Dickinson

Personal Protective Equipment Program

November 11, 2016

Table of Contents

I. Introduction

A. Scope

The Occupational Safety and Health Administration (OSHA) requires employers to protect their employees from workplace hazards such as machines, work procedures, and hazardous substances that can cause injury. The preferred way to do this is through engineering controls or work practice and administrative controls, but when these controls are not feasible or do not provide sufficient protection, an alternative or supplementary method of protection is to provide workers with personal protective equipment (PPE) and the know-how to use it properly.

This document serves as the written guide for Dickinson College compliance to 29 CFR 1910.132, titled, "Personal Protective Equipment" and the personal protective equipment program requirements contained therein.

B. Application

Personal protective equipment shall be provided, used, and maintained in a sanitary and reliable condition wherever environmental, chemical, radiological, or mechanical hazards or irritants may injure or impair employees through absorption, inhalation, or physical contact. Dickinson College shall institute all feasible engineering, work practice, and administrative controls to eliminate or reduce hazards below the permissible exposure limits before using PPE to protect employees against hazards.

II. Responsibility

A. The **President of Dickinson College** has ultimate responsibility for occupational safety within the institution. General oversight responsibility is assigned to the **VP Finance & Administration**.

B. The **Director of Compliance & Enterprise Risk Management** will be responsible for administering the Dickinson College Personal Protective Equipment Program. This includes:

- working with administrators and other employees to develop and implement the appropriate personal protective equipment policies and practices
- assisting supervisors in assessing workplace hazards
- advising on administrative and engineering controls that reduce hazard exposure
- recommending proper personal protective equipment
- maintaining hazard assessments and training records

- periodically reviewing the Personal Protective Equipment Program
- conducting safety audits

C. The **Supervisor** has a primary responsibility for implementing the Dickinson College Personal Protective Equipment Program in the workplace. This includes:

- assessing workplace hazards through written certification
- ensuring that workers know and follow the personal protective equipment program
- implementing administrative and engineering controls where possible to reduce hazard exposure
- ensuring that the proper personal protective equipment is available and in working order
- ensuring employees are trained on the proper use, care, and maintenance of their PPE
- enforcing the use of PPE
- providing for the safety of visitors in the workplace

D. The **Employee** will be responsible for maintaining a thorough understanding of the Dickinson College Personal Protective Equipment Program and conducting each operation in accordance with the program. This includes:

- following safe work practices to eliminate or reduce hazardous exposure
- attending required training
- wearing and maintaining the appropriate PPE
- reporting changes in the workplace that affect hazard exposure to their supervisor

F. **All Employees of the College** are responsible for ensuring that they follow the procedures and faithfully implement the appropriate responsibilities put forth in the personal protective equipment program. Failure to do so is a serious breach of college policy and subject to disciplinary action that might include termination of employment at the college. The procedures to be followed in the event of such action shall be in keeping with existing guidelines as stated in the appropriate handbook for faculty, administrators, or staff.

III. Hazard Assessment

Hazard assessment is a process (required by OSHA) of identifying the hazards associated with a particular task, job title, or work location, and the personal protective equipment that must be used to ensure exposure does not exceed OSHA

permissible limits. Each hazard assessment shall be performed by the Director of Compliance and Enterprise Risk Management and certified in writing.

Appendix A contains Hazard Assessment Certification Forms specific to task, job title, and work location. Supervisors may choose to use any one or a combination of these forms.

A copy of each hazard assessment performed shall be maintained at the workplace and a copy shall be sent to the Department of Compliance & Enterprise Risk Management.

IV. PPE Selection, Use, and Maintenance

A. General PPE Requirements

- All personal protective equipment (PPE) shall be of safe design and construction for the work to be performed, and shall be maintained in a sanitary and reliable condition.
- Where employees provide their own PPE, Dickinson College shall assure its adequacy, including proper maintenance and sanitation.
- PPE which ensures a level of protection greater than the minimum required to protect employees from the hazards shall be selected.
- Careful consideration shall be given to comfort and fit. PPE that fits poorly will not afford the necessary protection. Continued wearing of the device is more likely if it fits the wearer comfortably. Protective devices are generally available in a variety of sizes or with adjustable features. Care should be taken to ensure that the right size is selected.

