

Personal Protective Equipment

UNC EHS

Outline

The reasons for PPE

Types of PPE

Hazards and Hazard Identification

Obtaining PPE

Note: This is only monthly safety topics PPE training. How to get credit for PPE training (6000) is discussed later in the slides

PPE

Personal Protective Equipment (PPE) is geared for individual safety while performing any type of potentially hazardous work. Available PPE ranges from safety glasses, hard hats, gloves and lab coats, to HazMat suits, respirators and more. Follow along to identify types of equipment used to protect individuals from injury or illness.

HEAD & HEARING PROTECTION

Head protection (a hard hat) is required when engaged in hazardous work such as construction, tree trimming, or under catwalks. Potential danger of a falling object, electrical shock exposure or burn to the head requires a Class A, B, or C hard hat. Protect your ears from noise and vibrations that can permanently cause hearing loss while on the job. Refer to OSHA's publication 3074 (2002) to understand what sound level in decibels are permissible. Hearing protection options include: Single-use earplugs, pre-formed or molded earplugs, and earmuffs.

EYE & FACE PROTECTION

Appropriate eye and face protection, such as safety glasses, goggles, and face shields, must be used to protect against the hazards associated with flying particles, molten metal, liquid chemicals, acids and caustic liquids, chemical gases and vapors, or potentially injurious light radiation.

RESPIRATORY PROTECTION

Respiratory protection should be used to protect against inhalation hazards of chemical and physical properties when engineering and administrative controls are not adequate. Choose either air-purifying or atmosphere-supplying respirators depending on the toxicity and concentration of the hazardous material.

TORSO PROTECTION

High visibility safety vests, and aprons may protect against hazards, such as chemical splashes, and low-light situations. Lead aprons and shielding are used to prevent radiation exposure.

HAND PROTECTION

Depending on the environment will depend on the type of hand protection that must be worn to protect hazards of skin absorption of:

- Harmful substances
 - Synthetic gloves
- Severe cuts or lacerations
 - Leather, canvas, or metal mesh gloves
- Severe abrasions, punctures
 - Leather, canvas, or metal mesh gloves
- Chemical burns & thermal burns
 - Aramid fiber gloves
- Harmful temperature extremes
 - Aluminized gloves

FOOT PROTECTION

From energized electrical conductors that may come into contact with the feet, to falling or rolling objects, or objects that could pierce through the sole, footwear must comply with the ANSI 7-41-1991 standards. Toe guards, combination foot and shin guards, electrical conductive, or electrical hazard, and safety-toe footwear, may be required depending on the work engaged.

WHAT CAN BE DONE TO ENSURE PROPER USE OF PPE?

Personal protection equipment must be designed and constructed specifically for safety. PPE is required to be worn in appropriate sizing, used as intended, and maintained in a clean and reliable fashion. Ensuring proper care and easy access to PPE can be the difference between a dangerous exposure and working safely.



84%

of employees who sustain a head injury are not wearing head protection.



50%

of construction workers will suffer a serious eye injury during their career.



99%

of noise-induced hearing loss is preventable if proper hearing protection is used.



25%

of all workplace accidents involve hands and fingers.



25%

of all reported disabling injuries involved foot injuries.

What is PPE?

PPE is equipment that creates a barrier to mitigate against potential workplace hazards

PPE can be anything from safety glasses to a personal fall protection harness

This training will cover some basic PPE, your shop may have specialty PPE based on certain jobs and duties that should be covered by the supervisor separately

Who wears PPE?

PPE should be worn by any person that will be in a zone where they could be exposed to certain risks

The risks determine the type of PPE needed

<https://www.youtube.com/watch?v=1-GEltJlgXw>

Why wear PPE?

