

**Guidelines
for**

PERSONAL
PROTECTIVE
EQUIPMENT

(PPE)

05/2007

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Additional Help

This is a guide to fulfill the minimum requirements and doesn't cover every conceivable hazard. If you need additional assistance in identifying engineering or administrative controls or in selecting PPE for a hazard, contact the *EH&S Occupational Health and Safety Office at 206-543-7388*.

Guidelines for Personal Protective Equipment (PPE)

Requirements

The Washington State Department of Labor and Industries' (L&I) in WAC 296-800-160 Personal Protective Equipment (PPE) requires all employers to assess their work place for hazards that might require the use of personal protective equipment. If PPE has to be used, the supervisor must select the proper equipment and require its use. The Department of Environmental Health and Safety has developed a UW policy to assure compliance and assist departments with PPE program implementation. (See UW Administrative Policy Statement, *APS 10.4 Personal Protective Equipment and Clothing* at <http://www.washington.edu/admin/rules/APS/10.04.html>)

Hazard Control

Eliminating hazards through engineering or administrative control measures is the best way to protect people. These control methods provide better and more consistent protection than relying on PPE alone. Even if PPE is necessary, its best for the PPE to be used with with engineering and/or administrative controls.

Document the assessment, PPE selection, and training.

Supervisor Responsibilities

Each Supervisor has the responsibility to review all of their employees' jobs for personal protective equipment needs. The regulations, the degree of hazard, and the engineering or administrative controls that are in place will determine what PPE is needed. If departments will be using PPE for personnel hazards, the following items must be completed:

- Assess the workplace for hazards.
- Select appropriate PPE.
- Ensure PPE is used.
- Establish inspection, maintenance and replacement procedures to make sure damaged PPE is not used.
- Train employees in proper use, limitations, care and maintenance of PPE.
- Document assessment, selection, and training.

If all of the above mentioned items are documented in existing departmental procedures, such as a laboratory safety manual or departmental health and safety plan, for all employee worksites, then no further work is needed.

When the hazard assessment indicates that PPE is required, employing departments must provide the PPE to employees free of charge. Exceptions are prescription safety glasses and safety shoes.

Where a hazard assessment determines that no PPE is needed, document the assessment and you're done. However, remember that if a hazard exists which does not require PPE, other regulations or programs may be applicable.

How to Use This Website

This website is designed to help departments and supervisors assess their work place, select the right equipment, train employees and document this work.

Step One – Assessment

Select the job, process or procedure you are going to assess. Survey the worksite and identify the hazards the worker will be exposed to while doing the work. Use copy of the Certificate of Hazard Assessment Form/Work Sheet or one of your own to list the identified hazards. (*The Hazards List may be used to help in determining the hazards.*) The WA Department of Labor & Industries also has a Hazard Assessment Checklist (<http://www.lni.wa.gov/WISHA/Rules/corerules/HelpfulTools/HT7-CR.htm>) that may be of use.

For each of the identified hazards review the discussion of control and PPE options in the Hazard Control and PPE section ***Remember, control methods should be implemented first.***

Step Two – Selection

If PPE must be used, list the PPE that will be used for each hazard identified on your form. The supervisor or person completing the assessment and selection must sign and date the form. (*Refer to the PPE Selection and Limitation section and verify that the appropriate type of PPE has been selected. PPE selection can vary depending on exposure levels.*)

Step Three – Training

After the assessment and selection, employees required to use PPE must be trained. All in the following must be covered.

- Tell them which PPE they must use and when to use it.
- Discuss the limitations of the PPE.
- Show them how to put it on, take it off and adjust it.
- Show the users how to inspect and maintain the PPE.
- Make sure you have covered everything in the instructions that come with the PPE and the warning labels on the equipment itself.
- Make sure the PPE fits well.
- Tell them how to get the required PPE.
- Have them demonstrate that they understand the training.

Assure that current employees have received the required PPE training. Establish a mechanism for assuring all new employees are trained before they are required to use the PPE.

Incorporate PPE training into the departmental new employee safety orientation. Schedule other required training immediately.

The training must be repeated if:

- The workers don't understand how to use the equipment,
- The workers are using the equipment improperly, or
- The job changes so the PPE requirements change.

Step Four – Documentation

The following information must be retained by University departments to document the PPE hazard assessment, PPE selection and training.

