheres**

To prevent exposure to hazardous atmospheres and to assure acceptable breathing conditions, all of the following requirements will apply:

- Where an oxygen deficiency (an atmosphere that contains less than 19.5% oxygen) or a hazardous atmosphere exists, such as in excavations in areas where hazardous substances are stored nearby, the atmosphere in the excavation will be tested before employees enter excavations that are more than 4 feet deep.
- Precautions will be taken to prevent employee exposure to atmospheres that contain less than 19.5% oxygen and any other hazardous atmosphere. These precautions include providing regulation respiratory protection or ventilation.
- Precautions will be taken, such as providing ventilation, to prevent employee exposure to an atmosphere that contains a concentration of a flammable gas in excess of 20% of the lower flammable limit of the gas.
- When using controls intending to reduce levels of atmospheric contaminants to acceptable PEL, testing will be conducted as often as necessary to ensure that breathing air remains safe.
- Emergency rescue equipment, such as breathing apparatus, safety harness and line, or a basket stretcher, will be readily available where hazardous atmospheric conditions exist or could develop during work in an excavation. This equipment will be attended when in use.

- Employees entering bell-bottom pier holes, or other similar deep and confined footing excavations, will wear a harness with a lifeline securely attached to it. The lifeline will be separate from any line used to handle materials, and will be individually attended at all times while employee wearing it is in the excavation.

### **Protection from Water Accumulation Hazards**

- Employees will not work in excavations where water has or is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by such water accumulation. Precautions necessary to protect employees vary with each situation and will include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline.
- If water is controlled or prevented from accumulating by the use of water pumps, the pumping equipment and operations will be monitored by a competent person to ensure proper operation.
- If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means will be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains will require an inspection by a competent person.
- An ongoing inspection of an excavation or trench will be made by a qualified person. After every rainstorm or other hazard-producing occurrence, an inspection will be made by a competent person for evidence of possible slides or cave-ins. Where these conditions are found, all work will cease until additional precautions, such as additional shoring or reducing the slope, have been accomplished.

### **Stability of Adjacent Structures**

- Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees will not be permitted except when:
  - A support system, such as shoring, bracing, or underpinning, is provided to ensure the safety of employees and the stability of the structure.
  - The excavation is in stable rock.
  - A registered professional engineer has approved the determination that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity or that such excavation work will not pose a hazard to employees.
- Sidewalks, pavements, and appurtenant structure will not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures.
- The shoring, bracing, and underpinning will be inspected daily or more often, as conditions warrant, by a competent person.

### **Employee Protection from Loose Rock or Soils**

- Adequate protection will be provided to protect employees from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection will consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the face to stop and contain falling material or other means that provide equivalent protection.
- Employees will be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection will be provided by placing and keeping such materials or equipment at least 2 feet from the edge of excavations, or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.

- If different textured soils are encountered in the side of an excavation, each soil type of the excavation will be cut to the proper maximum allowable slope, except that the slope will not steepen between the toe of the slope and the ground level where soft clay or running soil is encountered in the lower cut.
- If the excavation is a trench, a trench shoring system will be used or the sides will be properly benched or sloped to protect against a cave-in.
- An excavation that is cut into a rock formation will be scaled to remove loose material.
- When installed forms, walls, or similar structures create a trench between the form, wall, or structure and the side of the excavation, it will be treated as a trench.

### **General Classification of Soil and Rock Deposits**

- Each soil and rock deposit will be classified by a competent person as Stable Rock, Type A, Type B, or Type C in accordance with MIOSHA definitions.
- The classification of the deposits will be made based on the results of at least one visual and at least one manual analysis. Such analyses will be conducted by a competent person using approved methods of soil classification and testing.
- The visual and manual analyses will be designed and conducted to provide sufficient quantitative and qualitative information as may be necessary to identify properly the properties, factors, and conditions affecting the classification of the deposits.
- Layered systems will be classified according to its weakest layer. However, each layer may be classified individually where a more stable layer lies under a less stable layer.
- If after classifying a deposit, the properties, factors, or conditions affecting its classification change in any way, the changes will be evaluated by a competent person. The deposit will be reclassified as necessary to reflect the changed circumstances.

### **Protection of Employees in Excavations**

- Employees in an excavation will be protected from cave-ins by an adequate protective system designed in accordance with MIOSHA requirements, except when:
  - Excavations are made entirely in stable rock.
  - Excavations are less than 5 feet deep and examination of the ground by a competent person provides no indication of a potential cave-in.
- Protective systems will have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied or transmitted to the system.

The slopes and configurations of sloping and benching systems will be selected and constructed by Accurate Painting Company and will be in accordance with MIOSHA requirements, or the following alternative options:

#### **Option 1** - Allowable configurations and slopes.

- Excavations will be sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal), unless the employer uses one of the other options listed below.
- Specified slopes will be excavated to form configurations that are in accordance with the slopes shown for Type C soil.

**Option 2** - Maximum allowable slopes, and allowable configurations for sloping and benching systems, will be determined in accordance with the conditions and requirements set forth in Part 9.

#### **Option 3** - Designs using other tabulated data.

- Designs of sloping or benching systems will be selected from and in accordance with tabulated data, such as tables and charts.
- The tabulated data will be in written form and will include all of the following:

- Identification of the parameters that affect the selection of a sloping or benching system drawn from such data.
- Identification of the limits of use of the data, to include the magnitude and configuration of slopes determined to be safe.
- Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.
- At least one copy of the tabulated data which identifies the registered professional engineer who approved the data, will be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data will be made available to MIOSHA upon request.

**Option 4** - Design by a registered professional engineer.

- Sloping and benching systems not utilizing previous Options 1, 2, or 3 will be approved by a registered professional engineer.
- Designs will be in written form and will include at least the following:
  - The magnitude of the slopes that were determined to be safe for the particular project.
  - The configurations that were determined to be safe for the particular project.
  - The identity of the registered professional engineer approving the design.
  - At least one copy of the design will be maintained at the jobsite while the slope is being constructed. After that time the design need not be at the jobsite, but a copy will be made available to MIOSHA upon request.

**Design of Support Systems**

- Designs of support systems, shield systems, and other protective systems will be selected and constructed by Accurate Painting Company and will be in accordance with MIOSHA requirements, or the following alternative options:

**Option 1** - Designs for timber shoring in trenches will be determined in accordance with the conditions and requirements set forth in Part 9. Designs for aluminum hydraulic shoring will be in accordance with Option 2 below, but if manufacturer's tabulated data cannot be utilized, designs will be in accordance with Option 3.

**Option 2** - Designs Using Manufacturer's Tabulated Data.

- Design of support systems, shield systems, or other protective systems that are drawn from manufacturer's tabulated data will be in accordance with all specifications, recommendations, and limitations issued or made by the manufacturer.
- Deviation from the specifications, recommendations, and limitations issued or made by the manufacturer will only be allowed after the manufacturer issues specific written approval.
- Manufacturer's specifications, recommendations, and limitations, and manufacturer's approval to deviate from the specifications, recommendations, and limitations will be in written form at the jobsite during construction of the protective system. After that time this data may be stored off the jobsite, but a copy will be made available to the Secretary upon request.

**Option 3** - Designs using other tabulated data.

- Designs of support systems, shield systems, or other protective systems will be selected from and be in accordance with tabulated data, such as tables and charts.
- The tabulated data will be in written form and include all of the following:
  - Identification of the parameters that affect the selection of a protective system drawn from such data.
  - Identification of the limits of use of the data.
  - Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.



- At least one copy of the tabulated data, which identifies the registered professional engineer who approved the data, will be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data will be made available to MIOSHA upon request.

**Option 4** - Design by a registered professional engineer.

- Support systems, shield systems, and other protective systems not utilizing previous Options 1, 2, or 3 will be approved by a registered professional engineer.
- Designs will be in written form and will include the following:
  - A plan indicating the sizes, types, and configurations of the materials to be used in the protective system.
  - The identity of the registered professional engineer approving the design.
  - At least one copy of the design will be maintained at the jobsite during construction of the protective system. After that time, the design may be stored off the jobsite, but a copy of the design will be made available to MIOSHA upon request.

**Protective System Materials and Equipment**

- Materials and equipment used for protective systems will be free from damage or defects that might impair their proper function.
- Manufactured materials and equipment used for protective systems will be used and maintained in a manner that is consistent with the recommendations of the manufacturer, and in a manner that will prevent employee exposure to hazards.
- When equipment used for protective systems is damaged, a competent person will examine the equipment and evaluate its suitability for continued use. If the competent person cannot assure the equipment is able to support the intended loads or is otherwise suitable for safe use, then equipment will be removed from service be evaluated and approved by a registered professional engineer before being returned to service.
- General installation and removal of support systems:
  - Members of support systems will be securely connected together to prevent sliding, falling, kickouts, or other predictable failure.
  - Support systems will be installed and removed in a manner that protects employees from cave-ins, structural collapses, or from being struck by members of the support system.
  - Individual members of support systems will not be subjected to loads exceeding those which those members were designed to withstand.
  - Excavation of material to a level no greater than 2 feet below the bottom of the members of a support system will be permitted, but only if the system is designed to resist the forces calculated for the full depth of the trench, and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the support system.
  - Installation of a support system will be closely coordinated with the excavation of trenches.
  - Before temporary removal of individual members begins, additional precautions will be taken to ensure the safety of employees, such as installing other structural members to carry the loads imposed on the support system.
  - Removal will begin at, and progress from, the bottom of the excavation. Members will be released slowly so as to note any indication of possible failure of the remaining members of the structure or possible cave-in of the sides of the excavation.
  - Backfilling will progress together with the removal of support systems from excavations.



- Employees will not be permitted to work on the faces of sloped or benched excavations at levels above other employees except when employees at the lower levels are adequately protected from the hazard of falling, rolling, or sliding material or equipment.

**General shield systems requirements:**

- Shield systems will not be subjected to loads exceeding those which the system was designed to withstand.
  - Shields will be installed in a manner to restrict lateral or other hazardous movement of the shield in the event of the application of sudden lateral loads.
  - Employees will be protected from the hazard of cave-ins when entering or exiting the areas protected by shields.
  - Employees will not be allowed in shields when shields are being installed, removed, or moved vertically.
  - Excavations of earth material to a level not greater than 2 feet below the bottom of a shield will be permitted, but only if the shield is designed to resist the forces calculated for the full depth of the trench, and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the shield.
- Regulation guardrails or barricades will be provided at all remotely located excavations. All wells, pits, and shafts, temporary or otherwise, will be barricaded or covered. Temporary wells, pits, and shafts will be backfilled when exploration and similar operations are completed.

## General Safe Practices for Trenching and Excavation

Accurate Painting Company employees working on, in, or near excavations, as applicable, will follow these general rules and safe practices at all times:

- **Before removal** of individual trench shoring members begins, additional precautions will be taken to ensure the safety of employees, such as installing other structural members to carry the loads imposed on the support system.
- **Exposure to falling loads.** No employee will be permitted underneath loads handled by lifting or digging equipment. Employees will be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped to provide adequate protection for the operator during loading and unloading operations.
- **Warning system for mobile equipment.** When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system will be utilized such as barricades, hand or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.
- **Exposure to vehicular traffic.** Employees exposed to public vehicular traffic will be provided with, and will wear; warning vests or other suitable garments marked with or made of reflectorized or high-visibility material.
- **Employees will not work** in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation, but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline.
- **Employees are not permitted** under loads that are handled by lifting or digging equipment. Employees are not allowed to work in the excavation above other employees unless the lower level employees are adequately protected.
- **Where oxygen deficiency** (atmospheres containing less than 19.5 percent oxygen) or a hazardous atmosphere exists, or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation will be tested before employees enter excavations greater than 4 feet in depth.
- **Adequate precautions** will be taken to prevent employee exposure to atmospheres containing less than 19.5 percent oxygen and other hazardous atmospheres. These precautions include providing regulation respiratory protection or ventilation.
- **When controls are used** that are intended to reduce the level of atmospheric contaminants to acceptable levels, testing will be conducted as often as necessary to ensure that the atmosphere remains safe.
- **At least one copy** of the design will be maintained at the jobsite during construction of the protective system. After that time, the design may be stored off the jobsite, but a copy of the design will be made available to the Secretary upon request.
- **Guardrails are provided** for walkways or bridges crossing over an excavation.

## Application of the Policy

This excavation policy applies to all open excavations made in the earth's surface.

**A trench** is a narrow excavation made below the surface of the ground in which the depth is greater than the width – the width not exceeding 15 feet.

**An excavation** is any man-made cut, cavity, trench, or depression in the earth's surface formed by earth removal. This can include excavations for anything from cellars to highways.

## Competent Person

The designated competent person will have and be able to demonstrate the following:

- Training, experience, and knowledge of:
  - Soil analysis
  - Use of protective systems
  - Requirements of Part 9
- Ability to detect:
  - Conditions that could result in cave-ins
  - Failures in protective systems
  - Hazardous atmospheres
  - Other hazards including those associated with confined spaces
- Authority to take prompt corrective measures to eliminate existing and predictable hazards and to stop work when required.

## General Requirements

MIOSHA requires that workers in trenches and excavations be protected, and that safety and health programs address the variety of hazards they face. The following hazards cause the most trenching and excavation injuries:

- No Protective System.
- Failure to Inspect Trench and Protective Systems.
- Unsafe Spoil-Pile Placement.
- Unsafe Access/Egress.

## No Protective System

All excavations are hazardous because they are inherently unstable. If they are restricted spaces they present the additional risks of oxygen depletion, toxic fumes, and water accumulation. If you are not using protective systems or equipment while working in trenches or excavations at your site, you are in danger of suffocating, inhaling toxic materials, fire, drowning, or being crushed by a cave-in.

## Methods to Avoid Hazards

Pre-job planning is vital to accident-free trenching; safety cannot be improvised as work progresses. The following concerns must be addressed by a competent person:

- Evaluate soil conditions and select appropriate protective systems.
- Construct protective systems in accordance with the standard requirements.
- Preplan; contact utilities (gas, electric) to locate underground lines, plan for traffic control if necessary, and determine proximity to structures that could affect choice of protective system.
- Test for low oxygen, hazardous fumes and toxic gases, especially when gasoline engine-driven equipment is running, or the dirt has been contaminated by leaking lines or storage tanks. Insure adequate ventilation or respiratory protection if necessary.
- Provide safe access into and out of the excavation.
- Provide appropriate protections if water accumulation is a problem.

- Inspect the site daily at the start of each shift, following a rainstorm, or after any other hazard-increasing event.
- Keep excavations open the minimum amount of time needed to complete operations.

### **Failure to Inspect Trench and Protective System**

If trenches and excavations at your site are not inspected daily for evidence of possible cave-ins, hazardous atmospheres, failure of protective systems, or other unsafe conditions, you are in danger.

### **Methods to Avoid Hazards**

Inspect excavations:

- Before construction begins.
- Daily before each shift.
- As needed throughout the shift.
- Following rainstorms or other hazard-increasing events (such as a vehicle or other equipment approaching the edge of an excavation).
- Inspections must be conducted by a competent person who:
- Has training in soil analysis.
- Has training in the use of protective systems.
- Is knowledgeable about the MIOSHA requirements.
- Has authority to immediately eliminate hazards.

### **Unsafe Spoil-Pile Placement**

Excavated materials (spoils) at your site are hazardous if they are set too close to the edge of a trench/excavation. The weight of the spoils can cause a cave-in, or spoils and equipment can roll back on top of workers, causing serious injuries or death.

### **Methods to Avoid Hazards**

Provide protection by one or more of the following:

- Use retaining devices, such as a trench box, which will extend above the top of the trench to prevent equipment and spoils from falling back into the excavation.
- Set spoils and equipment at least 2 feet back from the excavation.
- Where the site does not permit a 2-foot setback, spoils may need to be temporarily hauled to another location.

### **Unsafe Access/Egress**

To avoid fall injuries during normal entry and exit of a trench or excavation at your job site, ladders, stairways, or ramps are required. In some circumstances, when conditions in a trench or excavation become hazardous, survival may even depend on how quickly you can climb out.

### **Methods to Avoid Hazards**

- Provide stairways, ladders, ramps, or other safe means of egress in all trenches that are 4 feet deep or more.
- Position means of egress within 25 lateral feet of workers.
- Structural ramps that are used solely for access or egress from excavations must be designed by a competent person.
- When two or more components form a ramp or runway, they must be connected to prevent displacement, and be of uniform thickness.
- Cleats or other means of connecting runway components must be attached in a way that would not cause tripping (e.g., to the bottom of the structure).
- Structural ramps used in place of steps must have a non-slip surface.
- Use earthen ramps as a means of egress only if a worker can walk them in an upright position, and only if they have been evaluated by a competent person.

## Planning for Safety

Many on-the-job accidents are a direct result of inadequate initial planning. Correcting mistakes in shoring or sloping after work has begun slows the operation, adds to costs, and increases the possibility of an excavation failure (cave-in). Contractors must build safety into pre-bid planning. Developing safety checklists specific to each job will help accomplish this.

The following specific site conditions should be considered before preparing a bid:

- Traffic
- The Water Table
- Soil
- Surface and Groundwater
- Nearness of Structures and their Condition
- Overhead and Underground Utilities

Excavation Regulations require that underground utilities be located (sewer, telephone, fuel, electric, water lines, or any other underground installations) that may be encountered during digging before opening an excavation.

Allow two business days in advance of digging for locates. To find the exact location of underground installations, workers must use safe and acceptable means. If such installations are exposed, MIOSHA regulations require that they be removed, protected, or properly supported. When all necessary, specific information about the job site is assembled, contractors can determine the amount, kind, and cost of the safety equipment needed.

A careful inventory of safety items on hand should be made before deciding what additional material must be acquired. No matter how many trenching, shoring, and backfilling jobs have been done in the past, each job must be approached with great care and preparation.

### Before Starting the Job

Before beginning work, employers must provide employees exposed to vehicular traffic with warning vests or other suitable garments marked with or made of reflectorized or high-visibility material and ensure that they wear them. Workers must also be instructed to remove or neutralize surface obstacles that may create hazards.

No employee should operate equipment without being properly trained and alert to potential hazards. In training and in the worksite safety and health program, it also is important to include procedures for fast notification and investigation of accidents.

### On-the-Job Evaluation

The MIOSHA Standard requires that a competent person inspect excavations and adjacent areas at least daily for possible cave-ins, failures of protective systems and equipment, hazardous atmospheres, or other hazardous conditions. If these conditions are encountered, exposed employees must be removed from the hazardous area until necessary safety precautions have been taken. Inspections are also required after heavy rains or man-made events such as blasting that may increase the potential for hazards.

Larger and more complex operations should have a full-time safety person who makes recommendations to improve implementation of the safety plan. In smaller operations, the safety person may be part-time and will usually be a supervisor.

Supervisors are the contractor's representatives on the job. They should conduct inspections, investigate accidents, anticipate hazards, and ensure that employees receive on-the-job safety and health training. They must also review and strengthen overall safety and health precautions to guard against potential hazards, get necessary worker cooperation in safety matters, and report frequently to the contractor.

Managers and supervisors must set the example for safety at the job site. When visiting job sites, **all** managers must wear prescribed personal protective equipment such as safety shoes, safety glasses, hardhats, and other necessary gear.

Employees must also take an active role in job safety. The contractor and supervisor must make certain that workers have been properly trained in the use and fit of protective gear and equipment, that they are wearing and using the equipment correctly, and that they are using safe work practices.

## **Cave-Ins and Protective Support Systems**

### **Support Systems**

Excavation workers are exposed to many hazards, but the chief hazard is cave-ins. Employees must be protected by sloping or benching the sides of the excavation, supporting the sides of the excavation, or placing a shield between the side of the excavation and the work area.

All deep excavations must be protected by a system designed by a registered professional engineer. Before any sloping, benching, or support system is selected, the excavation soil type must be classified by a competent person.

Designing or selecting a protective system can be complex because of the number of factors involved – soil classification, depth of cut, water content of soil, changes due to weather and climate, or other operations in the vicinity.

The MIOSHA Standard, however, provides four methods each for sloping and shoring, including the use of shields to provide the required level of protection against cave-ins.

One method of ensuring the safety and health of workers in an excavation is to slope the sides to an angle not steeper than 1½ H: 1V (34 degrees measured from the horizontal). These slopes must be excavated to form configurations that are in accordance with those for Type C soil. A slope of this gradation or less is considered safe for any type of soil.

A second design method, which can be applied for both sloping and shoring, involves using tabulated data such as tables and charts approved by a registered professional engineer. The data, its limitations, and the selection criteria must be in writing.

At least one copy of the information that includes the identity of the registered professional engineer who approved the data must be kept at the worksite during construction of the protective system. Upon completion of the system, the data may be stored away from the site, but a copy must be made available, upon request, to MIOSHA.

Contractors may also use a trench box or shield designed or approved by a registered professional engineer or based on tabulated data prepared or approved by such an engineer. Timber, aluminum, or other suitable materials may also be used. MIOSHA permits the use of a trench shield as long as the protection it provides is equal to or greater than the protection that would be provided by the appropriate shoring system.

Employers are free to choose the most practical option for the circumstances. Once an option has been selected, however, that system must meet required performance criteria.

### **Safety Precautions**

MIOSHA requires employers to provide support systems such as shoring, bracing, or underpinning to ensure the stability of nearby structures such as buildings, walls, sidewalks, or pavements.



The Standard also prohibits excavation below the level of the base or footing of any foundation or retaining wall unless a support system such as underpinning is provided, the excavation is in stable rock, or a registered professional engineer determines that the structure is far enough away from the excavation that the excavation will not pose a hazard to employees.

Excavations under sidewalks and pavements are also prohibited unless an appropriately designed support system is provided, or another effective method is used.

### **Installation and Removal of Protective Systems**

MIOSHA requires the following procedures for the protection of employees when installing support systems:

- Connect support system members securely
- Install support systems safely
- Never overload support system members
- Install other structural members to carry loads imposed on the support system when temporary removal of individual members is necessary

As soon as work is completed, the excavation should be backfilled as the protective system is dismantled. After the excavation has been cleared, workers should slowly remove the protective system from the bottom up, taking care to release members slowly.

### **Materials and Equipment**

The employer is responsible for the safe condition of materials and equipment used for protective systems. Defective and damaged materials and equipment can result in the failure of a protective system and cause excavation hazards.

To avoid possible failure of a protective system, the employer must ensure that:

- Materials and equipment are free from damage or defect.
- Manufactured materials and equipment are used and maintained consistent with manufacturers' recommendations and in a way that prevents employee exposure to hazards.
- Materials and equipment damaged while in operation are examined by a competent person.

If materials and equipment are not safe for use, they must be removed from service. These materials cannot be returned to service without the evaluation and approval of a registered professional engineer.

### **Other Hazards**

#### **Falls and Equipment**

In addition to cave-in hazards and secondary hazards related to cave-ins, workers must be protected from other hazards during excavation-related work. These include exposure to falls, falling loads, and mobile equipment.

To protect employees, MIOSHA requires employers to take the following precautions:

- Keep materials or equipment that might fall or roll into an excavation at least two feet from the edge of excavations or use retaining devices, or both.
- Provide warning systems such as mobile equipment, barricades, hand or mechanical signals, or stop logs, to alert operators of the edge of an excavation. If possible, keep the grade away from the excavation.
- Provide scaling to remove loose rock or soil, or install protective barricades and other equivalent protection to protect employees from falling rock, soil, or materials.
- Prohibit employees from working on faces of sloped or benched excavations at levels above other employees unless employees at lower levels are properly protected from falling, rolling, or sliding material or equipment hazards.



- Employees must be protected from loads or objects falling from lifting or digging equipment. Procedures designed to ensure their protection include:
  - Employees are not permitted to work under loads handled by lifting or digging equipment.
  - Employees are required to stand away from equipment that is being loaded or unloaded to avoid being struck by any spillage or falling materials
  - Equipment operators or truck drivers may stay in their equipment during loading and unloading operations if the equipment is properly equipped with a cab shield or adequate canopy that provides adequate protection from falling loads.

## **Confined Spaces**

In some instances, trenches qualify as confined spaces. When this occurs, compliance with the Confined Space Standard is also required. A confined space is a workplace where entry and exit are limited and, because of its construction, location, contents, or the work being done there, a hazardous atmosphere may occur. In the sewer and water main industry, confined spaces can be locations such as trenches, excavations, manholes, valve chambers, pump stations, and catch basins. The atmosphere in these spaces may be:

- Toxic
- Oxygen-deficient
- Oxygen-enriched
- Explosive

Decaying waste releases hazardous gases such as hydrogen sulfide and methane. The bacteria in sewage are not only a source of infection but can also consume oxygen and leave the atmosphere oxygen-deficient.

Other sources of contamination may include:

- Fumes from welding or patching compounds.
- Chemicals from waste disposal sites.
- Engine exhaust.
- Propane or other explosive gases that are heavier than air and collect in the bottom of the trench.
- Leaks from underground storage tanks.
- Decomposing material in landfill sites.

Protecting the health and safety of personnel starts with some basic steps.

- A competent person must test a confined space to determine whether it is hazard-free before a worker enters and continue testing to ensure that it remains hazard-free.
- Where tests indicate safe air quality, workers may be allowed to enter the confined space.
- Where tests indicate a hazardous level of fumes, vapors, gases, or oxygen, entry must not be allowed until the space has been adequately ventilated and subsequent tests indicate that the air is safe to breathe.
- Where possible, mechanical venting should be continued in any confined space containing hazardous levels of fumes, vapors, gases, or oxygen, even after venting has corrected the hazard.

The space must also be continuously monitored while personnel are working there.

- In situations where ventilation has removed a hazard, workers entering the space should still wear rescue harnesses attached to individual lifelines.
- A worker should also be posted at the entrance prepared, equipped, and trained to provide rescue in an emergency. For rescue situations, workers entering the space should wear supplied-air respirators.

## **Standing Water and Water Accumulation**

Employees will not be permitted to work in excavations where water has built up or is building. If water removal equipment is used to control or prevent water from accumulating, equipment operations must be monitored by a competent person to ensure proper use.

Diversion ditches, dikes, or other suitable means will be used to prevent surface water from entering an excavation and to provide adequate drainage of the area adjacent to the excavation. A competent person must inspect excavations subject to runoffs from heavy rains.

Methods for controlling standing water and water accumulation must be provided and should consist of the following if employees are permitted to work in the excavation:

- Use of special support or shield systems approved by a registered engineer.
- Water removal equipment will be used and monitored by a competent person.
- Safety harnesses and lifelines used in conformance with MIOSHA Part 45.
- Surface water diverted away from the trench.
- Employees removed from the trench during rain storms.
- Trenches carefully inspected by a competent person after each rain and before employees are permitted to re-enter the trench.

## **Hazardous Atmospheres**

A competent person must test excavations, or excavations where oxygen deficiency or a hazardous atmosphere exists or could reasonably be expected to exist, before employees may enter. If hazardous conditions exist, proper respiratory protection or ventilation must be provided. Controls used to reduce atmospheric contaminants to acceptable levels must be tested regularly.

Where adverse atmospheric conditions may exist or develop in an excavation, the employer must provide and ensure that emergency rescue equipment (e.g., breathing apparatus, a safety harness and line, basket stretcher, etc.) is readily available.

When an employee enters bell-bottom pier holes and similar deep and confined footing excavations, the employee must wear a harness with a lifeline. The lifeline must be securely attached to the harness and must be separate from any line used to handle materials. While the employee wearing the lifeline is in the excavation, an observer must ensure that the lifeline is working properly and maintain communication with the employee.

Employees will not be permitted to work in hazardous and/or toxic atmospheres. Such atmospheres include those with:

- Less than 19.5% or more than 23.5% oxygen.
- A combustible gas concentration greater than 20% of the lower flammable limit.
- Concentrations of hazardous substances that exceed those specified in the Threshold Limit Values for airborne contaminants established by the ACGIH (American Conference of Governmental Industrial Hygienists).

All operations involving such atmospheres must be conducted in accordance with MIOSHA requirements for occupational health and environmental controls for personal protective equipment and for lifesaving equipment.

Engineering controls (e.g., ventilation) and respiratory protection may be required.

## Testing for Atmospheric Contaminants

- Testing should be conducted before employees enter the trench and should be done regularly to ensure that the trench remains safe. The frequency of testing should be increased if equipment is operating in the trench.
- Testing frequency should also be increased if welding, cutting, or burning is done in the trench.

Employees required to wear respiratory protection must be trained, fit-tested, and enrolled in a respiratory protection program.

## Inspections

Daily inspections of excavations, the adjacent areas, and protective systems will be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection will be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections will also be made after every rainstorm or other hazard increasing occurrence. These inspections are required when employee exposure can be reasonably anticipated.

Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees will be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

Whatever the protective system, it should be inspected regularly.

- Check hydraulic shoring for leaks in hoses and cylinders, bent bases, broken or cracked nipples, and other damaged or defective parts.
- Check timber shoring before installation. Discard damaged or defective lumber. After installation, inspect wales for signs of crushing. Crushing indicates structural inadequacy and calls for more struts.
- Inspect trench boxes for structural damage, cracks in welds, and other defects. During use, check the box regularly and often to make sure that it is not shifting or settling much more on one side than the other. If it is, leave the trench and ask the supervisor to check for stability.
- Check ground surface for tension cracks which may develop parallel to the trench at a distance one-half to three-quarters of the trench depth. If cracks are detected, alert the crew and check all protective systems carefully.
- Check areas adjacent to shoring where water may have entered the trench. A combination of water flow and granular soils can lead to undermining of the trench wall. Such conditions have caused fatalities.
- Finally, make sure that tools, equipment, material, and spoil piles are kept at least 2 feet back from the edge of the trench to prevent falling objects from striking workers.

## Special Health and Safety Considerations

### Surface Crossing of Trenches

Surface crossing of trenches should be discouraged; however, if trenches must be crossed, such crossings are permitted only under the following conditions:

- Vehicle crossings must be designed by and installed under the supervision of a registered professional engineer.
- Walkways or bridges must be provided for foot traffic. These structures will:
  - Have a safety factor of 4.
  - Have a minimum clear width of 20 inches.
  - Be fitted with standard regulation guardrails.
  - Extend a minimum of 24 inches past the surface edge of the trench.

## **Access and Egress**

Employers must provide safe access and egress to all excavations. When employees are in trench excavations the Standard requires adequate means of entry and exit (ladders, steps, ramps, or other safe means of access and egress) within 25 feet of lateral travel. Structural ramps used for employee access or egress must be designed by a competent person. If the ramps are used by vehicles, they must be designed by a competent person qualified in structural design. Also, structural members used for ramps or runways must be uniform in thickness and joined in a manner to prevent tripping or displacement.

Whether protected by sloping, trench boxes, or shoring, trenches must be provided with ladders so that workers can enter and exit safely. Access to and exit from the trench require:

- Trenches 4 feet or more in depth should be provided with a fixed means of egress.
- Spacing between ladders or other means of egress must be such that a worker will not have to travel more than 25 feet laterally to the nearest means of egress.
- Ladders must be placed within the area protected by the shoring or trench box.
- Ladders must be secured and extend a minimum of 36 inches above the landing.
- Be inspected regularly for damage.
- Metal ladders should be used with caution, particularly when electric utilities are present.

Anyone climbing up or down must always face the ladder and maintain 3-point contact. This means that two hands and one foot or two feet and one hand must be on the ladder at all times.

Maintaining 3-point contact means hands must be free for climbing. Tools and materials should not be carried up or down ladders. Pumps, small compactors, and other equipment should be lifted and lowered by methods that prevent injury from overexertion and falling objects.

## **Exposure to Vehicles**

Procedures to protect employees from being injured or killed by vehicle traffic include:

- Providing employees with and requiring them to wear warning vests or other suitable garments marked with or made of reflectorized or high-visibility materials.
- Requiring a designated, trained flagperson along with signs, signals, and barricades when necessary.

## **Warning Systems for Mobile Equipment**

One of these precautions must be taken to prevent vehicles from falling into the trench:

- Barricades must be installed where necessary.
- Hand or mechanical signals must be used as required.
- Stop logs must be installed if there is a danger of vehicles falling into the trench.
- Soil should be graded away from the excavation; this will assist in vehicle control and channeling of run-off water.

## **Other Hazards and Safeguards**

The risk of cave-in is not the only hazard in trenching. Injuries and deaths are also related to other major areas:

- Personal protective equipment.
- Utilities – underground and overhead.
- Materials handling and housekeeping.
- Heavy equipment.
- Traffic control.

## **Personal Protective Equipment**

Personal protective equipment is an important defense against certain types of injury. Injuries from falling and flying objects, for instance, can be reduced by wearing hard hats and eye protection.

Everyone on a construction project with excavation operations should wear certified safety boots. Under the wet, muddy conditions often encountered in trenching, you may also require rubber safety boots.

It is mandatory for everyone on a construction project to wear regulation head protection in the form of a hard hat.

Eye protection is strongly recommended to prevent injuries from construction operations such as chipping and drilling and site conditions such as dust.

Personnel exposed for long periods to noisy equipment should wear hearing protection.

Work in confined spaces such as manholes and valve chambers may require respiratory protection against hazardous atmospheres.

## **Locating Underground Utilities**

Services such as gas, electrical, telephone, and water lines must be located by the utility before excavation begins. The contractor responsible for the work must contact the owners of any underground utilities that may be in that location or phone the appropriate underground utilities locating service. Request location identification for all the underground utilities in the area where excavation will be taking place.

The service locate provided by the utility owner should indicate, using labeled stakes, flags, and/or paint marks, the center line of the underground utility in the vicinity of the proposed excavation.

The excavator should not work outside of the area covered by the locate stakeout information without obtaining an additional stakeout.

Locate stakeout accuracy should be considered to be 3 feet on either side of the surface center line locate unless the locate instructions specifically indicate other boundary limits.

Where the underground utility cannot be located within the locate stakeout limits, the utility owner should be contacted to assist with the locate.

Mechanical excavation equipment should not be used within the boundary limits of the locate without first digging a hole or holes using the procedure below to determine the underground utility's exact center line and elevation.

Test holes should, in general, be excavated by one of the following methods:

- Machine excavation immediately outside the boundary limits and then hand digging laterally until the underground utility is found.
- Hand excavation perpendicular to the center line of the locate in cuts of at least 1 foot in depth.
  - Mechanical equipment can then be used carefully to widen the hand-dug trench to within one foot of the depth of the hand-dug excavation.
  - Repeat steps until the utility is located.

Center line locates should be provided and test holes dug where a representative of the utility identifies alignment changes or changes in elevation.

Where an underground utility may need support or where it may shift because of disturbance of surrounding soil due to excavation, guidelines for excavation and support should be obtained from the owner of the utility.

