PERSONAL PROTECTIVE EQUIPMENT PLAN

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FOR MORE INFORMATION REGARDING THIS PLAN, CONTACT
TEHS MEDFORD (617)627-3246 OR BOSTON (617)636-3615

PERSONAL PROTECTIVE EQUIPMENT (PPE) POLICY

I. PURPOSE

The Personal Protective Equipment plan for Tufts University has been developed as mandated by OSHA regulation 1910 Subpart I (1910.32-1910.140). This PPE plan is designed to assist in providing protection from chemical, biological, radiological and mechanical hazards. Personal Protective Equipment should only be used after guards, engineering controls and good work practices have been implemented.

II. POLICY

A. Responsibility
1. Program development, policy review, and audit functions shall be provided by Tufts Environmental Health and Safety.
2. Deans, Directors, Department Chairs, Department Managers, and Safety Committee Members are responsible for developing Departmental procedures and implementing practices to ensure effective compliance with Tufts University's Personal Protective Equipment Program.
3. Deans, Directors, Department Chairs, Department Managers, and Principal Investigators shall ensure that hazard assessments are conducted for each affected job category and that personal protective equipment is provided and maintained for employee use.

B. Hazard Assessment
1. Each Department/Center/Institute shall assess their work areas to determine if hazards are present or likely to be present which necessitate the use of Personal Protective Equipment (PPE). This assessment shall be made as soon as the laboratory begins operation.
2. If changes occur in the work area (new machinery, new processes, etc.) a new hazard assessment must be completed for the work area.

C. Equipment Selection and Availability
1. Equipment must adhere to standards and guidelines set forth by Tufts University's PPE Program. For additional information on choosing PPE, please refer to Tufts University Laboratory Chemical and Biological Materials Safety Manual.
2. Deans, Directors, Department Chairs, Department Managers, and PIs shall ensure that when PPE is required, it is available to all affected employees.
3. Defective or damaged PPE shall not be used.

D. Training
1. Deans, Directors, Department Chairs, Department Managers, and PIs shall ensue that employees, who are required to wear PPE are trained on its use, care, maintenance, and limitations.
2. Deans, Directors, Department Chairs, and PIs shall ensure that employees are retrained when necessary according to Tufts University's PPE Program.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

I. SCOPE AND APPLICATION

This program has been developed to protect employees from chemical hazards, biological hazards and mechanical irritants. All Personnel Protective Equipment must be maintained in a sanitary and reliable condition. In no way shall personal protective equipment devices alone be relied upon to protect against hazards. PPE should only be used after guards, engineering controls, and sound work practices have been instituted and are not enough to reduce the potential hazard.

II. HAZARD ASSESSMENT

In order to determine what, if any, Personal protective Equipment (PPE) is required, the work area must be surveyed by line supervisors, to determine if hazards are present, or likely to be present. This can be accomplished by using the Certification of Hazard Assessment and Personal Protective Equipment (Hazard Assessment Form) (Appendix A, page 9). A hazard assessment is required for each job classification within the department. The following procedure should be followed when assessing the need for PPE. If a supervisor needs assistance in this assessment, Environmental Health and Safety would be glad to assist in conducting a Joint Survey.

A. Procedure
   1. Conduct a walk-through using the Hazard Assessment Form as a guide. This survey will help you identify sources of hazards to workers. The following hazards should be considered:

      a. Impact;

      b. Penetration;

      c. Compression (roll over);

      d. Chemical;

      e. Heat;

      f. Harmful dust;

      g. Light (optical) radiation;

      h. Potentially infectious materials

2. During the walk-through survey, the following should be observed:

    a. Sources of motion that could result in collision with stationary objects;

    b. Sources of high temperature that could result in burns, eye injury, or ignition of protective equipment;

    c. Types of chemical exposure;

    d. Sources of harmful dust;

    e. Welding, cutting, and lasers;

    f. Sources of falling objects or potential for dropping objects;

    g. Sources of sharp objects which might pierce the feet or cut the hands;

    h. Sources of rolling or pinching objects which could crush the feet;

    i. Layout of workplace and location of co-workers;

    j. Any electrical hazards.

3. An analysis of the hazards identified and an estimate of potential for injuries should be made using the Hazard Assessment Form

The outcome of this analysis will determine what PPE employees will be required to wear.

B. Re-Assessment

If changes occur in the work area (the installation of new machinery, new processes, etc.), a new hazard assessment should be completed for the work area. Accident data should be reviewed and previously selected PPE should be re-evaluated periodically for its suitability to determine if a new hazard assessment must be made.