- Job, process, or activity being assessed
- Hazards identified
- Selection of PPE used for each hazard identified. PPE type, brand, model may need to be specified.
- Person(s) or job title identified to use PPE
- Name and title of person completing the hazard assessment
- Date hazard assessment was completed
- Name, title, training date for all employees required to wear PPE.

(A sample form is available from EH&S. You may devise your own method for documenting these actions.)

Remember: Departments that record this information in existing policies or procedures may continue to use their current method and do not need to create new documentation for PPE.

For example, laboratories write a Standard Operating Procedure (SOP) as part of their Chemical Hygiene Plan. A properly written SOP contains all of the needed information except for documenting the employee training.

Hazard Control and PPE

This section provides an overview of exposure controls and PPE that may be needed for a variety of hazards. Use this information to assist in your PPE assessment and as a guide to additional references.

HAZARD LIST

This list contains the most common but not all of the hazards that may require PPE.

Hazard
Biohazards (Germs)
Bright Light
Chemicals
Dust
Falling Objects
Falls
Flying Particles
Hot Environments
Hot or Cold Objects
Kneeling
Lifting
Low Overhead Objects
Noise
Radiation
Repetitive Motion
Sharp Objects
Slipping
Splashes

See
 APS 12.3 Review of
 Research Projects
 Involving Biological
 Hazards and
 Recombinant
 DNA(<http://www.washington.edu/admin/rules/APS/12.03.html>) and
 UW Biosafety Manual or
 call 206-221-7770.
Web links on page 23.

Biohazards

Controls - Special ventilation, containment, and procedures are required for work with biohazards (germs). Refer to Section IV of the Biohazard Safety Manual. Tightly sealed containers minimize the possibility of spills. Practice good housekeeping and disinfect contaminated or potentially contaminated items. Use a bench top splash shield to stop splashes and splatters. Immediately wash off any spills. This is covered in greater detail in the Biohazard Safety Manual.

PPE - [splash goggles](#), [respirators](#), [gloves](#), [surgical masks](#), [lab coats](#), [aprons](#), [sleeves](#), [shoe covers](#), [head covers](#)

Biohazards are tissue, blood or body fluids from animals or humans. Materials which contain or may contain biological agents (viruses, bacteria and other disease causing "germs").

Bright Light (welding, lasers, glass blowing)

Controls - Put a guard or shield around the source so it cannot expose workers.

PPE - [glasses](#), [goggles](#), [face shields](#)

See APS 12.5 Hazard
 Communications
 Program and for
 laboratories see UW
 Laboratory Safety
 Manual or call 206-
 543-7388. *Web links on
 page 23.*

Chemicals

Controls - For many chemicals local exhaust ventilation, such as a fume hood, is required to draw away chemicals before they get into the air you breathe. If local exhaust is not required, work in a room with good general ventilation, at least 10-12 air changes per hour to dilute escaped chemicals

in the air you breathe. Enclose the process as much as possible to minimize chemical release. Substitute with less hazardous chemicals when possible. Use a splash shield. Immediately wash off any spills. If in doubt, consult the Material Safety Data Sheet (MSDS) or call EH&S for help.

PPE - [respirator](#), [gloves](#), [shoe covers](#), [chemical resistant clothing](#), [aprons](#), [vapor proof or splash goggles](#)

Laboratory PPE should be covered by the written Standard Operation Procedures (SOP) in each laboratory's Chemical Hygiene Plan in the UW Laboratory Safety Manual. Make sure the SOP covers every hazard

Dust

Control - Do the work so you don't create dust. Keep the work wet so the dust doesn't get into the air. Use local exhaust ventilation like a fume hood to draw away dust before it gets into the air you breathe. Work in a room with good general ventilation, at least 10-12 air changes per hour. That will keep dust from hanging around in the air you breathe. Enclose the process as much as possible to minimize the dust release. Substitute with less hazardous materials.

PPE - [dust goggles](#), [respirators](#)

Falling objects

Control - Secure the objects so they won't fall, provide overhead protection

PPE - [hard hats](#), [steel toe shoes](#), [metatarsal guards](#)

Fall Protection Guidelines are available from EH&S call 206-543-7388 for more information.