B. Eye and Face Protection

Dickinson College shall ensure that employees use appropriate eye or face protection when exposed to eye or face hazards, including, but not limited to:

- dust or flying particles
- molten metal
- acids/caustics or other chemical liquids
- chemical gas or vapors
- blood or other potentially infectious body fluids that might splash, spray, or splatter
- potentially injurious light radiation such as that created by welding arcs or lasers

General Requirements

a. Protective eye and face devices shall comply with ANSI Z87.1, "American National Standard Practice for Occupational and Educational Eye and Face Protection."
b. Employees who wear prescription lenses (including contact lenses) shall have their prescription incorporated into the eye protection or wear eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses.
c. Eye and face protection shall be distinctly marked to identify the manufacturer.
d. Emergency eyewash facilities meeting the requirements of 29 CFR 1910.151(c) shall be provided in all areas where employees may be exposed to corrosive materials.

1. Protection Against Light Radiation

Employees exposed to hazardous light radiation shall use filter lenses that have a shade number appropriate for the work being performed. A listing of appropriate shade numbers for various operations can be found in 29 CFR 1910.133, "Eye and Face Protection" and Appendix B.

Employees exposed to hazardous light emitted by lasers shall use safety goggles specifically designed to protect their eyes from the specific intensity of light produced by the laser. For guidance refer to the Dickinson College Laser Safety Program.

2. Protection Against Hazardous Materials Splash

Employees exposed to chemical and biological hazards that may splash in the eye shall use chemical splash goggles with indirect venting. For severe exposure, a face shield shall be worn in addition to splash goggles.

3. Protection Against Flying Particles (including sparks)

Employees exposed to flying particles shall use either impact-resistant spectacles with side shields or impact-resistant goggles. For severe exposure, a face shield shall be worn in addition to spectacles or goggles.

4. Protection against Glare, Heat, and Molten Metal

Employees exposed to glare, heat, and molten metal shall use welding goggles with tinted lenses. For severe exposure, a face shield shall be worn in addition to welding goggles.

C. Respiratory Protection

REFER TO THE DICKINSON COLLEGE RESPIRATORY PROTECTION PROGRAM

D. Head Protection

Dickinson College shall ensure that each affected employee wears an appropriate protective helmet when working in areas where there is a potential for injury from falling objects or when exposed electrical conductors could contact the head.

Protective helmets shall comply with ANSI Z89.1, “American National Standard for Personal Protection-Protective Headwear for Industrial Workers-Requirements.”

1. Protection against Impact (Class A, B, and C)

OSHA has three classifications of head protection. All three head protectors (helmets) are designed to provide protection from impact and penetration hazards caused by falling objects.

2. Protection against Exposed Electrical Conductors (Class A and B)

In addition to providing protection from impact and penetration, head protection is also available which provides protection from electrical shock and burn. Class A helmets provide electrical protection from low-voltage conductors (they are proof tested to 2,200 volts). Class B helmets provide electrical protection from high-voltage conductors (they are proof tested to 20,000 volts).

E. Hearing Protection

REFER TO THE DICKINSON COLLEGE HEARING CONSERVATION PROGRAM

F. Foot Protection

Dickinson College shall ensure that each affected employee uses protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and when the use of protective footwear will protect the affected employee from an electrical hazard, such as a static-discharge or electric-shock hazard, that remains after the employer takes other necessary protective measures.

Protective footwear shall comply with ANSI Z41, “American National Standard for Personal Protection-Protective Footwear,” ASTM F-2412-2005, "Standard Test Methods for Foot Protection," and ASTM F-2413-2005, "Standard

Specification for Performance Requirements for Protective Footwear," and ASTM D-2047 “Standard Test Method for Static Coefficient of Friction.”

Protective footwear worn by housekeeping and dining personnel must be cut resistant* with slip resistant soles meeting ASTM standards in black or white.

Protective footwear worn by trades and grounds personnel must be cut resistant* with slip resistant soles and toe protection meeting ASTM standards in black, brown or tan.

*cut resistant is defined as leather or cloth upper covering the entire foot

1. Protection from Impact and Compression

Employees exposed to impact or compression hazards from objects falling or rolling onto their toes, or weight pressing on their toes shall use protective footwear with toe guards. When the dorsum of the foot is exposed to impact or compression hazards, the employee shall use metatarsal guards in addition to toe guards.

2. Protection from Puncture Wounds

Employees exposed to puncture wounds due to sharp objects piercing the sole shall use protective footwear with metal insoles.

3. Protection from Electrical Conduction

a. Electrically Conductive Footwear

Employees exposed to explosive atmospheres shall use protective footwear designed to be electrically conductive to prevent the buildup of static electricity by grounding the employee.

b. Electrically Nonconductive Footwear

Employees exposed to electrical conductors shall use protective footwear designed to be electrically nonconductive

4. Protection from Heat, Molten Metal, and Sparks

Employees exposed to heat, molten metal, and sparks shall use foundry shoes and leggings.

