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1.0 POLICY

Cal-OSHA (CCR Title 8, 3380) and Federal OSHA (CFR1910.132&CFR1926.28) both have standards that regulate the use of personal protective equipment (PPE) to reduce employee exposure to hazards when engineering and administrative controls are not feasible or effective in reducing these exposures to acceptable levels. Employers are required to complete a hazard assessment of work areas to determine if PPE should be used to protect their workers.

2.0 PURPOSE

The purpose of this program is to provide the various CSUS departments and its employees with the tools to identify the hazards in the workplace and the most suitable PPE to protect the employee from these hazards.

3.0 SCOPE

University employees who currently utilize PPE or who may encounter hazards to the eyes, face, head, feet, hands, or who conduct work involving electrical or fall hazards, as identified during the Hazard Assessment of the workplace, are subject to these PPE Guidelines. PPE will be selected and used to protect employees from the hazards and potential hazards that they are likely to encounter.

PPE should not be used as a substitute for engineering, work practices, and/or administrative controls to protect employees from workplace hazards. PPE should be used in conjunction with permanent protective measures, such as engineered guards, substitution of less hazardous chemicals, and prudent work practices.

4.0 DEFINITIONS

- 4.1 Personal Protective Equipment (PPE)** - devices worn by workers to protect against hazards in the environment. Examples include safety glasses, face shields, respirators, gloves, hard hats, steel-toed shoes and hearing protection.
- 4.2 Hazard Assessment** – evaluation and investigating the work environment for potential dangers that could result in an injury or illness.
- 4.3 Permissible Exposure Limit (PEL):** The PEL for a substance is the 8-hour time weighted average or ceiling concentration above which workers may not be exposed.
- 4.4 EH&S:** Environmental Health and Safety office of California State University of Sacramento that works to assure safe and healthful environments for all segments of

the campus population, through programs of information and education, review and monitoring, technical consultation, and provision of direct services.

5.0 RESPONSIBILITIES

5.1 Department

- Performing a "hazard assessment" of the workplace to identify and control physical and health hazards.
- Select PPE appropriate to the hazard identified during the assessment. EH&S is available to assist in consultation of PPE selection.
- Procure and provide appropriate PPE to workers.
- Maintaining PPE, including replacing worn or damaged PPE.
- Maintain certifications of hazard assessment and training.

5.2 Supervisors

- Ensure workers understand safety training on PPE.
- Ensure workers understand when the use of PPE as appropriate.

5.3 EH&S

- Provide assistance in conducting a workplace hazard assessment.
- Provide assistance in PPE selection.
- Provide assistance in developing worker training.
- Conduct periodic audits of PPE program.

5.4 Employees

In general, employees should:

- Properly wear PPE.
- Attend training sessions on PPE.
- Care for, clean and maintain PPE.
- Inform a supervisor of the need to repair or replace PPE.

6.0 SELECTION OF PPE

6.1 Hazards Assessment

Employers are responsible to perform a hazard assessment in order to determinate the proper PPE for the employee. The hazard assessment should begin with a walk-through survey of the facility to develop a list of potential hazards in the following basic hazard categories:

- Impact
- Penetration
- Compression (roll-over)
- Chemical
- Heat/cold
- Harmful dust
- Light (optical) radiation
- Biologic
- Noise

Contact EH&S for a hazard assessment template:

<https://www.csus.edu/administration-business-affairs/risk-management-services/forms/risk-management-services.html>

6.2 Sources for Hazards

In addition to noting the basic layout of the facility and reviewing any history of occupational illnesses or injuries, things to look for during the walk-through survey include:

- Sources of electricity.
- Sources of motion such as machines or processes where movement may exist that could result in an impact between personnel and equipment.
- Sources of high temperatures that could result in burns, eye injuries or fire.
- Types of chemicals used in the workplace.
- Sources of harmful dusts.
- Sources of light radiation, such as welding, brazing, cutting, furnaces, heat treating, high intensity lights, etc.
- The potential for falling or dropping objects.
- Sharp objects that could poke, cut, stab or puncture.
- Biologic hazards such as blood or other potentially infected material.