Falls (from heights)

Controls - Provide guard rails so workers don't fall. Use a catch platform so the fall is not so far. Warning lines can be used to keep workers away from the edge. Where employees

are exposed to fall hazards greater than 4 feet, a fall protection program is required.

PPE - [fall harness](#), [hard hats](#) (strap on)

Flying particles

Controls - Install guards on equipment that throws off particles. Change the process to eliminate flying particles.

PPE - [safety glasses w/side shields](#), goggles, [face shields](#)

Hot environments

Controls - Workers should take rest breaks in cool areas and drink plenty of fluids. Schedule heavy work during the cooler parts of the day. Provide cooling fans and shade.

PPE - cooling vests, [reflective suits](#).

Hot or cold objects

Controls - Use tools, such as tongs or pliers to handle the objects.

PPE - [gloves](#)

Kneeling

Controls - Raise the work piece so you don't have to kneel to get to it.

PPE - [knee pads](#)

<p>WAC 296-126-096 requires lifting training if weights of more than 20 lbs. are lifted, carried, pushed, or pulled as part of the job.</p>

Lifting

Controls - Arrange the work to minimize lifting. Provide lifting equipment to decrease the force required for the lift or to do the lifting. Carts can also help. Use containers with adequate and well designed handles. Make sure help is available and

used for heavy lifts.

PPE - No PPE are available for lifting hazards. However, engineering or administrative controls and lifting training have been shown to help reduce injuries.

Back belts are not PPE because they have not been shown to protect the back from injury. Back belts may be used for comfort at the employee's choice. Departments are not required to provide back belts and cannot require their use. Injured employees should only use back belts on the advice of a qualified health-care provider.

Low Hanging Objects

Controls - Pad objects hanging below 79" and tag them to make them more visible or raise them.

PPE - [bump cap](#), [hard hat](#)

If you cannot carry on a conversation without raising your voice, have the sound level checked. Call 206-543-7388.

Noise

Controls - Change the process so it is not so noisy. Put a sound absorbing barrier around the noisy equipment. Isolate noisy equipment by putting sound absorbing material along the path between the equipment and the workers.

Workers in noisy areas must be in the University's Hearing Conservation Program.

PPE - [hearing protectors](#)

See the UW Radiation Safety Manual or call 206-543-0463. Web links are on page 20.

Radiation

Controls - Shield the source so workers are not exposed. Minimize the time workers are exposed. Increase the distance to the source. Change the way the job is done so there is no use of radiation. If you have questions, contact EH&S Radiation Safety Office at 543-0463.

PPE - [lead apron](#), [lead gloves](#), thyroid collar, lead glasses for X-ray; [lab coats](#), [gloves](#) for radioactive materials

See Ergonomics information on the EH&S web site. *Web links are on page 20.*

Repetitive motion

Controls - Reduce the time spent doing the job. Reduce the force required to do the job. Change the way the job is done to eliminate awkward postures. Reduce repetition.

PPE - There are no PPE for repetitive motion. The hazard must be controlled by engineering or administrative changes. (Repetitive motion cont.)

Wrist splints are not PPE and should only be used as part of an injured worker's treatment and then on the advice of a qualified health-care practitioner.

Sharp Objects

Controls - Eliminate sharp edges by filing them smooth or putting a guard around them. Use tools to handle sharp objects. Use blunt pointed knives if it is not necessary to stab with them.

PPE - [gloves](#)-cut resistant, such as leather, Kevlar or chain mail

Slipping

Controls - Install non-skid flooring. Install absorbent mats around wet areas and entries into buildings. Eliminate spills by covering containers.

PPE - non-skid shoes

Splashes

Controls - Use tools to handle containers of hazardous materials. Substitute materials that do not cause a hazard if they splash. Use bench top splash guards. Immediately wash off spills.

PPE - [splash goggles](#), [face shields](#), [shoe covers](#), [chemical resistant clothing](#), [sleeves](#)

The next section provides more information on the most common types of PPE.

PPE Selection and Limitations

The following list of PPE is presented in alphabetical order



Aprons

Make sure the aprons are large enough. They must be made of materials that are appropriate for the chemicals used.

Training note: Show the workers how to take off used aprons without contaminating themselves. Rinse off any obvious contamination. Take off the apron and fold it so that the contaminated surface is inside.

Bump Caps

Bump caps do not provide protection against falling objects. Use a hard hat instead.

