DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS

DIRECTOR’S OFFICE

CONSTRUCTION SAFETY STANDARDS


These rules become effective immediately upon filing with the Secretary of State unless adopted under section 33, 44, or 45a(6) of 1969 PA 306.

Rules adopted under these sections become effective 7 days after filing with the Secretary of State.


R 408.40601, R 408.40615, R 408.40616, R 408.40617, R 408.40621, R 408.40622, R 408.40624, R 408.40625, R 408.40626, R 408.40631, and R 408.40636 of the Michigan Administrative Code are amended and R 408.40603, R 408.40614, R 408.40617a, R 408.40624a, R 408.40624b, are added, and R 408.40633, R 408.40634, and R 408.40635 of the Code are rescinded, as follows:

PART 6. PERSONAL PROTECTIVE EQUIPMENT

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(2) Hearing protection shall be in compliance with Occupational Health Standard Part 380 “Occupational Noise Exposure,” as referenced in R 408.40603.

(3) Respiratory protection shall be in compliance with Occupational Health Standard Part 451 “Respiratory Protection,” as referenced in R 408.40603.
(4) Protective equipment, including personal protective equipment for eyes, face, head, hands, feet, and body, protective clothing, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation, or physical contact.

R 408.40603 Adoption of standards by reference; access to other MIOSHA rules; appendices.
Rule 603. (1) The following standards are adopted by reference in these rules and are available from the Document Center, Inc., Customer Service, 121 Industrial Road, Suite 8, Belmont, California 94002, USA, telephone: (650) 591-7600 or via the internet at website: www.document-center.com; at a cost as of the time of adoption of these rules, as stated in this subrule.


(2) The standards adopted in subrule (1) of this rule are also available for inspection at the Department of Licensing and Regulatory Affairs, MIOSHA Standards Section, 7150 Harris Drive, P.O. Box 30643, Lansing, Michigan, 48909-8143.

(3) Copies of the standards adopted in subrule (1) of this rule may be obtained from the publisher or may also be obtained from the Department of Licensing and Regulatory Affairs, MIOSHA Standards Section, 7150 Harris Drive, P.O. Box 30643, Lansing, Michigan, 48909-8143, at the cost charged in this rule, plus $20.00 for shipping and handling.

(4) The following Michigan occupational safety and health standards (MIOSHA) are referenced in these rules. Up to 5 copies of these standards may be obtained at no charge from the Michigan Department of Licensing and Regulatory Affairs, MIOSHA Standards Section, 7150 Harris Drive, P.O. Box 30643, Lansing, MI, 48909-8143 or via the internet at website: www.michigan.gov/mioshastandards. For quantities greater than 5, the cost, at the time of adoption of these rules, is 4 cents per page.

- (c) Occupational Health Standard Part 451 “Respiratory Protection,” R 325.60051 to R 325.60052.

(5) The appendices are informational only and are not intended to create any additional obligations or requirements not otherwise imposed or to detract from any established obligations or requirements.

R 408.40614 Definitions, C to F.
Rule 614. (1) “Contaminant” means any material which by reason of its action upon, within, or to a person is likely to cause physical harm.

- (2) “Footwear” means wearing apparel for the feet, such as shoes, boots, slippers, or overshoes, excluding hosiery.

R 408.40615 Definitions, H to R.
Rule 615. (1) “Helmet,” also called a hard hat or cap, means a device that is worn on the head and that is designed to provide limited protection against impact, flying particles, or electric shock.

- (2) “Manufacturer” means a business entity that marks or directs the permanent marking of the components or complete devices as compliant with this standard, and sells them as compliant.
- (3) “Metatarsal guards” mean guards that are designed to protect the top of the foot from the toes to the ankle over the instep of the foot. These guards may be attached to the outside of shoes.
- (4) “O.D.” means optical density and refers to the light refractive characteristics of a lens.
- (5) “Protective footwear” means footwear that is designed, constructed, and classified to protect the wearer from a potential hazard or hazards.
- (6) “Radiant energy” means energy that travels outward in all directions from its sources.

R 408.40616 Definitions, S, T.
Rule 616. (1) “Safety line” means a device used for emergency rescue work.

- (2) “Sanitizing” means an act or process of destroying organisms that may cause disease.
- (3) “Shell” means the portion of welding helmet or handshield that covers the wearer’s face and is the part of a helmet which includes the outermost surface.
- (4) “Toe guards” means the guards that fit over the toes of regular shoes to protect the toes from impact and compression hazards. These guards may be attached to the outside of shoes.

R 408.40617 Employer’s and employee’s responsibilities.
Rule 617. (1) An employer shall not permit defective or damaged personal protective equipment to be used.

