

SAFETY & HEALTH PROGRAM

Professional Building Services, Inc.

29 CFR § 1903.1 – The Purpose and Scope of OSHA

The OSH Act requires, in part, that every employer covered under OSHA to furnish to his employees a place of employment which is free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees. OSHA also requires that employers comply with occupational safety and health standards and that employees comply with standards, rules, regulations, and orders issued which are applicable to their own actions and conduct.

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

Professional Building Services, Inc.

3936 Miller Road

Newton Square, Pennsylvania 19073

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 safety and health 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 a safety and health 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 OSHA 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 safety and health 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 safety and health program – including compliance with the rules and regulations – and for continuously practicing safety and health while performing their duties.

Professional Building Services, Inc. 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 Professional Building Services, Inc. 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.

| | | |
|------------|-----------|------|
| 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 OSHA 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 Safety & Health Program, putting it in writing, and integrating it into the entire operation.

Management Commitment

The management of Professional Building Services, Inc. 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 Safety and Health program.
- Ensuring total commitment to the Safety and Health 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 Safety and Health program annually, and revising or updating as needed.

Labor & Management Accountability

All employees, both labor and management, need to understand their responsibilities under OSHA 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 OSHA 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 Professional Building Services, Inc. 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 injury and illness 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 injury and illness prevention plan. OSHA 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 safety and health plan 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 safety and health plan.

The success of this safety and health plan 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 Safety and Health Programs. 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

Professional Building Services, Inc. Safety Committee representative is:

Michael McCormack

Introduction

Professional Building Services, Inc. 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.
- Hazard assessment and control.
- Safety and health planning.
- Evaluation of accountability system.
- Evaluation of management commitment to workplace safety and health.
- Evaluation of accident and incident investigation program.
- Safety and health training.

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

Professional Building Services, Inc. has designated:

| |
|---|
| Safety Coordinator Michael McCormack |
| 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 # |
|----------------------|----------------|--------------|
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| | | |

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 safety-and-health 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 safety-and-health 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 OSHA'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 OSHA.

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.
- Listen to others and let them finish before responding.
- Cooperate to achieve effective solutions.
- 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:

What To Include In Your Safety Committee Bylaws

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

- 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 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 workplace-safety-and-health 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 Safety & Health Manual 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 safety-and-health 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 Safety & Health Manual 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 Safety & Health Manual 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 Safety & Health Manual 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

General Safety Rules & Code of Safe Practices

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

Employee Safety Training & Disciplinary Procedures

OSHA requires that employees be trained in the safe methods of performing their job. Professional Building Services, Inc. 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.

Breakroom safety training will be conducted at least every month.

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 OSHA 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 employees will receive training at breakroom safety meetings held at the workplace.
- 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.)
- Breakroom Safety Training 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 Safety and Health 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:

- Breakroom 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 Michael McCormack, The Safety Coordinator.

All employees are encouraged to bring any safety concerns they may have to the attention of management. Professional Building Services, Inc. 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 Safety and Health 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 Breakroom 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 Safety & Health Manual you will find a master copy of the following forms for Company use:

- Disciplinary Safety Warning
- Code of Safe Practices Receipt

GENERAL SAFETY RULES

Professional Building Services, Inc. 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 in the workplace, 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 workplace. 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.

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 2nd 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.

At least 2 people are required to move rolling towers. Secure or remove all tools and materials before moving.

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 or guard rails as a temporary means of obtaining greater height.

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.

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.

NOTE: In the "Attachments" Chapter of this Safety & Health Manual you will find a master copy of the following forms for Company use:

- Disciplinary Safety Warning
- Code of Safe Practices Receipt

Accident Investigation Policy

Professional Building Services, Inc. is committed to investigating all accidents/incidents. Michael McCormack is responsible for ensuring that accident investigation policy is followed.

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

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 Michael McCormack 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.

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 safety and health 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

Preventative Actions

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 Safety & Health Manual you will find a master copy of the following form for Company use:

- Accident Incident Report

Emergency Response Plan & Fire Prevention Procedures

29 CFR-1910.38 - Emergency Action Plans

29CFR-1910.39 - Fire Prevention Plans

Policy Statement

Professional Building Services, Inc. has implemented the following policy for the protection of our employees against emergency situations in the workplace such as fire/explosion hazards, and has appointed Michael McCormack to supervise Emergency Action Plans and Fire Protection/Prevention Programs.

Professional Building Services, Inc. will have an Emergency Action Plan whenever a OSHA standard requires one. Emergency Action Plans will be in writing, posted in the workplace, and available to employees for review. The names and job titles of every person in the chain of command shall be posted.

Michael McCormack will ensure that all employees at Professional Building Services, Inc. are informed and trained in the following minimum elements for Emergency Action Plans:

- Procedures for reporting a fire or other emergency.
- Procedures for emergency evacuation for all areas of work, including type of evacuation and exit route assignments.
- Safe assembly areas designated for all work areas in the event of evacuation.
- Procedures to be followed by employees who remain to operate critical plant operations before they evacuate.
- Procedures to account for all employees after evacuation.
- Procedures to be followed by employees performing rescue or medical duties.
- The members in the chain of command who may be contacted by employees who need more information about the Plan or for an explanation of their duties under the Plan.

Professional Building Services, Inc. will have and maintain an employee alarm system. The employee alarm system shall use a distinctive signal for each purpose.

Professional Building Services, Inc. will designate and train employees to assist in a safe and orderly evacuation of other employees.

Michael McCormack will review the Emergency Action Plan with each employee covered by the plan:

- When the plan is developed or an employee is initially assigned to a job.
- When the employee's responsibilities under the plan change.
- When any element of the Plan is changed.

All fire extinguishers will be inspected by Michael McCormack on a monthly basis; this inspection will be recorded and documented with the required annual maintenance check. Records of inspection will be kept on file in the office.

- Michael McCormack will ensure that all employees are trained in the proper operation of all types of fire extinguishers provided by the company.

- All employees will be trained in the hazards involved in incipient stage fire fighting. Employees are instructed to ensure the local emergency response service (Fire Department) is notified before attempting to extinguish any fire, and that if a fire is not immediately extinguished, or the fire recurs to evacuate immediately.
- Fire Protection/Prevention training will be required on initial hiring and annually thereafter.

Emergency Action/Response Plans

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 OSHA Require Employers to Have Emergency Plans?

OSHA 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.

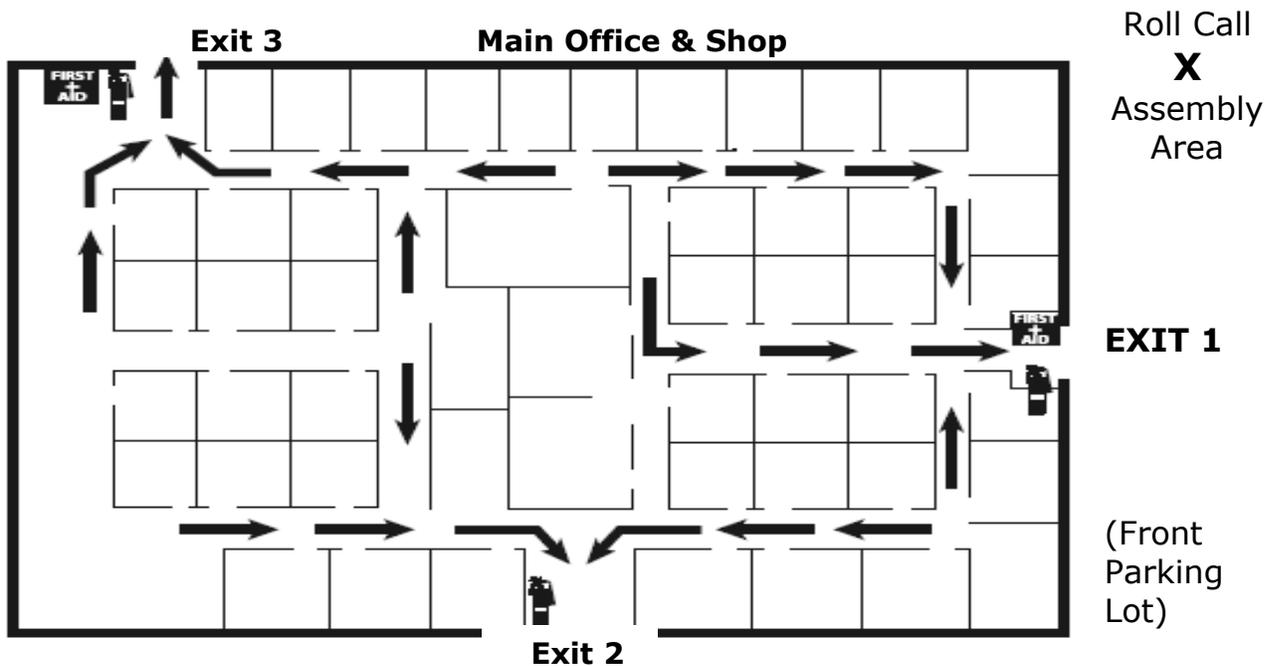
When a workplace emergency requires an evacuation, all employees must know to leave, what emergency exits to take, and where to meet. Employees may also need to know how to shut down critical equipment during an evacuation.

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 ceilings at least 7 ft., 6 in. 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, OSHA'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
- Business activities
- Economic 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.

OSHA Fire Protection and Means of Egress Standards

FIRE PREVENTION PLAN

(1) Development of a Fire Prevention Plan

(a) When another OSHA standard requires an employer to develop a fire prevention plan, the plan must comply with this section and cover each part of the workplace.

(b) The plan must be in writing, in the work area and available to employees on request; except that an employer with 10 or fewer employees in a workplace may use a verbal plan.

(2) Minimum Elements of a Fire Prevention Plan – A fire prevention plan must include:

(a) a list of all major fire hazards, including proper handling and storage procedures for hazardous materials, potential ignition sources and their control, and the type of fire protection equipment necessary to control each major hazard;

(b) Procedures to control accumulations of flammable and combustible waste materials;

(c) Procedures for regular maintenance of safeguards on heat producing equipment to prevent accidental ignition of combustible materials;

(d) Names or job titles of employees responsible for maintaining equipment to prevent or control sources of ignition or fires; and,

(e) Names or job titles of those responsible for control of fuel source hazards.

(3) Employee Information – The employer must:

(a) Inform employees of the fire hazards in their work area; and

(b) Review with each employee, when first assigned to a job, those parts of the fire prevention plan necessary for self-protection.

EMERGENCY ACTION PLAN

(1) Development of an Emergency Action Plan

(a) When another OSHA standard requires an employer to develop an emergency action plan, the plan must comply with this section and cover each part of the workplace.

(b) The plan must be in writing, in the work area and available to employees on request, except that an employer with 10 or fewer employees in a workplace may use a verbal plan.

(2) Minimum Elements of an Emergency Action Plan – An emergency action plan must include:

(a) Procedures for emergency evacuation, including type of evacuation and exit route assignments;

(b) Procedures to account for all employees after evacuation;

(c) Procedures for reporting a fire or other emergency;

(d) Procedures to follow for emergency operation or shut down of critical equipment before evacuation;

(e) Procedures to follow for rescue and medical duties; and,

(f) Names or job titles of employees to contact for more information about the duties of employees under the plan.

(3) Employee Alarm System – There must be a properly working employee alarm system. The alarm system must use a distinctive signal for each purpose and comply with 29 CFR 1910.165.

(4) Training – An employer must designate employees to assist in the safe emergency evacuation of other employees. These designated employees must receive training in emergency evacuation procedures.

(5) Employee Review – An employer must review the emergency action plan with each employee covered by it:

- (a) When the plan is new or the employee is new to the job;
- (b) When the employee's responsibilities under the plan change; and,
- (c) When the plan changes.

EXITS AND EXIT ROUTES

(1) Application – This subpart does not apply to mobile workplaces, such as vehicles or vessels.

(2) Definitions

- (a) Exit. The part of the exit route that is a way out of the workplace (Like a door, stairwell or vestibule).
- (b) Exit Route. A continuous, unobstructed path from anywhere in a work area to the exit.

(3) General

- (a) There must be permanent, unobstructed exit routes to get out of work areas safely during emergencies.
- (b) There must be two or more exit routes depending on the size and layout of the work area and the number of people involved. A single exit route is acceptable only if all workers can get out through it safely during an emergency. Locate multiple exit routes apart from each other.

(4) Design

(a) An exit must have enough openings to permit access to, or exit from, occupied areas. An interior opening into an exit must have a self-closing fire door that remains closed. Each fire door, its frame, and its hardware must be listed or approved by a nationally recognized testing laboratory.

Note to paragraph (a): 29 CFR 1910.155(c)(3)(iv)(A) defines "listed," 29 CFR 1910.7 defines a "nationally recognized testing laboratory," and 29 CFR 1910.155 (c)(3) defines "approved."

(b) Walls or partitions that separate an exit from other areas must have at least a 1-hour fire resistance rating if the exit connects three stories or less. Materials that separate an exit must have at least a 2-hour fire resistance rating if the exit connects four stories or more.

(c) Exits must open from the inside without keys, tools or special knowledge. Devices that lock only from the outside are acceptable. There must be nothing on an exit door that could hinder its use during an emergency.

Note: You may lock or block an exit door from the inside in a mental, penal, or correctional institution, if supervisory personnel are continuously on duty and a plan exists to remove occupants during an emergency.

(d) An exit must lead directly outside or to a street, walkway, refuge area, or to an open space with access to the outside.

(e) Exit stairs that continue beyond the floor of exit discharge must have doors, partitions, or other effective means at the floor of exit discharge to assure that the direction of exit travel is clear to employees.

- (f) Use only a side-hinged exit door to connect any room to an exit route. The door must swing out if the room can hold more than 50 persons or has highly flammable or explosive materials in it.
- (g) Each exit route must be able to handle the maximum-permitted occupant load for each floor served by it. The capacity of a path to the exit must not decrease as people move toward the exit.
- (h) The exit route must be at least 6 feet, 8 inches high at all points.
- (i) An exit route must be at least 28 inches wide at all points between handrails and wider if needed to handle the occupant load.
- (j) Objects that project into the exit route must not reduce the minimum height and width of the exit route.
- (k) Repair or replace damaged or altered fire retardant coatings to keep their original retardant effectiveness.

(5) Access

- (a) There must be unobstructed access to exit routes.
- (b) Exit routes must not pass through or into lockable rooms or dead ends.
- (c) Exit routes must be mostly level or have stairs or ramps.

(6) Outside and Refuge Areas

- (a) The street, walkway, refuge area, or open space to which an exit leads must be large enough to accommodate all building occupants likely to use that exit.
- (b) A refuge area must be:
 - (A) A space along an exit route protected from the effects of fire either by separation from other spaces within the building or by its location; or
 - (B) A floor with at least two spaces separated by smoke-resistant partitions, in a building where each floor is protected by an automatic sprinkler system. Automatic sprinkler systems must comply with 29 CFR 1910.159.

(7) Outside Exit Routes

- (a) Outdoor exit routes must meet the requirements for indoor exit routes and these additional requirements:
 - (A) The exit route must have guardrails to protect unenclosed sides elevated above a lower surface;
 - (B) There must be a cover if accumulation of snow or ice is likely;
 - (C) The exit route must be reasonably straight, smooth, solid, level; and
 - (D) The exit route must have no dead ends longer than 20 feet.

(8) Condition of Exit Routes and Exits

- (a) Exit routes must minimize danger to employees during emergencies.
- (b) Exit routes must be free of highly flammable furnishings and decorations.
- (c) An exit route must not require employees to travel toward materials that burn very quickly, emit poisonous fumes, or are explosive, unless those materials are effectively shielded from the exit route.
- (d) Exit routes must have adequate lighting.
- (e) Each exit must be clearly visible and must have a distinctive sign reading "Exit."
Install additional directional signs to exits where necessary.

- (f) Exit doors must have no signs or decorations that obscure their visibility.
- (g) The line-of-sight to an exit sign must be clear.
- (h) If workers could mistake a "non-exit" for an exit, mark the non-exit, "Not an Exit" or mark it to indicate its real use.
- (i) There must be enough reliable light on or from exit signs to allow them to be effective during emergencies.
- (j) All safeguards to protect employees during an emergency (e.g., sprinkler systems, alarm systems, fire doors, exit lighting) must work properly.

(9) Exits during Construction and Repair

- (a) Employees must not occupy an area under construction until an adequate number of exit routes that comply with these rules are available.
 - (b) Employees must not occupy an area during repair or alteration unless all exits and existing fire protection remain as effective as before the work. Alternate fire protection must provide an equivalent level of safety.
 - (c) Flammable or explosive materials used during construction or repair must not expose employees to hazards not otherwise present or impede emergency escape.
- (10) Alarm System – There must be an operable employee alarm system with a distinctive signal to warn employees of fire or other emergencies, unless employees can see or smell a fire or other hazard so that it would provide adequate warning to them. The employee alarm system must comply with the requirements of 29 CFR 1910.165.
- (11) Special Circumstances - Counterweights and Cold Storage Facilities
- (a) There must be an enclosure or guard around counterweights that are near enough to passageways or work areas to cause a hazard. The guard or enclosure need only be sufficient to protect workers from contact with the counterweight when it moves.
 - (b) The doors on walk-in refrigerators, coolers and freezers must have latches or closer devices that open from the inside without a key or special knowledge or effort.

PORTABLE FIRE SUPPRESSION EQUIPMENT

§1910.157 PORTABLE FIRE EXTINGUISHERS

(a) Scope and Application – The requirements of this section apply to the placement, use, maintenance, and testing of portable fire extinguishers provided for the use of employees. Paragraph (d) of this section does not apply to extinguishers provided for employee use on the outside of workplace buildings or structures. Where extinguishers are provided but are not intended for employee use and the employer has an emergency action plan and a fire prevention plan which meet the requirements of §1910.38, then only requirements of paragraphs (e) and (f) of this section apply.

(b) Exemptions

(1) Where the employer has established and implemented a written fire safety policy which requires the immediate and total evacuation of employees from the workplace upon the sounding of a fire alarm signal and which includes an emergency action plan and a fire prevention plan which meet the requirements of §1910.38, and when extinguishers are not available in the workplace, the employer is exempt from all requirements of this section unless a specific standard in Part 1910 requires that a portable fire extinguisher be provided.

(2) Where the employer has an emergency action plan meeting the requirements of §1910.38 which designates certain employees to be the only employees authorized to use the available portable fire extinguishers, and which requires all other employees in the fire area to immediately evacuate the affected work area upon the sounding of the fire alarm, the employer is exempt from the distribution requirements in paragraph (d) of this section.

(c) General Requirements

(1) The employer will provide portable fire extinguishers and will mount, locate and identify them so that they are readily accessible to employees without subjecting the employees to possible injury.

(2) Only approved portable fire extinguishers will be used to meet these requirements.

(3) The employer will not provide or make available in the workplace portable fire extinguishers using carbon tetrachloride or chlorobromomethane extinguishing agents.

(4) The employer will assure that portable fire extinguishers are maintained in a fully charged and operable condition and kept in their designated places at all times except during use.

(5) The employer will remove from service all soldered or riveted shell self-generating soda acid or self-generating foam or gas cartridge water type portable fire extinguishers which are operated by inverting the extinguisher to rupture the cartridge or to initiate an uncontrollable pressure generating chemical reaction to expel the agent.

(d) Selection and Distribution

(1) Portable fire extinguishers will be provided for employee use and selected and distributed based on the classes of anticipated workplace fires and on the size and degree of hazard which would affect their use.

(2) The employer will distribute portable fire extinguishers for use by employees on Class A fires so that the travel distance for employees to any extinguisher is 75 feet (22.9 m) or less.

(3) The employer may use uniformly spaced standpipe systems or hose stations connected to a sprinkler system installed for emergency use by employees instead of Class A portable fire extinguishers, provided that such systems meet the respective requirements of §1910.158 or §1910.159, that they provide total coverage of the area to be protected, and that employees are trained at least annually in their use.

(4) The employer will distribute portable fire extinguishers for use by employees on Class B fires so that the travel distance from the Class B hazard area to any extinguisher is 50 feet (15.2 m) or less.

(5) The employer will distribute portable fire extinguishers used for Class C hazards on the basis of the appropriate pattern for the existing Class A or Class B hazards.

(6) The employer will distribute portable fire extinguishers or other containers of Class D extinguishing agent for use by employees so that the travel distance from the combustible metal working area to any extinguishing agent is 75 feet (22.9 m) or less. Portable fire extinguishers for Class D hazards are required in those combustible metal working areas where combustible metal powders, flakes, shavings, or similarly sized products are generated at least once every two weeks.

(e) Inspection, Maintenance and Testing

(1) The employer will be responsible for the inspection, maintenance and testing of all portable fire extinguishers in the workplace.

(2) Portable extinguishers or hose used in lieu thereof under paragraph (d)(3) of this section will be visually inspected monthly.

(3) The employer will assure that portable fire extinguishers are subjected to an annual maintenance check. Stored pressure extinguishers do not require an internal examination. The employer will record the annual maintenance date and retain this record for one year after the last entry or the life of the shell, whichever is less. The record will be available to the Assistant Secretary upon request.

(4) The employer will assure that stored pressure dry chemical extinguishers that require a 12-year hydrostatic test are emptied and subjected to applicable maintenance procedures every 6 years. Dry chemical extinguishers having non-refillable disposable containers are exempt from this requirement. When recharging or hydrostatic testing is performed, the 6-year requirement begins from that date.

(5) The employer will assure that alternate equivalent protection is provided when portable fire extinguishers are removed from service for maintenance and recharging.

(f) Hydrostatic Testing

(1) The employer will assure that hydrostatic testing is performed by trained persons with suitable testing equipment and facilities.

(2) The employer will assure that portable extinguishers are hydrostatically tested at the intervals listed in Table L-1 of this section, except under any of the following conditions:

(i) When the unit has been repaired by soldering, welding, brazing, or use of patching compounds;

(ii) When the cylinder or shell threads are damaged;

(iii) When there is corrosion that has caused pitting, including corrosion under removable name plate assemblies;

(iv) When the extinguisher has been burned in a fire; or

(v) When a calcium chloride extinguishing agent has been used in a stainless steel shell.

(3) In addition to an external visual examination, the employer will assure that an internal examination of cylinders and shells to be tested is made prior to the hydrostatic tests.

(4) The employer will assure that portable fire extinguishers are hydrostatically tested whenever they show new evidence of corrosion or mechanical injury, except under the conditions listed in paragraphs (f)(2)(i)-(v) of this section.

(5) The employer will assure that hydrostatic tests are performed on extinguisher hose assemblies which are equipped with a shut-off nozzle at the discharge end of the hose. The test interval will be the same as specified for the extinguisher on which the hose is installed.

(6) The employer will assure that carbon dioxide hose assemblies with a shut-off nozzle are hydrostatically tested at 1,250 psi (8,620 kPa).

(7) The employer will assure that dry chemical and dry powder hose assemblies with a shut-off nozzle are hydrostatically tested at 300 psi (2,070 kPa).

(8) Hose assemblies passing a hydrostatic test do not require any type of recording or stamping.

(9) The employer will assure that hose assemblies for carbon dioxide extinguishers that require a hydrostatic test are tested within a protective cage device.

(10) The employer will assure that carbon dioxide extinguishers and nitrogen or carbon dioxide cylinders used with wheeled extinguishers are tested every 5 years at 5/3 of the service pressure as stamped into the cylinder. Nitrogen cylinders which comply with 49 CFR 173.34(e)(15) may be hydrostatically tested every 10 years.

(11) The employer will assure that all stored pressure and Halon 1211 types of extinguishers are hydrostatically tested at the factory test pressure not to exceed two times the service pressure.

(12) The employer will assure that acceptable self-generating type soda acid and foam extinguishers are tested at 350 psi (2,410 kPa).

(13) Air or gas pressure may not be used for hydrostatic testing.

(14) Extinguisher shells, cylinders, or cartridges which fail a hydrostatic pressure test, or which are not fit for testing will be removed from service and from the workplace.

(15) (i) The equipment for testing compressed gas type cylinders will be of the water jacket type. The equipment will be provided with an expansion indicator which operates with an accuracy within one percent of the total expansion or .1 cc (.1 ml) of liquid.

