Chapter 19: Personal Protective Equipment

Quick Start Summary

Product ID: 524 | Revision ID: 2197 | Date published: 7 May 2021 | Date effective: 7 May 2021
URL: https://www-group.slac.stanford.edu/esh/eshmanual/references/PPEQuickstart.pdf

1 Who needs to know about these requirements

The requirements of Personal Protective Equipment (PPE) apply to workers who may be exposed to common workplace hazards (such as cutting, grinding, drilling, sharp edges, pinch, and temperature extremes) or exposed to harmful substances and physical agents in the work area (including chemicals, extreme heat or cold, lasers, radiation hazards, biohazards, fall hazards, and dust), supervisors, field construction and service managers and points of contact, subcontractors and user institutions, and the personal protective equipment program manager.

2 Why

PPE is required for many activities at SLAC and its proper use can prevent serious exposures and injuries.

3 What do I need to know

Supervisors must ensure that workers are protected primarily by engineering and administrative controls and that the appropriate PPE is available for any remaining hazards. Supervisors must determine PPE requirements, with assistance as needed from the Environment, Safety, and Health (ESH) Division, and workers must be trained or informed to identify, use, and maintain the appropriate PPE as specified. This chapter addresses general types of PPE for protecting the body, head, hands, feet, eyes, and face. Hazard-specific PPE requirements are listed in each appropriate ESH Manual chapter.

SLAC is responsible for providing PPE to its employees and students of Stanford University assigned to work at SLAC. For temporary agency and job shop employees, SLAC either provides the PPE or reimburses the employers for PPE they provide, which will be the case for more specialized PPE such as half-faced or full-faced air purifying respirators, safety footwear, prescription safety glasses, specialty clothing, and hearing protectors. Subcontractors, independent contractors, and user institutions are responsible for providing PPE to their employees.

4 When

The requirements of this chapter take effect 7 May 2021.

5 Where do I find more information

SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)
- Chapter 19, “Personal Protective Equipment”

Or contact the program manager.
Chapter 19

Personal Protective Equipment

Purpose

The purpose of this program is to protect workers from common workplace hazards (such as cutting, grinding, drilling, sharp edges, pinch, and temperature extremes) or exposures to harmful substances and physical agents in the work area (including chemicals, extreme heat or cold, lasers, radiation hazards, biohazards, fall hazards, and dust) by setting forth requirements for the most common types of personal protective equipment (PPE), such as hard hats/helmets, protective footwear, safety glasses, and protective clothing. (Hazard-specific PPE requirements, such as laser safety glasses, dust masks, and hearing protection, are listed in each appropriate ESH Manual chapter.) It covers determining, acquiring, using, inspecting and maintaining, and posting for common types of PPE. It applies to workers, supervisors, field construction and service managers and points of contact, subcontractors and user institutions, and the personal protective equipment program manager.

Important  Workplace hazards are to be managed through a combination of engineering controls, such as fume hoods and interlocking doors, administrative controls, such as the posting of signs and medical surveillance, and PPE. PPE is the last line of protection from hazards and must not be used to replace primary forms of hazard control.

Roles and Responsibilities

Functional roles and general responsibilities for each are listed below. More detailed responsibilities and information on when they apply are provided in the procedures and requirements.

The roles may be performed by one or more individuals and one individual may play more than one role, depending on the structure of the organizations involved. Responsibilities may be delegated.

2.1 Worker

- Identifies when PPE is required
- Inspects and wears PPE properly and as required
- Stores PPE as directed by supervisor and training
- Maintains current PPE training and medical monitoring, as required
- Obtains supervisor approval before purchasing or ordering prescription safety glasses and protective footwear
For temporary agency and job shop employees, SLAC either provides the PPE or reimburses the employers for PPE they provide, which will be the case for more specialized PPE such as half-faced or full-faced air purifying respirators, safety footwear, and prescription safety glasses, specialty clothing, and hearing protectors.

2.2 Supervisor

- Ensures that PPE required for work assignments is determined and available
- Consults with the PPE program manager and other ESH program managers to determine appropriate PPE for specific work hazards, as necessary
- Reviews with worker and approves purchase or order of prescription safety glasses and protective footwear
- Requires that workers use specified PPE
- Ensures workers are trained or provides on-the-job training (OJT) for PPE as needed
- Determines and ensures that employees needing medical monitoring for PPE receive it
- Ensures that PPE is stored and maintained according to the manufacturer’s specifications

2.3 Field Construction Manager / Service Manager / Point of Contact

- Verifies subcontractors, students, and users comply with SLAC PPE requirements

2.4 Subcontractor, Independent Contractor, User Institution

- Determines and provides PPE needed to perform work safely at SLAC to their employees
- Requires that workers use specified PPE and ensures they are properly trained and medically cleared as necessary

2.5 Personal Protective Equipment Program Manager

- Coordinates the PPE program and keeps documents and related training current
- Advises on PPE requirements

Note: Program managers for hazard-specific programs are responsible for assisting supervisors in assessing their employees’ activities, determining hazards, and selecting appropriate PPE for specific work hazards.

3 Procedures, Processes, and Requirements

These documents describe the detailed requirements for this program and how to implement them:

- Personal Protective Equipment: PPE Requirements (SLAC-I-730-0A21S-052). Describes requirements for determining, acquiring, using, inspecting and maintaining, and posting for common types of PPE
Personal Protective Equipment: Safety Glasses and Protective Footwear Purchasing Procedures
(SLAC-I-730-0A21C-034). Describes process for purchasing or ordering prescription safety glasses and protective footwear for individual use.

These documents provide useful guidance; their use is not mandatory:

Provides guidance for determining and using common PPE.

These are the forms and tools for this program:

Personal Protective Equipment: PPE Purchase Approval Form (SLAC-I-730-0A21J-059). Form for documenting approval to purchase prescription safety glasses and protective footwear for individual use.

