

CHAPTER 1 PERSONAL PROTECTIVE EQUIPMENT

1.1 INTRODUCTION

This chapter defines the requirements for PPPL employees using personal protective equipment (PPE).

Electrical protective equipment and insulating tools are mandated in Section 2 of this manual. Personal protective equipment shall be required where there is a reasonable probability that injury can be prevented by such equipment. In such cases, PPPL will make conveniently available a type of protector suitable for the work to be performed, and employees shall use such protectors. No unprotected person shall knowingly be subjected to a hazardous environmental condition. Suitable protectors shall be provided where machines or operations present chemical or physical hazards including ionizing and non-ionizing radiation. Respiratory protection equipment is discussed in ES&HD 5008, Section 8, Chapter 7. Noise control and hearing conservation are discussed in ES&HD 5008, Section 8, Chapter 8.

1.2 SCOPE

This chapter applies to all PPPL personnel engaged in work for which personal protective equipment is required or good common sense dictates its use. Emergency Services and Occupational Medicine are regulated by standards appropriate to those fields and which provide detailed descriptions of personal protective equipment necessary to perform their duties safely. Where these standards are specific, they shall supersede the requirements of this document.

1.3 DEFINITIONS (RESERVED)

1.4 RESPONSIBILITIES

1.4.1 Employee - Obtains and wears personal protective equipment when required. Relies only on equipment that is in safe condition, and returns unsafe or questionable equipment to the source of issuance. If the need for a specific type of equipment is questionable, employees shall request guidance from their supervisor or the ES&H Division.

1.4.2 Supervisor - Plans operations and controls work environment to minimize the need for personal protective equipment. Contacts the ES&H Division for determining the need and type of protective equipment. Ensures that issued equipment is in good repair and is used properly. Sets an example for their area, by using proper protective equipment. Since personal protective equipment (PPE) is funded by the supervisor's budget, the supervisor must ensure compliance with frequency requirement and the need for the PPE.

1.4.3 ES&H Division and Occupational Medicine Office - Consults with users, Procurement, and Materiel Control to assure that the proper types, grades, and amounts of equipment are obtained from vendors and supplied to stockrooms. Consults with supervisors to determine the extent of need for equipment, the ease and effectiveness with which it can be worn, and the steps to be taken to encourage use by employees. Assures conformity to national standards and practices.

1.4.4 Procurement - Obtains ES&H approval of new orders for personal protective equipment and for orders subject to revised specifications.

1.4.5 Materiel Control - Stockroom - Distributes items from stockrooms as needed. Maintains adequate shelf supply of items in designated stockrooms as prescribed in detail by ES&H (e.g., types, quantities). Does not change specification or product without ES&H approval.

1.5 REQUIREMENTS

1.5.1 OSHA Regulations 29 CFR 1910.

1.5.2 National Safety Council, Accident Prevention Manual for Industrial Operations, current edition.

1.5.3 ANSI Z87.1, Z41.1

1.6 PRACTICES/PROCEDURES

1.6.1 Personal protective equipment (PPE) - This equipment is considered a last resort and will not be used unless engineering and administration controls are infeasible. Table I and Section 2 of this manual outlines the types of PPE to be used in most situations. PPE shall be obtained and used by employees who are, or may be, exposed to such hazards, providing that ES&H personnel approve of the equipment and the employees are trained in its correct use.

1.6.2 Safety Glasses - Within the ANSI Z87 requirements, PPPL has set forth the following requirements and guidance (also, reference PPPL Personnel Practices Manual, Section 60.3):

- A. Glass, plastic, and/or polycarbonate lenses are acceptable. Glass is more scratch resistant, but the plastics are one-third lighter.
- B. Plastic side shields are preferred, but metal-screen side shields may be used.
- C. For work on energized-exposed electrical systems (in excess of 50 volts), conductive (metal) frames are not permitted. Metal frames are acceptable elsewhere.
- D. Photo-sensitive lenses are not permitted unless approved by the Director of Occupational Medicine.
- E. Tinting shall not exceed 10 percent unless approved by the Director of Occupational Medicine.

1. Non-Prescription Safety Glasses

- a. Employees who must enter areas where eye protection is required, or whose work requires use of eye protection, must use the eye protection that meets or exceeds ANSI Standard Z87.
- b. The use of side shields is required whenever eye protection is required.

- c. Employees may use their own eye protection, provided it meets ANSI Standard Z87.1 and is so labelled. PPPL also makes available the following eye protection for employees.
- d. For employees who do not require corrective lenses, plano safety glasses with side shields are available in the Stockroom.

2. Prescription Safety Glasses

- a. For employees who do require corrective lenses, the Laboratory has arranged with a supplier to furnish prescription safety glasses. The Laboratory will pay for the prescription lenses. Should the employee, for esthetic reasons, desire safety glasses, which are more expensive than those provided, the employee will pay the additional expense.
- b. The Laboratory provision of protective eyewear is limited to once every two years unless there is a significant (one half diopter spherical or one-quarter diopter cylindrical) change in prescription or the glasses are damaged.
- c. Replacement of damaged glasses is subject to review and approval by the Director of Occupational Medicine.
- d. Corrective lense orders in excess of \$80 are subject to review and approval by the Director of Occupational Medicine.