III. PERSONAL PROTECTIVE EQUIPMENT SELECTION

The general procedure for the selection of PPE is as follows:

A. Based on the hazard, become familiar with the type of protective equipment available and what it can do (Appendix C, page 15);

B. Compare the hazards with the capabilities of the available protective equipment; (Appendix C, page 8 & 11);

C. Select the protective equipment to ensure a level of protection greater than the minimum required to protect employees from hazards;

D. Fit the user with the protective device and give instructions on its care and use.

IV. TRAINING AND RE-TRAINING

Employees required to use PPE must be trained. This training shall include at least the following:

A. When PPE is necessary;

B. What PPE is necessary;

C. How to properly don, remove, adjust, and wear PPE;

D. The limitations of the PPE;

E. The proper care, maintenance, useful life, and disposal of PPE.

Employees are required to be retrained under the following circumstances:

A. When there is reason to believe they lack proper understanding and skill for PPE use;

B. When changes occur in the workplace that require a new hazard assessment;

C. When changes occur in the type of PPE use.

Tufts Environmental Health and Safety will conduct training upon request of individuals or departments; if you would like to schedule training please call TEHS at (617)636-3615. All training and re-training records must be documented. Training records must be maintained in the employee's department and must be available for inspection by regulators.

V. MAINTENANCE AND CLEANING

In order to provide required protection, PPE must be inspected, cleaned and maintained at regular intervals. Cleaning is particularly important for eye and face protection where dirty lenses could cause a hazard itself.

All defective or damaged equipment should be replaced immediately. If PPE becomes contaminated, it is essential that it be disposed of properly.

LABORATORY PERSONNEL PROTECTIVE WEAR

LAB COATS

Lab workers must wear lab coats while in a lab where Chemical or Biological hazards exist. Lab coats should not be worn outside of the lab. The employer (principal investigator) must provide coats at no cost to all employees who work in the lab. Shorts and sandals must not be worn in the lab.

LABORATORY GLOVES

Disposable latex or nitrile gloves provide adequate protection against accidental exposure with most laboratory chemicals and biological hazards. However it is important that you choose the correct glove for the specific hazard. These gloves provide a non-chemical resistant barrier between the workers hand and the hazard. Lab workers who contaminate their gloves should immediately remove them, wash their hands and put on a new pair of gloves. Gloves should not be worn outside if the lab. TEHS is available to advise on glove questions.

EYE PROTECTION

Eye Protection must be worn in the lab whenever Chemical or Biological hazards exist that may result in a splash or spill accident. This covers almost all lab situations. Handling of Biological specimens may require extra protection. When working with known Human vectors, Universal Precautions should be followed. This may include the use of a full face shield. General eye protection should include safety glasses that have side panels.

RESPIRATORS

If your work requires the use of respirators, you must receive special training from TEHS. Do not use respiratory equipment until a job evaluation has been conducted and you have received proper training. Negative pressure respirators require medical clearance and fit testing. Engineering and administrative controls should be used prior to the use of respirators. All respirator use must be approved by TEHS.

SPECIAL BODY PROTECTION

Situations may arise when special precautions may be required. These circumstances may occur in the lab, in animal facilities, or in Operating Rooms at the School of Veterinary Medicine. Chemical or biological clothing, in the form of disposable work suits, gowns, head coverings, and booties should be provided in instances where body contact is anticipated. Special attention should be given to seal all openings in the clothing. Any questions about specific selection of this type of PPE should be directed to TEHS.

LABORATORY PERSONNEL PROTECTIVE EQUIPMENT

I. HEAD PROTECTION

Head protection is designed to provide protection from impact and penetration hazards caused by falling objects. Head protection is also available for protection from electric shock and burns. It is also important to know if the employee is exposed to potential electrical hazards. Head protection can be divided into three classes.

CLASS A helmets will provide electrical protection for low-voltage conductors, in addition to being impact and penetration resistant.

CLASS B helmets will also provide impact and penetration resistance. In addition they will provide electrical protection form high-voltage conductors.

CLASS C helmets provide impact and penetration resistance only. They should not be used around electrical hazards.

Helmets **must** be worn wherever falling objects hazards are present.

II. FOOT PROTECTION

Safety shoes/boots which meet the ANSI Z41. 1991 Standard provide both impact and compression protection. Safety shoes can also provide protection and metatarsal protection. In some special situations, electrical non-conducting or insulating safety shoes would be appropriate.