Chemical Protective Clothing

Make sure the clothing is appropriate for the chemicals used.

Training note: Show the workers how to take it off without contaminating themselves. Rinse off any obvious contamination. Then peel it off so the contaminated surfaces are on the inside.

Cooling Vests

Cooling vests have compartments that contain a chemical coolant and are HEAVY!



Face Shields

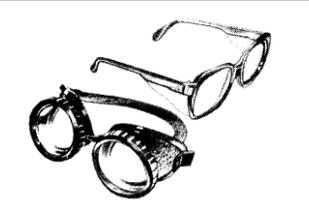
Wear safety glasses or goggles under the face shield. If you are using a face shield for protection from bright lights, such as welding, contact EH&S for lense selection.

Fall Protection Equipment

Everyone who uses a fall protection system (e.g., body harness, positioning belts.... must go through EH&S's fall protection training class and may be required to complete a fall protection work plan.

Glasses (Safety)

Do not use regular glasses or contact lenses as safety glasses, since they are not as strong. Safety glasses must have side shields. If you use removable side shields, make sure they are strong enough. Prescription safety glasses are available from optical stores.



Safety glasses alone do not provide adequate protection from dust, splashes or hot particles. Use goggles or a face shield for those hazards.

Glasses only provide protection for the eyes. If you need skin protection from infrared (IR) or ultraviolet light (UV) use a face shield with appropriate filtration. If you are using safety glasses for protection from bright lights, such as glass blowing, contact EH&S for filter selection.



Gloves

When choosing gloves consider these factors:

- If they are used for chemical protection, make sure the type of glove is appropriate for the chemical. Refer to the Laboratory Safety Manual or contact the vendor or EH&S for selection assistance.
- Make sure the gloves fit well. Gloves that are too tight or loose may cause additional problems. They also reduce dexterity.
- Make sure employees are not allergic to the glove material or powder lubricant.
- Texturing or plastic nubs can improve the grip.
- If chemical resistance is not a concern, the glove material should be breathable so perspiration is not trapped.

Gloves should not be worn around moving machinery. Moving parts can pull the glove, hand and arm into the machine.



Training note:

For chemical protective gloves: Tape or fold a cuff on the gloves to prevent chemicals from running down the users arm. Show the workers how to take off chemical protective gloves without contaminating themselves. Disposable gloves should be peeled off turning them inside out as they are removed. Reusable gloves should be rinsed off before removing them. Handle them by the outside of their cuffs only, until they are turned inside out.

Reusable chemical protective gloves should be checked for leaks by inflating them to see if they hold air. (*Do not inflate by mouth!*) Trap air in the glove by holding the opening closed. Squeeze the glove to inflate it and check for leaks.

Do not wear chemical, biological, or radiation protective gloves or other PPE / clothing outside of the laboratory in common areas such as hallways, elevators, and food services. You may be convinced the gloves are not contaminated, but the person standing next to you may not be.

The exterior of any container used for transporting hazardous materials in the public areas should not be contaminated, so protective gloves or clothing should not be necessary.



Goggles

Chemical splash goggles have specially designed air vents to prevent entry of splashed liquids. Goggles do not provide skin protection. Use a face shield for corrosive chemicals. If you need skin protection from infrared (IR) or ultraviolet light (UV) use a welding helmet. If you are using goggles for protection from bright lights, such as lasers or glass blowing contact EH&S for filter selection.

Hard Hats

Most hard hats only provide protection from impacts directly on the top of your head. Impacts from other directions or glancing blows can knock off the hard hat leaving you unprotected. Hard hats with chin straps and a foam lining provide better protection. Do not use metal hard hats around electricity. If hot material is a hazard, such as in foundry work, use a heat resistant hard hat.

Hard hats have an expiration date and should be replaced

before they expire.



Hearing Protectors

Everyone who must use hearing protectors is required to participate in the UW Hearing Conservation Program which includes annual hearing tests and training.

Knee pads

Knee pads should be comfortable, large enough to cover the entire knee, padded and have a hard shell. They should be snug enough to fit well but not so tight that they block blood flow.



Lab Coats

Wear in the laboratory to prevent spill and splatter contamination of street clothes. ***Do not wear lab coats outside of the laboratory.***

Reflective Suits (for heat)

Keep suit clean. Dirt will absorb heat rather than reflect it.