- (2) An employer shall require each employee to wear personal protective equipment as prescribed by the manufacturer when required by any Michigan occupational safety and health act (MIOSHA) rule.
- (3) If personal protective equipment is required and is worn in direct contact with the skin, the equipment shall be sanitized before being reissued to another employee.
(4) An employer shall require the wearing of appropriate personal protective equipment in all operations where there is an exposure to hazardous conditions or where this part indicates the need for using such equipment to reduce the hazards to the employees.

(5) All personal protective equipment shall be of safe design and constructed for the work to be performed.

**PAYMENT FOR PERSONAL PROTECTIVE EQUIPMENT**

R 408.40617a Payment for personal protective equipment (PPE).

**Rule 617a.** (1) An employer shall provide at no cost to employees the personal protective equipment necessary to protect against hazards that the employer is aware of as a result of any required assessments.

(2) An employer shall pay for replacement PPE, as necessary, under either of the following conditions:

(a) When the PPE no longer provides the protection it was designed to provide.

(b) When the previously provided PPE is no longer adequate or functional.

(3) When an employee has lost or intentionally damaged the PPE issued to him or her, an employer is not required to pay for its replacement and may require the employee to pay for its replacement.

(4) An employer is not required to pay for prescription safety eyewear with removable or permanent sideshields as long as the employer provides safety eyewear that fits over an employee's prescription lenses.

(5) An employer is not required to pay for non-specialty prescription safety eyewear, provided that the employer permits these items to be worn off the job-site.

(6) An employer is not required to pay for non-specialty safety-toe protective footwear, including steel-toe shoes or steel-toe boots, provided that the employer permits these items to be worn off the job-site.

(7) An employer shall provide, at no cost to employees, metatarsal guards attachable to shoes when metatarsal protection is necessary, when both of the following apply:

(a) If metatarsal protection is necessary and an employer requires employees to use metatarsal shoes instead of detachable guards, then the employer shall provide the metatarsal shoe at no cost to the employee.

(b) If an employer provides metatarsal guards and allows the employee, at his or her request, to use shoes or boots with built-in metatarsal protection, then the employer is not required to pay for the metatarsal shoes or boots.

(8) An employer is not required to pay for either of the following:

(a) Everyday clothing, which includes any of the following:

(i) Long-sleeve shirts.

(ii) Long pants.

(iii) Street shoes.

(iv) Normal work boots.

(v) Ordinary clothing.

(vi) Skin creams.

(b) Other items used solely for protection from weather, which includes any of the following:

(i) Winter coats.

(ii) Jackets.

(iii) Gloves.

(iv) Parkas.

(v) Rubber boots.

(vi) Hats.

(vii) Raincoats.

(viii) Ordinary sunglasses.

(ix) Sunscreen.

(9) An employer shall pay for protection when ordinary weather gear is not sufficient to protect an employee and special equipment or extraordinary clothing is needed to protect the employee from unusually severe weather conditions. Clothing used in artificially-controlled environments with extreme hot or cold temperatures, such as freezers, is not considered part of the weather gear exception.

(10) All of the following apply to upgraded and personalized PPE:

(a) An employer is not required to pay for PPE requested by an employee that exceeds the PPE requirements, provided that the employer provides PPE that meets the standards at no cost to the employee.

(b) If an employer allows an employee to acquire and use upgraded or personalized PPE, then the employer is not required to reimburse the employee for the equipment, provided that the employer has provided adequate PPE at no cost to the employee.

(c) An employer shall evaluate an employee's upgraded or personalized PPE to ensure that it is in compliance with all of the following:

(i) Adequate to protect from hazards present in the workplace.

(ii) Properly maintained.

(iii) Kept in a sanitary condition.

(11) When the provisions of another MIOSHA standard specify whether the employer shall pay for specific equipment, the payment provisions of that standard prevails.
HEAD PROTECTION EQUIPMENT

R 408.40621 Criteria for head protection.
Rule 621. (1) An employer shall provide each employee with head protection that meets the specifications contained in any of the following consensus standards:

(2) Any head protection device that an employer demonstrates is at least as effective as a head protection device constructed in accordance with 1 of the consensus standards adopted in subrule (1) of this rule is considered to be in compliance with this rule.

(3) An employer shall ensure that the head protection provided for each employee exposed to high-voltage electric shock and burns meets the specifications contained in Section 9.7 "Electrical Insulation" of any of the ANSI standards adopted by reference in subrule (1) of this rule.

R 408.40622 Use of head protection.
Rule 622. (1) An employer shall ensure that each affected employee is provided with, and wears, head protection equipment and accessories when the employee is required to be present in areas where a hazard or risk of injury exists from any of the following:
   (a) Falling or flying objects or particles.
   (b) Electrical shock and burns.
   (c) From other harmful contacts or exposures.
   (2) Head protection equipment that has been physically altered, painted, or damaged shall not be worn.
   (3) A chin strap shall be provided and shall be used when an employee is exposed to weather or work operations that may cause the head protection equipment to be displaced.