These are other program documents and resources:

Personal Protective Equipment (PPE) Program Site (SharePoint)

4 Training

4.1 Worker

Workers who are required to use PPE must receive training specific to both the required PPE and the conditions under which it will be used. ESH provides the following general PPE training:

ESH Course 255, Personal Protective Equipment (ESH Course 255).

The immediate supervisor must determine if the general training meets the level of training required for the work area. If it does not, the supervisor is responsible for ensuring on-the-job training is completed for any specialized PPE. Training requirements for hazard-specific PPE are listed in each appropriate ESH Manual chapter.

5 Definitions

boots, safety. Protective footwear with ankle protection and designed to protect feet from physical hazards. For example, safety boots offer more protection when splash or spark hazards (chemicals, molten materials) are present.

boots, safety-toe. Durable boots (sometimes safety boots and now often with composite, or ceramic toe boxes) made of leather or rubber that have a steel, composite, or ceramic reinforcement in the toe to protect the foot against falling objects. They also often have steel inserts in their soles to prevent puncture from below.

bump cap. Form of headgear that provides lightweight protection from minor bumps, scrapes and lacerations. They are smaller, less sturdy, and more comfortable than hard hats, and can be worn in tight spots or in congested areas with low, overhanging objects. They are not a substitute for hard hats. (See also hard hat.)
construction site. An area in which any combination of the following activities takes place: erection, installation, assembly, demolition, or fabrication to create a new facility, or to alter, add to, rehabilitate, dismantle, or remove an existing facility. It also includes any area in which construction and excavation activities are conducted as part of environmental remediation efforts.

control. Measure (engineering and/or administrative) used to protect workers

- engineering controls, such as ventilation systems or physical barriers, are the preferred method of hazard control because they are designed to prevent exposure.
- administrative controls, such as job rotation and time exposure limitation, are less desirable than engineering controls because they are more dependent on human behavior.

gloves, aluminized. Gloves made of aluminized fabric designed to insulate hands from intense heat. These gloves are most commonly used by persons working molten materials.

gloves, chemical resistance. Gloves may be made of rubber, neoprene, polyvinyl alcohol or vinyl. The gloves protect hands from corrosives, oils, and solvents. When selecting chemical resistance gloves, be sure to consult the manufacturers’ recommendations, especially if the gloved hand will be immersed in the chemical.

gloves, electrically insulated. Rubber gloves that protect the wearer from voltage. The range of protection is represented by the class of the glove. In most cases, a leather protector is required to be worn over the rubber insulating glove to provide protection from cuts, abrasions, punctures, and heat (due to arcs).

gloves, leather. Gloves made of leather typically used to protect hands from abrasions, cuts and blisters

goggles, single-lens. Vinyl-framed goggles of soft pliable body design provide adequate eye protection from many hazards. These goggles are available with clear or tinted lenses, perforated, port vented, or non-vented frames.

goggles, welder’s/chipper’s. These goggles are available in rigid and soft frames to accommodate single or two eyepiece lenses.

hard hat. A lightweight protective helmet, usually of metal or reinforced plastic, worn by workers in industrial settings. A hard hat is a type of helmet predominately used in workplace environments such as construction sites to protect the head from injury such as from falling objects. They are typically required personal protective equipment where heavy labor is being performed. (See also bump cap.)

personal protective equipment (PPE). Clothing, headgear, footwear, gloves, glasses/goggles and other such items meant to protect individuals from exposure to harmful substances and physical agents

protective footwear. Footwear that is designed, constructed, and classified to protect the wearer from a potential hazard or hazards

protective footwear, steel-reinforced. Protective footwear designed to protect feet from common machinery hazards such as falling or rolling objects, cuts, and punctures. The entire toe box and insole are reinforced with steel, and the instep is protected by steel, aluminum, or plastic materials. Protective footwear is also designed to insulate against temperature extremes and may be equipped with special soles to guard against slip, chemicals, and/or electrical hazards.
safety glasses. Protective eyeglasses made with safety frames, tempered glass or polycarbonate lenses, and temples and side shields that provide eye protection from moderate impact and particles encountered in job tasks such as carpentry, woodworking, grinding, and scaling. Safety glasses are also available in prescription form for those persons who need corrective lenses.

shield, face. Normally consists of an adjustable headgear and face shield of tinted/transparent acetate or polycarbonate materials, or wire screen. Face shields are available in various sizes, tensile strength, impact/heat resistance and light ray filtering capacity. Face shields will be used in operations when the entire face needs protection and should be worn to protect the face against flying particles, metal sparks, and chemical/biological splash. Face shields are worn over eye protection as they do not provide eye protection. Welding shields are an exception as they do provide face and eye protection.

shield, welding. Shield assemblies consisting of vulcanized fiber or glass fiber body, a ratchet/button type adjustable headgear or cap attachment and a filter and cover plate holder. They provide face and eye protection.

6 References

6.1 External Requirements

The following are the external requirements that apply to this program:

  - Section 3380, “Personal Protective Devices” (8 CCR 3380)
  - Section 3381, “Head Protection” (8 CCR 3381)
  - Section 3382, “Eye and Face Protection” (8 CCR 3382)
  - Section 3383, “Body Protection” (8 CCR 3383)
  - Section 3384, “Hand Protection” (8 CCR 3384)
  - Section 3385, “Foot Protection” (8 CCR 3385)
  - Section 3387, “Sanitation” (8 CCR 3387)
  - Section 3390, “Protection from Electric Shock” (8 CCR 3390)
- American National Standards Institute (ANSI) Z87.1, “Practice for Occupational and Educational Eye and Face Protection” (ANSI Z87.1)
- American National Standards Institute (ANSI) Z89.1, “Personal Protection Protective Headwear for Industrial Workers” (ANSI Z89.1)
- American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) 107, “High Visibility Safety Apparel” (ANSI/ISEA 107)

### 6.2 Related Documents

**SLAC Environment, Safety, and Health Manual** (SLAC-I-720-0A29Z-001)
- Hazard-specific PPE requirements, such as laser safety glasses, dust masks, and hearing protection, are listed in each appropriate ESH Manual chapter.