## Breaks

Breaks in electrical, gas, and water services can cause serious injuries, even deaths. Hitting an underground electrical line can result in electrocution, while hitting a gas line can cause an explosion. A broken water line can release a sudden rush of water, washing out support systems and causing a cave-in. Cutting telephone lines can create a serious problem if emergency calls for police, fire, or ambulance are required.

In the event of gas line contact, call the gas company immediately. The company will check the line and close down the supply if necessary. If a leak is suspected, people in the immediate area should be told to evacuate. Where service to a building or home has been struck, people inside should be advised to leave doors and windows open; shut off appliances, furnaces, and other sources of ignition; and vacate the premises until the gas company declares it safe to return.

Construction personnel should take two precautions.

1. Put out smoking materials and shut off other sources of ignition such as engines and equipment.
2. Leave the trench immediately. Gas can collect there.

## Overhead Powerlines

Equipment such as an excavator or backhoe must not be moved closer than one boom length to an overhead powerline of more than 750 volts unless a signaler is stationed to warn the operator when any part of the machine, boom, or load approaches the minimum distance specified in the regulations.

If equipment touches a high-voltage line, the operator should take the following precautions.

1. Stay on the machine. Do not touch equipment and ground at same time. Touching anything in contact with the ground could be fatal.
2. Keep others away. Warn them not to touch the load, load lines, boom, bucket, or any other part of the equipment.
3. Get someone to call the local utility to shut off power.
4. If possible, break contact by moving the machine clear of the wires.

**Warning:** Beware of time relays. Even after breakers are tripped by line damage, relays may be triggered to restore power.

5. Otherwise, do not move the machine until the Utility Company shuts down the line and confirms that power is off.
6. If an emergency such as fire forces you to leave the machine, jump clear. Never step down. If part of your body contacts the ground while another part touches the machine, current will travel through you.
7. Jump with feet together and shuffle away in small steps. Do not take big steps. With voltage differential across the ground, one foot may be in a higher voltage area than the other. The difference can kill you.

Special precautions are required for casualties in contact with live powerlines or equipment.

1. Never touch the casualty or anything in contact with the casualty.
2. If possible, break contact. Use a dry board, rubber hose, or dry polypropylene rope to move either the casualty or the line. An object can sometimes be thrown to separate the casualty from the wire.

**Warning:** Touching the casualty, even with dry wood or rubber, can be dangerous. With high voltage lines, objects that are normally insulators can become conductors.



3. Call emergency services – in most cases ambulance, fire department, and utility.
4. Provide first aid once the casualty is free of contact. If the casualty is not breathing, begin artificial respiration immediately (mouth-to-mouth is most efficient) or CPR. Apply cold water to burns and cover with clean dressing.

## **Materials Handling**

Many lost-time injuries in trenching involve materials handling. Moving rock and soil, lifting pipe and manhole sections, laying down bedding material, or lowering pumps and compactors into the trench can all be hazardous.

### **Pipe**

Trucks should always be on level ground when pipe is unloaded. Pipe should be chocked or staked before tiedowns are released. These measures will reduce the risk of sections rolling off the truck.

Plastic and small diameter pipe is often banded with metal straps. Take care cutting the straps. They are under tension and can fly back and hit you.

Personnel often injure fingers and hands when laying and joining sections of pipe. While sections are suspended from hoisting equipment, keep hands away from slings or chokers in tension. When guiding and pushing sections together by hand, never curl fingers around ends or flanges.

As pipe is placed along the trench, each section should be blocked or set so that it cannot roll and cause injury.

Back injuries can occur when small-diameter pipe is being homed into position. The worker pushing the bar should place his feet directly in front of the pipe with one foot ahead of the other. Large-diameter pipe should be placed with pipe pullers.

### **Bedding Material**

Personnel shoveling bedding material in the trench are usually working in a confined area where footing is muddy and uneven. The result can be overexertion or slips and falls leading to back and other injuries. Mechanical equipment can significantly reduce this hazard. For instance, bedding material can be put in the excavator bucket with a front-end loader, and then spread evenly along the trench bottom.

### **Rigging**

Rigging is essential to safe, efficient materials handling since pipe, manhole sections, and equipment are lowered into the trench by cranes or other hoisting devices. Rigging these loads properly can prevent injury. Inspect slings and rigging hardware regularly and replace any damaged or worn devices.

**Nylon web slings** – Damage is usually easy to spot: cuts, holes, tears, worn or distorted fittings, frayed material, broken stitching, or heat burns. Damaged web slings should be replaced.

**Wire rope slings** – Inspect for broken wires, worn or cracked fittings, loose seizings and splices, flattening, and corrosion. Knots or kinks indicate that wire rope slings are permanently damaged and should not be used.

Damage most often occurs around thimbles and fittings. Do not leave wire rope lying on the ground for any length of time in damp or wet conditions. Eyes in wire rope slings should be fitted with thimbles. To make an eye with clips, put the U-bolt section on the dead or short end of the rope and the saddle on the live or long end. Remember – never saddle a dead horse.

At least three clips are required for wire rope up to 5/8" diameter, and four are required for wire rope greater than 5/8" up to and including 7/8" diameter. Avoid binding the eye section of wire rope slings around corners. The bend will weaken the splice or swaging.



**Chain Slings** – Inspect for elongated links. A badly stretched link tends to close up. Look for bent, twisted, or damaged links that can result when chain has been used to lift a load with unprotected sharp edges.

Inspect for cracks. Although sometimes hard to detect, cracks always indicate that the chain should be removed from service. Also look for gouges, chips, cuts, dents, peen marks, and corrosive wear at points where links bear on each other.

### **Rigging Tips**

- Wherever possible, lower loads on adequate blockage to prevent damage to slings.
- Keep hands away from pinch points when slack is being taken up.
- Stand clear while the load is being lifted and lowered or when slings are being pulled out from under it.
- Use tag lines to control swinging, swaying, or other unwanted movement of the load.

### **Housekeeping**

Accident prevention depends on proper housekeeping at ground level and in the trench. At the top of the trench, sections of pipe, unused tools and timber, piles of spoil, and other material must be kept at least 3 feet away from the edge.

The slips and falls common on excavation projects can be reduced by cleaning up scrap and debris. Trenches should also be kept as dry as possible. Pumps may be required.

Proper housekeeping is especially important around ladders. The base and foot of the ladder should be free of debris, rubble, and puddles. Ladders should be tied off at the top, placed in protected areas, and inspected regularly for damage.

### **Heavy Equipment**

Excavators, backhoes, and other heavy equipment can cause injuries and fatalities to operators and personnel on foot.

### **Operators**

Improperly climbing on and off equipment has caused injuries to operators for many years. The best prevention is to maintain 3-point contact. All equipment should be fitted with steps, grabs, and rails that are repaired or replaced when damaged.

Operators have also suffered serious injuries when equipment upsets because of soil failure near excavations, improper loading on floats, or inadvertently backing into excavations.

### **Moving Equipment**

Flaggers or signalers are required when:

- The operator's view of the intended path of travel is obstructed.
- A person could be endangered by the moving equipment or its load.

Back-up alarms are required on dump trucks and recommended for all moving equipment. Where vehicles have to operate in reverse, warning signs must be conspicuously posted.

### **Ground Rules for Truck Drivers**

- Understand and obey the flagger or signaler at all times.
- Remain in the cab where possible.
- Ensure that mirrors are clean, functional, and properly adjusted.
- Do a circle check after being away from the truck for any length of time (walk around the truck to ensure the area is clear before moving).
- Stop immediately when a flagger, signaler, worker, or anyone else disappears from view.

## **Workers on Foot**

Personnel on foot are frequently stuck by machine attachments such as excavator buckets and bulldozer blades when they stand or work too close to operating equipment, especially during unloading and excavation. Workers on foot are also injured and killed by equipment backing up.

### **Ground Rules for Workers on Foot**

- Beware of common operator blind spots
- Stay alert to the location of equipment around you.
- Avoid entering or standing in blind spots.
- Always remain visible to the operator.
- Make eye contact to ensure that you are seen.
- Never stand behind a backing vehicle.
- Remember – The operator may be able to see you while you are standing but not when you kneel down or bend over.

## **Flaggers and Signallers**

In heavily traveled or congested work areas, a flagger or signaler may be necessary to direct equipment and prevent injuries and deaths caused by vehicles backing up.

### **Ground Rules for Flaggers and Signalers**

- Wear a fluorescent or bright orange safety vest.
- Use standard hand signals.
- Stand where you can see and be seen.
- Stay in full view of the operator and the intended path of travel.
- Know where the operator's blind spots are.
- Warn other workers to stay clear of equipment.

## **Traffic Control**

On trenching projects along public roadways, the construction crew must be protected from traffic. Regulations specify the following methods for protecting personnel:

- Traffic Control Persons using signs
- Warning signs
- Barriers
- Lane control devices
- Flashing lights or flares.

Supervisors must train Traffic Control Persons on site and explain the nature of the project, where construction equipment will be operating, and how public traffic will flow. Traffic Control Persons must wear a fluorescent or bright orange safety vest.

Training must also include the proper use of the STOP/SLOW sign, where to stand, how to signal, and communication with other Traffic Control Persons.

After presenting this information, supervisors must give Traffic Control Persons written instructions in a language they can understand.

## **Hydrostatic Testing**

Hydrostatic testing involves entry into a confined space such as a manhole or valve chamber. The procedures listed for confined spaces should be followed.

Testing new lines can be very hazardous if components break or plugs let go. For that reason, additional precautions are required.

When testing water mains, ensure that all lines, elbows, tees and valves are supported and equipped with thrust blocks. Otherwise the line could come apart under test pressure. Arrange water main testing so that lines are pressurized when no one is in the manhole or valve chamber.

For sewer line testing, all requirements for entering confined spaces apply.

Ensure that plugs are secure. No one should be in a manhole when the upstream line is being filled. Plugs that are not properly installed can let go, causing injury and letting a manhole fill quickly, depending on the size of the line.

Flooding is another reason why no one should be in a manhole without a rescue harness and a worker outside ready and prepared for an emergency.

### **General Emergency Procedures**

Emergency telephone numbers – ambulance, fire, police, local utilities, senior management, and MIOSHA – should be posted in the field office for quick reference.

If someone is seriously injured, take the following steps:

1. Protect the area from hazards.
2. Prevent further injury to the casualty.
3. Administer first aid.
4. Call an ambulance or rescue unit.
5. Have someone direct the ambulance or rescue unit to the accident scene.
6. All projects must have a person qualified and certified to provide first aid.

### **Emergency Rescue Equipment**

Emergency rescue equipment is required when a hazardous atmosphere exists or can reasonably be expected to exist.

Requirements are as follows:

- Respirators must be of the type suitable for the exposure. Employees must be trained in their use and a respirator program must be instituted.
- Attended (at all times) lifelines must be provided when employees enter bell-bottom pier holes, deep confined spaces, or other similar hazards.
- Employees who enter confined spaces must be trained.

### **Cave-ins**

It is natural to try to rescue casualties caught or buried by a cave-in. However, care must be taken to prevent injury and death to rescuers, whether from a further cave-in or other hazards.

The following procedures may be suitable, depending on conditions.

1. To get down to the casualty, use a tarpaulin, fencing, plywood, or similar material that can cover the ground and will ride up over any further cave-in.
2. Sometimes a further cave-in can be prevented by placing a backhoe bucket against the suspected area or excavating it.
3. Rescue workers should enter the trench with ropes and wear rescue harnesses if possible.
4. To prevent further injury, remove the casualty by stretcher whenever possible. Tarps or ladders can be used as a makeshift stretcher.
5. Stabilize the casualty.

**Breathing** – Ensure that the casualty is breathing. If not, open the airway and start artificial respiration immediately. Mouth-to-mouth is the most efficient method.

**Bleeding** – Control external bleeding by applying direct pressure, placing the casualty in a comfortable position, and elevating the injured part if possible.

**Unconsciousness** – This is a priority because it may lead to breathing problems. An unconscious person may suffocate when left lying face up. If injuries permit, unconscious persons left unattended should be placed in the recovery position.

### **Excavation Inspection Protocols**

Inspections will be made by a competent person and should be documented. The following guidelines specify the frequency and conditions requiring inspections:

- Daily and before the start of each shift.
- As dictated by the work being done in the trench.
- After every rain storm.
- After other events that could increase hazards, e.g., snowstorm, windstorm, thaw, earthquake, etc.
- When fissures, tension cracks, sloughing, undercutting, water seepage, bulging at the bottom, or other similar conditions occur.
- When there is a change in the size, location, or placement of the spoil pile.
- When there is any indication of change or movement in adjacent structures.

### **Daily Site Assessment – General Inquiries for Excavation Operations**

- Is a "Competent Person In Charge" of the operation?
- Does a competent person "Determine Soil Type"?
- Is the cut, cavity, or depression a "Trench" or an "Excavation"?
- Is the cut, cavity, or depression more than 4 feet in *DEPTH*?
- Is there "Water" in the cut, cavity, or depression?
- Are there adequate means of "Access" and "Egress"?
- Are there any "Surface Encumbrances"?
- Is there exposure to "Vehicular Traffic"?
- Are "Adjacent Structures" stabilized?
- Does "Mobile Equipment" have a "Warning System"?
- Is "Equipment Operating" in or around the cut, cavity, or depression?
- Are procedures required to monitor, test, and "Control Hazardous Atmospheres"?
- Was a *SOIL TESTING DEVICE* used to determine soil type?
- Is the "Spoil" placed "2 Feet or More from the Edge" of the cut, cavity, or depression?
- Is the "Depth 20 Feet or More" for the cut, cavity, or depression?
- Has a "Registered Professional Engineer" approved the procedure if the depth is more than 20 feet?
- Does the procedure require "Benching, Multiple Benching, Shoring, or Shielding"?
- If provided, do "Shields Extend at Least 18 Inches Above" the surrounding area if it is sloped toward the excavation?
- If shields are used, is the "Depth of the Cut More Than 2 Feet Below" the bottom of the "Shield"?
- Are any "Required Surface Crossings" of the cut, cavity, or depression the "Proper Width" and "*Fitted with Hand Rails*"?
- Are means of "Egress" from the cut, cavity, or depression "No More Than 25 Feet from the Work"?
- Is "Emergency Rescue Equipment" required?
- Is there "Documentation" of the "Minimum Daily Excavation Inspection"?

## **An Overview of Soil Mechanics**

The following information is intended to provide options when classifying soil, selecting employee protection methods, and recognition of trenching and shoring hazards and their prevention.

A number of stresses and deformations can occur in an open cut or trench. For example, increases or decreases in moisture content can adversely affect the stability of a trench or excavation. The following diagrams show some of the more frequently identified causes of trench failure.

### **Tension Cracks**

Tension cracks usually form at a horizontal distance of 0.5 to 0.75 times the depth of the trench, measured from the top of the vertical face of the trench. See the drawing for additional details.

### **Sliding**

Sliding or sluffing may occur as a result of tension cracks.

### **Toppling**

In addition to sliding, tension cracks can cause toppling. Toppling occurs when the trench's vertical face shears along the tension crack line and topples into the excavation.

### **Subsidence and Bulging**

An unsupported excavation can create an unbalanced stress in the soil, which, in turn, causes subsidence at the surface and bulging of the vertical face of the trench. If uncorrected, this condition can cause face failure and entrapment of workers in the trench.

### **Heaving or Squeezing**

Bottom heaving or squeezing is caused by the downward pressure created by the weight of adjoining soil. This pressure causes a bulge in the bottom of the cut, as illustrated in the drawing. Heaving and squeezing can occur even when shoring or shielding has been properly installed.

### **Boiling**

Boiling is evidenced by an upward water flow into the bottom of the cut. A high water table is one of the causes of boiling. Boiling produces a "quick" condition in the bottom of the cut, and can occur even when shoring or trench boxes are used.

Unit Weight of Soils refers to the weight of one unit of a particular soil. The weight of soil varies with type and moisture content. One cubic foot of soil can weigh from 110 pounds to 140 pounds or more, and one cubic meter (35.3 cubic feet) of soil can weigh more than 3000 pounds.

## **Determination of Soil Type**

MIOSHA categorizes soil and rock deposits into four types.

### **Stable Rock**

Stable rock is natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed. It is usually identified by a rock name such as granite or sandstone. Determining whether a deposit is of this type may be difficult unless it is known whether cracks exist and whether or not the cracks run into or away from the excavation.

### **Type A Soils**

Type A soils are cohesive soils with an unconfined compressive strength of 1.5 tons per square foot (tsf) or greater. Examples of Type A cohesive soils are often: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. No soil is Type A if it is fissured, is subject to vibration of any type, has previously been disturbed, is part of a sloped, layered system where the layers dip into the excavation on a slope of 4 horizontal to 1 vertical (4H:1V) or greater, or has seeping water.

### **Type B Soils**

Type B soils are cohesive soils with an unconfined compressive strength greater than 0.5 tsf but less than 1.5 tsf. Examples of other Type B soils are: angular gravel; silt; silt loam; previously disturbed soils unless otherwise classified as Type C; soils that meet the unconfined compressive strength or cementation requirements of Type A soils but are fissured or subject to vibration; dry unstable rock; layered systems sloping into the trench at a slope less than 4H:1V (only if the material would be classified as a Type B soil).

### **Type C Soils**

Type C soils are cohesive soils with an unconfined compressive strength of 0.5 tsf or less. Other Type C soils include granular soils such as gravel, sand and loamy sand, submerged soil, soil from which water is freely seeping, and submerged rock that is not stable. Also included in this classification is material in a sloped, layered system where the layers dip into the excavation or have a slope of four horizontal to one vertical (4H:1V) or greater.

### **Layered Geological Strata**

Where soils are configured in layers, i.e., where a layered geologic structure exists, the soil must be classified on the basis of the soil classification of the weakest soil layer. Each layer may be classified individually if a more stable layer lies below a less stable layer, i.e., where a Type C soil rests on top of stable rock.

## **Test Equipment and Methods for Evaluating Soil Type**

Many kinds of equipment and methods are used to determine the type of soil prevailing in an area. These are described below.

### **Pocket Penetrometer**

Penetrometers are direct-reading, spring-operated instruments used to determine the unconfined compressive strength of saturated cohesive soils. Once pushed into the soil, an indicator sleeve displays the reading. The instrument is calibrated in either tons per square foot (tsf) or kilograms per square centimeter (kPa). However, penetrometers have error rates in the range of + 20-40%.

## **Shearvane (Torvane)**

To determine the unconfined compressive strength of the soil with a shearvane, the blades of the vane are pressed into a level section of undisturbed soil, and the torsional knob is slowly turned until soil failure occurs. The direct instrument reading must be multiplied by 2 to provide results in tons per square foot (tsf) or kilograms per square centimeter (kPa).

## **Thumb Penetration Test**

The thumb penetration procedure involves an attempt to press the thumb firmly into the soil in question. If the thumb makes an indentation in the soil only with great difficulty, the soil is probably Type A. If the thumb penetrates no further than the length of the thumb nail, it is probably Type B soil, and if the thumb penetrates the full length of the thumb, it is Type C soil. The thumb test is subjective and is therefore the least accurate of the three methods.

## **Dry Strength Test**

Dry soil that crumbles freely or with moderate pressure into individual grains is granular. Dry soil that falls into clumps that subsequently break into smaller clumps (and the smaller clumps can be broken only with difficulty) is probably clay in combination with gravel, sand, or silt. If the soil breaks into clumps that do not break into smaller clumps (and the soil can be broken only with difficulty), the soil is considered unfissured unless there is visual indication of fissuring.

## **Plasticity or Wet Thread Test**

This test is conducted by molding a moist sample of the soil into a ball and attempting to roll it into a thin thread approximately 1/8 inch (3 mm) in diameter (thick) by two inches (50 mm) in length. The soil sample is held by one end. If the sample does not break or tear, the soil is considered cohesive.

## **Visual Test**

A visual test is a qualitative evaluation of conditions around the site. In a visual test, the entire excavation site is observed, including the soil adjacent to the site and the soil being excavated. If the soil remains in clumps, it is cohesive; if it appears to be coarse-grained sand or gravel, it is considered granular. The evaluator also checks for any signs of vibration. During a visual test, the evaluator should check for crack-line openings along the failure zone that would indicate tension cracks, look for existing utilities that indicate that the soil has previously been disturbed, and observe the open side of the excavation for indications of layered geologic structuring.

The evaluator should also look for signs of bulging, boiling, or sluffing, as well as for signs of surface water seeping from the sides of the excavation or from the water table. If there is standing water in the cut, the evaluator should check for "quick" conditions.

In addition, the area adjacent to the excavation should be checked for signs of foundations or other intrusions into the failure zone, and the evaluator should check for surcharging and the spoil distance from the edge of the excavation.



## Shoring Types

Shoring is the provision of a support system for trench faces used to prevent movement of soil, underground utilities, roadways, and foundations. Shoring or shielding is used when the location or depth of the cut makes sloping back to the maximum allowable slope impractical. There are two basic types of shoring, timber and aluminum hydraulic.

Shoring systems consist of posts, wales, struts, and sheeting. The trend today is toward the use of hydraulic shoring, a prefabricated strut and/or wale system manufactured of aluminum or steel. Hydraulic shoring provides a critical safety advantage over timber shoring because workers do not have to enter the trench to install or remove hydraulic shoring. Other advantages of most hydraulic systems are that they:

- Are light enough to be installed by one worker.
- Are gauge-regulated to ensure even distribution of pressure along the trench line.
- Can have their trench faces "preloaded," to use the soil's natural cohesion to prevent movement.
- Can be adapted easily to various trench depths and widths.

All shoring should be installed from the top down and removed from the bottom up. Hydraulic shoring should be checked at least once per shift for leaking hoses and/or cylinders, broken connections, cracked nipples, bent bases, and any other damaged or defective parts.

## Pneumatic Shoring

Pneumatic shoring works in a manner similar to hydraulic shoring. The primary difference is that pneumatic shoring uses air pressure in place of hydraulic pressure. A disadvantage to the use of pneumatic shoring is that an air compressor must be on site.

## Screw Jacks

Screw jack systems differ from hydraulic and pneumatic systems in that the struts of a screw jack system must be adjusted manually. This creates a hazard because the worker is required to be in the trench in order to adjust the strut. In addition, uniform "preloading" cannot be achieved with screw jacks, and their weight creates handling difficulties.

## Single-Cylinder Hydraulic Shores

Shores of this type are generally used in a waler system, as an assist to timber shoring systems, and in willow trenches where face stability is required.

## Underpinning

This process involves stabilizing adjacent structures, foundations, and other intrusions that may have an impact on the excavation. As the term indicates, underpinning is a procedure in which the foundation is physically reinforced. Underpinning should be conducted only under the direction and with the approval of a registered professional engineer.

## Shielding Types

Trench boxes are different from shoring because, instead of shoring up or otherwise supporting the trench face, they are intended primarily to protect workers from cave-ins and similar incidents.

The excavated area between the outside of the trench box and the face of the trench should be as small as possible. The space between the trench boxes and the excavation side are backfilled to prevent lateral movement of the box. Shields may not be subjected to loads exceeding those which the system was designed to withstand.

Trench boxes are generally used in open areas, but they also may be used in combination with sloping and benching. The box should extend at least 18 inches above

the surrounding area if there is sloping toward excavation. This can be accomplished by providing a benched area adjacent to the box.

Earth excavation to a depth of 2 feet below the shield is permitted, but only if the shield is designed to resist the forces calculated for the full depth of the trench and there are no indications while the trench is open of possible loss of soil from behind or below the bottom of the support system.

Conditions of this type require observation on the effects of bulging, heaving, and boiling as well as surcharging, vibration, adjacent structures, etc., on excavating below the bottom of a shield.

Careful visual inspection of the conditions mentioned above is the primary and most prudent approach to hazard identification and control.

## **Sloping and Benching**

### **Sloping**

Maximum allowable slopes for excavations less than 20 feet based on soil type and angle to the horizontal are on the following table:

### **Benching**

There are two basic types of benching, simple and multiple. The type of soil determines the horizontal to vertical ratio of the benched side.

As a general rule, the bottom vertical height of the trench must not exceed 4 feet for the first bench. Subsequent benches may be up to a maximum of 5 feet vertical in Type A soil and 4 feet in Type B soil to a total trench depth of 20 feet. All subsequent benches must be below the maximum allowable slope for that soil type. For Type B soil the trench excavation is permitted in cohesive soil only.

<b>Soil Type</b>	<b>Height to Depth Ratio</b>	<b>Slope Angle</b>
Stable Rock	Vertical	90°
Type A	¾:1	53°
Type B	1:1	45°
Type C	1½:1	34°
Type A (short-term)	½:1	63°
(For a maximum excavation depth of 12 feet)		

## **Spoil**

### **Temporary Spoil**

Temporary spoil must be placed no closer than 2 feet from the surface edge of the excavation, measured from the nearest base of the spoil to the cut. This distance should not be measured from the crown of the spoil deposit. This distance requirement ensures that loose rock or soil from the temporary spoil will not fall on employees in the trench.

Spoil should be placed so that it channels rainwater and other run-off water away from the excavation. Spoil should be placed so that it cannot accidentally run, slide, or fall back into the excavation.

### **Permanent Spoil**

Permanent spoil should be placed some distance from the excavation. Permanent spoil is often created where underpasses are built or utilities are buried.

The improper placement of permanent spoil, i.e., insufficient distance from the working excavation, can cause an excavation to be out of compliance with the horizontal to vertical ratio requirement for a particular excavation. This can usually be determined through visual observation. Permanent spoil can change undisturbed soil to disturbed soil and dramatically alter slope requirements.

## DAILY INSPECTION OF TRENCHES & EXCAVATIONS

Site Location:

Project:

Date:

Weather:

Soil Type:

Trench Depth:

Length:

Width:

Type of Protective System:

Project Supervisor:

Assigned **Competent Person**:

Crew Members:

Excavation equipment type(s):

Equipment Operator(s):

### Yes No N/A **Excavation**

- |  |   |
|--|---|
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Excavations and Protective Systems inspected by <b>Competent Person</b> daily, before start of work.        |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <b>Competent Person</b> has authority to remove workers from excavation immediately.                        |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Surface encumbrances supported or removed.  |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Employees protected from loose rock or soil.  |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Hard hats worn by all employees.  |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Spoils, materials, and equipment set back a minimum of 2' from edge of excavation.                          |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Barriers provided at all remote excavations, wells, pits, shafts, etc.                                      |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Ingress/egress within excavation provided at 25' intervals.   |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Walkways and bridges over excavations 6' or more in depth equipped with guardrails.                         |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Warning vests, or other highly visible PPE provided and worn by all employees exposed to vehicular traffic. |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Employees prohibited from working or walking under suspended loads.   |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Employees prohibited from working on faces of sloped or benched excavations above other employees.          |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Warning system established and used when mobile equipment is operating near edge of excavation.             |

### Yes No N/A **Utilities**

- |  |   |
|--|---|
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Utility companies contacted and/or utilities located.                               |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Exact location of utilities marked when near excavation.                            |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Underground installations protected, supported, or removed when excavation is open. |

### Yes No N/A **Wet Conditions**

- |  |  |
|--|--|
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Precautions taken to protect employees from accumulation of water. |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Water removal equipment monitored by <b>Competent Person</b> .     |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Surface water controlled or diverted.                              |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Inspection made after each rainstorm.                              |

### Yes No N/A **Hazardous Atmosphere**

- |  |  |
|--|--|
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Atmosphere tested when there is a possibility of oxygen deficiency or build-up of hazardous gases. |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Oxygen content is between 19.5% and 21%.   |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Ventilation provided to prevent flammable gas build-up to 20% of lower explosive limit of the gas. |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Testing conducted to ensure that atmosphere remains safe.  |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Emergency Response Equipment readily available where a hazardous atmosphere could or does exist.   |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Employees trained in the use of Personal Protective and Emergency Response Equipment.              |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Safety harness and life line individually attended when employees enter deep confined excavation.  |

Comments:

Signature of **Competent Person**:

Date:

## **Heavy Equipment Operations (MIOSHA-Part 13 Adopted by Reference 29 CFR §1926.600-606 & §1926.1000-1003)**

### **General Requirements**

- All vehicles must have a service brake system, an emergency brake system, and a parking brake system. These systems may use common components, and must be maintained in operable condition.
- Whenever visibility conditions warrant additional light, all vehicles in use must be equipped with at least two headlights and two taillights in operable condition.
- All vehicles, or combination of vehicles, must have brake lights in operable condition regardless of light conditions.
- All vehicles must be equipped with an adequate audible warning device at the operator's station (horn) in an operable condition.
- No employer may use any motor vehicle equipment having an obstructed view to the rear unless:
  - The vehicle has a reverse signal audible above surrounding noise level.
  - The vehicle backs up only when an observer signals it is safe to do so.
  - All vehicles with cabs must be equipped with windshields and powered wipers. Cracked and broken glass must be replaced. Vehicles operating in areas or under conditions that cause fogging or frosting of the windshields must be equipped with operable defrosting devices.
- All haulage vehicles, whose payload is loaded by means of cranes, power shovels, loaders, or similar equipment, must have a cab shield and/or canopy adequate to protect the operator from shifting or falling materials.
- Tools and material will be secured to prevent movement when transported in the same compartment with employees.
- Vehicles used to transport employees must have seats firmly secured and adequate for the number of employees to be carried.
- Seat belts and anchorages meeting the requirements of 49 CFR Part 571 (Department of Transportation, Federal Motor Vehicle Safety Standards) must be installed in all motor vehicles, and used by the operator.
- Trucks with dump bodies must be equipped with positive means of support, permanently attached, and capable of being locked in position to prevent accidental lowering of the body while maintenance or inspection work is being done.
- Operating levers controlling hoisting or dumping devices on haulage bodies must be equipped with a latch or other device which will prevent accidental starting or tripping of the mechanism.
- Trip handles for tailgates of dump trucks will be so arranged that, in dumping, the operator will be in the clear.
- All rubber-tired motor vehicle equipment manufactured on or after May 1, 1972, must be equipped with fenders.
  - Mud flaps may be used in lieu of fenders whenever motor vehicle equipment is not designed for fenders (such as dump trucks where the dump bed forms an effective fender).
- All vehicles in use must be checked at the beginning of each shift to assure that the following parts, equipment, and accessories are in safe operating condition and free of apparent damage that could cause failure while in use:

▪ Service Brakes (including any trailer brake connections)	▪ Horn
▪ Parking System (hand brake)	▪ Steering Mechanism
▪ Emergency Stopping System (brakes)	▪ Coupling Devices
▪ Tires	▪ Seat Belts
	▪ Operating Controls
	▪ Safety Devices

- All defects will be corrected before the vehicle is placed in service. These requirements also apply to equipment such as lights, reflectors, windshield wipers, defrosters, fire extinguishers, etc., where such equipment is necessary.

## **General Safety Requirements for Earthmoving Equipment**

These OSHA rules apply to the following types of earthmoving equipment: scrapers, loaders, crawler (track) or wheel tractors, bulldozers, off-highway trucks, graders, agricultural and industrial tractors, and similar equipment. Following are OSHA's general requirements for earth moving equipment:

### **Seat Belts**

Seat belts must be provided on all equipment listed above, and must meet the requirements of the Society of Automotive Engineers (SAE).

Tractors listed above must have seat belts as required for the operators when seated in the normal seating arrangement for tractor operation, even though back-hoes, breakers, or other similar attachments are used on these machines for excavating or other work.

### **Access Roadways and Grades**

No employer may move or cause to be moved construction equipment or vehicles upon any access roadway or grade unless the access roadway or grade is constructed and maintained to accommodate safely the movement of the equipment and vehicles involved.

Every emergency access ramp and berm used by an employer will be constructed to restrain and control runaway vehicles.

### **Brakes**

All earthmoving equipment must have a service braking system capable of stopping and holding the equipment fully loaded.

### **Fenders**

Pneumatic-tired earth-moving haulage equipment (trucks, scrapers, tractors, and trailing units) whose maximum speed exceeds 15 miles per hour must be equipped with fenders on all wheels.

### **Rollover Protective Structures (ROPS)**

Rollover protective structures must meet the requirements of 29 CFR §1926.1001 Minimum performance criteria for rollover protective structures for designated scrapers, loaders, dozers, graders, and crawler tractors.

### **Audible Alarms**

All bidirectional machines, such as rollers, compacters, front-end loaders, bulldozers, and similar equipment, must be equipped with a horn, distinguishable from the surrounding noise level, which can be operated as needed when the machine is moving in either direction. The horn must be maintained in an operating condition.

No employer will permit earthmoving or compacting equipment which has an obstructed view to the rear to be used in reverse gear unless the equipment has in operation a reverse signal alarm distinguishable from the surrounding noise level or a ground guide signals that it is safe to do so.

### **Scissor Points**

Scissor points on all front-end loaders or articulating equipment, which constitute a hazard to the operator during normal operation, must be guarded.

### **Lift trucks, Stackers, etc.**

Equipment of this type must have the rated capacity clearly posted on the vehicle so as to be clearly visible to the operator. When auxiliary removable counterweights are provided by the manufacturer, corresponding alternate rated capacities also must be clearly shown on the vehicle. These ratings will not be exceeded.

### **Modifications or Additions**

No modifications or additions which affect the capacity or safe operation of the equipment may be made without the manufacturer's written approval. If such modifications or changes are made, the capacity, operation, and maintenance instruction plates, tags, or decals will be changed accordingly. In no case will the original safety factor of the equipment be reduced.

### **Steering or Spinner Knobs**

Steering or spinner knobs must not be attached to the steering wheel unless the steering mechanism is of a type that prevents road reactions from causing the steering wheel to spin. The steering knob must be mounted within the periphery of the wheel.

## **Operator Training**

### **Safe Operation**

The employer must ensure that each heavy equipment operator is competent to operate the equipment safely, as demonstrated by the successful completion of the training and evaluation specified in this section.

Prior to permitting an employee to operate heavy equipment (except for training purposes), the employer must ensure that each operator has successfully completed the training required by this section.

### **Training Program Implementation**

Trainees may operate heavy equipment only:

- Under the direct supervision of persons who have the knowledge, training, and experience to train operators and evaluate their competence.
- Where such operation does not endanger the trainee or other employees.

Training will consist of a combination of formal instruction (e.g., lecture, discussion, interactive computer learning, video tape, written material), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee), and evaluation of the operator's performance on the job-site.

All operator training and evaluation will be conducted by persons who have the knowledge, training, and experience to train heavy equipment operators and evaluate their competence.

### **Training Program Content**

Heavy equipment operators must receive initial training in the following topics, except in topics which the employer can demonstrate are not applicable to safe operation of the equipment in the employer's workplace.

