Developing a Personal Protective Equipment (PPE) Program

Table of Contents

Guidelines for developing a PPE Program……3

Guidelines for conducting a hazard assessment……4

Selection of personal protective equipment (PPE)……..6

Employee training and verification……7

Model PPE Program……8

Appendix I……10

Appendix II…… 13

Appendix III …… 19

Guidelines for Developing a Personal Protective Equipment (PPE) Program

The Occupational Safety and Health Administration (OSHA) requires employers to protect their employees from workplace hazards such as machines, work procedures, and hazardous substances that can cause injury or illness. When all other means of protection are not effective, the use of PPE is sometimes the preferred means of protection. Any time PPE is used by employees the employer is required to maintain a PPE Program outlining how the use of PPE will protect the employees from the recognized hazards.

Southern Illinois University Carbondale (SIUC) is dedicated to providing a safe and healthful workplace for all employees and students and strives to comply with all governmental regulations. The Center for Environmental Health and Safety (CEHS) facilitates this process by providing developmental guidance and model programs to assist individual units in maintaining the highest level of safety.

The PPE Program consists of three main issues:

1. Hazard assessment of the workplace and procedures (identifying hazards and determining which PPE will protect the employee)

2. Employee training (when PPE is required, proper use of PPE, limitations, cleaning and storage)

3. Written verification of hazard assessments and employee training.

Guidelines for Conducting a Hazard Assessment

Employers are required to assess the workplace to determine if hazards that require the use of personal protective equipment are present or are likely to be present. The following information will aid in the hazard assessment process.

1. Use the Hazard Assessment Checklist & Selection of PPE form (appendix I in the model PPE Program) to identify hazards.

2. Conduct a walk-through survey of the workplace and enter gathered information on the Hazard Assessment Checklist. The purpose of the survey is to identify sources of hazards to workers.

3. Basic hazard categories include, but are not limited to:
    a. Impacts
    b. Harmful dust
    c. Light (optical radiation)
    d. Penetration
    e. Compression (roll-over)
    f. Chemical
    g. Material Handling Energized equipment
    h. Heat

4. During the walk-through, you can identify sources of hazards by looking for:
    a. Sources of motion that could result in workers hitting or being hit by objects
    b. Sources of high or low temperatures that could result in burns
    c. Types of chemical exposures
    d. Sources of harmful dust
    e. Sources of light radiation such as welding
    f. Sources of falling objects or potential of dropping objects
    g. Sources of sharp objects that might pierce the feet or cut the hands
    h. Sources of rolling or pinching objects that could crush the feet
    i. Electrical hazards
    j. Biological hazards

5. Equipment to observe include:

a. Atmospheric conditions (dusts, gases, fumes, vapors, illumination, etc.)
b. Pressurized equipment (boilers, pots, tanks, piping, hosing, etc.)
c. Containers (storage areas and means of storage)
d. Hazardous supplies and materials (flammables, explosives, gases, acids, caustics, toxic chemicals, etc.)
e. Buildings and structures (condition and layout of floors, doors, stairs, etc.)
f. Electrical conductors and apparatus (wires, switches, etc.)
g. Engines and motors
h. Machinery (grinders, drilling machines, cutters, etc.)
i. Hand tools (tools, including portable power tools)
j. Ground conditions (in outside areas)
k. Elevated work areas (risks of falls)
l. Water depth (hazards for water samplers)

Selection of Personal Protective Equipment (PPE)

Once the hazards of the workplace have been identified, the supervisor must determine the suitability of the PPE presently available and, as necessary, select new or additional equipment that ensures a level of protection greater than the minimum required to protect the employees from the hazards. Careful consideration must be given to comfort and fit of PPE to ensure that it will be used. Offering employees a variety of styles and sizes of PPE to wear has been shown to help obtain buy-in for PPE use.

PPE must conform to updated American National Standards Institute (ANSI) standards that have been incorporated into the OSHA regulation.

Employee Training and Verification

Before doing work requiring use of personal protective equipment, employees must be trained to know: when personal protective equipment is necessary; what type is necessary; how it is to be worn; and what its limitations are, as well as know its proper care, maintenance, useful life, and disposal. (Appendix II is provided for this purpose).

Employers must certify in writing that training has been carried out and that employees understand it. Each written certification shall contain the name of each employee trained, the date(s) of training, and identify the subject certified. (Appendix III is provided for this purpose).

Employers must also certify in writing that a workplace hazard assessment has been performed. (Appendix I meets this requirement).

CEHS will answer questions or provide assistance with any part of the PPE Program development. You can reach a CEHS safety officer by calling 453-7180.