Other SLAC Documents
- **Personal Protective Equipment (PPE) Reimbursement** (BTS-2018-012)
Chapter 19: Personal Protective Equipment

PPE Requirements

1 Purpose

The purpose of these requirements is to ensure the proper selection and use of personal protective equipment (PPE). They cover determining, acquiring, using, inspecting, maintaining, and posting for common types of PPE. (Hazard-specific PPE requirements, such as laser safety glasses, dust masks, and hearing protection, are listed in each appropriate ESH Manual chapter.) They apply to workers, supervisors, field construction and service managers and points of contact, subcontractors, and user institutions.

2 Requirements

2.1 Determination

PPE requirements are determined as part of the routine work authorization process described in Chapter 2, “Work Planning and Control". Minimally any part of the body at risk from the following types of personal hazards needs to be protected:

- Flying particles, objects
- Crushing hazards
- Excessive noise
- Electric shock/arc flash
- Temperature extremes
- Cuts and abrasions
- Chemical splashes
- Soldering spatter
- Chemical contamination of skin and clothing

Consult with your ESH coordinator or the appropriate ESH program manager if assistance is needed in selecting appropriate PPE.

Important Engineering and administrative controls should already be in place; PPE must not be used to replace these primary hazard control methods.

2.2 Acquisition

SLAC is responsible for providing PPE to its employees and students of Stanford University assigned to work at SLAC. (For the full SLAC policy on reimbursing employees, see Personal Protective Equipment (PPE) Reimbursement.)
For temporary agency and job shop employees, SLAC either provides the PPE or reimburses the employers for PPE they provide, which will be the case for more specialized PPE such as half-faced or full-faced air purifying respirators, protective footwear, and prescription safety glasses.

Subcontractors, independent contractors, and user institutions are responsible for providing PPE to their employees.

- Only PPE that meets applicable safety standards can be approved for purchase.
- Many organizations maintain and provide the PPE their employees need.
- The appropriate ESH program manager should be consulted before purchasing some hazard-specific PPE (for example, for laser glasses, contact the laser safety officer, for electrical PPE, the electrical safety officer, for respiratory protection, the respiratory protection program manager).
- Prescription safety glasses (meeting ANSI Z87.1) and protective footwear meeting the appropriate standard (for example ASTM F2413 for safety-toe footwear) are purchased and reimbursed following Personal Protective Equipment: Safety Glasses and Protective Footwear Purchasing Procedures. Note reimbursement limits are established by the Office of the Chief Financial Officer.
- Other PPE types such as protective clothing involve an individual purchase order.

2.3 Inspection and Maintenance

PPE must be inspected for wear and defects before and after each use, maintained following the manufacturer’s recommendations, and removed from use immediately if damaged or defective.

2.4 Posting

Areas in which specific hazards can be anticipated because of work performed or having known hazards or chemicals are posted as described in the hazard-specific chapter. Entrants must obey all PPE postings.

Example posting:

CAUTION – EYE HAZARD AREA – DO NOT ENTER WITHOUT EYE PROTECTION

2.5 Use

This section is organized by specific body area. For additional guidance, see Personal Protective Equipment: PPE Guidelines for Common Tasks or contact the PPE program manager.

2.5.1 Head

Head protection includes helmets and hard hats as well as bump caps that protect from abrasion and hats that provide shade and ultraviolet protection.

- Hard hats must be worn whenever high-impact force or penetration by a flying or falling object is a possibility, such as when working below scaffolding, in a crane service area, or at a construction site.

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1 A construction site is an area in which any combination of the following activities takes place: erection, installation, assembly, demolition, or fabrication to create a new facility, or to alter, add to,
Warning  Bump caps/skull guards only protect against scalp lacerations and cannot be substituted in conditions that call for a hard hat.

2.5.2 Eyes and Face

Workers must wear eye protection when performing any task that presents such eye-injury hazards as impact, chemical exposure, foreign bodies, intense light or heat, flame, or electrical arc. Certain operations require face protection in addition to eye protection, but a face shield is not to be worn in lieu of safety eyewear. (Welding shields is one notable exception as described below.)

- Single-lens goggles may be worn in combination with spectacles or corrective lenses to ensure protection along with proper vision.
- *Welder’s goggles* provide protection from sparking, scaling, or splashing metals and harmful light rays. Lenses are impact resistant and are available in graduated shades of filtration.
- *Welding shields* protect workers’ eyes and face from infrared or radiant light burns, flying sparks, metal splatter, and slag chips encountered during welding, brazing, soldering, resistance welding, bare or shielded electric arc welding and oxyacetylene welding and cutting operations.
- *Chipper’s goggles* provide eye protection from flying particles. The dual protective eye cups house impact resistant clear lenses with individual cover plates.

Operations that pose a potential eye hazard include those that

- Produce flying particles, such as those created by machining equipment or portable power tools
- Involve handling hazardous liquids that may splash (chemicals, liquid hazardous waste, plating bath, epoxy, cryogens)
- Involve exposure to intense light, such as working with ultraviolet or lasers (the system laser safety officer determines protective eyewear for working with a laser)
- Produce molten metal by welding or brazing
- Produce an electric arc, such as by grounding a charged capacitor
- Could expose workers to electrical arc flash
- Use pressurized systems such as compressed air or hydraulic systems

All eye and face protection must meet ANSI Z87.1. The PPE program manager and the Occupational Health Clinic are available to assist in defining eye-hazard operations and in selecting appropriate eye protection.