### **Equipment-Related Topics**

- Operating instructions, warnings, and precautions for the types of equipment the operator will be authorized to operate.
- Differences between the equipment and an automobile.
- Equipment controls and instrumentation: where they are located, what they do, and how they work.
- Engine or motor operation.
- Steering and maneuvering.
- Visibility (including restrictions due to loading).



- Implement and attachment adaptation, operation, and use limitations.
- Equipment capacity.
- Vehicle stability.
- Any equipment inspection and maintenance that the operator will be required to perform.
- Refueling and/or charging and recharging of batteries.
- Operating limitations.
- Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of equipment that the employee is being trained to operate.

### **Workplace-Related Topics**

- Surface conditions where the equipment will be operated.
- Composition of loads to be carried and load stability.
- Load maneuvering, loading, and unloading. (Includes trucks, hoppers, etc.)
- Pedestrian traffic in areas where the equipment will be operated.
- Confined areas and other restricted places where equipment will be operated.
- Hazardous (classified) locations where the equipment will be operated.
- Ramps and other sloped surfaces that could affect the vehicle's stability.
- Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause buildup of carbon monoxide or diesel exhaust.
- Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

### **Refresher Training and Evaluation**

Refresher training, including an evaluation of the effectiveness of that training, must be conducted as required below to ensure that the operator has the knowledge and skills needed to operate the powered industrial truck safely. Refresher training in relevant topics will be provided to the operator when:

- The operator has been observed to operate the equipment in an unsafe manner.
- The operator has been involved in an accident or near-miss incident.
- The operator has received an evaluation that reveals that the operator is not operating the equipment safely.
- The operator is assigned to operate a different type of equipment.
- A condition on the job-site changes in a manner that could affect safe operation of the equipment.

An evaluation of each powered industrial truck operator's performance will be conducted at least once every three years.

### **Avoidance of Duplicative Training**

If an operator has previously received training in a topic specified in this section, and such training is appropriate to the equipment and working conditions encountered, additional training in that topic is not required if the operator has been evaluated and found competent to operate the equipment safely.

### **Certification**

The employer will certify that each operator has been trained and evaluated as required by this section. The certification will include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation.



## Equipment Operations

OSHA has listed safety rules for the operation of equipment. These rules are general in nature and are not intended as a comprehensive guide to the safe operations of specific pieces of heavy equipment:

- Equipment will not be driven up to anyone standing in front of an excavation or a fixed object.
- No person will be allowed to stand or pass under the elevated portion of any equipment, whether loaded or empty.
- Unauthorized personnel will not be permitted to ride on heavy equipment. A safe place to ride will be provided where riding of equipment is authorized.
- The employer will prohibit arms or legs from being placed between the moving parts of the equipment, or outside the running lines of the vehicle.
- When heavy equipment is left unattended, implements will be fully lowered, controls will be neutralized, power will be shut off, and brakes set. Wheels will be blocked if the vehicle is parked on an incline.
- Heavy equipment is considered unattended when the operator is 25 ft. or more away from the vehicle which remains in his view, or whenever the operator leaves the vehicle and it is not in his view.
- When the equipment operator is dismounted and within 25 ft. of the machine still in his view, the implements will be fully lowered, controls neutralized, and the brakes set to prevent movement.
- A safe distance will be maintained from the edge of ramps or platforms while on any elevated surface, and from the edge of any excavation.
- Brakes will be set and wheel blocks will be in place to prevent movement of trucks, trailers, or railroad cars while loading or unloading. Fixed jacks may be necessary to support a semi-trailer during loading or unloading when the trailer is not coupled to a tractor. The flooring of trucks, trailers, and railroad cars will be checked for breaks and weakness before they are driven onto.
- There must be sufficient headroom under overhead installations, lights, pipes, sprinkler system, etc. for the safe passage of equipment.
- An overhead guard will be used as protection against falling objects. It should be noted that an overhead guard is intended to offer protection from the impact of small objects, representative of the job application, but not to withstand the impact of a falling capacity load.
- A load backrest extension will be used whenever necessary to minimize the possibility of the load or part of it from falling rearward.
- Only approved heavy equipment will be used in hazardous locations.

### Traveling (Roving) Heavy Equipment

- All traffic regulations must be observed, including authorized site speed limits. A safe distance must be maintained approximately three vehicle lengths from the vehicle ahead, and the equipment must be kept under control at all times.
- The right of way will be yielded to ambulances, fire trucks, or other vehicles in emergency situations.
- Other vehicles traveling in the same direction at intersections, blind spots, or other dangerous locations may not be passed.
- The operator will be required to slow down and sound the horn at cross intersections of roadways, paths, and other locations where vision is obstructed. If the load being carried obstructs forward view, the operator will be required to travel with the load trailing (to the rear).
- Railroad tracks must be crossed diagonally wherever possible. Parking closer than 8 feet from the center of railroad tracks is prohibited.
- The operator is required to look in the direction of, and keep a clear view of the path of travel.

- Grades must be ascended or descended slowly.
- When ascending or descending grades in excess of 10 percent, loaded equipment will be driven with the load upgrade.
- On all grades the load and load carrying implement must be tilted back if applicable, and raised only as far as necessary to clear the road surface.
- Under all travel conditions the equipment must be operated at a speed that will permit it to be brought to a stop in a safe manner.
- Stunt driving and horseplay will not be permitted.
- The operator will be required to slow down for wet and slippery surfaces.
- Ramps or bridge plates, will be properly secured before they are driven over. Ramps or bridge plates will be driven over carefully and slowly and their rated capacity never exceeded.
- Running over loose objects on the roadway surface will be avoided.
- While negotiating turns, speed will be reduced to a safe level by means of turning the hand steering wheel in a smooth, sweeping motion. Except when maneuvering at a very low speed, the hand steering wheel will be turned at a moderate, even rate.

### **Loading**

- Only stable or safely arranged loads will be handled. Caution will be exercised when handling off-center loads which cannot be centered. The bucket should be struck to avoid scattering loads before traveling with equipment.
- Only loads within the rated capacity of the equipment will be handled.
- Long or high (including multiple-tiered) loads which may affect capacity will be adjusted.
- A load must be securely within the bucket or hopper as far as possible; the bucket must be carefully tilted backward to stabilize the load.
- Extreme care must be used when tilting the load forward or backward when the load is elevated. Tilting forward with the bucket elevated will be prohibited except to pick up a load. An elevated load will not be tilted forward except when the load is in a deposit position over a hopper or stack.
- All personnel not within a guarded enclosure must stay clear of loading operations. Drivers of trucks being loaded must remain in the cab, if it is equipped with overhead protection, or remain well clear of the operation.

### **Servicing and Maintenance of Heavy Equipment**

If at any time heavy equipment is found to be in need of repair, defective, or in any way unsafe, the machine will be taken out of service until it has been restored to safe operating condition.

- Fuel tanks must not be filled while the engine is running.
- Spillage of oil or fuel must be carefully washed away or completely evaporated and the fuel tank cap replaced before restarting engine.
- No equipment will be operated with a leak in the fuel system until the leak has been repaired.
- Open flames must not be used for checking electrolyte level in storage batteries or gasoline level in fuel tanks.
- All repairs will be made by authorized personnel.
- No repairs will be made in Class I, II, and III locations.

<b>Class 1 locations</b>	<b>Class 2 locations</b>	<b>Class 3 locations</b>
Locations in which flammable gases or vapors are, or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures.	Locations which are hazardous because of the presence of combustible dust.	Locations where easily ignitable fibers are present but not likely to be in suspension in quantities sufficient to produce ignitable mixtures.

- Those repairs to the fuel and ignition systems of equipment which involve fire hazards will be conducted only in locations designated for such repairs.
- Equipment in need of repairs to the electrical system will have the battery disconnected prior to such repairs.
- All parts of any heavy equipment requiring replacement will be replaced only by parts equivalent as to safety with those used in the original design.
- Equipment will not be altered so that the relative positions of the various parts are different from what they were when originally received from the manufacturer, nor will they be altered either by the addition of extra parts not provided by the manufacturer or by the elimination of any parts, except for fuel system conversions.
- Equipment will be examined before being placed in service, and will not be placed in service if the examination shows any condition adversely affecting the safety of the vehicle. Inspections will be made at least daily.
- Where heavy equipment is used on a round-the-clock basis, it will be examined after each shift. Defects when found will be immediately reported and corrected.
- Water mufflers must be filled daily or as frequently as is necessary to prevent depletion of the supply of water below 75 percent of the filled capacity. Vehicles with mufflers having screens or other parts that may become clogged will not be operated while such screens or parts are clogged. Any vehicle that emits hazardous sparks or flames from the exhaust system will immediately be removed from service and not returned to service until the cause for the emission of such sparks and flames has been eliminated.
- When the temperature of any part of any equipment is found to be in excess of its normal operating temperature, thus creating a hazardous condition, the equipment will be removed from service and not returned to service until the cause for such overheating has been eliminated.
- Heavy equipment will be kept in a clean condition, free excess oil, and grease. Noncombustible agents should be used for cleaning equipment. Low flash point (below 100° F.) solvents must not be used. High flash point (at or above 100° F.) solvents may be used. Precautions regarding toxicity, ventilation, and fire hazard will be in agreement with the agent or solvent used.
- Heavy equipment originally approved for the use of gasoline for fuel may be converted to liquefied petroleum gas fuel provided the complete conversion results in a vehicle which embodies the features specified for LP or LPS designated equipment. Such conversion equipment will be approved.

### **OSHA's General Requirements for Heavy Equipment Use**

- All equipment left unattended at night, adjacent to a highway in normal use, or adjacent to construction areas where work is in progress, will have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, to identify the location of the equipment.
- A safety tire rack, cage, or equivalent protection will be provided and used when inflating, mounting, or dismounting tires installed on split rims, or rims equipped with locking rings or similar devices.
- Heavy machinery, equipment, or parts thereof, which are suspended or held aloft by use of slings, hoists, or jacks will be substantially blocked or cribbed to prevent falling or shifting before employees are permitted to work under or between them. Bulldozer and scraper blades, end-loader buckets, dump bodies, etc., will be either fully lowered or blocked when being repaired or when not in use. All controls will be in a neutral position, with motors stopped, and brakes set unless work being performed requires otherwise.
- Whenever the equipment is parked, the parking brake will be set. Equipment parked on inclines will have the wheels chocked and the parking brake set.
- The use, care and charging of all batteries will conform to the following:

- Ventilation will be provided to ensure diffusion of the gases from the battery and to prevent the accumulation of an explosive mixture.
- Face shields, aprons, and rubber gloves will be provided for workers handling acids or batteries.
- Facilities for quick drenching of the eyes and body will be provided within 25 feet of battery handling areas.
- Facilities will be provided for flushing and neutralizing spilled electrolyte and for fire protection.
- All cab glass will be safety glass, or equivalent, that introduces no visible distortion affecting the safe operation of any machine covered by this section.
- All equipment will comply with the OSHA requirements when working or being moved in the vicinity of power lines or energized transmitters.

### **General Requirements for Site Clearing**

- Employees engaged in site clearing will be protected from hazards of irritant and toxic plants and suitably instructed in the first aid treatment available.
- All equipment used in site clearing operations must be equipped with rollover guards. In addition, rider-operated equipment will be equipped with an overhead and rear canopy guard meeting the following requirements:
  - The overhead covering on this canopy structure will be of not less than 1/8-inch steel plate or 1/4-inch woven wire mesh with openings no greater than 1 inch, or equivalent.
  - The opening in the rear of the canopy structure will be covered with not less than 1/4-inch woven wire mesh with openings no greater than 1 inch.

### **Additional Heavy Equipment Safety Guidelines**

Many injuries involving heavy equipment do not occur to the operator, but are inflicted on ground personnel working in or around the vicinity of moving machines.

Always be aware of the location of personnel working near your machine. Heavy equipment operations frequently require the aid of ground personnel who *should* be thoroughly familiar with the procedures of your operation and the capabilities of the machine; usual operating procedures should not be changed without first notifying ground personnel.

Never assume that your assigned ground workers will watch out for themselves. Always know your ground personnel's location, if they are not visible to you, **DO NOT MOVE THE MACHINE OR ANY IMPLEMENTS!** When working in conjunction with ground personnel, never operate equipment at speeds which would necessitate ground personnel to work in a careless manner. **REMEMBER,** they are depending on your skill and judgment, as are all personnel in your immediate work area.

- Read the operators manual and operate the machine only if trained and considered competent to do so.
- Wear appropriate clothing and personal protective equipment for the job. Hearing protection is recommended for operating many types of heavy equipment.
- Do a walk around to make sure the area is clear before moving the machine.
- Do not climb on the machine where hand and foot holds have not been provided. Use a three point climbing technique whenever entering, exiting, or servicing the machine.
- Start machine only while sitting in the operator's seat and all personnel are clear.
- Ensure all controls are in the neutral position before starting the machine.
- Keep tires properly inflated, improper inflation may cause the machine to tip over under load.

- Heavy equipment machines are required to have a seat belt and rollover protection (ROPS). Always use the seat belt. OSHA takes the position that seat belts are personal protective equipment, and failure to use them is grounds for a citation.
- Keep the load as low as possible while traveling; always reduce speed when making a turn. Keep speeds low on rough terrain. Bouncing, bucking, or side hopping because of excessive speed may cause loss of control of the machine.
- Check for overhead lines or obstructions before raising any overhead implement.
- Do not allow the tires to spin when picking up or pushing a load.
- Do not walk, work, or allow personnel under any raised part of heavy equipment.
- Do not use heavy equipment for demolition of structures which are taller than the machine without overhead protection sufficient to withstand the debris likely to impact the cab.
- Do not under-cut a bank which is higher than the machine.
- Use extreme caution when approaching or operating near excavations, the weight of the machine or vibration may cause the edges to collapse.
- Dust suppression and control is required where dust seriously limits visibility. Wear breathing protection when needed.
- Pre-wet soil to make loading easier and to aid in dust control.
- Rip tight soil before scraping or excavating to improve speed and efficiency.
- Always load buckets or hoppers down grade to increase the speed of operation, lessen wear on equipment, and reduce the need for a push tractor.
- Do not use heavy equipment as a battering ram.
- In tight turns, make sure the machine has clearance in front and rear if equipped with rear implements.
- Do not place any part of your body under any raised implement at any time unless it is properly blocked.
- Keep operator's compartment free of clutter and all controls free of oil and grease. Personal tools or equipment must be secured.
- All underground utilities in the work area must be located prior to digging. Utility companies must be notified of your intention to excavate within established, or customary, response times. (Check local codes)
- When excavations approach the estimated location of underground utilities, the exact location must be determined and marked.
- Wherever equipment operations encroach on a public thoroughfare, a system of traffic controls must be used.
- Flaggers are required at all locations where barricades or warning signs cannot control moving traffic.
- Never use an elevating part of heavy equipment as a man-lift.

The productivity and safety of heavy equipment operations are increased by using well trained employees, along with properly maintained and serviced equipment. A well laid out worksite and work-plan always improves efficiency and safety on the jobsite.

## Chapter 20

### Confined Spaces Policy

#### **Confined Space Entry - MIOSHA GISS-Part 90 & 490**

#### **Adopted by Reference**

#### **Permit-Required Confined Spaces - 29 CFR-§1910.146**

#### **Policy Statement**

This policy has been implemented to ensure that proper safe work practices and procedures are followed to protect employees from the hazards associated with confined spaces. Joe Badalamenti is designated as the competent person who administers the Permit-Required Confined Spaces Program. The following practices, procedures, and controls will be enforced as an integral part of Accurate Painting Company safety policy.

Joe Badalamenti will ensure that all employees with access to, or duties within, confined spaces are trained in the understanding, knowledge, and skills necessary for the safe performance of duties assigned in those areas. Training will be provided to each affected employee:

- Before the employee is first assigned duties under this section;
- Before there is a change in assigned duties.
- Whenever there is a change in permit space operations that present a hazard about which an employee has not previously been trained;
- Whenever the employer has reason to believe either that there are deviations from the permit space entry procedures required or that there are inadequacies in the employee's knowledge or use of these procedures.

Employees must demonstrate proficiency in the following duties of entry into, or work within confined spaces to complete and receive documented certification of training:

- Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposure.
- Properly use equipment as required.
- Communicate with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate the space if required.
- Alert the attendant whenever the entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or detects a prohibited condition.
- Exit from the permit space as quickly as possible when an order to evacuate is given by the attendant or the entry supervisor, the entrant recognizes any warning sign or symptom of exposure to a dangerous situation, the entrant detects a prohibited condition, or an evacuation alarm is activated.

Permit-required confined spaces in the workplace will be identified by Joe Badalamenti, and employees will be required to obtain a permit to enter or work in those spaces. Prior to entry, Joe Badalamenti will assess the conditions and hazards, and decide if workers will enter a permit space. Joe Badalamenti will be responsible for testing and monitoring atmospheric conditions as required.

Procedures will be initiated to eliminate or control the hazards in the space including, but not limited to, the following:





- Specifying acceptable entry conditions.
- Providing each authorized entrant or that employee's authorized representative with the opportunity to observe any monitoring or testing of permit spaces.
- Isolating the permit space.
- Purging, inerting, flushing, or ventilating the permit space as necessary to eliminate or control atmospheric hazards.
- Providing pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards, and prohibit unauthorized entry.
- Verifying that conditions in the permit space are acceptable for entry throughout the duration of an authorized entry.
- Canceling entry permits once the work is completed, or conditions change, so that occupation of the confined space is no longer safe

Accurate Painting Company will provide and maintain the following equipment at no cost to employees, and ensure that employees use the equipment properly:

- Testing and monitoring equipment required for atmospheric conditions.
- Ventilating equipment
- Communications equipment
- Personal protective equipment where engineering controls do not eliminate hazards, or threat of hazards.
- Lighting equipment
- Barriers and shields as required
- Equipment, such as ladders, needed for safe ingress and egress by authorized entrants;
- Rescue and emergency equipment, except to the extent that the equipment is provided by rescue services.
- Any other equipment necessary for safe entry into and rescue from permit spaces.

An attendant will be designated for each area for the purpose of testing and monitoring conditions and personnel anytime employees are assigned to confined spaces. Personnel involved in confined space activities will be designated as attendant, entry supervisor, or authorized entrant, and assigned specific duties relating to confined entry procedures as follows:

**Authorized entrants** are those permitted by an employer to enter a permit space. Entrants have the following duties and responsibilities:

- Knowing the permit-space hazards, including the symptoms and consequences of exposure.
- Using equipment properly.
- Communicating regularly with the attendant.
- Notifying the attendant immediately of hazardous conditions.
- Leaving the space immediately during a hazardous condition or when the attendant orders an evacuation.

**Authorized attendants** are those who monitor entrants' activities from outside the space. Attendants have the following duties and responsibilities:

- Knowing the permit-space hazards, including the symptoms and consequences of exposure.
- Knowing how many entrants are in permit space.
- Staying out of the space during entry operations.
- Keeping in contact with entrants.
- Ordering an evacuation for a hazardous condition.
- Keeping unauthorized persons away from the space.
- Activating rescue procedures.

The entry supervisor makes sure attendants and entrants follow entry-permit procedures. The entry supervisor is responsible for the following:

- Knowing the permit-space hazards, including the symptoms and consequences of exposure.
- Verifying that the entry permit is accurate and current.
- Stopping entry operations and canceling the entry permit when permit-space work is done or during a hazardous condition.
- Ensuring that responders will be available in an emergency.
- Removing any unauthorized person who enters the space.
- Ensuring that entry operations are consistent if another authorized person must replace an attendant or an entrant.

Prior to beginning any work at a new workplace Joe Badalamenti will verify the closest emergency medical and rescue service ability to respond to a confined space emergency. The number for the verified emergency service will be prominently posted on the job-site. In the event of an emergency requiring emergency service response, the assigned attendant will notify the entry supervisor, who is responsible for contacting emergency services.

In the event that an IDLH (Immediately Dangerous to Life and Health) entry is deemed necessary, Joe Badalamenti will first contact the above emergency response service, and ensure that emergency service is available on site before allowing entry into the confined space.

The assigned entry supervisor will be responsible for providing first aid where necessary after contacting emergency services.

***No employee will enter a permit-required confined space without first completing an entry permit and having the entry supervisor sign the permit. The steps of the entry-permit procedure include the following:***

- Obtain an entry permit prior to entering the space.
- Accomplish all pre-permit activities required for entering the space, including atmospheric testing, controlling hazards, having required equipment on hand, and providing for emergency services.
- Complete all items on the entry permit.
- Have the entry supervisor authorize and sign the permit, If any item on the permit is checked "NO" (meaning not yet completed or available), the permit will not be signed.
- Attach a copy of the entry permit outside the confined space. Keep it there until the entry operations are completed and the supervisor cancels it.
- Proceed with entry operations.

All proposed entrants, attendants, and entry supervisors will participate in the review of the initial atmospheric monitoring, and the completion and review of the entry permit.

Atmospheric monitoring will be performed regularly during confined space operations to ensure that conditions do not exist, or change, to threaten employees safety. Ventilation of confined spaces is required before entry, during monitoring, and throughout the operation. Monitoring or re-evaluation of conditions may be requested at any time during the operation by any employee, or their representative, who suspects that changes have occurred which might present a hazard to personnel.

If more than one employer or crew is working simultaneously as authorized entrants in a permit space, procedures, duties, communications, and priorities will be coordinated between all personnel involved prior to issuing an entry permit to ensure that employees of one employer do not endanger the employees of any other employer.

The entry supervisor or program administrator will have the authority to cancel an entry permit upon completion of the assigned task, upon finding unsuitable conditions or preparation, or if unsuitable conditions develop. The entry supervisor will ensure that all personnel have exited the space, that equipment, tools, and materials have been removed, and that no condition which might create a hazard has been left unresolved. The entry supervisor will then mark the permit cancelled, sign the space provided for cancellation, and present the cancelled permit to Joe Badalamenti for filing in records.

The Permit-Required Confined Space Program will be reviewed in the event of an accident/injury, or near miss, if employee protection is deemed inadequate or at least annually using the cancelled entry permits as reference. Revisions will be made to the program as necessary to ensure the safety of our employees.

## **Confined Space Program Guide**

If you work in vaults, manholes, tunnels, trenches, or attics and crawlspaces, you are probably familiar with the term, “*Confined Space*.” Many workplaces have confined spaces — enclosed spaces that are difficult to enter and exit, large enough to work in, but not designed to be occupied. Nevertheless, workers need to enter them from time to time. For example, they may need to inspect equipment, fix leaks, do construction work, or rescue someone. The interior of a confined space may be relatively safe *or* it may contain life threatening hazards — such as equipment that starts without warning, toxic gases, corrosive chemicals, or flammable solvents.

### **The Purpose of this Guide**

This guide focuses on confined spaces that may contain life-threatening hazards — the so-called *permit-required confined spaces*, or *permit spaces*. Its purpose is to help you, your coworkers, or your employees work safely in permit spaces. It answers the following questions:

- What is a permit space and how can I identify one?
- What is the permit required confined-space standard for general industry, and why is it important?
- What do I need to know to work safely in a permit space?
- What is a permit-space program, and do I need one for my workplace?

### **What is a Permit-Required Confined Space?**

A confined space has all of the following characteristics:

- It has a restricted opening that makes entry and exit difficult.
- It is large enough for one to enter completely.
- It is not designed to be occupied.

### **Characteristics of a Permit Space**

A permit space is a confined space that may contain life threatening hazards. No one can enter a permit space without first completing a written entry permit. A permit space has all of the characteristics of a confined space and one or more of the following characteristics:

- It has – or could have – *an atmospheric hazard*. (A hazard that affects the air in a permit space.)
- It contains material that could trap or bury an *entrant*. (A person who enters a permit space.)
- It has any safety or health hazard.
- It is shaped so that an entrant could become trapped or asphyxiated.

## **Examples of Confined Spaces:**

Most confined spaces are designed to hold substances such as liquids, gases, and loose materials, or to house equipment. Though they come in many sizes and shapes, most can be classified in one of two ways: those with depth and open tops and those with narrow openings. The list below gives examples of each.

## **The Meaning of “Permit Required”**

Anyone who enters a permit space must first fill out a written permit that verifies that the hazards in the space have been eliminated or controlled and that the space is safe to enter. An entry supervisor must sign the permit and post it on the space so that workers can see it, then cancel it when work in the space is finished.

## **OSHA’s Standards protect workers who enter permit spaces**

It requires employers to do the following:

- Survey their workplace to identify permit spaces.
- Inform employees about the location of each permit space and its hazards.
- Keep unauthorized workers out of permit spaces.
- Develop a written program that ensures the safety of any employee who must enter a permit space.

## **In 1998, OSHA revised the standard and adopted the following changes:**

- Gives authorized representatives’ access to the same information as employees regarding permit spaces and the permit-space program.
- Requires employers to provide employees or their authorized representatives with the opportunity to observe monitoring of confined spaces.
- Clarifies the criteria for selecting and evaluating a rescue team or service.
- Ensures employee participation in developing and implementing the permit-space program.
- Adds a non-mandatory appendix to guide employers in choosing appropriately trained and equipped rescuers.

## **Why is the Standard important?**

Permit spaces are complex environments that may contain many different hazards. Workers can die in permit spaces because they do not know about hazards or because they use the wrong procedures to control hazards. In fact, many of those who have died in permit spaces were trying to rescue others.

You probably would not board a commercial aircraft — even for a short flight — if you knew that the pilot and the maintenance crew ignored take-off procedures. Nor would you squeeze into a confined space if you knew that your coworkers had ignored procedures to eliminate or control the hazards.

The standard is important because it requires you, your coworkers, and your employees to follow safe work practices. If you follow those practices, you will know when permit-space hazards exist and you will use the right procedures to eliminate or control them.

If your workplace has a permit space, you will need a copy of the standard. Review it carefully. Keep in mind that this guide is intended to help you and your employees work safely in permit spaces — it does not take the place of the standard.

This section describes eight critical activities that are part of the entry process — the activities that take place as workers prepare to enter and exit a permit space. They are critical activities because they ensure that those who enter a permit space can work and exit unharmed. In addition, these activities lay the foundation for an effective permit-space program.

## What You Need to do to Work Safely in a Permit Space

Eight critical activities:

1. Identify the permit spaces
2. Identify the hazards in the spaces
3. Decide if workers will enter
4. Eliminate or control the hazards
5. Establish entry procedures
6. Train workers for entry operations
7. Make sure workers know their responsibilities
8. Plan for emergencies

A permit space program is an employer's plan for protecting workers within the entry process.

### Identify the Permit Spaces at Your Workplace

The first thing you should do is identify all enclosures at your workplace that have the characteristics of a confined space. (A confined space is difficult to enter and exit and large enough for one to enter completely, but not designed to be occupied.)

### Evaluate the Spaces for Hazards

Next, evaluate each confined space to determine if it is a permit space. Keep in mind that a permit space has one or more of the following characteristics:

- Contains — or could contain — an atmospheric hazard.
- Contains material that could trap or bury an entrant.
- Is shaped such that an entrant could become trapped or asphyxiated.
- Contains any safety or health hazard that could harm an entrant.

Your evaluation should identify all existing or potential hazards in each space. Be especially careful when evaluating a confined space that could contain an atmospheric hazard! The only way to identify an atmospheric hazard is to test for it from outside the space. Never assume a confined space is hazard-free. If you are not sure how to test for a hazardous atmosphere, give us a call.

### Inform Employees about Permit Spaces

If your workplace has a permit space, employees must know where it's located, that it is hazardous, and that it's a permit space. You can post signs, such as the ones below, to inform them.



### Identify the Hazards in the Spaces

**Permit-space hazards:** Those who enter a permit space face two kinds of hazards: atmospheric and non-atmospheric.

**Atmospheric hazards** affect the air in the space and can be flammable, toxic, corrosive, or asphyxiating. The table below identifies common atmospheric hazards, describes how they occur, and highlights why you should be concerned about them. Always check atmospheric hazards in the following order: oxygen deficiencies or displacement, flammable atmospheres, toxic atmospheres, and corrosive atmospheres.

COMMON ATMOSPHERIC HAZARDS		
HAZARD	HOW IT OCCURS	WHY BE CONCERNED
<b>Oxygen Deficiency (Less than 19.5% Oxygen)</b>	Chemical or biological reactions consume oxygen.	<ul style="list-style-type: none"> <li>Oxygen-deficient atmospheres affect heart rate, muscle coordination, and breathing. Eventually, they lead to death.</li> <li>Oxygen-enriched atmospheres increase the risk of fire or explosions.</li> </ul>
<b>Oxygen Enrichment (Greater than 23.6% Oxygen)</b>	Results from welding tasks and from the improper use of oxygen for breathing air.	
<b>Flammable Atmospheres</b>	Fuel, oxygen, and a source of ignition cause fires and explosions.	<ul style="list-style-type: none"> <li>Flammable gasses such as acetylene, butane, propane, hydrogen, and methane are common in permit spaces.</li> <li>Grain, nitrated fertilizers, and ground chemicals can produce combustible dusts.</li> </ul>
<b>Toxic Atmospheres</b>	Accumulates through some manufacturing, biological, or chemical reactions. Released during work or tasks such as welding and cleaning.	<ul style="list-style-type: none"> <li>Many manufacturing processes, stored materials, and work tasks produce toxic gases, vapors, or dusts.</li> </ul>
<b>Corrosive Atmospheres</b>	Accumulates from some manufacturing processes, biological or chemical reactions.	<ul style="list-style-type: none"> <li>Corrosive substances destroy living tissue. Some cause immediate damage to skin and eyes; some have no immediate effect, but cause cancer with prolonged</li> </ul>

**Non-atmospheric hazards**, on the other hand, include many different conditions, including mechanical dangers, loose materials, excessive noise, extreme temperatures, low light, and difficult access. The table below identifies common non-atmospheric hazards, describes how they occur, and explains why you should be concerned about them.

COMMON ATMOSPHERIC HAZARDS		
HAZARD	HOW IT OCCURS	WHY BE CONCERNED
<b>Engulfment</b>	Loose materials drawn from the bottoms of storage bins can suffocate or bury and entrant. Liquids or materials are suddenly released into the space.	Liquid or loose materials can trap or bury a worker in seconds.
<b>Mechanical and Hydraulic Energy</b>	Mechanical and hydraulic equipment start or move unexpectedly.	Entrants servicing mechanical and hydraulic equipment can be seriously injured or killed if the energy is not properly controlled.
<b>Noise</b>	Permit spaces amplify sounds produced by tools and equipment.	Noise interferes with essential communication between entrants and attendants.
<b>Falling Objects</b>	Objects fall into the space because topside openings are unguarded or improperly guarded.	



<b><i>Extreme Temperatures</i></b>	The permit space's location and the equipment it contains make it very hot or cold.	Hot environments put workers at risk for heat stress, especially if they are doing strenuous work or wearing protective clothing – cold environments make tasks more difficult to accomplish.
<b><i>Slippery Surfaces</i></b>	Leaks, spills, and condensation make walking surfaces slippery.	Wet surfaces are usually slippery. They increase the risk of falls.
<b><i>Corrosive Chemicals</i></b>	Corrosive chemicals are stored in the space, or entrants use them to do tasks.	Corrosive chemicals can cause severe eye or skin irritation if exposed workers are not wearing protective clothing.
<b><i>Access Problems</i></b>	Confined spaces are difficult to enter and exit.	In an emergency, entrants may not be able to exit quickly.
<b><i>Illumination Problems</i></b>	Most permit spaces are dark places.	Poor lighting makes it difficult for workers to enter, exit, and work in a permit space.

**Most permit-space accidents happen for the following reasons:**

- Workers have not been properly trained to recognize permit-space hazards.
- Hazards are not eliminated or controlled before workers enter the space.
- Rescuers are inexperienced or improperly trained.

**Decide if Workers Will Enter a Permit Space**

If you have a permit space at your workplace, will workers enter it? Are they contract workers or your employees?

**If Workers Do Not Need to Enter**

Even if workers do not need to enter a permit space, you must make sure that they are aware of the space and know about its hazards. You can do that by placing a danger sign like this one – on the space, or permanently securing the entrance to the space — welding it shut, for example.

**If Workers Need to Enter**

The table below shows what you must do before employees or contract workers enter a permit space at your workplace.

IF	THEN
<b><i>Only Contract Workers Enter</i></b>	You must tell the contractor about the hazards in the space, that the contractor must have a written permit-space program that meets OSHA requirements, and about any special precautions necessary to protect those working in or near the space.
<b><i>Contract Workers and Your Employees Enter</i></b>	You must have a written permit-space program that describes how you will eliminate or control the permit-space hazards and ensure the safety of those who enter the space. You must coordinate entry operations with the contractor so that the contract workers and your employees work safely together.
<b><i>Only Your Employees Enter</i></b>	You must have a written permit-space program that describes how you will eliminate or control the permit-space hazards and ensure the safety of those who enter the space.



## Eliminate or Control the Hazards in the Space

Before allowing workers to enter a permit space, you must either eliminate all hazards in the space or control them so that the workers can accomplish their tasks and leave the space safely. The table below summarizes the options and gives an example of each.

IF	THEN	EXAMPLE
<b><i>The space has no atmospheric hazards and you can eliminate all other hazards.</i></b>	<p>You can reclassify the space as a non-permit space.</p> <p>You must eliminate all hazards in the space before workers enter and for the entire time they are in the space.</p> <p>You must document how you eliminated the hazards and certify the space hazard free.</p>	<p>You need to enter a mixing tank that has no atmospheric hazards but does have mixing paddles that could start automatically.</p> <p>You must lock out and/or tag out the mixing-paddle hazard before you enter.</p>
<b><i>The space has only an atmospheric hazard and you can control it with forced-air ventilation.</i></b>	<p>Workers can enter the space under alternate procedures:</p> <p>You must keep the space hazard-free with continuous forced-air ventilation before workers enter and for the entire time workers are in the space.</p> <p>You must have test and inspection data that show forced-air ventilation will keep the space hazard free.</p>	<p>You need to enter a utility vault.</p> <p>You have monitored the space for oxygen displacement and enrichment, flammable atmospheres and toxic atmospheres. You have determined an atmospheric hazard exists – for example oxygen deficiency.</p> <p>Your test and inspection data show that continuous forced-air ventilation will increase oxygen content to 19.5 percent.</p> <p>You periodically monitor the atmosphere in the space to ensure forced-air ventilation.</p>
<b><i>You cannot eliminate hazards in the space.</i></b>	<p>You must follow your written permit-space program.</p> <p>The program must include the method for controlling the hazards, procedures for entry operations, and an entry permit verifying that the space is safe to enter.</p>	<p>You need to enter a sewer system that contains pockets of methane and hydrogen sulfide, but you cannot eliminate these hazards with forced-air ventilations.</p>

**Non-permit space:** The space is safe to enter and employees can work in it without a permit as long as it is hazard free.