G. Hand Protection

Dickinson College shall select and require employees to use appropriate hand protection when employees’ hands are exposed to hazards such as those from skin absorption of harmful substances, severe cuts or lacerations, severe abrasions, punctures, chemical burns, thermal burns, and harmful temperature extremes.

OSHA does not incorporate by reference ANSI standards for glove selection. Dickinson College shall base the selection of the appropriate hand protection on an evaluation of the performance characteristics of the hand protection relative to the task(s) to be performed, conditions present, duration of use, and hazards and potential hazards identified. ANSI/ISEA 105 may be used as a reference document.

1. ***Protection from Cuts, Lacerations, Abrasions, Punctures***

   Employees exposed to cuts, lacerations, abrasions, or punctures shall use a glove that guards against these hazards. Choices include:

   a. **Fabric Gloves**

      These gloves protect against dirt, slivers, chafing, and abrasion but do not provide sufficient protection to be used with rough, sharp, or heavy materials.

   b. **Plastic Coated Fabric Gloves**

      Adding a plastic coating to fabric gloves strengthens them and offers slip-resistant qualities. These gloves can be used for handling bricks or wire rope for example.

   c. **Metal Mesh Gloves and Some Synthetic Gloves**

      These gloves provide protection against sharp objects such as knives.

   d. **Leather Gloves**

      These gloves provide protection against rough objects. They also protect against sparks and moderate heat.

2. ***Protection from Heat, Molten Metal and Sparks***

   Employees exposed to heat, molten metal, and sparks shall use a glove that guards against these hazards. Choices include:

   a. **Leather Gloves**

      These gloves provide protection against sparks and moderate heat. They also protect against rough objects.

   b. **Aluminized Gloves**

      These gloves usually are used for welding, furnace, and foundry work because they provide reflective and insulating protection against heat.

c. Aramid Fiber Gloves (and other synthetic materials)

These gloves protect against heat and cold. They may also be cut- and abrasive-resistant.

3. Protection from Hazardous Materials

Employees exposed to hazardous materials including chemicals and infectious substances shall use a glove that guards against these hazards. Many "chemically resistant" gloves exist. To select an appropriate glove employees should refer to the safety data sheet for the hazardous material to which they are exposed. Additionally, a sample glove selection guide can be found in Appendix C of this document. Chemically resistant glove selection guides are available from all major manufacturers.

H. Body Protection (arms, legs, torso)

Dickinson College shall select and require employees to use other appropriate body protection when parts of the employees' bodies (other than those previously covered) are exposed to hazards such as those from skin absorption of harmful substances, severe cuts or lacerations, severe abrasions, punctures, chemical burns, thermal burns, and harmful temperature extremes.

Body protection may include: vests, jackets, aprons, coveralls, surgical gowns, full body suits

Like gloves, body protection comes in a variety of materials each suited to a particular hazard. To select an appropriate body protector refer to the safety data sheet for the hazardous material or contact the Director of Compliance & Enterprise Risk Management for guidance.

I. Electrical Protective Equipment

Dickinson College shall ensure that the design requirements for electrically protective equipment including rubber insulating blankets, rubber insulating matting, rubber insulating covers, rubber insulating line hose, rubber insulating gloves, and rubber insulating sleeves are met per 29 CFR 1910.137 and as outlined in the Dickinson College Electrical Safety Program.

V. Training

Dickinson College shall provide training to each employee who is required to use PPE. Training shall include at least the following:

- when PPE is necessary
- what PPE is necessary
- how to properly don, doff, adjust, and wear PPE

- the limitations of PPE
- the proper care, maintenance, useful life, and disposal of PPE

Employees must demonstrate an understanding of their training and the ability to use the PPE properly, before being allowed to perform work requiring the use of PPE.

When supervisors have reason to believe that an employee who has been trained does not have the understanding and skill required to use PPE properly, the employee must be retrained. Circumstances where retraining is required include, but are not limited to, situations where:

- changes in the workplace render previous training obsolete
- changes in the type of PPE to be used render previous training obsolete
- inadequacies in an employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding and skill (such as not wearing or improperly wearing PPE)

VI. Payment for Protective Equipment

Protective equipment, including personal protective equipment, shall be provided by Dickinson College at no cost to the employee, except as provided below. Dickinson College must pay for replacement PPE, except when the employee has lost or intentionally damaged the PPE.

