

Personal Protective Equipment

A Sample Program and How to Conduct a Hazard Assessment 2004

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For 2001, The U.S. Bureau of Labor Statistics reported the following for Private Industry:

- 99,500 Head Injuries
- 44,800 Eye Injuries
- 123,500 Finger Injuries
- 63,700 Hand Injuries
- 16,400 Toe Injuries
- 51,700 Foot Injuries

Many of these injuries could have been prevented if the employer had conducted a Personal Protective Equipment (PPE) Hazard Assessment, provided PPE, and enforced rules regarding employee use of PPE.

PPE is considered a worker's last line of defense when it comes to workplace hazards. For PPE to be effective it must fit properly and be worn correctly every time, otherwise the worker could be injured.

DEVELOPING A PROGRAM

- Each company should carefully review their injury and accident history to identify trends. Often it is

necessary to look at three or more years worth of injuries to identify trends.

- Conduct a workplace Hazard Assessment using the enclosed guide. Identify engineering controls first and PPE second.
- Involve workers and their supervisors in the Hazard Assessment. This is the perfect time to address concerns and get buy-in for the program.
- Document the Hazard Assessment in a way that is easy for workers and supervisors to understand so that it can be used as a training tool.
- Post PPE rules, based on the Hazard Assessment, in each work area.
- Provide PPE for each worker who will be required to wear it. PPE should protect against the identified hazard, be comfortable, and be clean.
- Train workers and supervisors on the PPE that is required in their work areas, how to wear it, and how to maintain it.
- *A sample written PPE Program is included on p. 9-10.*

CONDUCTING THE HAZARD ASSESSMENT

- Decide how to assess your workplace: by department, task, job classification, or process. *See examples on p. 6-7.*
- Involve supervisors and employees in identifying hazards and controls.
- Identify hazards one at a time by stepping through the activities of each person or task. *A list of hazards to look for is on p. 3-4.*
- If a hazard can be controlled or removed so that PPE is not needed, that is the best solution. Document these controls in the hazard assessment.
- If the hazard cannot be controlled or removed, decide on appropriate PPE. Consider the type of injury that could occur and how severe it could be. Then decide if PPE is mandatory or optional. *A PPE Selection Guide is on p. 5.*

OSHA requires separate programs for respirator use and noise exposure. Please seek assistance from an industrial hygienist if employees are exposed to inhalation or noise hazards.

This sample program is not intended to be a legal interpretation of the provisions of the *Occupational Safety and Health Act of 1970*. *It is intended to be used as a guide for employers developing their own Personal Protective Equipment Program.*

Frequently Asked Questions

Q If I document my employee training on PPE, will that protect me against being cited by OSHA?

A Not necessarily. Just documenting that you have trained an employee is not a guarantee of compliance. You must verify the adequacy of your training efforts by getting the employee to demonstrate their understanding. OSHA's philosophy is that whenever an employee is observed performing his or her job in an unsafe manner, some lack of training (or lack of understanding of training) is often the root cause of the problem.

Q What is meant by "Limitation of PPE"?

A If you have ever looked in a catalogue of safety equipment, you will notice that there is a huge variety of PPE on the market and not all PPE is created equal. For instance, safety glasses are designed to prevent flying particles from damaging the eyes. They are not intended to protect the eyes from chemical mists or splashes. Chemical resistant gloves are manufactured from many different barrier materials and come in different thicknesses. There is no one glove that is protective against every chemical. Gloves must be selected based on the types of chemicals used and type of chemical exposure anticipated (splash vs. submersion). It is important to get information from the manufacturer about their product: what it was designed for, ANSI specifications the product meets, and limitations of the product.

Q Who pays for PPE? Can I provide PPE to my employees at a reasonable charge or require them to go purchase PPE?

A The "worker-provided" clause in the general industry PPE standard, (1910.132(b)), and also in the construction industry standard, 1926.95(b), has raised questions as to when employers are required to pay for PPE, as well as "provide" it.

In order to accommodate those work situations where it is customary for workers to provide their own PPE without compromising employee protection, the standard specifies that the employer must **assure the adequacy** of employee-provided equipment.

The PPE standard requires employers to provide and to pay for personal protective equipment required by the company for the worker to do his or her job safely and in compliance with OSHA standards. Where equipment is **personal in nature and may be used by workers off the job**, the matter of who pays for the PPE may be left to labor-management negotiations.

Examples of PPE not normally used away from the worksite include, but are not limited to:

- welding gloves
- wire mesh gloves
- respirators
- hard hats
- specialty glasses and gloves (designated for laser or UV protection)
- specialty foot protection (metatarsal shoes and linemen's shoes with built in gaffs)
- face shields and rubber gloves,
- blankets,
- cover-ups,
- hot sticks and other live-line tools used by power generation workers.