See EH&S web site for more information on respirator use or call 206-543-7388. ***Web links are on page 23.***

Respirators

Everyone who uses a respirator, including a dust mask, must be included in a respiratory protection program that includes a health assessment, a hazard evaluation, and fit-testing of respirators prior to first use. Annual training is also required.

See APS 10.4 Personal Protection Equipment and Clothing for more information about safe foot wear for the worksite. ***Web links are on page 23.***

Safety Shoes

If the hazard is severe, use safety shoes with metatarsal guards.

Shoe Covers

Shoe covers are often slippery and can be a tripping hazard. Try to get well fitting covers with non-skid soles. Make sure the type of cover is appropriate for the chemicals used.

Training note: Show the workers how to take off chemical protective shoe covers without contaminating themselves. Rinse off any obvious contamination. Then peel them off so the contaminated surfaces are inside.

Sleeves–Chemical Resistant

Make sure the sleeve material is appropriate for the chemicals used.

Training note: Show the workers how to take off chemical protective sleeves without contaminating themselves. Rinse off any obvious contamination.

Surgical Masks

Surgical masks protect against splashes into your mouth or nose. They do not prevent you from breathing anything into your lungs. Use a respirator to protect your lungs.

Inspection and Maintenance

The PPE must be inspected for defects every time it is put on. Look for symmetry; does each side look like a mirror image of the other or is one side distorted? Are there any broken, bent, frayed or torn pieces? Are the lenses scratched so they are hard to see through? Is the elastic still springy or is it stretched out?

It should also be clean. If it's dirty, clean it with warm soap and water. Don't use solvents or abrasives to clean it. Store it out of sunlight in an area where it will be protected and kept clean.

Replace reusable PPE every 2-5 years, earlier if recommended by the manufacturer or if there is a major impact. Replace any defective parts with parts made by the same manufacturer for that equipment. Do not make makeshift repairs. If it can't be repaired properly, replace it. Don't use paint or glue. Use decals or stickers to mark it.

Sources for PPE

University Stores carries a selection of protective clothing, face shields, glasses and goggles, gloves, hard hats, hearing protectors, and respirators. Other PPE may need to be ordered through local safety supply retailers.

New respirator users should wait until they have attended the training and mask fitting class before ordering a respirator.

Certification of Hazard Assessment Form / Work Sheet

Department

Location

Job / Process / Activity	Hazards	PPE Required (specify type, brand, model if necessary)	Persons Requiring PPE	Dates of Training

I certify that the above workplace hazard assessment was performed by me on: (Date)

Name: Title:

Signature:

Please retain in your files or add to your departmental safety and health plan.

Web Links to Online Resources

University of Washington Administrative Policy Statements

APS 10.4 Personal Protection Equipment and Clothing

<http://www.washington.edu/admin/rules/APS/10.04.html>

APS 12.3 Review of Research Projects Involving Biological Hazards and Recombinant DNA

<http://www.washington.edu/admin/rules/APS/12.03.html>

APS 12.5 Hazard Communications Program

<http://www.washington.edu/admin/rules/APS/12.05.html>

Resources on Environmental Health and Safety Web Site

UW Biosafety Manual

<http://www.ehs.washington.edu/rbsbiosafe/bsmanualindex.shtm>

UW Laboratory Safety Manual

<http://www.ehs.washington.edu/manuals/index.shtm>

UW Radiation Safety Manual

<http://www.ehs.washington.edu/manuals/rsmanual/index.shtm>

Ergonomics Information

<http://www.ehs.washington.edu/psinfofor/officestaff.shtm>

Laboratory Glove Selection

<http://www.ehs.washington.edu/ohs/updatestipsgloves.shtm>

Personal Protective Equipment

<http://www.ehs.washington.edu/rbsresplan/ppe.shtm>

Respirator Program and Forms

<http://www.ehs.washington.edu/ohsresp/index.shtm>

Resources on Washington State Labor & Industries Web Site

Personal Protective Equipment (PPE) WAC 296-800-160

<http://www.lni.wa.gov/wisha/rules/corerules/HTML/296-800-160.htm>

Hazard Assessment Checklist

<http://www.lni.wa.gov/WISHA/Rules/corerules/HelpfulTools/HT7-CR.htm>