<table>
<thead>
<tr>
<th>Type of Work</th>
<th>Hazard</th>
<th>Minimum Eye Protection</th>
<th>Extended Exposure Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chipping, drilling, riveting, hammering, woodworking, sanding, grinding</td>
<td>Flying particles</td>
<td>• Direct-vent goggles&lt;br&gt;• Spectacles with sideshields</td>
<td>• Face shield with clear lens worn with goggles or spectacles</td>
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<tr>
<td>Chemical handling</td>
<td>Liquid splash</td>
<td>• Indirect-vent goggles</td>
<td>• Faceshield with goggles</td>
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<tr>
<td>Laboratory tasks</td>
<td>Chemical splash, glass breakage</td>
<td>• Indirect-vent goggles</td>
<td>• Faceshield worn with goggles or spectacles</td>
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<tr>
<td>Clinical or medical jobs</td>
<td>Potentially Infectious material splash</td>
<td>• Spectacles with solid sideshields&lt;br&gt;• Disposable or reusable Faceshield</td>
<td>• Goggles with indirect ventilation&lt;br&gt;• Double-crown faceshield</td>
</tr>
<tr>
<td>Tasks in ultraviolet (UV) light</td>
<td>Exposure to direct or reflected UV radiation in the 200 to 400 nm range</td>
<td>For UV protection up to 380 nm:&lt;br&gt;• spectacles or goggles with polycarbonate lens&lt;br&gt;For UV protection up to 405 nm:&lt;br&gt;• Spectacles or goggles with polycarbonate lens and UV inhibiting&lt;br&gt;spectacle frames&lt;br&gt;goggle bodies</td>
<td>• UV resistant faceshield worn with spectacles goggles</td>
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<tr>
<td>Laser work</td>
<td>Reflected or direct beam impact</td>
<td>• Laser-specific spectacles goggles</td>
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<tr>
<td>Furnace operations, pouring and casting molten metal</td>
<td>Glare, heat, molten metals, hot sparks</td>
<td>• Indirect-vent goggles&lt;br&gt;• Reflective faceshield worn with spectacles</td>
<td>• Handshield or welding helmet (Shade 4 to 8)</td>
</tr>
<tr>
<td>Welding (electic arc)</td>
<td>Infrared radiation and sparks</td>
<td>Welding helmet or shield (Shade 10 to 14)</td>
<td></td>
</tr>
<tr>
<td>Welding (gas)</td>
<td>Infrared radiation and sparks</td>
<td>• Welding goggles or hand shield (filter Shade 4 to 5)&lt;br&gt;• Full face protection in applications requiring a lens shade greater than Shade 5</td>
<td></td>
</tr>
<tr>
<td>Cutting, brazing, soldering</td>
<td>Infrared radiation and sparks</td>
<td>• Filter lens spectacles or handshield:&lt;br&gt;- Cutting (Shade 3 to 6)&lt;br&gt;- Brazing (Shade 3 to 4)&lt;br&gt;- Soldering (Shade 1.5 to 3)</td>
<td></td>
</tr>
</tbody>
</table>
**Inspection and Maintenance**

Lenses of eye protectors must be kept clean. Continuous vision through dirty lenses can cause eyestrain - often an excuse for not wearing the eye protection. Daily inspection and cleaning of eye protectors with soap and warm water, or with a cleaning solution and tissues, is recommended.

Pitted and scratched lenses can also be a source of reduced vision and compromised protection. Excessively pitted or scratched or otherwise damaged eye and face protection must be replaced.

If safety glasses are to be worn with hearing protection, they must be compatible. If earmuffs are worn, the temple piece of the glasses must not break the seal of the muff. Thin temple piece glasses must be selected to avoid compromising the noise reduction capabilities of the muff.

