

**ADVISORY NO. 15.2: GUIDELINES FOR SAFE WELDING, CUTTING, OR
BRAZING (HOT WORK)**

PURPOSE:

The University of Cincinnati must protect against fire created by construction or open flame work and follow the State of Ohio Fire Code 1301:-7-22, Chapter 22: Welding or Cutting, Calcium Carbide and Acetylene Generators. OSHA enforces general requirements for welding, cutting, or brazing under 29 CFR 1910.252 and 29 CFR 1926.350--1926.354 for construction work. Copies of these regulations may be obtained at www.osha.gov/comp-links.html.

RESPONSIBILITIES:

All Supervisors and Project Managers of projects that will include welding, cutting or brazing shall be trained and knowledgeable in 29 CFR 1910.252 and University of Cincinnati Fire Prevention Welding and Cutting Regulations.

All welding, cutting, or burning operations will be under the supervision and control of a competent supervisor who will ensure compliance with regulations pertaining to such operations and who has the commensurate authority and expertise. In the performance of welding or cutting operations only equipment approved by the Unit Supervisor shall be used, and the equipment shall be installed and operated in accordance with nationally recognized good practice. All equipment should be inspected for good repair prior to starting work.

Facilities Management and other University personnel who perform welding, cutting, or brazing shall be trained in the required elements and implementation of the OSHA Standard and UC Fire Prevention regulations and shall provide copies of training records to Environmental Health & Safety, Mail Location 0218.

Construction Management project personnel shall ensure that all contractors providing services shall have a documented program for welding, cutting, and brazing work in place prior to the start of work and shall submit copies thereof to Environmental Health and Safety and Fire Prevention.

***UNIVERSITY OF CINCINNATI FIRE PREVENTION
WELDING AND CUTTING REGULATIONS***

1. Prior to any cutting or welding being performed outside of an established facilities management shop assure that (1) all necessary precautions are taken; (2) when required, a properly instructed fire watch, equipped with a fire extinguisher of the proper type is provided; and (3) the proposed operation does not constitute a hazard to life and property. If the operation is deemed safe, a signed, written permit, must be issued. A copy of the "HOT WORK PERMIT" (following these regulations) is to be forwarded to the Fire Prevention Unit at Mail Location 215.
2. Each separate operation, and work site will require an inspection and issuance of a permit. No person will, at any time, conduct any cutting or welding operation outside an established Facilities Management shop without a "HOT WORK PERMIT". Existing buildings, which have been released to a contractor, or new buildings, which have not been accepted from the contractor, are included where permit requirements are concerned.
3. Anyone required to have a permit shall maintain a record of all locations where welding or cutting operations are performed and have their permit available for inspection upon request.
4. Sprinkler fire protection shall not be shut off while welding or cutting work is being performed. When welding or cutting is done close to automatic sprinkler heads, damp cloth guards may

be used to shield the individual heads, but shall be removed when the work is complete.

5. Fuel gas cylinders stored inside buildings, except those in actual use or attached ready for use shall be limited to a total capacity of 2,000 cubic feet of gas or 300 pounds of liquefied petroleum gas. Storage exceeding 2,000 cubic feet total gas capacity of cylinders or 300 pounds of liquefied petroleum gas shall be in a separate room or cylinders shall be stored outside or in a separate building. Cylinders permitted inside of buildings shall be stored at least 20 feet from highly combustible materials and where they will not be exposed to excessive rise in temperature, physical damage or tampering by unauthorized persons.
6. Whenever an operator using electric welding equipment has occasion to leave their work or stop work for an appreciable time, they will open the power supply switch to the equipment and disconnect the equipment from the source of power.
7. Close acetylene and oxygen valves at the cylinder whenever the equipment is left unattended, or when work is stopped for more than (15) minutes.
8. A FIRE WATCH * *where required* will be provided during and for 30 minutes after work, including any coffee or lunch breaks. Fire-watch personnel shall have a fire extinguisher readily available and be trained in its use, including practice on test fires, and shall be familiar with facilities and procedures for sounding an alarm in the event of a fire.

* *Where other than a minor fire might develop, or where:*
 - a) *Appreciable combustible material in building construction or contents is closer than 35 feet to the point of the operation.*
 - b) *Appreciable combustibles are more than 35 feet away but are easily ignited by sparks.*
 - c) *Wall or floor openings within a 35-foot radius expose combustible material in adjacent areas, including concealed spaces in walls or floors.*
 - d) *Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by heat conduction or radiation.*
9. When welding or cutting is to be performed in any confined space other than in an authorized welding shop, leave the gas cylinders outside, unless specifically approved by the Department of Environmental Health & Safety, 556-4968.
10. Oxygen and fuel gas systems shall be inspected frequently for evidence of leaks in hoses, couplings, valve stems, fittings, and other points in the system.
11. Oxygen cylinders shall be kept from oil and grease at all times. A high-pressure leak from an oxygen cylinder may cause sufficiently rapid oxidation to ignite gasoline, oil, grease, alcohol, or organic material, and may result in a fire or explosion.
12. Welders shall handle oxygen, acetylene, and other fuel gases carefully and secure cylinders by lashing, strapping, chaining, or clamping in an upright position.