(ii) The equipment for testing non-compressed gas type cylinders will consist of the following:

(A) A hydrostatic test pump, hand or power operated, capable of producing not less than 150 percent of the test pressure, which will include appropriate check valves and fittings;

(B) A flexible connection for attachment to fittings to test through the extinguisher nozzle, test bonnet, or hose outlet, as is applicable; and

(C) A protective cage or barrier for personal protection of the tester, designed to provide visual observation of the extinguisher under test.

(16) The employer will maintain and provide upon request to the Assistant Secretary evidence that the required hydrostatic testing of fire extinguishers has been performed at the time intervals shown in Table L-1.

Such evidence will be in the form of a certification record which includes the date of the test, the signature of the person who performed the test and the serial number, or other identifier, of the fire extinguisher that was tested. Such records will be kept until the extinguisher is hydrostatically retested at the time interval specified in Table L-1 or until the extinguisher is taken out of service, whichever comes first.

(g) Training and Education

(1) Where the employer has provided portable fire extinguishers for employee use in the workplace, the employer will also provide an educational program to familiarize

employees with the general principles of fire extinguisher use and the hazards involved with incipient stage fire fighting.

(2) The employer will provide the education required in paragraph (g)(1) of this section upon initial employment and at least annually thereafter.

(3) The employer will provide employees who have been designated to use firefighting equipment as part of an emergency action plan with training in the use of the appropriate equipment.

(4) The employer will provide the training required in paragraph (g)(3) of this section upon initial assignment to the designated group of employees and at least annually thereafter.

Appendices to §1910.157 – PORTABLE FIRE EXTINGUISHERS

1. Scope and Application – The scope and application of this section is written to apply to three basic types of workplaces.

First, there are those workplaces where the employer has chosen to evacuate all employees from the workplace at the time of a fire emergency.

Second, there are those workplaces where the employer has chosen to permit certain employees to fight fires and to evacuate all other non-essential employees at the time of a fire emergency.

Third, there are those workplaces where the employer has chosen to permit all employees in the workplace to use portable fire extinguishers to fight fires.

The section also addresses two kinds of work areas. The entire workplace can be divided into outside (exterior) work areas and inside (interior) work areas. This division of the workplace into two areas is done in recognition of the different types of hazards employees may be exposed to during fire fighting operations.

Fires in interior work-places pose a greater hazard to employees; they can produce greater exposure to quantities of smoke, toxic gases, and heat because of the capability of a building or structure to contain or entrap these products of combustion until the building can be ventilated.

Exterior work areas, normally open to the environment, are somewhat less hazardous, because the products of combustion are generally carried away by the thermal column of the fire. Employees also have a greater selection of evacuation routes if it is necessary to abandon firefighting efforts. In recognition of the degree of hazard present in the two types of work areas, the standards for exterior work areas are somewhat less restrictive in regards to extinguisher distribution. Paragraph (a) explains this by specifying which paragraphs in the section apply.

2. Portable Fire Extinguisher Exemptions – In recognition of the three options given to employers in regard to the amount of employee evacuation to be carried out, the standards permit certain exemptions based on the number of employees expected to use fire extinguishers.

Where the employer has chosen to totally evacuate the workplace at the time of a fire emergency and when fire extinguishers are not provided, the requirements of this section do not apply to that workplace.

Where the employer has chosen to partially evacuate the workplace or the affected area at the time of a fire emergency and has permitted certain designated employees to remain behind to operate critical plant operations or to fight fires with extinguishers, then the employer is exempt from the distribution requirements of this section.

Employees who will be remaining behind to perform incipient fire fighting or members of a fire brigade must be trained in their duties. The training must result in the employees becoming familiar with the locations of fire extinguishers. Therefore, the employer must locate the extinguishers in convenient locations where the employees know they can be found. For example, they could be mounted in the fire truck or cart that the fire brigade uses when it responds to a fire emergency.

They can also be distributed as set forth in the National Fire Protection Association's Standard No. 10, "Portable Fire Extinguishers." When the employer has decided to permit all employees in the workforce to use fire extinguishers, then the entire OSHA section applies.

3. Portable Fire Extinguisher Mounting – Previous standards for mounting fire extinguishers have been criticized for requiring specific mounting locations. In recognition of this criticism, the standard has been rewritten to permit as much flexibility in extinguisher mounting as is acceptable to assure that fire extinguishers are available when needed and that employees are not subjected to injury hazards when they try to obtain an extinguisher.

It is the intent of OSHA to permit the mounting of extinguishers in any location that is accessible to employees without the use of portable devices such as a ladder. This limitation is necessary because portable devices can be moved or taken from the place where they are needed and, therefore, might not be available at the time of an emergency.

Employers are given as much flexibility as possible to assure that employees can obtain extinguishers as fast as possible. For example, an acceptable method of mounting extinguishers in areas where fork lift trucks or tow-motors are used is to mount the units on retractable boards which, by means of counter-weighting, can be raised above the level where they could be struck by vehicular traffic. When needed, they can be lowered quickly for use. This method of mounting can also reduce vandalism and unauthorized use of extinguishers.

The extinguishers may also be mounted as outlined in the National Fire Protection Association's Standard No. 10, "Portable Fire Extinguishers."

4. Selection and Distribution – The employer is responsible for the proper selection and distribution of fire extinguishers and the determination of the necessary degree of protection. The selection and distribution of fire extinguishers must reflect the type and class of fire hazards associated with a particular workplace.

Extinguishers for protecting Class A hazards – may be selected from the following types: water, foam, loaded stream, or multipurpose dry chemical.

Extinguishers for protecting Class B hazards – may be selected from the following types: Halon 1301, Halon 1211, carbon dioxide, dry chemicals, foam, or loaded stream.

Extinguishers for Class C hazards – may be selected from the following types: Halon 1301, Halon 1211, carbon dioxide, or dry chemical.

Combustible metal (Class D hazards) – fires pose a different type of fire problem in the workplace.

Extinguishers using water, gas, or certain dry chemicals cannot extinguish or control this type of fire. Therefore, certain metals have specific dry powder extinguishing agents which can extinguish or control this type of fire. Those agents which have been specifically approved for use on certain metal fires provide the best protection; however, there are also some "universal" type agents which can be used effectively on a variety of combustible metal fires if necessary.

The "universal" type agents include: Foundry flux, Lith-X powder, TMB liquid, pyromet powder, TEC powder, dry talc, dry graphite powder, dry sand, dry sodium chloride, dry soda ash, lithium chloride, zirconium silicate, and dry dolomite.

Water is not generally accepted as an effective extinguishing agent for metal fires. When applied to hot burning metal, water will break down into its basic atoms of oxygen and hydrogen. This chemical breakdown contributes to the combustion of the metal.

However, water is also a good universal coolant and can be used on some combustible metals, but only under proper conditions and application, to reduce the temperature of the burning metal below the ignition point. For example, automatic deluge systems in magnesium plants can discharge such large quantities of water on burning magnesium that the fire will be extinguished.

The National Fire Protection Association has specific standards for this type of automatic sprinkler system. Further information on the control of metal fires with water can be found in the National Fire Protection Association's Fire Protection Handbook. An excellent source of selection and distribution criteria is found in the National Fire Protection Association's Standard No. 10. Other sources of information include the National Safety Council and the employer's fire insurance carrier.

5. Substitution of Standpipe Systems for Portable Fire Extinguishers – The employer is permitted to substitute acceptable standpipe systems for portable fire extinguishers under certain circumstances. It is necessary to assure that any substitution will provide the same coverage that portable units provide. This means that fire hoses, because of their limited portability, must be spaced throughout the protected area so that they can reach around obstructions such as columns, machinery, etc. and so that they can reach into closets and other enclosed areas.

6. Inspection, Maintenance and Testing – The ultimate responsibility for the inspection, maintenance and testing of portable fire extinguishers lies with the employer. The actual inspection, maintenance, and testing may, however, be conducted by outside contractors with whom the employer has arranged to do the work. When contracting for such work, the employer should assure that the contractor is capable of performing the work that is needed to comply with this standard.

If the employer should elect to perform the inspection, maintenance, and testing requirements of this section in-house, then the employer must make sure that those persons doing the work have been appropriately trained and to recognize problem areas which could cause an extinguisher to fail.

The employer may also check with the manufacturer of the unit that has been purchased and obtain guidelines on inspection, maintenance, and testing. Hydrostatic testing is a process that should be left to contractors or individuals using suitable facilities and having the necessary training.

Anytime the employer has removed an extinguisher from service to be checked or repaired, alternate equivalent protection must be provided. Alternate equivalent protection could include replacing the extinguisher with one or more units having equivalent or equal ratings, posting a fire watch, restricting the unprotected area from employee exposure, or providing a hose system ready to operate.

7. Hydrostatic Testing – As stated before, the employer may contract for hydrostatic testing. However, if the employer wishes to provide the testing service, certain equipment and facilities must be available. Employees should be made aware of the hazards associated with hydrostatic testing and the importance of using proper guards and water pressures.

Severe injury can result if extinguisher shells fail violently under hydrostatic pressure. Employers are encouraged to use contractors who can perform adequate and reliable service. Firms which have been certified by the Materials Transportation Board (MTB) of the U.S. Department of Transportation (DOT) or State licensed extinguisher servicing firms or recognized by the National Association of Fire Equipment Distributors in Chicago, Illinois, are generally acceptable for performing this service.

8. Training and education. This part of the standard is of the utmost importance to employers and employees if the risk of injury or death due to extinguisher use is to be reduced.

If an employer is going to permit an employee to fight a workplace fire of any size, the employer must make sure that the employee knows everything necessary to assure the employee's safety. Training and education can be obtained through many channels. Often, local fire departments in larger cities have fire prevention bureaus or similar organizations which can provide basic fire prevention training programs. Fire insurance companies will have data and information available. The National Fire Protection Association and the National Safety Council will provide, at a small cost, publications that can be used in a fire prevention program.

Actual fire fighting training can be obtained from various sources in the country. Some manufacturers of extinguishers conduct fire schools for customers in the proper use of extinguishers.

In meeting the requirements of this section, the employer may also provide educational materials, without classroom instruction, through the use of employee notice campaigns using instruction sheets or flyers or similar types of informal programs. The employer must make sure that employees are trained and educated to recognize not only what type of fire is being fought and how to fight it, but also when it is time to get away from it and leave fire suppression to more experienced fire fighters.

A Rule-by-Rule Summary

The following rules include OSHA's requirements for planning and responding to workplace emergencies.

| Rule | What It Covers |
|---|---|
| Exits and Exit Routes | Requirements for exits that employees use during an emergency. |
| Employee Action Plan | All emergency action plans required by other OSHA rules. Requires a written plan for workplaces that have more than 10 employees; covers the written requirements, requirements for alarms, evacuations, and training. |
| Fire Prevention Plan | All fire prevention plans required by OSHA rules. Requires a written plan for workplaces that have more than 10 employees; covers the written requirements, requirements for housekeeping, training, and preventive maintenance. |
| Fire Brigades | Organizational, training, and personal protective equipment requirements for fire brigades established by an employer. |
| Portable Fire Suppression Equipment | Requirements for placing, using, maintaining, and testing portable fire extinguishers for employee use. Requirements for standpipe and hose systems. |
| Fixed Fire Suppression Equipment | Requirements for automatic sprinkler systems. Requirements for fixed extinguishing systems Requirements for dry chemical fixed extinguishing systems. Requirements for gaseous agent fixed extinguishing systems. Requirements for water, spray, and foam fixed extinguishing systems. |
| Other Fire Protective Systems | Requirements for fire detectors and fire detection systems. Requirements for employee alarm systems. |
| Process Safety Management | Requirements for controlling the of highly hazardous chemicals release of toxic, reactive, flammable, or explosive chemicals. Requires an emergency plan. |
| Hazardous Waste Operations and Emergency Response. | Requires an emergency plan for employers engaged in cleanup operations, operations at TSD facilities, and employers who respond to releases of hazardous substances. |
| Personal Protective Equipment | Requirements for eye and face protection Requirements for respiratory protection Requirements for head protection Requirements for foot protection Requirements for hand protection |
| Permit-Required Confined Spaces | Requirements for entry procedures, rescue and emergency services. |
| Toxic and Hazardous Substances (This section includes an extensive list chemicals) | Requirements for controlling employee exposure to hazardous substances. Requires an emergency plan, including appropriate personal protective equipment, for airborne releases. Training requirements on the appropriate actions employees must take if they may be involved in emergencies involving blood or other potentially infectious materials |
| Hazard Communication | Requirements for protecting employees who may be exposed to hazardous chemicals, including information on container warning labels, material safety data sheets, and training. |
| Medical Services & First Aid | Requirements for workplace first aid and emergency medical services. |

Where to Find More Information

Emergency management guide for business and industry; Federal Emergency Management Agency (FEMA), 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

NOTE: In the "Attachments" Chapter of this Safety & Health Manual you will find a master copy of the following form for Company use:

- Emergency Action Plan

29 CFR-§1910.151 - First Aid

Medical Services & First Aid

Professional Building Services, Inc. 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: The janitorial closets.

Policy Statement

It is the policy of Professional Building Services, Inc. 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 OSHA.

In areas where 911 service is not available, employees will be notified of phone numbers to contact local emergency response medical services. Michael McCormack 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.

Michael McCormack 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

Professional Building Services, Inc. will ensure that first-aid trained personnel are available to provide quick and effective first aid.

Michael McCormack 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 OSHA 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 OSHA 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 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, installations, 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 Safety & Health Manual 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 OSHA rule states: "First aid supplies will be easily accessible when required. The contents of a first aid kit will be placed in a weather proof container with sterile, individually sealed packages for each type of item and will be checked by the employer before being sent out on each job and at least weekly on each job to ensure that the expended items are replaced." In the event of an emergency medical situation caused by a serious injury accident, proper and prompt treatment can greatly reduce the severity of the injury and possibly prevent the death of a co-worker.

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.

29 CFR-§1910.1030 - Bloodborne Pathogens

Policy Statement

Professional Building Services, Inc. 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

Professional Building Services, Inc. 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 Appendix D. Should an exposure incident occur, Appendix D, 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 OSHA requirements of 29 CFR 1910.1030. 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 29 CFR 1910.1030 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 OSHA for examination and copying.

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

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 OSHA.

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 _____

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 _____

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 29 CFR 1910.1030, Occupational Exposure to Bloodborne Pathogens;
- 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)

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 _____

Job Hazard Assessment

Professional Building Services, Inc. is committed to providing a safe and hazard free workplace.

Sarah Bennett will inspect all facilities and workplaces for hazards.

Hazard Assessment Plan

Professional Building Services, Inc. performs inspections of the facility and workplace at least quarterly. 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.

Professional Building Services, Inc. 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 safety and health 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 OSHA 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 health and safety program meets federal 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, OSHA 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 |
|--|---|
| Chemical (Toxic) | 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), and/or OSHA 1910.1200 for chemical hazard information. |
| Chemical (Flammable) | 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. |
| Chemical (Corrosive) | A chemical that, when it comes into contact with skin, metal, or other materials, damages the materials. Acids and bases are examples of corrosives. |
| Explosion (Chemical Reaction) | Self explanatory. |
| Explosion (Over Pressurization) | 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. |
| Electrical (Shock/Short Circuit) | 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. |
| Electrical (Fire) | Use of electrical power that results in electrical overheating or arcing to the point of combustion or ignition of flammables, or electrical component damage. |
| Electrical (Static/ESD) | 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. |
| Electrical (Loss of Power) | Safety-critical equipment failure as a result of loss of power. |
| Ergonomics (Strain) | Damage of tissue due to overexertion (sprains and strains) or repetitive motion. |
| Ergonomics (Human Error) | A system design, procedure, or equipment that is error-provocative. (A switch goes up to turn something off). |
| Fall (Slip, Trip) | Conditions that result in falls (impacts) from height or traditional walking surfaces (such as slippery floors, poor housekeeping, uneven walking surfaces, exposed ledges, etc.) |
| Fire/Heat | Temperatures that can cause burns to the skin or damage to other organs. Fires require a heat source, fuel, and oxygen. |
| Mechanical/ Vibration (Chaffing/ Fatigue) | 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.) |
| Mechanical Failure | Self explanatory; typically occurs when devices exceed designed capacity or are inadequately maintained. |

| | |
|---|--|
| Mechanical | Skin, muscle, or body part exposed to crushing, caught-between, cutting, tearing, shearing items or equipment. |
| Noise | Noise levels (>85 dBA 8 hr TWA) that result in hearing damage or inability to communicate safety-critical information. |
| Radiation (Ionizing) | Alpha, Beta, Gamma, neutral particles, and X-rays that cause injury (tissue damage) by ionization of cellular components. |
| Radiation (Non-Ionizing) | Ultraviolet, visible light, infrared, and microwaves that cause injury to tissue by thermal or photochemical means. |
| Struck By (Mass Acceleration) | Accelerated mass that strikes the body causing injury or death. (Examples are falling objects and projectiles.) |
| Struck Against | 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.) |
| Temperature Extreme (Heat/Cold) | Temperatures that result in heat stress, exhaustion, or metabolic slow down such as hypothermia. |
| Visibility | Lack of lighting or obstructed vision that results in an error or other hazard. |
| Weather Phenomena (Snow/Rain/Wind/Ice) | 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 Safety & Health Manual you will find a master copy of the following form for Company use:

- Job Safety Analysis

Workplace Violence Prevention Program

Policy Statement

Professional Building Services, Inc. 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.

Michael McCormack 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 Professional Building Services, Inc. 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 Michael McCormack 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.
- Professional Building Services, Inc. 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. Professional Building Services, Inc. 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 Professional Building Services, Inc. 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

Michael McCormack 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 OSHA 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.

Professional Building Services, Inc. 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

Professional Building Services, Inc. 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

Professional Building Services, Inc. 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

Professional Building Services, Inc. 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.
- Professional Building Services, Inc. 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 Safety & Health 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 Safety & Health Program you will find a master copy of the following form for Company use:

- Sexual Harassment Complaint Form

Hazard Communication Program

29 CFR-§1910.1200 - Hazard Communication

Policy Statement

Professional Building Services, Inc. has implemented this program to ensure that employees are informed of any chemical hazards and hazardous or toxic substances in their workplace:

Michael McCormack is the administrator of the Company Hazard Communication Program, and will document all necessary training of employees. 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.

Employees will be notified of any hazardous substances used by any company other than Professional Building Services, Inc. in the workplace, and make MSDS available to employees.

All containers used on the job will 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 will be affixed containing all required precautionary information, or the material disposed of properly. See examples of precautionary labeling at the end of this section.

A list of all chemicals known to be used at the workplace by Company employees will be available for review at the jobsite and in the office. MSDS for all chemicals used in the workplace by Professional Building Services, Inc. are available to employees at the worksite from the job foreman or in the office.

Michael McCormack will ensure that each container of hazardous chemicals in the workplace is labeled, tagged, or marked with the following information:

- Identity of the hazardous chemical(s) contained therein.
- Appropriate hazard warnings, or alternatively, words, pictures, symbols, or combination thereof, which provide at least general information regarding the hazards of the chemicals, and which, in conjunction with the other information immediately available to employees under this Hazard Communication Program. Employees will be provided with the specific information regarding the physical and health hazards of the hazardous chemical.
- Name and address of the chemical manufacturer, importer, or other responsible party.

Michael McCormack will ensure that labels or other forms of warning in English, are legible, and prominently displayed on the container, or readily available in the work area throughout each work shift.

When Professional Building Services, Inc. has employees who are non-English speaking, information will be presented in their language as well.

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. Michael McCormack 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 Michael McCormack.

A copy of the company's hazard communication program is available to all employees, and will be kept at the job-site by the foreman in charge, or in the office. Translations of the hazard communication program are available to non-English speaking employees upon request from Michael McCormack.

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>

HAZARD COMMUNICATION PROGRAM

General Information

The management staff of Professional Building Services, Inc. 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.

Container Labeling

Michael McCormack is responsible for container labeling procedures, reviewing, and updating. The labeling system to be used is as follows:

Professional Building Services, Inc. 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.

Michael McCormack 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 Michael McCormack.

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. Michael McCormack 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 Michael McCormack.

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 Professional Building Services, Inc., 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 Michael McCormack 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 Safety & Health Manual 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 110° 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 99.9° 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:

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| 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:

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| 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 212o 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 Safety & Health Manual 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

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|---|---|
| <p>HAZARDOUS CHEMICAL</p> <p>NAME OF CHEMICAL:</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/> | <p>HAZARDOUS CHEMICAL</p> <p>NAME OF CHEMICAL:</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/> |
| <p>HAZARDOUS CHEMICAL</p> <p>NAME OF CHEMICAL:</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/> | <p>HAZARDOUS CHEMICAL</p> <p>NAME OF CHEMICAL:</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/> |

Personal Protective Equipment

29 CFR-1910.132 - Personal Protective Equipment

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:

Dust Masks, Gloves and Eyewear.

Employees can request PPE equipment from The Building Supervisor.

Policy Statement

Professional Building Services, Inc. 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. The Building Supervisor is the supervisor responsible for ensuring the following work practices are enforced.

The Building 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.

The Building 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 Professional Building Services, Inc. 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.

OSHA Personal Protective Equipment Standards

Introduction

The Occupational Safety and Health Administration (OSHA) require 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, OSHA 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 OSHA 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 OSHA standards, published in 29 CFR. 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.

OSHA 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, OSHA requirements, and ANSI standards.

OSHA 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 OSHA 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

OSHA 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

OSHA 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.

OSHA 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

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 90 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.

OSHA 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, OSHA 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.

29 CFR-§1910.95 – Occupational Noise Exposure

Policy Statement for Occupational Noise Exposure

Professional Building Services, Inc. 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.

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 OSHA 1910.95 (g), 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 OSHA 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 OSHA'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.

| Decibels | Increase in Sound Intensity |
|-----------------|---|
| 100 | $10 \times 10 = 10,000,000,000$ |
| 90 | $10 \times 10 = 1,000,000,000$ |
| 80 | $10 \times 10 = 100,000,000$ |
| 70 | $10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 = 10,000,000$ |
| 60 | $10 \times 10 \times 10 \times 10 \times 10 \times 10 = 1,000,000$ |
| 50 | $10 \times 10 \times 10 \times 10 \times 10 = 100,000$ |
| 40 | $10 \times 10 \times 10 \times 10 = 10,000$ |
| 30 | $10 \times 10 \times 10 = 1,000$ |
| 20 | $10 \times 10 = 100$ |
| 10 | $10 \times 1 = 10$ |
| 1 | 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).

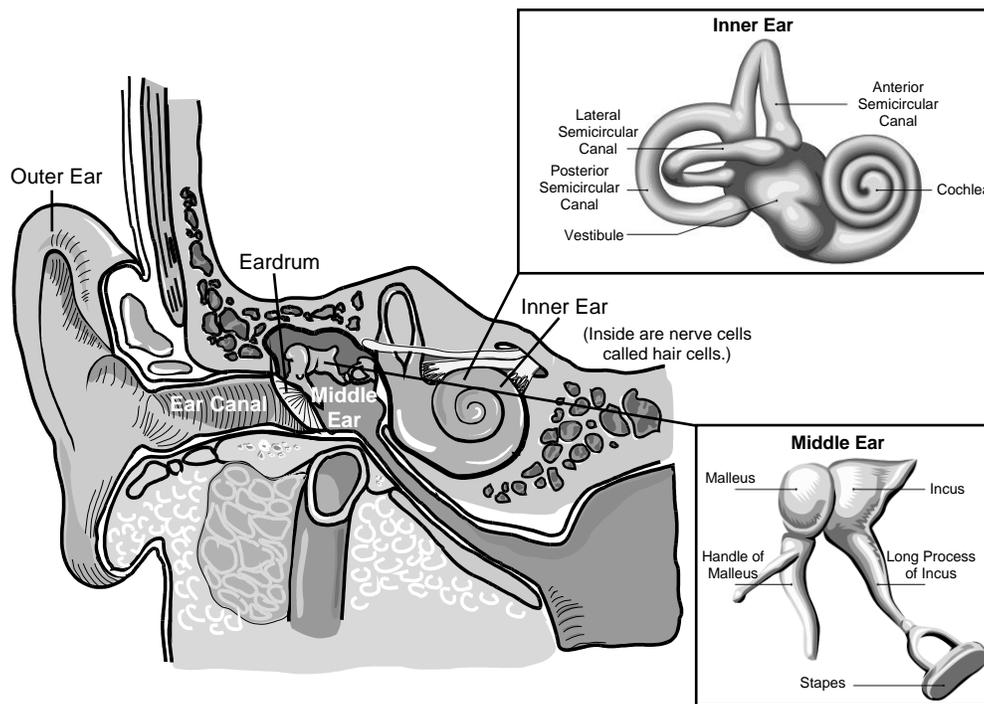
Human hearing is most sensitive to frequencies between 3,000 to 4,000 Hz. That is why those with damaged hearing have difficulty understanding higher-pitched voices and other sounds in the 3,000- to 4,000-Hz range.