2.5.3 Body

2.5.3.1 High-visibility Safety Apparel

A high-visibility safety vest or jacket must be worn by anyone who performs tasks on or near moving vehicles or equipment, such as when working in or near roadways or on a construction site. Workers must be visible to vehicle operators in all work lighting conditions. The required clothing must be Class 2 or Class 3 fluorescent yellow-green (preferred) or fluorescent orange-red per ANSI/ISEA 107.

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rehabilitate, dismantle, or remove an existing facility. It also includes any area in which construction and excavation activities are conducted as part of environmental remediation efforts.
2.5.3.2 Protective Clothing

Protective clothing must be worn when working with hazardous chemicals and physical agents. Examples include:

- Coveralls to protect against chemicals, hazardous dust, and heavy lubricants
- Flame-retardant apron, coveralls, and gloves to protect against fire
- Rubber apron to protect against chemical liquids
- Special flame-resistant overalls to protect from electrical flash burns
- Apron to protect against burns while welding
- Hat to provide shade and protect against the sun's ultraviolet rays

2.5.4 Hand

Suitable gloves must be worn when the following hazards are present: chemical; thermal (extreme heat or cold); radiological; electrical; bio-hazard; possibility of abrasion, puncture, or contamination. Padded gloves should be used to improve ergonomics, as needed.

**Warning** Do not use gloves when operating rotating equipment such as a lathe, drill, or drill press.

Select the glove type that addresses the specific hazard(s) as illustrated by these examples:

- Abrasion-resistant gloves for handling sharp or rough objects
- Electrical lineman gloves for both low- and high-voltage electrical hazards
- Chemically resistant gloves for use with the specific chemical(s) to be handled
- Flame-retardant and heat-resistant gloves for working with extremely hot materials
- Cold-resistant gloves for working with cryogens
- Rubber or other suitable gloves for handling contaminants
- Padded gloves to relieve ergonomic stress

2.5.5 Foot

Foot protection is required in the following instances (not an exhaustive list):

- Safety-toe (steel, composite, or ceramic) boots are required at all construction sites.
- Protective footwear must be worn where there is a potential for electrical hazards; special electrical hazard footwear are designed with no conductive materials other than the steel toe (if safety-toe footwear), which is insulated. Safety-toe electrical hazard footwear is also available with a composite or ceramic toe box and no steel.
- Protective footwear with impact protection must be worn in work areas where carrying or handling materials such as packages, objects, parts or heavy tools, which if dropped, could injure the feet.
- Protective footwear with compression protection (safety-toe) must be worn for work activities in which materials or equipment could potentially roll over a foot.
Protective footwear with puncture protection are required where sharp objects such as nails, wire, tacks, screws, large staples, scrap metal, could be stepped on.

Neoprene or nitrile boots may be required while working with corrosives, caustics, cutting oils, and petroleum products.

Other hazards may necessitate the protective footwear described above or footwear with other protective features such as metatarsal protection, static dissipation, and slip resistance.

These requirements commonly apply to construction workers, riggers, machinists, mechanics, carpenters, electricians, store keepers, shipping/receiving personnel, technicians, and laborers. All protective footwear must meet appropriate performance standards, for example, ASTM F2413 for safety-toe footwear or ASTM F2892 for soft-toe footwear, and be tested by the manufacturer using ASTM F2412 or equivalent methods.

The PPE program manager is available to make recommendations to ensure applicable standards are met.

3 Forms

The following forms and systems are required by these requirements:

- None

4 Recordkeeping

The following recordkeeping requirements apply for these requirements:

- None

5 References

SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)

- Chapter 19, “Personal Protective Equipment”
  - Personal Protective Equipment: PPE Guidelines for Common Tasks (SLAC-I-730-0A21T-015)
  - Personal Protective Equipment: Safety Glasses and Protective Footwear Purchasing Procedures (SLAC-I-730-0A21C-034)
    - Personal Protective Equipment (PPE) Program Site (SharePoint)
- Chapter 2, “Work Planning and Control”

Other SLAC Documents

- Personal Protective Equipment (PPE) Reimbursement (BTS-2018-012)
- ESH Coordinators
- Programs and Program Managers List
Other Documents

- American National Standards Institute (ANSI) Z87.1, “Practice for Occupational and Educational Eye and Face Protection” (ANSI Z87.1)

- American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) 107, “High Visibility Safety Apparel” (ANSI/ISEA 107)


Chapter 19: Personal Protective Equipment

Safety Glasses and Protective Footwear Purchasing Procedures

Product ID: 715 | Revision ID: 2199 | Date published: 7 May 2021 | Date effective: 7 May 2021
URL: https://www-group.slac.stanford.edu/esh/eshmanual/references/PPEProcedPurchase.pdf

1 Purpose

The purpose of these procedures is to ensure that purchases of prescription safety glasses and protective footwear for individual use meet SLAC requirements. They cover approval, purchase, and reimbursement of prescription safety glasses and protective footwear. They apply to workers and supervisors.

2 Procedures

Only SLAC employees and Stanford students working at SLAC are eligible. This limitation and the requirements summarized in Table 1 are from SLAC policy on Personal Protective Equipment (PPE) Reimbursement.

Table 1 Safety Glasses and Protective Footwear Requirements

<table>
<thead>
<tr>
<th>Type</th>
<th>Amount*</th>
<th>Frequency</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety glasses</td>
<td>$210</td>
<td>One pair every two years</td>
<td>ANSI Z87.1</td>
</tr>
<tr>
<td>Protective footwear</td>
<td>$175 (new) / $100 (resole)</td>
<td>One pair every year</td>
<td>ASTM F2413 for safety-toe footwear</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ASTM F2892 for soft-toe footwear</td>
</tr>
</tbody>
</table>

*Pre-tax amount; SLAC will reimburse the applicable sales tax also.