III. HAND PROTECTION

It is important to select the most appropriate glove for a particular application. Determine how long it can be worn, and whether it can be reused. Documentation can be requested from the manufacturer to verify the gloves meet the appropriate test standards for the anticipated hazard(s).

Other factors to be considered are:

A. The toxic properties of the chemical must be determined;

B. Generally, “Chemical resistant” gloves can be used for dry powder;

C. For mixtures, a glove should be selected on the basis of the chemical component with the shortest breakthrough time;

D. Employees must be able to remove the gloves in such a manner as to prevent skin contamination.

IV. BODY PROTECTION

Body protection should be used whenever conditions are present that could end with a potential exposure from chemical, biological, or mechanical materials to the body or clothing.

A. Special Body Protection (see proceeding section).

B. Coveralls may be appropriate if the potential for biological or chemical exposure to the body is a possibility.

C. Lab coats must be worn in a lab where chemical and biological hazards exist.

PPE SELECTION GUIDELINES

EYE AND FACE PROTECTION

The following chart provides general guidance for the proper selection of eye and face protection to protect against hazards.

Eye and Face Protection Selection Chart

Source	***Assessment of Hazard***	***Protection***
IMPACT-Chipping, grinding machining, masonry work, woodworking, sawing, drilling, chiseling, powered fastening, riveting, and sanding.	Flying fragments, objects large chips, particles, sand, dirt, etc.	Spectacles with side protection, goggles, face shields, See notes (1), (3), (5), (6), (10). For severe exposure use face shield.
HEAT-Furnace operations, pouring, casting, hot dipping, and welding.	Hot sparks	Face shields, goggles, spectacles with side protection. For severe exposure use face shield. See notes (1), (2), (3).
	Splash from molten metals	Face shields worn over goggles. See notes (1), (2), (3).
	High temperature exposure	Screen face shields, reflective face shields. See notes (1), (2), (3).
CHEMICALS-Acid and chemicals handling, degreasing planting	Splash	Goggles, eyecup and cover types. For severe exposure, use face shield. See notes (3), (11).
	Irritating mists	Special-purpose goggles.
DUST-Woodworking, buffing, general dusty conditions.	Nuisance dust	Goggles, eyecup and cover types. See note (8).
LIGHT and/or RADIATION Welding: Electric arc	Optical radiation	Welding helmets or welding shields. Typical shades: 10-14. See notes (9), (12).
Welding: Gas	Optical radiation	Welding goggles or welding face shield. Typical shades: gas welding 4-8 cut, cutting 3-6, brazing 3-4. See note (9).
Cutting, Torch brazing, Torch soldering	Optical radiation	Spectacles or welding face-shield. Typical shades. 1.5-3. See notes (3), (9).
Glare	Poor vision	Spectacles with shaded or special-purpose lenses, as suitable. See notes (9), (10).

Notes to Eye and Face Protection Selection Chart

(1) Care should be taken to recognize the possibility of multiple and simultaneous exposure to a variety of hazards. Adequate protection against the highest level of each of the hazards should be provided.
Provided devices do not provide unlimited protection.
(2) Operations involving heat may also involve light radiation. As required by the standard protection from both hazards must be provided.
(3) Face shields should only be worn over primary eye protection (spectacles or goggles).
(4) As required by the standard, filter lenses must meet the requirements for shade designations in 1910.133(a)(5). Tinted and shaded lenses are *not* filter lenses unless they are marked or identified as such.
(5) As required by the standard, persons whose vision requires the use of prescription (Rx) lenses must wear either protective devices fitted with prescriptions (Rx) lenses or protective devices designed to be worn over regular prescription (Rx) eyewear.
(6) Wearers of contact lenses must also wear appropriate eye and face protection devices in a hazardous environment. It should be recognized that dusty and/or chemical environments may represent an additional hazard to contact lens wearers.
(7) Caution should be exercised in the use of metal frame protective devices in electrical hazard areas.
(8) Atmospheric conditions and the restricted ventilation of the protector can cause lenses to fog.
Frequent cleansing may be necessary.
(9) Welding helmets or face shields should be used only over primary eye protection (spectacles or goggles).
(10) Non-side shield spectacles are available for frontal protection only, but are not acceptable eye protection for the sources and operations listed for “impact.”
(11) Ventilation should be adequate, but well protected from splash entry. Eye and face protection should be designed and used so that it provides both adequate ventilation and protects the wearer from splash entry.
(12) Protection form light radiation is directly related to filter lens density. See note (4). Select the darkest shade that allows task performance.