The following model PPE Program can be modified and used by SIUC units where employees are required to use PPE to protect themselves from workplace hazards. This program does not pertain to the use of respirators or hearing protection where the 8 hour exposure to noise averages 85 decibels or more. OSHA requires a specific program for respiratory protection and hearing conservation.

Model Personal Protective Equipment (PPE) Program

Center for Environmental Health and Safety – Southern Illinois University Carbondale (November 2001)

The SIUC (Administrative unit) requires employees to wear PPE after a hazard assessment indicates PPE is the preferred protection against known or identified potential hazards. Employees using PPE are first trained in its proper use, limitations, when it is necessary, how to clean, inspect for damage and storage.

A hazard assessment checklist is used to determine the existence of unsafe conditions and the type of threat the condition poses to our employees. The department first tries to eliminate hazards by modifying the workplace or changing work procedures, but when this is not possible we must use PPE for protection. The checklist also assists in the determination of which PPE is necessary to protect against each hazard. The checklist provides the required documentation that a hazard assessment was performed. Each checklist is maintained in our records until it is replaced by a more current assessment performed anytime conditions or procedures are changed.

Before doing work requiring use of personal protective equipment, our employees are trained to know: when personal protective equipment is necessary; what type is necessary; how it is to be worn; and what its limitations are, as well as know its proper care, maintenance, useful life, and disposal. In many cases, more than one type of personal protective equipment will provide adequate protection. In those instances, our employees are given a choice.

This department maintains verification in writing that training has been carried out and that employees understand it. Each written certification contains the name of each employee trained, the date(s) of training, and identifies the subject certified.

The following Appendices are provided as tools for conducting this PPE Program:

1. Appendix I - Hazard Assessment Checklist & Selection of Personal Protective Equipment (PPE) Form

2. Appendix II - Personal Protective Equipment (PPE) Program Training Guide

3. Appendix III - Verification of Training For Personal Protective Equipment (PPE) Use

APPENDIX I

Hazard Assessment Checklist & Selection Criteria for use of Personal Protective Equipment (PPE)

Department: _____

Building: _____Room Number: _____

Supervisor: _____Date: _____

Task Evaluated: _____

Performed by: _____

Title: _____

Departments should use only the PPE assessments that apply to their activities. If you have questions about this form or performing a walk-through survey, please contact CEHS at 453-7180.

EYE AND FACE PROTECTION

Hazards to Consider	Required PPE
1. Splash/splatter/spray of chemicals or biological materials	Chemical goggles or safety glasses with side shields covered by a full-face shield.
2. High pressure cleaning or spraying	Safety glasses with side shields or safety glasses covered by a full-face shield.
3. Grinding/drilling – any flying particles or projectiles	Goggles or safety glasses with side shields.
4. Power tools (air or electrical)	Safety glasses with side shields.
5. Typical laboratory – chemical splash	Chemical goggles or safety glasses with side shields covered by a full-face shield.
6. Acetylene welding, cutting, burning, molten metals	Cutting goggles with appropriate filter lens numbers.
7. Arc Welding and cutting	Safety glasses with side shields and welding hood with appropriate filter lens numbers

8. Chipping, grinding or machining – flying particles	Goggles, safety glasses with side shields or face shield (face shield required for heavy grinding)
9. Other identified hazards	May consult with CEHS for assistance in identifying appropriate PPE.

HAND AND ARM PROTECTION

Hazards to Consider	**Required PPE**
1. Handle caustic or acidic chemicals	Contact CEHS chemical@cehs.siu.edu and indicate choice
2. Handle tools or materials likely t cause scrapes, cuts or bruises	Circle PPE choices for your operation: metal mesh, leather, canvas, Kevlar material or cloth.
3. Extreme heat/cold	Circle glove choice for your operation: leather, aluminized, arm protection or other:
4. Exposure to exposed high voltage electrical wiring, etc	Electrical insulating rubber gloves per electrical safety specifications.

FOOT, LEG AND BODY PROTECTION

Hazards to Consider	**Required PPE**
1. Hazards to feet related to sharp or heavy objects/equipment	Circle PPE choices for your operation: Metatarsal guards, toe guards, combination foot-toe guards, safety shoes.
2. Chemical mixing, molten metal, cryogenic materials/gases	Circle PPE choices for your operation: Leggings, metatarsal guard, combination foot shin guard, chemical splash apron, chemical resistant boots, laboratory coat, or coveralls.
3. High voltage	Safety shoes and other:
4. List other hazards identified	Specify PPE:

HEAD PROTECTION

Hazards to Consider	Required PPE
1. Work under elevated work platforms, suspended loads or low overhead clearance	Hard hats

HEARING PROTECTION

Hazards to Consider	Required PPE
1. Exposed to load noise from machines, tools, music systems, etc. CEHS can conduct noise monitoring to identify sound levels. Levels above 85 dBA require PPE and a written “Hearing Conservation Program”. (High noise levels, even if 8 hour time weighted average is below 85 dBA, may require the use of PPE	Ear muffs or ear plugs with sufficient noise reduction rating to lower exposure below 85 dBA.