R 408.40623 Certification of face and eye protection
Rule 623. Except for the devices required by R 408.40624(5), all face and eye protection devices shall bear a certification by the manufacturer that the device has been produced according to ANSI standard Z87.1, as revised in 1991, occupational and educational eye and face protection, which is adopted in these rules by reference and may be inspected at the Lansing office of the Department of Licensing and Regulatory Affairs, MIOSHA Standards Section.

The standard may be purchased at a cost of $42.00 as of the time of adoption of these rules from the American National Standards Institute, 1430 Broadway, New York, New York 10018, or from the Michigan Department of Licensing and Regulatory Affairs, MIOSHA Standards Section, 7150 Harris Drive, P.O. Box 30643, Lansing, Michigan 48909. If it is impractical for the protection device to bear the certification, then the container for the device shall bear the certification.

EYE AND FACE PROTECTION

R 408.40624 Use of eye and face protection.
Rule 624. (1) An employer shall ensure that each affected employee uses appropriate eye and face protection, when exposed to eye or face hazards or if risk of injury exists from any of the following:
   (a) Flying objects or particles.
   (b) Harmful contacts.
   (c) Exposures, such as glare.
   (d) Liquids.
   (e) Injurious radiation.
   (f) Electrical flash.
   (g) A combination of these hazards.
   (2) An employee who wears prescription eyewear shall be protected by 1 of the following:
      (a) Eye protection that incorporates the prescription in its design.
      (b) Eye protection that can be worn over prescription lenses without disrupting either the prescription eyewear or the protective eyewear.
      (c) Eye protection that incorporates corrective lenses mounted behind the protective lenses.
   (3) Eye and face protection equipment shall be of proper size to fit each employee and protect against the intrusion of foreign objects. Eye and face protection shall be kept clean and in good repair. Equipment with structural or optical defects shall not be used.
   (4) A protector shall be in compliance with all of the following minimum requirements:
      (a) Provides adequate protection against the particular hazards for which it is designed.
      (b) Be reasonably comfortable when worn under the designated conditions.
      (c) Fits snugly and does not unduly interfere with movements of the wearer.
      (d) Be durable.
      (e) Be capable of withstanding sanitizing.
      (5) An employer shall ensure that eye and face personal protective equipment is distinctly marked to facilitate identification of the manufacturer.
      (6) Limitations or precautions indicated by the manufacturer shall be transmitted to the user and care is taken to ensure that the limitations or precautions are observed.
Table 1 shall be used as a guide in the selection of face and eye protection for the hazards and operations noted.

**TABLE 1**

**EYE AND FACE PROTECTOR SELECTION GUIDE**

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>GOGGLES</strong> Flexible Fitting, Regular Ventilation</td>
</tr>
<tr>
<td>2</td>
<td><strong>GOGGLES</strong> Flexible Fitting, Hooded Ventilation</td>
</tr>
<tr>
<td>3</td>
<td><strong>GOGGLES</strong> Cushioned Fitting, Rigid Body</td>
</tr>
<tr>
<td>*4</td>
<td><strong>SPECTACLES</strong> Metal Frame, with Side Shields</td>
</tr>
<tr>
<td>*5</td>
<td><strong>SPECTACLES</strong> Plastic Frame, with Side Shields</td>
</tr>
<tr>
<td>*6</td>
<td><strong>SPECTACLES</strong> Metal-Plastic Frame, with Side Shields</td>
</tr>
<tr>
<td>**7</td>
<td><strong>WELDING GOGGLES</strong> Eyecup Type, Tinted Lenses (Illustrated)</td>
</tr>
<tr>
<td>7A</td>
<td><strong>CHIPPING GOGGLES</strong> Eyecup Type, Clear Safety Lenses (Not Illustrated)</td>
</tr>
<tr>
<td>**8</td>
<td><strong>WELDING GOGGLES</strong> Converspec Type, Tinted Lenses (Illustrated)</td>
</tr>
<tr>
<td>**8A</td>
<td><strong>CHIPPING GOGGLES</strong> Coverspec Type, Clear Safety Lenses. (Not Illustrated)</td>
</tr>
<tr>
<td>**9</td>
<td><strong>WELDING GOGGLES</strong> Coverspec Type, Tinted Plate Lens</td>
</tr>
<tr>
<td>10</td>
<td><strong>FACE SHIELD</strong> (Available with Plastic or Mesh Window)</td>
</tr>
<tr>
<td>**11</td>
<td><strong>WELDING HELMETS</strong></td>
</tr>
<tr>
<td>OPERATION</td>
<td>HAZARDS</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>Acetylene-Burning</td>
<td>Sparks, Harmful rays,</td>
</tr>
<tr>
<td>Acetylene-Cutting</td>
<td>Molten Metal, Flying Particles</td>
</tr>
<tr>
<td>Acetylene-Welding</td>
<td></td>
</tr>
<tr>
<td>Chemical Handling</td>
<td>Splash, Acid burns, Fumes</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Chipping</td>
<td>Flying Particles</td>
</tr>
<tr>
<td>Electric(arc) Welding</td>
<td>Sparks, Intense Rays, Molten Metal</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Furnace Operations</td>
<td>Glare, Heat, Molten Metal</td>
</tr>
<tr>
<td>Grinding-Light</td>
<td>Flying Particles</td>
</tr>
<tr>
<td>Grinding-Heavy</td>
<td>Flying Particles</td>
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<tr>
<td></td>
<td></td>
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<tr>
<td>Laboratory</td>
<td>Chemical Splash, Glass Breakage</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Machining</td>
<td>Flying Particles</td>
</tr>
<tr>
<td>Molten Metals</td>
<td>Heat, Glare, Sparks, Splash</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Spot Welding</td>
<td>Flying Particles, Sparks</td>
</tr>
</tbody>
</table>