- Sources of rolling or pinching objects which could crush the feet.
- Layout of workplace and location of co-workers; and any electrical hazards.
- In addition, injury/accident data should be reviewed to help identify problem areas.
- Equipment that produces loud noise.

6.3 General Considerations

For each hazard identified, select personal protective equipment that will protect the employee by creating a barrier against workplace hazards. Consider the likelihood of an accident and the seriousness of a potential accident. Personal protective equipment must be selected to protect against any hazard that is present or likely to be present. It is important for department personnel to become familiar with the potential hazards, the type of protective equipment that is available, and the level of protection that is provided by that equipment, i.e., splash protection, impact protection, etc.

The personal protective equipment selected must fit the employee it is intended to protect. Make certain that employees have the correct size of protective equipment. Whenever possible, select adjustable personal protective equipment. Employee input in the selection process is critical. Personal protective equipment that fits properly and is comfortable will more likely be worn by employees. Damaged or defective protective equipment must be taken out of service immediately to be repaired or replaced and employees must be provided with the proper equipment in the interim.

7.0 HAND PROTECTION

7.1 Hand Hazards

Burns, cuts, electrical shock, amputation and absorption of chemicals are examples of hazards associated with arm and hand injuries. A wide assortment of gloves, hand pads, sleeves, and wristlets for protection from these hazards is available and should be used to protect workers from injuries or illnesses.

7.2 Glove Usage

Every employee shall use protective gloves in the following situations:

- a. When coming in contact with or working around human body fluids including blood, vomit, etc.
- b. When cleaning bathrooms, water fountains, etc.
- c. When cleaning sink traps.

- d. When handling recyclables including glass or plastic containers, tin and aluminum cans, paper and carton containers, etc.
- e. During rubbish or trash pickups.
- f. When handling extreme hot or cold temperatures.
- g. When handling solvent, detergents, hazardous materials and other identifiable toxic substances.
- h. When lifting or carrying heavy objects or any item that may have sharp edges.
- i. Working with electricity

7.3 Issuance

Appropriate protective gloves are available from the supervisor when hand protection is required. It is the employee's responsibility to obtain the proper protective hand wear from his/her supervisor and replace it when needed.

7.4 Types of Gloves

It is important to select appropriate gloves for a particular application and to determine how long the glove can be worn, and whether it can be reused. Cloth gloves must not be worn when operating rotating equipment such as a drill or powered threading machine. Gloves used to protect against chemical hazards should be selected based on tested performance against specific chemicals. Glove manufacturers have developed recommendations for the proper selection and use of chemically-protective gloves. For online assistance with selection of chemical resistant gloves, consider reviewing the AnsellGuardian Chemical permeation and degradation database: <https://www.ansellguardianchemical.com/padd> .

Refer to Appendix, Table 1 for selection of hand protection other than chemically protective gloves.

7.5 Maintenance

Each employee issued gloves is responsible for their care, maintenance, and daily inspection.

a. *Inspection*

Before each use, gloves should be inspected for discoloration, punctures, and tears. Rubber and plastic gloves may be checked by inflating with air and submersing them in water to check for air bubbles.

b. *Usage*

Gloves should always be rinsed with a compatible solvent, soap and water prior

to handling wash bottles or other laboratory fixtures.

c. *Cleaning*

Before removal, gloves should be thoroughly washed, either with tap water or soap and water.

d. *Removal*

Employees shall remove gloves before leaving the immediate work site to prevent contamination of door knobs, light switches, telephones, etc. When gloves are removed, pull the cuff over the hand.

7.6 Replacement

Replace when damaged at no cost to employee.