Examples of PPE that is personal in nature and often used away from the worksite include:

- non-specialty safety glasses
- safety shoes
- cold weather outer wear.

However, shoes or outerwear subject to contamination by carcinogens, or other toxic or hazardous substances, which cannot be safely worn off-site must be paid for by the employer.

Q If our employees work with heavy materials which could possibly cause, say, foot injuries, but we have never had a foot injury in the past, do we have to provide foot protection?

A Injury and accident data should be reviewed to identify problem areas. However, even with no prior injury history, an employer must protect employees from hazards which are "likely to be present". Your foot hazard evaluation might address: (1) what weights are involved? (2) What would be the maximum falling distance and force transferred to the foot if materials were dropped? (3) What would be the likely outcome? (4) Have your employees experienced any "near-miss" accidents? (5) Is there something about your method of materials handling which explains your good record and is this something that you can ensure will always be in place? This is all a part of evaluating risk and coming to a decision.

Q Must all safety glasses be equipped with side shields?

A No. Side protectors are required when it is determined that there is a hazard from flying objects.

Q Are detachable side shields acceptable?

A Yes, if they meet the requirements of 29 CFR 1910.133.

Q Is it ok to wear contact lenses with eye protection?

A Yes. Contact lenses do not pose additional hazards to the wearer. However, contact lenses themselves are not eye protectors.

Q Does the Hazard Assessment have to be in writing?

A Yes. You must identify the workplace that was evaluated, the person(s) certifying that the evaluation was performed, and the date of the assessment.

Getting Started - Evaluate a Minimum of Seven Hazard Categories

Impact/Collision

Motion hazards. Identify processes where the movement of tools, machine elements, etc. may injure employees. Impact/Collision sources could involve:

- moving machine elements
- moving or automated tools
- motorized truck or other vehicular activity
- flying particulates
- personnel traffic in congested areas
- objects placed on elevated surfaces
- falling or dropped materials
- breakable materials and those that could shatter
- unstable/unsecured equipment or materials
- tasks involving impact
- heavy or oversized items handled or transported
- low overhead clearance zones

Penetration

Identify sources which may expose employees to penetration hazards. Penetration sources could involve:

- power and impact tools
- sharp or breakable materials
- sharp-edged equipment
- cutting tools
- compressed air
- flying particulates
- animal, insect hazards

Compression

Roll-over type hazards. Identify rolling or pinching sources which would most likely involve the feet or hands. Compression hazard sources could involve:

- rounded or tubular materials
- stacked materials
- vehicular activity
- falling/dropped materials

Chemical

Identify various types of chemical exposures that could cause external and/or internal body damage. Sources of chemical hazards could include:

- flammable materials
- acid/alkali materials
- poison/toxic materials
- carcinogenic materials
- irritating substances
- sources of splashing or aerosols
- skin-absorptive substances
- chemically-treated materials being handled
- gases used/generated
- sources of heating/combustion
- sensitizing agents
- hot work
- dipping processes
- chemical mixing

Heat

Identify high temperature sources that could result in burns, eye injury or ignition of clothing, PPE, etc.

Hazards arising from heat sources could involve:

- hot work
- heated chemicals or water
- heat treating processes
- open flames or heated elements
- molten materials
- extrusion/heat forming processes
- heat build-up from friction, electrical resistance, etc.

Harmful Dust

Identify sources of dust hazards which could result in injury to the respiratory system or pose other systemic hazards. Sources of harmful dust could involve:

- grinding/chipping operations
- sanding/polishing operations
- cutting operations
- blasting
- molding processes
- compressed air use
- animal/biological sources
- raw materials in particulate form

Light (Optical) Radiation

Identify sources of light radiation which could result in injury to the eyes and/or other exposed areas of the body. Sources of light/optical radiation hazards could involve:

- hot work (welding, brazing, etc.)
- furnaces
- heat treating
- high intensity lights
- high glare
- lasers
- curing processes involving light energy

