

GEORGIA INSTITUTE OF TECHNOLOGY
ENVIRONMENTAL HEALTH AND SAFETY
PERSONAL PROTECTIVE EQUIPMENT

PURPOSE

To protect the health and welfare of GEORGIA TECH employees in areas where there may be a risk of injury or exposure to hazardous substances or conditions employees who work in areas where physical hazards or the potential for physical hazards exist.

SCOPE

Personal Protective Equipment include devices for head protection, eye and face protection, protective clothing, hand protection, foot protection, hearing and respiratory protection. Using PPE requires hazard awareness and training on the part of the user. PPE is not a substitute for good engineering or administrative controls or good work practices, but should be used in conjunction with these controls.

The use of appropriate personal protective safety equipment applies to all employees, students, visitors and contractors performing tasks or entering areas that require specific Personal Protective Equipment (PPE).

DEFINITIONS

ASTM – American Society Testing Materials - is an organization of inclusion - offering global access to fully transparent standards development, resulting in the highest technical excellence in standardization.

ANSI – American National Standard Institute – an organization that works to establish national consensus standards regarding occupational safety and protection of the environment.

NIOSH - National Institute for Occupational Safety and Health - is the federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness.

PPE - Personal protective equipment is equipment, which protects employees from hazards. It includes items such as protective headwear, eye protection, respiratory protection, protective clothing, protective footwear, barrier or protective lotions, etc.

Eye/Face Protection - Equipment designed to provide protection to the face and eyes during exposure to such hazards as flying particles, molten metal or sparks, liquid chemicals, acids or caustic liquids, or potentially injurious light radiation (i.e., lasers, welding, etc.)

Foot Protection - Equipment designed to provide protection to the feet and toes during exposure to situations with the potential for foot injuries such as falling or rolling objects, chemical or liquid exposures, piercing objects through the sole or uppers, and/or where the employee's feet are exposed to electrical hazards.

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Hand Protection - Equipment designed to provide protection to the hands during exposures to potential hazards such as sharp objects, abrasive surfaces, temperature extremes and chemical contact. Hand protection is selected based upon the hazard and performance characteristics of the gloves.

Head Protection - Equipment designed to provide protection to the head during exposure to potential hazards such as falling objects, striking against low hanging objects, or electrical hazards.

Hearing Protection - Equipment designed to provide protection to an individual's hearing during exposure to high noise levels.

Personal Protective Equipment (PPE) - Includes all equipment designed to provide protection to the wearer from potential hazards to the eyes, face, hands, head, feet, ears, and extremities.

Respiratory Protection - Equipment designed to provide protection to the wearer from potential inhalation hazards such as vapors, mists, particulates, and gases.

RESPONSIBILITIES

Supervisor

Supervisors have the primary responsibility for implementation of the PPE Program in their work area. This involves:

- Providing appropriate PPE and making it available to employees and ensuring they are wearing the equipment.
- Identifying the hazards prior to the start of any work and seeking assistance from EHS to evaluate and control the hazards.
- If hazards may not be eliminated, then guards and protective equipment should be utilized to ensure the safety of employees.
- Supervising their employees to ensure that the PPE Program elements are followed and that employees properly use and care for PPE.
- Notifying EHS Office when new hazards are introduced or when processes are added or changed.

Employees, Students, Visitors, Contractors

The PPE user is responsible for following the requirements of the PPE Program. This involves:

- Wearing PPE as required
- Attending Required Training
- Caring for, cleaning, storing and maintaining PPE as required
- Informing the supervisor of the need to repair or replace PPE

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Environmental Health and Safety (EHS)

The Office of Environmental Health and Safety is responsible for the development, implementation, and administration of the GEORGIA TECH PPE Program. This involves:

- Determining the type of PPE necessary based on the hazards involved in the job.
- Provide safety training and technical assistance to supervisors on the proper use, care and cleaning of approved PPE.
- Reviewing, updating and evaluating the overall effectiveness of the PPE Program.
- Conduct periodic Job Safety Analysis and Risk Assessments to determine PPE required or other controls necessary to protect the employee.

PROGRAM COMPONENTS

All personal protective clothing and equipment will be of safe design and construction for the work to be performed and shall be maintained in a sanitary and reliable condition. Only those items of protective clothing and equipment that meet NIOSH, ANSI or ASTM standards will be procured or accepted for use.

The ANSI standards contain useful reference information regarding the selection and use of PPE. Some of these standards are:

- Eye and Face Protection ANSI Z87.1
- Head Protection ANSI Z89.1
- Foot Protection ANSI Z41.1 and ASTM F-2413-2005
- Hand Protection – the selection must be based on the performance characteristics of the glove in relation to the tasks to be performed.