8.0 FACE AND EYE PROTECTION

8.1 Eye Protection

Eye protection is mandatory in all areas where there is potential for eye injury. This applies not only to persons who work continuously in these areas, but also to persons who may be in the area only temporarily, such as maintenance or clerical personnel. Employees working in locations where there is a risk of receiving eye injuries such as punctures, abrasions, contusions, or burns as a result of contact with flying particles, hazardous substances, projections or injurious light rays which are inherent in the work or environment, shall be safeguarded by means of face or eye protection. Suitable screens or shields isolating the hazardous exposure may be considered adequate safeguarding for nearby employees.

8.2 Coverage

Every employee shall use protective eye wear in the following situations:

- a. Working on stationary machines or equipment.
- b. Working with portable power hand tools.
- c. Handling chemicals
- d. Using hand tools for the purpose of cutting or scrapping
- e. Using power actuated tools.
- f. Blowing compressed air with a nozzle.
- g. Operating powered lawn cutting equipment.
- h. Operating hedge trimmers or weed wackers.

- i. Operating chainsaws or limbing equipment.
- j. Breaking up concrete, rock, hardtop with hand tools.
- k. Working with steam.

8.3 Eyes and Face Protection Selection

For the proper selection of the correct eyes and face protection please consult table 2 in the appendix.

8.4 Issuance

Protective eye protection is available in two forms: safety glasses and goggles. It is the employee's responsibility to obtain the proper protective eye wear from his/her supervisor. **NOTE:** All eye protection issued must be ANSI Z87.1-2020 approved.

Plastic safety glasses should be issued to employees who do not require corrective lenses.

8.5 Employees with corrective lenses

For persons requiring corrective lenses, safety glasses ground to their prescription are available in a safety frame. Contact EH&S for additional information about availability. Please note that the wearing of safety glasses does not excuse the employee from the requirement of wearing safety goggles.

- a. It is recommended that contact lenses not be permitted in certain departments such as in laboratories. The reasons for this prohibition are:
 - If a corrosive liquid should splash in the eye, the natural reflex to clamp the eyelids shut makes it very difficult, if not impossible, to remove the contact lens before damage is done.
 - The plastic used in contact lenses is permeable to some of the vapors found in the laboratory. These vapors can be trapped behind the lenses and can cause extensive damage.
- b. The lenses can prevent tears from removing the irritant. If the Chemical Hygiene Officer chooses to allow contact lenses to be worn, they shall be protected by goggles designed specifically for use with contact lenses. (The protective goggles for use with contact lenses fit loosely around the eyes and have no vents for access by vapors.) If chemical vapors contact the eyes while wearing

contact lenses, these steps should be followed:

- * Immediately remove the lenses *
- * Continuously flush the eyes, for at least 15 to 30 minutes *
- * Seek medical attention *

8.6 If you experiment a splash

If, despite all precautions, an employee should experience a splash of corrosive liquid in the eye, the employee is to proceed (with the assistance of a co-worker, if possible) to the nearest eyewash fountain and flush the eyes with water for at least 15 to 30 minutes. Flush from the eye outward. During this time, a co-worker should notify the proper authorities.

8.7 Replacement

All employees are provided with safety eye protection at the time of employment. If lost or damaged, the employee is to notify his/her supervisor and obtain a replacement.

8.8 Types of eyes and face protection

Types currently being used:

- a. Safety glasses with side shields.
- b. Chemical splash goggles.
- c. Full face shields.
- d. General use goggles.

