



UNC CHARLOTTE
ENVIRONMENTAL HEALTH AND SAFETY

PERSONAL PROTECTIVE EQUIPMENT

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Table of Contents

A.	Scope	1
B.	General Requirements.....	1
C.	Responsibility	1
1.	Supervisor.....	1
2.	Department	2
3.	Environmental Health and Safety	2
4.	Employee.....	2
D.	PPE Hazard Assessments.....	3
E.	PPE for the Hands (29 CFR 1910.138).....	4
F.	PPE for the Feet (29 CFR 1910.136).....	4
G.	PPE for the Head (29 CFR 1910.135)	4
H.	PPE for the Respiratory System (29 CFR 1910.134)	4
I.	PPE for the Face and Eyes (29 CFR 1910.133)	5
J.	PPE for Noisy Environments.....	5
K.	PPE for Electrical Work (29 CFR 1910.137)	5
1.	Use of Electrical PPE	5
2.	Protector gloves shall be worn over insulating gloves except:.....	6
3.	Care and Testing of Electrical PPE.....	6
L.	PPE Not Described Elsewhere in this Document.....	7
	APPENDIX A.....	8

A. SCOPE

This policy covers any University employee who, in the course of their duties, shall perform work in areas where recognized hazards are present. Examples of recognized hazards include, but are not limited to, Biological exposure, chemical exposures, radiological exposures, sharp objects which may cut or puncture the skin, excessive noise, heavy objects which may fall onto the feet or head, flying debris which may be inhaled or may strike the eyes, laser energy or other non-ionizing radiation, or any other hazard which may cause injury, illness, or impairment by inhalation, absorption, ingestion, injection, or mechanical action. Personal protective equipment should not be relied on to provide protection against hazards, but should be used in conjunction with engineering controls (guards etc.), and administrative controls (sound operational practices etc.).

B. GENERAL REQUIREMENTS

In accordance with the OSHA Personal Protective Equipment standard (29 CFR 1910.132) each department is required to take action in four major areas.

- Each department shall perform a hazard assessment of those work areas or jobs where hazards, as described above, are likely to be present.
- Where a hazard assessment has determined that there is sufficient cause to require personal protective equipment (PPE), each department shall provide and require the use of such equipment at no cost to the employee.
- Each department shall ensure that all PPE, whether provided by the employer or owned by the employee, is capable of providing adequate protection and is in a clean and reliable condition at all times.
- Each department shall provide training to ensure that employees know when and why PPE is necessary, how to use it properly, how to care for it, the equipment's usable lifetime, and its limitations. If there is reason to believe that an employee does not have this level of knowledge, the department shall provide retraining for that employee.

C. RESPONSIBILITY

1. Supervisor

It is the responsibility of the employee's supervisor (refer to policy statement #38) to perform hazard assessments to determine the hazards which are present in an employee's workspace or are encountered during an employee's normal duties. A hazard assessment shall be performed whenever there is a significant change

in the workplace or in an employee's regular duties. The form needed to perform a hazard assessment is located on the University's web site. See Appendix A of this document for additional information. Environmental Health and Safety Office is available to provide assistance to supervisors upon request.

It is also the supervisor's responsibility to:

- Provide site specific training in the proper selection, use, limitations, and care of PPE (with the assistance of EH&S upon request).
- Ensure that his or her employees have received proper equipment as required by the results of the hazard assessment.
- Ensure that the employees have completed any required medical examinations prior to using PPE.
- Ensure that all PPE is in a clean and reliable condition prior to use.

2. Department

It is the responsibility of the employee's department to cover any costs related to the use of PPE. This may include, but is not limited to, the initial purchase of the equipment, fit testing, medical examinations, costs of training and training materials, service and maintenance, and associated supplies. Additionally, departments shall keep all records regarding their compliance with this plan such as employee attendance at training sessions, certification of the completion of any required medical examinations, purchase and replacement dates of PPE, and any other pertinent information. Copies of these documents shall also be sent to EH&S for filing. Departments' record keeping may also be audited periodically by EH&S.

3. Environmental Health and Safety

It is the responsibility of Environmental Health and Safety (EH&S) to provide assistance, upon request, in performing hazard assessments, reviewing hazard assessments with the supervisor, and providing assistance in selecting adequate PPE. In addition, EH&S shall assist supervisors in providing any necessary PPE training and may periodically assist departments by reviewing compliance with this document and providing feedback, clarification, and other assistance as needed.