To obtain prescription safety glasses or protective footwear, the worker

1. Obtains approval from his or her supervisor (Section 2.1)

2. Then either orders the PPE from a SLAC-contracted vendor (Section 2.2) or purchases it from any vendor and submits a reimbursement request (Section 2.2.2). Ordering from a SLAC-contracted vendor requires no out-of-pocket expense (the worker pays nothing) and is the preferred method.

2.1 Approval

All purchases require prior approval by the worker’s supervisor. The approval is good for one fiscal year (October through September): purchases must be made within that same fiscal year.
Step | Person | Action
--- | --- | ---
1. | Worker and supervisor | Review all individual PPE purchases before purchase to ensure that the PPE is required for the associated work tasks, meets applicable safety standards, and will be used for official laboratory business

2. | Supervisor | Completes [Personal Protective Equipment: PPE Purchase Approval Form](#), gives copy to worker

### 2.2 Ordering PPE from a SLAC-contracted Vendor

#### 2.2.1 Safety Glasses

Workers may obtain safety glasses with no out-of-pocket cost (except for any additional features, such as special coatings and frames, not covered by SLAC) by ordering glasses from a SLAC-contracted vendor. In this process the vendor bills SLAC directly, with the worker’s department being charged the cost.

Step | Person | Action
--- | --- | ---
3. | Worker | Obtains approval (see Section 2.1)
4. | Worker | Checks schedule for vendor site visits (generally once a month, see [PPE Program Site](#)) and selects an appointment time (allow 15 minutes to select and fit frames)
5. | Worker | Brings completed PPE Purchase Approval Form, valid prescription, and credit card (for paying for extra features if applicable) to appointment
6. | Worker | Selects frames, coatings; gives vendor completed PPE Purchase Approval Form
7. | Worker | Picks up glasses at next scheduled vendor site visit

#### 2.2.2 Protective Footwear

Workers may obtain protective footwear with no out-of-pocket cost by ordering them from a SLAC-contracted vendor. In this process the vendor bills SLAC directly, with the worker’s department being charged the cost.

Step | Person | Action
--- | --- | ---
1. | Worker | Obtains approval (see Section 2.1)
2. | Worker | Brings completed PPE Purchase Approval Form to a SLAC-contracted vendor (listed on the PPE Purchase Approval Form)
3. | Worker | Selects footwear; gives vendor completed PPE Purchase Approval Form
2.3 Purchase and Reimbursement

Workers may purchase prescription safety glasses or protective footwear on their own from any vendor, as long as the purchase meets the applicable standards. SLAC will reimburse the worker for the purchase, up to the amount stated in Table 1, plus applicable sales tax.

<table>
<thead>
<tr>
<th>Step</th>
<th>Person</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Worker</td>
<td>Obtains approval (see Section 2.1)</td>
</tr>
<tr>
<td>2.</td>
<td>Worker</td>
<td>Purchases prescription safety glasses or protective footwear, obtaining receipt showing amount only for that purchase, plus sales tax</td>
</tr>
<tr>
<td>3.</td>
<td>Worker</td>
<td>Creates a travel expense report, attaches scanned versions of the completed PPE Purchase Approval Form and receipt, and submits (see “Getting Reimbursed” at Travel@SLAC and Completing an Expense Report for PPE in the Concur system)</td>
</tr>
</tbody>
</table>

3 Forms

The following forms and systems are required by this procedure:

- Personal Protective Equipment: PPE Purchase Approval Form (SLAC-I-730-0A21J-059). Form for documenting approval to purchase prescription safety glasses and protective footwear for individual use

4 Recordkeeping

The following recordkeeping requirements apply for this procedure:

- For ordering from a SLAC-contracted vendor, the vendor retains copies of the PPE Purchase Approval Form.
- For purchase and reimbursement, the SLAC Travel Office retains copies of the PPE Purchase Approval Form and receipt.

5 References

SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)

- Chapter 19, “Personal Protective Equipment”
  - Personal Protective Equipment: PPE Requirements (SLAC-I-730-0A21S-052)
  - Personal Protective Equipment: PPE Guidelines for Common Tasks (SLAC-I-730-0A21T-015)
  - Personal Protective Equipment (PPE) Program Site (SharePoint)
Other SLAC Documents

- [Personal Protective Equipment (PPE) Reimbursement](BTS-2018-012)
- [HDI for Employee and Faculty> Purchasing Safety Glasses and Protective Footwear](Travel@SLAC ("Getting Reimbursed")
- [Completing an Expense Report for PPE](

Other Documents

- American National Standards Institute (ANSI) Z87.1, “Practice for Occupational and Educational Eye and Face Protection” ([ANSI Z87.1](ASTM F2412))
- ASTM International (ASTM) F2892, “Performance Requirements for Soft Toe Protective Footwear (Non-safety / Non-protective toe)” ([ASTM F2892](ASTM F2892))
Chapter 19: **Personal Protective Equipment**

PPE Purchase Approval Form

Product ID: 716 | Revision ID: 2200 | Date Published: 7 May 2021 | Date Effective: 7 May 2021

URL: [https://www-group.slac.stanford.edu/esh/eshmanual/references/PPEFormPurchaseApproval.pdf](https://www-group.slac.stanford.edu/esh/eshmanual/references/PPEFormPurchaseApproval.pdf)

This form is for documenting approval to purchase prescription safety glasses and protective footwear for individual use. It is to be completed before a worker may purchase/order prescription safety glasses or protective footwear. The worker must provide a copy of the completed form when either requesting reimbursement or ordering from a SLAC-contracted vendor. For purchase and reimbursement, the SLAC Travel Office retains copies of the form; for ordering from a SLAC-contracted vendor, the vendor retains copies. (See **Personal Protective Equipment: Safety Glasses and Protective Footwear Purchasing Procedures** [SLAC-I-730-0A21C-034]). For assistance, contact the PPE program manager.