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.

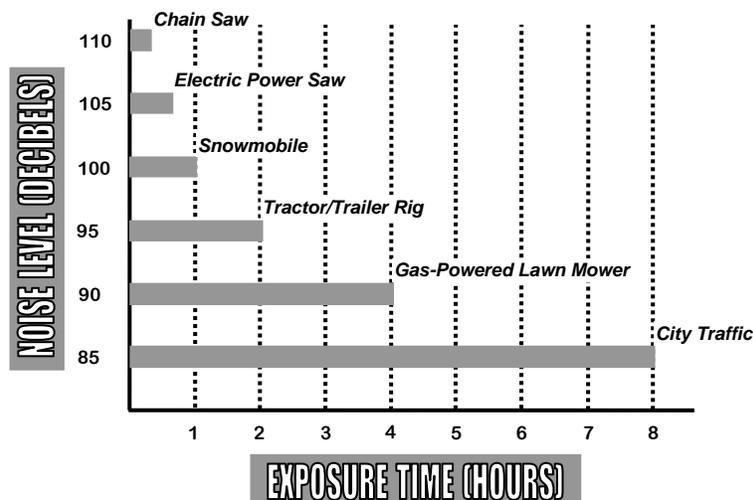
You should consider your hearing at risk if noise affects you in one of the following ways:

- 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 for Common Noise Sources

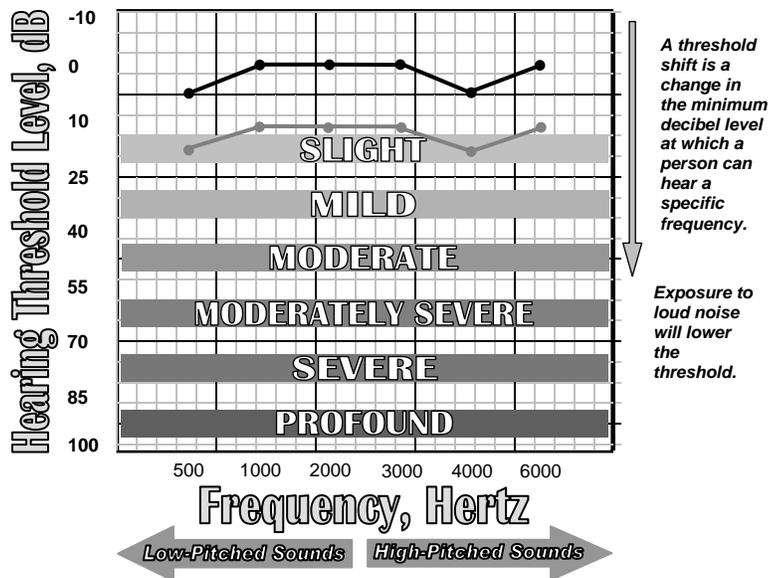


What happens when noise is too loud?

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 |
|---------------------------------------|--------------------------------|---|---------------------------------------|
| <i>Exposure Monitoring</i> | 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 |
| <i>Audiometric Testing</i> | 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 level. | Until the employee's termination date |
| <i>Education and Training</i> | Hearing conservation concepts | Names of employees who received training, training dates, who presented the training. | No minimum period |
| <i>Engineering Controls</i> | Feasibility survey | Results of feasibility surveys, controls used, start date, noise reduction achieved. | No minimum period |
| <i>Administrative Controls</i> | Feasibility survey | Results of feasibility surveys, controls used, start date, noise reduction achieved, employees affected. | No minimum period |
| <i>Hearing Protectors</i> | 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 Safety-and-Health 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.

PROGAM for SUCCESS

| Safety Program Element | Noise-Control Strategy |
|--------------------------------------|---|
| <i>Management Commitment</i> | 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. |
| <i>Hazard Identification</i> | 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. |
| <i>Hazard Control</i> | 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. |
| <i>Accountability</i> | 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. |
| <i>Accident Investigation</i> | 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. |
| <i>Education and Training</i> | Educate employees about the purpose of audiometric testing, monitoring, and hearing protectors; train employees how to use and care for hearing protectors. |
| <i>Employee Involvement</i> | <ul style="list-style-type: none"> • Require all employees exposed to noise levels exceeding 85 decibels, averaged over an eight-hour day to participate in training. • Inform employees about their monitoring and audiometric test results. • Encourage employees to report noise hazards and to offer solutions for controlling them. |
| <i>Program Review</i> | Evaluate each of the above elements periodically to ensure that you're achieving and maintaining a low-noise workplace. |

Rules to Work By

Overview: OSHA'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.

| 1910 Subpart G-Occupational Noise Exposure | |
|---|--------------------|
| Topic | Rule Number |
| Monitoring | 1910.95(d) |
| Employee Notification | 1910.95(e) |
| Observation of Monitoring | 1910.95(f) |
| Audiometric Testing | 1910.95(g)-(h) |
| Hearing Protectors | 1910.95(i) |
| Hearing Protector Attenuation | 1910.95(j) |
| Training | 1910.95(k) |
| Access to Information and Training | 1910.95(l) |
| Record Keeping | 1910.95(m) |

Key Words Defined

| | |
|-------------------------------|--|
| Administrative Control | A method of controlling workplace hazards by managing workers' activities to reduce exposure. |
| Audiogram | A graph showing individual hearing ability as a function of frequency. |
| Decibel | A unit of sound-pressure level, abbreviated dB. |
| Dosimeter | 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. |
| Earmuff | Personal protective equipment that fits over both ears and forms an air seal. |
| Earplug | 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. |
| Eardrum | A membrane in the ear canal between the external ear and the middle ear. |
| Engineering Control | A method of controlling a workplace hazard by modifying or eliminating the source of exposure so that it is no longer hazardous. |
| Frequency | 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). |
| Hair cell | Sensory cells in the inner ear that transforms the mechanical energy of sound into nerve impulses. |
| Hearing | The subjective human response to sound. |
| Hearing Protectors | Personal protective equipment that decreases the pressure of sound that reaches the eardrum; includes earplugs and earmuffs. |
| Hertz | Unit of measurement of frequency, numerically equal to cycles per second, abbreviated Hz. |
| Inner Ear | The inner portion of the ear involved in hearing and balance. |
| Logarithm | 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. |

| | |
|-----------------------------------|--|
| Middle Ear | The middle portion of the ear consisting of the eardrum and an air-filled chamber lined with mucus membrane. |
| Noise | 1. Sound that is noticeably unpleasant. 2. Sound that is undesired or that interferes with one's hearing. |
| Noise-Induced Hearing Loss | Sounds of sufficient intensity and duration that damage one's hearing ability. |
| Outer Ear | The external portion of the ear including the canal leading to the eardrum. |
| Permanent Threshold Shift | A permanent decrease in hearing ability a specified frequency as compared to a previously established reference level. |
| Pitch | The property of a sound that is determined by the frequency of the waves producing it; the highness or lowness of sound. |
| Sound | 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. |
| Sound-Level Meter | An instrument that uses a microphone, amplifier, and output meter to measure sound levels. |
| Sound Survey | 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 as an eight-hour work day. |
| Temporary Threshold Shift | A temporary impairment of hearing ability. |
| Tinnitus | 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). |
| Work-Practice Control | A type of administrative control; emphasizes safe work practices and procedures. |

29 CFR-§1910.211-.219 - Machine Guarding

Basics of Machine Safeguarding

Safeguards are essential for protecting workers from needless and preventable injuries. A good rule to remember is: Any machine part, function, or process which may cause injury must be safeguarded. When the operation of a machine or accidental contact with it can injure the operator or others in the vicinity, the hazards must be either controlled or eliminated.

This information describes the various hazards of mechanical motion and describes some techniques for protecting workers from these hazards. General information includes where mechanical hazards occur, the hazards created by different kinds of motions and the requirements for effective safeguards, as well as a brief discussion of non-mechanical hazards.

Principles

The purpose of machine guarding is to protect against and prevent injury from:

- Point of operation
- In-running nip points
- Rotating parts
- Flying chips
- Sparks

Where Mechanical Hazards Occur

Dangerous moving parts in three basic areas require safeguarding:

1. Point of Operation

- Cutting
- Shaping
- Grinding
- Boring
- Forming
- Turning
- Shearing
- Punching
- Bending
- Drilling

2. Power Transmission Apparatus

All components of the mechanical system which transmit energy to the part of the machine performing the work:

- Flywheels
- Pulleys
- Belts
- Couplings
- Cams
- Spindles
- Chains
- Cranks
- Gears
- Sprockets
- Shafts
- Rods

3. Other Moving Parts

All parts of the machine which moves while the machine is working:

- Reciprocating
- Rotating
- Transverse
- Feed mechanisms
- Auxiliary parts

Hazardous Mechanical Motions

A wide variety of mechanical ***motions*** and actions may present hazards to the worker. These can include the movement of rotating members (*belts, sprockets, fan blades, etc.*), reciprocating arms (*shaker screens, tables, etc.*), moving belts (*transverse motion conveyors, transfer chains/belts, etc.*), meshing gears, cutting teeth, and any parts that impact or shear.

There are three basic categories of hazardous machine and equipment motions:

1. Rotating

2. Reciprocating

3. Transverse

Rotating motion can be dangerous; even smooth, slowly rotating shafts can grip clothing, and through mere skin contact force an arm or hand into a dangerous position. Injuries due to contact with rotating parts can be severe.

Collars, couplings, cams, clutches, flywheels, shaft ends, spindles, meshing gears, and horizontal or vertical shafting are some examples of common rotating mechanisms which may be hazardous. The danger increases when projections such as set screws, bolts, nocks, abrasions, and projecting keys or set screws are exposed on rotating parts.

In-running nip point hazards are caused by the rotating parts on machinery. There are three main types of in-running nips.

Parts can rotate in opposite directions while their axes are parallel to each other. These parts may be in contact (producing a nip point) or in close proximity. In the latter case the stock fed between the rolls produces the nip points. This danger is common on machines with intermeshing gears, rolling mills, and calendars.

Nip points are also created between rotating and tangentially moving parts. Some examples would be: The point of contact between a power transmission belt and its pulley, a chain and a sprocket, and a rack and pinion.

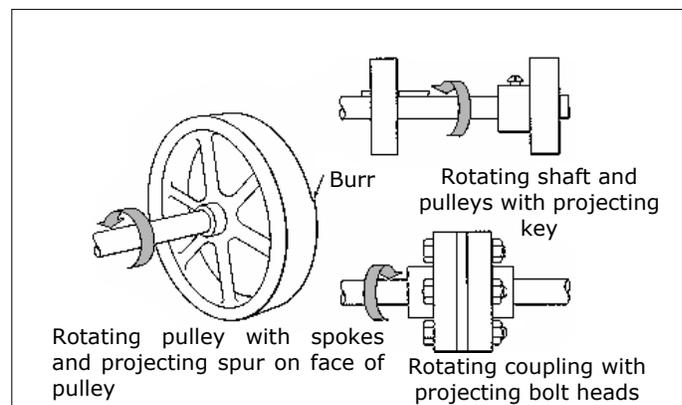
Nip points can occur between rotating and fixed parts which create a shearing, crushing, or abrading action. Examples are: Spoked handwheels or flywheels, screw conveyors, or the periphery of an abrasive wheel and an incorrectly adjusted work rest.

Reciprocating motions may be hazardous because, during the back-and-forth or up-and-down motion, a worker may be struck by or caught between a moving and a stationary part.

Transverse motion (movement in a straight, continuous line) creates a hazard because a worker may be struck or caught in a pinch or shear point by the moving part.

All Rotating-Motion including:

- Cams
- Sprockets
- Couplings
- Clutches
- Flywheels
- Shafts
- Pulleys
- Meshing Gears
- Fans



In-Running Nip Point Hazards

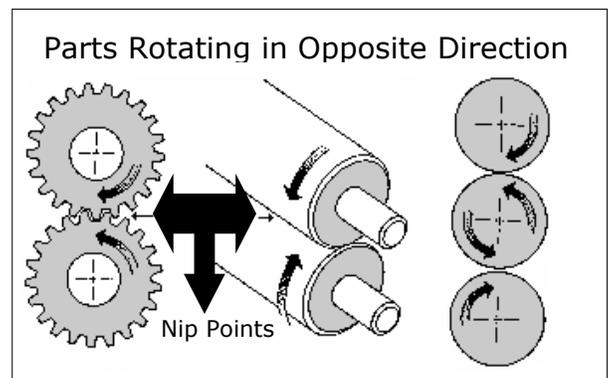
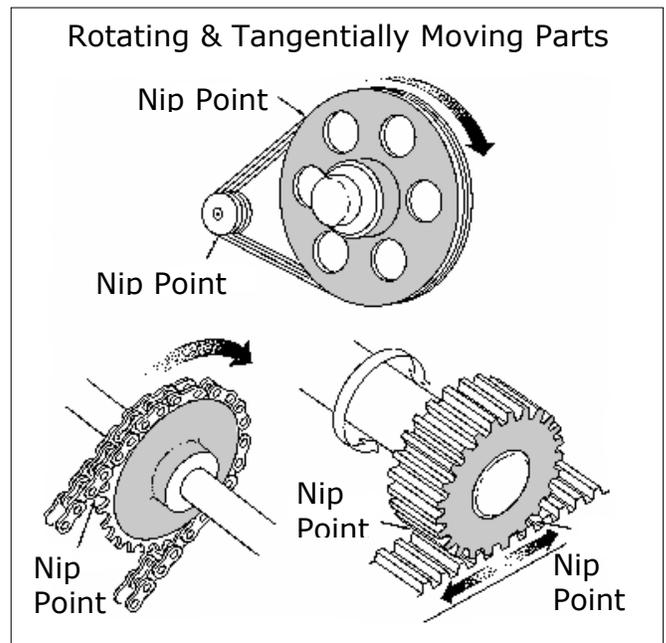
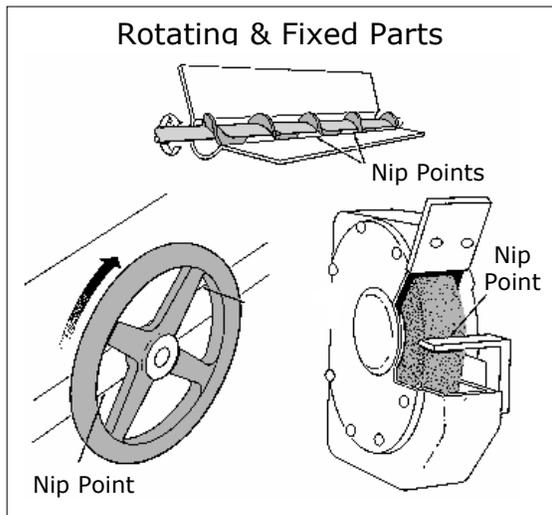
There are three main types of running nips:

1. Parts rotating in opposite direction
2. Rotating and Tangentially-moving parts
3. Rotating and Fixed parts

Reciprocating Motion

- Back & Forth; Up & Down
- May be struck by or caught between a moving or stationary part

Do you have reciprocating motion in your facility? e.g. Scissor lifts, shaker screens, feed tables, slicers, feeding/ejection parts, etc.



Transverse Motion

- Straight & Continuous Line
 - Conveyor Lines
 - Lengthy Belts

May be struck or caught in a pinch or shear point by the moving part

Hazardous Mechanical Actions

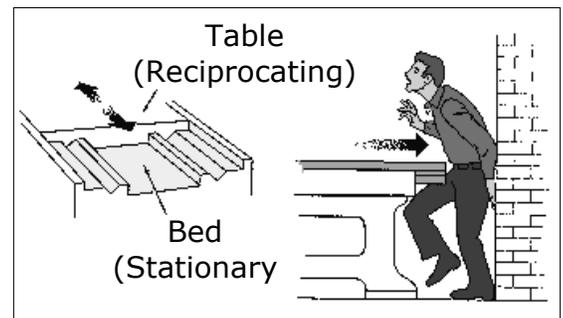
A wide variety of mechanical actions may present hazards to the worker. These can include:

Stamping/Punching (impact) action

- Cutting teeth
- Shearing blades
- Meshing gears
- Movement of rotating members
- Reciprocating arms
- Moving belts
- Rollers and brakes

There are four basic categories of hazardous machine and equipment actions:

- Cutting
- Shearing
- Bending
- Punching



Cutting action may involve rotating, reciprocating, or transverse motion. The danger of cutting action exists at the point of operation where finger, arm, and body injuries can occur and where flying chips or scrap material can strike the head, particularly in the area of the eyes or face. Such hazards are present at the point of operation in cutting work, metal, or other materials.

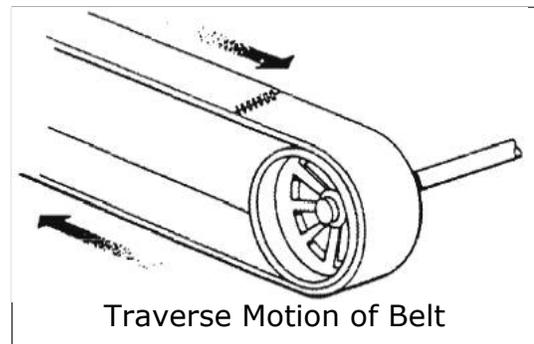
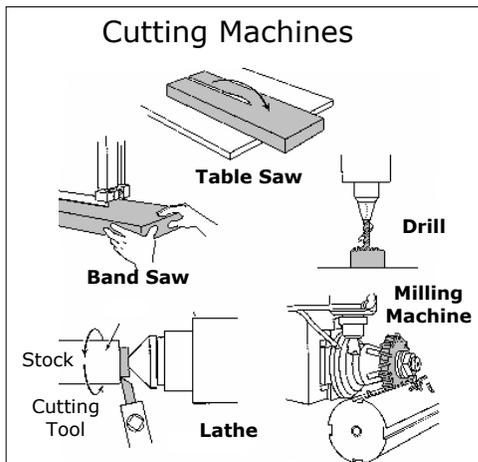
Examples of mechanisms involving cutting hazards include band saws, circular saws, boring or drilling machines, turning machines (lathes), or milling machines.

A punching action results when power is applied to a slide (ram) for the purpose of blanking, drawing, or stamping metal and other materials. The danger of this type of action occurs at the point of operation where stock is inserted, held, and withdrawn by hand. Typical machines used for punching operations are power presses and iron workers.

Shearing action involves applying power to a slide or knife in order to trim or shear metal or other materials. A hazard occurs at the point of operation where stock is actually inserted, held, and withdrawn. Examples of machines used for shearing operations are mechanically, hydraulically, or pneumatically powered shears.

Bending action results when power is applied to a slide in order to draw or stamp metal or other materials. A hazard occurs at the point of operation where stock is inserted, held, and withdrawn. Equipment that uses bending action includes power presses, press brakes, and tubing benders.

These different types of hazardous mechanical actions are basic in varying combinations to nearly all machines, and recognizing them is the first step toward protecting workers from the danger they present.



Requirements for Safeguards

What must a safeguard do to protect workers against mechanical hazards?

Safeguards must meet these minimum general requirements:

Prevent contact: The safeguard must prevent hands, arms, and any other part of a worker's body from making contact with dangerous moving parts. A good safeguarding system eliminates the possibility of the operator or another worker placing parts of their bodies near hazardous moving parts.

Secure: Workers should not be able to easily remove or tamper with the safeguard, because a safeguard that can easily be made ineffective is no safeguard at all. Guards and safety devices should be made of durable material that will withstand the conditions of normal use. They must be firmly secured to the machine.

Protect from falling objects: The safeguard should ensure that no objects can fall into moving parts. A small tool which is dropped into a cycling machine could easily become a projectile that could strike and injure someone.

Create no new hazards: A safeguard defeats its own purpose if it creates a hazard of its own such as a shear point, a jagged edge, or an unfinished surface which can cause a laceration. The edges of guards, for instance, should be rolled or bolted in such a way that they eliminate sharp edges.

Create no interference: Any safeguard which impedes a worker from performing the job quickly and comfortably might soon be overridden or disregarded. Proper safeguarding can actually enhance efficiency since it can relieve the worker's apprehensions about injury.

Allow safe lubrication: If possible, one should be able to lubricate the machine without removing the safeguards. Locating oil reservoirs outside the guard, with a line leading to the lubrication point, will reduce the need for the operator or maintenance worker to enter the hazardous area.

Non-Mechanical Hazards

Machines obviously present a variety of other hazards which cannot be ignored. Remember that things other than safeguarding moving parts can affect the safe operation of machines.

All power sources for machines are potential sources of danger. When using electrically powered or controlled machines, for instance, the equipment as well as the electrical system itself must be properly grounded. Replacing frayed, exposed, or old wiring will also help to protect the operator and others from electrical shocks or electrocution. High pressure systems also need careful inspection and maintenance to prevent possible failure from pulsation, vibration, or leaks. Such a failure could cause, among other things, explosions or flying objects.

Machines often produce noise (unwanted sound) which can result in a number of hazards to workers. Noise can startle and disrupt concentration, and can interfere with communications, thus hindering the worker's safe job performance.

Engineering controls such as the use of sound-dampening materials, and personal protective equipment, such as ear plugs and muffs, can help control the harmful effects of noise. Also, administrative controls that involve removing the worker from the noise source can be an effective measure when feasible.

Because some machines require the use of cutting fluids, coolant, and other potentially harmful substances, operators, maintenance workers, and others in the vicinity may need protection. These substances can cause ailments ranging from dermatitis to serious illnesses and disease. Specially constructed safeguards, ventilation, and

protective equipment and clothing are possible temporary solutions to the problem of machinery-related chemical hazards until these hazards can be better controlled or eliminated from the workplace.

Training

Specific and detailed training is a crucial part of any effort to provide safeguarding against machine-related hazards. Thorough operator training should involve instruction or hands-on training in the following:

1. A description and identification of the hazards associated with particular machines.
2. The safeguards themselves, how they provide protection, and the hazards for which they are intended.
3. How to use the safeguards and why.
4. How and under what circumstances safeguards can be removed, and by whom (in most cases, repair or maintenance personnel only).
5. What to do (e.g., contact the supervisor) if a safeguard is damaged, missing, or unable to provide adequate protection.

This kind of safety training is necessary for new operators and maintenance or setup personnel, when any new or altered safeguards are put in service, or when workers are assigned to a new machine or operation.

Protective Clothing and Personal Protective Equipment

Engineering controls, which eliminate the hazard at the source and do not rely on the worker's behavior for their effectiveness, offer the best and most reliable means of machine safeguarding. Therefore, engineering controls must be the employer's first choice for eliminating machine hazards. But whenever engineering controls are not available or are not fully capable of protecting the employee (and extra measure of protection is necessary), operators must wear protective clothing or personal protective equipment.

If it is to provide adequate protection, the protective clothing and equipment selected must always be:

1. Appropriate for the particular hazards.
2. Maintained in good condition.
3. Properly stored when not in use, to prevent damage or loss.
4. Kept clean, fully functional, and sanitary.

Protective clothing is, of course, available for different parts of the body.

Hard hats can protect the head from the impact of bumps and falling objects when the worker is handling stock, caps and hair nets can help keep the worker's hair from being caught in machinery.