RESPIRATORY PROTECTION

If respiratory PPE is required to protect employees from respiratory hazards, the employer must implement a respiratory protection program that meets the requirements of OSHA’s respiratory protection standard, 29 CFR 1910.134. CEHS will assist campus units with this task upon request. A model respiratory protection program is available on the CEHS website.

APPENDIX II

Personal Protective Equipment (PPE) Program Training Guide

Training: The Use and Care of Eye and Face Protection Equipment

Appropriate eye and face protection such as safety glasses, goggles, and face shields, must be used to protect against the hazards associated with flying particles, molten metal, liquid chemicals, acids and caustic liquids, chemical gases and vapors, or potentially injurious light radiation from welding or laser operations.

Employees must be trained to know the following:

1. Why eye protection is necessary;
    a. The PPE Checklist has identified workplace hazards requiring eye protection. Protection must be worn when there is a potential for injury to the eyes or face from flying particles, molten metal, liquid chemicals, vapors, or gases, radiant light, or any combination of the above.

2. How eye protection will protect the wearer;
    a. The use of ANSI approved eye protection will protect you against eye injuries by creating a barrier between your eyes and the hazard.

3. What the limitations are of the eye protection;
    a. Safety glasses will not stop all projectiles and may not catch dust or liquid splashes. Using chemical or safety goggles protects against these exposures.

4. How to put the protective eyewear on properly for comfortable and effective fit;
    a. Protective eyewear must fit closely to the eye and/or face to prevent particle or liquid entry into the eyes. They must be tight enough not to fall off but must be comfortable. Protection should be adjusted to provide maximum protection to the areas being protected. Goggles can be worn over glasses and can be vented or non-vented depending upon the hazard. Contact lens wearers should be aware that dirty and/or chemical environments may present additional hazards. Chemical vapors can penetrate the lens causing damage to the eye. Proper eye protection

should always be utilized instead of or in conjunction with contact lenses.

5. How to identify signs of wear;
    a. When eye protection becomes chipped, scratched, scraped, or the headband has lost its elasticity or is fraying, it should be replaced. Pits or scratches may affect the impact resistance of the lens or the frame. Wearers should inspect eye and face protection before wearing and replace any defective equipment.

6. How to clean and disinfect safety eyewear;
    a. Eye and face protection should be kept clean utilizing the manufacturer's recommended cleansing procedures. Lenses of the eye protection must be kept clean. Daily inspection and cleaning of eye protection with soap and warm water or with a cleaning solution and tissue is recommended.

Training: The Use and Care of Hand and Arm Protection Equipment

Hand and arm protection is required when the risk of injury from cuts/punctures, burns, chemicals, electrical shock, human blood or body fluids, or abrasive material cannot be engineered out of the workplace. There is not a single type glove that will provide adequate protection from all exposure. Follow the manufacturer's recommendation for hazards each type glove will protect against.

Employees must be trained to know the following:

1. Why and when hand and arm protection is necessary;
    a. Protection is required when a work activity may present an exposure to the employee from skin contact or absorption of a harmful substance, extreme heat or cold, burn, cut, puncture, or abrasion. Different gloves must be provided for each type of exposure. Durable work gloves made of metal mesh, coated fabric material or other mesh material may be used for cut resistance. Leather, canvas or other cloth material may be used for protection against abrasions or heat. Chemical and liquid resistant gloves must be referenced from manufacturer's information.

2. How to identify signs of wear for replacement;

a. Gloves that are torn, split or otherwise damaged should not be worn. Loose gloves may not be worn around moving machinery or where there is a possibility of getting a glove caught in moving equipment. Gloves that have become discolored may be past their useful life. Consult the manufacturer's specification and instructions for replacement of gloves.

3. How to clean, disinfect, dispose of gloves and sleeves;
    a. Follow manufacturer's recommendation for cleaning, inspecting, and storing gloves or sleeves. For gloves that have been in contact with hazardous chemicals, pesticides, body fluids or other contaminate, consult your hazardous waste disposal guide or contact CEHS for disposal instructions.

Training: The Use and Care of Foot and Leg Protection Equipment

Foot and leg protection is required when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects that may pierce the sole of the shoe or where an employee's feet are exposed to electrical hazards. Leggings may be required where there is the possibility of burns form extremely cold or hot materials.