4. Employee

Lastly, it is the employee's responsibility to wear PPE as needed in order to perform his or her job safely, to provide daily care of the equipment, to attend training sessions as required, to inspect the

equipment for wear or damage, and to report any damaged, old, or malfunctioning PPE to his or her supervisor immediately.

Any employee who feels uncomfortable working in an area or is unsure of the policies or procedures to work safely should cease all activities and express those concerns to his or her supervisor.

For additional information on responsibilities, refer to Policy Statement #38.

D. PPE HAZARD ASSESSMENTS

It is each department's responsibility to ensure that supervisors complete PPE hazard assessment for their employees. All University of North Carolina at Charlotte supervisors must complete a PPE hazard assessment for the tasks that are performed by their employees, which may require the use of PPE. There is an on-line form for completing the PPE hazard assessment ([PPE Hazard Assessment](#)).

The first step in performing a PPE hazard assessment is to determine the types of hazards that are likely to be found in the workplace. A hazard is simply anything that is likely to cause an injury or an illness. Hazards fall into three general categories:

- **Physical hazards** are hazards that cause injury through some mechanical action. Some examples of this could be heat burns, tripping, cutting or puncturing the skin, falling from a height, being struck by a moving object, electric shock, or arc flash.
- **Chemical hazards** are those hazards that cause injury or illness through chemical actions or through the properties of the chemical. Chemical hazards can have physical effects, such as being burnt by a fire caused by a flammable chemical, or they can have health effects such as causing chemical burns, or illnesses due to overexposure. Material Safety Data Sheets are an excellent source of information on the hazards of the chemicals that are in your workplace.
- **Biological hazards** are those hazards created by infectious diseases. Examples of biological hazards would be Tuberculosis, HIV, Hepatitis-B, or any other disease that passes from person to person or animal to person through direct or indirect contact, or through laboratory procedures.

Supervisors must document the physical, chemical, and biological hazards that may be present in the workplace, determine if PPE is needed, and communicate this information to his or her employees.

E. PPE FOR THE HANDS (29 CFR 1910.138)

Employee's shall wear appropriate gloves to protect their hands from chemicals which may be absorbed through or damage the skin, objects which may cut or puncture the skin, biological agents, human or animal tissues, radioactive materials, or any other hazard which may cause illness, injury, or impairment. Protective lotions or creams are not adequate substitutes for gloves. Gloves shall be chosen according to the type of work done, for example, gloves for chemical work shall be chosen for resistance to the specific solvents or other compounds being used, gloves used for trash pickup shall be cut and puncture resistant.

F. PPE FOR THE FEET (29 CFR 1910.136)

Employees shall wear appropriate shoes or boots when working in areas where heavy objects may fall onto the feet, or where there are objects which may penetrate the shoe and cut or puncture the feet. Protective footwear shall comply with ANSI Standard Z41-1991, "American National Standard for Personal Protection- Protective Footwear."

G. PPE FOR THE HEAD (29 CFR 1910.135)

Employees shall wear appropriate protective helmets when working in areas where falling or moving objects may strike the head. Protective helmets purchased after July 5, 1994 shall comply with ANSI Z89.1-1986, "American National Standard for Personnel Protection- Protective Headwear for Industrial Workers- Requirements." Protective helmets purchased before July 5, 1994 shall comply with the ANSI standard "American National Standard Safety Requirements for Industrial Head Protection," ANSI Z89.1-1969. In addition, those employees working near exposed electrical conductors which could come into contact with the head shall wear protective headwear designed to reduce any electrical shock hazards.

H. PPE FOR THE RESPIRATORY SYSTEM (29 CFR 1910.134)

Employees shall use appropriate respiratory protective equipment (i.e., air purifying respirators, powered air purifying respirators, or self-contained breathing apparatus) when required due to inhalation hazards associated with their job or workplace.

See the University's Respiratory Protection Program for the procedures and requirements for obtaining and using respiratory protective equipment.

I. PPE FOR THE FACE AND EYES (29 CFR 1910.133)

Employees shall wear appropriate protective eye and face devices (safety glasses, goggles, or face shields) when working in areas where laser, ultraviolet, or other intense illumination is present, where flying debris may strike the eyes, where there may be splashing of biologic agents including blood and other body fluids, or where there may be chemical splashes, mists, gases or vapors which may cause illness, injury, or impairment. The protective eye and face devices shall comply with ANSI Z87.1-1989, "American National Standard Practice for Occupational and Educational Eye and Face Protection," if purchased after July 5, 1994. Additionally, safety glasses, goggles, and face shields shall provide protection from flying debris entering from the side of the protective equipment and shall accommodate prescription lenses, either by fitting over prescription lenses, or by incorporating them into its design. Prescription eyeglasses alone normally do not meet the requirements of this section. Prescription glasses that do not meet ANSI Z87.1-1989 are not acceptable for use as safety glasses. Employees should discuss prescription safety glasses with their eye-care provider to ensure that they meet all relevant standards.