PERMIT FOR WELDING AND CUTTING OPERATIONS



INSTRUCTIONS: This permit must be completed for all operations involving open flames or producing heat and /or sparks. Read the fire prevention rules on the reverse side. The completed form shall be posted at the job site while the operation is being performed, and a copy sent or faxed (**556-4985**) to the *Fire Prevention Unit* at ML-160. If you have any questions for or would like to speak with a *Fire Inspector* call 556-4992.

Job site location:

Building Name: _____ Room/Area: _____

Description of work to be performed: (Check where appropriate)

Welding _____ Cutting _____ Soldering _____ Burning _____

Type of operation: Oxygen/Acetylene Torch _____ Propane Torch _____
Electric Arc Welder _____ Other _____

Are there SMOKE DETECTORS in the area? Y / N PRINT: Description of work:

Date of request: _____ Date Permit Expires: _____

Signature (Person Performing Work): PRINT NAME & PHONE NUMBER

Name of Company: _____

An inspection of the location indicated above has been made. All moveable combustible and flammable liquids have been removed or protected. Regulations and precautions on the reverse side of this permit and all other local fire regulations have been complied with. Therefore permission to perform work at the location named is hereby granted.

Permit issued by: (Print Name & Phone Number)

Date of inspection: _____

Workers Statement:

1: * I have read, understand and will comply with the regulations and guidelines detailed on this permit. **Workers Initials:** _____ **Fire Watcher Initials:** When Required _____

2: Workers are responsible for providing a working fire extinguisher at the job site.

3: This permit is valid for (24) hours from the date and time issued unless otherwise stated.

4: All accidental fires at the job site must be reported IMMEDIATELY. Dial 9-1-1 to report the incident. Even fires that have been extinguished must be reported. To report medical emergencies dial 9-1-1.

FIRE PREVENTION UNIT FAX 556-4985

* See reverse side of permit for additional rules and instructions.

**RULES FOR THE PREVENTION OF ACCIDENTAL FIRES DUE TO
WELDING OR CUTTING OPERATIONS**

- 1: Do not perform cutting or welding work where an open flame would be dangerous, as in or near rooms containing flammable vapors or liquids, or exposed loose combustible material.
- 2: Be sure that cutting and welding equipment is not used where there is any possibility of flammable vapors, sparks or molten metal passing through broken or open windows, open doorways, cracks or holes in walls or floors.
- 3: If the work can be moved, it is preferable to take it to a safe place for cutting and welding rather than to perform the work in a hazardous location.
- 4: Where welding or cutting must be done in the vicinity of combustible materials, special precautions must be taken to make certain that sparks or hot slag do not reach combustible material and thus cause a fire. If the work cannot be moved, exposed combustible material should, if possible be moved a safe distance away. Sweep floors clean and, if they are not of fire resistance material wet them down before starting work. Wooden floors should preferably be covered with metal or other suitable noncombustible material where sparks or hot metal is likely to fall. Use sheet metal guards or fire resistive curtains where needed, and make sure that the guards and curtains are adequate.
- 5: A FIRE WATCH * *where required* will be provided during and for 30 minutes after work, including any coffee or lunch breaks. Fire watchers shall have a fire extinguisher readily available and be trained in its use, and shall be familiar with facilities and procedures for sounding an alarm in the event of a fire.

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- a) *Appreciable combustible material in building construction or contents is closer than 35 feet to the point of the operation.*
- b) *Appreciable combustibles are more than 35 feet away but are easily ignited by sparks.*
- c) *Wall or floor openings within a 35-foot radius expose combustible material in adjacent areas, including concealed spaces in walls or floors.*
- d) *Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by heat conduction or radiation.*

- 6: If you are going to be working in an area protected by smoke detectors and would like to schedule the detectors to be disabled to avoid causing an accidental fire alarm. ***Notify a fire alarm technician 72 hours (3 Business Days) in advance at extension 556-1111.***
- 7: SPECIAL INSTRUCTIONS & COMMENTS - RECORD ZAM NUMBERS FOR DISABLED DETECORS: _____

Revised: 1/12/09