**Alternate procedures:** Specific procedures that allow workers to enter and work in a permit space without a permit if continuous forced-air ventilation controls the hazards.

## Establish Entry Procedures

Before workers enter a permit space, you must have safe work procedures covering all phases of the entry process. You must also complete an entry permit that verifies the permit space is safe for workers to enter.

## Before Workers Enter the Space

The table below summarizes pre-entry activities and procedures:

ACTMITY	ESTABLISH PROCEDURES TO ENSURE THAT
<b><i>Maintain Communications</i></b>	Attendants and entrants keep in contact with each other. They must know what communications equipment to use and how to use it effectively.
<b><i>Keep Out Unauthorized Persons</i></b>	The entry supervisor and authorized attendants know how they will keep unauthorized persons away from the space.
<b><i>Monitor the Space for Hazards</i></b>	Authorized attendants continuously monitor the permit space atmosphere while workers are inside.

### While Workers are in the Space

The table below summarizes activities and procedures during entry operations:

ACTMITY	ESTABLISH PROCEDURES TO ENSURE THAT
<b><i>Guard the Space</i></b>	Workers place warning signs or barriers to keep out unauthorized persons and to protect entrants from falling objects.
<b><i>Isolate the Space</i></b>	Workers disconnect, lock out, or tag out hazardous equipment in the space. Identify who will isolate the space and who will inform entrants about hazardous equipment.
<b><i>Eliminate or Control Atmospheric Hazards</i></b>	Workers eliminate or control the hazards in the space. Include the method and the steps necessary to eliminate or control the hazards.
<b><i>Test the Space for Atmospheric Hazards</i></b>	The entry supervisor tests for atmospheric hazards in the following order: first for oxygen, then for flammable gases, and finally for toxic gases. Employees must be able to observe the test.
<b><i>Identify Necessary Equipment</i></b>	Entrants have the equipment they need to do their tasks (including rescue equipment) and they know how to use the equipment.
<b><i>Contract Emergency Responders</i></b>	Attendants know how to respond to emergencies, including the following: whom to contact, how to remove entrants, and how to perform first aid and CPR.
<b><i>Complete and Post the Entry Permit</i></b>	The entry supervisor certifies that the space is safe to enter, signs the entry permit, and posts it on the space so that authorized entrants can see it.

### After Workers Leave the Space

The table below summarizes activities and procedures that complete entry operations:

ACTMITY	ESTABLISH PROCEDURES TO ENSURE THAT
<b><i>Cancel the Entry Permit</i></b>	The entry supervisor cancels the permit when entrants finish entry operations or when a condition arises that is not identified on the permit.
<b><i>Return the Space to Service</i></b>	Workers return the space to service properly after entrants exit.
<b><i>File the Permit</i></b>	All problems encountered by entrants are recorded and that the permit is kept on file for at least one year.

## The Entry Permit

The entry permit documents acceptable entry conditions and verifies that the space is safe for workers to enter. It must contain the following information:

- Location of the space.
  - Purpose of entry.
    - Entry date and the time workers enter the space.
  - Authorized entrants' names.
  - Authorized attendants' names.
  - Entry supervisor's name and signature.
  - Hazards in the space.
  - A list of all equipment necessary to
    - ensure entrants' safety.
  - A description of any other permits entrants need to work in the space.
- How workers will control hazards so that the space is safe to enter.
  - Acceptable entry conditions.
  - Testing data and testers' initials, certifying that the space is safe to enter.
  - Names of emergency responders and instructions for contacting them.
  - Communication procedures used by authorized entrants and attendants.

**Enter:** Technically, entry occurs when any part of a worker's body moves through the opening of the space.

# On The Following Page is a **SAMPLE** Entry Permit





## **Train Workers for Entry Operations**

Training and educating workers is the most effective way to ensure that they can identify permit-space hazards, follow entry procedures, and respond appropriately in an emergency. Training must be certified.

### **Training requirements:**

Those who do permit space work must understand procedures for entry, know how to control hazards, and know their roles in an emergency. They must receive training in the following situations:

- Before their permit-space duties are assigned or changed.
- When there is a change in permit-space operations that presents a hazard for which they have not been trained.
- When they don't follow entry permit procedures.

### **Training must be certified:**

If you authorize workers to enter a permit space, you must certify that they have been trained. The certification must contain each worker's name, the trainer's signature, and the training dates. It must be available for workers or authorized representatives to review. Trainers should understand all parts of the OSHA regulations and have experience with the types of permit spaces employees will enter.

## **Ensure Workers Know Their Duties and Responsibilities**

Working in permit spaces is a team effort involving authorized entrants, attendants, and supervisors. These key players' activities are critical to a safe, successful project.

### **Authorized entrants:**

Authorized entrants are those permitted by an employer to enter a permit space.

### **Entrants have the following duties and responsibilities:**

- Knowing the permit-space hazards, including the symptoms and consequences of exposure.
- Using equipment properly.
- Communicating regularly with the attendant.
- Notifying the attendant immediately of hazardous conditions.
- Leaving the space immediately during a hazardous condition or when the attendant orders an evacuation.

### **Authorized attendants:**

Authorized attendants are those who monitor entrants' activities from outside the space.

### **Attendants have the following duties and responsibilities:**

- |  |   |
|--|---|
| • Knowing the permit-space hazards, including the symptoms and consequences of exposure. | • Keeping in contact with entrants.                 |
| • Knowing how many entrants are in permit space.   | • Ordering an evacuation for a hazardous condition. |
| • Staying out of the space during entry operations.                                      | • Keeping unauthorized persons away from the space. |
|  | • Activating rescue procedures.                     |

### **The entry supervisor:**

The entry supervisor makes sure attendants and entrants follow entry-permit procedures.

### **The entry supervisor is responsible for the following:**

- Knowing the permit-space hazards, including the symptoms and consequences of exposure.
- Verifying that the entry permit is accurate and current.
- Stopping entry operations and canceling the entry permit when permit-space work is done or during a hazardous condition.
- Ensuring that responders will be available in an emergency.
- Removing any unauthorized person who enters the space.
- Ensuring that entry operations are consistent if another authorized person must replace an attendant or an entrant.

### **Plan for Emergencies**

Before you authorize workers to enter a permit space, you must be sure that experienced emergency responders will be available if an entrant needs help. Responders must be able to reach your worksite promptly and know how to deal with the emergency effectively. Most permit-space fatalities are caused by those who do not understand permit space hazards or who respond inappropriately during emergencies.

Most fire departments are not equipped to respond to permit-space emergencies.

Employers must tell emergency responders about any permit-space hazards they may encounter during an emergency, must ensure that responders can reach the space promptly, and must allow responders to practice rescues at all on-site permit spaces.

### **Employer's responsibilities:**

Employers must tell emergency responders about any permit-space hazards they may encounter during an emergency, must ensure that responders can reach the space promptly, and must allow responders to practice rescues at all on-site permit spaces.

### **Responders' responsibilities:**

#### **Emergency responders have the following responsibilities:**

- Have the equipment necessary to perform rescues and know how to use it.
- Be trained as rescuers and as authorized entrants.
- Practice simulated rescues at least once a year at each on-site permit space.
- Keep their first-aid and CPR training up to date.

You can choose either an on-site or an off-site responder. It is important only that the responder meet your needs in an emergency. Use the following table to help you decide.

CHOOSING AN EMERGENCY RESPONDER	
STEPS TO TAKE	CONSIDERATIONS
<b><i>Identify your needs</i></b>	Do you anticipate emergencies requiring immediate action (if ventilation fails, for example)? Or less-than-immediate action (if the most serious accident would cause a fracture or abrasion)?
<b><i>Interview them</i></b>	Meet with the responders to find out if they can provide the emergency service you need. Posting an emergency-response number 911 for example is not enough.
<b><i>How quickly can they reach your site?</i></b>	The response time must be appropriate to the type of potential injury; responders must be standing by when employees are working under potential IDLH (immediately dangerous to life and health)
<b><i>Will they be available when you need them?</i></b>	The responders must be available any time your workers need to enter a permit space.



<b><i>How will you contact the responders?</i></b>	Do you have a way for an authorized attendant or an entry supervisor to reach responders immediately?
<b><i>Can they do technical rescues?</i></b>	Do they have the technical knowledge and equipment to perform rope work or elevated-rescue work?
<b><i>Can they do medical Evacuations?</i></b>	Do your responders have the skills and equipment for medical evacuations?
<b><i>Are they trained as permit-space entrants?</i></b>	Can the responders recognize the signs, symptoms, and consequences of exposure to a hazardous atmosphere in a permit space at your workplace?
<b><i>Do they know how to test the atmosphere in a permit space?</i></b>	For example, do they know how to determine whether the atmosphere is immediately dangerous to life and health?
<b><i>Will they understand the information on your entry permit?</i></b>	For example, will responders understand the ventilation and atmospheric testing data on the entry permit?

***IDLH (Immediately Dangerous to Life or Health):*** Atmospheric concentration of any toxic, corrosive, or asphyxiate substance that poses an immediate threat to life or would interfere with one's ability to escape from a permit space.

### **What is a permit space program, and do I need one?**

A permit-space program is an employer's plan for protecting workers who need to enter a permit space. A written permit-space program documents the plan's activities and puts them in writing. These activities should cover all aspects of working in or near permit spaces — from identifying the locations of the spaces to evaluating the program's effectiveness.

### **Does your workplace need a written program?**

If workers need to enter a permit space at your workplace, you must have a written permit-space program. This guide highlights the activities you should include in a written program.

### **Developing a program for your workplace**

Your written permit space program does not need to be a massive document. It should clearly tell what activities and procedures will ensure the safety of those who work in permit spaces at your workplace. It must be available for employees to review. We have included a generic program that you can use to develop a program for your workplace. Make it an effective one. It should reflect the needs of your workplace and ensure the safety of your coworkers or employees.

## **Permit-Space Program**

- How to use this program
- Entry procedures
- Policy statement
- Employer responsibilities
- Permit-space locations and hazards
- Informing employees and preventing unauthorized entry

Entry-permit procedure Pre-  
entry training  
Duties of entrants, attendants, and  
supervisors

Emergency response  
Program evaluation

# How to Use This Program

Your written permit-space program documents activities and procedures that will ensure the safety of those who work in permit spaces at your workplace.

- First, think about the characteristics of the permit spaces at your workplace, the tasks that workers need to accomplish in and around the spaces, and the workers' experience in permit spaces.
- Then, use this program to help you develop, organize, and document the activities that form your own program.
- Remember, this is just an outline for *your* program. It is not complete until you include all the activities and procedures that make it unique to your workplace.

## Policy Statement

Accurate Painting Company Is committed to a safe and healthful workplace for its employees. The purpose of this written program is to identify permit spaces at this workplace and to ensure that all employees will enter, work in, and exit permit spaces safely.

## Employer Responsibilities

Accurate Painting Company will do the following to ensure the health and safety of those who work in and around permit spaces.

Identify all permit spaces.

Inform employees of the location and the hazards in permit spaces.

Prevent unauthorized persons from entering permit spaces.

Train entrants, attendants, entry supervisors, and in-house emergency responders.

Provide all necessary equipment for permit-space work at no cost to employees, maintain the equipment, and ensure that employees use the equipment properly.

Inform contractors about the permit-space program and coordinate entry operations.

Accurate Painting Company designates the following persons to implement and manage the permit-space program:

PERSONS NAME OR POSITION	RESPONSIBILITY
	<b>Overall program.</b> Overall implementation and maintenance of the written program, including employee certification or training that satisfies the requirements of OSHA.
	<b>Permit-space locations.</b> Location and identification of all confined spaces at this workplace.
	<b>Training.</b> Ensure that authorized entrants, attendants, entry supervisors, and on-site emergency responders are properly trained and have periodic
	<b>Emergency response.</b> Ensure that emergency responders are informed of all permit-required confined spaces at the workplace and have access to the spaces for drills and other training
	<b>Equipment.</b> Ensure that all equipment for authorized attendants and entrants is properly maintained and is available when needed.

## Permit Space Locations and Hazards

Joe Badalamenti has surveyed the workplace and identified the following permit spaces, the hazards in the spaces, and the method(s) necessary to eliminate or control the hazards.

### Non-permit spaces – no atmospheric hazards

These spaces have no atmospheric hazards and all other hazards have been eliminated. Employees can enter and work in them without a permit as long as the spaces are hazard-free.

LOCATION OF SPACE	HAZARD	HOW HAZARD WAS ELIMINATED	PERSON(S) CERTIFYING THAT THE SPACE IS HAZARD FREE

### Non-permit spaces – atmospheric hazards

These spaces have atmospheric hazards that can be eliminated with continuous forced-air ventilation before workers enter. Employees can enter and work in them without a permit as long as they are hazard-free.

LOCATION OF SPACE	ATMOSPHERIC HAZARD	PERSON(S) CERTIFYING THAT THE SPACE IS HAZARD

### Permit-Required Spaces

These spaces have atmospheric hazards that cannot be eliminated with continuous forced-air ventilation. Employees can enter them **ONLY** under the entry-permit procedures established in this written program.

LOCATION OF SPACE	HAZARDS	METHOD OF RESCUE	METHOD OF CONTROLLING HAZARD

### Informing Employees & Preventing Unauthorized Entry

The COMPANY will use the following methods to inform employees about each permit space in the workplace and to prevent unauthorized workers from entering them.

LOCATION OF SPACE	METHOD TO INFORM	METHOD TO PREVENT ENTRY

## Entry Procedures

All employees involved in entry operations must follow the procedures below for each phase of the entry process.

### Before employees enter the space:

ACTMITY	PROCEDURES
<b><i>Guarding the Space</i></b>	(Identify Procedures)
<b><i>Isolating the Space</i></b>	(Identify Procedures)
<b><i>Eliminating or Controlling Atmospheric Hazards</i></b>	(Identify Procedures)
<b><i>Identifying Necessary Equipment</i></b>	(Identify Procedures)
<b><i>Contacting Emergency Responders</i></b>	(Identify Procedures)
<b><i>Completing and Posting the Entry Permit</i></b>	(Identify Procedures)

### While employees are in the space:

ACTMITY	PROCEDURES
<b><i>Maintaining Communication</i></b>	(Identify Procedures)
<b><i>Keeping Out Unauthorized Persons</i></b>	(Identify Procedures)
<b><i>Monitoring the Space for Hazards</i></b>	(Identify Procedures)

### After employees leave the space:

ACTMITY	PROCEDURES
<b><i>Canceling the Entry Permit</i></b>	(Identify Procedures)
<b><i>Returning the Space to Service</i></b>	(Identify Procedures)
<b><i>Filing the Permit</i></b>	(Identify Procedures)

## Entry-Permit Procedure

No employee will enter a permit-required confined space without first completing an entry permit and having the entry supervisor sign the permit. The steps of the entry-permit procedure include the following:

STEP	ACTION
1	Obtain an entry permit from [ Location or Person ] before entering the space.
2	Accomplish all pre-permit activities required for entering the space, including atmospheric testing, controlling hazards, having required equipment on hand, and providing for emergency services.
3	Complete all items on the entry permit.
4	Have the entry supervisor authorize and sign the permit. If any item on the permit is checked as "NO" (meaning not yet completed or available), the permit will not be signed.
5	Attach a copy of the entry permit outside the confined space. Keep it there until the entry operations are finished and the supervisor cancels it.
6	Proceed with entry operations.



## CONFINED SPACE ENTRY CHECKLIST

Y = Yes    N = No    N/A = Not Applicable	Y	N	N/A
<b>1.</b> Are confined spaces thoroughly emptied of any corrosive or hazardous substances, such as acids or caustics, before entry?			
<b>2.</b> Before entry, are all lines to a confined space, containing inert, toxic, flammable, or corrosive materials valved off and blanked or disconnected and separated?			
<b>3.</b> Is it required that all impellers, agitators, or other moving equipment inside confined spaces be locked-out if they present a hazard?			
<b>4.</b> Is either natural or mechanical ventilation provided prior to confined space entry?			
<b>5.</b> Before entry, are appropriate atmospheric tests performed to check for oxygen deficiency, toxic substance, and explosive concentrations in the confined space before entry?			
<b>6.</b> Is adequate illumination provided for the work to be performed in the confined space?			
<b>7.</b> Is the atmosphere inside the confined space frequently tested or continuously monitored during conduct of work?			
<b>8.</b> Is there an assigned safety standby employee outside of the confined space, whose sole responsibility is to watch the work in progress, sound an alarm if necessary, and render assistance?			
<b>9.</b> Is the standby employee or other employees prohibited from entering the confined space without lifelines and respiratory equipment if there are any questions as to the cause of an emergency?			
<b>10.</b> In addition to the standby employee, is there at least one other trained rescuer in the vicinity?			
<b>11.</b> Are all rescuers appropriately trained and using approved, recently inspected equipment?			
<b>12.</b> Does all rescue equipment allow for lifting employees vertically from a top opening?			
<b>13.</b> Are there trained personnel in First Aid and CPR immediately available?			
<b>14.</b> Is there an effective communication system in place whenever respiratory equipment is used and the employee in the confined space is out of sight of the standby person?			
<b>15.</b> Is approved respiratory equipment required if the atmosphere inside the confined space cannot be made acceptable?			
<b>16.</b> Is all portable electrical equipment used inside confined spaces either grounded and double insulated, or equipped with ground fault protection?			
<b>17.</b> Before gas welding or burning is started in a confined space, are:			
<b>A.</b> Hoses checked for leaks?			
<b>B.</b> Compressed gas bottles forbidden inside of the confined space?			
<b>C.</b> Torches lighted only outside of the confined area?			
<b>D.</b> The confined area tested for an explosive atmosphere each time before a lighted torch is to be taken into the confined space?			
<b>18.</b> If employees will be using oxygen-consuming equipment--such as salamanders, torches, or furnaces,--in a confined space, is sufficient air provided to assure combustion without reducing the oxygen concentration of the atmosphere below 19.5 percent by volume?			
<b>19.</b> Whenever combustion-type equipment is used in confined space, are provisions made to ensure the exhaust gases are vented outside of the enclosure?			
<b>20.</b> Is each confined space checked for decaying vegetation or animal matter, which may produce methane?			
<b>21.</b> Is the confined space checked for possible industrial waste which may have toxic properties?			
<b>22.</b> If the confined space is below the ground and near areas where motor vehicles will be operating, is it possible for vehicle exhaust or carbon monoxide to enter the space?			
Competent Person Signature			
Date			

## Pre-Entry Training

Only trained and qualified employees will be authorized as entrants, attendants, entry supervisors, or in-house emergency responders. Training will ensure that they have the understanding, knowledge, and skills to perform their duties safely. Workers must receive training:

- Before their duties are assigned or changed.
- When their work presents a hazard for which they have not been trained.
- When they do not follow entry procedures.

**The table below certifies the following employees have received pre-entry training.**

EMPLOYEE NAME	TYPE OF TRAINING	TRAINER'S SIGNATURE	TRAINING DATE

## Duties of Authorized Entrants, Attendants and Supervisors

Working in permit spaces is a team effort involving authorized entrants, attendants, and supervisors. Their duties and responsibilities are shown below.

DUTY/RESPONSIBILITY	ENTRANT	ATTENDANT	SUPERVISOR
<i>Keep unauthorized entrants away from the space.</i>		X	X
<i>Remove unauthorized individuals who enter or who attempt to enter the permit space.</i>			X
<i>Communicate with entrants, monitor their status, and tell them when to evacuate.</i>		X	
<i>Inform the entrants and the entry supervisor if unauthorized persons enter the permit space.</i>		X	
<i>Communicate with the attendant regularly.</i>	X		
<i>Remain outside the space during entry operations until relieved by another attendant.</i>		X	
<i>Know the number and identity of authorized entrants.</i>		X	
<i>Use all equipment properly.</i>	X		
<i>Determine that acceptable entry conditions are maintained.</i>			X
<i>Exit from the permit space immediately given an order to evacuate, an alarm warning, or a sign of a hazardous condition.</i>	X		
<i>Know permit-space hazards, including the mode, symptoms, and consequences of exposure.</i>	X	X	X
<i>Notify the attendant of any signs or symptoms of exposure to a hazardous condition.</i>	X		
<i>Terminate the entry and cancel the permit when entry operations are finished or if a prohibited condition arises.</i>		X	
<i>Verify that entry conditions are acceptable before signing the permit and allowing entry.</i>			X
<i>Perform non-entry rescues if necessary.</i>		X	
<i>Verify that rescue services are available and the means for summoning them are effective.</i>			X
<i>Summon emergency responders when entrants need their services.</i>		X	

## Emergency Response

### Non-entry rescue requirements:

Non-entry rescue is the preferred method for rescuing an entrant from a permit space. Employees must use retrieval systems to rescue an entrant unless the equipment would increase the entrant's risk of injury. Employees will not enter a permit space to respond to an emergency unless they have been properly trained and equipped. If a permit space rescue is necessary, the attendant is responsible for doing the following:

- Summoning emergency responders.

- Attempting to rescue entrants using only non-entry rescue equipment.

- Monitoring the emergency and informing responders about the number of victims, their condition, and the hazards in the space.

### Entry rescue requirements:

Only responders designated by Accurate Painting Company can enter a permit space during an emergency. Each emergency responder must know how to do the following:

- Use personal protective and rescue equipment.

- Perform assigned rescue duties.

- Perform basic first aid and CPR.

Each rescue team member must practice a permit space rescue at least annually.

### Summoning Offsite Responders:

Joe Badalamenti has made arrangements with the following off-site responder to provide rescue and emergency services:

Name of responder: \_\_\_\_\_

Phone: \_\_\_\_\_

Address: \_\_\_\_\_

Approximate Emergency Response time: \_\_\_\_\_

Joe Badalamenti has informed [ \_\_\_\_\_ Name of off-site rescue service \_\_\_\_\_ ] of the hazards they may encounter if they are summoned.

The Company Safety Coordinator has also provided the rescue service access to permit spaces to develop appropriate rescue plans and practice rescues.

### Program Evaluation

Within one year of an entry operation, The Company Safety Coordinator will review canceled entry permits to identify program deficiencies. The review must be sooner if there is reason to believe that the program does not adequately protect employees. Actions to correct deficiencies must be documented and affected employees must be retrained.

#### **Motor Vehicle Safety**

At Accurate Painting Company, the safety of our employees is of utmost importance. The selection of employees who will be required to drive full or part-time will be done with care. Drivers of company vehicles can be considered qualified when they meet the following criteria:

- Possess a valid state driver's license of the proper class.
- A review of MVD record shows that they do not pose an unreasonable risk.

#### **Driver Training**

All employees driving Company owned vehicles for Accurate Painting Company will be trained in safe operation of assigned vehicle.

- Defensive driving
- Split-second decision making
- Backing-up rules
- Safe distances
- Intersection driving
- Poor condition driving in snow storms, rain, etc.

#### **Preventive Maintenance**

Establishment of a preventive maintenance program for all COMPANY vehicles is essential. Record jackets will be maintained on all vehicles so that a log can be maintained on all planned maintenance, as well as repairs made from noted defects.

#### **Vehicle Inspection**

Each vehicle or piece of equipment will be inspected on a daily basis by the operator before and after operation. Each operator is responsible for the safe condition of the equipment. Any vehicle having steering, brake, or other safety problems is not to be operated until repairs have been made by a mechanic. Any other unsafe conditions are to be reported to the operator's supervisor as soon as possible.

#### **Vehicle Operation**

All COMPANY vehicles and equipment are to be operated in a safe manner and operators will adhere to all applicable laws. The operator is fully and totally responsible for the safe operation of the equipment. The operator will report any accidents, or damage, to the Vehicle Operations Supervisor.

#### **Driver Safety Program**

##### **Introduction**

The operation of vehicles is indispensable in conducting Company business. The way in which each vehicle is handled will directly affect the loss picture of the entire Company. Fleet losses are potentially one of the most costly losses that an operation can incur.

The types of exposure that involve the fleet program include: property damage, bodily injury, fatalities, liability suits and Workers' Compensation claims.

The insurance and other claims costs that result from vehicle accidents can be substantial and would adversely affect successful accomplishment of COMPANY objectives. To help prevent vehicle accidents and the type of loss exposures associated with them, the following guidelines have been established:

## **Policy Statement**

The success and the safety of Company employees depend on the mutual cooperation of each employee who has been entrusted with the responsibility of driving a Company vehicle, or their own vehicle, while conducting Company business.

In order to reduce vehicle accidents and limit liability because of driver negligence, our Company has adopted a Driver Safety Program.

## **Procedure**

The procedures set forth in the Driver Safety Program will be the guidelines for management adherence to this policy.

## **Responsibility**

The supervisors at Accurate Painting Company have the primary responsibility for management of the Driver Safety Program.

Joe Badalamenti will appoint a responsible representative to report all driver information requested by our insurance broker.

## **Monitoring**

Joe Badalamenti is also responsible for the records of the Driver Safety Program.

Duties will include, but are not limited to:

- Be responsible for monitoring the driving record of those persons who operate the Company vehicles or their own "personal" vehicle while on Company business.
- Monitor the Driver's Safety Program and report to management any suggestions for improvement or needed changes.
- Monitor the maintenance policy of fleet vehicles so that they are kept in safe condition
- Review each vehicle accident report or infraction with management.
- Monitor renewals of insurance records.

## **Drivers**

Drivers of vehicles that are owned, rented or leased by The Company will be required to follow defensive driving techniques and practices. The basic defensive driving practice is to plan ahead and do everything that one can reasonably do to prevent an accident. This is to include the use of seat belts.

## **The following guidelines will be followed:**

Drivers for our Company must possess a valid driver's license in order to operate any Company vehicle or their own personal vehicle on Company business. The duties of drivers will be reviewed. The requirement will be noted by the employee's supervisor or personnel staff at the time of hire.

The driver should be physically and mentally capable of driving the vehicle he/she is assigned to drive, whether the vehicle is a car, van, or truck.

## **Pre-operation of Vehicles**

Prior to the assignment of any vehicle to any employee or prior to allowing an employee to drive "Their Own Personal Vehicle" on Company business, the following minimum standards will be implemented and records maintained to ensure that the driver is qualified to drive the vehicle and minimize the risk of liability to our Company.

## Initial Assignment

Verification and recording of date any type of driver's license held and renewal date noted. A review of the driver's state Motor Vehicle Record for the most recent three-year period to include the following:

- Review of the accident report history showing the dates and types of accident regardless who was at fault.
- Review of the traffic violations for the last three years, with evaluation of acceptable driving records according to Company guidelines.
- Confirmation of personal insurance for those driving their personal vehicle while on Company business.
- Physical examinations when required by the state for the driving of specified vehicles or by funding and licensing contract.
- The driver with a major conviction will be immediately suspended from driving any Company vehicle or their personal vehicle on Company business.
- Driving a Company vehicle while under the influence of drugs or alcohol will subject the employee to disciplinary action up to and including dismissal.

## Annual Review

Once each year, a request for current license information will be sent to each Company employee. Employees who drive a Company vehicle, or if they request mileage reimbursement for driving their personal vehicle on Company business, will have their personal driving record reviewed. It will be the responsibility of the employee to respond in a timely manner. Failure to respond to the request for information by personal vehicle drivers may result in the delay of mileage reimbursements.

A review of each driver's file and record will be made annually and will include all of the criteria above as appropriate for each employee. This will not preclude request of driver's records for review by Joe Badalamenti as deemed necessary.

## Definitions

**Major Convictions** — Major convictions include, but are not limited to:

- Driving while intoxicated or under the influence of alcohol or drugs; failure to stop and report an accident.
- Homicide, manslaughter or assault arising out of the operation of a vehicle.
- Driving during a period when license is suspended or revoked; reckless driving.
- Possession of an open container of alcoholic beverage; drag or highway racing.
- Attempting to elude a Peace Officer.

**Minor Convictions** — Any moving traffic violation other than a major conviction except the following:

- Motor vehicle equipment, load or size requirements.
- Improper display or failure to display license plates provided such plates exist.
- Failure to have a valid driver's license in possession.

**Preventable Accident** — A preventable accident is defined by the National Safety Council as "Any vehicle accident involving a vehicle which results in property damage and/or personal injury regardless of who was injured, what property was damaged, to what extent or where it occurred in which the driver in question failed to exercise reasonable precaution to prevent the accident."

**Vehicular Accident** — Any accident occurring between a Company vehicle (or private car when employee is on official Company business and has been formerly authorized mileage) and another vehicle, pedestrian, animal or fixed object.



**SPECIAL NOTE:** Accurate Painting Company will call police to investigate all company vehicle accidents. It is vehicle operator's immediate supervisor's responsibility to ensure that all facts are obtained with respect to the driver. Under no circumstances should any employee make any statement relative to liability or draw any conclusions as to the facts asserted at the scene. The occurrence of a vehicle accident may or may not be the fault of the employee. It is important to investigate and determine the cause of the accident and any necessary corrective action that may taken by the employee's immediate supervisor.

### **Questions to Help Determine if a Vehicle Accident was Preventable**

One basic question in determining preventability is: "Did our employee take every reasonable precaution to avoid the auto accident?" If "No," our driver was not driving defensively therefore, the accident should be judged "preventable." Please note that legal liability or any citations should never influence the decision of determining preventability of an accident.

Answer the following questions which adhere to the given situation(s):

#### **Intersection Accidents**

YES/NO

- ☐ ☐ Did our employee approach the intersection at a controlled speed that was reasonable for conditions?
- ☐ ☐ Was our driver prepared to stop before entering the intersection regardless of right of way?
- ☐ ☐ Did our driver avoid entering an intersection on the amber signal?
- ☐ ☐ Did our driver avoid overtaking or passing at the intersection?
- ☐ ☐ At a blind corner, did our driver approach slowly, with a foot on the brake pedal?
- ☐ ☐ Did our driver make certain all other drivers were stopping for a traffic light or stop sign?
- ☐ ☐ Was our driver alert for the turns of other vehicles?
- ☐ ☐ Did our driver signal his/her change in direction well in advance?
- ☐ ☐ Did our driver allow oncoming traffic to clear before making a left turn?
- ☐ ☐ Did our driver turn from the proper lane?

#### **We Were Hit by another Vehicle While Stopped or Parked**

- ☐ ☐ Did our driver properly signal his/her intention to stop?
- ☐ ☐ Did our driver avoid coming to a sudden stop?
- ☐ ☐ Was our driver parked on the proper side of the road?

#### **We Pulled from Parked Position**

- ☐ ☐ Did our driver look to the front and rear for approaching traffic immediately before pulling out?
- ☐ ☐ Did our driver look back, rather than depending upon the rear vision mirrors?
- ☐ ☐ Did our driver signal before pulling away from the curb?
- ☐ ☐ Did our driver start out only when an action would not require traffic to change its speed or direction in order to avoid our vehicle?
- ☐ ☐ Did our driver continue to glance back while pulling out?

## **We Hit the Other Vehicle in Rear**

YES/NO

- ☐ ☐ Did our driver adjust speed to the conditions of the road, visibility and traffic?
- ☐ ☐ Was our driver maintaining a safe following distance for conditions?
- ☐ ☐ If a vehicle pulled in front of our vehicle, did our driver drop back and reestablish the proper following distance?
- ☐ ☐ Did our driver approach the green traffic light cautiously, expecting the driver ahead to stop suddenly on a signal change?
- ☐ ☐ Did our driver look ahead of the vehicle in front for possible emergencies?

## **We Were Backing**

- ☐ ☐ Was it necessary to back?
- ☐ ☐ Did our driver have to park so close to the vehicle or obstacle ahead that backing was necessary when leaving the parking space?
- ☐ ☐ If our driver could not see where to back:
- ☐ ☐ Did the driver try to get someone as a guide?
- ☐ ☐ Did the driver walk around the vehicle before getting in?
- ☐ ☐ Did the driver back immediately after walking around?
- ☐ ☐ If applicable, did the driver use the cone policy correctly?
- ☐ ☐ Did the driver use the horn while backing?
- ☐ ☐ Did the driver look to the rear without depending on the rear vision mirrors?
- ☐ ☐ Did the driver back slowly?

## **We Skidded**

- ☐ ☐ Did our driver travel at a speed safe for the conditions of weather and road?
- ☐ ☐ Was our driver keeping a safe following distance?
- ☐ ☐ Was our driver alert for loose gravel, sand, ruts, etc.?

## ***Pedestrians***

- ☐ ☐ Did our driver tap the horn to alert pedestrians of our vehicle approach?
- ☐ ☐ Did our driver pass through congested section anticipating that pedestrians might step in front of the car?
- ☐ ☐ Did our driver keep as much clearance between our vehicle and parked cars as conditions permitted?
- ☐ ☐ Did our driver interpret the pedestrian's next action or intention?
- ☐ ☐ Did our driver check the location of pedestrians before staring at a green signal?
- ☐ ☐ Did our driver give all pedestrians right of way?
- ☐ ☐ Did our driver refrain from passing a stopped school bus?
- ☐ ☐ Was our driver alert for signs of children who might run into the path (balls rolling into street, etc.)?

## Safe Operating Guide for Company Vehicles

### Preventing Collision with a Vehicle Ahead

An extremely frequent and costly accident is the collision with the vehicle ahead. There are five steps that can be taken that will help you avoid being involved in a collision with the vehicle ahead:

**Be Alert** — Watch for signs from the driver or drivers ahead as to what they intend to do. Are their turn signals on? Are their brake lights lit?

**Drive Ahead of the Situation** — Look beyond the vehicle ahead to see situations that may force him to act quickly and thereby become a threat to you.

**Stay Back** — Allow plenty of following distance. Allow one car length (using your own vehicle as a measure) for every 10 miles of speed and allow even more distance in adverse weather or road conditions.

**Stopping Ability** — This is the distance necessary to bring your vehicle to a stop that depends on a number of factors. The first is "driver reaction time". This is the time it takes for the driver to see the need to stop, take his foot from the accelerator to the brake pedal and begin to apply the brake. "Driver reaction distance" is based on an average driver reaction time of  $\frac{3}{4}$  of a second for a typical driver under normal driving conditions. The distance traveled during the reaction time of  $\frac{3}{4}$  of a second will depend upon the speed of the vehicle.

The second ingredient involves "braking distance". This is the distance traveled from the time the brake is applied until the vehicle is brought to a stop. This distance will also vary based on the speed of the vehicle. The type and condition of the pavement surface will also affect the braking distance, the type and condition of tires, and the condition of the brakes.

**Begin to Stop Sooner** — Slow down and touch your brakes the instant you see a hazard developing. The situation may require you to stop. Failure to do this is known as "delayed braking" — a serious flaw in good defensive driving techniques. A defensive driver should not have to make a true "panic" stop more than once a year. Stopping ability can be expressed as a formula:

$$\begin{array}{c} \text{REACTION} \\ \text{DISTANCE} \end{array} + \begin{array}{c} \text{BRAKING} \\ \text{DISTANCE} \end{array} = \begin{array}{c} \text{TOTAL} \\ \text{STOPPING} \\ \text{DISTANCE} \end{array}$$

Remember, moving at 55 mph produces a travel distance of 81 feet for each second of delay.