Employees must be trained to know the following:

1. Why foot and leg protection is necessary;
    a. Areas of the workplace may require the use of foot protection because work activities require the handling or moving of heavy, sharp, cold or hot material that may fall on the foot or leg.

2. When protective footwear or leggings should be worn;
    a. Steel-toe shoes or protective shoe caps should be worn when lifting or transporting objects at or above floor level which weigh more than 50 pounds or are heavy sharp objects that may penetrate a shoe if dropped on the foot. If there is an exposure to electrical shock, appropriate nonconductive footwear should be worn.

3. How to identify signs of wear;
    a. As with all protective equipment, shoes and leggings should be inspected for signs of cracks in the material,

shoes should not have holes or separations between the shoe upper and sole. Replace broken straps, laces, and buckles. Metal embedded in the soles may render the shoes unacceptable if there is an electrical exposure.

4. How to clean and maintain the leg and foot protection;
    a. Follow manufacturer's recommendation on cleaning and preserving safety equipment.

Training: The Use and Care of Head Protection Equipment

Head protection is required when working in an area with the potential of an object falling and hitting the head, in low head clearance areas, and where there is a significant electrical shock exposure to the head. Helmets must meet American National Standard for Personal Protective Headwear of Industrial Workers, ANSI-Z89.1 standards and be labeled with an ANSI certification. Class A or Class B helmets are the only class of helmets acceptable at SIUC. These helmets offer identical impact and penetration protection. The Class A helmet is rated for protection against electrical shock up to 600 dc volts; and the Class B helmet is rated for electrical protection above 600 dc volts.

Employees must be trained to know the following:

1. Why and when head protection is necessary;
    a. Head protection is required to protect the head from falling objects, low clearance areas, and electrical shock. Protection must be worn when working under other employees or when operations are being conducted overhead of your work area or when working with electrical connectors that may come into contact with the head.

2. How head protection will protect them;
    a. Class A and B helmets are constructed with an outer shell and inside suspension system that cradles the head and is designed to withstand impact and penetration forces of 8 pounds. They also offer electrical shock protection to the head.

3. How to adjust straps or other parts of the suspension for a comfortable and effective fit;

a. Follow manufacturer information on how to tighten the headband to achieve a proper fit for the helmet. Most suspension systems do not allow for adjustments but if provided, maintain the required distance between the webbing and the shell of the helmet. Do not use suspension systems from other manufacturers and do not turn system around to allow hat to be worn other than as specified by the manufacturer.

4. How to identify signs of wear;
    a. Inspect the shell for cracks, dents, cuts, holes, burns, or other material damage. Inspect the webbing, headband, and suspension attachment points for signs of cuts, tears, and frayed material.

5. How to clean the hard hat;
    a. Follow the manufacturer's recommendation for cleaning procedures. Most manufacturers recommend using soap and water only.

Training: The Use and Care of Hearing Protection Equipment

You must train the employee to know the following:

1. Why hearing protection is necessary (i.e., the workplace hazards)

2. How the earplugs or earmuffs will offer protection

3. The limitations of hearing protection devices

4. Procedures to insert or wear hearing protectors

5. How to adjust earmuffs for a comfortable and effective fit

6. How special earmuffs can fit over an employee's corrective lenses

7. How to clean and disinfect hearing protection equipment
    a. If employees are exposed to noise in excess of 85 decibels averaged over an 8 hour work shift, then the employer must have a Hearing Conservation Program in place to

protect the employees from potential hearing loss. For more information, contact CEHS at 453-7180.

Respiratory Protection

Respirator Usage is regulated by OSHA and employers requiring the use of any type of respirator must have a Respiratory Protection Program. CEHS can assist with the development of health and safety plans and programs upon request. Many specific plans are already provided as a model for campus units to adapt to their specific purposes. These plans can be accessed from the CEHS website or call 453-7180 for assistance.

APPENDIX III

Southern Illinois University
VERIFICATION OF TRAINING FOR PERSONAL PROTECTIVE EQUIPMENT USE

I, _____ have received and understand the material presented concerning a job hazard assessment and personal protective equipment (PPE) requirement for protection. My training included a discussion that included the following:

1. What PPE must be worn in this workplace,
2. When PPE must be worn,
3. How to inspect PPE for wear and damage,
4. How to put on, make fit, and take off PPE,
5. What the limitations of the PPE is,
6. How to properly store and clean PPE,
7. How to properly dispose of the PPE.

I have been afforded the opportunity to ask questions about the use of PPE and I have had a “hands on” exercise using this PPE properly.

Employee Signature:

_____

Trainer/Supervisor:

_____

Date:

_____