Metalworking is the process of working with metals to create individual parts, assemblies, or large scale structures, and requires a correspondingly wide range of skills, processes, and tools. Modern metalworking processes, though diverse and specialized, can be categorized as forming, cutting or joining processes. Metal working is an essential resource throughout the University, providing Cornell with infrastructure improvements and opportunities for advanced research. Today's machine shop includes a number of machine tools capable of creating a precise, useful metal workpiece. Although metal work provides an important service to the campus, it also provides unique hazards as well.

**General Metal Work Safety**
- All equipment operators and shop personnel shall be trained on safe operation.
- Operators shall inspect machinery before and after use for any defects.
- Point of Operations Guarding **MUST** be in place and used at all times.
- Eye protection shall be worn at all times.
- Always wear correct personal protective equipment (**PPE**) pertaining to the job task.
- Remove or secure jewelry, long hair, and loose clothing.
- Avoid skin contact with metalworking fluids.
- When possible, always use a well mounted vice to grip work.
- Remove all scraps of metal with a brush, **NEVER** by hand or with an air compressor gun.
- Always receive authorization before working with reactive or harmful emission giving metals.

**Welding Safety**
When welding outside of a designated welding booth, ensure that a University hot work permit is completed and adequate safeguards are in place to prevent fire and personal injury. Avoid welding on materials such as galvanized or stainless steel in order to minimize toxic fume exposure. Always utilize mechanical exhaust ventilation while welding.

**Arc Welding Safety**
- Make sure the work and /or work table is properly grounded.
- Inspect your work area thoroughly before beginning. **DO NOT** arc weld if it is damp or substances have a potential to ignite.
- Turn the arc welder off before removing any grounds from the table or material.
- **DO NOT** arc weld with skin unprotected. The arc light acts as Ultraviolet light and will cause something comparable to sunburn.
- Avoid clothing that has pockets, or spaces where hot embers may fall into.

**Oxygen Fuel Gas Welding/ Cutting**
- All compressed gas cylinders should be clearly marked, and appropriately stored.
- Check all connections and hoses for leaks. Remove defective equipment from service.
- If using acetylene, keep the pressure below 15 pounds.
- Purge your hoses before lighting the torch.
- Never light your torch with a mixture of fuel and oxygen. After purging the lines, light the torch with only the fuel gas valve open.
- Check valves should be installed on both torch inlets and operating properly. Check valves can stop the reverse flow of gases, but will not prevent flashbacks.
- To prevent flashbacks, flashback arrestors must be installed on the outlets of both regulators, and/or torch inlets.

For more information on metal working, welding, or machine shop safety, visit [www.ehs.cornell.edu](http://www.ehs.cornell.edu) or call EH&S at 255-8200.
Toolbox Safety Talk

Welding & Metal Work Safety

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Presenter Name:_______________________________________________________________________

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