

**PERSONAL PROTECTIVE EQUIPMENT PROGRAM**  
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## **PERSONAL PROTECTIVE EQUIPMENT PROGRAM**

### **I. Introduction**

Washington State Department of Labor and Industries standard WAC 296-24-0751 requires the use of personal protective equipment to protect the body from absorption, inhalation and physical contact hazards having the potential to cause injury or impairment. This standard mandates that Gonzaga University conduct certified assessments of all workplaces to determine if hazards are present, or likely to be present, which necessitate the use of personal protective equipment (PPE).

Gonzaga University provides personal protective equipment to all employees. It is used when workplace hazards are not eliminated or controlled by engineering controls (i.e., guards, ventilation) and/or administrative controls (i.e., job rotation, work practices). Students should also receive training when using PPE.

Environmental Health and Safety (EH&S) has developed these materials to assist departments in conducting hazard assessments and training to achieve regulatory compliance and enhance employee protection. Training support in PPE is obtained by contacting EH&S.

### **II. Hazard Assessment**

To assess areas and work practices that potentially necessitate the use of PPE, a walk-through survey should be conducted. The purpose of the walk-through survey is to identify hazards and their sources that employees are potentially exposed to during the course of their work. The walk-through survey is to be performed by supervisory personnel such as department heads, chairs, directors, faculty members in charge of shops or laboratories, or supervisors who are responsible for the working conditions and practices in their areas. Hazard assessments are conducted by observing work practices and obtaining information from potentially exposed persons.

Identified hazards are to be eliminated or controlled using engineering and administrative controls when technologically and economically feasible. However, when engineering and administrative controls are not feasible or do not completely eliminate the hazard, PPE must be used.

General hazard categories (not all inclusive) requiring assessment of head, eye, face, hand, and foot hazards that exist in an occupational or educational setting are as follows:

- IMPACT / PENETRATION
- COMPRESSION
- HEAT
- LIGHT
- NOISE
- CHEMICAL CONTACT
- RESPIRATORY HAZARD
- ELECTRICAL SHOCK

During the walk-through survey the following hazards sources should be evaluated:

- a. SOURCES OF MOTION (i.e., machinery or processes where any movement of tools, machine components or particles could exist)
- b. CHEMICAL EXPOSURES TO EYES AND SKIN
- c. SOURCES OF LIGHT RADIATION (i.e., welding, brazing, cutting, furnaces, lasers)
- d. SHARP AND/OR ROLLING OBJECTS
- e. SOURCES OF HIGH TEMPERATURE (resulting in burns, eye injury or ignition of clothing)
- f. SOURCES OF DUST, FUMES, MISTS, AND VAPORS
- g. ELECTRICAL EQUIPMENT

The Personal Protective Equipment Selection Charts have been developed to assist supervisory personnel in assessing their work areas and selecting the appropriate PPE. Though all work places are required to be assessed, hazards requiring the use of PPE will generally not be found in office type work areas.

Contact Environmental Health and Safety to conduct respiratory hazard assessments where applicable.

A hazard re-assessment must be conducted whenever new equipment or processes are introduced or the review of occupational injury and illness records by the department or safety professional indicate the need for PPE.

### **III. Hazard Assessment Certification**

WAC 296-24-07591 specifies that Gonzaga shall verify that the hazard assessment has been performed through a written certification. After surveying work area and practices, the supervisor completes the Workplace Hazard Assessment Certification form.

If a work area assessment does not reveal hazards requiring use of PPE, mark the *No PPE Required* box on the upper left of the Workplace Hazard Assessment certification form.

This form must be retained by the department and a copy forwarded to EH&S Ad Box 80.

The purpose of this assessment, tasks are indicated for which protective equipment is optional, these may be listed as such on the form.

#### **IV. Personal Protective Equipment Selection**

Upon completing the hazard assessment, each department selects and provides the types of PPE suitable for the specific hazards present. Careful consideration must be given to the level of protection, fit and comfort of the PPE. Personal protective equipment that fits poorly will afford the necessary level of protection.