9.0 HEARING PROTECTION

9.1 Coverage

Employees known or believed to be exposed to an 8-hour time-weighted average noise level of 85 dBA or greater (California Code of Regulations, Title 8, Article 105, Appendix A), as determined by EH&S, shall be entered into the Hearing Conservation Program. This level of noise is usually associated with the inability to carry on a conversation with someone within 3 feet away without raising your voice. Every employee shall use

hearing protection in the following situations and/or when marked “**Hearing Protection Required**”

- Grounds keeping
- Mechanical Rooms in buildings
- Locksmith Shop
- All riding lawn mowers
- Carpentry Shop
- Pest Control
- Sheet Metal Shop
- Theater Scene Shop
- Paint Shop
- Boiler and Chiller Rooms of the Central Plant
- Operating chainsaws, leaf blowers, and chipper machines
- Using power actuated tools (hammer, drills, etc.).
- Wet vacuums
- Brush clipper, string trimmers, post hole digger
- Stump grinders

9.2 Issuance

Ear plugs or muffs are available from the supervisor where hearing protection is required. It is the employee’s responsibility to obtain the proper protection from his/her supervisor.

9.3 Maintenance

Each employee issued hearing protection is responsible for their care, maintenance and daily inspection.

9.4 More information

For more information and details please refer to the CSUS Hearing Conservation Program which can be found at the following link:

[https://www.csus.edu/campus-safety/environmental-health-safety/safety-management/general-safety/ documents/hearing_conservation_prog.pdf](https://www.csus.edu/campus-safety/environmental-health-safety/safety-management/general-safety/documents/hearing_conservation_prog.pdf)

or contact EH&S at (916) 278-6119.



10.0 HEAD PROTECTION

10.1 Coverage

The employer shall ensure that each affected employee wears a protective helmet whenever there is a threat of head injury from objects falling from above and striking employees on the head, they might bump their heads against fixed pipes or beams, or there is possibility of accidental contact with electrical hazards. Every employee shall use protective hard hats in the following situations:

- a. When in a designated hard hat area or site.
- b. When working under work tasks above them where there is the chance of something falling from the work area above.
- c. When using chainsaws.
- d. When working near an electrical shock hazard.
- e. When working in a plumber job.
- f. When working in Plant Operations.
- g. When working in low clearance areas.
- h. When working near hanging objects such as hooks and chains.

10.2 Issuance

Hard hats are available from the supervisor where head protection is required. It is the staff member's responsibility to obtain the proper head protection from his/her supervisor as needed.

10.3 Type of Hard Hats.

Protective helmets or hard hats should do the following:

- Resist penetration by objects.
- Absorb the shock of a blow.
- Be water-resistant and slow burning.
- Have clear instructions explaining proper adjustment and replacement of the suspension and headband.

There are three industrial classes of hard hats:

Type 1	Helmets providing crown impact protection
Type 2	Helmets providing lateral impact protection



Class G	General service, limited voltage. Intended for protection against impact hazard. Used in mining, construction, and manufacturing. Provides electrical protection from low voltage conductors (tested to 2,200 volts)
Class E	Utility service, high voltage. Used by electrical workers and workers who also need protection from falling objects. Provides electrical protection from high-voltage conductors (tested to 20,000 volts)
Class C	Conductive – no electrical protection. Designed for lightweight comfort and impact protection. Must not be used except where it has been determined that the use of other types of protective helmets is impractical, such as where chemical reaction will cause the deterioration of other types of head protection.

10.4 Maintenance

- Each employee issued a hard hat is responsible for its care, maintenance, and daily inspection.
- When conducting a daily hard hat inspection looks for perforations, cracks, or deformity of the brim or shell; Indication of exposure of the brim or shell to heat, chemicals or ultraviolet light and other radiation (in addition to a loss of surface gloss, such signs include chalking or flaking).

10.5 Replacement

Damaged head protection should be replaced as soon as possible. A hard hat must always be replaced if it sustains an impact, even if damage is not noticeable.

11.0 FOOT AND LEG PROTECTION

11.1 Coverage

Select protective footwear when employees work in areas where there is a danger of foot injuries due to falling and rolling objects, objects piercing the sole, and where employees'

feet are exposed to electrical hazards. Examples of situations that may require the use of protective footwear include:

- Handling heavy objects and/or tools that could be dropped;
- Work activities involving manual material handling carts, heavy pipes, or bulk rolls, all of which could potentially roll over an employee's feet;
- Work involving sharp objects such as nails, tacks, large staples, scrap metal, etc., which could penetrate the sole of the shoe;
- Work involving explosive materials such as black powder, volatile substances, cotton dust, grain dust that could be ignited by the discharge of static electricity;
- Work with electrical hazards;
- Work with electronic components.