- e. Employees may use an eyewear source other than the Laboratory supplier. However, the reimbursement will be limited to whichever is lower, the actual cost or the amount that the Laboratory supplier would have charged. To be reimbursed, the employee must submit a Prescription Safety Glass Approval Form, the prescription, and the receipt to the Supervisor who forwards it for payment.
- f. Employee procedure for Procuring Prescription Safety Glasses:
 - 1) Secures current prescription from his or her eye doctor.
 - 2) Completes and has supervisor approve a Prescription Safety Glass Approval Form. [Note: Because the glasses are funded from the supervisor's budget, the supervisor is responsible for authorizing in accordance with requirements, specifically 2.b, above.]
 - 3) Presents approval form and prescription to the optician.
 - 4) Selects and orders safety glasses.
 - 5) Pays any excess cost directly to the optician.

1.6.3 Special Need Personal Protective Equipment (Refer to Table 1 for Assistance)

- A. User consults with ES&H to determine what type of equipment is needed for protection from the hazards involved. User submits purchase request for recommended item(s).

- B. ES&H assists user in determining need and developing specifications, and by suggesting possible types and suppliers of equipment.
- C. Procurement obtains ES&H approval before processing purchase request.
- D. Employees shall wear face shields where exposure to flying particles (except molten metal) exist and shall wear safety glasses under face shields (including welding helmets). Machinists are exempt from using the face shield with the assumption that appropriate guards are in place.
- E. Face shields shall be worn when pouring cryogenic or corrosive liquids. Safety glasses or goggles for liquids shall be worn under shields.
- F. Respirators shall be used when working around harmful dust, acid vapors, or similar materials that are corrosive or noxious and in areas where there may be an oxygen deficiency. Each hazard requires specific equipment, so be sure to know the purpose of each respirator and how to wear it (see Chapter 8, "Industrial Hygiene").
- G. Hardhats shall be worn where there are overhead hazards or severe bump exposures (ANSI Z89.2).
- H. Welding helmets or goggles shall be worn for all welding and cutting operations. The filter glass in each helmet shall conform with standards established by the National Bureau of Standards.
- I. A protective screen shall be set up where welding, grinding, or flying chips cause a hazard to others (refer to Chapter 15, "Welding, Cutting, and Brazing").
- J. All workers shall wear clothing suitable for the job they are doing. The following general rules must be observed:

1. Work garments shall be reasonably snug with no loose flaps or strings. Long, loose coats and torn or ragged clothing shall never be worn near moving machine parts.
2. Finger rings, key or watch chains, bracelets, neck chains or ties, wrist watches, and similar jewelry shall not be worn by persons working around mechanical or electrical equipment.
3. Good quality work gloves shall be worn when handling rough, splintered, or sharp materials. However, gloves should never be worn when working with machinery.
4. All persons with long hair will wear suitable caps or strong nets to keep the hair from becoming caught in rotating or reciprocating machinery.

1.6.4 Safety Shoes - The Laboratory will provide up to \$50 towards the purchase of one pair of safety shoes, meeting ANSI Standard Z41.1, per year for PPPL employees who work in foot hazardous areas.

- A. The Laboratory will schedule a shoemobile visit several times each year.
- B. Employees have the option of getting shoes from the shoemobile or from any store selling shoes meeting ANSI Z41.1 specifications.
- C. Employees needing safety shoes must complete a Safety Shoe Withdrawal Slip, obtainable from the Stockroom, and have it signed by their supervisor indicating work-related need.
- D. Employees wishing to get their shoes from the shoemobile must present the signed Withdrawal Authorization Slip to the salesman who will accept it as payment of up to \$50 towards the shoes being purchased.

- E. Employees wishing to purchase their shoes elsewhere must present the signed Withdrawal Authorization Slip along with a store receipt indicating the purchase of shoes meeting ANSI Z41.1 to the Petty Cash Section of Accounting for reimbursement of up to \$50.

1.7 REFERENCES

AMERICAN NATIONAL STANDARDS INSTITUTE, Z41.1, "SAFETY TOE FOOTWEAR," CURRENT EDITION.

AMERICAN NATIONAL STANDARDS INSTITUTE, Z87.1, "PRACTICE FOR OCCUPATIONAL AND EDUCATIONAL EYE AND FACE PROTECTION," CURRENT EDITION.

AMERICAN NATIONAL STANDARDS INSTITUTE, Z89.2, "STANDARD FOR INDUSTRIAL PROTECTIVE HELMET," CURRENT EDITION.

National Safety Council, ACCIDENT PREVENTION MANUAL FOR INDUSTRIAL OPERATIONS, CHICAGO, CURRENT EDITION.