* Non-side shield spectacles are available for limited hazard use requiring only frontal protection.

** See table 2 of this rule, “Filter Lens Shade Numbers During Welding Operations.”
WELDING PROTECTION

R 408.40624a Welding protection.
Rule 624a. (1) Table 2 shall be used as a guide to select the proper shade number of filter lenses or plates during welding operations.
(2) When an employee is welding and using a welding shield, the shield shall incorporate a safety glass feature with a flip-up filter lens or the employee shall wear safety glasses with side shields or goggles under the shield when the shield is raised and is exposed to flying objects.
(3) Shades more dense than those listed in Table 2 may be used to suit the individual's needs.
(4) Table 2 reads as follows:

### TABLE 2

<table>
<thead>
<tr>
<th>WELDING OPERATION</th>
<th>SHADE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shielded metal-arc welding 1/16-, 3/32-, 1/8-, 5/32- inch diameter electrodes</td>
<td>10</td>
</tr>
<tr>
<td>Gas-shielded arc welding (nonferrous) 1/16-, 3/32-, 1/8-, 5/32-inch diameter electrodes</td>
<td>11</td>
</tr>
<tr>
<td>Gas-shielded arc welding (ferrous) 1/16, 3/32-, 1/8-, 5/32-inch diameter electrodes</td>
<td>12</td>
</tr>
<tr>
<td>Shielded metal-arc welding 3/16-, 7/32-, 1/4-inch diameter electrodes</td>
<td>12</td>
</tr>
<tr>
<td>5/16-, 3/8-inch diameter electrodes</td>
<td>14</td>
</tr>
<tr>
<td>Atomic hydrogen welding</td>
<td>10 - 14</td>
</tr>
<tr>
<td>Carbon-arc welding</td>
<td>14</td>
</tr>
<tr>
<td>Soldering</td>
<td>2</td>
</tr>
<tr>
<td>Torch brazing</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Light cutting, up to 1 inch</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Medium cutting, 1 inch to 6 inches</td>
<td>4 or 5</td>
</tr>
<tr>
<td>Heavy cutting, over 6 inches</td>
<td>5 or 6</td>
</tr>
<tr>
<td>Gas welding (light), up to 1/8-inch</td>
<td>4 or 5</td>
</tr>
<tr>
<td>Gas welding (medium), 1/8-inch to 1/2-inch</td>
<td>4 or 6</td>
</tr>
<tr>
<td>Gas welding (heavy), over 1/2-inch</td>
<td>6 or 8</td>
</tr>
</tbody>
</table>
LASER PROTECTION

R 408.40624b Laser protection.
Rule 624b. (1) An employee exposed to laser beams with a wattage of more than .005 (5 milliwatts) shall wear laser safety goggles that provides protection for the specific wavelength of the laser and that are of an optical density (O.D.) adequate for the energy involved. The maximum power or energy density for which adequate protection is afforded by glasses of optical densities from 5 to 8 is shown in Table 3.

(2) All protective goggles shall bear a label identifying all of the following data:
(a) The laser wavelengths for which use is intended.
(b) The optical density of those wavelengths.
(c) The visible light transmission.
(3) Table 3 reads as follows:

TABLE 3

<table>
<thead>
<tr>
<th>SELECTING LASER SAFETY GLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTENSITY</td>
</tr>
<tr>
<td>CW Maximum Power Density</td>
</tr>
<tr>
<td>(Watts/cm³)</td>
</tr>
<tr>
<td>10⁻²</td>
</tr>
<tr>
<td>10⁻²</td>
</tr>
<tr>
<td>1.0</td>
</tr>
<tr>
<td>10.0</td>
</tr>
</tbody>
</table>

*10⁻² Equals 1 Milliwatt.

Output levels falling between lines in this table shall require the higher optical density.