LIST OF APPENDICES

APPENDIX A Certification of Hazard Assessment and Personal Protective Evaluation (Hazard Assessment Form)

APPENDIX B Personal Protective Equipment Training Certification Form

APPENDIX C Personal Protective Equipment Selection Guidelines

APPENDIX D Text of the OSHA Regulation 1910 Subpart I (1910.132 through 1910.140)

APPENDIX A

Certification of Hazard Assessment and Personal Protective Evaluation

Building/Room _____ Process/Operation _____ Date _____

Department _____ Department Head Signature _____

A hazard assessment has been performed for the work place identified above. The hazard assessment was conducted according to the guidelines in Appendix C.

Person completing this form _____ Date _____

Signature _____

Hazard Classification	***Present***		***Code***	***Likelihood of Injury***	***Seriousness of Injury***	***Controls Hoods/Guards***	***PPE required Hands/***	***Face/***	***Foot/***	***Head***
	Y	N		H M L	H M L					
Impact										
Penetration										
Compression										
Chemical airborne, liquid, gas										
Hot or Cold										
Light or Radiation										
Electrical										
Dust										
Biological										

Hazard Codes: Carrying (Cr), Corrosives (C), Cutting (C), Grinding (GR), Hot Surfaces (Hs), Infrared (IR), Irritants (I), Lasers (LA), Rolling (R), Sanding (SA), Sawing (SW), Sensitizers (S).
Sharps (SH), Solvents (SV), Sparks (SP), Striking (ST), Toxic Gases (G), Ultraviolet (UV), Welding (W).

HIGH (H) MODERATE (M) LOW (L)

APPENDIX B

Personal Protective Equipment Training Certification Form

Employee's Name: _____ Employee ID No. _____

Job Title/Work area: _____ Campus: _____

Employer: TUFTS UNIVERSITY

Trainer's/ Supervisor's Name (person completing this form): _____

Date of Training: _____

Types of PPE employee is being trained to use:

_____ _____

_____ _____

The following information and training on the personal protective equipment (PPE) listed above were covered in the training session **(INITIAL ALL THAT APPLY):**

____ The limitations of personal protective equipment: PPE alone cannot protect the employee from on-the-job hazards.

____ What work place hazards the employee faces, the types of personal protective equipment that the employee must use to be protected from these hazards, and how the PPE will protect the employee while doing his/her tasks.

____ When the employee must wear or use the personal protective equipment.

____ How to use the personal protective equipment properly on-the-job, including putting it on, taking it off, and wearing and adjusting it (if applicable) for a comfortable and effective fit.

____ How to properly care for and maintain the personal protective equipment: look for signs of wear, clean and disinfect, and dispose of PPE.

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

(Employee) I understand the training I have received, and I can use PPE properly.

_____ _____

Employee's signature **Date**

(Trainer must check off)

____ Employee has shown an understanding of the training.

____ Employee has shown the ability to use the PPE properly.

_____ _____

Trainer's signature **Date**

APPENDIX C

PERSONAL PROTECTIVE EQUIPMENT SELECTION GUIDELINES

SELECTION OF PERSONAL PROTECTIVE EQUIPMENT

(Check appropriate lines)

Hand Protection
_____ Neoprene
_____ Latex rubber
_____ Nitrile
_____ Natural rubber
_____ PVC
_____ PVA
_____ Cotton work gloves
_____ Leather, suede work gloves
_____ Welder's gloves
_____ Cryogenic protection
_____ Heat, flame, spark protection
_____ Cut, abrasion protection
_____ Other _____

Eye Wear
_____ Chemical goggles
_____ Safety glasses with side shields
_____ Face shield
_____ Laser glasses
_____ Welding, cutting glasses
_____ Other _____

Head Protection
_____ Hard hat
_____ Bump cap
_____ Other _____

Foot Protection
_____ Safety steel toe shank
_____ Chemical resistant
_____ Other _____

APPENDIX D

TEXT OF THE OSHA REGULATION 1910 SUBPART I (1910.132 through 1910.140)

1910 Subpart I - Personal Protective Equipment

- 1910.132 - General requirements.
- 1910.133 - Eye and face protection.
- 1910.134 - Respiratory Protection.
- 1910.135 - Head protection.
- 1910.136 - Occupational foot protection.
- 1910.137 - Electrical protective devices.
- 1910.138 - Hand Protection.