Protective devices are generally available in a variety of sizes and care should be taken to ensure that the right size is selected. Some PPE is equipped with adjustable features. Adjustments should be made on an individual basis for a comfortable fit that will maintain the protective device in the proper position. However, PPE should never be modified without written approval from the manufacturer.

#### **V. Training**

Employees of Gonzaga University must receive information and training on how to use assigned PPE. Personal protective equipment must always be used in accordance with the manufacturer's specifications. Training is provided by Environmental Health and Safety office; however, departments may provide their own training at their discretion. Training and information to be provided to each user of PPE includes:

- Why, when and what PPE is necessary
- How to properly put on, take off, adjust, and wear PPE
- The selection criteria and limitations of the PPE
- The proper care, inspection, maintenance, useful life and disposal of the PPE

Manufacturer's literature, the supplying vendor, and EH&S are sources for PPE selection and training assistance and materials. Employees using respirators are to be trained by Environmental Health & Safety.

Each employee must demonstrate an understanding of this training before being allowed to perform work requiring the use of PPE. Methods of demonstrating include orally questioning the employee, observing the employee using the PPE in a real or artificial setting, or administering a written test.

Employees who wear PPE that is optional are to be trained in how to put on, take off, adjust and wear PPE and the proper care, inspection, maintenance, use and disposal. Limitations of the PPE should also be addressed.

Employees must be retained when there have been:

- 1) Changes in the workplace, such as new processes and equipment, which render previous training obsolete.
- 2) Changes in the type of PPE which render the previous training obsolete.
- 3) Inadequacies in an employee's knowledge or use of assigned PPE which indicate that the employee has not retained the requisite understanding or skill.

## **VI. Training Certification**

A written certification must be completed by the trainer verifying that each employee using PPE has received and understood the required training. A copy of the certification will be retained by the department in the employees file and a copy mailed to EH&S Ad Box 80.

## **VII. Special Equipment and Assistance**

The personal protective equipment selection charts in this program only address the most frequently encountered hazards and recommended PPE. Therefore, the contents are not all inclusive.

Hazards not listed may be found in your work area and special PPE could be needed. If you require assistance in the following areas, contact Environmental Health & Safety at 323-5852:

- Conducting a hazard assessment
- Selecting PPE
- Determining whether American National Standards Institute (ANSI) standards are appropriate to your needs
- Conducting training
- Respirator information

## **APPENDIX A - Personal Protective Equipment Selection Charts**

### **1. Eye and Face Protection**

Eye and face protection equipment should be routinely considered for occupations such as, but not limited to, carpenters, electricians, machinists, mechanics, plumbers and pipefitters, lathe and milling machine operators, welders, grounds-keepers, and employees using chemicals. General eye and face protective equipment selection criteria:

- All eye face protective equipment shall comply with ANSI Z87.1989, except protection designed for laser operations. Laser protective eyewear optical density is dependent on laser wavelength.
- 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 hazard should be required.
- As general rule if they are required, face shields are worn over primary eye protection.
- Wearers of contact lenses must also wear appropriate eye and face protection devices in a hazardous environment. Dusty and/or chemical environments may represent an additional hazard to contact lens wearers.
- Operations involving heat may also produce light radiation. Protection from both hazards is required.
- Protection from light radiation is directly related to spectacle filter density. Select the darkest shade that allows task performance.
- Caution should be exercised in the use of metal frame protective devices in electrical hazard area.