Some occupations for which foot protection should be considered are: shipping and receiving clerks, stock clerks, carpenters, electricians, machinists, mechanics and repairers, plumbers and pipe fitters, structural metal workers, assemblers, drywall installers and lathers, packers, wrappers, craters, welders, laborers, freight handlers, gardeners and grounds-keepers, timber cutting and logging, stock handlers, warehouse laborers, and farm workers.

Note: Leg Protection – chaps, rated for maximum chainsaw RPMs, are mandatory for chainsaw users.

11.2 Issuance

Employees are responsible to provide effective workers with the proper foot protection.

11.3 Maintenance

Each employee is responsible for their care, maintenance and daily inspection of their foot wear. Foot wear inspection need to be done before each use and they need to be check for toe and metatarsal protection, holes, tears, cracks, and excessive sole wear.

11.4 Replacement

Damaged or defective foot and leg protection should be replaced as soon as possible.

12.0 BODY PROTECTION

12.1 Coverage

Body protection should be worn when there is a possibility of bodily injury from hazards while performing their jobs.

Workplace hazards include the following:

- Intense heat
- Splashes of hot metals and other hot liquids
- Impacts from tools, machinery and materials
- Cuts
- Hazardous chemicals
- Contact with potentially infectious materials, like blood
- Radiant energy (ultraviolet, visible, infrared)
- Motor vehicle traffic

12.3 Protective Clothing

Protective clothing needs to be provided only for the specific parts of the body that are exposed to the hazard. Depending on the hazards of the workplace one or more of the following may need to be provided:

- Vests
- Jackets
- Aprons
- Coveralls
- Sleeve protectors
 - Surgical gowns
 - Full body suits

The process for selecting chemically resistant clothes is similar to that for gloves. Please check the manufacturers' recommendations for the proper selection of chemical protective clothing or contact the Environmental Health and Safety office. For protective clothing selection, other than chemical protection, refer to Appendix, Table 3

Cal/OSHA requires the use of a fluorescent orange warning garment while flagging or directing vehicular traffic. At night the garment is required to be reflectorized. A voluntary standard, ANSI/ISEA 107-2020, has been developed to provide guidance in selecting warning garments.

13.0 RESPIRATORS



13.1 Respirator Usage

In the control of those occupational diseases caused by breathing air contaminated with harmful dust, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary protective control measure shall be to prevent atmospheric contamination at its source. This shall be accomplished as far as feasible by accepted engineering control measures. When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to University guidelines. For additional information on respirators and respiratory protection please refer to the CSUS respiratory Protection Program which can be found at the following link:

<https://www.csus.edu/campus-safety/environmental-health-safety/safety-management/general-safety/documents/respiratoryprotectionmanual.pdf> or contact EH&S at (916) 278-6119.

NOTE: Prior to use of respiratory protection, the Office of EH&S must be consulted.