If machine coolants could splash, or particles could fly into the operator's eyes or face, then face shields, safety goggles, glasses, or similar kinds of protection might be necessary. Hearing protection may be needed when workers operate noisy machines. To guard the trunk of the body from cuts or impacts from heavy or rough-edged stock, there are certain protective coveralls, jackets, vests, aprons, and full-body suits. Workers can protect their hands and arms from the same kinds of injury with special sleeves and gloves. Safety shoes and boots, or other acceptable foot guards, can shield the feet against injury in case the worker needs to handle heavy stock which might drop.

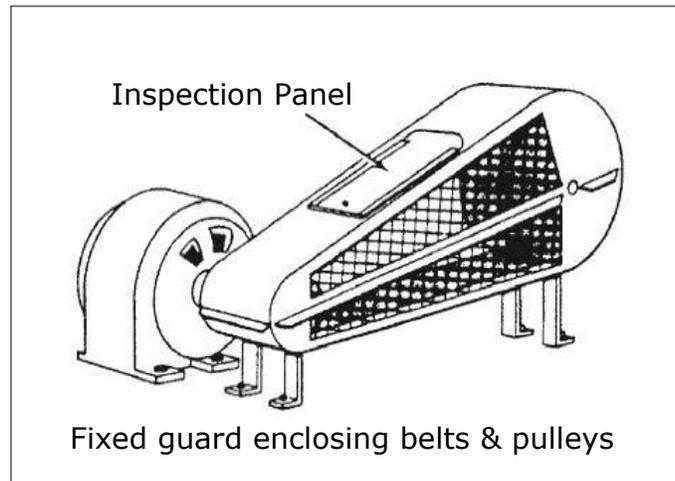
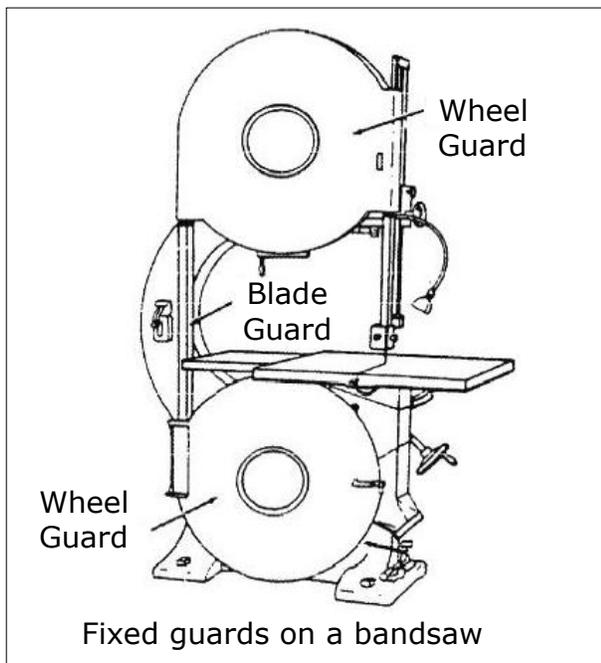
It is important to note that protective clothing and equipment can create hazards. A protective glove which can become caught between rotating parts, or a respirator face-piece which hinders the wearer's vision, for example, require alertness and continued attentiveness whenever they are used.

Other parts of the worker's clothing may present additional safety hazards. For example, loose-fitting shirts might possibly become entangled in rotating spindles or other kinds of moving machinery. Jewelry, such as bracelets and rings, can catch on machine parts or stock and lead to serious injury by pulling a hand into the danger area.

Methods of Machine Safeguarding

There are many ways to safeguard machines. The type of operation, the size or shape of stock, the method of handling, the physical layout of the work area, the type of material, and production requirements or limitations will help to determine the appropriate safeguarding method for the individual machine.

As a general rule, power transmission apparatus is best protected by fixed guards that enclose the danger areas. For hazards at the point of operation, where moving parts actually perform work on stock, several kinds of safeguarding may be possible. One must always choose the most effective and practical means available.



Machine safeguards can be grouped under five general classifications:

1. Guards

- Fixed
- Interlocked
- Adjustable
- Self-adjusting

2. Devices

- Presence Sensing
 - Photoelectrical (optical)
 - Radiofrequency (capacitance)
 - Electromechanical
- Pullback
- Restraint
- Safety Controls
 - Safety trip control
 - Pressure-sensitive body bar
 - Safety trip-rod
 - Safety tripwire cable
 - Two-hand control
 - Two-hand trip
- Gates
 - Interlocked
 - Other

3. Location/Distance

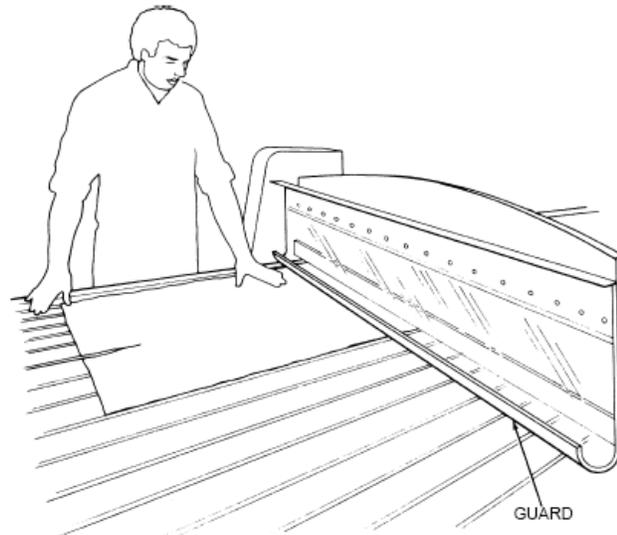
4. Potential Feeding and Ejection Methods to Improve Safety for the Operator

- Automatic feed
- Semi-automatic feed
- Automatic ejection
- Semi-automatic ejection
- Robot

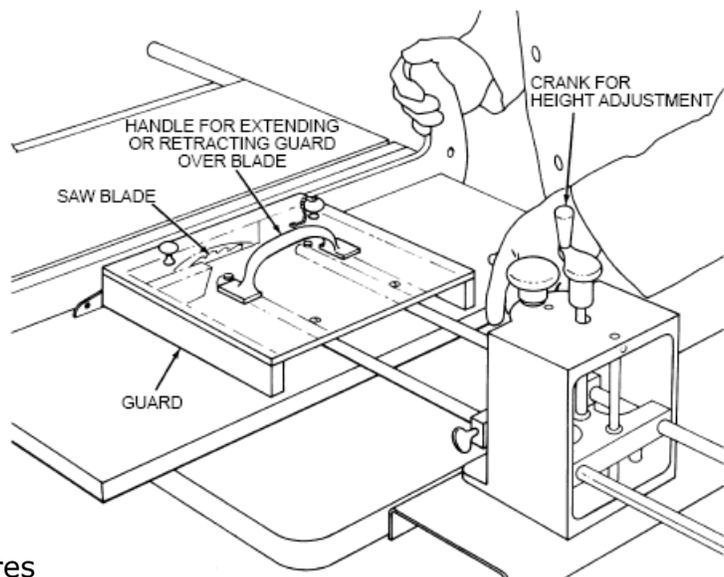
5. Miscellaneous Aids

- Awareness barriers
- Miscellaneous protective shields
- Hand-feeding tools and holding fixtures

Fixed guard on a veneer clipper



Adjustable guard on a table saw



Guards

Guards are barriers which prevent access to danger areas. There are four general types of guards:

Fixed: As its name implies, a fixed guard is a permanent part of the machine. It is not dependent upon moving parts to perform its intended function. It may be constructed of sheet metal, screen, wire cloth, bars, plastic, or any other material that is substantial enough to withstand whatever impact it may receive and to endure prolonged use. This guard is usually preferable to all other types because of its relative simplicity and permanence.

| Types of Machine Guards | | | |
|-------------------------|---|--|--|
| Method | Safeguarding Action | Advantages | Limitations |
| Fixed | Provides a barrier | Can be constructed to suit many specific applications. In-plant construction is often possible. Can provide maximum protection. Usually requires minimum maintenance. Can be suitable to high production, repetitive operations. | May interfere with visibility. Can be limited to specific operations. Machine adjustment and repair often require its removal, thereby necessitating other means of protection for maintenance personnel. |
| Interlocked | Shuts off or disengages power and prevents starting of machine when guard is open; should require the machine to be stopped before the worker can reach into the danger area. | Can provide maximum protection. Allows access to machine for removing jams without time consuming removal of fixed guards. | Requires careful adjustment and maintenance. May be easy to disengage jams. |
| Adjustable | Provides a barrier that may be adjusted to facilitate a variety of production operations. | Can be constructed to suit many specific applications. Can be adjusted to admit varying sizes of stock. | Hands may enter danger area – protection may not be complete at all times. May require frequent maintenance and/or adjustment. The guard may be made ineffective by the operator. May interfere with visibility. |
| Self-Adjusting | Provides a barrier that moves according to the size of the stock entering the danger area. | Off-the-shelf guards are often commercially available. | Does not always provide maximum protection. May interfere with visibility. May require frequent maintenance and adjustment. |

Interlocked: When this type of guard is opened or removed, the tripping mechanism and/or power automatically shuts off or disengages, and the machine cannot cycle or be started until the guard is back in place.

An interlocked guard may use electrical, mechanical, hydraulic, or pneumatic power or any combination of these. Interlocks should not prevent "inching" by remote control if

required. Replacing the guard should not automatically restart the machine. To be effective, all movable guards should be interlocked to prevent occupational hazards.

Adjustable: Adjustable guards are useful because they allow flexibility in accommodating various sizes of stock.

Self-Adjusting: The openings of these barriers are determined by the movement of the stock. As the operator moves the stock into the danger area, the guard is pushed away, providing an opening which is only large enough to admit the stock. After the stock is removed, the guard returns to the rest position. This guard protects the operator by placing a barrier between the danger area and the operator. The guards may be constructed of plastic, metal, or other substantial material. Self-adjusting guards offer different degrees of protection.

Devices

A safety device may perform one of several functions. It may stop the machine if a hand or any part of the body is inadvertently placed in the danger area; restrain or withdraw the operator's hands from the danger area during operation; require the operator to use both hands on machine controls, thus keeping both hands and body out of danger; or provide a barrier which is synchronized with the operating cycle of the machine in order to prevent entry to the danger area during the hazardous part of the cycle.

Presence-Sensing

The photoelectric (optical) presence-sensing device uses a system of light sources and controls which can interrupt the machine's operating cycle. If the light field is broken, the machine stops and will not cycle. This device must be used only on machines which can be stopped before the worker can reach the danger area. The design and placement of the guard depends upon the time it takes to stop the mechanism and the speed at which the employee's hand can reach across the distance from the guard to the danger zone.

The radiofrequency (capacitance) presence-sensing device uses a radio beam that is part of the machine control circuit. When the capacitance field is broken, the machine will stop or will not activate. Like the photoelectric device, this device will only be used on machines which can be stopped before the worker can reach the danger area. This requires the machine to have a friction clutch or other reliable means for stopping.

The electromechanical sensing device has a probe or contact bar which descends to a predetermined distance when the operator initiates the machine cycle. If there is an obstruction preventing it from descending its full predetermined distance, the control circuit does not actuate the machine cycle.

Pullback devices utilize a series of cables attached to the operator's hands, wrists, and/or arms. This type of device is primarily used on machines with stroking action. When the slide/ram is up between cycles, the operator is allowed access to the point of operation. When the slide/ram begins to cycle by starting its descent, a mechanical linkage automatically assures withdrawal of the hands from the point of operation.

Restraint

The restraint (holdout) device generally utilizes cables or straps that are attached to the operator's hands and a fixed point. The cables or straps must be adjusted to let the operator's hands travel within a predetermined safe area. There is no extending or retracting action involved. Consequently, hand-feeding tools are often necessary if the operation involves placing material into the danger area.

Safety Trip Controls

Safety trip controls provide a quick means for deactivating the machine in an emergency situation. A pressure-sensitive body bar, when depressed, will deactivate the machine. If the operator or anyone trips, loses balance, or is drawn toward the machine, applying pressure to the bar will stop the operation.

The positioning of the bar, therefore, is critical. It must stop the machine before a part of the employee's body reaches the danger area.

When pressed by hand, the safety deactivates the machine. Because the trip-rod has to be actuated by the operator during an emergency situation, its proper position is also critical.

Safety tripwire cables are located around the perimeter of or near the danger area. The operator must be able to reach the cable with either hand to stop the machine.

| Types of Devices | | | |
|---------------------------------|--|--|--|
| Method | Safeguarding Action | Advantages | Limitations |
| Photoelectric | Machine will not start cycling when the light field is interrupted. When the light field is broken by any part of the operator's body during the cycling process, immediate machine braking is activated. | Can allow freer movement for operator. Simplicity of use. Used by multiple operators. Provide passerby protection. No adjustment required. | Does not protect against mechanical failure. Limited to machines that can be stopped. |
| Radiofrequency (optical) | Machine cycling will not start when the capacitance field is interrupted. When the capacitance field is disturbed by any part of the operator's body during the cycling process, immediate machine braking is activated. | Can allow freer movement for operator. | Does not protect against mechanical failure. Antennae sensitivity must be properly adjusted; this adjustment must be maintained properly. Limited to machines that can be stopped. |
| Electromechanical | Contact bar or probe travels a predetermined distance between the operator and the danger area. Interruption of this movement prevents the starting of machine cycle. | Can allow access at the point of operation. | Contact bar or probe must be properly adjusted for each application; this adjustment must be maintained properly. |

| Types of Devices | | | |
|--------------------------------------|---|---|---|
| Method | Safeguarding Action | Advantages | Limitations |
| Pullback Restraint (holdback) | As the machine begins to cycle, the operator's hands are pulled out of the danger area. Prevents the operator from reaching into the danger area. | Eliminates the need for auxiliary barriers or other interference at the danger area. Little risk of mechanical failure. | Limits movement of operator. May obstruct work space around operator. Adjustments must be made for specific operations and for each individual. Requires frequent inspections and regular maintenance. Requires close supervision of the operator's use of the equipment. |

Two-Hand Control

The two-hand control requires constant, concurrent pressure by the operator to activate the machine. This kind of control requires a part-revolution clutch, brake, and a brake monitor if used on a power press. With this type of device, the operator's hands are required to be at a safe location (on control buttons) and at a safe distance from the danger area while the machine completes its closing cycle.

| Types of Devices | | | |
|--|--|---|---|
| Method | Safeguarding Action | Advantages | Limitations |
| Safety trip controls: Pressure-sensitive body bar Safety trip-rod Safety tripwire | Stops the machine when tripped. | Simplicity of use. | All controls must be manually activated. May be difficult to activate controls because of their location. Only protects the operator. May require special fixtures to hold work. May require a machine brake. |
| Two-hand Control | Concurrent use of both hands is required, preventing the operator from entering the danger area. | Operator's hands are at a pre-determined location. Operator's hands are free to pick up a new after first half of cycle is completed. | Requires a partial cycle machine with a brake. Some two-hand controls can be rendered unsafe by holding with arm or blocking, thereby permitting one-hand operation. Protects only the operator. |

| | | | |
|----------------------|--|---|--|
| Two-hand Trip | Concurrent use of two hands on separate controls prevents hands from being in danger area when machine cycle starts. | Operator's hands are away from danger area. Can be adapted to multiple operations. No obstruction to hand feeding. Does not require adjustment for each operation. | Operator may try to reach into danger area after tripping machine. Some trips can be rendered unsafe by holding with arm or blocking, thereby permitting one-hand operation. Protects only the operator. May require special fixtures. |
| Gate | Provides a barrier between danger area and operator or other personnel | Can prevent reaching into or walking into the danger area. | May require frequent inspection and regular maintenance. May interfere with operator's ability to see the work. |

Two-Hand Trip

The two-hand trip requires concurrent application of both the operator's control buttons to activate the machine cycle, after which the hands are free. This device is usually used with machines equipped with full-revolution clutches. The trips must be placed far enough from the point of operation to make it impossible for the operator to move his or her hands from the trip buttons or handles into the point of operation before the first half of the cycle is completed. The distance from the trip button depends upon the speed of the cycle and the band speed constant.

Thus the operator's hands are kept far enough away to prevent them from being placed in the danger area prior to the slide/ram or blade reaching the full "down" position.

To be effective, both two-hand controls and trips must be located so that the operator cannot use two hands or one hand and another part of his/her body to trip the machine.

Gate

A gate is a moveable barrier that protects the operator at the point of operation before the machine cycle can be started. Gates are, in many instances, designed to be operated with each machine cycle.

To be effective, the gate must be interlocked so that the machine will not begin a cycle unless the gate guard is in place. It must be in the closed position before the machine can function.

Another potential application of this type of guard is where the gate is a component of a perimeter safeguarding system. Here the gate may provide protection not only to the operator but to pedestrian traffic as well.

Safeguarding by Location/Distance

The examples mentioned are a few of the numerous applications of the principle of safeguarding by location/distance. A thorough hazard analysis of each machine and particular situation is absolutely essential before attempting this safeguarding technique.

To consider a part of a machine to be safeguarded by location, the dangerous moving part of a machine must be so positioned that those areas are not accessible or do not present a hazard to a worker during the normal operation of the machine.

This may be accomplished by locating a machine so that the hazardous parts of the machine are located away from operator work stations or other areas where employees walk or work. This can be accomplished by positioning a machine with its power transmission apparatus against a wall and leaving all routine operations conducted on the other side of the machine. Additionally, enclosure walls or fences can restrict access to machines. Another possible solution is to have dangerous parts located high enough to be out of the normal reach of any worker.

The feeding process can be safeguarded by location if a safe distance can be maintained to protect the worker's hands. The dimensions of the stock being worked on may provide adequate safety.

For instance, if the stock is several feet long and only one end of the stock is being worked on, the operator may be able to hold the opposite end while the work is being performed. An example would be a single-end punching machine. However, depending upon the machine, protection might still be required for other personnel.

The positioning of the operator's control station provides another potential approach to safeguarding by location. Operator controls may be located at a safe distance from the machine if there is not a reason for the operator to tend it.

Feeding and Ejection Methods to Improve Operator Safety:

Many feeding and ejection methods do not require the operator to place his or her hands in the danger area. In some cases, not operator involvement is necessary after the machine is set up. In other situations, operators can manually feed the stock with the assistance of a feeding mechanism. Properly designed ejection methods do not require any operator involvement after the machine starts to function.

Some feeding and ejection methods may even create hazards themselves. For instance, a robot may eliminate the need for an operator to be near the machine but may create a new hazard itself by the movement of its arm.

Using these feeding and ejection methods does not eliminate the need for guards and devices. Guards and devices must be used wherever they are necessary and possible in order to provide protection from exposure to hazards.

Types of feeding and ejection methods:

Automatic feeds reduce the exposure of the operator during the work process, and sometimes do not require any effort by the operator after the machine is set up and running.

With semi-automatic feeding, as in the case of a power press, the operator uses a mechanism to place the piece being processed under the ram at each stroke. The operator does not need to reach into the danger area, and the danger area is completely enclosed.

| Types of Feeding and Ejection Methods | | | |
|--|--|---|--|
| Method | Safeguarding Action | Advantages | Limitations |
| Automatic Feed | Stock is fed from rolls, indexed by machine mechanism, etc. | Eliminates the need for operator involvement in the danger area. | Other guards are also required for operator protection – usually fixed barrier guards. Requires frequent maintenance. May not be adaptable to stock variation. |
| Semi-Automatic Feed | Stock is fed by chutes, movable dies, dial feed, plungers, or sliding bolster. | | |
| Automatic Ejection | Work pieces are ejected by air or mechanical means. | Operator does not have to enter danger area to remove finished work. | May create a hazard of blowing chips or debris. Size of stock limits the use of this method. Air ejection may present a noise hazard. |
| Semi-Automatic Ejection | Work pieces are ejected by mechanical means which are initiated by the operator. | | Other guards are required for operator protection. May not be adaptable to stock variation |
| Robots | They perform work usually done by operator. | Operator does not have to enter danger area. Are suitable for operations where high stress factors are present, such as heat and noise. | Can create hazards themselves. Require maximum maintenance. Are suitable only to specific operations. |

Miscellaneous Aids

While these aids do not give complete protection from machine hazards, they may provide the operator with an extra margin of safety. Sound judgment is needed in their application and usage. Following are several examples of possible applications.

An awareness barrier does not provide physical protection, but serves only to remind a person that he or she is approaching the danger area. Generally, awareness barriers are not considered adequate when continual exposure to the hazard exists.

Although the barrier does not physically prevent a person from entering the danger area, it calls attention to it. For an employee to enter the danger area, an overt act must take place, that is, the employee must either reach or step over, under or through the barrier.

Shields, another aid, may be used to provide protection from flying particles, splashing cutting oils, or coolants.

Special hand tools may be used to place or remove stock, particularly from or into the point of operation of a machine. A typical use would be for reaching into the danger area of a press or press brake.

Holding tools should not be used instead of other machine safeguards; they are merely a supplement to the protection that other guards provide.

A push stick or block may be used when feeding stock into a saw blade. When it becomes necessary for hands to be in close proximity to the blade, the push stick or block may provide a few inches of safety and prevent a severe injury.

Guard Construction

Today, many builders of single-purpose machines provide point-of-operation and power transmission safeguards as standard equipment. However, not all machines in use have built-in safeguards provided by the manufacturer.

Guards designed and installed by the builder offer two main advantages:

1. They usually conform to the design and function of the machine.
2. They can be designed to strengthen the machine in some way or to serve some additional functional purposes.

User-built guards are sometimes necessary for a variety of reasons.

They have these advantages:

- Often, with older machinery, they are the only practical safeguarding solution.
- They may be the only choice for mechanical power transmission apparatus in older plants, where machinery is not powered by individual motor drives.
- They permit options for point-of-operation safeguards when skilled personnel design and make them.
- They can be designed and built to fit unique and even changing situations.
- They can be installed on individual dies and feeding mechanisms.
- Design and installation of machine safeguards by plant personnel can help to promote safety consciousness in the workplace.

However, they also have disadvantages:

- User-built guards may not conform well to the configuration and function of the machine.
- There is a risk that user-built guards may be poorly designed or built.

Point-of-Operation Guards

Point-of-operation safeguarding is complicated by the number and complexity of machines and also by the different uses for individual machines. For these reasons, not all machine builders provide point-of-operation guards on their products.

In many cases, a point-of-operation guard can only be made and installed by the user after a thorough hazard analysis of the work requirements. Poorly designed, built, or installed guards may create a hazard rather than eliminate one. To be effective, they must safeguard the employee while allowing the work to continue with minimum disruption to the production process.

Mechanical Power Transmission Apparatus Guarding

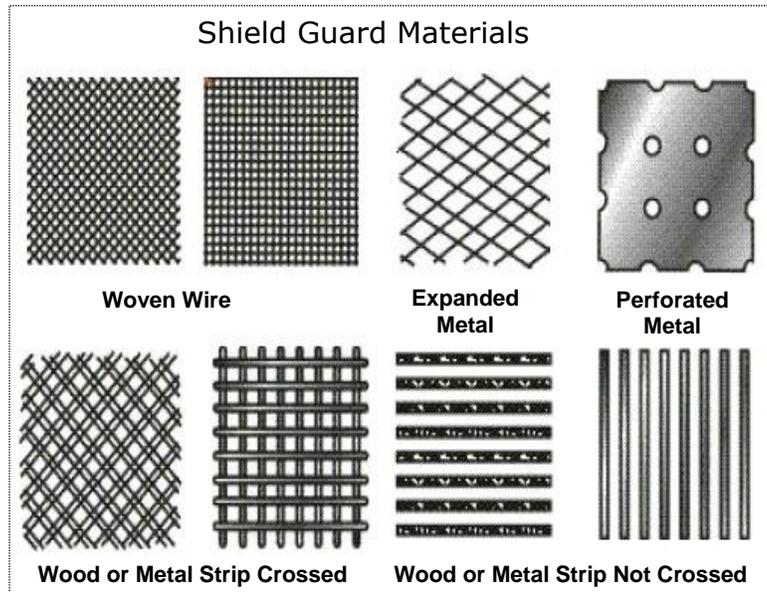
A significant difference between power transmission guards and point-of-operation guards is that the former type needs no opening for feeding stock. The only openings necessary for power transmission guards are those for lubrication, adjustment, repair, and inspection. These openings should be provided with interlocked covers that cannot be removed except by using tools for service or adjustment.