GUIDE TO PPE SELECTION (Not All Inclusive)

| BODY PART | HAZARD | PPE | |
|--|--|---|---|
| HEAD | <ul style="list-style-type: none"> Falling or Flying Objects Bumping on Fixed Object Electric Shock | Hard Hats (Class A, B, or C) <i>Conform to ANSI Z89.1 and Z89.2</i> | |
| FACE | <ul style="list-style-type: none"> Flying Objects Splashing Chemicals | Face Shield <i>Conform to ANSI Z87.1</i> | |
| EYES | <ul style="list-style-type: none"> Flying Particles Molten Metal | Safety Glasses or Face Shield <i>Conform to ANSI Z87.1</i> | |
| | <ul style="list-style-type: none"> Chemical Splash or Spray Chemical Burns (Acids or Caustics) Chemical Gases or Vapors | Chemical Goggles or Safety Glasses and Face Shield <i>Conform to ANSI Z87.1</i> | |
| | <ul style="list-style-type: none"> Light Radiation | Filtered/Shaded Goggles or Face Shield <i>Conform to ANSI Z87.1</i> | |
| EARS Separate OSHA Program: 1910.95 | <ul style="list-style-type: none"> Average noise level for 8-hour shift is at or above 85 dB_A | Hearing Protection Required until Employee has Baseline Audiogram | |
| | <ul style="list-style-type: none"> Average noise level for 8-hour shift is at or above 90 dB_A | Plugs Muffs Caps <i>The higher the Noise Reduction Rating (NRR) the greater the protection.</i> | |
| TORSO | <ul style="list-style-type: none"> Heat (Burns) Hot Metal Splash Flammable Materials | Vests Jackets Aprons Coveralls Full Body Suits | Leather Aluminized Fabric |
| | <ul style="list-style-type: none"> Impacts, Cuts | | Duck Cloth Steel Mesh |
| | <ul style="list-style-type: none"> Radiation | | |
| | <ul style="list-style-type: none"> Chemical Splash | | <i>Refer to Manufacturer Chemical Compatibility Charts</i> |
| | | | |
| HAND/ARM | <ul style="list-style-type: none"> Burns | Gloves <i>Many Materials, Lengths, and Thicknesses Available</i> | Leather |
| | <ul style="list-style-type: none"> Cuts | | Leather Steel Mesh |
| | <ul style="list-style-type: none"> Electric Shock | | Rubber |
| | <ul style="list-style-type: none"> Chemical Spray or Splash | | <i>Refer to Manufacturer Chemical Compatibility Charts</i> |
| FOOT/LEG | <ul style="list-style-type: none"> Falling Objects | Safety Shoes Leggings <i>Conform to ANSI Z41</i> | Safety Toed Boots |
| | <ul style="list-style-type: none"> Rolling Objects | | Safety Toed Boots with Metatarsal Guards |
| | <ul style="list-style-type: none"> Sharp Objects | | Puncture-Resistant Soles |
| | <ul style="list-style-type: none"> Wet, Slippery Surfaces | | Non-Skid Soles |
| | <ul style="list-style-type: none"> Molten Metal | | Leather Leggings |
| LUNGS Separate OSHA Program: 1910.134 | <ul style="list-style-type: none"> Fumes, Particles, Mists Vapor Inadequate Oxygen Toxic Gases | NIOSH Approved Respirators | N-95, P-100 Half or Full-Face w/ Cartridges Supplied Air SCBA |

HAZARD ASSESSMENT DATA SHEET –Based on Evaluation of Each Piece of EQUIPMENT in a Shop

EXAMPLE

| DEPARTMENT / JOB / EQUIPMENT / PROCESS | PARTICIPANTS IN ASSESSMENT | DATE |
|--|--|---------|
| SHOP | Safety Coordinator Supervisor Ted N. Monty P. | 8/25/03 |

| EQUIPMENT | HAZARDS | LEVEL OF RISK (LOW/MED/HIGH) | ENGINEERING CONTROLS | PPE | | COMMENTS |
|--|--|---------------------------------|--|------------------------------------|----------|---|
| | | | | REQUIRED | OPTIONAL | |
| Grinding Wheel | Flying Particles | Medium | Work rest and tongue guard adjusted properly | Safety Glasses or Face Shield | X | |
| Parts Washer | Chemical Contact (Specify Chemical) | Medium | Hold part with tongs | Nitrile Gloves | X | Only required if not using tongs |
| Welding | UV Flash Radiation | High | Flash Curtains | Shade "X" Face Shield | X | |
| Welding | Hot Surfaces, Sparks, Hot Particles | High | Flash Curtains, Remove combustible materials from area | Leather gloves, jacket, and boots. | X | |
| Overhead Crane | Falling Objects | Medium | Crane and Rigging Gear is Maintained | Hard Hat | X | |
| Moving Heavy Parts | Falling Objects | Medium | Hand Truck, Overhead Crane, Drum Cart | Safety Toed Boots | X | Foot injury in shop last year |
| Compressed Air Cleaning | Injected Particles | Low | Safety Nozzles | | | Never aim compressed air at self or others! |
| Compressed Air Cleaning | Flying Particles | High | Vacuum or Hose-down area with water | Safety Glasses or Face Shield | X | |
| Welding (Specify type of welding, metals, flux) | Metal Fumes | Low | Local Exhaust Ventilation System (regular P/M) | | | Air monitoring results came back "OK" |
| Welding, Air Compressor, Tools | Noise | Low | Regular preventive maintenance (P/M) on compressor | Ear Plugs | | X Noise monitoring results "OK" |