### How to Avoid Backing Accidents

Backing can be a "dangerous maneuver". Because of the hazards of backing, the defensive driver avoids backing whenever possible by planning an alternative maneuver or choosing another route.

The defensive driver does not back out of parking lots, driveways, or alleys when he can avoid it. Instead, he drives in and turns around so he comes out front first. When this is not possible, he backs in so that he can drive forwards to come out. He knows it is safer to back out of traffic into a quiet area than to back into a heavy traffic stream.

## **When backing is unavoidable, follow these rules:**

**"Size up the situation"** thoroughly and completely, even if you have to get out of your vehicle to do so. Then start backing promptly before the backing situation changes.

**Back slowly.**

**Check both sides as you back.** Check your mirrors often during the backing movement.

**Do not depend entirely** on your mirrors to judge distance to the rear. Mirrors help you to spot pedestrians who may unexpectedly move into the path of your backing vehicle, but mirrors can be deceiving in estimating or measuring distances and clearances.

## **Avoid a Collision with a Following Vehicle**

There are measures you can take to avoid being hit from behind:

**Signal Your Intentions** — Use your directional signals and your brake lights.

**Stop smoothly** — if you follow the rule for avoiding a collision with a vehicle ahead, you will also reduce the chances for a collision of the vehicle following.

**Keep Clear of Tailgaters** — Do not let a tailgater rile you. Just slow down. Increase the following distance between your vehicle and the vehicle ahead, so you do not have to brake suddenly if a tailgater hits you.

## **Avoid a Rear-End Collision When Stopped**

**Keep a foot** on the brake pedal to activate lights.

**Stay at least** 6 feet away from any stopped car ahead to avoid the "domino", multi-collision chain reaction effect.

**Keep your lights** on at dusk or in the rain or other poor visibility conditions.

## **The Technique of Passing**

Any passing maneuver often entails risk. The following twelve points will help to reduce that risk:

1. Decide if the Pass maneuver is necessary.
2. Make certain there is a safe following distance between you and the vehicle ahead.
3. Check the traffic ahead if you are moving in the oncoming traffic lane. If your vehicle and the oncoming vehicle are both traveling at 55 miles per hour, you are closing the gap between you at the rate of 161 feet per second. Since it takes 10 seconds to complete the task, the oncoming car should be at least 1/3 mile away.
4. Check the traffic behind you before changing lanes. First check your mirrors and then your blind spot.
5. Signal with your left turn signal before you change lanes.
6. Move into the left lane.
7. Accelerate as you move alongside the vehicle you are passing.
8. Signal the vehicle you are passing by tapping your horn or flashing your lights if you deem this necessary – especially at night.
9. Signal your intention to return to the right lane by the use of directional signal.
10. Return to the right lane when you can see all of the passed vehicle(s) in the right rear-view mirror.
11. Do not forget to cancel your directional signal.
12. Resume your proper cruising speed as soon as you have completed your passing maneuver.

## **Driving Emergencies**

***Your Brakes Fail*** — If there is any resistance, pump the pedal. You may be able to work up enough pressure to help somewhat.

Most vehicles are equipped with a dual brake system. If one system fails, the back-up system should work. If pumping the brake pedal does not help, coast in "drive" gear and use the parking or hand brake.

If you want to slow faster, shift to lower gears which will permit engine compression to help you slow your vehicle. Use your horn or lights to warn other drivers and pedestrians that you are in trouble and out of control.

***You Go Into a Skid*** — If the rear of the vehicle starts to slide, take your foot off the gas at once. Your first instinct may be to turn hard away from the direction of skid. Do not! That will really spin you.

Turn your wheels in the same direction of the skid – but be careful, do not over-steer. You will be able to feel when the vehicle regains rolling action, and then straighten the wheel.

"Never hit the brakes as a side skid correction". For fast stopping with the least chance of causing a side skid, pump your brakes hard with a rapid jabbing and releasing pressure on the brake pedal. Disc brakes require slower pumping.

***You Have a Blow-Out*** — Keep a firm and steady grip on the steering wheel and do not over-steer to correct swerve or pull.

If a front tire fails, there will be a strong pull to the side of the blow-out. A rear blow-out tends to cause weaving of the rear end. Do not slam on the brakes. Brake smoothly - but easily.

Day or night, set out flares or other warning devices such as reflectors and turn on your light flashers.

***You Must Stop on the Freeway*** — On a freeway with paved shoulders, signal and pull off the road at near traffic speed, then slow down. Do not obscure your taillights by standing or working behind your vehicle. Day or night, place a flare or reflector warning device about 15 feet behind the vehicle and another at about 300 feet further back.

## **Seat Belts**

Seat belts have been provided for your safety. They should be worn and properly adjusted at all times when your vehicle is in motion.

## **Accident Reporting**

When reporting a vehicle accident involving other vehicles and persons, be certain that you have all pertinent information regarding other vehicles or equipment, any persons involved, and specific circumstances of the mishap.

Become familiar with the COMPANY reporting form and procedures. Know where to obtain copies of the form and keep them in your assigned vehicle at all times.

## **Accident Scene:**

Secure the scene to prevent other accidents from occurring.

Place warning cones, flashers, reflectors or flares to protect the scene.

Report injuries to emergency response services.

## **Accident Data:**

Date, time and location of the accident – list streets and known landmarks.

Describe in detail what & how it happened - use a diagram to illustrate the scene.

Road surface, weather and light conditions.

Names, addresses and telephone numbers of parties involved.

Determine who was injured, extent of injury and report their role in the accident.

If injured persons on scene, where were they taken and by what means of transportation (drove self, by friend, by ambulance).

Names, addresses and telephone numbers of witnesses and their statements.

License numbers of vehicles and description of the damage.

Name and badge number of responding police officer, if available.

Take pictures of the accident scene, paying attention to injured persons and property damage. Take picture close up as well as far away that indicate cross streets, background landmarks that can document the accident location.

In accidents not involving other vehicles or people, record the information outlined in your accident report kit and submit it to your fleet supervisor.

## **Accident Review**

### **Determining Preventability**

When a driver reports an accident, a COMPANY accident review committee must determine whether the accident was preventable by the driver involved. The board should consist of the vice president of operations, the fleet supervisor, the Company safety director and any other person deemed necessary. Once preventability is determined, the committee should decide the disciplinary actions to be assigned to the driver involved.

### **Preventable Accidents**

A preventable accident is any occurrence involving an owned or operated vehicle that results in property damage and/or personal injury. This applies regardless of who was injured, what property was damaged, to what extent or where it occurred, and whether or not the driver in question failed to do everything possible to prevent it. The following paragraphs are offered as a guide in determining the preventability of these accidents.

### **Guidelines to Determining the Preventability of Accidents**

Accidents involve so many different factors that it is impossible to set hard and fast rules to classify them as preventable or non-preventable. The accident review board will make this determination. In making these decisions, the board will answer the question "What standard of safe driving performance do we expect from our drivers in this Company?" Drivers respect a strict interpretation of the rules so long as the Company takes the time and effort to ensure that these interpretations are made consistently and fairly.

### **Intersections**

It is the responsibility of all drivers to approach, enter, and cross intersections prepared to avoid accidents that might occur through the action of other drivers. Complex traffic movement, blind intersections, or failure of the other driver to conform to law or traffic control devices will not automatically discharge an accident as "non-preventable".

Intersection accidents are preventable even though the driver has not violated traffic regulations. The vehicle operator's failure to take precautionary measures prior to entering intersections is a factor to be studied in making a decision. When a driver crosses an intersection and the obvious actions of the other driver indicate possible involvement, either by reason of excess speed, crossing a lane in turning, or coming from behind a blind spot, the decision should still be a preventable accident.

Practically any backing accident is preventable. A driver is not relieved of the responsibility to back safely, even when a spotter is involved in the maneuver. The spotter cannot control the movement of the vehicle; therefore, a driver must make sure all backing zones are clear.

### **Front-End Collisions**

Regardless of the abrupt or unexpected stop of the vehicle ahead, your driver can prevent accidents of this nature by maintaining a safe following distance, knowing the conditions of the road and the load. This includes being prepared for possible obstructions on the roadway, either in plain or hidden view. Overdriving headlights at night is a common cause of front-end collisions. Night speed should not be greater than that which will permit the vehicle to come to a stop within the distance illuminated by the vehicle's headlights.

### **Rear-End Collisions**

Investigation will often disclose that a driver risked being struck from behind by failing to maintain a margin of safety in his/her own following distances or making abrupt lane changes. Rear-end collisions preceded by a rollback, an abrupt stop at an intersection, when a traffic signal changes, or when your driver fails to signal a turn or slow down gradually should be charged as preventable.

### **Passing**

Failure to pass another vehicle safely indicates faulty judgment and possibly failure to follow the important factors a driver must implement before attempting to pass. Unusual actions of the driver being passed or of oncoming traffic might appear to exonerate a driver involved in a passing accident; however, the entire passing maneuver is voluntary and your driver is responsible for a safe pass.

### **Being Passed**

Sideswipes and cutoffs involving a driver while being passed are preventable when the driver fails to yield to the passing vehicle by slowing down or moving to the right where possible.

### **Lane Encroachment**

A safe driver is rarely a victim of entrapment by another driver when changing lanes. Similarly, entrapment in merging traffic is an indication of unwillingness to yield to other vehicles or to wait for a break in traffic. Blind spots are not valid excuses for lane encroachment accidents.

Drivers must make extra allowances to protect themselves in areas of limited sight distances. Squeeze plays causing involvement with parked cars, pillars, and other road structures can be prevented by dropping back when it is apparent that the other driver is forcing the issue or contesting space on the road.

### **Grade Crossings**

Preventing collisions with rail track vehicles, such as trains, occurring at grade crossings, in traffic, or on private property is the responsibility of the driver. When a vehicle is parked across a rail siding, the driver must first determine if it is safe and permissible. He/she must stand by in case conditions change by the movement of railcars. Common grade crossing accidents occur on county/country roads that lack crossing indicators, barriers and flashing lights. At these crossings, it is important for the driver to have clear sight, up and down the tracks in both directions, prior to crossing.



## **Oncoming Vehicles**

It is important to check the action of the driver when involved in a head-on or sideswipe accident with a vehicle approaching from the opposite directions. Exact location of the vehicles, prior to and at the point of impact, must be fully clarified during the accident review process. Even though an opposing vehicle enters a driver's traffic lane, it may be possible for your driver to avoid the collision. Your driver can take actions to make their presence known such as flashing lights or sounding the horn.

## **Turning**

Turning movements require the most exacting care by a professional driver. Squeeze plays on left or right turns involving other vehicles or pedestrians are the responsibility of the driver making the turn. Failure to signal, to properly position the vehicle for the turn, to check the rear-view mirrors, to check pedestrian lanes or to take other defensive actions should be considered during the accident review.

You may find that your driver failed to take precautionary actions from indicators given by the other driver immediately preceding the incident. U-turns by your driver that result in a collision are considered preventable accidents.

## **Passenger Accidents**

Passenger accidents in any type of vehicle are preventable when they are caused by the faulty operation of the vehicle. Even though the incident did not involve a collision, it must be considered preventable when your driver stops, turns, or accelerates abruptly, resulting in an injury to a passenger. Emergency actions taken by your driver to avoid a collision should be reviewed to determine that the action would/did eliminate a vehicle collision. In such cases, injury to the passenger would be considered non-preventable.

## **Pedestrians**

Traffic regulations and court decisions generally favor the pedestrian hit by a vehicle. Unusual route of a pedestrian at mid-block or from between parked vehicles does not necessarily relieve the driver from accident preventability. Whether speed limits are posted or the area is placarded with warning signs, speed too fast for conditions may be involved as contributing factors.

## **Weather**

Adverse weather conditions are not a valid excuse for being involved in an accident. Rain, snow, fog, or icy pavements have never caused an accident. These conditions increase the hazards but do not cause accidents. Failure to adjust driving habits to prevailing weather conditions or to "call it a day" when necessary, should be cause for deciding such accidents are preventable. Failure to use safety devices, such as snow chains when required, contributes to accident preventability.

## **Alleys, Driveways, and Entrances**

Accidents involving traffic originating from alleys, driveways, entrances, and other special intersecting roadways should be carefully analyzed to determine what the driver might have done to avoid the accident. Failure to slow down, sound the horn, look for hazards, or yield to others can be considered reasons to call an accident preventable.

## **Fixed Objects**

Collisions with fixed objects are preventable. They usually involve failure to check clearances to the side and overhead. The driver is responsible to be on the lookout for such obstacles, to proceed slowly in unfamiliar locations, and use ground-guides if necessary.

## **Parking**

Unconventional parking locations, including double parking, failure to put out warning devices, etc. generally constitute evidence for judging an accident preventable.

Rollaway accidents from parked positions normally are considered preventable. This includes unauthorized entry into an unlocked and unattended vehicle, failure to properly block wheels, turn them to the curb, or otherwise secure the vehicle from movement.

## **Mechanical Failure**

Any accident caused by mechanical failure that reasonably could have been detected by the driver, should be considered preventable. It is the driver's responsibility to report unsafe vehicle conditions for repairs and make sure the vehicle is in safe operating condition at all times. When mechanical difficulties occur unexpectedly during a trip, the driver is responsible to report this condition to the Company, seeking advice for emergency service. Failure to take precautionary action that results in an accident should be considered a preventable accident. An accident caused by mechanical failure that results from abusive driving should be considered preventable.

## **Pulling Away from Curbs/Parking**

Particular attention should be paid to driver's actions when leaving a parking space or position. Many drivers do not take sufficient time to check for clearances in all directions. This type of accident is considered preventable.

## **Why a Company Should Do Fleet Safety**

### **Moral Aspect**

- Employee Image
- Public Image

### **Financial Aspect**

- Direct Costs (worker's comp premiums, medical expenses)
- Indirect Costs (lost time, productive down time, property damage)
- Higher Workers' Compensation premiums
- Litigation?
- Customer relationships and loss of sales

### **Legal Aspect**

- Compliance with MIOSHA, DOT, Police, etc.
- Litigation

The total cost of a vehicle accident usually exceeds the amount recovered from the insurance Company. Accident control in a large motor vehicle fleet is critical because increased insurance premiums (among other factors) reduce profits. This impact can be as devastating, if not more, to smaller fleets! Safe vehicle operation is the result of training, skill, planning, and action, not chance. Unfortunately, many companies fail to pay enough attention to the safe operation of motor vehicles. The reason for this lapse may be the difficulties of organizing an adequate safety program and providing good driver and fleet supervision.

The majority of all motor vehicle accidents are caused by driver error or poor operating practices including fatigue, inadequate training/retention, and alcohol/drugs use. Only a small percentage of accidents are due to mechanical failure of vehicles or to improper maintenance or equipment. As a result, an organization's vehicle accident prevention efforts should focus on both these principal accident factors - driver error and vehicle failure - because both can be controlled.

Companies can control driver error by implementing a program of driver selection, appropriate scheduling, effective practical training and evaluation, adequate supervision, and alcohol/drug screening; while vehicle failure can be reduced by a systematic preventive maintenance program. As experience has shown, the unsupervised fleet usually has higher accident costs than the supervised one.

Look at past incidences and/or other similar companies for a predictor of future problems!

### **What Is A Vehicle Safety Program?**

***A written safety policy, developed, supported, and enforced by management,*** including a person designated to create and administer the safety program and to advise management. This person should be responsible for advising management on accident prevention and safety matters; developing and promoting safety activities and work-injury prevention measures throughout the fleet; studying and recommending fleet safety programs regarding equipment and facilities, personnel selection and training, and other phases of fleet operation; evaluating driver performance and skill requirements; conducting or arranging for effective safety training and prepare and disseminate safety educational material; reviewing incidences/accidents to determine their causes and recommending corrective actions to management; compiling and distributing statistics on accident-cause analyses and experience; identifying problem persons, operations, and locations; and maintaining individual driver-safety records and administering the safe-driver award incentive program.

#### **1. A driver safety program including:**

- Driver selection procedures
- Driver training
- Records of driver safety performances
- Safety-motivational activities
- Proper supervision and implementation
- Accountability
- Recognizing safe driving

#### **2. An efficient system for accident investigation including:**

- Fact-Finding Mission
- Effective interviewing
- Detailed reporting and assessment
- Determination and application of appropriate corrective actions
- Follow-up procedures to help prevent future accidents

#### **3. A vehicle preventative maintenance program.**

### **Driver Safety Program**

Initiate a driver training program

Proper and effective supervision

Establish performance goals to management

Establish competency and skills levels by setting objectives

Periodic evaluations/reviews of performance

Establish and communicate appropriate consequences

Develop standards to determine ways accidents can be prevented

Require immediate reporting of every accident

Compute and publish the fleet accident record

Maintain a performance record for each driver

Safety motivational activities/incentives

Initiate defensive driving training

## Selecting Drivers

- Interview
- Experience
- References
- MVR

## Personal Traits

- Dependability
- Good judgment
- Courtesy
- Pleasant personality
- Ability to get along with others

HAZMAT transporters must abide by other regulations including OSHA, DOT, RCRA, etc. Training is much more involved.

## What Else Can Be Done?

- Continually communicate with the drivers.
- Involve the safety committee to establish and monitor the communication channel.
- Establish incentive activities/programs.
- Ensure drivers are immediately reporting problems/concerns. Delayed or unreported maintenance issues eventually cause more expense and can increase the possibility of accident or injury to the driver.
- Include accident packs in fleet vehicles (insurance proof, camera, forms, etc.)
- Maintain and carry fire extinguishers and first aid kits.
- Ensure vehicle safety devices are provided and maintained (i.e. signals, wipers, markings, placards, flares, blankets, radios, phones, etc.)
- Continually monitor and evaluate the preventative maintenance program. Don't forget maintenance shop safety! Service and maintain equipment, jacks, chemicals (HAZCOM), PPE, tire/rim servicing, fire protection, lubrication and washing operations, battery charging, flammables, traffic control in the area, etc.
- Injuries also occur during loading, unloading, and handling materials. Consider stability and weight capacities; shifting loads; fall protection; setting brakes and chocking wheels; avoiding exposure from falling loads; prohibiting unapproved riders; avoiding pinch points, crush areas, etc. Provide effective training in the safe work practices when utilizing material handling equipment such as slings, forklifts, tiebacks, etc.

## Company Driver Qualifications

Establishing effective and realistic driver qualification standards is vitally important to the successful operation of any fleet, whether it is a coast to coast interstate operation or a small incidental fleet. Driver qualifications should exist for both the professional and incidental driver. Incidental drivers are those who do not drive as a primary job function, but do, however, use a vehicle to perform that job. Examples of incidental drivers are delivery persons, public utility drivers, salespeople, and field service personnel.

By placing sufficient emphasis on selecting the best available driver, a Company helps to avoid future financial losses resulting from accidents and abuse of the equipment.

Selecting the right driver for the position will depend on how well the selection measures match the skills necessary for satisfactory job performance.

Depending on the type of commerce and size of the vehicles used, there are effectively three levels of driver qualification regulations to be considered:

1. State mandated driver qualifications
2. Drivers of vehicles with a gross vehicle weight rating (GVWR) of 26,001 pounds or more; designed to transport 16 or more passengers, including the driver; or used in the transportation of hazardous materials in a quantity requiring placarding under the Department of Transportation's (DOT) Hazardous Materials Regulations (HMR), must

have a single, state issued Commercial Driver's License meeting minimum Federal requirements.

3. Drivers involved in interstate or foreign commerce in vehicles with a GVWR of 10,001 pounds or more; designed to transport 16 or more passengers, including a driver, or used in the transportation of hazardous materials in a quantity requiring placarding under the DOT HMR, are subject to the requirements of the DOT Federal Highway Administration's Federal Motor Carrier Safety Regulations (FMCSR).

*A "driver qualification file" should be maintained, for persons hired, to permit review of the driver's record and provide future reference to the driver's qualifications. This file should contain all the documents completed during the hiring process and annual updates as required. Motor carriers subject to the FMCSR must have certificates indicating successful completion of the physical examination and road test. A written exam and certificate are no longer required to be administered and placed in the DQ file. The sections pertaining to the written exam (Sec.391.35 and 391.37) have since been removed from the regulations. You may wish to keep a separate confidential file containing drug test results and related information unless the regulations stipulate differently.*

### **The driver selection process includes several steps including:**

- |                                  |                                     |
|----------------------------------|-------------------------------------|
| 1. Application Form              | 6. Physical Examination             |
| 2. Interview                     | 7. Road Test                        |
| 3. Driver's License Verification | 8. Written Test (Optional)          |
| 4. Reference Check               | 9. Substance Abuse and Drug Testing |
| 5. Motor Vehicle Driving Record  |                                     |

If these steps are consistently followed, you should know which applicant is the most qualified to fill the position. Applicants who have shown consistently poor results in the selection process are more likely to be problems later. The following suggestions should help you select a driver who will be a valuable asset to your business.

#### **1. Application Form**

The application form should provide information on the applicant's driver's license(s), driving experience, accident record, and traffic violation convictions and forfeitures for the past 3 years, past employment (previous 3 years; 10 years for drivers required to have a Commercial Drivers License), education, and physical history. Motor carriers subject to the **Federal Motor Carrier Safety Regulations** (FMCSR) are required to obtain specific information on the application form.

For incidental fleets, you may want to suggest to the human resources department that applications for incidental drivers include the following:

- **Driving Experience** — Applicant's past driving experience and the type of driving license held and in which state.
- **Familiarity with specific equipment** — The type of equipment the applicant has driven.
- **Past driving record** — Past driving record, including convictions.

#### **2. Interview**

Personally interview the applicant to review job requirements and qualifications in detail. The interview should be used to resolve any questions regarding the information obtained or omitted on the application form.

#### **3. Driver's License Verification**

Personally check and review the applicant's driver's license to determine if he/she is qualified and licensed to operate the type of vehicles you have.

#### **4. Reference Check**

A check should be made with previous employers to develop information about the driver's general character and professional ability. Factors such as length of employment; job performed including operation of vehicles; accident record; ability to get along with others; and whether the previous employer would re-hire the individual should be included.

This check can be accomplished by a telephone interview, a letter, or a personal visit. The driver's file should verify that these checks were made with record of the responses received. Motor carriers subject to the FMCSR are required to investigate the driver's employment record for the preceding 3 years.

#### **5. Motor Vehicle Record**

A copy of the Motor Vehicle Record (MVR) should be obtained from each state where a driver holds a license, to ascertain that the applicant has a valid license and to review the driver's past record. A driver required to have a CDL can only be licensed in one state. A history of accidents and/or moving traffic violations could indicate a major problem with the applicant.

A MVR should also be obtained annually for each driver and reviewed to determine whether remedial training is necessary. The review is conducted with the driver and becomes part of his/her file. If you operate under the FMCSR, an annual review must be completed in accordance with Section 391.25 of the regulations.

#### **6. Physical Examination**

The physical fitness of the driver must be considered before hiring. Your Company should arrange for physical examinations. In addition to checking a driver's physical condition before hiring, periodic physical examinations should be required and arranged for by your Company. Re-examinations may indicate the onset of a problem and allow appropriate corrective measures to be taken.

Motor carriers subject to the FMCSR are required to have their drivers successfully complete a required medical examination initially and at least every 24 months thereafter, as well as submit to testing for the use of certain controlled substances.

#### **7. Road Test**

A road test is one of the ways to find out whether drivers can do the job expected of them. The same type of equipment to be assigned the driver should be used in the test and the test should be sufficiently long to cover a variety of situations. The test should not establish a passing or failing grade, but should indicate the driver's competent areas and weak points. This will allow you to provide needed training prior to dispatching the driver. Motor carriers subject to the FMCSR are required to verify that each driver has been given a road test.

#### **8. Written Test (Optional)**

Some companies make use of tests to evaluate a driver's knowledge of driving rules and defensive driving practices. Extreme care must be taken to assure that the tests are non-discriminatory and clearly associated with the knowledge and skills necessary to successfully fill the position. Motor carriers subject to the FMCSR are no longer required to administer a written test to prospective drivers. Even though this is the case, companies still have the obligation to instruct drivers and employees about the FMCS Regulations. A written exam could be used as part of your training program. Under the Regulations, drivers must be familiar and up to date with the regulations and the employer must require driver compliance.



## 9. Substance Abuse Programs and Drug Testing

Substance abuse is a serious workplace problem. The National Institute on Drug Abuse reports that approximately 68 percent of all illegal drug users are employed either full or part time. The National Institute on Alcohol Abuse and Alcoholism reports that 1 in every 10 people in this country has an alcohol problem. Drivers with substance abuse problems are especially a concern due to the increased likelihood of accidents and injuries to others.

Fleets operating with drivers having Commercial Drivers Licenses (CDL) operating commercial motor vehicles meeting the following definition are subject to the Federal Highway Administration's regulations on alcohol misuse and drug use prevention and testing programs:

- Has a gross combination weight rating of 26,001 or more pounds inclusive of a towed unit with a gross vehicle weight rating of more than 10,000 pounds.
- Has a gross vehicle weight rating of 26,001 or more pounds.
- Is any size transporting hazardous materials requiring placards.

Drug testing should not be performed until a drug free workplace policy and supporting procedures are in place and communicated to all employees. The rule requires pre-employment, reasonable suspicion, random, post-accident, return-to-duty and follow-up testing. For details on the program, refer to the FMCSR, Title 49, Part 382.

### Driver Training

Regular training must supplement the driver's selection program. The amount of training that is needed varies directly with the complexity of the job as well as with the knowledge and experience of the new employee. Proper training reduces operational disruptions and minimizes unnecessary costs due to accidents and equipment abuse.

#### **Your Company's driver training program should be divided into several levels:**

1. Initial Training — new employee indoctrination.
2. Refresher Training — updates on routes, cargo, equipment, and regulations.
3. Remedial Training — used when there is a problem of substandard performance.

#### **Your Company's driver training program should include the following areas:**

- Company rules and policies
- Equipment familiarization
- Routes and schedules
- Defensive driving techniques
- Government regulations
- Cargo handling
- Emergency procedures and warning devices
- Specific concerns or loss patterns

There are two approaches to training: classroom and in-vehicle. Classroom training can be accomplished using either a one-on-one or group approach. This method is useful for Company rules, government regulations, routes and schedules, accident and emergency procedures, basic cargo handling methods, and basic defensive driving techniques. In-vehicle training is most effective for equipment familiarization, vehicle inspections, cargo handling and defensive driving. In-vehicle training provides one of the best methods of giving practical instruction to a driver under closely controlled conditions.



**Driver Selection:**

Does a definite program for driver selection exist?

Is it as good as it should be and is it adhered to, or is it mostly on paper and frequently forgotten when busy or short of drivers?

**Driver Training:**

Is there a definite training program or is it on a "hit or miss" basis?

Is the driver's past record checked carefully to determine whether reported experience and knowledge are factual?

Does the program provide for retraining as necessary when unsatisfactory performance or accidents are identified?

**Driver Supervision:**

Are supervisory responsibilities adequately handled, or is there overlapping and occasional friction?

Are there areas where no one is clearly responsible?

Can relations with drivers be improved?

Can routing and scheduling procedures be improved for greater efficiency of operation and greater safety?

**COMPANY DRIVER SAFETY AUDIT**

DRIVER QUALIFICATION Y N N/A	DRIVER TRAINING & MOTIVATION Y N N/A	DRIVER SUPERVISION Y N N/A
<input type="checkbox"/> Job Assessment <input type="checkbox"/> Physical Qualifications <input type="checkbox"/> Recruiting System <input type="checkbox"/> Driver Qualification Files <input type="checkbox"/> Application Form <input type="checkbox"/> Interview <input type="checkbox"/> Reference Check <input type="checkbox"/> Road Test <input type="checkbox"/> Motor Vehicle Record <input type="checkbox"/> Review	<input type="checkbox"/> Initial Training Program <input type="checkbox"/> Company Rules and Policies <input type="checkbox"/> Equipment Familiarization <input type="checkbox"/> Routes and Schedules <input type="checkbox"/> Emergency Procedures <input type="checkbox"/> Accident Reporting <input type="checkbox"/> Defensive Driving Techniques <input type="checkbox"/> Regulations <input type="checkbox"/> Cargo Handling/Securement <input type="checkbox"/> Ongoing Training Program <input type="checkbox"/> Incentive Program	<input type="checkbox"/> Vehicle Location Check <input type="checkbox"/> Trip Recorder Checks <input type="checkbox"/> Road Observation System <input type="checkbox"/> Logs Checked

# APPLICANT ROAD TEST

Driver's Name: \_\_\_\_\_ SSN: \_\_\_\_\_

Motor Vehicle Operator's License No. \_\_\_\_\_

Type of License: \_\_\_\_\_ Issuing State: \_\_\_\_\_

Type of Vehicle: \_\_\_\_\_

## INSTRUCTIONS TO EXAMINER:

Place a check mark in the appropriate box:

### PRE-TRIP INSPECTION

Y N N/A

- ☐☐☐ Checks general condition of vehicle
- ☐☐☐ Checks for proper operation of parking and service brake systems
- ☐☐☐ Checks steering mechanism
- ☐☐☐ Checks all lighting devices and reflectors
- ☐☐☐ Checks condition of tires
- ☐☐☐ Checks horn and windshield wipers
- ☐☐☐ Checks and adjusts rear view mirrors
- ☐☐☐ Checks emergency equipment

### PLACING VEHICLE IN OPERATION

- ☐☐☐ Uses seat belt
- ☐☐☐ Starts vehicle properly
- ☐☐☐ Checks air pressure in brake system
- ☐☐☐ Shifts gears properly
- ☐☐☐ Checks traffic conditions
- ☐☐☐ Does not allow vehicle to roll while stopped
- ☐☐☐ Drives with both hands on wheel
- ☐☐☐ Steers smoothly
- ☐☐☐ Maintains proper speed for conditions, within speed limit

### COUPLING AND UNCOUPLING COMBINATION UNIT

- ☐☐☐ Checks that fifth wheel jaws are open
- ☐☐☐ Lines up properly with the trailer
- ☐☐☐ Connects brake and electrical lines
- ☐☐☐ Charges trailer brakes
- ☐☐☐ Backs slowly
- ☐☐☐ Visually checks for proper coupling of fifth wheel
- ☐☐☐ Assures that fifth wheel handle is in locked position
- ☐☐☐ Raises landing gear and removes wheel chocks
- ☐☐☐ Applies trailer brakes and gently tries to pull away from trailer

## **BACKING AND PARKING**

- ☐ ☐ ☐ Stops in correct position
- ☐ ☐ ☐ Avoids backing from blindside
- ☐ ☐ ☐ Gets out of vehicle and checks entire area, including overhead, before backing
- ☐ ☐ ☐ Uses mirrors properly

## **INTERSECTIONS**

- ☐ ☐ ☐ Prepares to stop vehicle if necessary, even if traffic signal is green
- ☐ ☐ ☐ Checks in all directions for traffic conditions
- ☐ ☐ ☐ Stops vehicle in proper location when required
- ☐ ☐ ☐ Does not allow vehicle to roll when stopped

## **TURNING**

- ☐ ☐ ☐ Makes sure vehicle is in proper lane for turn
- ☐ ☐ ☐ Signals intention to turn well in advance
- ☐ ☐ ☐ Approaches at proper speed
- ☐ ☐ ☐ Checks traffic conditions and turns only when intersection is clear
- ☐ ☐ ☐ Keeps vehicle in proper lane during turn
- ☐ ☐ ☐ Does not shift gears during turn

## **RAILROAD CROSSING**

- ☐ ☐ ☐ Checks in all directions when approaching crossing
- ☐ ☐ ☐ Comes to complete stop when necessary or required by law
- ☐ ☐ ☐ Stops at a safe distance when necessary
- ☐ ☐ ☐ Does not shift gears when crossing tracks

## **PASSING**

- ☐ ☐ ☐ Only passes in safe location, where legally allowed
- ☐ ☐ ☐ Checks ahead and behind to make sure passing room is adequate
- ☐ ☐ ☐ Warns vehicle ahead of intention to pass
- ☐ ☐ ☐ Uses directional signals properly
- ☐ ☐ ☐ Leaves sufficient space before cutting back into lane
- ☐ ☐ ☐ Does not exceed speed limit

## **REMARKS:**

**QUALIFIED:**   ☐ **YES**                      ☐ **NO**

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**Examiner's Name (please print)**

**Title**

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**Signature of Examiner**

**Date**

# COMPANY VEHICLE ACCIDENT REPORT

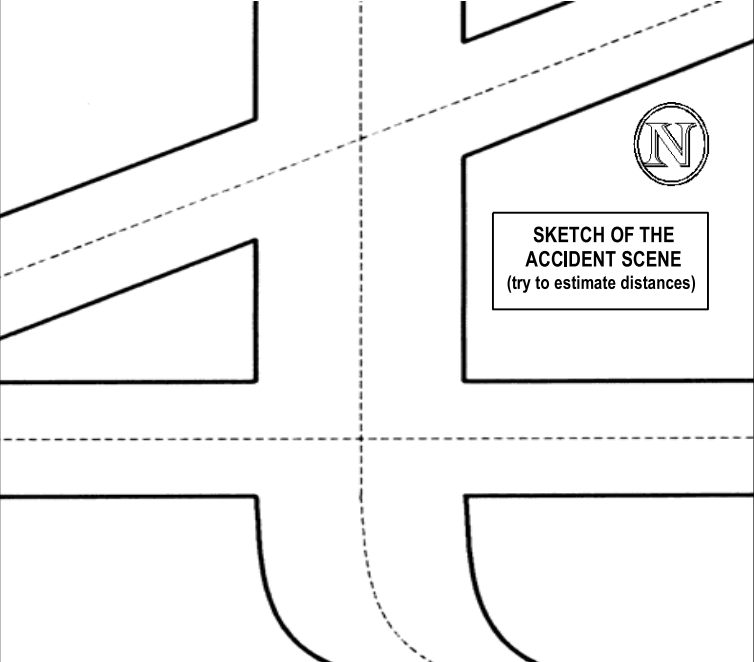
**Company:**

**AFTER AN ACCIDENT:** **1** Stay Calm **2** If the vehicles are drivable and it is safe to do so, move them safely out of l police, traffic **3** Apply first aid (if properly trained) **4** Caland if necessary, ambulance **5** Take brief notes

Vehicle Driver Name		Other Vehicle Driver Name	
Address		Address	
Phone	Driver License #	Phone	Driver License #
Vehicle Type		Other Vehicle Type	
Vehicle license Plate #		Vehicle license Plate #	
Owner's Name		Owner's Name	
Address		Address	
Vehicle Insurance Co. Name		Other Vehicle Insurance Co. Name	
Name Policy is Under		Policy #	
Name Policy is Under		Policy #	
Passenger Info	Passenger Info	Passenger Info	Passenger Info

## ACCIDENT DETAILS

Date of Accident		Explain how the accident happened
Time of Accident <input type="checkbox"/> am <input type="checkbox"/> pm		
Street		
City		
State		
Approx Speed: Your MPH: Other MPH:		Describe your vehicle's damage
Describe any Injuries		
		Describe other vehicle's damage

Investigating Officer Name	
Phone	
Badge No.	
Police Department	
Investigating Officer Name	
Phone	
Badge No.	
Police Department	
Witness Info	
Witness Info	
Report Completed By	
Signature	

[illegible]

#### **Powered Industrial Trucks - MIOSHA-GISS-Part 21-R 408.121**

##### **Policy Statement**

Accurate Painting Company will ensure that each forklift operator is competent to operate the equipment safely, as demonstrated by the successful completion of the training and evaluation specified in MIOSHA Regulations.