To be effective, power transmission guards should cover all moving parts in such a manner that no part of the operator's body can come in contact with them.

Guard Material

Under many circumstances, metal is the best material for guards. Guard framework is usually made from structural shapes, pipe, bar, or rod stock. Filler material generally is expanded or perforated or solid sheet metal or wire mesh. It may be feasible to use plastic or safety glass where visibility is required.

Guards made of wood generally are not recommended because of their flammability and lack of durability and strength. However, in areas where corrosive materials are present, wooden guards may be the better choice.



Machinery Maintenance and Repair

Good maintenance and repair procedures contribute significantly to the safety of the maintenance crew as well as that of machine operators. The variety and complexity of machines to be serviced, the hazards associated with their power sources, the special dangers that may be present during machine breakdown, and the severe time constraints often placed on maintenance personnel all make safe maintenance and repair work difficult.

Training and aptitude of people assigned to these jobs should make them alert for the intermittent electrical failure, the worn part, the inappropriate noise, the cracks or other signs that warn of impending breakage or that a safeguard has been damaged, altered, or removed. By observing machine operators at their tasks and listening to their comment, maintenance personnel may learn where potential trouble spots are and give them early attention before they develop into sources of accidents and injury. Sometimes, all that is needed to keep things running smoothly and safely is machine lubrication or adjustment.

Any damage observed or suspected should be reported to the supervisor; if the condition impairs safe operation, the machine should be taken out of service for repair. Safeguards that are missing, altered, or damaged also should be reported so appropriate action can be taken to insure against worker injury.

If possible, machine design should permit routine lubrication and adjustment without removal of safeguards. However, when safeguards must be removed, and the machine serviced, the OSHA lockout procedure must be adhered to. The maintenance and repair crew must never fail to replace the guards before the job is considered finished and the machine released from lockout.

Is it necessary to oil machine parts while a machine is running? If so, special safeguarding equipment may be needed solely to protect the oiler from exposure to hazardous moving parts. Maintenance personnel must know which machines can be serviced while running and which cannot.

"If in doubt, lock it out." Obviously, the danger of accident or injury is reduced by shutting off and locking out all sources of energy.

In situations where the maintenance or repair worker would necessarily be exposed to electrical elements or hazardous moving machine parts in the performance of the job, there is no question that all power sources must be shut off and locked out before work begins. Warning signs or tags are inadequate insurance against the untimely energizing of mechanical equipment.

Thus, one of the first procedures for the maintenance person is to disconnect and lock out the machine from all of its power sources, whether the source is electrical, mechanical, pneumatic, hydraulic, or a combination of these. Energy accumulation devices must be "bled down."

Electrical: Unexpected energizing of any electrical equipment that can be started by automatic or manual remote control may cause electric shock or other serious injuries to the machine operator, the maintenance worker, or others operating adjacent machines controlled by the same circuit. For this reason, when maintenance personnel must repair electrically powered equipment, they should open the circuit at the switch box and padlock the switch (lock it out) in the "OFF" position. This switch should be tagged with a description of the work being done, the name of the maintenance person, and the department involved. When more than one worker is to be engaged in the servicing/maintenance function, a typical lockout hasp to which each may affix a personal lock must be used.

Mechanical: Safety blocks should be used as an additional safeguard on equipment such as a mechanical power press, even though the machine has been locked out. The safety blocks prevent the ram from coming down under its own weight.

Pneumatic and hydraulic: Valves used during repair or shutdown to keep a pneumatic-powered machine or its components from operating can be locked open or shut. Before the valve can be opened, everyone working on the machine must use his or her own key to release the lockout. A sliding-sleeve valve exhausts line pressure at the same time it cuts off the air supply. Valves used to lock out pneumatic or hydraulic-powered machines should be designed to accept locks or lockout adapters and should be capable of "bleeding off" pressure residues that could cause any part of the machine to move.

In shops where several maintenance persons might be working on the same machine, multiple lockout devices accommodating several padlocks are used. The machine cannot be reactivated until each person removes his or her lock. As a matter of general policy, lockout control is gained by the procedure of issuing personal padlocks to each maintenance or repair person; no one but that person can remove the padlock, thereby each worker controls the power systems.

Whenever machines or equipment are serviced, there are hazards encountered by the employees performing the servicing or maintenance which are unique to the repair or maintenance procedures being conducted. These hazards may exist due to the failure of the employees doing the servicing or maintenance to stop the machine being worked on. Even if the machine has been stopped, the machine can still be hazardous due to the possibility of the machine becoming re-energized or restarting.

In order to prevent these hazards, each machine or piece of equipment should be safeguarded during the conduct of servicing or maintenance by:

1. Notifying all affected employees (usually machine or equipment operators or users) that the machine or equipment must be shut down to perform some maintenance or servicing.
2. Stopping the machine.
3. Isolating the machine or piece of equipment from its energy source.
4. Locking out or tagging out the energy source.
5. Relieving any stored or residual energy.
6. Verifying that the machine or equipment is isolated from the energy source.

Although this is the general rule, there are exceptions when the servicing or maintenance is not hazardous for an employee, when the servicing which is conducted is minor in nature, done as an integral part of production, and the employer utilizes alternative safeguards which provide effective protection as is required by specific OSHA Regulations.

When the servicing or maintenance is completed, there are specific steps which must be taken to return the machine or piece of equipment to service. These steps include:

1. Inspection of the machine or equipment to ensure that all guards and other safety devices are in place and functional.
2. Checking the area to ensure that energizing and start up of the machine or equipment will not endanger employees.
3. Removal of the lockout devices.
4. Re-energizing of the machine or equipment.
5. Notification of affected employees that the machine or equipment may be returned to service.

The steps to lockout described here are only a part of the total energy control program which must exist in the workplace. In addition, the employee should have written procedures for all machines and equipment, employees must be trained in their duties and responsibilities under the energy control program, and periodic inspections must be conducted to maintain the effectiveness of the program.

The maintenance and repair facility in the company deserves consideration here. Are all the right tools on hand and in good repair? Are lubricating oils and other common supplies readily available and safely stored?

Are commonly used machine parts and hardware kept in stock so that the crews are not encouraged (even obliged) to improvise, at the risk of doing an unsafe repair, or to postpone a repair job? And do not overlook the possibility that maintenance equipment itself may need guarding of some sort. The same precaution applies to tools and machines used in the repair shop. Certainly, the maintenance and repair crew are entitled to the same protection that their service provides to the machine operators in the company.

Ergonomic Considerations of Machine Safeguarding

The ergonomic considerations of machine safeguarding are as significant to the Health and Safety of the worker as are the multitude of techniques to accomplish Health and Safety in the workplace. Worker stress and fatigue can be averted by creditable work setups and well integrated safeguarding.

The various industry consensus standards are only now beginning to address this issue. Future evaluations of safeguarding are likely to devote more attention to this aspect.

Cooperation and Assistance

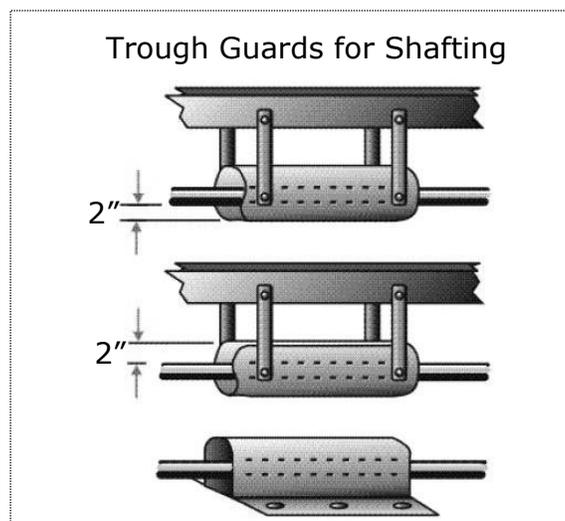
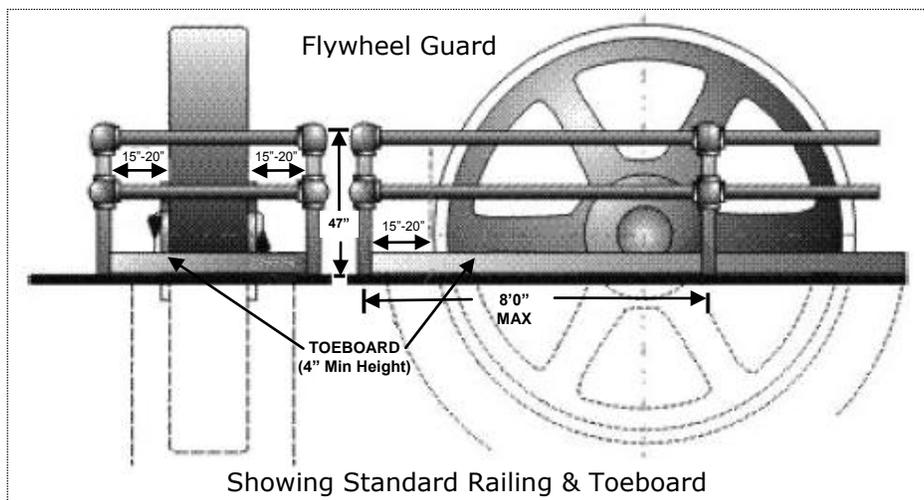
Safety in the workplace demands cooperation and alertness on everyone's part. Supervisors, operators and other workers who notice hazards in need of safeguarding, or existing systems that need repair or improvement, should notify the proper authority immediately.

Supervisors have these additional, special responsibilities with regard to safety in the workplace; explaining to the worker all the potential hazards associated with the machines and processes in the work area; and being responsive to employer requests for action or information regarding machine hazards.

The first-line supervisor plays a pivotal role in communicating the safety needs of the worker to management and the employer's safety rules and policies to the worker.

Sometimes, the solution to a machine safeguarding problem may require expertise that is not available in a given establishment. Employers are encouraged to find out where help is available and, when necessary, to request it.

The machine's manufacturer is often a good place to start when looking for assistance with a safeguarding problem. Manufacturers can often supply the necessary literature or advice, insurance carriers, too, will often make their safety specialists available to the establishments whose assets they insure. Union safety specialists can also lend significant assistance.



Machine Guarding Checklist

Answers to the following questions will help determine the safeguarding needs of the workplace by drawing attention to hazardous conditions or practices requiring correction.

| Yes | No | Requirements for All Safeguards |
|---|----|---|
| | | Do the safeguards provided meet the minimum OSHA requirements? |
| | | Do the safeguards prevent workers' hands, arms, and other body parts from making contact with dangerous moving parts? |
| | | Are the safeguards firmly secured and not easily removable? |
| | | Do the safeguards ensure that no objects will fall into the moving parts? |
| | | Do the safeguards permit safe, comfortable, and relatively easy operation of the machine? |
| | | Can the machine be oiled without removing the safeguard? |
| | | Is there a system for shutting down the machinery before safeguards are removed? |
| | | Can the existing safeguards be improved? |
| Mechanical Hazards The point of operation: | | |
| | | Is there a point-of-operation safeguard provided for the machine? |
| | | Does it keep the operator's hands, fingers, and body out of the danger area? |
| | | Is there evidence that the safeguards have been tampered with or removed? |
| | | Could you suggest a more practical, effective safeguard? |
| | | Could changes be made on the machine to eliminate the point-of-hazard entirely? |
| Power transmission apparatus: | | |
| | | Are there any unguarded gears, sprockets, pulleys, or flywheels on the apparatus? |
| | | Are there any exposed belts or chain drives? |
| | | Are there any exposed set screws, key ways, collars, etc.? |
| | | Are starting and stopping controls within easy reach of the operator? |
| | | If there is more than one operator, are separate controls provided? |
| Other moving parts: | | |
| | | Are safeguards provided for all hazardous moving parts of the machine, including auxiliary parts? |
| Non-mechanical Hazards | | |
| | | Have appropriate measures been taken to safeguard workers against noise hazards? |
| | | Have special guards, enclosures, or personal protective equipment been provided, where necessary, to protect workers from exposure to harmful substances used in machine operation? |

| Yes | No | Electrical Hazards |
|--|-----------|---|
| | | Is the machine installed in accordance with National Electrical Code requirements? |
| | | Are there loose conduit fittings? |
| | | Is the machine properly grounded? |
| | | Is the power supply correctly fused and protected? |
| | | Do workers occasionally receive minor shocks while operating any of the machines? |
| Training | | |
| | | Do operators and maintenance workers have the necessary training in how to use the safeguards and why? |
| | | Have operators and maintenance workers been trained in where the safeguards are located, how they provide protection, and what hazards they protect against? |
| | | Have operators and maintenance workers been trained in how and under what circumstances guards can be removed? |
| | | Have workers been trained in the procedures to follow if they notice guards that are damaged, missing, or inadequate? |
| Protective Equipment and Proper Clothing | | |
| | | Is protective equipment required? |
| | | If protective equipment is required, is it appropriate for the job, in good condition, kept clean and sanitary, and stored carefully when not in use? |
| | | Is the operator dressed safely for the job (i.e., no loose-fitting clothing or jewelry)? |
| Machinery Maintenance and Repair | | |
| | | Have maintenance workers received up-to-date instruction on the machines they service? |
| | | Do maintenance workers lock out the machine from its power sources before beginning repairs? |
| | | Where several maintenance persons work on the same machine, are multiple lockout devices used? |
| | | Do maintenance persons use appropriate and safe equipment in their repair work? |
| | | Is the maintenance equipment itself properly guarded? |
| | | Are maintenance and servicing workers trained in the requirements of lockout/tagout hazard, and do the procedures for lockout/tagout exist before they attempt their tasks? |
| <div style="display: flex; justify-content: space-between;"> Evaluator's Name Signature Date </div> | | |

Lockout/Tagout-Controlling Hazardous Energy

29 CFR-§1910.147 – The Control of Hazardous Energy

Company Policy for the Control of Hazardous Energy

Professional Building Services, Inc. has adopted this program for Lockout/Tagout procedures for the control of hazardous energy threats.

Professional Building Services, Inc. will enforce the following engineering controls and work practices in order to eliminate or minimize the hazards of an unexpected release of hazardous energy:

Professional Building Services, Inc. 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 Professional Building Services, Inc. are administered by Michael McCormack 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 Professional Building Services, Inc. for any unauthorized removal of warning tags or lockout devices. The performance of Lockout/Tagout procedures will be inspected/evaluated at least annually by Michael McCormack 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

Professional Building Services, Inc. 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.

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.

CEO/Owner Signature

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 | |
|----------------------------------|---|
| Energy Form | Description |
| Potential | 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. |
| Kinetic | 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. |
| Flammable | Energy converted from the combustion of gasses, liquids, solid chemicals, and vapors. |
| Chemical | 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. |
| Electrical | 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. |
| Thermal | 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 | |
|--|--|
| Criterion | Description |
| Singularly Identified | 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. |
| Durable | 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. |
| Standardized | Lockout and tagout devices must be designated by color, shape, or size. Tagout devices must have a standardized print and warning format. |
| Substantial | 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>Critical Step</i> | <i>Action</i> |
| 1 | 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. |
| 2 | Shut down the equipment — If the equipment is operating, shut it down as you normally would. |
| 3 | <ul style="list-style-type: none"> • 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. • To isolate the energy • Disconnect motors that power the equipment. • De-energize electrical circuits by disconnecting the power source from the circuit. • To block the energy • Block fluid flow in hydraulic, pneumatic, or steam systems with control valves or by capping or blanking the lines. • Block equipment parts that could be moved by gravity. |

| | |
|---|---|
| <p style="text-align: center;">4</p> | <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"> • Vent pressurized fluids until internal pressure levels reach atmospheric levels. • Discharge capacitors by grounding them. • Release or block tensioned springs. • Ensure that all moving parts have stopped completely. |
| <p style="text-align: center;">5</p> | <ul style="list-style-type: none"> • 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. • To lock out the device — Attach your lock and a personal identification tag to the device. • The lock must hold the energy-isolating device in a “safe” or “off ” position. • 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. |
| <p style="text-align: center;">6</p> | <ul style="list-style-type: none"> • 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. • Verify that the equipment is isolated or disconnected from all energy sources. • Verify that no one is near the equipment. • Push the start button or engage the normal operating control(s) to make certain the equipment will not operate. • Return operating control(s) to neutral or “off ” position after verifying that the equipment does not start. |

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

| Critical Step | Action |
|----------------------|---|
| 1 | Inspect the repair or maintenance work — Make sure you have all your work tools and that you have replaced all equipment components. |
| 2 | 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. |
| 3 | Check the equipment power controls — Verify that the equipment power controls are in a neutral or off position. |
| 4 | Remove the lockout or tagout device — The person who attached the device must also remove it. |
| 5 | 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.

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>Employees</i> | <i>The Nature of Their Work</i> | <i>What Their Training Must Include</i> |
| <i>Authorized</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"> • How to find and recognize hazardous energy sources. • The types and magnitudes of energy used in the workplace. • How to isolate energy sources. |
| <i>Affected</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"> • The purpose of energy-control procedures. • How energy-control procedures are applied. • How energy-control procedures will protect them. |

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 | |
|--|--|
| <i>Critical Step</i> | <i>Action</i> |
| 1 | Clear all tools or other materials near the equipment. |
| 2 | Make sure no workers are near the equipment. |
| 3 | Remove the lockout or tagout devices. |
| 4 | Energize the equipment. |
| 5 | 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 | |
|--|---|
| Step | Activity |
| 1 | An authorized employee secures each energy-isolating device with a personal lock. |
| 2 | The same authorized employee places the key that fits each lock in a group lock box with a multi-lock hasp. |
| 3 | The other authorized employees in the group secure the lockbox – they attach their personal locks to the box – before beginning their service work. |
| 4 | After each employee finishes service work on the equipment, that employee removes his personal lock from the lockbox. |
| 5 | 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. |
| 6 | 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

Date

29 CFR Subpart S–§1910.332 - Training

29 CFR-§1910.333 - Selection and Use of Work Practices

Company Policy for Electrical Hazards

Professional Building Services, Inc. has implemented this policy to ensure that no employee is exposed to electrical hazards in the workplace.

Michael McCormack is the supervisor responsible for ensuring the following policy for controls, training, personal protective equipment, and safe work practices are enforced.

Policy Statement

- Only qualified personnel are authorized to perform work, service, or maintenance on electrical parts or systems at Professional Building Services, Inc..
- Non-qualified personnel are prohibited by Company policy from working on or near exposed energized electrical circuits or systems. If a work task requires unqualified personnel, any exposed electrical systems will be de-energized and lockout/tagout procedures adhered to, per Company policy, before unqualified personnel are allowed access to the work areas. Non-qualified personnel will be trained in the recognition and avoidance of electrical hazards in the work area.
- Michael McCormack will ensure that all employees exposed to work involving electrical systems or energized parts will be trained in and familiar with the safety-related work practices required by OSHA regulation and NEC that pertain to their respective job assignments.
- Michael McCormack will ensure that all employees exposed to work involving electrical systems will be trained in, and familiar with, the following:
 - The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment.
 - The skills and techniques necessary to determine the nominal voltage of exposed live parts.
 - The clearance distances specified in §1910.333(c) and the corresponding voltages to which the qualified person will be exposed.
- Safety-related work practices will be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts, when work is performed near or on equipment or circuits which are or may be energized. The specific safety-related work practices will be consistent with the nature and extent of the associated electrical hazards.
 - Live parts to which an employee may be exposed will be de-energized before the employee works on or near them
 - If the exposed live parts are not de-energized for reasons of increased or additional hazards, other safety-related work practices such as insulating shielding will be used to protect employees who may be exposed to the electrical hazards involved.

- Live electrical parts or systems which an employee may be exposed to will be de-energized prior to beginning work on the system. Systems will be assured of being de-energized by proper lockout procedures following Company policy.
- Any work to be performed on energized parts will require the use of appropriate personal protective equipment, insulating and shielding materials, and insulated tools.
- If work is to be performed near overhead lines, the lines will be de-energized and grounded, or other protective measures such as insulating shielding will be provided before work is started. Vehicles or equipment working near overhead lines will be required to maintain a safe working distance of at least 10 feet. If the voltage is higher than 50 kV, the clearance will be increased 4 inches (10 cm) for every 10 kV over that voltage.
- Employees may not enter spaces containing exposed energized parts, or work on energized parts unless illumination is provided that enables the employee to perform the work safely. Employees may not reach blindly into areas which may contain energized parts.
- When an employee works in a confined or enclosed space (such as a manhole or vault) that contains exposed energized parts, Professional Building Services, Inc. will provide, and the employee must use, protective shields, protective barriers, or insulating materials as necessary to avoid inadvertent contact with these parts. Doors, hinged panels, and the like will be secured to prevent their swinging into an employee and causing the employee to contact exposed energized parts.
- All workers must maintain the safe approach distances as stated in §1910.333(c)(3) Table S-5.
- Conductive materials and equipment that are in contact with any part of an employee's body will be handled in a manner to prevent them from contacting exposed energized conductors or circuit parts, or will be shielded to prevent conduction of electrical energy. Conductive articles of jewelry and clothing (such as watch bands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, or metal headgear) may not be worn if they might contact exposed energized parts while performing work.
- If conductive materials must be handled in the vicinity of energized electrical parts, the hazardous parts must be shielded or otherwise insulated to prevent accidental contact by the employee or materials being handled.
- Portable ladders will have nonconductive siderails if they are used where the employee or the ladder could contact exposed energized parts. The employee must ensure that the placement of any ladder will allow a safe working distance from any energized parts or equipment.

Electrical Shock

An electrical shock is received when electrical current passes through the body. Current will pass through the body in a variety of situations. Whenever two wires are at different voltages, current will pass between them if they are connected. Your body can connect the wires if you touch both of them at the same time. Current will pass through your body.

Your risk of receiving a shock is greater if you stand in a puddle of water. But you do not even have to be standing in water to be at risk. Wet clothing, high humidity, and perspiration also increase your chances of being electrocuted. Of course, there is always a chance of electrocution, even in dry conditions.

To prevent electrical accidents, employers should take the following steps:

- Establish proper rules and procedures on how to access electrical control cabinets without getting hurt.
- Make sure all employees know the importance of de-energizing (shutting off) electrical systems before performing repairs.
- Equip voltage-regulating equipment with color-coded wiring.
- Train workers in CPR.

You can prevent injuries and deaths by remembering the following points:

- If you work on an electrical circuit, test to make sure that the circuit is de-energized (shut off)!
- Never attempt to handle any wires or conductors until you are absolutely positive that their electrical supply has been shut off.
- Be sure to lock out and tag out circuits so they cannot be re-energized.
- Always assume a conductor is dangerous.

Dangers of Electrical Shock

The severity of injury from electrical shock depends on the amount of electrical current and the length of time the current passes through the body. For example, 1/10 of an ampere (amp) of electricity going through the body for just 2 seconds is enough to cause death. The amount of internal current a person can withstand and still be able to control the muscles of the arm and hand can be less than 10 milliamperes (milliamps or mA).

Currents above 10 mA can paralyze or “freeze” muscles. When this “freezing” happens, a person is no longer able to release a tool, wire, or other object. In fact, the electrified object may be held even more tightly, resulting in longer exposure to the shocking current. For this reason, handheld tools that give a shock can be very dangerous. If you cannot let go of the tool, current continues through your body for a longer time, which can lead to respiratory paralysis (the muscles that control breathing cannot move). You stop breathing for a period of time. People have stopped breathing when shocked with currents from voltages as low as 49 volts. Usually, it takes about 30 mA of current to cause respiratory paralysis.

Currents greater than 75 mA cause ventricular fibrillation (very rapid, ineffective heartbeat). This condition will cause death within a few minutes unless a special device called a defibrillator is used to save the victim. Heart paralysis occurs at 4 amps, which means the heart does not pump at all. Tissue is burned with currents greater than 5 amps.

The table shows what usually happens for a range of currents (lasting one second) at typical household voltages. Longer exposure times increase the danger to the shock victim. For example, a current of 100 mA applied for 3 seconds is as dangerous as a current of 900 mA applied for a fraction of a second (0.03 seconds). The muscle structure of the person also makes a difference. People with less muscle tissue are typically affected at lower current levels. Even low voltages can be extremely dangerous

because the degree of injury depends not only on the amount of current but also on the length of time the body is in contact with the circuit.