**Important** The approval is good for one fiscal year (October through September): purchases must be made within that same fiscal year.

**Requester’s Information** (requester or supervisor completes)

<table>
<thead>
<tr>
<th>Worker name (please print):</th>
<th>Dept/group:</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-mail:</td>
<td>Phone:</td>
</tr>
<tr>
<td>Job function:</td>
<td>Job title:</td>
</tr>
<tr>
<td>PPE type:</td>
<td></td>
</tr>
<tr>
<td>□ Prescription safety glasses</td>
<td>□ Protective footwear</td>
</tr>
</tbody>
</table>

**Approvals and Specifications** (requester’s supervisor completes)

**Eligibility determination**

- Employee type: □ SLAC employee □ Stanford University student

**Prescription safety glasses**

I have informed the requester that prescription safety glasses must be **ANSI Z87.1** compliant. (For assistance with the required standard, contact the **PPE program manager**.)

I have informed the requester that the following limits apply:

- SLAC covers: frames, polycarbonate lenses, scratch protection coating, Transitions VII (photochromic). Covered lenses include single vision, bi-focal, and progressives (level 1)
  - Additional options are at your cost
  - **Reimbursement limit:** $210 (one pair every two years)

**Protective footwear**

I have informed the requester that protective footwear must meet appropriate standards. Safety-toe footwear must be **ASTM F2413** compliant. Soft-toe protective footwear must by **ASTM F2892** compliant.

The purchased footwear must be (check all that apply):

- □ Safety toe (composite or steel) □ Static dissipating
- □ Puncture resistant □ Electrical hazard
- □ Boot (ankle support and protection) □ Chemical resistant
- □ Slip resistant □ Metatarsal guard
- □ Waterproof

Safety-toe boots are required for accessing a construction site.

I have informed the requester that the following limits apply:

- **Reimbursement limit:** $175 (new) / $100 (resole) (one pair every year)

**SLAC-contracted vendors:**

- □ Redwood Trading Post ([https://www.redwoodtradingpost.com/](https://www.redwoodtradingpost.com/)), 1455 Veteran’s Blvd, Redwood City, account: SLAC
- □ Beck’s Shoes ([https://www.beckshoes.com/](https://www.beckshoes.com/)), multiple Northern California locations, account: 81768

**Name (please print):**

**Charge/PA #:**

**Signature:**

**Date:**

7 May 2021
Chapter 19: Personal Protective Equipment

PPE Guidelines for Common Tasks

1 Purpose

The purpose of these guidelines is to ensure the proper selection and use of personal protective equipment (PPE). They cover determining and using PPE for common tasks and apply to workers, their supervisors, and others overseeing their activities.

These are examples only; requirements for common PPE are covered in Personal Protective Equipment: PPE Requirements. Hazard-specific PPE requirements, such as laser safety glasses, dust masks, and hearing protection, are listed in each appropriate ESH Manual chapter.