FOOT AND TOE PROTECTION

R 408.40625 Foot and toe protection; consensus standards; specific requirements.
Rule 625. (1) Safety toe footwear shall bear a permanent mark to show the manufacturer’s name or trademark and to show certification of compliance with ANSI standard Z-41 -1991, “Protective Footwear Personal Protection,” which is adopted in these rules by reference and may be inspected at the Lansing office of the Department of Licensing and Regulatory Affairs, MIOSHA Standards Section. The standard may be purchased at a cost of $20.00 as of the time of adoption of these rules from the American National Standards Institute, 1430 Broadway, New York, New York 10018, or from the Michigan Department of Licensing and Regulatory Affairs, MIOSHA Standards Section, 7150 Harris Drive, Box 30643, Lansing, Michigan 48909.

(2) An employer shall ensure that each affected employee wears foot protection or toe protection, or both, if conditions of the job are likely to cause a foot injury.

(3) If a hazard is created from a process, chemical, or mechanical irritant which could cause an injury or impairment to the feet by absorption or physical contact, other than from impact, then the employer shall provide any of the following to the employee:
(a) Boots.
(b) Overshoes.
(c) Rubbers.
(d) Wooden-soled shoes.
(e) The equivalent to subdivisions (a) to (d) of this subrule.
HAND AND BODY PROTECTION

R 408.40626 Hand and body protection.
Rule 626.  (1) An employee who handles rough, sharp-edged, abrasive materials, or whose work subjects the hands to any of the following, shall wear hand protection of a type suitable for the work being performed:
   (a) Lacerations.
   (b) Punctures.
   (c) Burns.
   (d) Bruises.
(2) Cloth gloves shall not be worn when operating rotating equipment such as a drill or a powered threading machine.
(3) Precautions shall be taken with regard to synthetic clothing that is worn near a source of flame, spark, a hot surface, or material that could ignite the clothing.
(4) An employee shall not wear loose clothing, neckwear encircling the neck, or exposed jewelry, such as rings and necklaces, near a machine having reciprocating or rotating shafts or spindles or when handling material that could catch on clothing or jewelry and cause injury. A ring shall not be worn on the finger unless covered by a glove or tape.
(5) When an employee is exposed to hazards such as radiation, alkales, acids, abrasives, and temperature extremes other than those caused by weather conditions, appropriate head, body, and hand protection shall be worn to protect the employee from that hazard. Such personal protective equipment shall be provided by the employer.

FALL PROTECTION

R 408.40631 Fall protection.
Rule 631.  An employer shall ensure that each employee whose fall protection is not covered by another MIOSHA safety standard, and the employee’s work area is more than 6 feet above the ground, floor, water, or other surface, shall be protected as prescribed in Construction Safety Standard Part 45 “Fall Protection,” as referenced in R 408.40603.
   The following systems are included in Construction Safety Standard Part 45 “Fall Protection:”
   (a) Guardrail systems.
   (b) Safety net systems.
   (c) Personal fall arrest systems.
   See Appendix C for reference to the correct safety standards for construction industry threshold heights requiring fall prevention/protection equipment.

R 408.40633 Rescinded.

R 408.40634 Rescinded.

R 408.40635 Rescinded.

R 408.40636 Working over or near water.
Rule 636.  (1) Where a possibility of drowning exists, each employee working over or adjacent to water shall wear a life jacket or buoyant work vest. The life jacket or buoyant vest shall bear a label, “U.S. Coast Guard approved.”
   (2) Before each use, a competent person shall inspect the life jacket or buoyant vest for defects which might alter its strength or buoyancy. Defective units shall not be used.
   (3) A ring buoy with not less than 90 feet of safety line shall be provided and shall be readily available for rescue operations. The distance between the buoys shall not be more than 200 feet.
   (4) Not less than 1 lifesaving boat equipped with a method of propulsion that is effective for the water conditions shall be available at the location where an employee works over or adjacent to water.
APPENDIX A – RESOURCES
(Non-Mandatory)

For further assistance in implementing requirements for a hazard assessment and the selection of personal protective equipment, contact MIOSHA, OSHA, NIOSH, your union, or industry association.

<table>
<thead>
<tr>
<th>MIOSHA</th>
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<tbody>
<tr>
<td>Michigan Occupational Safety and Health Administration</td>
</tr>
<tr>
<td>Consultation Education &amp; Training Division (CET) <a href="http://www.michigan.gov/cet">www.michigan.gov/cet</a></td>
</tr>
<tr>
<td>Phone: 517.322.1809</td>
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<table>
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<tr>
<th>OSHA</th>
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<tbody>
<tr>
<td>Federal Occupational Safety and Health Administration <a href="http://www.osha.gov">http://www.osha.gov</a></td>
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</table>

<table>
<thead>
<tr>
<th>NIOSH</th>
</tr>
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<tbody>
<tr>
<td>National Institute of Occupational Safety and Health <a href="http://www.cdc.gov/niosh">http://www.cdc.gov/niosh</a></td>
</tr>
</tbody>
</table>

APPENDIX B
GUIDELINES FOR HAZARD ASSESSMENT AND PERSONAL PROTECTIVE EQUIPMENT SELECTION
(Non-Mandatory)

This Appendix is intended to provide compliance assistance for employers and employees in implementing requirements for a hazard assessment and the selection of personal protective equipment.