LOW VOLTAGE DOES NOT MEAN LOW HAZARD!

| EFFECTS OF ELECTRICAL CURRENT* ON THE BODY | |
|---|---|
| Current | Reaction |
| 1 milliamp | Just a faint tingle. |
| 5 milliamps | Slight shock felt. Disturbing, but not painful. Most people can "let go." However, strong involuntary movements can cause injuries. |
| 6–25 milliamps (women)† 9–30 milliamps (men) | Painful shock. Muscular control is lost. This is the range where "freezing currents" start. It may not be possible to "let go." |
| 50–150 milliamps | Extremely painful shock, respiratory arrest (breathing stops), severe muscle contractions. Flexor muscles may cause holding on; extensor muscles may cause intense pushing away. Death is possible. |
| 1,000–4,300 milliamps (1–4.3 amps) | Ventricular fibrillation (heart pumping action not rhythmic) occurs. Muscles contract; nerve damage occurs. Death is likely. |
| 10,000 milliamps (10 amps) | Cardiac arrest and severe burns occur. Death is probable. |
| 15,000 milliamps (15 amps) | Lowest over-current at which a typical fuse or circuit breaker opens a circuit! |
| *Effects are for voltages less than about 600 volts. Higher voltages also cause severe burns. †Differences in muscle and fat content affect the severity of shock. | |

Sometimes high voltages lead to additional injuries. High voltages can cause violent muscular contractions. You may lose your balance and fall, which can cause injury or even death if you fall into machinery that can crush you. High voltages can also cause severe burns. At 600 volts, the current through the body may be as great as 4 amps, causing damage to internal organs such as the heart. High voltages also produce burns. In addition, internal blood vessels may clot. Nerves in the area of the contact point may be damaged. Muscle contractions may cause bone fractures from either the contractions themselves or from falls.

A severe shock can cause much more damage to the body than is visible. A person may suffer internal bleeding and destruction of tissues, nerves, and muscles. Sometimes the hidden injuries caused by electrical shock result in a delayed death. Shock is often only the beginning of a chain of events. Even if the electrical current is too small to cause injury, your reaction to the shock may cause you to fall, resulting in bruises, broken bones, or death. The length of time of the shock greatly affects the amount of injury.

If the shock is short in duration, it may only be painful. A longer shock (lasting a few seconds) could be fatal if the level of current is high enough to cause the heart to go into ventricular fibrillation. This is not much current when you realize that a small power drill uses 30 times as much current as what will kill. At relatively high currents, death is certain if the shock is long enough. However, if the shock is short and the heart has not been damaged, a normal heartbeat may resume if contact with the electrical current is eliminated. (This type of recovery is rare.)

The amount of current passing through the body also affects the severity of an electrical shock. Greater voltages produce greater currents. So, there is greater danger from higher voltages. Resistance hinders current. The lower the resistance (or impedance in AC circuits), the greater the current will be. Dry skin may have a resistance of 100,000 ohms or more. Wet skin may have a resistance of only 1,000 ohms. Wet working conditions or broken skin will drastically reduce resistance. The low resistance of wet skin allows current to pass into the body more easily and give a greater shock.

When more force is applied to the contact point or when the contact area is larger, the resistance is lower, causing stronger shocks.

The path of the electrical current through the body affects the severity of the shock. Currents through the heart or nervous system are most dangerous. If you contact a live wire with your head, your nervous system will be damaged. Contacting a live electrical part with one hand—while you are grounded at the other side of your body—will cause electrical current to pass across your chest, possibly injuring your heart and lungs.

There have been cases where an arm or leg is severely burned by high-voltage electrical current to the point of coming off, and the victim is not electrocuted. In these cases, the current passes through only a part of the limb before it goes out of the body and into another conductor. Therefore, the current does not go through the chest area and may not cause death, even though the victim is severely disfigured. If the current does go through the chest, the person will almost surely be electrocuted. A large number of serious electrical injuries involve current passing from the hands to the feet. Such a path involves both the heart and lungs. This type of shock is often fatal.

Burns Caused by Electricity

The most common shock-related, nonfatal injury is a burn. Burns caused by electricity may be of three types: electrical burns, arc burns, and thermal contact burns. Electrical burns can result when a person touches electrical wiring or equipment that is used or maintained improperly. Typically, such burns occur on the hands. Electrical burns are one of the most serious injuries you can receive. They need to be given immediate attention. Additionally, clothing may catch fire and a thermal burn may result from the heat of the fire.

Arc-blasts occur when powerful, high-amperage currents arc through the air. Arcing is the luminous electrical discharge that occurs when high voltages exist across a gap between conductors and current travels through the air. This situation is often caused by equipment failure due to abuse or fatigue. Temperatures as high as 35,000°F have been reached in arc-blasts.

There are three primary hazards associated with an arc-blast.

- Arcing gives off thermal radiation (heat) and intense light, which can cause burns. Several factors affect the degree of injury, including skin color, area of skin exposed, and type of clothing worn. Proper clothing, work distances, and over-current protection can reduce the risk of such a burn.
- A high-voltage arc can produce a considerable pressure wave blast. A person 2 feet away from a 25,000-amp arc feels a force of about 480 pounds on the front of the body. In addition, such an explosion can cause serious ear damage and memory loss due to concussion. Sometimes the pressure wave throws the victim away from the arc-blast. While this may reduce further exposure to the thermal energy, serious physical injury may result. The pressure wave can propel large objects over great distances. In some cases, the pressure wave has enough force to snap off the heads of steel bolts and knock over walls.
- A high-voltage arc can also cause many of the copper and aluminum components in electrical equipment to melt. These droplets of molten metal can be blasted great distances by the pressure wave. Although these droplets harden rapidly, they can still be hot enough to cause serious burns or cause ordinary clothing to catch fire, even if you are 10 feet or more away.

Electrical Fires

Electricity is one of the most common causes of fires and thermal burns in homes and workplaces. Defective or misused electrical equipment is a major cause of electrical fires. If there is a small electrical fire, be sure to use only a Class C or multipurpose (ABC) fire extinguisher, or you might make the problem worse.

All fire extinguishers are marked with letter(s) that tell you the kinds of fires they can put out. Some extinguishers contain symbols, too.

Thermal burns may result if an explosion occurs when electricity ignites an explosive mixture of material in the air. This ignition can result from the buildup of combustible vapors, gasses, or dusts. Occupational Safety and Health Administration (OSHA) standards, the NEC, and other safety standards give precise safety requirements for the operation of electrical systems and equipment in such dangerous areas. Ignition can also be caused by overheated conductors or equipment, or by normal arcing at switch contacts or in circuit breakers.

What to Do If a Co-Worker Is Shocked or Burned by Electricity.

Shut off the electrical current if the victim is still in contact with the energized circuit. While you do this, have someone else call for help. If you cannot get to the switchgear quickly, pry the victim from the circuit with something that does not conduct electricity such as dry wood. Do not touch the victim yourself if he or she is still in contact with an electrical circuit! You do not want to be a victim, too!

Do not leave the victim unless there is absolutely no other option. You should stay with the victim while Emergency Medical Services (EMS) is contacted. The caller should come back to you afterwards to verify that the call was made. If the victim is not breathing, does not have a heartbeat, or is badly injured, quick response by a team of emergency medical technicians (EMT's) or paramedics gives the best chance for survival.

Once you know that electrical current is no longer flowing through the victim, call out to the victim to see if he or she is conscious (awake). If the victim is conscious, tell the victim not to move. It is possible for a shock victim to be seriously injured but not realize it. Quickly examine the victim for signs of major bleeding. If there is a lot of bleeding, place a cloth (such as a handkerchief or bandanna) over the wound and apply pressure. If the wound is in an arm or leg and keeps bleeding a lot, gently elevate the injured area while keeping pressure on the wound. Keep the victim warm and talk to him or her until help arrives.

If the victim is unconscious, check for signs of breathing. While you do this, move the victim as little as possible. If the victim is not breathing, someone trained in CPR should begin artificial breathing, then check to see if the victim has a pulse.

Quick action is essential! To be effective, CPR must be performed within 4 minutes of the shock. If you are not trained in CPR or first aid, now is the time to get trained—before you find yourself in this situation! Ask your supervisor how you can become certified in CPR.

You also need to know the location of:

- Electricity shut-offs (“kill switches”).
- First-aid supplies.
- A telephone so you can find them quickly in an emergency.

Elements of Electrical Safety

Always use the three-stage approach to safety: recognize, evaluate, and control hazards. To be safe, you must think about your job and plan for hazards. To avoid injury or death, you must understand and recognize hazards. You need to evaluate the situation you are in and assess your risks. You need to control hazards by creating a safe work environment, by using safe work practices, and by reporting hazards to a supervisor. If you do not recognize, evaluate, and control hazards, you may be injured or killed by the electricity itself, electrical fires, or falls.

1) **Recognize Hazards**

The first part of the safety model is recognizing the hazards around you. Only then can you avoid or control the hazards. It is best to discuss and plan hazard recognition tasks with your co-workers. Sometimes we take risks ourselves, but when we are responsible for others, we are more careful. Sometimes others see hazards that we overlook. Of course, it is possible to be talked out of our concerns by someone who is reckless or dangerous. Do not take a chance. Careful planning of safety procedures reduces the risk of injury. Decisions to lock out and tag out circuits and equipment need to be made during this part of the safety model. Plans for action must be made now.

OSHA regulations, the NEC, and the National Electrical Safety Code (NESC) provide a wide range of safety information. Although these sources may be difficult to read and understand at first, with practice they can become very useful tools to help you recognize unsafe conditions and practices. Knowledge of OSHA standards is an important part of training for electrical apprentices

2) **Evaluate Hazards DO NOT ENERGIZE CIRCUIT**

When evaluating hazards, it is best to identify all possible hazards first, then evaluate the risk of injury from each hazard. Do not assume the risk is low until you evaluate the hazard. It is dangerous to overlook hazards. Job sites are especially dangerous because they are always changing. Many people are working at different tasks. Job sites are frequently exposed to bad weather. A reasonable place to work on a bright, sunny day might be very hazardous in the rain. The risks in your work environment need to be evaluated all the time. Then, whatever hazards are present need to be controlled.

3) **Control Hazards**

Once electrical hazards have been recognized and evaluated, they must be controlled.

You control electrical hazards in two main ways:

- 1) Create a safe work environment.
- 2) Use safe work practices.

Controlling electrical hazards (as well as other hazards) reduces the risk of injury or death.

How to Recognize Hazards

The first step toward protecting yourself is recognizing the many hazards you face on the job. To do this, you must know which situations can place you in danger. Knowing where to look helps you to recognize hazards.

- Inadequate wiring is dangerous.
- Exposed electrical parts are dangerous.
- Overhead power-lines are dangerous.
- Wires with bad insulation can give you a shock.
- Electrical systems and tools that are not grounded or double-insulated are dangerous.
- Overloaded circuits are dangerous.
- Damaged power tools and equipment are electrical hazards.
- Using the wrong PPE is dangerous.
- Using the wrong tool is dangerous.
- Some on-site chemicals are harmful.
- Defective ladders and scaffolding are dangerous.
- Ladders that conduct electricity are dangerous.
- Electrical hazards can be made worse if the worker, location, or equipment is wet.

Inadequate Wiring Hazards

An electrical hazard exists when the wire is too small a gauge for the current it will carry. Normally, the circuit breaker in a circuit is matched to the wire size. However, in older wiring, branch lines to permanent ceiling light fixtures could be wired with a smaller gauge than the supply cable.

For example, let's say a light fixture is replaced with another device that uses more current. The current capacity (ampacity) of the branch wire could be exceeded. When a wire is too small for the current it is supposed to carry, the wire will heat up. The heated wire could cause a fire.

When you use an extension cord, the size of the wire you are placing into the circuit may be too small for the equipment. The circuit breaker could be the right size for the circuit but not right for the smaller-gauge extension cord. A tool plugged into the extension cord may use more current than the cord can handle without tripping the circuit breaker. The wire will overheat and could cause a fire.

The kind of metal used as a conductor can cause an electrical hazard. Special care needs to be taken with aluminum wire. Since it is more brittle than copper, aluminum wire can crack and break more easily. Connections with aluminum wire can become loose and oxidize if not made properly, creating heat or arcing. You need to recognize that inadequate wiring is a hazard.

Exposed Electrical Parts Hazards

Electrical hazards exist when wires or other electrical parts are exposed. Wires and parts can be exposed if a cover is removed from a wiring or breaker box. The overhead wires coming into a home may be exposed. Electrical terminals in motors, appliances, and electronic equipment may be exposed. Older equipment may have exposed electrical parts. If you contact exposed live electrical parts, you will be shocked. You need to recognize that an exposed electrical component is a hazard.

Overhead Power-Line Hazards

Most people do not realize that overhead power-lines are usually not insulated. More than half of all electrocutions are caused by direct worker contact with energized power-lines. Power-line workers must be especially aware of the dangers of overhead lines. In the past, 80% of all lineman deaths were caused by contacting a live wire with a bare hand. Due to such incidents, all linemen now wear special rubber gloves that protect them up to 34,500 volts. Today, most electrocutions involving overhead power-lines are caused by failure to maintain proper work distances.

Shocks and electrocutions occur where physical barriers are not in place to prevent contact with the wires. When dump trucks, cranes, work platforms, or other conductive materials (such as pipes and ladders) contact overhead wires, the equipment operator or other workers can be killed. If you do not maintain required clearance distances from power-lines, you can be shocked and killed. (The minimum distance for voltages up to 50kV is 10 feet. For voltages over 50kV, the minimum distance is 10 feet plus 4 inches for every 10 kV over 50kV.) Never store materials and equipment under or near overhead power-lines. You need to recognize that overhead power-lines are a hazard.

Defective Insulation Hazards

Insulation that is defective or inadequate is an electrical hazard. Usually, a plastic or rubber covering insulates wires. Insulation prevents conductors from coming in contact with each other. Insulation also prevents conductors from coming in contact with people.

Extension cords may have damaged insulation. Sometimes the insulation inside an electrical tool or appliance is damaged. When insulation is damaged, exposed metal parts may become energized if a live wire inside touches them.

Electric hand tools that are old, damaged, or misused may have damaged insulation inside. If you touch damaged power tools or other equipment, you will receive a shock. You are more likely to receive a shock if the tool is not grounded or double-insulated. (Double-insulated tools have two insulation barriers and no exposed metal parts.) You need to recognize that defective insulation is a hazard.

Improper Grounding Hazards

When an electrical system is not grounded properly, a hazard exists. The most common OSHA electrical violation is improper grounding of equipment and circuitry. The metal parts of an electrical wiring system that we touch (switch plates, ceiling light fixtures, conduit, etc.) should be grounded and at 0 volts. If the system is not grounded properly, these parts may become energized. Metal parts of motors, appliances, or electronics that are plugged into improperly grounded circuits may be energized. When a circuit is not grounded properly, a hazard exists because unwanted voltage cannot be safely eliminated. If there is no safe path to ground for fault currents, exposed metal parts in damaged appliances can become energized.

Extension cords may not provide a continuous path to ground because of a broken ground wire or plug. If you come in contact with a defective electrical device that is not grounded (or grounded improperly), you will be shocked. You need to recognize that an improperly grounded electrical system is a hazard.

Electrical systems are often grounded to metal water pipes that serve as a continuous path to ground. If plumbing is used as a path to ground for fault current, all pipes must be made of conductive material (a type of metal). Many electrocutions and fires occur because (during renovation or repair) parts of metal plumbing are replaced with plastic pipe, which does not conduct electricity. In these cases, the path to ground is interrupted by nonconductive material.

A ground fault circuit interrupter, or GFCI, is an inexpensive lifesaver. GFCI's detect any difference in current between the two circuit wires (the black wires and white wires). This difference in current could happen when electrical equipment is not working correctly, causing leakage current. If leakage current (a ground fault) is detected in a GFCI-protected circuit, the GFCI switches off the current in the circuit, protecting you from a dangerous shock. GFCI's are set at about 5 mA and are designed to protect workers from electrocution. GFCI's are able to detect the loss of current resulting from leakage through a person who is beginning to be shocked.

If this situation occurs, the GFCI switches off the current in the circuit. GFCI's are different from circuit breakers because they detect leakage currents rather than overloads. Circuits with missing, damaged, or improperly wired GFCI's may allow you to be shocked. You need to recognize that a circuit improperly protected by a GFCI is a hazard.

Overload Hazards

Overloads in an electrical system are hazardous because they can produce heat or arcing. Wires and other components in an electrical system or circuit have a maximum amount of current they can carry safely. If too many devices are plugged into a circuit, the electrical current will heat the wires to a very high temperature. If any one tool uses too much current, the wires will heat up. The temperature of the wires can be high enough to cause a fire. If their insulation melts, arcing may occur. Arcing can cause a fire in the area where the overload exists, even inside a wall.

In order to prevent too much current in a circuit, a circuit breaker or fuse is placed in the circuit. If there is too much current in the circuit, the breaker "trips" and opens like a switch. If an overloaded circuit is equipped with a fuse, an internal part of the fuse melts, opening the circuit. Both breakers and fuses do the same thing: open the circuit to shut off the electrical current.

If the breakers or fuses are too big for the wires they are supposed to protect, an overload in the circuit will not be detected and the current will not be shut off. Overloading leads to overheating of circuit components (including wires) and may cause a fire. You need to recognize that a circuit with improper overcurrent protection devices—or one with no overcurrent protection devices at all—is a hazard.

Overcurrent protection devices are built into the wiring of some electric motors, tools, and electronic devices. For example, if a tool draws too much current or if it overheats, the current will be shut off from within the device itself. Damaged tools can overheat and cause a fire. You need to recognize that a damaged tool is a hazard.

Wet Conditions Hazards

Working in wet conditions is hazardous because you may become an easy path for electrical current. If you touch a live wire or other electrical component—and you are well-grounded because you are standing in even a small puddle of water—you will receive a shock.

Damaged insulation, equipment, or tools can expose you to live electrical parts. A damaged tool may not be grounded properly, so the housing of the tool may be energized, causing you to receive a shock. Improperly grounded metal switch plates and ceiling lights are especially hazardous in wet conditions. If you touch a live electrical component with an uninsulated hand tool, you are more likely to receive a shock when standing in water.

But remember: you don't have to be standing in water to be electrocuted. Wet clothing, high humidity, and perspiration also increase your chances of being electrocuted. You need to recognize that all wet conditions are hazards.

Additional Hazards

In addition to electrical hazards, other types of hazards are present at job sites. Remember that all of these hazards can be controlled.

- There may be chemical hazards. Solvents and other substances may be poisonous or cause disease.
- Frequent overhead work can cause tendonitis (inflammation) in your shoulders.
- Intensive use of hand tools that involve force or twisting can cause tendonitis of the hands, wrists, or elbows. Use of hand tools can also cause carpal tunnel syndrome, which results when nerves in the wrist are damaged by swelling tendons or contracting muscles.
- Low back pain can result from lifting objects the wrong way or carrying heavy loads of wire or other material. Back pain can also occur as a result of injury from poor working surfaces such as wet or slippery floors. Back pain is common, but it can be disabling and can affect young individuals.
- Chips and particles flying from tools can injure your eyes. Wear eye protection.
- Falling objects can hit you. Wear a hard hat.
- Sharp tools and power equipment can cause cuts and other injuries. If you receive a shock, you may react and be hurt by a tool.
- You can be injured or killed by falling from a ladder or scaffolding. If you receive a shock—even a mild one—you may lose your balance and fall. Even without being shocked, you could fall from a ladder or scaffolding.
- You expose yourself to hazards when you do not wear PPE. All of these situations need to be recognized as hazards.

Evaluating Hazards

After you recognize a hazard, your next step is to evaluate your risk from the hazard. Obviously, exposed wires should be recognized as a hazard. If the exposed wires are 15 feet off the ground, your risk is low. However, if you are going to be working on a roof near those same wires, your risk is high. The risk of shock is greater if you will be carrying metal conduit that could touch the exposed wires. You must constantly evaluate your risk.

Combinations of hazards increase your risk. Improper grounding and a damaged tool greatly increase your risk. Wet conditions combined with other hazards also increase your risk. You will need to make decisions about the nature of hazards in order to evaluate your risk and do the right thing to remain safe.

There are “clues” that electrical hazards exist. For example, if a GFCI keeps tripping while you are using a power tool, there is a problem. Do not keep resetting the GFCI and continue to work. You must evaluate the “clue” and decide what action should be taken to control the hazard.

There are many other conditions that indicate a hazard:

- Tripped circuit breakers and blown fuses show that too much current is flowing in a circuit. This condition could be due to several factors, such as malfunctioning equipment or a short between conductors. You need to determine the cause in order to control the hazard.
- An electrical tool, appliance, wire, or connection that feels warm may indicate too much current in the circuit or equipment. You need to evaluate the situation and determine your risk.
- An extension cord that feels warm may indicate too much current for the wire size of the cord. You must decide when action needs to be taken.
- A cable, fuse box, or junction box that feels warm may indicate too much current in the circuits.
- A burning odor may indicate overheated insulation.
- Worn, frayed, or damaged insulation around any wire or other conductor is an electrical hazard because the conductors could be exposed. Contact with an exposed wire could cause a shock. Damaged insulation could cause a short, leading to arcing or a fire. Inspect all insulation for scrapes and breaks. You need to evaluate the seriousness of any damage you find and decide how to deal with the hazard.
- A GFCI that trips indicates there is current leakage from the circuit. First, you must decide the probable cause of the leakage by recognizing any contributing hazards. Then, you must decide what action needs to be taken.

Any of these conditions, or “clues,” tells you something important: there is a risk of fire and electrical shock. The equipment or tools involved must be avoided. You will frequently be caught in situations where you need to decide if these clues are present. A supervisor needs to be called if there are signs of overload and you are not sure of the degree of risk. Ask for help whenever you are not sure what to do. By asking for help, you will protect yourself and others.

Controlling Hazards: Maintaining a Safe Work Environment

In order to control hazards, you must first create a safe work environment, then work in a safe manner. Generally, it is best to remove the hazards altogether and create an environment that is truly safe. When OSHA regulations and the NEC are followed, safe work environments are created.

But, you never know when materials or equipment might fail. Prepare yourself for the unexpected by using safe work practices. Use as many safeguards as possible. If one fails, another may protect you from injury or death.

Create a Safe Work Environment

A safe work environment is created by controlling contact with electrical voltages and the currents they can cause. Electrical currents need to be controlled so they do not pass through the body. In addition to preventing shocks, a safe work environment reduces the chance of fires, burns, and falls.

You need to guard against contact with electrical voltages and control electrical currents in order to create a safe work environment.

Make your environment safer by doing the following:

- Treat all conductors—even “de-energized” ones—as if they are energized until they are locked out and tagged.
- Lock out and tag out circuits and machines.
- Prevent overloaded wiring by using the right size and type of wire.
- Prevent exposure to live electrical parts by isolating them.
- Prevent exposure to live wires and parts by using insulation.
- Prevent shocking currents from electrical systems and tools by grounding them.
- Prevent shocking currents by using GFCI's.
- Prevent too much current in circuits by using overcurrent protection devices.

Lock-Out and Tag-Out Circuits and Equipment

Create a safe work environment by locking out and tagging out circuits and machines. Before working on a circuit, you must turn off the power supply. Once the circuit has been shut off and de-energized, lock out the switchgear to the circuit so the power cannot be turned back on inadvertently. Then, tag out the circuit with an easy-to-see sign or label that lets everyone know that you are working on the circuit.

If you are working on or near machinery, you must lock out and tag out the machinery to prevent startup. Before you begin work, you must test the circuit to make sure it is de-energized.

Lock-Out/Tag-Out Checklist

Lock-out/tag-out is an essential safety procedure that protects workers from injury while working on or near electrical circuits and equipment. Lock-out involves applying a physical lock to the power source(s) of circuits and equipment after they have been shut off and de-energized. The source is then tagged out with an easy-to-read tag that alerts other workers in the area that a lock has been applied.

In addition to protecting workers from electrical hazards, lock-out/tag-out prevents contact with operating equipment parts: blades, gears, shafts, presses, etc.