PPE should be worn to attempt to prevent injury or death while working

Everyone wants to go home at the end of the day in the same shape they came in

<https://www.youtube.com/watch?v=KgkvxUtczLA>

Types of PPE

Head Protection- Hard Hats

PPE must comply with ANSI Standard Z89.1

Long hair should be compacted under the hard hat or used tied with hair ties to prevent hair from being loose

Bump Caps are not acceptable head protection



Hard Hats

Class G - General Helmet (2,200V rated), Class E - Electrical Helmet (20,000V rated), Class C - Conductive Helmet (No Electrical Protection)

Type I - Designed for impacts to the top of the head, Type II - Designed for off-center, side or top impacts

Hard Hat Markings

LT - Lower Temperature (to -30 C or -22 F), HT - High Temperature, HV - High Visibility

Reverse Donning - two arrows in a circle

Required Markings

Manufacturer Name

Date of Manufacturer

ANSI Rating - i.e. ANSI z89.1-2014

Type & Class Markings

Head Size Range

Types of PPE

Face/Eye Protection- ANSI Approved glasses, full face shields, welding masks, goggles

PPE must comply with ANSI Z87.1



Types of PPE

Hearing Protection- Ear Muffs,
Moldable or Fitted Ear Plugs

PPE need determined on decibel level
and length of time of work area (85 db
and up)

Must be up to NRR Standard for
location (Noise Reduction Rating)



Hearing Protection Chart

Source: 29 CFR 1910.95, Table G-16

TABLE G-16 - PERMISSIBLE NOISE EXPOSURES

Duration per day, hours	Sound level <u>dB</u> A slow response
8.....	90
6.....	92
4.....	95
3.....	97
2.....	100
1 1/2	102
1.....	105
1/2	110
1/4 or less.....	115

Types of PPE

Respiratory Protection- Dust Masks, Half Face Respirators, Full Face Respirators, SCBA, PAPR

Fit Testing and training is necessary to ensure a proper fit and PPE use

Keep PPE clean and wipe down before and after use



Types of PPE

Foot Protection –Safety Toe Footwear

No open toed shoes or sandals in labs, shops, areas where glass, chemicals, or hot materials may be used

Rubber boot foot protection required when working in wet locations

Insole Protection is also important in construction areas

UNC will pay up to 80 dollars for safety shoes in accordance to Office of State Personnel

Specialized footwear will be provided at no cost

Must meet ANSI standard z41.1 or ASTM F 2412-05 and ASTM F 2413-05



Types of PPE

Hand/Arm Protection- Proper gloves should be worn for job with potential contact with sharp objects, extremely hot/cold material, and corrosive/toxic materials

Different glove materials offer different hazard protection

Sleeves can also be protection from certain hazards



Types of PPE

Fall Protection- Harness, Life Line, Lanyard, and Personal Fall Arrest Equipment

Anchor points must be above the point of operation and be able to support a minimum



Inspecting PPE

It is important to inspect PPE to ensure it works to the standard at which it was tested

Compromised PPE is like wearing no PPE at all if it cannot perform up to necessary standard

Hazards

Heights- Can cause falls, falling objects

Moving Parts- Can cause rolling, pinching, breaking, lacerations

Temperature- Can cause burns, frostbite, numbness

Electricity- Can cause burns, electrocution, fire

Sharp Objects- Can cause cuts, bleeding, loss of limb

Chemical- Can cause blindness, burns, organ damage

Hazard Assessment

Inspection of a site to see what hazards can be handled with engineering controls

After engineering controls are in place, it can be seen what PPE needs to be utilized by workers in order to stay safe

Providing PPE

UNC will provide an necessary PPE for a position

The University will provide, at no cost to the employee, all personal protective equipment which the employee does not wear off the job site or use off the job. OSHA 1910.132 (h) (1) states that payment is required for any PPE used by an employer to comply with one of the PPE requirements in OSHA's standards. If the PPE is not required, then the employer is not required to pay for it. However, when an employer selects a specific type of PPE to be used at the workplace to comply with a standard, the employer is required to pay for it.

Employees will be trained on the proper use of different PPE

Who is responsible for PPE Training?

shields and barriers.