1. CONTROLLING HAZARDS.
   PPE devices alone should not be relied on to provide protection against hazards, but should be used in conjunction with guards, engineering controls, and sound manufacturing practices.

2. ASSESSMENT AND SELECTION.
   It is necessary to consider certain general guidelines for assessing the head, face, eyes, hands, feet, and body for hazard situations that exist in an occupational or educational operation or process, and to match the protective devices to the particular hazard. It should be the responsibility of the safety officer to exercise common sense and appropriate expertise to accomplish these tasks.

3. ASSESSMENT GUIDELINES.
   In order to assess the need for PPE the following steps should be taken:
   a. Survey. Conduct a walk-through survey of the areas in question. The purpose of the survey is to identify sources of hazards to workers and co-workers. Consideration should be given to the basic hazard categories:
      (a) Impact.
      (b) Penetration.
      (c) Compression (roll-over).
      (d) Chemical.
      (e) Heat.
      (f) Harmful dust.
      (g) Light (optical) radiation.
   b. Sources. During the walk-through survey the safety officer should observe:
      (a) Sources of motion; i.e., machinery or processes where any movement of tools, machine elements or particles could exist, or movement of personnel that could result in collision with stationary objects.
      (b) Sources of high temperatures that could result in burns, eye injury or ignition of protective equipment, etc.
      (c) Types of chemical exposures.
      (d) Sources of harmful dust.
      (e) Sources of light radiation, i.e., welding, brazing, cutting, furnaces, heat treating, high intensity lights, etc.
      (f) Sources of falling objects or potential for dropping objects.
      (g) Sources of sharp objects which might pierce the feet or cut the hands.
      (h) Sources of rolling or pinching objects which could brush the feet.
      (i) Layout of workplace and location of co-workers.
      (j) Any electrical hazards.
   In addition, injury/accident data should be reviewed to help identify problem areas.
c. Organize data. Following the walk-through survey, it is necessary to organize the data and information for use in the assessment of hazards. The objective is to prepare for an analysis of the hazards in the environment to enable proper selection of protective equipment.

d. Analyze data. Having gathered and organized data on a workplace, an estimate of the potential for injuries should be made. Each of the basic hazards (paragraph 3.a.) should be reviewed and a determination made as to the type, level of risk, and seriousness of the potential injury from each of the hazards found in the area. The possibility of exposure to several hazards simultaneously should be considered.

4. SELECTION GUIDELINES.
After completion of the procedures in paragraph 3, the general procedure for selection of protective equipment is to:

(a) Become familiar with the potential hazards and the type of protective equipment that is available, and what it can do; i.e., splash protection, impact protection, etc.
(b) Compare the hazards associated with the environment; i.e., impact velocities, masses, projectile shape, radiation intensities, with the capabilities of the available protective equipment.
(c) Select the protective equipment which ensures a level of protection greater than the minimum required to protect employees from the hazards.
(d) Fit the user with the protective device and give instructions on care and use of the PPE. It is very important that end users be made aware of all warning labels for and limitations of their PPE.

5. FITTING THE DEVICE.
Careful consideration must 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. Care should be taken to ensure that the right size is selected.

6. DEVICES WITH ADJUSTABLE FEATURES.
Adjustments should be made on an individual basis for a comfortable fit that will maintain the protective device in the proper position. Particular care should be taken in fitting devices for eye protection against dust and chemical splash to ensure that the devices are sealed to the face. In addition, proper fitting of helmets is important to ensure that it will not fall off during work operations. In some cases a chin strap may be necessary to keep the helmet on an employee's head. (Chin straps should break at a reasonable low force, however, so as to prevent a strangulation hazard). Where manufacturer's instructions are available, they should be followed carefully.

7. REASSESSMENT OF HAZARDS.
It is the responsibility of the safety officer to reassess the workplace hazard situation as necessary, by identifying and evaluating new equipment and processes, reviewing accident records, and reevaluating the suitability of previously selected PPE.

8. SELECTION CHART GUIDELINES FOR EYE AND FACE PROTECTION.
Some occupations (not a complete list) for which eye protection should be routinely considered are:
Assemblers.
Carpenters.
Chemical process operators and handlers.
Electricians.
Grinding machine operators.
Laborers.
Lathe and milling machine operators.
Machinists.
Mechanics and repairers.
Millwrights.
Plumbers and pipe fitters.
Sanders.
Sawyers.
Sheet metal workers and tinsmiths.
Timber cutting and logging workers.
Welders.
9. SELECTION GUIDELINES FOR HEAD PROTECTION.