Also, lock-out/tag-out prevents the unexpected release of hazardous gasses, fluids, or solid matter in areas where workers are present.

When performing lock-out/tag-out on circuits and equipment, you can use the checklist below.

- Identify all sources of electrical energy for the equipment or circuits in question.
- Disable backup energy sources such as generators and batteries.
- Identify all shut-offs for each energy source.
- Notify all personnel that equipment and circuitry must be shut off, locked out, and tagged out. (Simply turning a switch off is **NOT** enough.)
- Shut off energy sources and lock switchgear in the **OFF** position. Each worker should apply his or her individual lock. Do not give your key to anyone.
- Test equipment and circuitry to make sure they are de-energized. This must be done by a qualified person.*
- Deplete stored energy by bleeding, blocking, grounding, etc.
- Apply a tag to alert other workers that an energy source or piece of equipment has been locked out.
- Make sure everyone is safe and accounted for before equipment and circuits are unlocked and turned back on. Note that only a qualified person may determine when it is safe to re-energize circuits.

**OSHA defines a “qualified person” as someone who has received mandated training on the hazards and on the construction and operation of equipment involved in a task.*

Control Inadequate Wiring Hazards

Electrical hazards result from using the wrong size or type of wire. You must control such hazards to create a safe work environment. You must choose the right size wire for the amount of current expected in a circuit. The wire must be able to handle the current safely. The wire's insulation must be appropriate for the voltage and tough enough for the environment. Connections need to be reliable and protected.

| MAXIMUM CURRENT DIFFERENT WIRE SIZES CAN SAFELY CONDUCT | | | | | | | |
|---|----------------------|-------------------|---------|---------|---------|---------|----------|
| 14 AWG | 12 AWG (stranded) | 12 AWG (solid) | 10 AWG | 8 AWG | 6 AWG | 2 AWG | 1/0 AWG |
| 20 amps | 25 amps | 25 amps | 30 amps | 40 amps | 55 amps | 95 amps | 125 amps |

Control Hazards of Fixed Wiring

The wiring methods and size of conductors used in a system depend on several factors:

- Intended use of the circuit system
- Building materials
- Size and distribution of electrical load
- Location of equipment (such as underground burial)
- Environmental conditions (such as dampness)
- Presence of corrosives
- Temperature extremes

Fixed, permanent wiring is better than extension cords, which can be misused and damaged more easily. NEC requirements for fixed wiring should always be followed. A variety of materials can be used in wiring applications, including nonmetallic sheathed cable (Romex®), armored cable, and metal and plastic conduit. The choice of wiring material depends on the wiring environment and the need to support and protect wires.

Aluminum wire and connections should be handled with special care. Connections made with aluminum wire can loosen due to heat expansion and oxidize if they are not made properly. Loose or oxidized connections can create heat or arcing. Special clamps and terminals are necessary to make proper connections using aluminum wire. Antioxidant paste can be applied to connections to prevent oxidation.

Control Hazards of Flexible Wiring with Proper Use

Electrical cords supplement fixed wiring by providing the flexibility required for maintenance, portability, isolation from vibration, and emergency and temporary power needs. Flexible wiring can be used for extension cords or power supply cords. Power supply cords can be removable or permanently attached to the appliance.

DO NOT use flexible wiring in situations where frequent inspection would be difficult, where damage would be likely, or where long-term electrical supply is needed. Flexible cords cannot be used as a substitute for the fixed wiring of a structure.

Flexible cords must not be . . .

- Run through holes in walls, ceilings, or floors.
- Run through doorways, windows, or similar openings (unless physically protected).
- Attached to building surfaces (except with a tension take-up device within 6 feet of the supply end).
- Hidden in walls, ceilings, or floors.
- Hidden in conduit or other raceways.

Use the Right Extension Cord

The size of wire in an extension cord must be compatible with the amount of current the cord will be expected to carry. The amount of current depends on the equipment plugged into the extension cord. Current ratings (how much current a device needs to operate) are often printed on the nameplate. If a power rating is given, it is necessary to divide the power rating in watts by the voltage to find the current rating.

For example, a 1,000-watt heater plugged into a 120-volt circuit will need almost 10 amps of current. Let's look at another example: A 1-horsepower electric motor uses electrical energy at the rate of almost 750 watts, so it will need a minimum of about 7 amps of current on a 120-volt circuit. But, electric motors need additional current as they startup or if they stall, requiring up to 200% of the nameplate current rating. Therefore, the motor would need 14 amps.

Add to find the total current needed to operate all the appliances supplied by the cord. Choose a wire size that can handle the total current.

| AMERICAN WIRE GAUGE (AWG) | |
|----------------------------------|----------------------|
| Wire Size | Handles Up To |
| #10 AWG | 30 amps |
| #12 AWG | 25 amps |
| #14 AWG | 18 amps |
| #16 AWG | 13 amps |

Remember: The larger the gauge number, the smaller the wire!

The length of the extension cord also needs to be considered when selecting the wire size. Voltage drops over the length of a cord. If a cord is too long, the voltage drop can be enough to damage equipment. Many electric motors only operate safely in a narrow range of voltages and will not work properly at voltages different than the voltage listed on the nameplate. Even though light bulbs operate (somewhat dimmer) at lowered voltages, do not assume electric motors will work correctly at less-than-required voltages. Also, when electric motors start or operate under load, they require more current. The larger the size of the wire, the longer a cord can be without causing a voltage drop that could damage tools and equipment.

The grounding path for extension cords must be kept intact to keep you safe.

A typical extension cord grounding system has four components:

1. A third wire in the cord, called a ground wire.
2. A three-prong plug with a grounding prong on one end of the cord.
3. A three-wire, grounding-type receptacle at the other end of the cord.
4. A properly grounded outlet.

Control Hazards of Exposed Live Electrical Parts

Isolate Energized Components

Electrical hazards exist when wires or other electrical parts are exposed. These hazards need to be controlled to create a safe work environment. Isolation of energized electrical parts makes them inaccessible unless tools and special effort are used. Isolation can be accomplished by placing the energized parts at least 8 feet high and out of reach, or by guarding. Guarding is a type of isolation that uses various structures—like cabinets, boxes, screens, barriers, covers, and partitions—to close-off live electrical parts.

Take the following precautions to prevent injuries from contact with live parts:

- Immediately report exposed live parts to a supervisor.
- Unless qualified, you should never attempt to correct the condition yourself without supervision.
- Provide guards or barriers if live parts cannot be enclosed completely.
- Use covers, screens, or partitions for guarding that require tools to remove them.
- Replace covers that have been removed from panels, motors, or fuse boxes.

- Even when live parts are elevated to the required height (8 feet), care should be taken when using objects (like metal rods or pipes) that can contact these parts.
- Close unused conduit openings in boxes so that foreign objects (pencils, metal chips, conductive debris, etc.) cannot get inside and damage the circuit.

Control Hazards of Exposure to Live Electrical Wires

Use Proper Insulation

Insulation is made of material that does not conduct electricity (usually plastic, rubber, or fiber). Insulation covers wires and prevents conductors from coming in contact with each other or any other conductor. If conductors are allowed to make contact, a short circuit is created. In a short circuit, current passes through the shorting material without passing through a load in the circuit, and the wire becomes overheated. Insulation keeps wires and other conductors from touching, which prevents electrical short circuits. Insulation prevents live wires from touching people and animals, thus protecting them from electrical shock.

Insulation helps protect wires from physical damage and conditions in the environment. Insulation is used on almost all wires, except some ground wires and some high-voltage transmission lines. Insulation is used internally in tools, switches, plugs, and other electrical and electronic devices.

Special insulation is used on wires and cables that are used in harsh environments. Wires and cables that are buried in soil must have an outer covering of insulation that is flame-retardant and resistant to moisture, fungus, and corrosion.

In all situations, you must be careful not to damage insulation while installing it. Do not allow staples or other supports to damage the insulation. Bends in a cable must have an inside radius of at least 5 times the diameter of the cable so that insulation at a bend is not damaged. Extension cords come with insulation in a variety of types and colors. The insulation of extension cords is especially important.

Since extension cords often receive rough handling, the insulation can be damaged. Extension cords might be used in wet places, so adequate insulation is necessary to prevent shocks. Because extension cords are often used near combustible materials (such as wood shavings and sawdust) a short in an extension cord could easily cause arcing and a fire.

Insulation on individual wires is often color-coded. In general, insulated wires used as equipment grounding conductors are either continuous green or green with yellow stripes. The grounded conductors that complete a circuit are generally covered with continuous white or gray insulation. The ungrounded conductors, or "hot" wires, may be any color other than green, white, or gray. They are usually black or red.

Conductors and cables must be marked by the manufacturer to show the following:

- Maximum voltage capacity
- AWG size
- Insulation-type letter
- Manufacturer's name or trademark

Control Hazards of Shocking Currents: Ground Circuits and Equipment

When an electrical system is not grounded properly, a hazard exists. This is because the parts of an electrical wiring system that a person normally touches may be energized, or live, relative to ground. Parts like switch plates, wiring boxes, conduit, cabinets, and lights need to be at 0 volts relative to ground. If the system is grounded improperly, these parts may be energized. The metal housings of equipment plugged into an outlet need to be grounded through the plug.

Grounding is connecting an electrical system to the earth with a wire. Excess or stray current travels through this wire to a grounding device (commonly called a “ground”) deep in the earth. Grounding prevents unwanted voltage on electrical components. Metal plumbing is often used as a ground. When plumbing is used as a grounding conductor, it must also be connected to a grounding device such as a conductive rod. (Rods used for grounding must be driven at least 8 feet into the earth.)

Sometimes an electrical system will receive a higher voltage than it is designed to handle. These high voltages may come from a lightning strike, line surge, or contact with a higher voltage line. Sometimes a defect occurs in a device that allows exposed metal parts to become energized. Grounding will help protect the person working on a system, the system itself, and others using tools or operating equipment connected to the system. The extra current produced by the excess voltage travels relatively safely to the earth.

Grounding creates a path for currents produced by unintended voltages on exposed parts. These currents follow the grounding path, rather than passing through the body of someone who touches the energized equipment. However, if a grounding rod takes a direct hit from a lightning strike and is buried in sandy soil, the rod should be examined to make sure it will still function properly. The heat from a lightning strike can cause the sand to turn into glass, which is an insulator. A grounding rod must be in contact with damp soil to be effective.

Leakage current occurs when an electrical current escapes from its intended path. Leakages are sometimes low-current faults that can occur in all electrical equipment because of dirt, wear, damage, or moisture. A good grounding system should be able to carry off this leakage current. A ground fault occurs when current passes through the housing of an electrical device to ground. Proper grounding protects against ground faults. Ground faults are usually caused by misuse of a tool or damage to its insulation. This damage allows a bare conductor to touch metal parts or the tool housing.

When you ground a tool or electrical system, you create a low-resistance path to the earth (known as a ground connection). When done properly, this path has sufficient current-carrying capacity to eliminate voltages that may cause a dangerous shock. Grounding does not guarantee that you will not be shocked, injured, or killed from defective equipment. However, it greatly reduces the possibility.

Equipment needs to be grounded under any of these circumstances:

- The equipment is within 8 feet vertically and 5 feet horizontally of the floor or walking surface.
- The equipment is within 8 feet vertically and 5 feet horizontally of grounded metal objects you could touch.
- The equipment is located in a wet or damp area and is not isolated.
- The equipment is connected to a power supply by cord and plug and is not double-insulated.

Use Ground Fault Circuit Interrupters (GFCI’s)

The use of GFCI’s has lowered the number of electrocutions dramatically. A GFCI is a fast-acting switch that detects any difference in current between two circuit conductors. If either conductor comes in contact—either directly or through part of your body—with a ground (a situation known as a ground fault), the GFCI opens the circuit in a fraction of a second. If a current as small as 4 to 6 mA does not pass through both wires properly, but instead leaks to the ground, the GFCI is tripped. The current is shut off.

There is a more sensitive kind of GFCI called an isolation GFCI. If a circuit has an isolation GFCI, the ground fault current passes through an electronic sensing circuit in the GFCI. The electronic sensing circuit has enough resistance to limit current to as little as 2 mA, which is too low to cause a dangerous shock.

GFCI's are usually in the form of a duplex receptacle. They are also available in portable and plug-in designs and as circuit breakers that protect an entire branch circuit. GFCI's can operate on both two- and three-wire ground systems. For a GFCI to work properly, the neutral conductor (white wire) must:

- Be continuous
- Have low resistance
- Have sufficient current-carrying capacity.

GFCI's help protect you from electrical shock by continuously monitoring the circuit. However, a GFCI does not protect a person from line-to-line hazards such as touching two "hot" wires (240 volts) at the same time or touching a "hot" and neutral wire at the same time. Also be aware that instantaneous currents can be high when a GFCI is tripped. A shock may still be felt. Your reaction to the shock could cause injury, perhaps from falling.

Test GFCI's regularly by pressing the "test" button. If the circuit does not turn off, the GFCI is faulty and must be replaced.

The NEC requires that GFCI's be used in these high-risk situations:

- Electricity is used near water.
- The user of electrical equipment is grounded (by touching grounded material).
- Circuits are providing power to portable tools or outdoor receptacles.
- Temporary wiring or extension cords are used.

Specifically, GFCI's must be installed in bathrooms, garages, outdoor areas, crawl spaces, unfinished basements, kitchens, and near wet bars.

Bond Components to Assure Grounding Path

In order to assure a continuous, reliable electrical path to ground, a bonding jumper wire is used to make sure electrical parts are connected. Some physical connections, like metal conduit coming into a box, might not make a good electrical connection because of paint or possible corrosion. To make a good electrical connection, a bonding jumper needs to be installed.

A metal cold water pipe that is part of a path to ground may need bonding jumpers around plastic anti-vibration devices, plastic water meters, or sections of plastic pipe. A bonding jumper is made of conductive material and is tightly connected to metal pipes with screws or clamps to bypass the plastic and assure a continuous grounding path. Bonding jumpers are necessary because plastic does not conduct electricity and would interrupt the path to ground.

Additionally, interior metal plumbing must be bonded to the ground for electrical service equipment in order to keep all grounds at the same potential (0 volts). Even metal air ducts should be bonded to electrical service equipment.

Control Overload Current Hazards

When a current exceeds the current rating of equipment or wiring, a hazard exists. The wiring in the circuit, equipment, or tool cannot handle the current without heating up or even melting. Not only will the wiring or tool be damaged, but the high temperature of the conductor can also cause a fire. To prevent this from happening, an overcurrent protection device (circuit breaker or fuse) is used in a circuit. These devices open a circuit automatically if they detect current in excess of the current rating of equipment or wiring. This excess current can be caused by an overload, short circuit, or high-level ground fault.

Overcurrent protection devices are designed to protect equipment and structures from fire. They do not protect you from electrical shock! Overcurrent protection devices stop the flow of current in a circuit when the amperage is too high for the circuit.

A circuit breaker or fuse will not stop the relatively small amount of current that can cause injury or death. Death can result from 20 mA (.020 amps) through the chest. A typical residential circuit breaker or fuse will not shut off the circuit until a current of more than 20 amps is reached.

But overcurrent protection devices are not allowed in areas where they could be exposed to physical damage or in hazardous environments. Overcurrent protection devices can heat up and occasionally arc or spark, which could cause a fire or an explosion in certain areas. Hazardous environments are places that contain flammable or explosive materials such as flammable gasses or vapors (Class I Hazardous Environments), finely pulverized flammable dusts (Class II Hazardous Environments), or fibers or metal filings that can catch fire easily (Class III Hazardous Environments). Hazardous environments may be found in aircraft hangars, gas stations, storage plants for flammable liquids, grain silos, and mills where cotton fibers may be suspended in the air. Special electrical systems are required in hazardous environments.

If an overcurrent protection device opens a circuit, there may be a problem along the circuit. (In the case of circuit breakers, frequent tripping may also indicate that the breaker is defective.) When a circuit breaker trips or a fuse blows, the cause must be found.

A circuit breaker is one kind of overcurrent protection device. It is a type of automatic switch located in a circuit. A circuit breaker trips when too much current passes through it. A circuit breaker should not be used regularly to turn power on or off in a circuit, unless the breaker is designed for this purpose and marked "SWD" (stands for "switching device").

A fuse is another type of overcurrent protection device. A fuse contains a metal conductor that has a relatively low melting point. When too much current passes through the metal in the fuse, it heats up within a fraction of a second and melts, opening the circuit. After an overload is found and corrected, a blown fuse must be replaced with a new one of appropriate amperage.

Controlling Hazards: Safe Work Practices

A safe work environment is not enough to control all electrical hazards. You must also work safely. Safe work practices help you control your risk of injury or death from workplace hazards. If you are working on electrical circuits or with electrical tools and equipment, you need to use safe work practices.

Before you begin a task, ask yourself:

- What could go wrong?
- Do I have the knowledge, tools, and experience to do this work safely?

All workers should be very familiar with the safety procedures for their jobs. You must know how to use specific controls that help keep you safe. You must also use good judgment and common sense.

Electrical Hazards

Control electrical hazards through safe work practices.

- Plan your work and plan for safety.
- Avoid wet working conditions and other dangers.
- Avoid overhead powerlines.
- Use proper wiring and connectors.
- Use and maintain tools properly.
- Wear correct PPE.

Plan Your Work and Plan for Safety

Take time to plan your work, by yourself and with others. Safety planning is an important part of any task. It takes effort to recognize, evaluate, and control hazards. If you are thinking about your work tasks or about what others think of you, it is hard to take the time to plan for safety. But, **YOU MUST PLAN.**

Planning with others is especially helpful. It allows you to coordinate your work and take advantage of what others know about identifying and controlling hazards.

The following is a list of some things to think about as you plan:

- Work with a “buddy”—**DO NOT** work alone. Both of you should be trained in CPR. Both of you must know what to do in an emergency.
- Know how to shut off and de-energize circuits—You must find where circuit breakers, fuses, and switches are located. Then, the circuits that you will be working on (even low-voltage circuits) **MUST BE TURNED OFF!** Test the circuits before beginning work to make sure they are completely de-energized.
- Plan to lock out and tag out circuits and equipment—Make certain all energy sources are locked out and tagged out before performing any work on an electrical circuit or electrical device.

Working on energized (“hot”) circuits is one of the most dangerous things any worker could do. If someone turns on a circuit without warning, you can be shocked, burned, or electrocuted. The unexpected starting of electrical equipment can cause severe injury or death.

Before **ANY** work is done on a circuit, shut off the circuit, lock out and tag out the circuit at the distribution panel, then test the circuit to make sure it is de-energized.

Before **ANY** equipment inspections or repairs—even on so-called low-voltage circuits—the current must be turned off at the switch box, and the switch must be padlocked in the OFF position. At the same time, the equipment must be securely tagged to warn everyone that work is being performed. Again, test circuits and equipment to ensure they are de-energized.

No two locks should be alike. Each key should fit only one lock, and only one key should be issued to each worker. If more than one worker is working on a circuit or repairing a piece of equipment, each worker should lock out the switch with his or her own lock and never permit anyone else to remove it. At all times, you must be certain that you are not exposing other workers to danger.

Workers who perform lock-out/tag-out must be trained and authorized to repair and maintain electrical equipment. A locked-out switch or feeder panel prevents others from turning on a circuit. The tag informs other workers of your action.

- Remove jewelry and metal objects—Remove jewelry and other metal objects or apparel from your body before beginning work. These things can cause burns if worn near high currents and can get caught as you work.
- Plan to avoid falls—Injuries can result from falling off scaffolding or ladders. Other workers may also be injured from equipment and debris falling from scaffolding and ladders.

Ladder Safety Facts

To prevent injury when climbing, follow these procedures:

- Position the ladder at a safe angle to prevent slipping. The horizontal distance from the base of the ladder to the structure should be one-quarter the length of the ladder. If you do not have a way to make this measurement, follow the steps below to determine if the ladder is positioned at a safe angle.
 - Put your feet at the base of the ladder and extend your arms straight out.

- If you can touch the closest part of the ladder without bending your arms, the ladder is probably at the correct angle.
- If you have to bend your arms to touch the closest part of the ladder or if you cannot reach the ladder at all, the ladder is not positioned at a safe angle.
- Make sure the base of the ladder has firm support and the ground or floor is level. Be very careful when placing a ladder on wet, icy, or otherwise slippery surfaces. Special blocking may be needed to prevent slipping in these cases.
- Follow the manufacturer's recommendations for proper use.
- Check the condition of the ladder before using it. Joints must be tight to prevent wobbling or leaning.
- When using a stepladder, make sure it is level and fully open. Always lock the hinges. Do not stand on or above the top step.
- When using scaffolding, use a ladder to access the tiers. Never climb the cross braces.
- Do not use metal ladders. Instead, use ladders made of fiberglass. (Although wooden ladders are permitted, wood can soak up water and become conductive.)
- Beware of overhead powerlines when you work with ladders and scaffolding.

Learn how to use ladders and scaffolding properly. Do not do any tasks that you are not trained to do or that you do not feel comfortable doing!

Avoid Wet Working Conditions and other Dangers

Remember that any hazard becomes much more dangerous in damp or wet conditions. To be on the safe side, assume there is dampness in any work location, even if you do not see water. Even sweat can create a damp condition!

- Do not work wet—Do not work on circuits or use electrical equipment in damp or wet areas. If necessary, clear the area of loose material or hanging objects. Cover wet floors with wooden planking that can be kept dry. Wear insulating rubber boots or shoes. Your hands must be dry when plugging and unplugging power cords and extension cords. Do not get cleaning solutions on energized equipment.
- Use a GFCI—Always use a GFCI when using portable tools and extension cords.

Avoid Overhead Powerlines

Be very careful not to contact overhead powerlines or other exposed wires. More than half of all electrocutions are caused by contact with overhead lines. When working in an elevated position near overhead lines, avoid locations where you (and any conductive object you hold) could contact an unguarded or uninsulated line. You should be at least 10 feet away from high-voltage transmission lines.

Vehicle operators should also pay attention to overhead wiring. Dump trucks, front-end loaders, and cranes can lift and make contact with overhead lines. If you contact equipment that is touching live wires, you will be shocked and may be killed. If you are in the vehicle, stay inside. Always be aware of what is going on around you.

Use Proper Wiring and Connectors

- Avoid overloads—Do not overload circuits.
- Test GFCI's—Test GFCI's monthly using the "test" button.
- Check switches and insulation—Tools and other equipment must operate properly. Make sure that switches and insulating parts are in good condition.
- Use three-prong plugs—Never use a three-prong grounding plug with the third prong broken-off. When using tools that require a third-wire ground, use only three-wire extension cords, with three-prong grounding plugs, and three-hole electrical outlets. Never remove the grounding prong from a plug! You could be shocked or expose someone else to a hazard. If you see a cord without a grounding prong in the plug, remove the cord from service immediately.

- Use extension cords properly—If an extension cord must be used, choose one with sufficient ampacity for the tool being used. An undersized cord can overheat and cause a drop in voltage and tool power. Check the tool manufacturer’s recommendations for the required wire gauge and cord length. Make sure the insulation is intact. To reduce the risk of damage to a cord’s insulation, use cords with insulation marked “S” (hard service) rather than cords marked “SJ” (junior hard service). Make sure the grounding prong is intact. In damp locations, make sure wires and connectors are waterproof and approved for such locations. Do not create a tripping hazard.
- Check power cords and extensions—Electrical cords should be inspected regularly using the following procedure:
 - Remove the cord from the electrical power source before inspecting.
 - Make sure the grounding prong is present in the plug.
 - Make sure the plug and receptacle are not damaged.
 - Wipe the cord clean with a diluted detergent and examine for cuts, breaks, abrasions, and defects in the insulation.
 - Coil or hang the cord for storage. Do not use any other methods. Coiling or hanging is the best way to avoid tight kinks, cuts, and scrapes that can damage insulation or conductors.