IDENTIFYING THE HAZARDS-SELECTING THE PROPER PPE

In order to be able to choose the proper PPE, the individual must be aware of what hazards exist. This involves obtaining information on the types of hazards present, the toxicity of the materials involved, and what other options are available to control exposure. General information about chemicals may be found in Material Safety Data Sheets. The chronic and acute effect of chemicals should also be assessed. The next step would be to implement the control measures necessary to prevent exposure into the operational procedures.

Head Protection

Head injuries are commonly caused by impact from falling or flying objects, and falling or walking into hard objects. PPE devices such as hard hats may protect you from objects falling

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on your head and, in a limited way, from electrical shock or burns. Hard hats should be worn in areas where there is potential for head injuries.

Eye and Face Protection

Eye protection should always be worn where there is potential for injury to the eyes or face from small particles, toxic chemicals, acids or caustic liquids, gases or vapors, bioaerosols, flying objects or particles, large objects, thermal or radiation hazards, and lasers. According to the types of and extent of hazards, different PPE should be worn. PPE for the face and eyes includes devices such as safety glasses, goggles, and face shields. These must always remain clean and free of contaminants. Safety glasses or goggles must always be worn in laboratory areas.

This includes employees, researchers, visitors, contractors and students. To provide protection, supervisors of such areas shall procure a sufficient quantity of goggles or safety glasses which afford the maximum amount of protection possible. If employees wear personal glasses, they shall be provided with a suitable eye protector to wear over them.

Emergency Eyewash Facilities

Emergency eyewash facilities meeting the requirements of ANSI Z358.1 will be provided in all areas where the eyes of any employee may be exposed to hazards. All such emergency stations will be located where they are easily accessible and not blocked in the event of an emergency.

Body Protection

Protective clothing, such as lab coats, should be worn when handling hazardous materials. Tyvek suits and sleeves are also available to prevent the contamination of skin and clothing.

Hand Protection

Selecting the proper gloves is very important since it is our hands that are often used to handle hazardous materials. These materials usually consist of caustic or toxic chemicals, biological substances, electrical sources, or extremely cold or hot objects that may irritate or burn your hands. In addition, traumatic injuries such as cuts, sprains and punctures may also occur. With the wide range of hazards, there also exists a wide range of gloves that may be used as PPE. The first consideration in the selection of gloves for use against chemicals is to determine, if possible, the exact nature of the substance to be encountered. Read instructions and warnings on chemical container labels and MSDSs before working with any chemical. Recommended glove types are often listed in the section for personal protective equipment.

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Foot Protection

Injuries that may occur when the proper footwear is not worn are chemical and heat burns from spills and splashes of acids and caustics, compression injuries, electrical shocks, and slipping. Wearing the proper footwear is therefore, very important when working in areas where physical and chemical hazards are present. Close-toed shoes must always be worn in laboratory areas where chemicals are present.

Hearing Protection

Earplugs are should be made available in areas where the noise exposure to high levels may result in hearing loss. PPE should be worn when the noise level is 85 decibels or greater averaged over an 8-hour period of time.

Respiratory Protection

Respirators are used to prevent the exposure to air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors. All respirator usage, which includes disposable respirators, air purifying respirators, and air supplied respirators, require annual fit testing and training prior to use.

LABORATORY - PPE

Coats and Gowns

The lab coat can be used to protect street clothing against biological or chemical spills as well as to provide some additional body protection. The specific hazards and the degree of protection required must be known before selecting coats for lab personnel.

Foot Protection

Safety shoes should be worn in any area where there is a significant risk of dropping heavy objects on the foot. Sandals and other types of open-toed shoes are not permitted in labs using biohazards or chemicals, due to the potential exposure of infectious agents or toxic materials as well as physical injuries associated with the work.

Note: No open-toe shoes may be worn in work areas where foot hazards exist. Shoe covers and other protective footwear may be worn over shoes.

Eye Protection Faceshields

Safety glasses must be worn at all times in the lab.

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Faceshields and goggles should be worn whenever procedures with a high potential for splashes or creating aerosols are conducted.

Gloves

Use the EHS and/or manufacturer recommended glove that will protect your hands from the identified hazards.

SAFETY EQUIPMENT

Eye Wash Stations and Showers

Eye wash stations and showers are safety **equipment that must be** kept clean, unobstructed and are not to be used as shelves, parts storage bins or coat hooks.

Personal Clothing

Personal clothing often provides a first level of protection against injury. All employees shall equip themselves with clothing suitable for protection against the natural elements to which the persons will be exposed while engaged in activities.

Where there is a danger of contact with moving parts of machinery or with electrically energized equipment or similar hazards:

- clothing shall fit closely about the body, and
- dangling jewelry shall not be worn

TRAINING

New hires are initially trained on requirements and safety awareness training is provided periodically.

RECORDS

Records of training are maintained in EHS General Safety unit.