2 Guidelines

See the following table.
**Table 1** PPE Guidelines for Common Tasks

<table>
<thead>
<tr>
<th>Task</th>
<th>Hazard</th>
<th>Head</th>
<th>Eyes and Face</th>
<th>Body</th>
<th>Hand</th>
<th>Foot</th>
<th>Requirement Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asbestos work</td>
<td>Inhalation of asbestos fibers</td>
<td></td>
<td></td>
<td></td>
<td>Leather gloves (used in combination with an insulated liner when working with electricity)</td>
<td></td>
<td>Chapter 27, “Asbestos”</td>
</tr>
<tr>
<td>Brazing, grinding</td>
<td>Sparks or scraping against rough surfaces; electricity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cafeteria work</td>
<td>Slip, trips, and, falls</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Slip-resistant shoes</td>
<td></td>
</tr>
<tr>
<td>Chemicals, hazardous handling</td>
<td>Splash, irritating mists</td>
<td>Goggles, eyecup and cover types. For severe exposure, use face shield over primary eye protection. Special-purpose goggles</td>
<td>Chemical-resistant aprons and coveralls</td>
<td>Chemical-resistant gloves</td>
<td></td>
<td></td>
<td>Chapter 53, “Chemical Safety”</td>
</tr>
<tr>
<td>Chemicals, hazardous atmosphere, confined spaces, emergencies</td>
<td>Toxicity, oxygen deficiency, respiratory irritants</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Chapter 29, “Respiratory Protection”</td>
</tr>
<tr>
<td>Concrete saw cutting, core drilling, scarifying, grinding, jack hammering</td>
<td>Concrete dust (containing crystalline silica)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Chapter 29, “Respiratory Protection” Chapter 56, “Respirable Crystalline Silica”</td>
</tr>
<tr>
<td>Concrete work, or in standing water</td>
<td>Slips, standing water</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>Falling or rolling objects, flying debris</td>
<td>Hard hat (ANSI Z89.1)</td>
<td>Protective eyewear (ANSI Z87.1)</td>
<td>High visibility safety apparel, fluorescent yellow-green (preferred) (ANSI/ISEA 107) Work shirt (long or short sleeve), work pants (long)</td>
<td></td>
<td>Safety-toe boots (ASTM F2413)</td>
<td></td>
</tr>
<tr>
<td>Task</td>
<td>Hazard</td>
<td>Head</td>
<td>Eyes and Face</td>
<td>Body</td>
<td>Hand</td>
<td>Foot</td>
<td>Requirement Reference</td>
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</tr>
<tr>
<td>Cryogens, handling</td>
<td>Cold burns</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Chapter 36, “Cryogenic and Oxygen Deficiency Hazard Safety”</td>
</tr>
<tr>
<td>Cutting or working with sharp instruments</td>
<td>Cuts and scratches</td>
<td></td>
<td></td>
<td></td>
<td>Metal mesh</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical work</td>
<td>Electrical shock, burns, death</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Chapter 8, “Electrical Safety”</td>
</tr>
<tr>
<td>Jack hammering operations, hoisting and rigging</td>
<td>Falling objects, jack hammer</td>
<td></td>
<td></td>
<td></td>
<td>Metatarsal guards /steel footwear coverings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lab work, light mechanical operations</td>
<td>Mild irritants / slippery objects, mild heat or cold</td>
<td></td>
<td></td>
<td></td>
<td>Disposable / fabric gloves</td>
<td></td>
<td></td>
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<tr>
<td>Lead work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Chapter 20, “Lead Safety”</td>
</tr>
<tr>
<td>Maintenance operations in tunnels</td>
<td>Low ceiling, fixed objects protruding from the ceiling</td>
<td>Bump cap</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical work</td>
<td>Slip, trips, falls, mild irritants, bio-hazards</td>
<td></td>
<td></td>
<td></td>
<td>Disposable gloves</td>
<td>Slip-resistant shoes</td>
<td></td>
</tr>
<tr>
<td>Molten materials handling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Aluminized gloves</td>
<td></td>
</tr>
<tr>
<td>Outdoor work in direct sunlight (landscaping, etc.)</td>
<td>Sunburn, heat exhaustion, heat stroke</td>
<td>Hat</td>
<td></td>
<td></td>
<td>Long-sleeved shirt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overhead chipping, grinding, sanding</td>
<td>Flying fragments, objects, large chips, particles, sand, dirt</td>
<td>Goggles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task</td>
<td>Hazard</td>
<td>Head</td>
<td>Eyes and Face</td>
<td>Body</td>
<td>Hand</td>
<td>Foot</td>
<td>Requirement Reference</td>
</tr>
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</tr>
<tr>
<td>Plasma cutting, electrical work</td>
<td>Sparks or scraping against rough surfaces; electricity</td>
<td></td>
<td></td>
<td>Flame-resistant aprons and/or coveralls</td>
<td>Leather (used in combination with an insulated liner when working with electricity)</td>
<td></td>
<td>SLAC Radiological Control Manual</td>
</tr>
<tr>
<td>Radiological materials handling, radiological contamination</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Chapter 13, &quot;Traffic and Vehicular Safety&quot;</td>
</tr>
<tr>
<td>Riding a motorcycle, scooter, moped, bicycle</td>
<td>Vehicle accident, falls</td>
<td>Approved helmet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Chapter 13, &quot;Traffic and Vehicular Safety&quot;</td>
</tr>
<tr>
<td>Salvage Yard operations</td>
<td>Sole puncture hazards</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Steel-shank/steel-plated sole boots</td>
<td></td>
</tr>
<tr>
<td>Welding – electric arc</td>
<td>Optical radiation, poor vision, glare, Sparks or scraping against rough surfaces; electricity</td>
<td></td>
<td></td>
<td>Welding helmets or welding shields. Typical shades: 10-14 Welding goggles or welding face shield. Typical shades: gas welding 4-8, cutting 3-6, brazing 3-4. Spectacles or welding face shield. Typical shades: 1.5-3 Spectacles with shaded or special-purpose lenses, as suitable.</td>
<td>Apron</td>
<td>Leather (used in combination with an insulated liner when working with electricity)</td>
<td>High-top boots</td>
</tr>
<tr>
<td>Cutting, torch brazing, torch soldering</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Woodworking, buffing, dusty conditions</td>
<td>Nuisance dust</td>
<td></td>
<td>Goggles, eyecup, and cover types</td>
<td></td>
<td></td>
<td></td>
<td>Chapter 45, “Fall Protection”</td>
</tr>
<tr>
<td>Working at heights</td>
<td>Fall hazard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Chapter 18, “Hearing Conservation”</td>
</tr>
<tr>
<td>Working in high noise areas or near high noise machinery</td>
<td>Hearing loss</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
3 References

SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)

- Chapter 19, “Personal Protective Equipment”
  - Personal Protective Equipment: PPE Requirements (SLAC-I-730-0A21S-052)
  - Personal Protective Equipment (PPE) Program Site (SharePoint)
- Chapter 2, “Work Planning and Control”
- Chapter 8, “Electrical Safety”
- Chapter 10, “Laser Safety”
- Chapter 13, “Traffic and Vehicular Safety”
- Chapter 18, “Hearing Conservation”
- Chapter 20, “Lead Safety”
- Chapter 27, “Asbestos”
- Chapter 29, “Respiratory Protection”
- Chapter 36, “Cryogenic and Oxygen Deficient Hazard Safety”
- Chapter 45, “Fall Protection”
- Chapter 53, “Chemical Safety”
- Chapter 56, “Respirable Crystalline Silica”

Other SLAC Documents

- SLAC Radiological Control Manual (SLAC-I-720-0A05Z-001)

Other Documents

- American National Standards Institute (ANSI) Z87.1, “Practice for Occupational and Educational Eye and Face Protection” (ANSI Z87.1)
- American National Standards Institute (ANSI) Z89.1, “Personal Protection Protective Headwear for Industrial Workers” (ANSI Z89.1)
- American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) 107, “High Visibility Safety Apparel” (ANSI/ISEA 107)
851>Cal/OSHA Implementation Plan: Personal Protective Equipment