##### **Operator Training for Safe Forklift Operation**

Prior to permitting an employee to operate a forklift (except for training purposes), Joe Badalamenti will ensure that each operator has successfully completed the training required.

##### **Training Program Implementation**

Trainees may operate a powered industrial truck only:

- Under the direct supervision of persons who have the knowledge, training, and experience to train operators and evaluate their competence.
- Where such operation does not endanger the trainee or other employees.

Training will consist of a combination of formal instruction (e.g., lecture, discussion, interactive computer learning, video tape, written material), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee), and evaluation of the operator's performance in the workplace.

All operator training and evaluation will be conducted by persons who have the knowledge, training, and experience to train powered industrial truck operators and evaluate their competence.

##### **Training Program Content**

Forklift operators for this Company will receive initial training in the following topics.

##### **Forklift-Related Topics:**

Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate.

Truck controls and instrumentation: where they are located, what they do, and how they work.

Engine or motor operation.

Vehicle capacity.

Vehicle stability.

Steering and maneuvering.

Visibility (including restrictions due to loading).

Fork and attachment adaptation, operation, and use limitations.

Vehicle inspection and maintenance the operator will be required to perform.

Refueling and/or charging and recharging of batteries.

Operating limitations.

Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.

## Workplace-Related Topics:

Surface conditions where the vehicle will be operated.  
Composition of loads to be carried and load stability.  
Load manipulation, stacking, and unstacking.  
Pedestrian traffic in areas where the vehicle will be operated.  
Narrow aisles and other restricted places where the vehicle will be operated.  
Hazardous (classified) locations where the vehicle will be operated.  
Ramps and other sloped surfaces that could affect the vehicle's stability.  
Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause buildup of carbon monoxide or diesel exhaust.  
Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

## Refresher Training and Evaluation

Refresher training, including an evaluation of the effectiveness of that training, will be conducted as required to ensure that the operator has the knowledge and skills needed to operate the forklift safely.

### Refresher training in relevant topics will be provided to the operator when:

- The operator has been observed to operate the vehicle in an unsafe manner.
- The operator has been involved in an accident or near-miss incident.
- The operator has received an evaluation that reveals that the operator is not operating the truck safely.
- The operator is assigned to drive a different type of truck.
- A condition in the workplace changes in a manner that could affect safe operation of the truck.

An evaluation of each powered industrial truck operator's performance will be conducted at least once every three years.

## Avoidance of Duplicative Training

If an operator has previously received training and such training is appropriate to the truck and working conditions encountered, additional training in that topic is not required if the operator has been evaluated and found competent to operate the truck safely.

## Certification

This Company will certify that each operator has been trained and evaluated as required MIOSHA Regulations. The certification will include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation.

NIOSH recommends that employers and workers comply with MIOSHA regulations and consensus standards, maintain equipment, and follow the safety measures outlined in this section to prevent injury when operating or working near forklifts.

<b><i>Class</i></b>	<b><i>Forklift/Powered Industrial Truck type</i></b>
<b><i>I</i></b>	Electric motor rider trucks
<b><i>II</i></b>	Electric motor narrow aisle trucks
<b><i>III</i></b>	Electric motor hand trucks or hand/rider trucks
<b><i>IV</i></b>	Internal combustion engine trucks (solid/cushion tires)
<b><i>V</i></b>	Internal combustion engine trucks (pneumatic tires)
<b><i>VI</i></b>	Electric and internal combustion engine tractors
<b><i>VII</i></b>	Rough terrain lift trucks

Forklifts and Powered Industrial Trucks are divided into seven classes, which should be used only as a guide because some may fall into more than one category. When in doubt, refer to the manufacturer's instructions for more detailed guidance.



## General

All operators must be licensed to operate forklifts and operators are no longer separated into categories (incidental or professional). Operators are qualified to lift loads to the rated capacity of the equipment for which they are licensed, trained, and evaluated. All lifts will be made safely and in accordance with accepted work practices.

## Mandatory Equipment

The use of safety and protective devices is an important factor in safe design and operation of forklifts. The design of all forklifts will comply with the appropriate American National Standards Institute (ANSI) B56 series standard. Forklifts need not be equipped alike; however, there are certain items found on all forklifts:

- Nameplate(s) and markings (e.g. Capacity information; Limitations)
- Warning devices (e.g., Lights or blinkers, sound-producing devices, motion alarms)
- Overhead guards (required when a falling-object hazard exists for the operator)
- On-board, sealed fire extinguishers (10 ABC/BC) for forklifts authorized to transport explosives or used in areas where there are explosives.

## Pre-operational Inspection

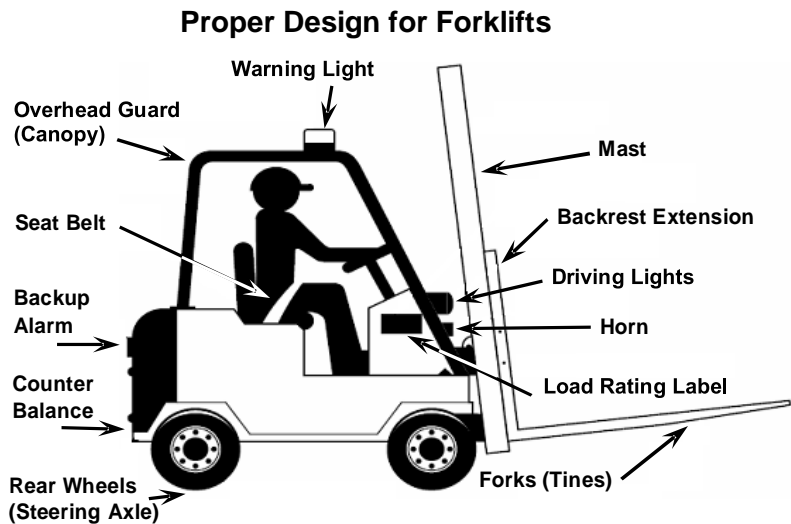
At the start of each work shift during which the unit will be used, the assigned operator will conduct a pre-operational inspection. If a second operator wants to use a forklift but cannot verify that this inspection has been done, he/she will complete the inspection prior to using the forklift. If any malfunctions or defects are found during the inspection, the forklift will be parked (with the keys removed) and tagged "Out of Service" using the "Danger - Do not Operate" tag, pending repairs. Contact supervisory personnel for assistance, if necessary.

Each operator of a forklift is responsible for ensuring that a pre-shift inspection has been completed. This is a visual check of the equipment that is documented on the Operator's Pre-Shift Inspection form. The supervisor or responsible individual will maintain the completed form for a minimum of 30 days.

## Rules for Operators

The following requirements apply to all forklift operators:

- Use seat belts where provided.
- Operate internal combustion engine forklifts only in designated areas with adequate ventilation.
- Do not exceed the floor load rating. (Remember that the total weight of the forklift equals the forklift's plus the load and any attachments.)
- Secure (tie down) unstable loads before starting the vehicle.
- Keep arms and legs inside the forklift structure, except when signaling for turns or stops.
- Do not jump from a moving forklift.



***A common forklift with some of the more common features***

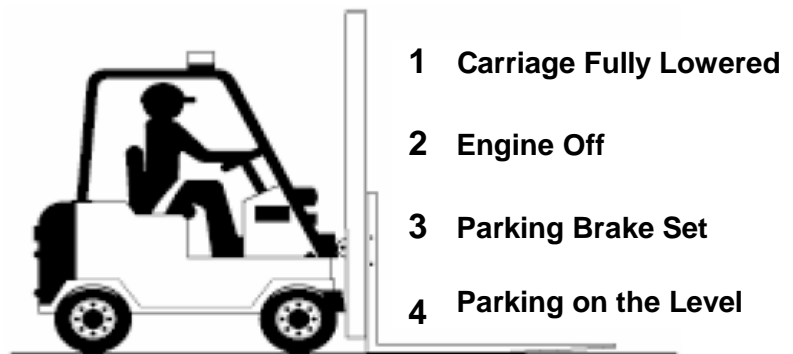
- Make sure that there is adequate clearance before passing under or between structures.
- Maintain indoor speed under 5 mph (8 km/hr) and outdoor speed under 15 mph (24 km/hr).
- Yield to pedestrians.
- Do not carry passengers, except where manufacturer-approved seats are provided.
- Tilt the mast back before traveling.
- Stay at least three vehicle lengths back when following another forklift.
- Maintain forks about 4 to 6 in. (10–15 cm) off the driving surface when traveling.
- Do not attach slings, cables, or chains to the forks to lift materials or objects from underneath them.
- When forward vision is obscured, drive in reverse.
- Observe all traffic signals.
- Do not use a forklift to tow or push other forklifts, another vehicle, or other equipment, unless it is specifically designed to do so.
- Use Class VII forklifts for irregular or rough terrain.
- When traveling on streets, only use forklifts that have been recommended by the manufacturer for road use.
- Solid tire forklifts (such as a Class IV forklift) should be used indoors only. Solid tire forklifts are not designed to operate on irregular surfaces or rough roads.
- Place tines as wide as possible for the load and lock them in place to prevent sideways movement.
- Never add a counterweight. Know the weight of the load being lifted.
- Never exceed the forklift's rated capacity.
- Do not lift material or equipment with which you are unfamiliar.
- Maintain at least a 10-ft (3 m) separation from overhead power lines.
- When crossing rails or other irregular areas, slow down and approach on a diagonal.
- Use forklifts for explosives handling only when lifting and moving items for a short distance.

## Parking

The following requirements apply when parking forklifts:

- Park on level surfaces.
- Lower the forks to the ground.
- Tilt the mast forward.
- Set the parking brake.
- Place the controls in the neutral position.
- Turn off the engine.
- Chock the wheels if the forklift must be parked on a slope.
- Do not leave an unattended forklift running. A forklift is considered unattended if the operator is out of sight of the forklift or more than 25-ft (8 m) away.

**Forklift Properly Set for Parking**



## Special Conditions — Loading Docks and Trailers

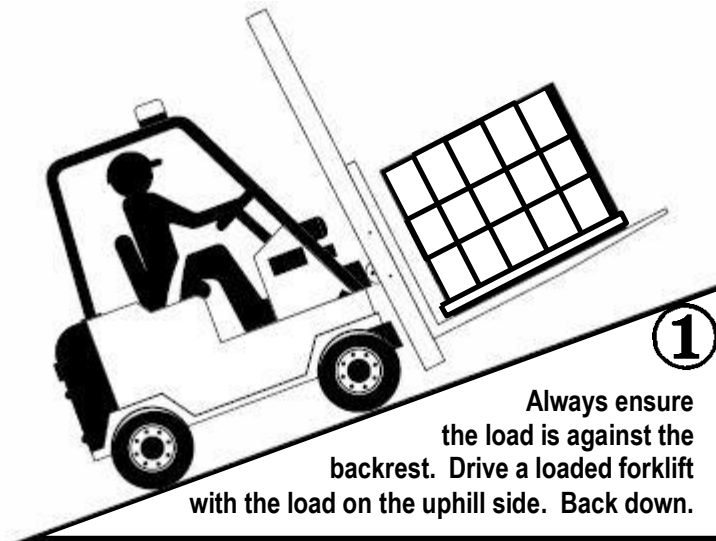
- When operating a forklift on a loading dock or in a trailer, the operator will secure all dock plates.
- Ensure that the total weight of the equipment, attachments, and load do not exceed the floor weight capacity of the trailer. Also make sure that the trailer floor is in good condition and is able to support the load.
- Ensure trailer wheels are chocked or dock clamps are in place before driving onto or into a truck trailer.
- Ensure that trailers not attached to tractors have trailer-jacks in place.
- Drive the forklift slowly on wet and slippery docks.

- Slow down and sound your horn when proceeding through doorways.

## Ramps

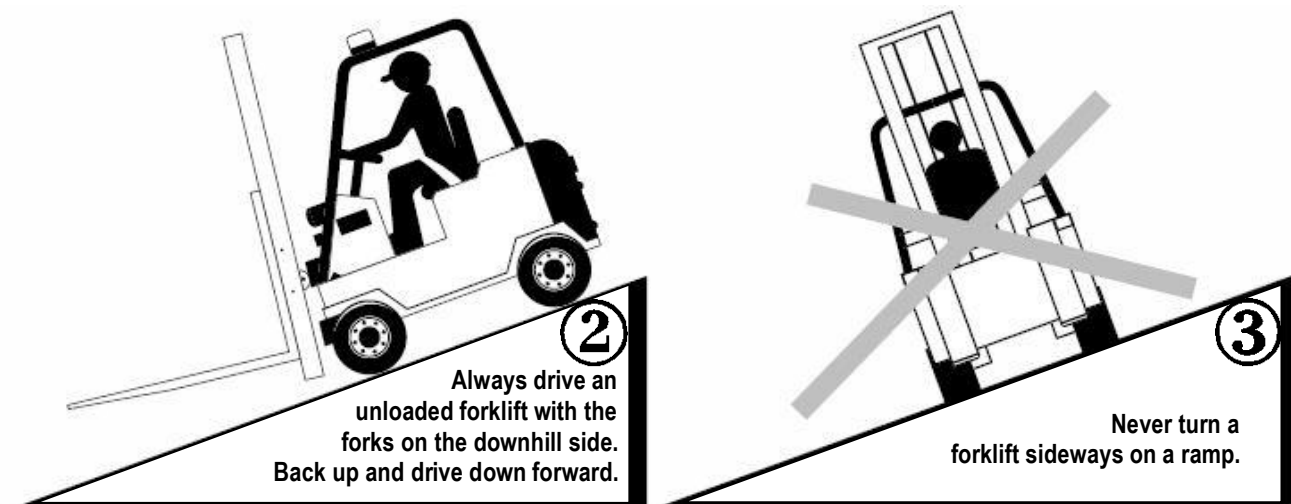
- When operating a forklift on ramps, the operator will point the forks up the ramp when carrying a load, regardless of the direction of travel.
- Drive unloaded forklifts with the forks pointing downhill for added stability.
- Obtain help to guide you when going up a ramp with a load and your vision is blocked.
- Never turn a forklift sideways on a ramp.

**Exception:** When operating a motorized hand truck (Class III forklift), always ensure that the load-engaging means are facing downslope (loaded or empty).



## Work Platforms

Work platforms will be used to lift personnel only when there is no other safer method. If a work platform is used for this purpose, specific precautions and equipment will be in place prior to the lift.



## Refueling and Recharging Batteries

**Refueling** – The following requirements apply when refueling forklifts:

- Gasoline, diesel, and propane forklifts will only be refueled outdoors.
- Propane bottles will be filled only by personnel authorized and trained by management.

- The valve on the propane bottle will be closed while the forklift's engine is running to consume all gas in the line.
- Liquid propane bottles will be transported only in vehicles designated for this purpose and will be properly secured during transport. They will not be transported in closed vehicles.

**Recharging Batteries** – Recharge electric forklift batteries only in designated, posted, and well-ventilated areas. Do not smoke or conduct spark-producing operations near batteries being charged. Wear the appropriate PPE (e.g., aprons, goggles or face shields, and rubber gloves) when servicing batteries. In the event that an acid exposure is possible, an emergency eyewash or shower will be available within 100 ft or a 10-second travel time from the battery system.

## Indoor Operations

Following are the requirements for forklifts operated indoors:

- Ensure that there is adequate ventilation for forklifts powered by internal-combustion engines.
- Only use forklifts with the appropriate classification in areas with explosives or flammable gases.
- Sound the horn when approaching intersections, pedestrians, doors, or corners. Slow down and sound the horn anywhere vision is blocked or impaired.
- Electric forklifts are preferred for indoor operations and required when working in confined spaces.

## Pedestrian Areas

Pedestrians working near forklift operations should keep a safe distance from the operating equipment. This means staying clear of the forklift's turning radius and making sure that the forklift operator knows where you are at all times.

### The forklift operator will

- Yield the right-of-way to pedestrians.
- Prevent anyone from walking or standing under elevated forks.
- Slow down and sound the horn as a warning when approaching personnel.

## Attachments

Special lifting attachments must be approved by the manufacturer for use on powered and non-powered industrial trucks or constructed according to an approved Engineering Safety Note (ESN). Attachments constructed locally in accordance with an ESN should only be used when commercial attachments from a recognized manufacturer are not available for specific applications.

The manufacturer's capacity plate will be modified, or a second plate added, describing the attachment and any related weight capacity modifications. All special-lifting attachments that may be used with forklifts will either be load-tested and labeled to indicate the maximum rated capacity and the net weight, or have affixed to them a manufacturer's label indicating the maximum rated capacity.

Attachments will have a positive means of being secured to the forks or mast. The rated capacity for the forklift and the attachment will not be exceeded.

Attachments almost always affect the rated capacity of the forklift. When a forklift is equipped with an attachment, the manufacturer will establish the rated capacity for the forklift and the attachment. Capacity, operation, and maintenance instruction plates, tags, or decals will be changed accordingly.

The user's Company or organization is responsible for ensuring that attachments meet the requirements specified in this section.

## Narrow-Aisle Equipment

Narrow-aisle equipment (e.g., rider-reach forklifts, stock pickers, and stand-up counterbalanced forklifts) may present unique safety hazards. This type of equipment is designed for specialized jobs and specific work environments. For example, there may be a need for a narrow-aisle stock picker in a warehouse for high-reaching racks.

Fall protection devices and other PPE may be required while operating narrow-aisle equipment.

## Road Use of Forklifts

Forklifts present special hazards when operated on roadways. For that reason, the following requirements apply:

- Only forklifts recommended by the manufacturer will be used on roadways. Hard-rubber tire forklifts or “warehouse forklifts” should not be used on roadways. If hard tire forklifts require refueling, repair, or maintenance at other locations that necessitate travel on roadways or irregular surfaces, extreme care will be used. The supervisor or “responsible individual” will make an assessment of this activity for the safety hazards associated with travel on these surfaces.
- A “slow-moving vehicle” sign (orange triangle) will be mounted to the rear of forklifts recommended for road use.
- Forklifts will not carry loads that are wider than the widest dimension of the forklift or attachment being used.
- Forklifts being driven to a refueling point will not carry loads.
- All loads will be properly secured on the forklift prior to operation on roadways to prevent inadvertent load shifting, slippage, or dropping. The supervisor or “responsible individual” will determine proper methods of securing loads after all safety concerns have been addressed.
- Compressed gas cylinders will be carried only in approved racks or cages specifically designed for that purpose.
- Forklift operators will pay particular attention to motor vehicles and pedestrians while operating on roadways.
- Forklift operators will move to the right lane when traveling on roads to allow passing vehicles adequate clearance. Pull over and stop when necessary.

**Note:** The user’s organization or Company will be responsible for determining the use of forklifts on roadways. The use of forklifts to traverse sections of roadways or parking areas, or areas between buildings, will be determined by the user’s organization or Company – taking into consideration all safety concerns.

**Note:** When oversized loads are to be carried on roadways, the supervisor or responsible individual will determine the proper method of transport. Forklifts should only be used if safer methods (i.e. trailers, trucks, etc.) are not available. If trailers or trucks are not available for transport, and forklifts are to be used, safeguards will be implemented (i.e. observers, road guards, traffic escort, etc.) to ensure forklift operator and other vehicle operator safety.

## Testing, Maintenance, and Modification

Only trained and authorized personnel will maintain and inspect forklifts. All work will be done in accordance with the manufacturer’s specifications. Because forklifts are used daily, it is particularly important to follow maintenance and inspection schedules. Special attention should be given to forklift control, safety, and lifting features such as brakes, steering, lift overload devices, safety equipment, and tilt/lift mechanism.

### Modification

Modifications or additions to forklifts that affect their capacity or safe operation will not be made without prior written approval from the manufacturer.



Capacity, operation, and maintenance instruction plates, tags, or decals will be changed accordingly. Consult management and/or supervision prior to modifying any forklift.

## **Non-powered Trucks/Lifts**

Operators are not required to have a license to operate non-powered trucks/lifts (e.g., pallet jacks, etc.). Work supervisors will only allow trained personnel to operate these units. At the start of each work shift during which the unit will be used, the operator will conduct a pre-operational visual inspection. If any malfunctions or defects are found during this inspection, the truck will be parked and tagged "Out of Service" using the "Danger – Do not Operate" tag, pending repairs.

Special lifting attachments approved by the truck manufacturer or constructed in accordance with an approved ESN may be used on these units. The truck manufacturer's capacity plate will be modified or a second plate added describing the attachment and any related capacity modifications.

## **Responsibilities of Work Supervisors**

- Select operators based on their experience and physical qualification.
- Assure that personnel under your supervision take the required training courses.
- Ensure that a designated forklift proficiency instructor provides practical application training and performance evaluations to applicants.
- Ensure that forklift operators under your supervision have a valid state driver's license and a valid forklift operator's license.
- Monitor the performance of operators to ensure they comply with safety rules.
- Ensure that forklifts under your control are approved by a nationally recognized testing laboratory (e.g., Underwriters Laboratories or Factory Mutual Research Corporation) for the environment in which they are used.
- Ensure that unauthorized persons do not operate forklifts under your control.
- Monitor daily shift pre-operational inspections. Maintain completed Pre-operational Inspection Checklists for a period of 30 days.
- Ensure that forklifts are equipped with all applicable safety equipment (e.g., flashing lights and/or audible alarms) as required by the operating environment.
- Ensure that forklifts are not operated if they are out of compliance with the applicable maintenance schedule.

## **General Forklift Stability**

The stability of a vehicle is a critical factor in safe operation of powered industrial trucks (forklifts). Determining the stability of a forklift is simple once a few basic principles are understood. There are many factors that contribute to a vehicle's stability: the vehicle's wheelbase, track, and height; the load's weight distribution; and the vehicle's counterweight location (if the vehicle is so equipped). The "stability triangle," used in most stability discussions, demonstrates stability simply.

## **Basic Principles**

Whether an object is stable depends on the objects weight or momentum at one end of a system being greater than, equal to, or smaller than the objects weight or momentum at the system's other end. This principle can be seen in the way a see-saw or teeter-totter works: that is, if the product of the load and distance from the fulcrum (moment) is equal to the force at the devices other end, the device is balanced and it will not move. However, if there is a greater force at one end of the device, the device will try to move downward at the end with the greater force.

The longitudinal stability of a counterbalanced forklift depends on the vehicle's weight and the load's weight.

In other words, if the mathematic product of the load weight, (the distance from the front wheels, the approximate point at which the vehicle would tip forward) to the load's center of gravity times the load's weight is less than the vehicle's weight, the system is balanced and will not tip forward. However, if the load's weight and momentum is greater than the vehicle's weight, the greater load-moment will force the truck to tip forward.

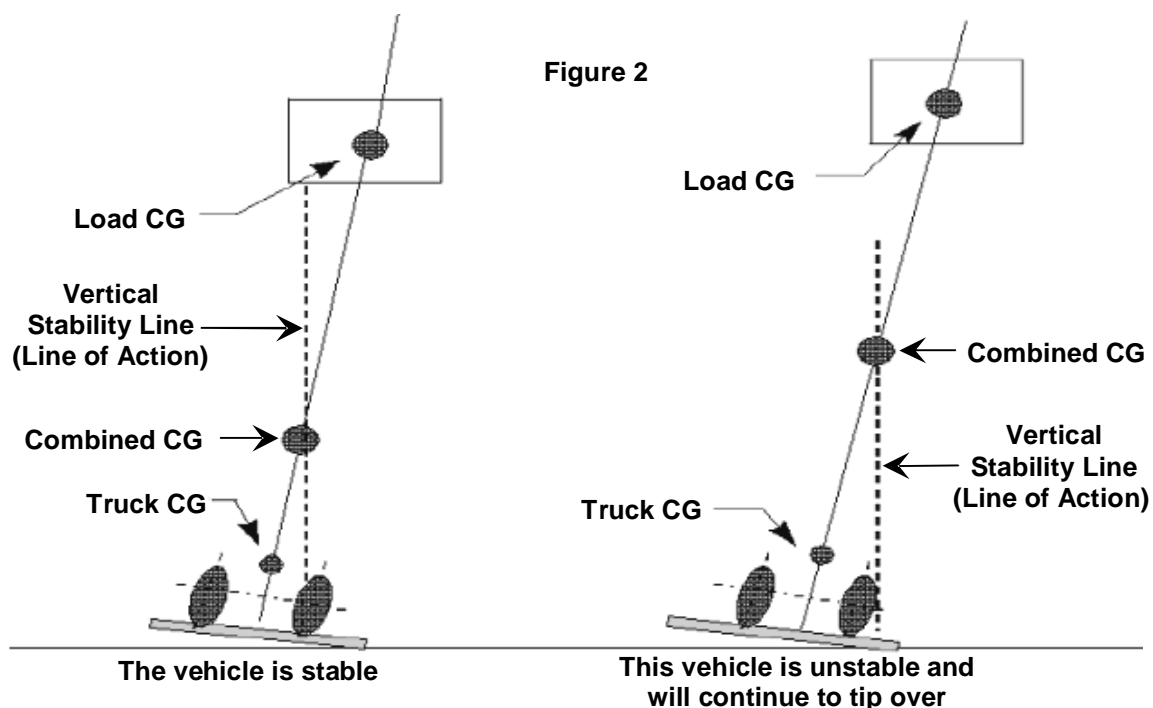
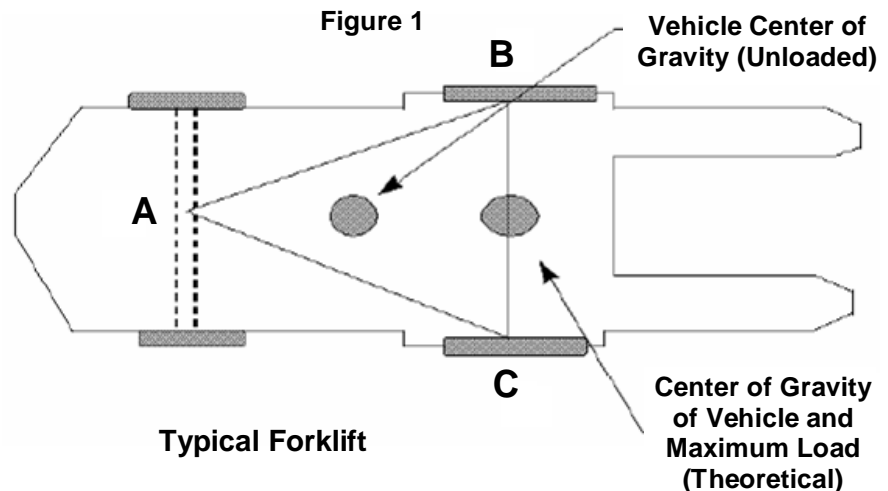
### The Stability Triangle:

Almost all counterbalanced powered industrial trucks have a three point suspension system, that is, the vehicle is supported at three points. The truck's steer axle is attached to the truck by a pivot pin in the axle's center. When the points are connected with imaginary lines, this three-point support forms a triangle called the stability triangle. Figure 1 depicts the stability triangle.

**Notes:** When the vehicle is loaded, the combined "Center of Gravity" (CG) shifts toward line B-C. Theoretically, the maximum load will result in the CG at the line B-C. In actual practice, the combined CG should never be at line B-C.

The addition of additional counterweight will cause the truck CG to shift toward point A and result in a truck that is less stable laterally.

When the vehicle's line of action, or load center, falls within the stability triangle, the vehicle is stable and will not tip over. However, when the vehicle's line of action or the vehicle/load combination falls outside the stability triangle, the vehicle is unstable and may tip over. See Figure 2.





## Longitudinal Stability

The axis of rotation when a truck tips forward is the front wheels' points of contact with the pavement. When a forklift tips forward, the truck will rotate about this line. When a truck is stable, the vehicle-moment must exceed the load-moment. As long as the vehicle-moment is equal to or exceeds the load-moment, the vehicle will not tip over. On the other hand, if the load moment slightly exceeds the vehicle-moment, the truck will begin to tip forward, thereby causing the rear to lose contact with the floor or ground and resulting in loss of steering control. If the load-moment greatly exceeds the vehicle moment, the truck will tip forward.

To determine the maximum safe load-moment, the truck manufacturer normally rates the truck at a maximum load at a given distance from the front face of the forks. The specified distance from the front face of the forks to the line of action of the load is commonly called the load center. Because larger trucks normally handle loads that are physically larger, these vehicles have greater load centers. Trucks with a capacity of 30,000 pounds or less are normally rated at a given load weight at a 24-inch load center. Trucks with a capacity greater than 30,000 pounds are normally rated at a given load weight at a 36- or 48-inch load center. To safely operate the vehicle, the operator should always check the data plate to determine the maximum allowable weight at the rated load center.

Although the true load-moment distance is measured from the front wheels, this distance is greater than the distance from the front face of the forks. Calculating the maximum allowable load-moment, using the load-center distance always provides a lower load-moment than the truck was designed to handle. When handling unusual loads, such as those that are larger than 48 inches long (the center of gravity is greater than 24 inches) or that have an offset center of gravity, etc., a maximum allowable load-moment should be calculated and used to determine whether a load can be safely handled. For example, if an operator is operating a 3000 pound capacity truck (with a 24-inch load center), the maximum allowable load-moment is 72,000 inch pounds (3,000 times 24). If a load is 60 inches long (30-inch load center), then the maximum that this load can weigh is 2,400 pounds (72,000 divided by 30).

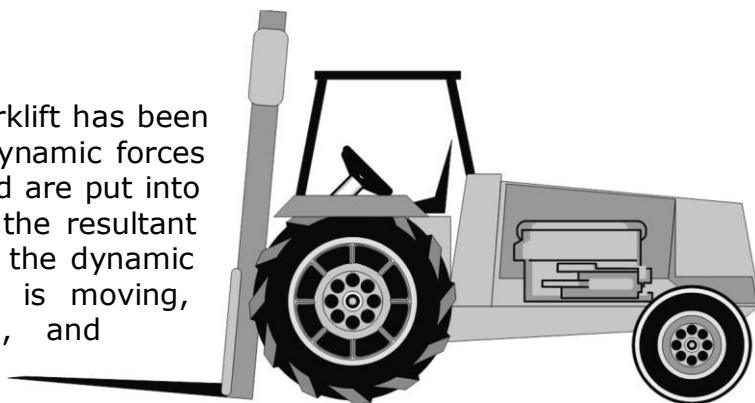
## Lateral Stability

The vehicle's lateral stability is determined by the line of action's position (a vertical line that passes through the combined vehicle's and load's center of gravity) relative to the stability triangle. When the vehicle is not loaded, the truck's center of gravity location is the only factor to be considered in determining the truck's stability. As long as the line of action of the combined vehicle's and loads center of gravity falls within the stability triangle, the truck is stable and will not tip over. However, if the line of action falls outside the stability triangle, the truck is not stable and may tip over. Refer to Figure 2.

Factors that affect the vehicle's lateral stability include the load's placement on the truck, the height of the load above the surface on which the vehicle is operating, and the vehicle's degree of lean.

## Dynamic Stability

Up to this point, the stability of a forklift has been discussed without considering the dynamic forces that result when the vehicle and load are put into motion. The weight's transfer and the resultant shift in the center of gravity due to the dynamic forces created when the machine is moving, braking, cornering, lifting, tilting, and lowering loads, etc., are important stability considerations.



When determining whether a load can be safely handled, the operator should exercise extra caution when handling loads that cause the vehicle to approach its maximum design characteristics. For example, if an operator must handle a maximum load, the load should be carried at the lowest position possible, the truck should be accelerated slowly and evenly, and the forks should be tilted forward cautiously. However, no precise rules can be formulated to cover all of these eventualities.

## **Daily Checklist for Forklifts**

The MIOSHA standard for forklift training requires that an employer provide training to truck operators on a variety of topics. Among these topics are vehicle inspection and maintenance that the operator will be required to perform. Each type of forklift is unique and checklists pertinent to each type of vehicle should be modified accordingly. It is recommended that the manufacturer's instructions on vehicle maintenance and owner's and operator's responsibilities also be consulted. The MIOSHA standards for powered industrial trucks should be evaluated to ensure compliance.

## **Develop a Forklift Operator Training Program**

Before you begin developing your operator training program you should become familiar with the MIOSHA standard for powered industrial trucks (Forklifts) and any operator's manual pertinent to the equipment you have in your workplace.

### **Identify your Operators**

First, you need to determine the employees that will be required to operate forklifts in your workplace. If an employee has other duties, but sometimes operates a forklift, training must be provided.

### **Identify the Types of Forklifts You Have in Your Workplace**

There are many different types of powered industrial trucks. Typically, these types of vehicles are known as forklift or lift trucks. Some types of trucks are not capable of being ridden by the operator. These are also covered by the MIOSHA standard and training is required. Some trucks are fitted with attachments purchased from the manufacturer. The use of these attachments may affect the manner in which the truck is handled; therefore, training on the use of the attachment would also be required. If your employees will be expected to operate several different types of forklifts, then training is required on the unique handling characteristics of the vehicles.

## **Methods of Training**

Once you have identified your forklift operators and types of trucks you have in your workplace, you should determine the methods of training you will use.

Training must consist of a combination of formal instruction and practical training. Using both methods is the only way to ensure that the trainee receives and comprehends the instruction and uses the information to safely operate a forklift. Note that the formal training need not take place in a classroom. Discussions can consist of the trainer talking to the trainee and explaining the training material, either in the workplace or in another location. The training must, however, include an explanatory element as well as a practical element.

Formal instruction may include lectures, conferences, classroom discussions, demonstrations, and written or oral tests. To enhance the training and make it more understandable to the employee, employers and other trainers may use movies, slides, computers, video tapes and other visual presentations.