14.0 APPENDIX

TABLE 1 SELECTION OF HAND PROTECTION

Hazard	Degree of Hazard	Protective Material
Abrasion	Severe	Reinforced heavy rubber, staple reinforced heavy leather
	Less Severe	Rubber, plastic, leather, polyester, nylon, cotton
Sharp Edges	Severe	Metal mesh, staple-reinforced heavy leather, Kevlar aramid-steel mesh
	Less Severe	Leather, terry cloth (aramid fiber)
	Mild with delicate work	Lightweight leather, polyester, nylon, cotton
Chemicals		Refer to Ansell - https://www.ansellguardianchemical.com/padd
Cold	Severe	Cryo-gloves, Zetex – not for immersion in liquid nitrogen
	Less Severe	Leather, insulated plastic or rubber, wool, cotton
Electricity		Rubber-insulated gloves tested to appropriate voltage meeting ANSI/ASTM D120-87el
Heat	High temperatures (over 350 deg C)	Zetex high temperature
	Medium high (up to 350 deg C)	Nomex, Kevlar, heat resistant leather with linings
	Warm (up to 200 deg C)	Nomex, Kevlar, heat-resistant leather, terry cloth (aramid fiber)
	Less warm (up to 100 deg C)	Chrome-tanned leather, terry cloth
General Duty		Cotton, terry cloth, leather



Product Contamination		Thin film plastic, lightweight leather, cotton, polyester, nylon
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Table 2 Eyes and Face Protection Selection Chart

Source	Assessment of Hazard	Protection
IMPACT - Chipping, grinding, machining, masonry work, woodworking, sawing, drilling, chiseling, powered fastening, riveting, and sanding.	Flying fragments, objects, large chips, particles sand, dirt, etc....	Spectacles with side protection, goggles, face shields. See notes (1), (3), (5), (6), and (10). For severe exposure, use face shield.
HEAT - Furnace operations, pouring, casting, hot dipping, and welding.	Hot Sparks	Face shields, goggles, spectacles with side protection.
CHEMICALS - Acid and chemicals handling, degreasing, plating.	Splash from molten metals	For severe exposure use face shield. See notes (1), (2), (3).
-	High temperature exposure	Face shields worn over goggles. See notes (1), (2), (3).
-	Splash	Screen face shields, reflective face shields. See notes (1), (2), (3).
CHEMICALS - Acid and chemicals handling, degreasing, plating.	splash	Goggles, eyecup and cover types. For severe exposure use face shield. See note (3), (11).
-	Irritation mists	Special-purpose goggles.
DUST - Woodworking, buffing, general dusty conditions.	Nuisance dust	Goggles, eyecup and cover types. See note (8).
LIGHT and/or RADIATION -	-	-
We welding: Electric arc	Optical radiation	Welding helmets or welding shields. Typical shades: 10-14. See notes (9), (12)

Welding: Gas	Optical radiation	Welding goggles or welding face shield. Typical shades: gas welding 4-8, cutting 3-6, brazing 3-4. See note (9)
cutting, Torch brazing soldering	Optical radiation	Spectacles or welding face-shield. Typical shades, 1.5-3. See notes (3), (9)
Glare	Poor vision	Spectacles with shaded or special-purpose lenses, as suitable. See notes (9), (10).

Notes to Eye and Face Protection Selection Chart:

- (1) Care should be taken to recognize the possibility of multiple and simultaneous exposure to a variety of hazards. Adequate protection against the highest level of each of the hazards should be provided. Protective devices do not provide unlimited protection.
- (2) Operations involving heat may also involve light radiation. As required by the standard, protection from both hazards must be provided.
- (3) Face shields should only be worn over primary eye protection (spectacles or goggles).
- (4) As required by the standard, filter lenses must meet the requirements for shade designations in 8 CCR 3382 (<http://www.dir.ca.gov/title8/3382.html>). Tinted and shaded lenses are not filter lenses unless they are marked or identified as such.
- (5) As required by the standard, persons whose vision requires the use of prescription (Rx) lenses must wear either protective devices fitted with prescription (Rx) lenses or protective devices designed to be worn over regular prescription (Rx) eyewear.
- (6) Wearers of contact lenses must also wear appropriate eye and face protection devices in a hazardous environment. It should be recognized that dusty and/or chemical environments might represent an additional hazard to contact lens wearers.
- (7) Caution should be exercised in the use of metal frame protective devices in electrical hazard areas.
- (8) Atmospheric condition and the restricted ventilation of the protector can cause lenses to fog. Frequent cleansing may be necessary.



