

Welding & Cutting Written Program

The University Of Iowa
[Environmental Health & Safety](#)
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1. Summary

Welding and Cutting operations can present serious physical and health hazards if not recognized and controlled.

This program highlights the main components and exposures pertaining to these operations. The Environmental Health and Safety Office (EHS) is available to departments as they develop and evaluate procedures appropriate for the location or activities.

2. Scope

When a department uses any gas, electric or cutting equipment which produces flame, spark or heat to join together or cut materials, special precautions must be taken to control the hazard that such an operation may produce.

Examples at the University of Iowa include construction activities, maintenance operations, academic shops and operations used for course work or research.

3. Policy and Regulation

University of Iowa Operations manual, Part III Human Resources, Division II Standards and Ethics, Chapter 16.4d Policy on Ethics and Responsibilities for University of Iowa Staff.

IOSH Welding, Cutting and Brazing General Industry Regulation, 29 CFR 1910.251, Subpart Q

IOSH Construction Safety and Health Regulation, 29 CFR 1926, Subpart J – Welding and Cutting

4. Definitions

Brazing - Uses molten metal to join two pieces of metal. The metal added during the process has a melting point lower than that of the work piece.

Combustible Materials - Solid or liquid materials that are capable of burning or igniting.

Cutting - Any process which produces sparks capable of igniting combustible or flammable materials and transmits heat to the work material from a hot gas.

Flammable Compressed Gas - Gases that are under high pressure and can easily catch fire and burn rapidly. They include acetylene, hydrogen, natural gas, and propane.

Flammable Materials - Solid or liquid materials that are capable of igniting at a low temperature and continue to burn.

Hot Work Permit - A step-by-step checklist to evaluate the potential fire hazards that can be present during welding and cutting operations and to ensure that these hazards will be controlled to prevent a fire from occurring.

Welding - A way of permanently joining metals together by applying heat to metal pieces, melting and fusing them together to form a permanent bond. The most common forms of welding include: oxygen-fuel gas, arc, gas tungsten and gas metal arc.

5. Roles and Responsibilities

Deans, Directors and Department Heads are responsible to:

- Designate and empower the department's Health and Safety Coordinator (or Program Coordinator or equivalent) and supervisors.
- Actively support these procedures within individual units.
- Ensure an environment where employees are encouraged to follow these procedures.

The Department Health and Safety Coordinator is responsible to:

- Act as an administrative liaison between the department and EHS.
- Provide administrative oversight of health and safety within the department.
- Facilitate the correction of safety problems within the department.

Supervisors are responsible to:

- Implement these procedures.
- Assure that staff is aware of this program and provided with training and the personal protective equipment.
- Maintain documentation and records as required.

Employees are responsible to:

- Comply with these procedures and any further safety requirements set by supervisors.

EHS is responsible to:

- Provide procedural guidelines, educational offerings, administrative consultations and reviews, and select technical and field services.
- Exercise surveillance over health and safety issues at the University.

6. Procedures

Hot Work Program

A Hot Work Program and Permit must be established before any welding or cutting is done. Refer to the [University of Iowa Hot Work Program](#) maintained by the Department of Risk Management.

Confined Spaces

When performing hot work in confined spaces, employees must comply with the [confined space program](#).

Equipment Inspection and Selection

All equipment selected for the operation must be inspected prior to use to ensure that it is working properly and free of defects. No defective equipment shall be used and if found, shall be taken out of service immediately and the supervisor informed.

Ventilation

Ventilation must be adequate, depending upon the volume and configuration of the work space, type of operations generating contaminants, natural air flow rate or work space, location of the operation to the employees breathing zone, and whether ventilation can be obtained mechanically or naturally.

Personal Protective Equipment (PPE)

PPE must be selected and worn during operations.

Training

All employees engaged in welding and cutting must be trained in the specific equipment that is selected and used.

7. Resources and Assistance

EHS is available for consultation and assistance as needed. Outside vendors may also be needed for manufacturer specific equipment.

The UI's Risk Management Office is available for consultation and assistance in developing a Hot Work Permit program.