### **Using visual aids has several advantages, including:**

- The employees being trained remain more attentive, thereby increasing the training's effectiveness.

- The trainer can use visual presentations to ensure that the necessary information is covered during the training.
- Graphical presentations make better use of the training time by decreasing the need for the instructor to carry on long discussions about the instructional material.
- Trainees have greater retention of information learned from graphical presentations.

While some employees can learn instructional material while seated in a classroom, other employees may learn best by observing an operation (demonstration) and/or by personally performing an operation (practical exercise). In most cases, a combination of different training methods provides the best training in the least amount of time.

Once you have selected the method of training, then the content of the training program must be considered to include all pertinent training items.

### **Training Program Content**

Because each type (make and model) of forklift has different operating characteristics, limitations, and other unique features, a good employee training program for forklift operators should be based upon the type of vehicles that the employee will be trained and authorized to operate. The training should also emphasize the workplace's features that will affect how the vehicle must be operated. Finally, the training should include the general safety rules applicable to operating any powered industrial truck.

### **General Forklift Operator Training Program**

All operators at Accurate Painting Company will familiarize themselves with these characteristics of the forklift(s) they will operate:

Controls and instrumentation: location, what they do, and how they work.

Engine or motor operation.

Steering and maneuvering.

Visibility.

Fork and/or attachment adaptation, operation, and limitations of their use.

Vehicle capacity.

Vehicle stability.

Vehicle inspection and maintenance the operator will be required to perform.

Refueling or charging and recharging batteries.

Operating limitations.

Any other operating instruction, warning, or precaution listed in the Operator's Manual for the type of vehicle the employee is being trained to operate. All forklifts should be equipped with Operator's Manuals and Safety Manuals. Read the manuals before operating any forklift. If the manuals are missing, contact an equipment dealer or the manufacturer directly for more copies.

### **The Operating Environment**

Before operating any forklift, learn as much about the work area as possible. Walk around the worksite and inspect the surface(s) over which you will be expected to travel. Be aware of:

- |                     |                         |
|---------------------|-------------------------|
| • Slippery Surfaces | • Confined Areas        |
| • Rocks             | • Underground Utilities |
| • Holes             | • Powerlines            |
| • Overhead Hazards  | • Moving equipment      |
| • Slopes            | • Scattered materials   |
| • Deep Ditches      | • Pedestrian traffic    |

- Obstructed Vision
- Restricted Clearances
- Speed Considerations
- Composition of probable loads and load stability.
- Load manipulation, stacking, un-stacking.
- Operating the truck on ramps and other sloped surfaces that would affect the stability of the vehicle.
- Operating the vehicle in closed environments and other areas where insufficient ventilation and/or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust.
- Deep mud
- Oil spills
- Water Hazards

## **MIOSHA Requirements**

After the training program has been completed, Joe Badalamenti will evaluate the trainee's knowledge and skills and determine that the employee is competent to operate the truck safely.

## **Employee Evaluation**

When the employee completes the training exercises and prior to operating the truck, an evaluation of the employee must be performed. This evaluation will determine the adequacy of training and the ability of the employee to perform truck operations safely in the workplace.

The MIOSHA standard also requires that an evaluation of the operator's performance be conducted at least once every three years and after refresher training.

Company management will then complete a certification of training record containing the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation.

## **Refresher Training**

During the course of forklift operations, the supervisor may observe the employee performing an unsafe act, such as riding with the load too high or traveling at an unsafe speed. The person making the correction will point out the incorrect manner of operation of the truck or other unsafe act being conducted, tell the employee how to do the operation correctly, and then ensure the employee does the operation correctly. When there have been multiple on-the-spot corrections, Company management may decide to conduct a more structured retraining program which would include the following information:

- Common unsafe situations encountered in the workplace.
- Unsafe operating methods observed or known to be used.
- The need for constant attentiveness to the vehicle, the workplace conditions, and the manner in which the vehicle is operated.

The preceding subject areas need to be taught so that the trainee receives all the information needed for safe vehicle operation. Specific details may be found in the vehicle manufacturers' literature, the national consensus standards, and the OSHA standards relating to forklift operator training.

## **Forklift Operator Training Program Outline**

- **Introduction - Overview of the Program**
  - The goal is to provide a training program based on the trainee's prior knowledge, the types of vehicles used in the workplace, and the hazards of the workplace.
  - The course will utilize video, group discussion and hands-on practice. Each operator must obtain the knowledge and skills needed to do their job correctly and safely.

- **Forklift Types, Features, and Physics**
  - Each operator will familiarize themselves with the basic types and functions of forklifts.
  - Develop an understanding of the information shown on a data plate.
  - Understand the critical forklift measurements that affect safety.
  - Understand the forces that cause a tip-over, and the forklift design considerations and safety ratings that help prevent them including the "stability triangle."
- **Inspecting the Vehicle**
  - Understand the purpose and importance of pre-operational checkouts.
  - Provide a basic understanding of areas covered during a pre-operational checkout.
  - Familiarize each operator with a checklist for pre-operational checkouts, and what to do if a problem is discovered.
- **Driving the Truck**
  - Understand the elements of safe movement of a forklift.
  - Understand the differences between an automobile and a forklift.
  - Recognize the safety hazards associated with operating a forklift.
- **Load Handling**
  - Understand the elements of load lifting safety.
  - Understand the safe operating procedures for raising and lowering loads in confined/restricted areas.
- **Refueling Gas, Diesel, and LPG Forklifts**
  - Discuss LPG and its properties.
  - Understand the elements and procedures of safely refueling internal combustion vehicles.
  - Describe tank components: service valve, surge valve, relief valve, etc.
  - Discuss related safety issues.
- **Battery and Charging**
  - Understand the elements and procedures of safely changing and charging batteries.
  - Discuss filling procedures and maintenance.
  - Discuss related safety issues.
- **Safety Concerns**
  - Review/reinforce potential of serious injury.
  - Review/reinforce safety procedures at your workplace/facility.
- **Specific Truck and Workplace Training/Hands-On**
  - Review features of specific powered industrial trucks to be operated.
  - Review operating procedures of specific powered industrial trucks to be operated.
  - Review safety concerns of specific powered industrial trucks to be operated.
  - Review workplace conditions and safety concerns of areas where powered industrial trucks will be operated.
  - Learn/practice actual operation of specific powered industrial trucks to be operated and specific workplace conditions where powered industrial trucks will be operated.
  - Demonstrate proficiency performing the forklift operator duties specific to the trainee's position and workplace conditions.
- **Accurate Painting Company will issue a Certification of Completion of the Course upon successful completion of the training course.**

## **General Operation of a Forklift**

Mount the forklift using three points of contact (two hands and one foot).  
Adjust the seat and mirrors.  
Put the seat belt on and adjust accordingly.  
Familiarize yourself with the controls.  
Take into consideration all workplace hazards.  
Make sure the unit is in neutral and start the engine.  
Look at the gauges and make sure everything is normal.  
Raise the forks two to four inches off the ground.  
Make sure no pedestrians are around the forklift then proceed with caution.  
Never modify a forklift without the manufacturer's written approval.  
Forklift usually steer from the rear, make turns from the inside.  
If a forklift begins to roll over, brace yourself and ride it out.  
When traveling, pedestrians always have the right of way.  
Keep a safe stopping distance at all times.  
When traveling outdoors, always be aware of changing conditions.  
Drive a loaded forklift with the load "uphill" (10% grade or more).  
Lower forks when forklift is unattended (operator 25 feet away).  
Never enter a trailer, truck, or railcar unless authorized.  
Before entering a trailer, truck, or railcar, make sure it has been secured.  
Before entering a trailer, make sure the trailer floor can support the truck.

## **Picking Up a Load**

Make sure the load does not exceed the capacity of the forklift.  
Center the forks to evenly distribute the weight of the load.  
Make sure the load is balanced and secure.  
Drop the forks to the floor.  
Drive into the load as far as possible.  
Check for overhead obstructions.  
Tilt the load back slightly and then lift.  
Sound horn, look for pedestrians, and then back out slowly.  
Lower load to the safe traveling height before moving (2" – 4" above the floor).  
The forklift should be completely stopped before the load is raised or lowered.

## **Traveling with a Load**

Pedestrians always have the right-of-way.  
Keep the load tilted back slightly.  
Keep the forks low, 2 to 4 inches above the ground, if possible.  
An operator's visibility is always restricted, even without a load, be cautious.  
Always watch for pedestrians and other traffic.

If load is large and blocks operator's view, travel in reverse or get a "spotter."  
Drive at a safe speed, slowing down when going around corners.  
Sound the horn when approaching aisles and corners.  
Never allow any riders.  
On any incline, drive a loaded forklift with load "uphill" (10% grade or more).  
Slow down on slippery surfaces and avoid running over objects.  
Avoid sudden braking maneuvers.  
Lift or lower the load only when completely stopped, never when traveling.  
Cross railroad tracks at an angle.

### **Placing a Load**

Stop the forklift in front of the desired location.  
Slowly raise the load to the required height.  
Move forward slowly with the load raised.  
Never walk or stand under a raised load.  
Position the load for placement, tilting the load forward to level it.  
Place the load square and straight.  
Once the load is settled, prepare to back up.  
Before backing, check behind & both sides for pedestrians and sound the horn.  
Make sure the forks clear the pallet before turning or changing the height.  
Unusually shaped loads may require special stacking considerations; operators must be aware of the requirements before picking up these loads.

### **Shut Down**

Come to a complete stop and then set the parking brake.  
Lower the forks to the ground and shut the engine off.  
Cycle hydraulic controls to relieve pressure and then remove ignition key.  
Lock any anti-vandalism covers or guards.



## Performance Evaluation for Forklift Operators

Employee: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Evaluator: \_\_\_\_\_ Equipment Type: \_\_\_\_\_

YES/NO

- ☐ ☐ Shows familiarity with truck controls.
- ☐ ☐ Gave proper signals when turning.
- ☐ ☐ Slowed down at intersections.
- ☐ ☐ Sounded horn at intersections.
- ☐ ☐ Obeyed signs.
- ☐ ☐ Kept a clear view of direction of travel.
- ☐ ☐ Turned corners correctly - was aware of rear end swing.
- ☐ ☐ Yielded to pedestrians.
- ☐ ☐ Drove under control and within proper traffic aisles.
- ☐ ☐ Approached load properly.
- ☐ ☐ Lifted load properly.
- ☐ ☐ Maneuvered properly.
- ☐ ☐ Traveled with load at proper height.
- ☐ ☐ Lowered load smoothly/slowly.
- ☐ ☐ Stops smoothly/completely.
- ☐ ☐ Load balanced properly.
- ☐ ☐ Forks under load all the way.
- ☐ ☐ Carried parts/stock in approved containers.
- ☐ ☐ Checked bridge-plates/ramps.
- ☐ ☐ Did place loads within marked area.
- ☐ ☐ Did stack loads evenly and neatly.
- ☐ ☐ Did drive backward when required.
- ☐ ☐ Did check load weights.
- ☐ ☐ Did place forks on the floor when parked, controls neutralized, brake on set, power off.
- ☐ ☐ Followed proper instructions for maintenance - checked both at beginning and end.

Comments: \_\_\_\_\_

\_\_\_\_\_

**Total Rating:** ☐ Excellent ☐ Good ☐ Fair ☐ Poor ☐ Fail

Evaluator's Signature

Date

Operator's Signature

Date

# DAILY INSPECTION CHECKLIST

## Powered Industrial Truck

### KEY OFF Procedures

#### The vehicle inspection

- Overhead guard
- Hydraulic cylinders
- Mast assembly
- Lift chains and rollers
- Forks
- Tires
- Gas gauge
- Check the engine oil level
- Examine the battery
- Inspect the hydraulic fluid level
- Check the engine coolant level

### KEY ON Procedures

#### Test the standard equipment

- Front, tail, and brake lights
- Fuel gauge (if diesel)
- Windshield wiper
- Heater

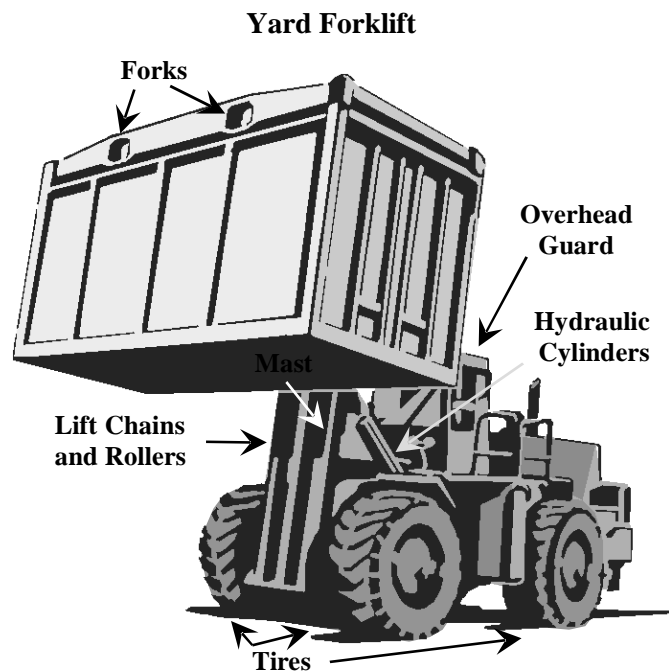
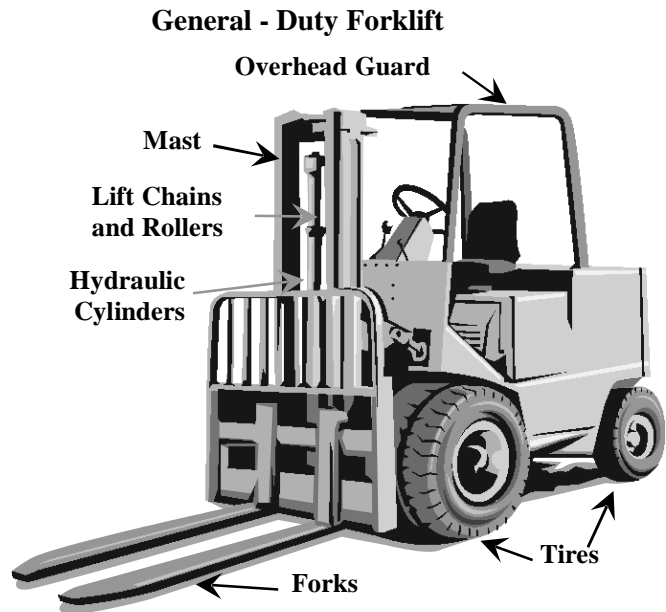
### ENGINE RUNNING Procedures

#### Check the gauges

- Oil pressure indicator lamp
- Ammeter indicator lamp
- Ammeter
- Hour Meter
- Water Temperature Gauge

#### Test the standard equipment

- Steering
- Brakes
- Horn
- Safety seat (if equipped)
  - Check the operation of load-handling attachments
  - Check the transmission fluid level



# GENERAL DAILY FORKLIFT CHECKLIST

Y/N

## Overhead Guard

- ☐ ☐ Are there broken welds, missing bolts, or damaged areas?

## Hydraulic Cylinders

- ☐ ☐ Is there leakage or damage on the lift, tilt, and attachment functions of the cylinders?

## Mast Assembly

- ☐ ☐ Are there broken welds, cracked or bent areas, and worn or missing stops?

## Lift Chains and Rollers

- ☐ ☐ Is there wear or damage or kinks, signs of rust, or any sign that lubrication is required?
- ☐ ☐ Is there squeaking?

## Forks

- ☐ ☐ Are they cracked or bent, worn, or mismatched?
- ☐ ☐ Is there excessive oil or water on the forks?

## Tires - What do the tires look like?

- ☐ ☐ Are there large cuts that go around the circumference of the tire?
- ☐ ☐ Are there large pieces of rubber missing or separated from the rim?
- ☐ ☐ Are there missing lugs?
- ☐ ☐ Is there bond separation that may cause slippage?

## Battery Check

- ☐ ☐ Are the cell caps and terminal covers in place?
- ☐ ☐ Are the cables missing insulation?

## Hydraulic Fluid

- ☐ ☐ Check level?

## Gauges

- ☐ ☐ Are they all working properly?

## Steering

- ☐ ☐ Is there excessive free play?
- ☐ ☐ If power steering, is the pump working?

## Brakes

- ☐ ☐ If pedal goes all the way to the floor when you apply the service brake; that is the first indicator that the brakes are bad. Brakes should also work in reverse. Does the parking brake work? The truck should not be capable of movement when the parking brake is engaged.

## Lights

- ☐ ☐ If equipped with lights, are they working properly?

## Horn

- ☐ ☐ Does the horn work?

**Safety Seat**

- ☐ ☐ If the truck is equipped with a safety seat is it working?

**Load Handling Attachments**

- ☐ ☐ Is there hesitation when hoisting or lowering the forks, when using the forward or backward tilt, or the lateral travel on the side shift?
- ☐ ☐ Is there excessive oil on the cylinders?

**Engine Oil**

- ☐ ☐ Check levels.

**Engine Coolant**

- ☐ ☐ Visually check the level. Note: Never remove the radiator cap to check the coolant level when the engine is running or while the engine is hot. Stand to the side and turn your face away. Always use a glove or rag to protect your hand.

**Transmission Fluid**

- ☐ ☐ Check levels?

**Windshield Wipers**

- ☐ ☐ Do they work properly?

**Seat Belts**

- ☐ ☐ Do they work?

**Control Lever**

- ☐ ☐ Does the lever operate properly?

Comments/Observations: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Printed name and signature of person(s) conducting inspection

Date

Printed name and signature of person(s) conducting inspection

Date

Log 300 Recordkeeping Forms & Posting Requirements

**Log 300 Recordkeeping**

Following are the three forms needed for recordkeeping:

MIOSHA Form 300 — Log of Work-Related Injuries and Illnesses.

MIOSHA Form 301 — Injury and Illness Incident Report.

MIOSHA Form 300A — Summary of Work-Related Injuries and Illnesses.

**These are official Federal OSHA forms with accompanying instructions and worksheets. Make copies of the blank forms for future use.**

## Posting Requirements (Federal)

Federal law requires that employers conspicuously display the following posters where they can be read by their employees:

Federal Minimum Wage — This posting explains the Federal Minimum Wage; Overtime Pay; Child Labor; and Enforcement.

Equal Employment Opportunity is the Law — Reasons for Taking Leave; Advance Notice & Medical Certification; Jobs Benefit & Protection.

Notice Employee Polygraph Protection Act — Prohibitions; Exemptions; Examinee Rights; Enforcement; Additional Information.

You Have A Right to a Safe & Healthful Workplace — "IT'S THE LAW"— Employers Holding Federal Contracts or Subcontracts; Private Employment State & Local Government Educational Institutions; Programs or Activities Receiving Federal Financial Assistance.

Your Rights Family & Medical Leave ACT — Reasons for Taking Leave; Advance Notice & Medical Leave; Jobs Benefit & Protection.

Your rights under USERRA — THE UNIFORMED SERVICES EMPLOYMENT AND REEMPLOYMENT RIGHTS ACT. USERRA protects the job rights of individuals who voluntarily or involuntarily leave employment positions to undertake military service. USERRA also prohibits employers from discriminating against past and present members of the uniformed services, and applicants to the uniformed services.

**NOTE:** Some states require the use of their own posters. Check with your State Labor Department for poster requirements.

#### **Accurate Painting Company New Hire Orientation Checklist**

1. I have read or have had explained the Safety Policy & Program Summary. I have no further questions regarding:
  - The Company's Safety Philosophy.
  - My safety responsibilities as an employee.
  - The disciplinary procedures.

\_\_\_\_\_ **Initial**

2. I have read or have had explained the Safety Committee portion of the Safety Program:
  - I am aware of who is in charge of safety if I have questions.
  - I am aware of my ability to report my safety concerns to the Safety Coordinator.
  - I am aware that this Company is striving to provide a safe working environment and is committed to my safety and ability to inform the Company of unsafe working environments without fear of reprisal.

\_\_\_\_\_ **Initial**

3. I have read or have had explained the General Safety Rules as pertain to the Safety Program:
  - I am aware of all safety rules and general codes of safe practice.

\_\_\_\_\_ **Initial**

4. I have read or have had explained the safety policy regarding Hand and Power Tools:
  - I am aware that I am required to inspect all tools before I operate the equipment.
  - I am aware that I can request training from my supervisor on any tool that I do not know how to operate safely.
  - I am aware that if I am unsure of how to operate my tools safely I am to not operate them until I receive proper training and feel that I can operate it safely.
  - I am aware that any tool in need of repair or out of compliance is to be reported to my supervisor.

\_\_\_\_\_ **Initial**

5. I have read or have had explained the process for Accident Reporting & Investigation:
  - I understand that I am to immediately report an accident to my supervisor.
  - I understand that I am to immediately stop working.
  - I understand that if I need medical attention I am to see the clinic or hospital that is affiliated with this Company.
  - I understand that if I go to a different doctor or medical facility the Company may have a right to deny or not pay my medical bill.
  - I understand that I will be cooperative in any accident investigation.
  - I understand that upon any accident I may be tested for drugs and alcohol.
  - I understand that if I am present at my place of employment under the influence of drugs and or alcohol that I automatically self-terminate my employment with or without notice of termination by the Company.

\_\_\_\_\_ **Initial**



6. I have read or have had explained the Emergency Action Plan:

- I understand where my emergency evacuation routes are located.
- I understand that we are to gather at a specific determined place in order to conduct a head count.

\_\_\_\_\_Initial

7. I have read and or have had explained the Fire Prevention Plan:

- I understand that I am to report any potential fire hazards.
- I am to keep all exits clear and free of obstacles.
- I know where the nearest fire extinguisher is to my workstation.

\_\_\_\_\_Initial

8. I am aware of the CPR & First Aid portion of the Safety Program:

- I am aware of where the first aid kits are located.
- I am aware that I am to report to management if the first aid kit needs restocked.
- I am aware of who is trained in First Aid and CPR
- I am aware of where the nearest Eye Wash Station is located (if appropriate).
- I am aware that I am to report all injuries immediately to my supervisor.
- I am aware of where our clinic is located and will have someone drive me there in the event of an emergency (or by ambulance if appropriate).

\_\_\_\_\_Initial

9. I have read or have had explained the Hazard Evaluation portion of the Safety Program:

- I understand that I am to be familiar with the hazards that surround my workstation.
- I understand that I am to report any hazard that may be present in my workstation.
- I understand that it is my responsibility to assist in providing a safe working environment for myself and my co-workers.

\_\_\_\_\_Initial

10. I have read or have had explained the Bloodborne Pathogens portion of the Safety Program:

- I understand that I am to wear personal protective equipment when dealing with blood or body fluids.
- I understand that I am to properly dispose of any blood, body fluids, or material that has been touched by the blood or fluid.
- I understand that in the event of dealing with a Bloodborne Pathogen situation it is my responsibility to receive post exposure care by the Company's clinic.
- I am aware of where my hand-washing facilities and/or disinfectant are located.

\_\_\_\_\_Initial

11. I have read or have had explained and understand the Workplace Violence & Harassment policy of the Safety Program:

- I understand The Company has ZERO TOLERANCE for workplace Violence & Harassment.
- Workplace Violence & Harassment includes but is not limited to: intimidation, threats, physical attack, property damage, and includes acts of violence committed by employees, customers, relatives, acquaintances, or strangers against Company employees in the workplace.
- Dangerous weapons are prohibited on Company property or in Company vehicles.
- All employees are encouraged to report to a supervisor any possibility of workplace Violence & Harassment. All reports will be confidential.

\_\_\_\_\_Initial

12. I have read or have had explained the Electrical Safety portion and the Lockout/Tagout portion of the Company Safety Program:
- I understand that only authorized persons are allowed to deal with electrical repairs and or issues.
  - I understand that I am to not touch or in any way use any equipment that is locked out or tagged out.
  - I understand that it is my responsibility to report any electrical hazards to a supervisor immediately.

\_\_\_\_\_Initial

13. I have read or have had explained the Hazard Communication & Material Safety Data Sheet (MSDS) portion of the Safety Program:
- I understand what a Material Safety Data Sheet is.
  - I have been given an orientation on how to read a MSDS.
  - I understand that I am to report any Chemical or Hazardous Substance that does not have a label.
  - I understand that I can request further training on MSDSs.

\_\_\_\_\_Initial

14. I have read or have had explained the Personal Protective Equipment portion of the Safety Program:
- I understand that I am to wear my personal protective equipment as required by this Company.
  - I am aware of what I am required to wear for personal protective equipment at this Company.

\_\_\_\_\_Initial

15. I am aware of where my Company displays all of the required Employee Rights Postings.

\_\_\_\_\_Initial

16. I am aware of where my Company "Designated Medical Provider" is located.

\_\_\_\_\_Initial

17. I am aware that the Safety Program may contain additional written safety Programs in place which require additional training (i.e. Confined Spaces, Fall-Protection, Excavation, Ladders, Scaffolding, Lock-Out/Tag-Out, etc.):
- I understand that I may receive or request further training on any safety issues that may be appropriate for my particular job.
  - If I have not received adequate training or feel that I cannot conduct my job safely it is my responsibility to notify my supervisor.

\_\_\_\_\_Initial



## Orientación Y Lista De Verificación

1. He leído o me han explicado la Póliza de Seguridad y el Resumen del Programa. No tengo más preguntas en cuanto a:
  - La Filosofía de Seguridad de la compañía.
  - Mis responsabilidades de seguridad como un empleado.
  - El procedimiento de disciplina.

\_\_\_\_\_ **Inicial**
2. He leído o me han explicado la porción del Comité de Seguridad del Programa de Prevención de Lesiones y Enfermedad:
  - Estoy consciente de quien está a cargo de seguridad si tengo preguntas.
  - Estoy consciente de mi habilidad de reportar mis preocupaciones de seguridad al Comité de Seguridad.
  - Estoy consciente que la compañía se esfuerza para proveer un ambiente seguro para el trabajo y esta cometido a mi seguridad y habilidad de informar a la compañía de ambientes inseguros para el trabajo sin temor de represalia.

\_\_\_\_\_ **Inicial**
3. He leído o me han explicado las Reglas Generales de Seguridad como pertenecen al Programa de Prevención de Lesiones y Enfermedad:
  - Estoy consciente de todas las reglas de seguridad.

\_\_\_\_\_ **Inicial**
4. He leído o me han explicado los Códigos de Seguridad y Practica para las Herramientas Manuales y Eléctricas:
  - Estoy consciente que debo inspeccionar toda la herramienta antes de utilizar el equipo.
  - Estoy consciente que le puedo pedir entrenamiento a mi supervisor sobre cualquier herramienta que no sé operar de manera segura.
  - Estoy consciente que si no estoy seguro como operar mi herramienta de manera segura, no la debo utilizar hasta recibir entrenamiento adecuado y sienta que la pueda utilizar de manera segura.
  - Estoy consciente que cualquier herramienta que necesite reparación o no este en conformidad debe ser reportada a mi supervisor.

\_\_\_\_\_ **Inicial**
5. He leído o me han explicado el proceso de Reportar y Investigar Accidentes.
  - Entiendo que debo reportar un accidente inmediatamente a mi supervisor.
  - Entiendo que debo parar de trabajar inmediatamente.
  - Entiendo que si necesito tensión medica debo ir a una clínica o hospital afiliado con esta compañía.
  - Entiendo que si voy a un diferente doctor o clínica médica la compañía tiene el derecho de negar o no pagar mi cuenta medica.
  - Entiendo que debo cooperar con cualquier investigación de accidente.
  - Entiendo que me examinaran por drogas o alcohol por cualquier accidente.
  - Entiendo que si estoy presente en mi lugar de empleo bajo la influencia de drogas o alcohol puedo ser despedido automáticamente con o sin aviso de terminación por la compañía.

\_\_\_\_\_ **Inicial**
6. He leído o me han explicado el Plan de Hacinco de Emergencia.
  - Entiendo donde las rutas de evaluación de emergencia están localizadas.

- Entiendo que debemos reunirnos en un determinado lugar específico para poder conducir una cuenta de personas.

\_\_\_\_\_ **Inicial**

7. He leído o me han explicado el Plan de Prevención de Incendio.

- Entiendo que debo reportar cualquier peligro de incendio.
- Debo mantener todas las salidas libres de obstáculo.
- Yo sé donde el extinguidor de incendio más cercano está en mi área de trabajo.

\_\_\_\_\_ **Inicial**

8. Estoy consciente de la porción de Primeros Auxilios y Resucitación Cardiopulmonar CPR del Plan de Prevención de Lesiones y Enfermedad.

- Estoy consciente de donde los botiquines de primeros auxilios están localizados.
- Estoy consciente que debo reportar si el botiquín de primeros auxilios necesita materiales.
- Estoy consciente de quien está entrenado en Primeros Auxilios y Resucitación Cardiopulmonar CPR.
- Estoy consciente de donde la Estación para Lavar los Ojos está localizada (si es apropiado).
- Estoy consciente que debo reportar todas las heridas de inmediato a mi supervisor.
- Estoy consciente de donde nuestra clínica está localizada y TENDRÉ A ALGUIEN TRANSPORTARME ALLÍ EN EL EVENTO DE UNA EMERGENCIA (o en una ambulancia si es apropiado).

\_\_\_\_\_ **Inicial**

9. He leído o me han explicado la porción de la Evacuación de Peligro en el Programa de Prevención de Lesiones y Enfermedad.

- Entiendo que me debo familiarizar con los peligros que esta alrededor de mi estaciona de trabajo.
- Entiendo que debo reportar cualquier peligro que puede estar presente en mi estación de trabajo.
- Entiendo que es mi responsabilidad para asistir en proveyendo un ambiente seguro de trabajo para yo mismo u otros.

\_\_\_\_\_ **Inicial**

10. He leído o me han explicado la porción del Patógenos Sanguíneos en el Programa de Prevención de Lesiones y Enfermedad.

- Entiendo que debo traer puesto equipo protector personal cuando se trata de sangre o fluidos del cuerpo.
- Entiendo que debo apropiadamente desechar de cualquier sangre, fluidos del cuerpo o materiales que han sido tocados por sangre o fluidos.
- Entiendo que en evento de tratar con una situación donde hay Patógenos Sanguíneos es mi responsabilidad de recibir cuidado de exposición posterior por la clínica de la compañía.
- Estoy consciente de donde estar las facilidades para lavar las manos.

\_\_\_\_\_ **Inicial**

11. He leído o me han explicado y entiendo la porción de Seguridad en el Lugar de Empleo y la porción de la Póliza de Violencia en el Lugar de Empleo del Programa de Prevención de Lesiones y Enfermedad.
- Entiendo que esta compañía tiene CERO TOLERANCIA para la violencia en el lugar de empleo.
  - Violencia en Lugar de Empleo incluye pero no se limita a: intimidación, amenazas, ataques físicos, violencia domestica, daño a propiedad e incluye actos de violencia cometidos por empleados, clientes, familiares, conocidos o extraños contra los empleados en lugar de empleo.
  - Armas peligrosas están prohibidos en la propiedad de la compañía o en los vehículos de la compañía.
  - Todos los empleados están animados en reportar a un supervisor o cualquier posibilidad de la violencia en el lugar de empleo. Todos los reportes se consideraran confidenciales.

\_\_\_\_\_ **Inicial**

12. He leído o me han explicado la porción de Seguridad Eléctrica y la porción de Lockout/Tagout en el Programa de Prevención de Lesiones y Enfermedad.
- Entiendo que solamente personas autorizadas están permitidos en tratar con las reparaciones eléctricas y/o problemas.
  - Entiendo que no debo tocar o de ninguna manera usar cualquier equipo que esta restringido.
  - Entiendo que es mi responsabilidad de reportar cualquier peligro eléctrico a un supervisor inmediatamente.

\_\_\_\_\_ **Inicial**

13. He leído o me han explicado las porciones de Comunicación de Peligro y la Hoja Informativa de Seguridad de Material del Programa de Prevención de Lesiones y Enfermedad.
- Entiendo lo que es una Hoja Informativa de Seguridad de Material.
  - He recibido una orientación en como leer la hoja Informativa de seguridad de Material.
  - Entiendo que debo reportar cualquier sustancia peligrosa o química que no tiene etiqueta. Entiendo que puedo recibir entrenamiento adicional en la Hoja Informativo de Seguridad de Material.

\_\_\_\_\_ **Inicial**

14. He leído o me han explicado la porción del Equipo Protector Personal del Programa de Prevención de Lesiones y Enfermedad.
- Entiendo que debo tener puesto mi Equipo Protector Personal como es requerido por esta compañía.
  - Estoy consciente del Equipo Protector Personal (EPP) que esta requerido en este compañía.