This form is for documenting changes to a program and the program’s supporting resources (ESH Manual chapter or similar program description, training courses, databases, and so on) resulting from the adoption of the model Revolutionary Working Group (RWG) contract (see below) and the associated DOE variance from 10 CFR 851, “Worker Safety and Health Program”. The purpose is to ensure consistent, concise descriptions of the resulting changes. The form is to be completed by the program manager and sent to the DOE as a cover sheet with the revised documents. The general process is as follows:

1. Program manager completes form
2. Changes to program resources made and reviewed following normal revision processes
3. DOE sent draft form and revisions
4. Changes to program resources published
5. DOE sent final form and revisions

1 Introduction

The RWG model contract and 10 CFR 851 variance are intended to simplify and improve the implementation of worker safety and health requirements by tailoring the laws, regulations, and standards that apply while achieving an equivalent level of protection to the requirements of 10 CFR 851. This mostly entails replacing federal Occupational Safety and Health Administration (OSHA) regulations (29 CFR 1910 and 1926) with Cal/OSHA regulations (8 CCR) as external requirements to be complied with, but may involve other laws and regulations and either different versions of industry standards than those cited in 10 CFR 851 or entirely different standards. (One purpose of this form is to capture the specific changes in external requirements for each program.) (For more information on this effort, see the variance application in 851>Cal/OSHA resources.)

2 Required Elements

<table>
<thead>
<tr>
<th>Element Number</th>
<th>Element Name</th>
<th>Element Type and Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Program name</td>
<td>Personal Protective Equipment</td>
</tr>
<tr>
<td>2</td>
<td>Program manager</td>
<td>Ramsey Razik</td>
</tr>
<tr>
<td>3</td>
<td>Program resources</td>
<td>The following is a list of existing program resources, to be reviewed by the program manager to determine which will need to be revised to reflect RWG changes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• ESH Manual Chapter 19: Personal Protective Equipment</td>
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<tr>
<td></td>
<td></td>
<td>• Personal Protective Equipment: Quick Start Summary</td>
</tr>
<tr>
<td></td>
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<td>• Personal Protective Equipment: PPE Requirements</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Personal Protective Equipment: Safety Glasses and Protective Footwear Purchasing Procedures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Personal Protective Equipment: PPE Purchase Approval Form</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Personal Protective Equipment: PPE Guidelines for Common Tasks</td>
</tr>
</tbody>
</table>
Element Number | Element Name | Element Type and Description
--- | --- | ---
 | | ▪ ESH Course 255, Personal Protective Equipment (PPE) ([ESH Course 255](#))
 | | ▪ PPE Program Site (SharePoint)
 | | ▪ Personal Protective Equipment (PPE) Reimbursement

4. Current external requirements

The following is a list of current external requirements for this program, as identified in the program resources above.

- American National Standards Institute (ANSI) Z87.1, "Occupational and Educational Personal Eye and Face Protection Devices" ([ANSI Z87.1](#))
- American National Standards Institute (ANSI) Z89.1, "Personal Protection Protective Headwear for Industrial Workers" ([ANSI Z89.1](#))
- American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) 107, "High Visibility Safety Apparel" ([ANSI/ISEA 107](#))
- 29 CFR 1910.132
- 29 CFR 1910.133
- 29 CFR 1910.134
- 29 CFR 1910.135
- 29 CFR 1910.136
- 29 CFR 1910.137
- 29 CFR 1910.138
- 29 CFR 1929.100
- 29 CFR 1929.102

The following is a list of current reference/guidance documents.

- None

5. Proposed external requirements

List the external requirements that will apply to this program. To determine, start by looking up existing external requirements in RWG resources (variance, gap analysis, and contract) and finding replacements (for example a specific section in 29 CFR 1910 to a specific section in 8 CCR or a current version of an industry standard).

- American National Standards Institute (ANSI) Z87.1, "Occupational and Educational Personal Eye and Face Protection Devices" ([ANSI Z87.1](#))
- American National Standards Institute (ANSI) Z89.1, "Personal Protection Protective Headwear for Industrial Workers" ([ANSI Z89.1](#))
- American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) 107, "High Visibility Safety Apparel" ([ANSI/ISEA 107](#))
- ASTM F2892, “Performance Requirements for Soft-toe Protective Footwear (non-safety / non-protective toe)”
<table>
<thead>
<tr>
<th>Element Number</th>
<th>Element Name</th>
<th>Element Type and Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8 CCR 3380, “Personal Protective Devices”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 CCR 3381, “Head Protection”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 CCR 3382, “Eye and Face Protection”</td>
<td></td>
</tr>
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<td></td>
<td>8 CCR 3383, “Body Protection”</td>
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<td></td>
<td>8 CCR 3384, “Hand Protection”</td>
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<td>8 CCR 3385, “Foot Protection”</td>
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<td>8 CCR 3387, “Sanitation”</td>
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<tr>
<td></td>
<td>8 CCR 3390, “Protection from Electric Shock”</td>
<td></td>
</tr>
</tbody>
</table>

6. Proposed substantive changes

Describe (list?) the substantive changes to be made in the program, based on the new external requirements. Enter “no changes” if none.

- No changes

7. Additional proposed substantive changes

- 2.5.1 add “flying” to “falling” objects
- PPE Purchase Approval form needs modification for safety shoe vendor accounts.
- Adding buying footwear through SLAC-approved vendors (2 contract established)
- Adding restriction that approval for purchase is good for one fiscal year

8. Affected program resources

List program resources affected by the substantive changes.

- Course 255 has Fed OSHA (29 CFR) references in a few spots that need to be replaced with 8 CCR references.
- PPE Purchase Approval Form needs some minor modification unrelated to 851 variance. Need to add shoe vendor account #s.

9. Status

- ✔ Initial draft (proposed changes)
- ✔ Draft (for DOE review)
- ✔ Final (published changes)

10. Date completed

- 11/7/2019 (revised 11/5/2020)
- 1/22/2021
- 5/7/2021