

# Metal Shop Safety plan

***Safety can only be achieved through teamwork at Metal Shop. Each employee, instructor, and student must practice safety awareness by thinking defensively, anticipating unsafe situations and reporting unsafe conditions immediately.***

1. Metal Shop is **not** a 24 hours access studio. Studio hours are attached.
2. Metal Shop must be **locked or shutting off the power** of all electrical tools from the main circuit breaker panel at the end of each open studio period.
3. All instructors who teach in sculpture and 3D areas have an assigned duty for closing and opening the studio, and have the responsibilities to monitor the Metal Shop during their class or assigned duty days.
4. All instructors who willing to use the Metal Shop for their class or for their own work need to participate a training program.
5. Safety procedures is clearly defined and posted. All instructors who willing to use the Metal Shop for their class must identify required training process with instructions in the syllabi, and **make sure training happens**.
6. All instructors have the responsibilities to make sure the studio is clean after each assigned duty day, and make sure students spend the last 10 minutes of each day cleaning up their own mess and the common area. All tools, equipment used must be return to their proper place. Report anything that needs repair or replacement to the department.
7. **No one may work alone** in the Metal Shop. Students should only work in the Metal Shop when their class in session, open studio hours, or when an instructor or monitor is available to supervise them.

**Northeastern Illinois University**  
**Metal Shop General Safety Rules**

***These safety rules must be followed by all people using the Metal shop so that all individual have the opportunity to use the facility optimally.***

**Emergency Phone Number: 5511 or 911**

**Faculty Management: 5240 or 5238**

**FUMES and GASES can harm your health.**

**Keep your head out of the fumes. Do not breathe fumes and gases caused by the arc. Use enough ventilation.**

1. Provide enough ventilation wherever welding and cutting are performed.
2. Potentially hazardous materials may exist in certain fluxes, coatings, and filler metals. They can be released into the atmosphere during welding and cutting.
3. Do not weld on dirty plate or plate contaminated with unknown material. The fumes and gases which are formed could be hazardous to your health.
4. Remove all paint and galvanized coatings before welding. All fumes and gases should be considered potentially hazardous.

**ELECTRIC SHOCK can kill you.**

**Do not touch live electrical parts.**

Electrical shock can be avoided. Follow the recommended practices listed below. Faulty installation, improper grounding, and incorrect operation and maintenance of electrical equipment are always sources of danger.

1. **Ground all electrical equipment and the work-piece.** Prevent accidental electrical shocks. Connect power source, control cabinets, and work-piece to and approved electrical ground. The work lead is not a ground lead. It is used to complete the welding circuit.. Do not mistake the work lead for a ground connection.
2. **Use the correct cable size.** Sustained overloading will cause cable failure and result in possible electrical shock or fire hazard. Work cable should be the same rating as the torch cable.
3. **Make sure all electrical connections are tight, clean, and dry.** Poor electrical connections can heat up, and even melt. They can also cause bad welds and produce dangerous arcs and sparks. Do not allow water, grease, or dirt to accumulate on plugs, sockets, or electrical units.
4. **Keep dry.** Moisture and water can conduct electricity. To prevent shock, it is advisable to keep work areas, equipment, and clothing dry at all times. Fix water leaks immediately. Make sure that you are well insulated. Wear dry gloves, rubber-soled shoes, or stand on a dry board or platform.
5. **Keep cables and connectors in good condition.** Improper or worn electrical connections can cause short circuits and can increase the chance of an electrical shock. Do not use worn, damaged, or bare cables.

6. **Avoid open-circuit voltage.** Open-circuit voltage can cause electric shock. When several welders are working with arcs of different polarities, or when using multiple alternating-current machines, the open-circuit voltages can be additive. The added voltages increase the severity of the shock hazard.
7. **Wear insulated gloves when adjusting equipment.** To assure shock protection, power should be shut off and insulated gloves should be worn when making any equipment adjustment.
8. **Follow recognized safety standards.** Follow the recommendations in American National Standard Z49.1, "Safety in Welding and Cutting," available from the American Welding Society, P.O. Box 351040, Miami, FL 33135.

**ARC RAYS and SPATTER can injure eyes and burn skin.**

**Wear correct eye, ear, and body protection.**

Electric arc radiation can burn eyes and skin the same way as strong sunlight. Electric arcs emit both ultraviolet and infrared rays. Reddening of the skin by ultraviolet rays becomes apparent seven or eight hours later. Long exposures may cause a severe skin burn. Eyes may be severely burned by both ultraviolet and infrared rays. Hot welding spatter can cause painful skin burns and permanent eye damage.

To be sure you are fully protected from arc radiation and spatter, follow these precautions:

1. **Cover all skin surfaces and wear safety glassed for protection from arc burns and from sparks or spatter.** Keep sleeves rolled down. Wear gloves and a helmet. Use correct lens shade to prevent eye injury. Choose the correct shade from the table below. Observers should also use proper protection.
2. **Protect against arc flashes, mechanical injury, or other mishaps.** Wear spectacles or goggles with No.2 shade filter lens and side shields inside the welding helmet or hand shield. Helpers and observers should wear similar protection.
3. **Wear protective clothing such as heat resistant jackets, aprons, and leggings.** Exposure to prolonged or intense arc radiation can cause injury. Thin cotton clothing is inadequate protection. Cotton deteriorates with this type of radiation.
4. **Wear high, snug fitting shoes.** Avoid wearing low or loose shoes which would allow hot spatter to get inside.
5. **Wear cuff less pants.** By wearing pants without cuffs you eliminate a dangerous spark and spatter trap. Pants legs should overlap shoe top to prevent spatter from getting into your shoes.
6. **Wear clean clothes.** Do not wear clothing that has been stained with oil and grease it may burn if ignited by the heat of the arc.
7. **Wear ear protection,** not only where there is noise, but also where there is a chance that spatter or sparks could get into your ears.
8. **Wear a leather cap** or other protection to protect your head from sparks or spatter.
9. **Protect neighboring workers from exposure to arc radiation,** shield your station with metal or heat resistant shields.