\_\_\_\_\_ **Inicial**

15. Estoy consciente en donde mi compañía despliega todos los Letreros Requeridos de los Derechos de Empleados.

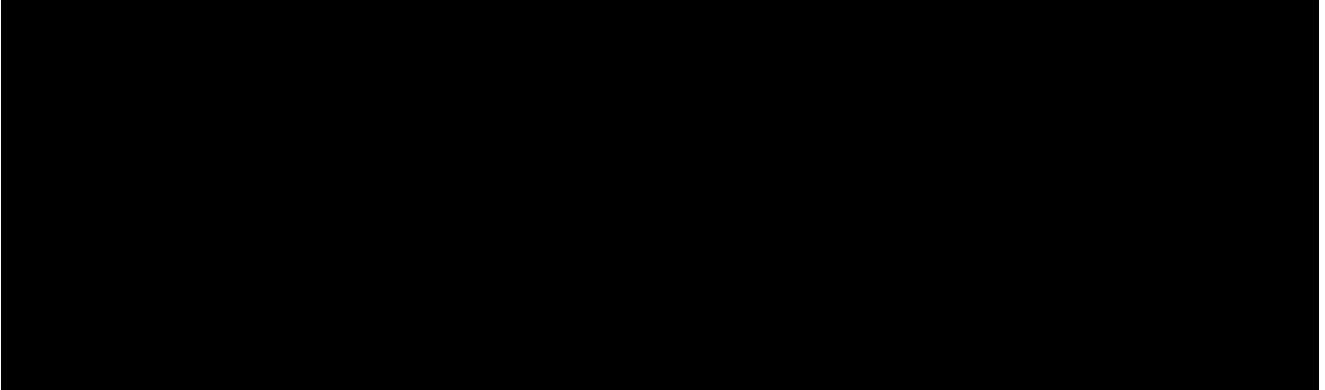
\_\_\_\_\_ **Inicial**

16. Estoy consciente de donde esta la clínica de mi compañía.

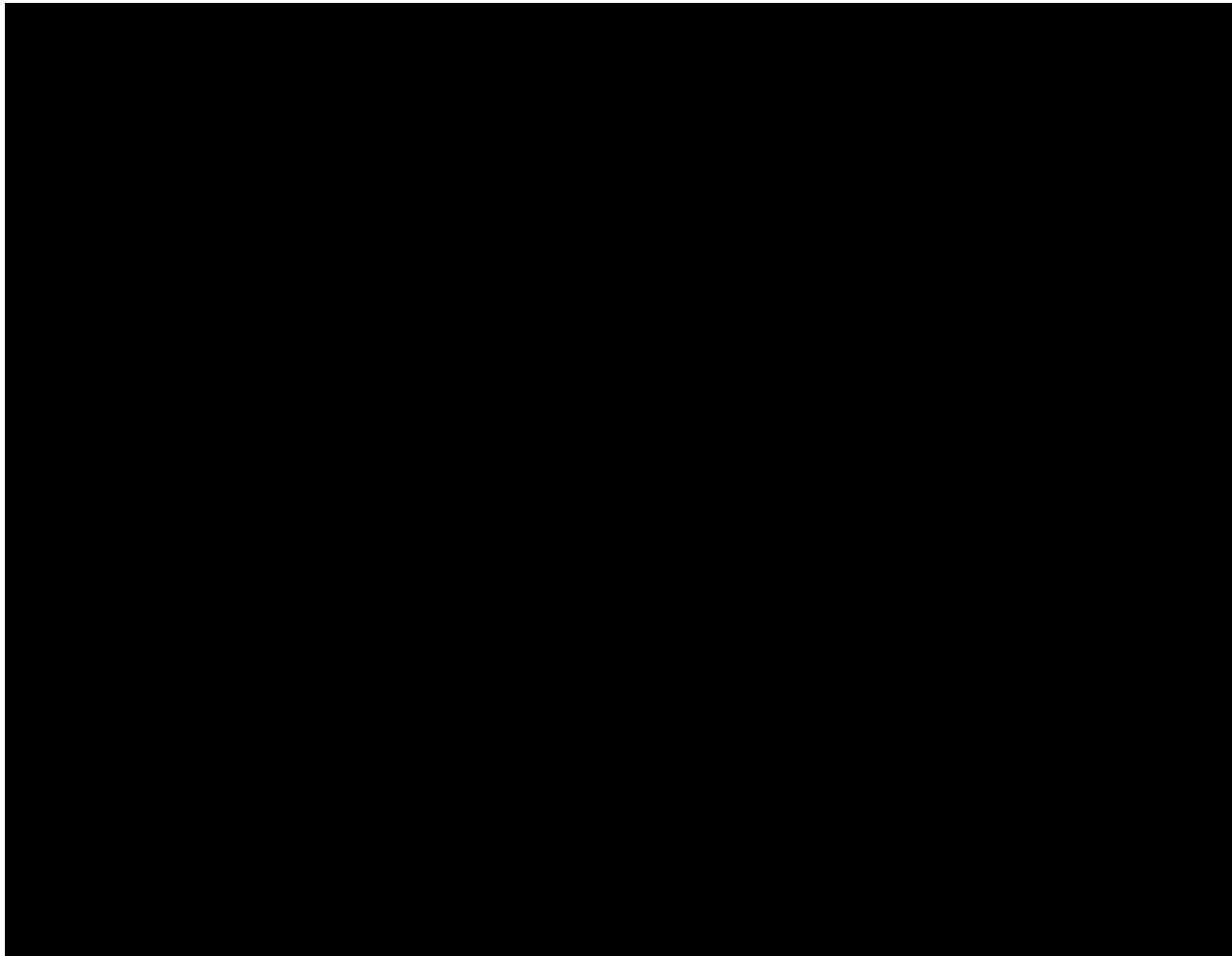
\_\_\_\_\_ **Inicial**

17. Estoy consciente que el Programa de Prevención de Lesiones y Enfermedades puede incluir programas adicionales por escrito que están puesto que requiere entrenamiento adicional (Respecto de: Espacios limitados, Protección de caídas, Excavación, Escaleras, Andamios, Lock-out/Tag-out, etc.).
- Entiendo que debo recibir o puedo pedir entrenamiento adicional en cualquier asunto de seguridad avanzado que pueda ser apropiado para mi trabajo en particular.
  - Si no he recibido adecuado entrenamiento o siento que no puedo hacer mi trabajo en una manera seguro es mi responsabilidad notificar mi supervisor.

\_\_\_\_\_ **Inicial**







[illegible]

#### **Other Safety Training Documents for:**

##### ***Accurate Painting Company***

This section is designed to hold all Company Safety Training Documents. Any paperwork related to Company Safety Training should be 3-ring hole-punched and stored in this section.



**The following is a list of forms for Company use.**

Safety Committee By-Laws Form

Safety Committee Checklist

Safety Committee Meeting Agenda

Safety Committee Meeting Minutes

Disciplinary Safety Warning

Code of Safe Practices Receipt

Accident Incident Report

Emergency Action Plan

First Aid Response Plan

Job Safety Analysis Form

Violent Incident Report

Suspect & Vehicle Identification Sheet

Employee Incident Report

Record of Employee Training

Sexual Harassment Complaint Form

Hazardous Chemical List

Hazardous Communication Training Acknowledgement and Updated Training

Example MSDS Sheet

## ***Safety Committee Bylaws***

### ***Name***

The name of the committee is the \_\_\_\_\_ Safety Committee.

### ***Purpose***

The purpose of the \_\_\_\_\_ Safety Committee is to bring all \_\_\_\_\_ employees together to achieve and maintain a safe, healthful workplace.

### ***Goal***

The goal of the \_\_\_\_\_ Safety Committee is to eliminate workplace injuries and illnesses by involving employees and managers in identifying hazards and suggesting how to prevent them.

### ***Objectives***

The Safety Committee has four objectives:

- Involve employees in achieving a safe, healthful workplace.
- Promptly review all safety-related incidents, injuries, accidents, illnesses, and deaths.
- Conduct quarterly workplace inspections, identify hazards, and recommend methods for eliminating or controlling the hazards.
- Annually evaluate the \_\_\_\_\_ workplace accident prevention program and recommend to management how to improve the program.

### ***Representatives***

The \_\_\_\_\_ Safety Committee will have \_\_\_\_\_ voting representatives. \_\_\_\_\_ of the representatives will represent employees and \_\_\_\_\_ will represent management. Employee representatives can volunteer or their peers can elect them. Management representatives will be selected by management.

Each representative will serve a continuous term of at least one year. Terms will be staggered so that at least one experienced representative always serves on the committee.

### ***Chair and Vice-chair***

The \_\_\_\_\_ Safety Committee will have two officers: chair and vice-chair. One officer will represent labor and one officer will represent management.

### ***Terms of Service***

Chair and vice-chair will each serve a one-year term.

### ***Duties of the Chair***

- Schedule regular committee meetings.
- Approve committee correspondence and reports.
- Develop written agenda for conducting meeting.
- Supervise the preparation of meeting minutes.
- Conduct the committee meeting.

### ***Duties of the Vice-chair***

- In the absence of the chair, assume the duties of the chair.
- Perform other duties as directed by the chair.

### ***Election of Chair and Vice-chair***

The election of a new chair or vice-chair will be held during the monthly committee meeting before the month in which the incumbent's term expires.

If the chair or vice-chair leaves office before the term expires, an election will be held during the next scheduled safety-committee meeting; the elected officer will serve for the remainder of the term.

### ***Training***

New representatives will receive training in safety-committee functions, hazard identification, and accident-investigation procedures.

### ***Meetings***

Monthly schedule — The \_\_\_\_\_ Safety Committee will meet the \_\_\_\_\_ of each month, except when the committee conducts quarterly workplace safety inspections.

### ***Attendance and Alternates***

Each representative will attend regularly scheduled safety committee meetings and participate in quarterly workplace inspections and other committee activities. Any representative unable to attend a meeting will appoint an alternate and inform the chair before the meeting. An alternate attending a meeting on behalf of a regular representative will be a voting representative for that meeting.

### ***Agenda***

The agenda will prescribe the order in which the \_\_\_\_\_ Safety Committee conducts its business. The agenda will also include the following when applicable:

- A review of new safety and health concerns
- A status report of employee safety and health concerns under review
- A review of all workplace near misses, accidents, illnesses, or deaths occurring since the last committee meeting.

### ***Minutes***

Minutes will be recorded at each committee meeting and posted & distributed to all employees.

The committee will submit a copy of the minutes to the \_\_\_\_\_ personnel office; the office will retain the copy for three years. All reports, evaluations, and recommendations of the committee will be included in the minutes. The minutes will also identify representatives who attended monthly meeting, and representatives who were absent.

### ***Voting Quorum***

\_\_\_\_\_ voting representatives constitute a quorum. A majority vote of attending representatives is required to approve all safety-committee decisions. Issues not resolved by majority vote will be forwarded to management for resolution.

### ***Employee Involvement***

The \_\_\_\_\_ Safety Committee will encourage employees to identify workplace-health-and-safety hazards. Concerns raised by employees will be presented to the committee in writing; the committee will review new concerns at the next regularly-scheduled monthly meeting.

### ***Safety Log***

The committee will maintain a log of all employee concerns, including the date received, recommendations to management, and the date the concern was resolved.

### ***Response***

The committee will respond to employee concerns in writing and work with management to resolve them. The committee will present written recommendations for resolving concerns to management. Within 60 days of receipt of the written recommendations, management will respond in writing to the committee indicating acceptance, rejection, or modification of the recommendations.

### ***Incident and Accident Investigation***

The \_\_\_\_\_ Safety Committee will review new safety- or health-related incidents at its next regularly-scheduled meeting. Safety-related incidents include work-related near misses, injuries, illnesses, and deaths. When necessary, the committee will provide written recommendations to management for eliminating or controlling hazards.

### ***Workplace Inspections***

The \_\_\_\_\_ Safety Committee will conduct quarterly workplace inspections of all Company facilities in March, June, September, and December.

### ***Written Report***

The committee will prepare a written report for management that documents the location of all health or safety hazards found during inspection. The report will recommend options for eliminating or controlling the hazards.

Within 60 days of receipt of the written report, management will respond in writing to the committee, indicating acceptance, rejection, or proposed modification of the recommendations.

### ***Evaluation***

The \_\_\_\_\_ Safety Committee will evaluate the Company's accident prevention program annually and provide a written evaluation of the program to management. The committee will also evaluate its own activities each December and use the evaluation to develop an action plan for the next calendar year.



# **SAFETY COMMITTEE CHECKLIST**

Done    To Do

Our safety committee is composed of an equal number of employer and employee representatives.

Our safety committee is composed of an equal number of employer and employee representatives.

Employee representatives are volunteers or are elected by their peers.

There are at least four representatives on the committee if the workplace has more than 20 employees – at least two representatives if the workplace has 20 or fewer employees.

The representatives elect the committee chairperson.

Representatives are paid their regular wages during safety committee training and meetings.

Employee representatives serve on the committee for at least one year.

Representatives' terms of service are staggered so that at least one experienced representative is always on the committee.

Reasonable efforts are made to ensure that committee representatives represent the firm's major work activities.

The committee meets monthly except when representatives schedule quarterly workplace inspections.

Committee meetings follow a written agenda.

The minutes for each meeting are maintained for at least three years.

Minutes are available to all employees to read.

All reports, evaluations, and recommendations are included in the minutes.

Management has a reasonable time to respond, in writing, to the committee's recommendations.

The committee has a method for collecting and reviewing employees' safety-related suggestions and reports of hazards.

The committee assists management in evaluating and improving the workplace safety and health program.

The inspection team conducts workplace inspections at least quarterly.

The committee's quarterly inspection team follows a standard procedure for identifying safety-and-health hazards during its inspections.

The inspection team includes employer and employee representatives.

The inspection team documents, in writing, the location and identity of workplace hazards.

The inspection team – or other persons designated by the committee – does quarterly inspections of satellite locations.

The committee has a procedure for reviewing the team's quarterly inspection reports.

The committee recommends to management ways to control hazards and unsafe work practices.

The committee makes recommendations to ensure all employees are accountable for following safe work practices.

The committee has a procedure for investigating workplace accidents, illnesses, and deaths.

Representatives understand the purpose of their safety committee and know how it functions.

Representatives have access to applicable MIOSHA regulations.

Representatives have received safety training for identifying workplace hazards and investigating accidents.

# Safety Committee Meeting Agenda

Date: \_\_\_\_\_

To: All committee members, alternates, bulletin board

Meeting Date and Time: \_\_\_\_\_

Place: \_\_\_\_\_

## Agenda Items

## Person Responsible

### 1. Old business

- a. Review last month's recommendations \_\_\_\_\_
- b. Follow-up on last quarterly inspection \_\_\_\_\_

### 2. New business

- a. Hazard reports All
- b. Accident investigation reviews \_\_\_\_\_
- c. Recommendations review \_\_\_\_\_
- d. \_\_\_\_\_
- e. \_\_\_\_\_
- f. \_\_\_\_\_

### 3. Safety Committee Members Training

- a. \_\_\_\_\_
- b. \_\_\_\_\_

Notes:

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Chair Person's Signature

Date

# Safety Committee Meeting Minutes Page 1

Chairperson: \_\_\_\_\_ Date: \_\_\_\_\_

Department: \_\_\_\_\_ Time meeting started: \_\_\_\_\_

## ***PRESENT***

## ***ABSENT***


Previous meeting minutes from \_\_\_\_\_ were read.

Date

## ***Old Business***

Review of last month's recommendations

### Recommendation

Number	Description	Completed	Not Completed	Date
R-_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
R-_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
R-_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
R-_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
R-_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
R-_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____

Follow-up on last quarterly inspection: \_\_\_\_\_

## ***New Business***

Hazard (inspection) reports reviewed: \_\_\_\_\_

Hazard Number	H-_____	Recommendation
H-_____		
H-_____		
H-_____		
H-_____		
H-_____		

Description

Number

R- \_\_\_\_\_

R- \_\_\_\_\_

R- \_\_\_\_\_

R- \_\_\_\_\_

R- \_\_\_\_\_

R- \_\_\_\_\_

# Safety Committee Meeting Minutes

Page 2

Accident/incident investigation reviews:

Accident Number	Near Miss	Description	Recommendation Number
A-_____	<input type="checkbox"/>	_____	R-_____
A-_____	<input type="checkbox"/>	_____	R-_____
A-_____	<input type="checkbox"/>	_____	R-_____
A-_____	<input type="checkbox"/>	_____	R-_____
A-_____	<input type="checkbox"/>	_____	R-_____
A-_____	<input type="checkbox"/>	_____	R-_____
A-_____	<input type="checkbox"/>	_____	R-_____
	<input type="checkbox"/>	_____	

Safety Committee Members Training Report: \_\_\_\_\_

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Miscellaneous New Business: \_\_\_\_\_

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Activity/Assignment Report:

Description

Person Assigned

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Committee Remarks: \_\_\_\_\_

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Meeting adjourned: \_\_\_\_\_ Next meeting: \_\_\_\_\_

Time/date

\_\_\_\_\_

Chair Person Signature

Time/date

---

Secretary Signature

## SAFETY WARNING

Employee's Name  
Position

Date of Warning  
Violation Date

Violation Time

☐ am

☐ pm

Supervisor  
Department

Type of warning      ☐ Verbal      ☐ Written      ☐ Serious      ☐ Other:

Type of Violation    ☐ Unsafe Act    ☐ Improper Safety Attire    ☐ Unsafe condition  
☐ Other

Supervisor's Statement

Employee's Statement    (Check Proper Box)

☐ I agree with the Supervisor's statement    ☐ I disagree with the Supervisor's statement because:

List all previous warnings and retraining below

When warned and by whom

First Warning      (Describe reason)

I have read and understand this warning decision

Employee's Signature  
Date

Date      Date retrained

Second Warning    (Describe reason)

Supervisor's Signature  
Date

Copy Distribution

Date      Date retrained

Third Warning      (Describe reason)

- ☐ Employee
- ☐ Employee's Supervisor
- ☐ Personnel Department
- ☐ Safety Committee

Date      Date retrained

The Supervisor must complete this form immediately after the employee has been interviewed. A decision must be made on the following to ensure violators will not participate in the current safety incentive program.

☐ No further action

☐ Suspension

☐ Other:

☐ Suspension from current safety incentive program

☐ Dismissal

Submit this form for review at the next Safety Committee meeting

Safety Committee Notes




# Code of Safe Practices Receipt

This is to certify that I have received a copy of The Company Code of Safe Practices.

I have read these instructions, understand them, and will comply with them while working for the Company.

I understand that failure to abide by these rules may result in disciplinary action and possible termination of my employment with this Company.

I also understand that I am to report any injury to my foreman or superintendent immediately and report all safety hazards.

I further understand that I have the following "Safety" rights:

I am not required to work in any area I feel is not safe.

I am entitled to information on any hazardous material or chemical I am exposed to while working.

I am entitled to see a copy of The Company Accident Prevention Program.

I will not be discriminated against for reporting safety concerns.

_____ Employee Name	_____ Signature	_____ Date
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_____ Supervisor Name	_____ Signature	_____ Date
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cc: Employee File

**ACCIDENT/INCIDENT REPORT**

PAGE 1

Date of Accident	Time	Day of Week <input type="checkbox"/> S <input type="checkbox"/> M <input type="checkbox"/> T <input type="checkbox"/> W <input type="checkbox"/> T <input type="checkbox"/> F <input type="checkbox"/> S	Shift 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>	Department
<b>INJURED PERSON</b>				
Name:		Address:		
Age:	Phone:			
Job Title:		Supervisor Name:		
Length of Employment at Company:		Length of Employment at Job:		
Employee Classification: <input type="checkbox"/> Full Time <input type="checkbox"/> Part Time <input type="checkbox"/> Contract <input type="checkbox"/> Temporary				
Nature of Injury	<input type="checkbox"/> Bruising	<input type="checkbox"/> Dislocation	<input type="checkbox"/> Other (specify)	Injured Body Part :
<input type="checkbox"/> Strain/Sprain	<input type="checkbox"/> Scratch/Abrasion	<input type="checkbox"/> Internal		
<input type="checkbox"/> Fracture	<input type="checkbox"/> Amputation	<input type="checkbox"/> Foreign Body	Remarks:	
<input type="checkbox"/> Laceration/Cut	<input type="checkbox"/> Burn/Scald	<input type="checkbox"/> Chemical Reaction		
Treatment	Name and Address of Treating Physician or Facility:			
<input type="checkbox"/> First Aid				
<input type="checkbox"/> Emergency Room				
<input type="checkbox"/> Dr.'s Office				
<input type="checkbox"/> Hospitalization				
<b>DAMAGED PROPERTY</b>				
Property, Equipment, or Material Damaged		Describe Damage		
Object or Substance Inflicting Damage:				
<b>INCIDENT DESCRIPTION</b>				
Describe what happened (attach photographs or diagrams if necessary)				
<b>ROOT CAUSE ANALYSIS (Check All that Apply)</b>				
Unsafe Acts	Unsafe Conditions	Management Deficiencies		
<input type="checkbox"/> Improper work technique	<input type="checkbox"/> Poor workstation design/layout	<input type="checkbox"/> Lack of written policies & procedures		
<input type="checkbox"/> Safety rule violation	<input type="checkbox"/> Congested work area	<input type="checkbox"/> Safety rules not enforced		
<input type="checkbox"/> Improper PPE or PPE not used	<input type="checkbox"/> Hazardous substances	<input type="checkbox"/> Hazards not identified		
<input type="checkbox"/> Operating without authority	<input type="checkbox"/> Fire or explosion hazard	<input type="checkbox"/> PPE unavailable		

<input type="checkbox"/> Failure to warn or secure	<input type="checkbox"/> Inadequate ventilation	<input type="checkbox"/> Insufficient worker training
<input type="checkbox"/> Operating at improper speeds	<input type="checkbox"/> Improper material storage	<input type="checkbox"/> Insufficient supervisor training
<input type="checkbox"/> By-passing safety devices	<input type="checkbox"/> Improper tool or equipment	<input type="checkbox"/> Improper maintenance
<input type="checkbox"/> Guards not used	<input type="checkbox"/> Insufficient knowledge of job	<input type="checkbox"/> Inadequate supervision
<input type="checkbox"/> Improper loading or placement	<input type="checkbox"/> Slippery conditions	<input type="checkbox"/> Inadequate job planning
<input type="checkbox"/> Improper lifting	<input type="checkbox"/> Poor housekeeping	<input type="checkbox"/> Inadequate hiring practices
<input type="checkbox"/> Servicing machinery in motion	<input type="checkbox"/> Excessive noise	<input type="checkbox"/> Inadequate workplace inspection
<input type="checkbox"/> Horseplay	<input type="checkbox"/> Inadequate hazards guarding	<input type="checkbox"/> Inadequate equipment
<input type="checkbox"/> Drug or alcohol use	<input type="checkbox"/> Defective tools/equipment	<input type="checkbox"/> Unsafe design or construction
<input type="checkbox"/> Unnecessary haste	<input type="checkbox"/> Insufficient lighting	<input type="checkbox"/> Unrealistic scheduling
<input type="checkbox"/> Unsafe act of others	<input type="checkbox"/> Inadequate fall protection	<input type="checkbox"/> Poor process design
<input type="checkbox"/> Other:	<input type="checkbox"/> Other:	<input type="checkbox"/> Other:

**ACCIDENT / INCIDENT REPORT-PAGE 2****ACCIDENT / INCIDENT ANALYSIS**

Using the root cause analysis list on the previous page, explain the cause(s) of the incident in as much detail as possible.

Make sketches or illustrations to help describe incident:

How bad could the accident have been?

☐ Very Serious   ☐ Serious   ☐ Minor

What is the chance of the accident happening again?

☐ Frequent   ☐ Occasional   ☐ Rare

**PREVENTIVE ACTIONS**

Describe actions that will be taken to prevent recurrence:

Deadline

By Whom

Complete

**INVESTIGATION TEAM**

Name

Signature

Position

# EMERGENCY ACTION PLAN

To be posted at all Company Facilities and workplaces

Company Name:		Job Location:	
Street Address:			
City:		State:	ZIP Code:
Prepared By: (Print Name of Preparer)			
Title:		Phone Number:	
Signature:		Date:	
<b>PURPOSE</b>			
This plan is for the safety and well-being of the employees of: (Name of Company)			
It identifies necessary management and employee actions during fires and other emergencies. Education and training are provided so that all employees know and understand the Emergency Action Plan.			
<b>LOCATON OF PLAN</b>			
The Emergency Action Plan can be found at the station or office of each: (Foreman, Supervisor, etc.)			
A copy is also maintained in THE COMPANY general offices.			
Upon request, a MIOSHA representative may obtain a copy of the plan from: (Name and Title)			
<b>EXIT ROUTES</b>			
Draw a diagram of jobsite or facility exit routes in space below:			
Locate meeting place or "Roll-Call" area on above diagram:			
<b>ACCOUNTING FOR EMPLOYEES</b>			
After exiting jobsite or facility, all employees are to assemble for "Roll-Call" at this location: Note location on above diagram			
The following persons are responsible for ensuring that employees comply with this requirement:			
Name and Title:			
Name and Title:			

### CRITICAL OPERATIONS

To minimize damage from the emergency, the following personnel are responsible for shutting down the listed critical operations:

Personnel Names	Critical Operations

As soon as shutdowns are completed, the employees who performed critical operations must take the nearest exit route in accordance with general emergency procedures.

### RESCUE AND MEDICAL DUTIES

The following personnel are certified and trained in both CPR and general first aid. These persons are to be contacted as specified in the "General Emergency Training":

Name and Title	Phone Number

### REPORTING EMERGENCIES

The following personnel have the duty of contacting public responders to come to the emergency scene. The personnel are listed in descending order of availability:

Name and Title	Phone Number

### ALARM SYSTEMS AND NOTIFICATION OF EMERGENCIES

In the event of a workplace or facility emergency, employees will be notified as follows:

Identify method(s) of notification:


### TYPES OF EVACUATION

MIOSHA requires this Company to have an established system of types of evacuation to follow for different emergency circumstances. The following listing represents Company policy for various emergency situations:

PARTIAL EVACUATION: Code Yellow – 3 rings or horn blasts: RESPONDERS (trained extinguisher personnel and trained rescue and medical personnel)

FULL EVACUATION: Code Red – 4 rings or horn blasts: RESPONDERS (n/a)

NOTE: If there is more than one evacuation type, the alarm signal for each must be distinctive.

OTHER: (describe)

OTHER: (describe)

<b>PUBLIC EMERGENCY RESPONSE INFORMATION</b>
Ensure that 911 emergency services cover the area this Emergency Action Plan covers.
Local Police Department:
Local Fire Department:
Local Ambulance/EMS:
Local Hospital:
<b>FURTHER INFORMATION</b>
For further information or explanation about any duties under this Plan, contact:
Name and Title:
Name and Title:
This Emergency Action Plan is authorized and approved by: (Name and Title) Signature

# FIRST AID RESPONSE PLAN

Company:		Date:	
This plan was written for: (site or location this plan covers)			
The following person/position is responsible for managing our first aid response plan:			
The emergency medical service to be called:			
Summon the emergency medical service by doing the following: (In most cases it will be to call 911 or some other phone number, but a direct alarm or some other method may be the preferred way.)			
Emergency phone numbers are posted at the following location(s):			
Other means to summon aid are at the following location:			
When employees need first aid they must do the following:			
Employees on site who are first aid trained:			
First-aid kits (or a first aid station) are located at:			
The following person/position is responsible for inspecting the first aid kits:			
The Company's Designated Medical Provider is:			
Person Preparing Plan:			
Signature:		Date:	
Supervisor's Name:			
Signature:		Date:	



Job Safety Analysis			
Project		Activity:	
Contract:			
Location:			
#	Job Steps	Potential Hazards	Safe Procedures/Controls
1			
2			
3			
4			
5			
6			
7			

[illegible]

<b>Violent Incident Report Form</b>
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## 1. Identifying information

Name	Job Title
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Shift	Department or Section
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Location of incident:	
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Type of Assault					
Verbal	Threatened	Struck	Bitten	Pushed	Kicked
Scratched	Other (please specify)				

Medical attention or First Aid obtained?	Advised of right to consult doctor?
Yes      No	Yes      No

Investigation conducted?	Yes	No	Insurance forms completed?	Yes	No
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Reported to Supervisor?	Yes	No	Police called?	Yes	No
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Action taken:

## 2. Assailant

### Description

Age

## Complexion

Height

Weight

Name (if known)

### **3. Incident and Injury Information**

Date of incident

Time

a.m. / p.m.

#### 4. Other Information

Was the assailant involved in any previous violent incidents with staff?

Yes      No


Are there any measures in place to prevent a similar incident?



Yes      No

Please provide any other information you think is significant.

Signature: \_\_\_\_\_

# SUSPECT and VEHICLE IDENTIFICATION SHEET

General Appearance	
Sex Age Height Weight Race Hair Eyes Complexion Scars/Identifying Marks  Tattoos  <b>Clothing:</b> Jewellery Hat Coat Shirt/Blouse Pants/Skirt Shoes/Boots Tie	Male Female  

Facial Appearance	Vehicle																	
Skin or Hair color Hair texture Ear size and shape Cheeks (full or sunken) Shape of Nose Neck/Adam's apple Wrinkles Shape of brow Size and shape of eyes Mouth and Lips Moustache or Beard	Write below specific details that you definitely remember.  What did the suspect say?  Describe any weapon or tool seen.	  <table border="1"> <tr> <td>Color</td> <td>Make</td> <td>Model</td> <td>Licence number</td> </tr> <tr> <td colspan="2">Body Style</td> <td colspan="2">Damage or Rust</td> </tr> <tr> <td>Antenna</td> <td>Bumper Sticker</td> <td colspan="2">Wheel Covers</td> </tr> <tr> <td colspan="4">Direction of Travel</td> </tr> </table>	Color	Make	Model	Licence number	Body Style		Damage or Rust		Antenna	Bumper Sticker	Wheel Covers		Direction of Travel			
Color	Make	Model	Licence number															
Body Style		Damage or Rust																
Antenna	Bumper Sticker	Wheel Covers																
Direction of Travel																		

# EMPLOYEE INCIDENT REPORT

Work site: \_\_\_\_\_

Manager/Supervisor: \_\_\_\_\_

Employee name \_\_\_\_\_ Date \_\_\_\_\_

Job title \_\_\_\_\_

Incident:

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Action taken:

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## CODE OF CONDUCT

- Proactive management includes Supervisory leadership and control to change unproductive activities. Conformance with safety policies, rules, and regulations is a necessary component of our Safety Program.
- Employee safety responsibilities are communicated during initial orientation. Safety rules and regulations are reviewed with employees by their supervisors and are part of the documented Employee Safety Training Process.
- Supervisors understand and enforce safety rules as a part of their job. This process may involve coaching, counseling, verbal, or written reprimands, and discipline in the form of suspension and/or termination. When appropriate, documented verbal warnings and reprimands are issued and carried out by supervisors.
- Failure to adhere to any of the Safety Rules and Safe Work Practices will result in disciplinary action. All discipline will be documented in the employee's folder. Discipline may be more severe depending on the offense.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Employee

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Supervisor

# RECORD of EMPLOYEE TRAINING

Employees have been made aware of the risks for violence identified at this site and have been trained in the appropriate actions as defined in the procedures of this program. Employees have been instructed on how to fill out the report form whenever a violent incident occurs. The following list is a list of employees who have received training on workplace violence prevention procedures.

[illegible]

## SEXUAL HARASSMENT COMPLAINT FORM

Please write legibly and fill out form completely. Submit completed form to appropriate management personnel.	
Complainant:	Alleged Harasser:
Department:	Department:
Job Title:	Job Title:
Mailing Address:	Other relevant information about Alleged Harasser:
Home Phone:	
Work Phone:	
Details of Incident	
What exactly occurred or was said?	
When did it occur and is it still ongoing?	
Where did it occur?	
How often did it occur?	
How did it affect you?	
What response did you make when the incident(s) occurred or afterwards and how did you react?	
Has your job been affected in any way?	
Was anyone present when the alleged harassment occurred? List any third party witnesses:	
Are there any persons who have relevant information?	
Did you tell anyone about it?	
Did anyone see you immediately after episodes of alleged harassment?	



Did the person who harassed you harass anyone else?	
Do you know whether anyone complained about harassment by that person?	
Are there any notes, physical evidence, or other documentation regarding the incident(s)?	
Do you know of any other relevant information?	
How would you like to see the situation resolved?	
I am aware that false accusations of sexual harassment can have serious effects on innocent persons. I further understand that if it is determined, after investigation, that I have maliciously or recklessly made false accusations, I will be subject to appropriate sanctions, including discharge.	
Complainant's Signature Date	
Received by:	Print Name
Signature	Date

## LIST OF HAZARDOUS CHEMICALS

[illegible]

# Hazardous Communication Training Acknowledgement

This is to certify that I have been trained and informed about the hazards and precautions associated with the use of hazardous chemicals in my work as required in the Accurate Painting Company written hazard communication program.

To confirm my understanding of such training and instructions, the Safety Coordinator has reviewed them with me and he/she indicated his/her satisfaction by checking the box before each of the topics listed below:

Overview of the requirements contained in the MIOSHA Hazardous Chemical Communication Rule

Chemicals present in my workplace operations.

Locations and availability of our written hazard communication program and the MSDS for the hazardous chemicals.

Physical and health effects of these hazardous chemicals.

Methods used to determine the presence or release of hazardous chemicals.

How to lessen or prevent exposure to these hazardous chemicals through safe work practices and use of personal protective equipment.

Steps Accurate Painting Company has taken to lessen or prevent exposure to these chemicals.

Safety emergency procedures to follow in the event of exposure to these chemicals.

How to read container labels and interpret MSDS to obtain appropriate hazard information.

Employee's Name	Signature	Date
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Trainer's Name	Signature	Date
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Note to employee: This form will be made a part of your personnel file. Please read and understand its contents before signing.

## GROUP TRAINING RECORD FOR UPDATES AND REFRESHER TRAINING

[illegible]

## EXAMPLE-MATERIAL SAFETY DATA SHEET-MSDS

<b>Material Safety Data Sheet</b>		<b>U.S. Department of Labor</b>	
May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910 1200. Standard must be consulted for specific requirements.		Occupational Safety and Health Administration (Non-Mandatory Form) Form Approved OMB No. 1218-0072	
IDENTITY ( <i>as Used on Label and List</i> )		<i>Note: Blank spaces are not permitted. If any item is not applicable or no information is available, the space must be marked to indicate that.</i>	
<b>Section I</b>			
Manufacturer's name		Emergency Telephone Number	
Address ( <i>Number, Street, City, State and ZIP Code</i> )		Telephone Number for Information	
		Date Prepared	
		Signature of Preparer ( <i>optional</i> )	
<b>Section II—Hazardous Ingredients/Identity Information</b>			
Hazardous Components (Specific Chemical Identity, Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended      %(optional)
<b>Section III—Physical/Chemical Characteristics</b>			
Boiling Point		Specific Gravity (H <sub>2</sub> O = 1)	
Vapor Pressure (mm Hg)		Melting Point	
Vapor Density (AIR = 1)		Evaporation Rate (Butyl Acetate = 1)	
Solubility in Water			
Appearance and Odor			
<b>Section IV—Fire and Explosion Hazard Data</b>			
Flash Point (Method Used)	Flammable Limits	LEL	UEL
Extinguishing Media			
Special Fire Fighting Procedures			
Unusual Fire and Explosion Hazards			
(Reproduce locally)			
OSHA 174 Sept. 1985			

## MSDS FORM-(CONTINUED)

<b>Section V—Reactivity Data</b>			
Stability	Unstable		Conditions to Avoid
	Stable		
Incompatibility ( <i>Materials to Avoid</i> )			
Hazardous Decomposition or Byproducts			
Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur		
<b>Section VI—Health Hazard Data</b>			
Route(s) of Entry	Inhalation?	Skin?	Ingestion?
Health Hazards ( <i>Acute and Chronic</i> )			
Carcinogenicity	NTP?	IARC Monographs?	OSHA Regulated?
Signs and Symptoms of Exposure			
Medical Conditions Generally Aggravated by Exposure			
Emergency and First Aid Procedures			
<b>Section VII—Precautions for Safe Handling and Use</b>			
Steps to Be Taken in Case Material Is Released or Spilled			
Waste Disposal Method			
Precautions to Be Taken in Handling and Storing			
Other Precautions			
<b>Section VIII—Control Measures</b>			
Respiratory Protection ( <i>Specify Type</i> )			
Ventilation	Local Exhaust	Special	
	Mechanical ( <i>General</i> )	Other	
Protective Gloves		Eye Protection	
Other Protective Clothing or Equipment			
Work/Hygienic Practices			

[illegible]