- Dickinson College is not required to pay for non-specialty safety-toe protective footwear (including steel-toe shoes or steel-toe boots) and non-specialty prescription safety eyewear, provided that the employer permits such items to be worn off the job-site.
- When Dickinson College provides metatarsal guards and allows the employee, at his or her request, to use shoes or boots with built-in metatarsal protection, the employer is not required to reimburse the employee for the shoes or boots.
- Dickinson College is not required to pay for everyday clothing, such as long-sleeve shirts, long pants, street shoes, and normal work boots;
- Dickinson College is not required to pay for ordinary clothing, skin creams, or other items, used solely for protection from weather, such as winter coats, jackets, gloves, parkas, rubber boots, hats, raincoats, ordinary sunglasses, and sunscreen.

Where an employee provides adequate protective equipment he or she owns, the employer may allow the employee to use it and is not required to reimburse the employee for that equipment; however, Dickinson College shall be responsible to assure its adequacy, including proper maintenance, and sanitation of such equipment.

Appendix A: Hazard Assessment Forms

Appendix A1

Certification of Hazard Assessment by Task

Assessment Date: _____ **Department**: _____

Description of Task:_____

_____

HAZARDS	PPE REQUIRED
Eye and Face	
___ Light Radiation	Filter Lenses (See Appendix B)
___ Hazardous Materials Splash	Chemical Splash Goggles (add face shield for severe exposure)
___ Flying Particles	Impact Spectacles with Side Shields or Impact Goggles (add face shield for severe exposure)
___ Glare, Heat, Molten Metal	Welding Goggles with Tinted Lenses (add face shield for severe exposure)
Respiratory	***See Dickinson College Respiratory Protection Program***
Head	
___ Impact and Penetration	Class A, B, or C Helmet
___ Electricity (under 2200 Volts)	Class A Helmet
___ Electricity (2200—20,000 Volts)	Class B Helmet
Hearing	***See Dickinson College Hearing Conservation Program***
Feet	
___ Impact and/or Compression	Safety Shoes with Toe Guards (add metatarsal guards when dorsum of foot is exposed)
___ Puncture Wounds	Safety Shoes with Metal Insoles
___ Working in Explosive Atmosphere	Electrically Conductive Safety Shoes
___ Electricity	Electrically Nonconductive Safety Shoes

___ Heat, Molten Metal, Sparks	Foundry Shoes and Leggings
Hand	
___ Cuts, Lacerations, Abrasions, Punctures	Choose most appropriate (Fabric, Plastic coated fabric, Metal mesh, synthetic, or leather gloves)
___ Heat, Molten Metal, Sparks	Choose most appropriate (Leather, Aluminized, Aramid fiber, or synthetic glove)
___ Hazardous Materials	Choose most appropriate (latex, nitrile, butyl, vinyl, neoprene, fluoroelastomer)
Body (arms, legs, torso)	
___ Cuts, Lacerations, Abrasions, Punctures, Heat, Molten Metal, Sparks, Hazardous Materials	Choose most appropriate (vest, jacket, apron, coverall, surgical gown, fully body suit)
Electrical Protection Equipment	**See Dickinson College Electrical Safety Program**

Other Control Measures: _____

CERTIFICATION: I certify this hazard assessment was conducted in accordance with the provisions of the Dickinson College Personal Protective Equipment Program.

_____ _____

Supervisor Name **Date**

Distribution: Department File

Department of Compliance & Enterprise Risk Management

Appendix A2

Certification of Hazard Assessment by Job Title

Assessment Date:_____**Department**:_____

Job Title:_____

Eye and Face Hazard	**Task**	**PPE Required**
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Respiratory Hazard **Refer to Dickinson College Respiratory Protection Plan**

Head Hazard	**Task**	**PPE Required**
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Hearing Hazard **Refer to Dickinson College Hearing Conservation Program**

Foot Hazard	**Task**	**PPE Required**
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Hand Hazard	Task	PPE Required

Body Hazard	Task	PPE Required

Electrical Hazard	Task	PPE Required

Other Control Measures: _____

_____

_____

_____

CERTIFICATION: I certify this hazard assessment was conducted in accordance with the provisions of the Dickinson College Personal Protective Equipment Program.

_____ _____

Supervisor Name **Date**

Distribution: Department File

Department of Compliance & Enterprise Risk Management

Appendix A3

Certification of Hazard Assessment by Location

Assessment Date: _____ **Department**: _____

Building: _____**Room**: _____

Eye and Face Hazard	**Task**	**PPE Required**
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Respiratory Hazard **Refer to Dickinson College Respiratory Protection Plan**

Head Hazard	**Task**	**PPE Required**
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Hearing Hazard **Refer to Dickinson College Hearing Conservation Program**

Foot Hazard	**Task**	**PPE Required**
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Hand Hazard	Task	PPE Required

Body Hazard	Task	PPE Required

Electrical Hazard	Task	PPE Required

Other Control Measures: _____

_____

_____

_____

CERTIFICATION: I certify this hazard assessment was conducted in accordance with the provisions of the Dickinson College Personal Protective Equipment Program.