## Eye and Face Protection Selection Chart

<b>Source/Activity</b>	<b>Hazard</b>	<b>Protection</b>
IMPACT: Grinding, machining, masonry work, woodworking, sawing, drilling, powered fastening, riveting and sanding	Flying fragments, objects, chips and sand particles.	Spectacles with side protection, goggles, and face shields.
HEAT: Welding, furnace operations, pouring and casting.	Hot sparks.  Splash from molten metals.  High temperature exposure.	Goggles, spectacles with side protection. For severe exposure use face shields.  Face shields worn over goggles.  Screen face shields, reflective face shields.
DUST: Woodworking, buffing, and grain and coal handling.	Dust.	Goggles.
LIGHT and/or RADIATION:  Welding - Electric Arc  Welding - Gas  Cutting, Torch Brazing, Torch Soldering.  Lasers	Optical Radiation  Optical Radiation  Optical Radiation  Thermal exposure, acoustic, photochemical	Welding helmets or shields. Typical shades: 10-14  Welding goggles or face shields. Typical shades: gas welding 4-8, cutting 3-6, brazing 3-4  Spectacles or welding face shield. Typical shades 1.5-3  Protective eyewear with an optical density for the specific application. Refer to the laser manufacturer's operations manual or ANSI Z136.1
CHEMICALS: Laboratory research, chemical handling and transferring, custodial, construction and maintenance operations.	Splash  Vapor and Gas Exposures	Goggles, eyecups, face shields. See Material Safety Data Sheets for appropriate eye and face protection.  Goggles must be non-ventilated. See Material Safety Data Sheet for appropriate eye and face protection.

## 2. Foot Protection

Foot protection equipment should be routinely considered for occupations such as, but not limited to, carpenters, electricians, machinist, mechanics, plumbers and pipefitters, dry wallers, welders, grounds-keepers, shipping and receiving clerks, warehouse workers, and employees using chemicals.

**Foot Protection Selection Chart**

<b>Source/Activity</b>	<b>Hazard</b>	<b>Protection</b>
IMPACT: carrying or handling materials such as packages, parts, or heavy tools.	Falling objects.	Safety shoes or boots complying with ANSI Z41-1991 or equally effective alternative.
COMPRESSION: Manual and powered material handling equipment, bulk rolls and heavy tools.	Rolling or pinching equipment and objects.	Safety shoes or boots complying with ANSI Z41-1991 or equally effective alternative.
PUNCTURE: Construction and demolition activities.	Stepping on nails, tacks, screws, large staples or scrap metal.	Safety shoes or boots with puncture resistant soles.
ELECTRICAL: Construction and maintenance of electrical service.	Electrical shock and electrocution.	Electrical insulating safety shoes.
HEAT: Foundry work, cutting /welding.	Thermal burns.	Substantial footwear.
CHEMICAL: Laboratory research, chemical handling and transferring, custodial, construction and maintenance operations.	Splash - skin burns and adsorption toxicity.	Impervious rubber boots or bootie covering the shoes. Pant leg or lab coat should pass over top of boot/shoe to prevent chemical from entering footwear.

### 3. Head Protection

Head protection equipment should be routinely considered for occupations such as, but not limited to, carpenters, electricians, machinists, mechanics, plumbers and pipefitters, dry wallers, welders, grounds-keepers, shippers and receiving clerks and warehouse workers.

Head protective equipment selection criteria:

- Protective helmets shall comply with ANSI Z89.1-1986.
- Proper fitting of the helmet is important to ensure it will not fall off. In some cases a chin strap may be necessary.

#### Head Protection selection Chart

<b>Source/Activity</b>	<b>Hazard</b>	<b>Protection</b>
IMPACT/PENETRATION: Construction, repair, demolition and tree trimming.	Overhead hazards, falling objects.	Type A, B, C Protective Helmets.
ELECTRICAL: Electrical utility installation and repair.	Electrical shock and electrocution.	Class A protective Helmets (Impact/penetration protection and proof tested to 2,200 volts).  Class B Protective Helmets (Impact/penetration, protection, and prof tested to 2,200 volts).
HEAT: Foundry and welding/cutting.	Thermal burns.	Protective helmets, caps, or covering.
ENTANGLEMENT: Rotating machinery.	Hair becoming entangled in moving parts.	Caps other protective hair coverings.