- (9) Welding helmets or face-shields should be used only over primary eye protection (spectacles or goggles).
- (10) Non-side shield spectacles are available for frontal protection only, but are not acceptable eye protection for the sources and operations listed for "impact".
- (11) Ventilation should be adequate, but well protected from splash entry. Eye and face protection should be designated and used so that it provides both adequate ventilation and protects the wearer from splash entry.
- (12) Protection from light radiation is directly related to filter lens density. See note (4). Select the darkest shade that allows task performance.



TABLE 3 SELECTION OF PROTECTIVE CLOTHING MATERIALS

Hazard	Protective Material
Heat	Treated wool and cotton, leather, aluminized material, Nomex
Splashes of hot metals and hot liquids	Treated wool and cotton, leather, aluminized material, Nomex
Impact from tools, machinery, and materials	Leather, Kevlar, duck
Cuts	Leather, Kevlar
Hazardous chemicals	Chemical resistant clothing, contact manufacturer
Dusts, dirt	Paperlike fiber, duck, plastics
Abrasions, rough services	Leather, duck
Cold	Insulated cotton, insulated synthetic fabrics

Paperlike fiber – Disposable suits made of this material provide protection against dusts.

Nomex – A synthetic fiber which provides high heat resistance

Kevlar – A synthetic fiber which is highly resistant to cuts and punctures.

Treated wool and cotton – Protective clothing made from treated wool and cotton adapts well to changing workplace temperatures and is comfortable as well as fire resistant. Treated cotton and wool clothing protects against dust, abrasions, and rough and irritating surfaces

Duck – Closely woven cotton fabric protects against cuts and bruises while handling heavy, sharp, or rough materials.

Leather- often used for protection against dry heat, flame, cuts, and abrasion.

Rubber, rubberized fabrics, neoprene and plastics – Protective clothing made from these materials protects against certain acids and other chemicals.



TABLE 4 SELECTION OF HIGH VISIBILITY CLOTHING

Class	Type of Work	Traffic Speed	Typical Jobs
Class I	<ul style="list-style-type: none">• Workers separated from approaching traffic• Workers give their undivided attention to oncoming traffic	Less than 25mph	Warehouse workers, sidewalk maintenance workers
Class II	<ul style="list-style-type: none">• Working near moving traffic• Working during inclement weather• Worker's attention is occasionally diverted from traffic	Greater than 25 mph	Roadway construction workers, grounds crews
Class III	<ul style="list-style-type: none">• Workers must be seen from 1,280 feet and identified as a person• Workers must focus all their attention on their work	Greater than 50 mph	Emergency responders, accident site investigators, utility workers, survey crews, highway construction workers

Background Material Color Selection

There are three color choices fluorescent lime-yellow, fluorescent red-orange and fluorescent red.

What to consider when deciding on fluorescent background color for high visibility garments:

1. Natural environment– to be visible the garment must contrast with the natural surroundings. All three of the Fluorescent colors are not typically found in nature, but things like red-orange blending in with fall foliage or lime yellow blending in with yellow flowers need to be considered. Fluorescent colors are effective in daytime and low-light conditions.
2. Work environment – to be visible in the work environment the garment must contrast with equipment, vehicles and surroundings. It is very important that workers be identified as people and not just another piece of equipment. What is the main color of your work zone? Do you need different identities within that work zone?



3. Retroreflective trim color, type, and pattern – retroreflective trim is required for low-light and nighttime visibility, but can also be used to provide daytime contrast and human definition.
4. Recognition factor – what is the easiest color to see? That depends somewhat on what people are conditioned to see (e.g. red fire engine) and on visual perception. Colorblind people tend to see the lime-yellow color better than red or red-orange. The current trend is to associate fluorescent lime-yellow with pedestrians (pedestrian crosswalk signs).
5. Visibility demonstration – the best way to determine the appropriate background color and garment design is to conduct a visibility demonstration in your work environment.