_____ _____

Supervisor Name **Date**

Appendix B: Filter Lenses for Protection against Radiant Energy

Operations	Electrode size in 1/32" (0.8mm)	Arc current	Minimum* protective shade
Shielded metal arc welding	<3	<60	7
	3-5	60-160	8
	5-8	160-250	10
	>8	250-550	11
Gas metal-arc welding and flux-cored arc welding		<60	7
		60-160	10
		160-250	10
		250-500	10
Gas tungsten-arc welding		<50	8
		50-150	8
		150-500	10
Air carbon arc cutting	(light)	<500	10
	(heavy)	500-1,000	11
Plasma arc welding		<20	6
		20-100	8
		100-400	10
		400-800	11
Plasma arc cutting	(light)**	<300	8
	(medium)**	300-400	9
	(heavy)**	400-800	10
Torch blazing			3
Torch soldering			2
Carbon arc welding			14
Gas welding:			
Light	<1/8	<3.2	4
Medium	1/8-1/2	3.2-12.7	5
Heavy	>1/2	>12.7	6
Oxygen cutting:			
Light	<1	<25	3
Medium	1-6	25-150	4
Heavy	>6	>150	5

Source: 29 CFR 1910.133(a)(5).

**As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade which gives sufficient view of the weld zone without going below the minimum. In ox fuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.*

*** These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used when the arc is hidden by the workpiece.*

Appendix C: Glove Selection Guide for Protection against Hazardous Materials

Chemical resistant gloves are an important aspect of protection against hazardous materials. It is critical that users select the correct glove material based on the chemicals used and the glove's permeation data. Inappropriate use of glove material may actually injure a worker as chemicals can quickly permeate the barrier. Please review the manufacturer, test data, and glove usage recommendations. Together the information will allow you to select the best glove material for your application. If you have any questions on glove selection, contact the Director of Compliance & Enterprise Risk Management at 717-245-1495.

Chemical Family	Butyl Rubber	Neoprene	PVC (Vinyl)	Nitrile	Natural Latex
Acetates	G	NR	NR	NR	NR
Acids, inorganic	G	E	E	E	E
Acids, organic	E	E	E	E	E
Acetonitrile, Acrylonitrile	G	E	G	S	E
Alcohols	E	E	NR	E	E
Aldehydes	E	G	NR	S*	NR
Amines	S	NR	NR	F	NR
Bases, inorganic	E	E	E	E	E
Ethers	G	F	NR	E	NR
Halogens (liquids)	G	NR	F	E	NR
Inks	G	E	E	S	F
Ketones	E	G	NR	NR	G
Nitro compounds (Nitrobenzene, Nitromethane)	G	NR	NR	NR	NR
Oleic Acid	E	E	F	E	NR
Phenols	E	E	NR	NR	G
Quinones	NR	E	G	E	E
Solvents, Aliphatic	NR	NR	F	G	NR
Solvents, Aliphatic	NR	NR	F	F	NR

S - Superior, E - Excellent, G - Good, F - Fair, NR - Not Recommended.

*Not recommended for Acetaldehyde, use Butyl Rubber

The performance of gloves depend on their thickness and conditions of manufacture, as well as their material of construction. It is best to consult the manufacturers' glove selection guides. A few companies are listed below.

Ansell-Edmont - Ansell Industrial, 1300 Walnut St., Coshocton, OH 43812.
From the AnsellPro.com Home Page link to the **Chemical Resistance Guide: Permeation and Degradation Data**, a .pdf file, or, SpecWare, Ansell's interactive chemical resistance and glove recommendations guide to nearly 200 industrial chemicals and mixtures. Links to toxicology information, for thousands of chemicals from the National Library of Medicine database, is also provided.

MAPA Professional - 85 85 Innsbruck Drive, Buffalo, NY 14227.
Permeation, Degradation and Breakthrough Rates - for 116 chemicals against their Stansolv® Nitrile and StanzoilÆ Neoprene gloves.
http://www.mapaglove.com/content/ChemChart.htm

Honeywell Safety Products USA - 900 Douglas Pike, Smithfield, RI 02917

From the Honeywell Safety website, one can search for gloves according to hazard or by type of glove on the **Hand and Arm Protection** page.

http://www.honeywellsafety.com/USA/Product_Catalog/Gloves.aspx