RESPONSIBILITIES

Environment, Health & Safety: It is the responsibility of EHS to ensure all employees are properly protected from workplace hazards through engineering controls, administrative controls, or personal protective equipment. PPE and other hazard controls will be assessed during annual EHS inspections, incident investigations, Job Safety Analysis development, and complaints from university employees

Supervisor: It is the supervisor's responsibility to properly train their employees in the personal protective equipment they will need for their job specific duties. It is also the supervisor's responsibility to ensure the employee is provided the proper personal protective equipment and that the employee uses their PPE properly while working. If it is determined by the supervisor or EHS that the employee is not using the PPE appropriately, then the employee must be retrained by the supervisor in the use of the PPE. If an employee is injured on the job because of not wearing the appropriate PPE, then the employee must be retrained by the supervisor in the use of the PPE. Supervisors should inspect all PPE at least once a month to ensure that it is safe to use.

Employees: Employees are responsible for using the appropriately issued personal protective equipment for the job they are doing. Different PPE may be required for different jobs. Employees are responsible for inspecting their PPE before and after each use. If the PPE is used infrequently, then it should be inspected at least once a month as well as before each use. Employees are also required to be properly trained in using PPE initially upon employment.

GENERAL OSHA REQUIREMENTS FOR PPE ([OSHA 1910.132](#))

The Purchase and Payment of Personal Protective Equipment

How to Get Credit for PPE Training

Supervisors need to complete their HMP (Hazard Management Plan) online

Supervisors go over the PPE section of the HMP with employees. Both sign the document once the review is complete

Send EHS original and keep a copy on file for themselves on file

Frequency of training: Any time there is a change in type of PPE, change in requirement, or an incident

SIGN AND DATE THE PPE FORMS TOGETHER WHILE GOING OVER THE REQUIRED PPE! DO NOT PRESIGN THE FORMS AND WAIT FOR EMPLOYEES TO COME SIGN THEM. Ask Facilities Safety Officer for any clarification.



UNC
HUMAN RESOURCES

UNIVERSITY SHRA EMPLOYEE ANNUAL PERFORMANCE APPRAISAL PROGRAM

TEAM-ORIENTED	ENTER WEIGHT:	
<p>a. Collegiality: Communicates and engages directly, clearly, and tactfully with colleagues.</p> <p>b. Collaboration: Provides feedback and healthy dialogue on performance and operational issues, as requested, willingly adapts to change, and adheres to decided actions.</p> <p>c. Contribution: Makes decisions with others in mind, and willingly performs additional duties when team members are absent, during times of increased workload, or as otherwise required by management to meet business needs.</p> <p>d. Attendance: Absences are infrequent and do not place an undue burden on supervisor or colleagues.</p>		
COMPLIANCE & INTEGRITY	ENTER WEIGHT:	
<p>a. Policy: Complies with personnel and equal opportunity policies, including prohibitions on harassment, discrimination, and workplace violence, and all other policies, including appropriate use of university resources.</p> <p>b. Safety: Complies with all safety requirements for the position, including successful completion of training and proper use of personal protective equipment.</p> <p>c. Ethics: Chooses ethical actions, even under pressure, avoids situations considered inappropriate or that present a conflict of interest, holds self and others accountable for ethical decisions.</p> <p>d. Respect: Appreciates individual and cultural differences and treats all people with dignity and respect.</p>		
SUPERVISION <i>(for supervisors only)</i>	ENTER WEIGHT:	
<p>a. Oversight: Provides adequate stewardship of assigned resources, including budget, space, equipment, and staffing.</p> <p>b. Goal-Setting: Provides clear objectives that foster work unit development and align with University values and goals.</p> <p>c. Managing Talent: Provides candid, timely, and constructive feedback on performance and behavior, hires individuals with the qualities and skillsets for success, and contributes to meeting University's EO and affirmative action goals.</p> <p>d. Leading: Serves as role model and engenders trust, commitment, and civility.</p>		

Helpful Links

<http://ehs.unc.edu/manuals/imac/1-14/>

<http://www.oshatraining.com/osha-hard-hat-questions-blog.php>

<https://www.osha.gov/Publications/osha3151.pdf>

<https://itsapps.unc.edu/HMP/>

https://ehs.unc.edu/files/2015/10/hmp_appendix_a.pdf