You should also test electrical cords regularly for ground continuity using a continuity tester as follows:

- Connect one lead of the tester to the ground prong at one end of the cord.
- Connect the second lead to the ground wire hole at the other end of the cord.
- If the tester lights up or beeps (depending on design), the cord’s ground wire is okay. If not, the cord is damaged and should not be used.
- Do not pull on cords—Always disconnect a cord by the plug.
- Use correct connectors—Use electrical plugs and receptacles that are right for your current and voltage needs. Connectors are designed for specific currents and voltages so that only matching plugs and receptacles will fit together. This safeguard prevents a piece of equipment, a cord, and a power source with different voltage and current requirements from being plugged together. Standard configurations for plugs and receptacles have been established by the National Electric Manufacturers Association (NEMA).
- Use locking connectors—Use locking-type attachment plugs, receptacles, and other connectors to prevent them from becoming unplugged.

Use and Maintain Tools Properly

Your tools are at the heart of your craft. Tools help you do your job with a high degree of quality. Tools can do something else, too. They can cause injury or even death! You must use the right tools for the job. Proper maintenance of tools and other equipment is very important. Inadequate maintenance can cause equipment to deteriorate, creating dangerous conditions.

- Inspect tools before using them—Check for cracked casings, dents, missing or broken parts, and contamination (oil, moisture, dirt, corrosion). Damaged tools must be removed from service and properly tagged. These tools should not be used until they are repaired and tested.
- Use the right tool correctly—Use tools correctly and for their intended purposes. Follow the safety instructions and operating procedures recommended by the manufacturer. When working on a circuit, use approved tools with insulated handles. However, **DO NOT USE THESE TOOLS TO WORK ON ENERGIZED CIRCUITS. ALWAYS SHUT OFF AND DE-ENERGIZE CIRCUITS BEFORE BEGINNING WORK ON THEM.**
- Protect your tools—Keep tools and cords away from heat, oil, and sharp objects. These hazards can damage insulation. If a tool or cord heats up, stop using it!

Report the condition to a supervisor immediately. If equipment has been repaired, make sure that it has been tested and certified as safe before using it. Never carry a tool by the cord. Disconnect cords by pulling the plug—not the cord!

- Use double-insulated tools—Portable electrical tools are classified by the number of insulation barriers between the electrical conductors in the tool and the worker. The NEC permits the use of portable tools only if they have been approved by Underwriter's Laboratories (UL Listed). Equipment that has two insulation barriers and no exposed metal parts is called double-insulated.
- When used properly, double-insulated tools provide reliable shock protection without the need for a third ground wire. Power tools with metal housings or only one layer of effective insulation must have a third ground wire and three-prong plug.
- Use multiple safe practices—Remember: A circuit may not be wired correctly. Wires may contact other "hot" circuits. Someone else may do something to place you in danger. Take all possible precautions.

Wear Correct PPE

OSHA requires that you be provided with personal protective equipment. This equipment must meet OSHA requirements and be appropriate for the parts of the body that need protection and the work performed. There are many types of PPE: rubber gloves, insulating shoes and boots, face shields, safety glasses, hard hats, etc. Even if laws did not exist requiring the use of PPE, there would still be every reason to use this equipment. PPE helps keep you safe. It is the last line of defense between you and the hazard.

- Wear safety glasses—Wear safety glasses to avoid eye injury.
- Wear proper clothing—Wear clothing that is neither floppy nor too tight. Loose clothing will catch on corners and rough surfaces. Clothing that binds is uncomfortable and distracting.
- Contain and secure loose hair—Wear your hair in such a way that it does not interfere with your work or safety.
- Wear proper foot protection—Wear shoes or boots that have been approved for electrical work. (Tennis shoes will not protect you from electrical hazards.) If there are non-electrical hazards present (nails on the floor, heavy objects, etc.), use footwear that is approved to protect against these hazards as well.
- Wear a hard hat—Wear a hard hat to protect your head from bumps and falling objects. Hard hats must be worn with the bill forward to protect you properly.
- Wear hearing protectors—Wear hearing protectors in noisy areas to prevent hearing loss.
- Follow directions—Follow the manufacturer's directions for cleaning and maintaining PPE.
- Make an effort—Search out and use any and all equipment that will protect you from shocks and other injuries.

PPE is the last line of defense against workplace hazards. OSHA defines PPE as "equipment for the eyes, face, head, and extremities, protective clothing, respiratory devices, protective shields and barriers." Many OSHA regulations state that PPE must meet criteria set by the American National Standards Institute (ANSI).

Head Protection

OSHA requires that head protection (hard hats) be worn if there is a risk of head injury from electrical burns or falling/flying objects.

All Hard Hats are NOT the Same

You must wear the right hat for the job. All hard hats approved for electrical work made since 1997 are marked "Class E." Hard hats made before 1997 are marked "Class B." These markings will be on a label inside the helmet or stamped into the helmet itself. Newer hats may also be marked "Type 1" or "Type 2." Type 1 hard hats protect you from impacts on the top of your head. Type 2 hard hats protect you from impacts on the top and sides of your head.

Care and Use of Hard Hats

Always wear your hat with the bill forward. (Hats are tested in this position.) If you wear a hat differently, you may not be fully protected. The hat should fit snugly without being too tight. You should clean and inspect your hard hat regularly according to the manufacturer's instructions. Check the hat for cracks, dents, frayed straps, and dulling of the finish. These conditions can reduce protection. Use only mild soap and water for cleaning. Heavy-duty cleaners and other chemicals can damage the hat.

Do not "store" anything (gloves, wallet, etc.) in the top of your hard hat while you are wearing it. The space between the inside harness and the top of the hard hat must remain open to protect you. Do not put stickers on your hat (the glue can weaken the helmet) and keep it out of direct sunlight. If you want to express your personality, hard hats come in many colors and can be imprinted with custom designs by the manufacturer. Some hats are available in a cowboy hat design or with sports logos.

Foot Protection

Workers must wear protective footwear when there is a risk of foot injury from sharp items or falling/rolling objects—or when electrical hazards are present. As with hard hats, always follow the manufacturer's instructions for cleaning and maintenance of footwear. Remember that cuts, holes, worn soles, and other damage can reduce protection.

Choose the Right Footwear

The footwear must be ANSI approved. ANSI approval codes are usually printed inside the tongue of the boot or shoe. Footwear will be marked "EH" if it is approved for electrical work. (The ANSI approval stamp alone does not necessarily mean the footwear offers protection from electrical hazards.) Note that footwear made of leather must be kept dry to protect you from electrical hazards, even if it is marked "EH."

Non-Electrical Hazards

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 you in different ways. Check the product's labeling or consult the manufacturer to make sure the footwear will protect you from the hazards you face.

Insist All Employees Follow These Guidelines for Electrical Safety:

- **Always use** appropriate personal protective equipment.
- **Only use** hand tools, electric tools, extension cords, and other equipment that is in good repair.
- **De-energizing electric power** circuits and/or equipment before working near, inspecting, or making repairs.

Exercise good judgment when working near energized lines (including underground and overhead lines). Comply with OSHA regulations, NFPA 70E and the National Electric Code.

Company "Safe Electrical Work Practices" Checklist

- Are all employees required to report (as soon as practical) any obvious hazard to life or property observed in connection with electrical equipment or lines?
- Are employees instructed to make preliminary inspections and/or appropriate tests to determine what conditions exist before starting work on electrical equipment or lines?
- When electrical equipment or lines are to be serviced, maintained, or adjusted, are necessary switches opened, locked out, and tagged?
- Are portable hand-held electrical tools and equipment grounded or are they of the double-insulated type?
- Do extension cords have a grounding conductor? Are multiple plug adaptors prohibited?
- Are ground-fault circuit interrupters installed on each temporary 15, 20, or 30 ampere, 125-volt AC circuit at locations where construction, demolition, modifications, alterations, or excavations are being performed? **OR...**
- Do you have an assured equipment-grounding conductor program in place?
- Are all temporary circuits protected by suitable disconnecting switches or plug connectors at the junction with permanent wiring?
- Is exposed wiring and cords with frayed or deteriorated insulation repaired or replaced promptly?
- Are flexible cords and cables free of splices or taps?
- Are clamps or other securing means provided on flexible cords or cables at plugs, receptacles, tools, equipment, and is the cord jacket securely held in place?
- Are all cords, cable, and raceway connections intact and secure?
- In wet or damp locations, are electrical tools and equipment appropriate for the use or locations (or otherwise protected)?
- Are electrical power lines and cables located (overhead, underground, underfloor, other side of walls) before digging, drilling, or similar work begins?
- Is the use of metal measuring tapes, ropes, hand lines, or similar devices with metallic thread woven into the fabric prohibited where these could come into contact with energized parts of equipment or circuit conductors?
- Is the use of metal ladders prohibited in areas where the ladder or the person using the ladder could come into contact with energized parts of equipment, fixtures, or circuit conductors?
- Are all disconnecting switches and circuit breakers labeled to indicate their use or equipment served?
- Are disconnecting means always opened before fuses are replaced?
- Are all energized parts of electrical circuits and equipment guarded against accidental contact by approved cabinets or enclosures?
- Is sufficient access and working space provided and maintained around all electrical equipment to permit ready and safe operations and maintenance?
- Are all unused openings (including conduit knockouts) of electrical enclosures and fittings closed with appropriate covers, plugs, or plates?
- Are electrical enclosures such as switches, receptacles, and junction boxes provided with tight-fitting covers or plates?
- Are employees prohibited from working alone on energized lines or equipment over 600 volts?
- Are employees forbidden (unless properly qualified/certified) from working closer than 10 feet from high-voltage (over 750 volts) lines?
- Have all underground utilities been located prior to any excavation work?
- Is all digging within four feet of power lines done by hand?
- Are power lines de-energized? Has the utility company been consulted before digging?
- Has the power company been notified if work is to be done in the vicinity of overhead lines?

- Are live parts of electrical circuits de-energized before an employee works on or near them?
- Are all exposed energized parts in the temporary power supply protected from possible contact?
- Are all power-supply circuit disconnects marked according to their functions?
- Is splicing only allowed on extension cords if they are larger than size 12 and the splicing retains insulation protection equal to the original extension cord?
- Are all plug connections used with the voltage for which they were designed?
- Do you always ensure that flexible cords are not immersed in water or exposed to damage from vehicles?
- Are all junction boxes used in a wet environment waterproof?
- Are you using a ground fault circuit interrupter or have you established an assured equipment grounding program?

Log 300 Recordkeeping Forms & Posting Requirements

Log 300 Recordkeeping

Following are the three forms needed for recordkeeping:

OSHA Form 300 — Log of Work-Related Injuries and Illnesses.

OSHA Form 301 — Injury and Illness Incident Report.

OSHA 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.

Professional Building Services, Inc. New Hire Orientation Checklist

- 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**
- 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**
- 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**
- I have read or have had explained the safety policy regarding Machines & Equipment:
- I am aware that all guards are to be kept in place on all appropriate equipment.
 - I am aware that I am to report missing guards or equipment that needs repaired or could potentially pose a hazard to myself or others.
 - I am aware that I am required to inspect all tools and machines before I operate the equipment.
 - I am aware that I can request training from my supervisor on any piece for equipment that I do not know how to operate safely.
 - I am aware that if I am unsure of how to operate my equipment, tools, or machine safely I am to not operate the equipment until I receive proper training and feel that I can operate the equipment safely.
 - I am aware that any equipment in need of repair or out of compliance is to be reported to my supervisor.
- _____ **Initial**
- 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**

- 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**

- 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**

- 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**

- 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**

- 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**

- 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**

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**

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**

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**

I am aware of where my Company displays all of the required Employee Rights Postings.

_____ **Initial**

I am aware of where my Company "Designated Medical Provider" is located.

_____ **Initial**

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**

My signature certifies and verifies that I have received an orientation and have received or have read the material mentioned in the Company Safety Program. I understand completely the program and have no questions in regards to Company safety policy. I fully understand and am aware that if I have questions regarding the Company Safety Program or my personal safety, I may inquire of my supervisor for additional information and explanation.

New Hire Name

Signature

Date

Supervisor Name

Signature

Date

Orientación Y Lista De Verificación

- 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**

- 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**

- 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**

- He leído o me han explicado los Códigos de Seguridad y Practica para las Maquinas y Equipo:
- Estoy consciente que todos los dispositivos de protección deben mantenerse en lugar en el equipo apropiado.
 - Estoy consciente que debo reportar escudos ausentes o equipo que necesita reparación o que puede causar un daño a mi u otros.
 - Estoy consciente que estoy requerido de inspeccionar todas las herramientas y maquinas antes de usar el equipo.
 - Estoy consciente que puedo pedir entrenamiento de parte de mi supervisor en cualquier equipo que no sé como operar cuidadosamente.
 - Estoy consciente que si estoy inseguro de como operar mi equipo, herramientas, o maquina seguramente no debo operarla hasta que recibo el entrenamiento apropiado y siento que puedo operar el equipo seguramente.
 - Estoy consciente que cualquier equipo que necesita reparaciones o que no este conforme a las reglas de seguridad debe estar reportado.

_____ **Inicial**

- 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**

- He leído o me han explicado el Plan de Hacinamiento de Emergencia.
 - Entiendo donde las rutas de evacuación de emergencia están localizadas.
 - Entiendo que debemos reunirnos en un determinado lugar específico para poder conducir una cuenta de personas.

_____ **Inicial**

- 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**

- 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**

- 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 estación 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**

- 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**

- 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**

- 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**

- 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**

- 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**

- Estoy consciente en donde mi compañía despliega todos los Letreros Requeridos de los Derechos de Empleados.

_____ **Inicial**

- Estoy consciente de donde está la clínica de mi compañía.

_____ **Inicial**

- 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**

Yo certifico que he recibido una orientación o he leído el material mencionado y el Programa de Prevención de Lesiones y Enfermedad. Entiendo completamente el programa y no tengo mas preguntas tocante a la seguridad. En caso de que tenga una pregunta acerca de nuestro programa de seguridad o de mi seguridad personal estoy consciente que puedo pedir a mi supervisor para explicación adicional.

| | | |
|------------------------|--------|-------|
| _____ | _____ | _____ |
| Escriba Nombre | Firma | Fecha |
| | | |
| _____ | _____ | _____ |
| Testigo de la Compañía | Titulo | Fecha |

DISCLAIMER

OSHA's Safety and Health Regulations are continuously being reinterpreted. Therefore, Safety Services Company is unable to completely guarantee the exactness of the information conveyed in this publication. Safety Services Company assumes no responsibility and shall be held harmless for any inaccuracies or omissions contained within this manual and shall not be held liable to any extent or form for any injury or loss resulting from the manner in which this information is interpreted and / or applied. Careful effort has been dedicated in order to provide a simplified, understandable explanation of OSHA regulations based on currently available information. This "Safety and Health Manual is distributed with the agreement that Safety Services Company is not employed in providing legal or other specialized business services. Should expert assistance be required, retain the services of a competent professional.

SAFETY SERVICES COMPANY

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Other Safety Training Documents for:

Professional Building Services, Inc.

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 safety-and-health 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, illness, 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 workplace-safety-and-health 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 | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Our safety committee is composed of an equal number of employer and employee representatives. |
| <input type="checkbox"/> | <input type="checkbox"/> | Our safety committee is composed of an equal number of employer and employee representatives. |
| <input type="checkbox"/> | <input type="checkbox"/> | Employee representatives are volunteers or are elected by their peers. |
| <input type="checkbox"/> | <input type="checkbox"/> | 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. |
| <input type="checkbox"/> | <input type="checkbox"/> | The representatives elect the committee chairperson. |
| <input type="checkbox"/> | <input type="checkbox"/> | Representatives are paid their regular wages during safety committee training and meetings. |
| <input type="checkbox"/> | <input type="checkbox"/> | Employee representatives serve on the committee for at least one year. |
| <input type="checkbox"/> | <input type="checkbox"/> | Representatives' terms of service are staggered so that at least one experienced representative is always on the committee. |
| <input type="checkbox"/> | <input type="checkbox"/> | Reasonable efforts are made to ensure that committee representatives represent the firm's major work activities. |
| <input type="checkbox"/> | <input type="checkbox"/> | The committee meets monthly except when representatives schedule quarterly workplace inspections. |
| <input type="checkbox"/> | <input type="checkbox"/> | Committee meetings follow a written agenda. |
| <input type="checkbox"/> | <input type="checkbox"/> | The minutes for each meeting are maintained for at least three years. |
| <input type="checkbox"/> | <input type="checkbox"/> | Minutes are available to all employees to read. |
| <input type="checkbox"/> | <input type="checkbox"/> | All reports, evaluations, and recommendations are included in the minutes. |
| <input type="checkbox"/> | <input type="checkbox"/> | Management has a reasonable time to respond, in writing, to the committee's recommendations. |
| <input type="checkbox"/> | <input type="checkbox"/> | The committee has a method for collecting and reviewing employees' safety-related suggestions and reports of hazards. |
| <input type="checkbox"/> | <input type="checkbox"/> | The committee assists management in evaluating and improving the workplace safety and health program. |
| <input type="checkbox"/> | <input type="checkbox"/> | The inspection team conducts workplace inspections at least quarterly. |
| <input type="checkbox"/> | <input type="checkbox"/> | The committee's quarterly inspection team follows a standard procedure for identifying safety-and-health hazards during its inspections. |
| <input type="checkbox"/> | <input type="checkbox"/> | The inspection team includes employer and employee representatives. |
| <input type="checkbox"/> | <input type="checkbox"/> | The inspection team documents, in writing, the location and identity of workplace hazards. |
| <input type="checkbox"/> | <input type="checkbox"/> | The inspection team – or other persons designated by the committee – does quarterly inspections of satellite locations. |
| <input type="checkbox"/> | <input type="checkbox"/> | The committee has a procedure for reviewing the team's quarterly inspection reports. |
| <input type="checkbox"/> | <input type="checkbox"/> | The committee recommends to management ways to control hazards and unsafe work practices. |
| <input type="checkbox"/> | <input type="checkbox"/> | The committee makes recommendations to ensure all employees are accountable for following safe work practices. |
| <input type="checkbox"/> | <input type="checkbox"/> | The committee has a procedure for investigating workplace accidents, illnesses, and deaths. |
| <input type="checkbox"/> | <input type="checkbox"/> | Representatives understand the purpose of their safety committee and know how it functions. |
| <input type="checkbox"/> | <input type="checkbox"/> | Representatives have access to applicable OSHA safety and health rules. |
| <input type="checkbox"/> | <input type="checkbox"/> | 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:

Chair Person's Signature

Date

SAFETY COMMITTEE MEETING MINUTES

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- _____ |

Safety Committee Members Training Report: _____

Miscellaneous New Business: _____

Activity/Assignment Report:

| Description | Person Assigned |
|-------------|-----------------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

Committee Remarks: _____

Meeting adjourned: _____ Next meeting: _____
Time/date Time/date

Chair Person Signature

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 | I have read and understand this warning decision |
| First Warning (Describe reason) | |
| | |
| Date Date retrained | Employee's Signature Date |
| Second Warning (Describe reason) | Supervisor's Signature Date |
| | |
| | |
| Date Date retrained | Copy Distribution |
| Third Warning (Describe reason) | |
| | |
| | |
| Date Date retrained | <input type="checkbox"/> Employee <input type="checkbox"/> Employee's Supervisor <input type="checkbox"/> Personnel Department <input type="checkbox"/> Safety Committee |

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 Safety and Health Manual.
 - I will not be discriminated against for reporting safety concerns.

| | | |
|---------------|-----------|------|
| Employee Name | Signature | Date |
|---------------|-----------|------|

| | | |
|-----------------|-----------|------|
| Supervisor Name | Signature | Date |
|-----------------|-----------|------|

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 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | Department |
| INJURED PERSON | | | | |
| 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 | | | | |
| DAMAGED PROPERTY | | | | |
| Property, Equipment, or Material Damaged | | Describe Damage | | |
| | | | | |
| Object or Substance Inflicting Damage: | | | | |
| | | | | |
| INCIDENT DESCRIPTION | | | | |
| Describe what happened (attach photographs or diagrams if necessary) | | | | |
| | | | | |
| | | | | |
| | | | | |
| ROOT CAUSE ANALYSIS (Check All that Apply) | | | | |
| 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: | |
| PURPOSE | | |
| 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. | | |
| LOCATON OF PLAN | | |
| 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, an OSHA representative may obtain a copy of the plan from: (Name and Title) | | |
| EXIT ROUTES | | |
| Draw a diagram of jobsite or facility exit routes in space below: | | |
| | | |
| Locate meeting place or "Roll-Call" area on above diagram: | | |
| ACCOUNTING FOR EMPLOYEES | | |
| 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

OSHA 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)

| |
|--|
| PUBLIC EMERGENCY RESPONSE INFORMATION |
|--|

| |
|--|
| Ensure that 911 emergency services cover the area this Emergency Action Plan covers. |
|--|

| |
|--------------------------|
| Local Police Department: |
|--------------------------|

| |
|------------------------|
| Local Fire Department: |
|------------------------|

| |
|----------------------|
| Local Ambulance/EMS: |
|----------------------|

| |
|-----------------|
| Local Hospital: |
|-----------------|

| |
|----------------------------|
| FURTHER INFORMATION |
|----------------------------|

| |
|---|
| 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:

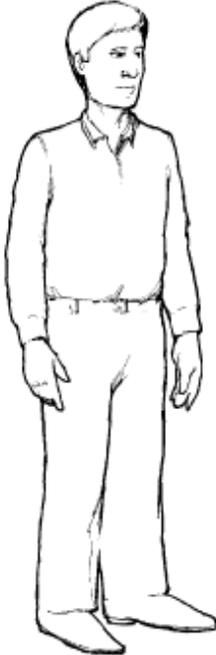
Location:

| # | Job Steps | Potential Hazards | Safe Procedures/Controls |
|---|-----------|-------------------|--------------------------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |

Job Safety Analysis

| # | Job Steps | Potential Hazards | Safe Procedures/Controls |
|-----------------------------|-----------|--------------------------------|------------------------------|
| 8 | | | |
| 9 | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |
| Equipment to be used | | Inspection Requirements | Training Requirements |
| | | | |
| | | | |
| | | | |
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| | | | |

SUSPECT and VEHICLE IDENTIFICATION SHEET

| General Appearance | |
|---|---|
| <p>Sex Age Height Weight Race Hair Eyes Complexion Scars/Identifying Marks</p> <p>Tattoos</p> <p>Clothing: Jewelry Hat Coat Shirt/Blouse Pants/Skirt Shoes/Boots Tie</p> | <p><input type="checkbox"/> Male <input type="checkbox"/> Female</p> <div style="text-align: center;">  </div> |

| Facial Appearance | Vehicle | | | | | | | | | | | | | | | | |
|---|---|----------------|----------------|-------|----------------|------------|--|----------------|--|---------|----------------|--------------|--|---------------------|--|--|--|
| <p>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</p> | <p>Write below specific details that you definitely remember.</p> <div style="text-align: center;">  </div> | | | | | | | | | | | | | | | | |
| <p>What did the suspect say?</p> | <p>Describe any weapon or tool seen.</p> | | | | | | | | | | | | | | | | |
| <p>Describe any weapon or tool seen.</p> | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Color</td> <td style="width: 15%;">Make</td> <td style="width: 15%;">Model</td> <td style="width: 15%;">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:

Action taken:

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

SEXUAL HARASSMENT COMPLAINT FORM

Please write legibly and fill out form completely. Submit completed form to appropriate management personnel.

| | |
|---|--|
| Complainant: | Alleged Harasser: |
| Department: Job Title: | Department: 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

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 Professional Building Services, Inc. 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 OSHA 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 Professional Building Services, Inc. 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 _____

Trainer's Name _____ Signature _____ Date _____

Note to employee: This form will be made a part of your personnel file. Please read and understand its contents before signing.

MSDS FORM-(CONTINUED)

| Section V—Reactivity Data | | | |
|---|-------------------------------|------------------|---------------------|
| 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 | | |
| Section VI—Health Hazard Data | | | |
| 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 | | | |
| | | | |
| Section VII—Precautions for Safe Handling and Use | | | |
| Steps to Be Taken in Case Material Is Released or Spilled | | | |
| | | | |
| Waste Disposal Method | | | |
| | | | |
| Precautions to Be Taken in Handling and Storing | | | |
| | | | |
| Other Precautions | | | |
| | | | |
| Section VIII—Control Measures | | | |
| 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 | | | |
| | | | |