**Cleaning and Disinfection Procedure for Shared Use Eyewear**

Safety eyewear should be regularly cleaned and disinfected. Eyewear issued for the exclusive use of one worker may be cleaned as often as necessary. Weekly or monthly cleaning is usually adequate but more frequent cleaning may be necessary. When eyewear is shared it must be cleaned and disinfected before use by a different employee. To clean and disinfect eyewear use the following procedure:

a) Check lenses for scratches. Check head straps for tears or loss of elasticity. Discard and replace any defective parts.

b) Wash in warm (43°C [110°F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt, taking care to not scratch the lenses.

c) When the cleaner used does not contain a disinfecting agent, eyewear should be immersed for two minutes in one of the following:

   i. Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43°C (110°F); or,

   ii. Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 43°C (110°F); or,

   iii. Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved as a disinfectant by the EPA.

d) Rinse components thoroughly in clean, warm (43°C [110°F] maximum), preferably running water. The importance of thorough rinsing cannot be
overemphasized. Detergents or disinfectants that dry on face pieces may result in dermatitis. In addition, some disinfectants may cause deterioration of plastic and elastic parts if not completely removed.

e) Eyewear should be hand-dried with a clean lint-free cloth or air-dried.

**HEAD PROTECTION**

Head protection is available to protect the head from falling objects (impact and penetration), electrical hazards, and bump hazards. Protective headwear must comply with ANSI-Z89.1-1986 or 1997, entitled “American National Standards for Personal Protection - Protective Headwear for Industrial Workers.” Hard hats must be labeled with the ANSI Certification. ANSI reissued the Standard in 1997, adding two types of helmets:

**Type 1** - Helmets providing crown impact protection

**Type 2** - Helmets providing lateral impact protection.

There are three classes of headwear addressed in the ANSI Standard. Classes A and B are for helmets listed to the 1986 Standard. Classes G and E are helmets listed to the 1997 Standard.

**Class A or G Helmet** - will reduce the force of impact/penetration of falling objects and, are built to reduce the danger of contact with exposed “low voltage” conductors.

**Class B or E Helmet** - will also reduce the force of impact/penetration of falling objects and are built to reduce the danger of contact with exposed “high voltage” conductors.

**Class C Helmet** - offers the same type of impact/penetration protection as Class A and B helmets, but offers no protection from electrical hazards. 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 deterioration of other types of head protection.

**Where Required**

Protective helmets are required where falling object hazards are present. 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 process which might cause material or objects to fall; and working on exposed energized conductors.

Hair enclosures are required for long hair (longer than four inches), which can be drawn into machine parts such as chains, belts rotating devices, suction devices, and blowers. Hair may even be drawn into machines guarded with mesh. It may also present an ignition risk in areas near open flames or welding. Employees with long hair must cover and protect their hair with a hat, cap, net, or bandana. These items must fit so as to not present a hazard either with machinery, ignition sources, or interference with other PPE.
**Proper Usage of Protective Helmets**

The shell is the rigid part of the hat and the suspension is the inner portion that cradles the head. The suspension performs two functions. First it orients and keeps the helmet on the head. It is adjustable to maintain a snug and comfortable fit. The second and most important function of the suspension is to absorb and distribute the impact of a falling object. This is the reason for the space between the suspension and the shell. Never apply paints or solvents to the helmet; it could damage the strength and dielectric properties.

Accessories are available for head protection such as, hearing protection, faceshields, sweat bands, and winter liners. Always follow the manufacturer’s direction for proper usage of accessories.

**Inspection and Maintenance**

Inspect the shell and the suspension before each use. Look for cracks, chips, dents, or deterioration or any other signs that would indicate the need to replace the shell immediately. Look for cracks, tears or broken straps in the suspension and replace as necessary. Never mix suspensions and shells from different manufacturers.

Use warm soap and water to clean the helmet as necessary.

**FOOT PROTECTION**

Foot protection is necessary when hazards exist that could result in impact and compression, electrical, conductive, or metatarsal injuries. Foot protection must comply with the requirements of ANSI Z41-1991, “American National Standard for Personal Protection - Protective Footwear.”

**Selection and Maintenance**

Keep protective footwear clean and polished, they will last longer. Replace broken or frayed laces. Be attentive to the wear and tear on the entire shoe or boot. Refer to Table 9 for the proper care, maintenance and useful life of protective footwear.