All head protection (helmets) is designed to provide protection from impact and penetration hazards caused by falling objects. Head protection is also available which provides protection from electric shock and burn. When selecting head protection, knowledge of potential electrical hazards is important.

Protective helmets are described by impact type and electrical class. All protective helmets shall meet either Type I or Type II requirements. All helmets shall be further classified as meeting Class G, Class E, or Class C electrical requirements. Helmets shall be classified as follows:

(a) Impact type protective helmets shall be as follows:
   (i) Type I helmets are intended to reduce the force of impact resulting from a blow only to the top of the head.
   (ii) Type II helmets are intended to reduce the force of impact resulting from a blow to the top or sides of the head.

(b) Electrical classes for protective helmets shall be as follows:
   (i) Class G, General protective helmets are intended to reduce the danger of contact with low voltage conductors. Test samples shall be proof-tested at 2200 volts (phase to ground). This voltage is not intended as an indication of the voltage at which the helmets protect the wearer.
   (ii) Class E, Electrical protective helmets are intended to reduce the danger of contact with higher voltage conductors. Test samples are proof-tested at 20,000 volts (phase to ground). This voltage is not intended as an indication of the voltage at which the helmet protects the wearer.
   (iii) Class C, Conductive protective helmets are not intended to provide protection against contact with electrical hazards.

Where falling object hazards are present, helmets must be worn. Some examples include: working below other workers who are using tools and materials which could fall; working around or under conveyor belts which are carrying parts or materials; working below machinery or processes which might cause material or objects to fall; and working on exposed energized conductors.

Some examples of occupations for which head protection should be routinely considered are:

- Electricians.
- Linemen.
- Mechanics and repairers.
- Plumbers and pipe fitters.
- Assemblers.
- Packers.
- Wrappers.
- Sawyers.
- Welders.
- Laborer.
- Freight handlers.
- Timber cutting and logging.
- Stock handlers.
- Warehouse laborer

10. SELECTION GUIDELINES FOR FOOT PROTECTION.


Where necessary, safety shoes can be obtained which provide puncture protection. In some work situations, metatarsal protection should be provided, and in other special situations electrical conductive or insulating safety shoes would be appropriate.

Safety shoes or boots with impact protection would be required for carrying or handling materials such as packages, objects, parts or heavy tools, which could be dropped; and, for other activities where objects might fall onto the feet.

Safety shoes or boots with compression protection would be required for work activities involving skid trucks (manual material handling carts) around bulk rolls (such as paper rolls) and around heavy pipes, all of which could potentially roll over an employee’s feet.

Safety shoes or boots with puncture protection would be required where sharp objects such as nails, wire tacks, screws, large staples, scrap metal etc., could be stepped on by employees causing a foot injury.
Some occupations (not a complete list) for which foot protection should be routinely considered are:

- Assemblers.
- Carpenters.
- Craters.
- Drywall installers and lathers.
- Electricians.
- Freight handlers.
- Gardeners and grounds-keepers.
- Laborers.
- Machinists.
- Mechanics and repairers.
- Packers.
- Plumbers and pipe fitters.
- Punch and stamping press operators.
- Sawyers.
- Shipping and receiving clerks.
- Stock clerks.
- Stock handlers and warehouse laborers.
- Structural metal workers.
- Timber cutting and logging workers.
- Welders.
- Wrappers.

11. SELECTION GUIDELINES FOR HAND PROTECTION.

Gloves are often relied upon to prevent cuts, abrasions, burns, and skin contact with chemicals that are capable of causing local or systemic effects following dermal exposure. MIOSHA is unaware of any gloves that provide protection against all potential hand hazards, and commonly available glove materials provide only limited protection against many chemicals. Therefore, it is important to select the most appropriate glove for a particular application and to determine how long it can be worn, and whether it can be reused.

It is also important to know the performance characteristics of gloves relative to the specific hazard anticipated; e.g., chemical hazards, cut hazards, flame hazards, etc. These performance characteristics should be assessed by using standard test procedures.

Before purchasing gloves, the employer should request documentation from the manufacturer that the gloves meet the appropriate test standard(s) for the hazard(s) anticipated. Other factors to be considered for glove selection in general include:

(A) As long as the performance characteristics are acceptable, in certain circumstances, it may be more cost effective to regularly change cheaper gloves than to reuse more expensive types; and,

(B) The work activities of the employee should be studied to determine the degree of dexterity required, the duration, frequency, and degree of exposure of the hazard, and the physical stresses that will be applied.