#### 4. Hand Protection

Gloves are often relied upon to prevent cuts, abrasions, burns and skin contact with chemicals that are capable of causing local or systemic effects following dermal exposure. There is not a single glove that provides protection against all potential hand hazards; therefore, it is important to select the most appropriate glove for a particular application and to determine how often and long it can be worn and whether it can be reused. Physical and chemical hand protective equipment selection criteria:

- Work activities should be evaluated to determine the degree of dexterity required, the duration, frequency, type of exposure, degree of exposure, and the physical stress that will be applied.
- The type and toxic properties of the chemical(s) must be determined; in particular, the ability of the chemical to cause local effects on the skin and/or to pass through the skin and cause systemic effects.
- For mixtures and formulated products (unless specific test data are available), a glove should be selected on the basis of the chemical component with the shortest breakthrough time.

Electrical hand protective equipment selection criteria and testing:

- Rubber insulating gloves should meet the American Society for Testing and Materials (ASTM D 120-87), Specification for Rubber Insulating Gloves.
- Electrical protective equipment, including gloves, will be subject to periodic electrical tests. They test rubber gloves before first use and every six months after that.

#### Hand Protection Selection Chart

<b>Source/Activity</b>	<b>Hazard</b>	<b>Protection</b>
SHARP TOOL/MATERIALS: Cutting, dissecting, dicing, butchering, handling sharp or ragged objects.	Lacerations from blades, knives, glass, sheet metal. Splinters from rough lumber. Abrasions.	Leather, wire mesh or stitch gloves, cut-resistant rubber gloves.
THERMAL HEAT: Cooking, welding, soldering, brazing, foundry work, steam line/furnace repair, autoclaves.	Thermal Heat.	Leather gloves, flame retarding gauntlet gloves, chemical treated cloth gloves.
EXTREME COLD: Handling cold materials, cryogenic research.	Frostbite.	Permeable or impervious non-insulated gloves, permeable or impervious insulated gloves.
ELECTRICAL: Electrical utility installation and repair.	Electrical shock and electrocution.	Rubber insulated voltage rated gloves, other gloves rated for electrical work.

CHEMICAL: Laboratory research, chemical handling and transferring, custodial, construction and maintenance.	Glove permeation and degradation causing dry skin, dermatitis, burns, irritation or ulceration.	Gloves composed of chemically compatible material. Refer to the Material Safety Data Sheet. Contact EH&S for assistance.
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## 5. Miscellaneous Personal Protective Equipment

Personal protective equipment not listed on the preceding charts may be required when employees are exposed to laceration, burn, abrasion, chemical and fall hazards. Personal protective equipment to consider includes: chaps, aprons, lab coats, protective sleeves, knee pads, coveralls, safety vests, welding coats, and personal fall restraint and arrest systems. *Contact Environmental Health & Safety at ext 5852 for further assistance.*

## APPENDIX B - Workplace Hazard Assessment Certification

*Instructions: Complete table, retain one copy for department records and forward one copy to Environmental Health & Safety at Ad Box 80.*

Date: \_\_\_\_\_ Department: \_\_\_\_\_

Hazard Assessment Certified By: \_\_\_\_\_

**Personal Protective Equipment Not Required**

Location of Assessment (Bldg. / Rm)	Work Activity Assessed	Hazard Identified	PPE Selected
1			
2			
3			
4			
5			
6			
7			
8			

## APPENDIX C - Certification for Personal Protective Equipment Training

*Instruction: Train each employee required to use personal protective equipment (PPE) in the following:*

- *When PPE is necessary*
- *What PPE is necessary*
- *How to properly put on, take off, adjust , and wear PPE*
- *Limitations of PPE*
- *Care, maintenance, useful life, and disposal of PPE*

The person providing training verifies that each employee has received and understood the required training by signing below:

Name of training provider  
(print): \_\_\_\_\_

Signature of training  
provider: \_\_\_\_\_

Date(s) of  
training: \_\_\_\_\_

Describe the types of personal protective equipment\* for which training has been provided:

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\_\_\_\_\_\* Respiratory protection training is provided by EH&S

### List Names of Employee(s) Trained Below


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**List Names of Employee(s) Trained Below**