J. PPE FOR NOISY ENVIRONMENTS

Employees shall use appropriate hearing protective equipment when required due to noise hazards associated with their job or workplace. See the University's Hearing Conservation Program for the procedures and requirements for obtaining and using hearing protective equipment.

K. PPE FOR ELECTRICAL WORK (29 CFR 1910.137)

PPE required for electrical work includes, but is not limited to, insulating blankets, matting, covers, line hose, gloves, and sleeves. These items shall be manufactured using a seamless process, be clearly marked with their class of protection, and comply with the American Society for Testing and Materials (ASTM) standards listed below.

- ASTM D 120-87, Specification for Rubber Insulating Gloves
- ASTM D 178-93, Specification for Rubber Insulating Matting
- ASTM D 1048-93, Specification for Rubber Insulating Blankets
- ASTM D 1049-93, Specification for Rubber Insulating Covers
- ASTM D 1050-90, Specification for Rubber Insulating Line Hose
- ASTM D 1051-87, Specification for Rubber Insulating Sleeves

1. Use of Electrical PPE

PPE for electrical work may not be used for tasks where the electrical hazard may exceed the class rating of the protective

equipment. The following classes apply to insulating blankets, covers, line hose, gloves, and sleeves made of rubber.

Class of Equipment	Maximum Voltage (AC, RMS)
0	1,000
1	7,500
2	17,000
3	26,500
4	36,000

2 Protector gloves shall be worn over insulating gloves except:

- Where very high finger dexterity is needed, using class 0 gloves, so long as extra care is taken to handle sharp objects carefully
- Cases similar to the above, where the employer can demonstrate that damage to the gloves is unlikely and the gloves worn are at least one class better than what is required for the task.

Note: Gloves used in this way may not be used for higher voltages until they have been re-tested.

3. Care and Testing of Electrical PPE

PPE for electrical work shall be maintained in a safe, reliable condition. It shall be inspected before each day's use and immediately following any incident that can reasonably be suspected of having caused damage. Electrical PPE shall be replaced if there is a hole, tear, cut, or punch, ozone deterioration, embedded objects, or there are texture changes such as softening, hardening, swelling, stickiness, or loss of elasticity.

Electrical PPE shall be tested according to the ASTM standards referenced above, as well as:

- ASTM D 478-92, Specifications for In-Service Care of Insulating Line Hose
- ASTM D 479-93, Specifications for In-Service Care of Insulating Blankets
- ASTM D 496-93b, Specification for In-Service Care of Insulating Gloves and Sleeves

This testing shall be performed on the intervals in the table below.

Type of Equipment	When to Test
Line Hose	When the insulating value is suspect
Covers	When the insulating value is suspect
Blankets	Before its first issue, and every 12 months thereafter
Gloves	Before its first issue and every 6 months thereafter
Sleeves	Before its first issue and every 12 months thereafter

PPE which fails inspection or testing shall be repaired or replaced immediately. Blankets and hoses may have their defective portions trimmed away, so long as the remaining blanket is larger than 22 inches by 22 inches. Blankets may be patched using a compatible patch which offers the same physical and electrical protection as the original material. Gloves may also be patched between the wrist and the cuff, with a compatible material that offers the same protection as the original glove. Repaired equipment shall be tested before it may be used. Rubber goods when not in use must be stored in a cool dry space without ultraviolet light exposure.

4. Refer to NFPA 70E Standard for Electrical Safety in the Workplace for additional information on PPE requirements for shock and arc flash hazards.

L. PPE NOT DESCRIBED ELSEWHERE IN THIS DOCUMENT

PPE not specifically mentioned elsewhere in this document is covered by the general requirements section. Other sources of information on personal protective equipment include OSHA regulations and National Institute for Occupational Safety and Health (NIOSH).

APPENDIX A

PPE Hazard Assessment Form

Personal Protective Equipment PPE hazard assessment

It is each department's responsibility to ensure that supervisors complete the [PPE Hazard Assessment](#) for their employees.