With respect to selection of gloves for protection against chemical hazards:

(A) The toxic properties of the chemical(s) must be determined; in particular, the ability of the chemical to cause local effects on the skin and/or to pass through the skin and cause systemic effects;

(B) Generally, any "chemical resistant" glove can be used for dry powders;

(C) For mixtures and formulated products (unless specific test data are available), a glove should be selected on the basis of the chemical component with the shortest breakthrough time, since it is possible for solvents to carry active ingredients through polymeric materials; and,

(D) Employees must be able to remove the gloves in such a manner as to prevent skin contamination.

12. CLEANING AND MAINTENANCE.

It is important that all PPE be kept clean and properly maintained. Cleaning is particularly important for eye and face protection where dirty or fogged lenses could impair vision.

Personal Protective Equipment (PPE) should be inspected, cleaned, and maintained at regular intervals so that the PPE provides the requisite protection. It is also important to ensure that contaminated PPE which cannot be decontaminated is disposed of in a manner that protects employees from exposure to hazards.
### APPENDIX C

**CONSTRUCTION INDUSTRY THRESHOLD HEIGHTS REQUIRING FALL PREVENTION/PROTECTION EQUIPMENT**

This chart provides a breakdown of the fall protection requirements of construction standards. Check to see if specific rules relate to your industry or activities. It's important that you look at the specific language in the standard.

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| All conditions except:  
  - Scaffolds (Part 12);  
  - Cranes and derricks (Part 10);  
  - Aerial work platforms (Part 32);  
  - Steel erection (Part 26);  
  - Tunneling (Part 14);  
  - Electric transmission and distribution (Part 16);  
  - Stairways and ladders (Part 11). | 6 feet | Guardrail system, safety net system or personal fall arrest system. | Part 45. Fall Protection, 1926.501. |
| All conditions except:  
  - Guardrail systems on scaffolds (Part 12);  
  - Stairways, stair rail systems, and hand rails (Part 11 and Part 21);  
  - Personal climbing equipment. | 6 feet | Guardrail system, safety net system or personal fall arrest system. | Part 45. Fall Protection, 1926.502. |
| Employees in steel erection activity except: leading edge work in a controlled decking zone and initial connecting. | 15 feet | Guardrail system, safety net system, personal fall arrest system, positioning device system, or fall restraint system. | Part 26. Steel Erection, Rule 2645. |
| Employees in steel erection activity, initial connecting. | 2 stories or 30 feet, whichever is less. | Guardrail system, safety net system, personal fall arrest system, positioning device system, or fall restraint system. | Part 26. Steel Erection, Rule 2646. |
| Employees in steel erection activity, leading edge work in a controlled decking zone. | 2 stories or 30 feet, whichever is less. | Guardrail system, safety net system, personal fall arrest system, positioning device system, or fall restraint system. | Part 26. Steel Erection, Rule 2648. |
| Employees working in a boom-supported or truck-mounted aerial work platform. | No minimum | Personal fall arrest system or restraint system in addition to the standard guardrail system. | Part 32. Aerial Work Platforms, Rule 3209 (11) & (12). |
| Employees working on a scaffold, 10 feet or more above the floor or ground. | 10 feet | Guardrail system and/or personal fall arrest system. | Part 12. Scaffolds and Scaffold Platforms, Rule 1213. |
| Employees working on stairways. | 4 risers or 30 inches, whichever is less. | Stair rails and/or handrails | Part 21. Guarding of Walking and Working Areas, Rule 2155 and 2156. |
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<tr>
<td>Employees working on low pitched roofs (a roof having a slope less than or equal to 4 in 12, vertical to horizontal).</td>
<td>6 feet</td>
<td>Guardrail system, safety net systems, personal fall arrest systems, or a combination of these systems along with a warning line system and/or monitoring system.</td>
<td>Part 45, Fall Protection, Rule 1926.501.</td>
</tr>
<tr>
<td>Employees constructing electric transmission and distribution lines and equipment.</td>
<td>No minimum</td>
<td>Lineman’s belt, safety strap, lifelines, lanyards and personal climbing equipment.</td>
<td>Part 16. Power Transmission and Distribution, Rules 1634 &amp; 1635.</td>
</tr>
<tr>
<td>Employees on a work platform suspended from a crane or derrick.</td>
<td>No minimum</td>
<td>Guardrail system and personal fall arrest system.</td>
<td>Part 10. Lifting and Digging Equipment, Rule 1015a &amp; 1018a.</td>
</tr>
<tr>
<td>Structural steel connectors riding the headache ball.</td>
<td>No minimum</td>
<td>Positioning device system or personal fall arrest system.</td>
<td>Part 28. Personnel Hoisting in Steel Erection, Rule 2809.</td>
</tr>
<tr>
<td>Employees on a suspended work platform, working in a tunnel shaft or caisson.</td>
<td>No minimum</td>
<td>In accordance with Part 10.</td>
<td>Part 14. Tunnels, Shafts, Caissons and Cofferdams, Rule 1478.</td>
</tr>
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