HAZARD ASSESSMENT DATA SHEET –Based on Evaluation of Each Piece of EQUIPMENT in a Shop

EXAMPLE

| DEPARTMENT / JOB / EQUIPMENT / PROCESS | PARTICIPANTS IN ASSESSMENT | DATE |
|--|--|---------|
| Production Floor Welding Shop Paint Booth Sanding Table | Safety Coordinator Supervisor Ted N. Monty P. | 8/25/03 |

| EQUIPMENT | HAZARDS | LEVEL OF RISK (LOW/MED/HIGH) | ENGINEERING CONTROLS | PPE | | | COMMENTS |
|------------------|---|---------------------------------|---|--|-------------|----------|--|
| | | | | | REQUIRED | OPTIONAL | |
| Production Floor | Industrial Environment with flying particles, dust, metal chips, slag | Medium | | Safety Glasses; all employees and visitors | X | | |
| Welder | UV/IR/Visible Light Burns Crushing from Steel Stock Welding smoke, fume | High | Weld Curtains Mechanical Ventilation | Welding Helmet Leathers (gloves, jacket) Steel Toed Boots N95 disposable respirator | X X X | X | Air sampling confirms no over-exposures to metal fumes |
| Painter | 2 component paint; inhalation of solvents/catalyst vapors; skin contact, overspray, fire and/or explosion | High | Spray Booth with fire suppression system and ventilation; fire extinguisher | Full Tyvek Suit including hood, booties, gloves; N100 full face organic vapor respirator | X X | | |
| Sander | Flying particles/dust; inhalation of toxic hard & softwood dusts; skin abrasion/irritation | Medium | Downdraft exhaust table | Safety Glasses N95 Disposable Respirator Cloth Work Gloves | X X | X | Air sampling confirms no overexposures to paint vapors |

EXAMPLE

<<COMPANY NAME>> PERSONAL PROTECTIVE EQUIPMENT PROGRAM

POLICY

It is the policy of <><> COMPANY NAME <><> to identify and control (or eliminate) hazards in our workplace. When this is not feasible, Personal Protective Equipment, PPE, will be provided to employees.

Employees are expected to wear the PPE required for their job and keep it in good condition. Employees must report damaged or inadequate PPE to their supervisor immediately so that it can be replaced.

Supervisors are required to set a good example by wearing the PPE required in their Department. Supervisors will work with <><> SAFETY COORDINATOR <><> to purchase comfortable PPE that fits the employees in their department. Supervisors will encourage employees to look out for themselves and their co-workers.

PURPOSE

<><> COMPANY NAME <><> conducted a hazard assessment of our workplace on <><> DATE <><>. We have guarded the equipment that could be guarded and replaced toxic chemicals with less toxic alternatives where it was feasible. PPE has been assigned for those areas or tasks where engineering and administrative controls could not fully remove the hazards. The Hazard Assessment is located in/on <><> LOCATION <><>.

SCOPE

This program applies to all employees who are exposed to physical and/or chemical hazards in our workplace. The following departments are included:

- <><>LIST OF
- DEPARTMENTS
- OR JOB TITLES<><>

GENERAL PROCEDURES

PPE Rules are posted in each department.

Each department Supervisor is responsible for notifying the <><> SAFETY COORDINATOR <><> when equipment, chemicals, or procedures change in their department so that the Hazard Assessment, and PPE Rules, can be updated.

TRAINING & RETRAINING

Employees and supervisors will receive training on the PPE used in their departments when they are hired. Retraining will be given when:

- PPE is not worn according to our rules,
- When a task, equipment, or procedure changes in their department, and
- When an accident or near-miss indicates a need.

ENFORCEMENT

Enforcement is necessary to make sure workers do their part in protecting their own safety.

- Supervisors will enforce proper use of PPE in their department.

- Enforcement of safety rules shall be fair and uniform.
- Failure to comply with our PPE rules will result in disciplinary action (up to and including termination).

OUTSIDE PERSONNEL

Guests and Volunteers are expected to follow our PPE rules. PPE can be obtained for them at <><> LOCATION OF VISITOR PPE <><>. Guests (or volunteers) will not be allowed in the following areas because of the hazardous nature of our work:

- <><> BULLET LIST OF RESTRICTED AREAS <><>.

Contractors will follow our PPE rules. When Supervisors hire a contractor they will inform them what PPE is required so they can bring it with them. Alternatively, the supervisor will provide the PPE we require to the contractor.