UNIVERSITY OF TOLEDO

SUBJECT: PERFORMING HOT WORK, HOT WORK PERMIT Procedure No: S-08-049

PROCEDURE STATEMENT

Safe procedures, as defined by this plan, shall be followed by Facilities Maintenance personnel, Contractors, and by all other persons that perform hot work on any University of Toledo Campus.

PURPOSE OF PROCEDURE

These procedures have been established to comply with Ohio's Public Employee Risk Reduction Act, the OSHA Welding, Cutting and Brazing standard (29 CFR 1910.Subpart Q), and the NFPA standard 51B. The purpose of this program is to establish requirements for work involving burning, welding or similar operations that are capable of initiating fires or explosions to minimize the probability of property loss and personal injury.

DEFINITION

This program applies to all employees involved in hot work. Hot work is any work involving burning, welding, or similar operations that are capable of initiating fires or explosions. This program shall cover, at a minimum, the following hot work processes:

- Welding and Allied Processes
- Heat Treating
- Grinding
- Thawing Pipe
- Powder-Driven Fasteners
- Hot Riveting
- Similar Application Producing a Spark, Flame or Heat

RESPONSIBILITY

The appropriate Facilities Maintenance Supervisor, or their designee, is responsible for the initiation and execution of approved hot work procedures as defined by this procedure.

PROCEDURE

A. Designated Hot Work Areas

Facilities Maintenance Supervisors, or other qualified personnel (as determined by Safety and Health staff) shall determine the suitability of designated areas for hot work. Hot work can be performed in two types of areas, designated areas and permit-required areas. The designated areas can be areas in the shop that have been approved for hot work. These areas must be of fire resistant or of noncombustible construction. The second type of area is the permit-required area. The permit-required area requires a permit and is an area that shall be made safe by removing or protecting combustibles from ignition sources.

The following is a list of non-permissible welding areas:

- Areas not authorized by the Facilities Maintenance Supervisor or other qualified personnel.
- Sprinklered buildings while such protection is impaired.
- In the presence of an explosive atmosphere including improperly prepared drums that once contained flammable materials.
- Areas near storage of large quantities of exposed, readily ignitable materials.

Hot work shall **not** be attempted on:

- A partition, wall, ceiling or roof that has a combustible covering or insulation, or on walls or partitions of combustible sandwich-type panel construction.
- Pipes or other metal that are in contact with combustible walls, partitions, ceilings or roofs shall not be done if the work is close enough to cause ignition by conduction.

B. Hot Work Permit

The hot work permit identifies the risk of the potential for fire and is a tool used by Facilities Maintenance personnel, Contractors, and by all other persons that perform hot work on any University of Toledo Campus to reduce the inherent risks involved in performing hot work. If hot work is to occur in a location other than that of a designated area, a written hot work permit is to be obtained from the Permit Authorizing Individual (PAI). The PAI shall be the University of Toledo Facilities Maintenance Project Manager or other responsible party (employed by the University of Toledo and involved with the project) or their designee. The hot work permit must be displayed at the job site during the hot work and, at the conclusion of the shift, the permit shall be removed and sent to the Safety and Health Department. Cutting, welding, or other hot work shall be permitted only in areas that are or have been made fire safe. The hot work permit is only good for one shift and the following conditions must be completed and verified by the PAI.

General requirements

- Hot work equipment being used is in satisfactory operating condition and in good repair.

Requirements within 35 ft (11 m) of hot work operations:

- The area is free from flammable liquids and combustible material, or the work must be moved to an area free from combustibles.
- Combustibles that can not be moved are shielded or protected against ignition.
- Combustible materials on the floor have been swept for a radius of 35 ft (11m).
- Combustible floors have been kept wet down, covered with damp sand, or protected by shielding; personnel operating arc welding or cutting are protected from possible shock.
- Edges of covers at the floor are tight to prevent sparks from going under them.

Work on walls or ceilings/enclosed equipment:

- Where hot work is done near combustible walls, partitions, ceilings or roofs, fire resistant shields or guards are used. Remove combustibles away from opposite side or adjacent structures.
- Openings or cracks in the walls, partitions, ceilings or roofs of combustible material have been protected with fire-retardant shields or guards.
- If hot work is done in close proximity to a sprinkler head, a wet rag is placed over the head and then removed at the conclusion of the welding or cutting operation. Special precaution should be taken to prevent accidental operation of the automatic fire detection or suppression system.
- Ducts and conveyor systems that might carry sparks to distant combustibles are protected or shut down.

Fire watch/hot work area monitoring personnel:

- A trained and equipped fire watch individual is provided for the duration of work and at least 1 hour after completion of work, including breaks.
- Fully charged and operable fire extinguishers are in the immediate work area.
- Nearby personnel are suitably protected against heat, sparks, slag, radiation, etc.
- After welding is complete, some means of warning that the metal is hot must be provided.

C. Fire Watch personnel

A fire watch is required when hot work is performed in a location where other than minor fires might develop or when any of the following conditions exist:

- Combustible materials in building construction or contents are closer than 35 ft (11m) to the point of operation.
- Combustible materials are more than 35 ft (11m) away, but are easily ignited by sparks.

- Wall or floor openings within a 35 ft (11m) radius expose combustible materials in adjacent areas, including concealed spaces in walls or floors.
- Combustible materials are adjacent to the opposite side of partitions, walls, ceilings, or roofs and are likely to be ignited.

Fire Watch is responsible for:

- being aware of the inherent hazards of the work site and of the hot work;
- ensuring that safe conditions are maintained;
- have the authority to stop the hot work if unsafe conditions develop;
- having fire extinguishing equipment and being knowledgeable of its use;
- sounding and being familiar with alarm procedures in the facilities in the case of an uncontrolled fire; and
- watching for fires in all exposed areas, during hot work operations and for at least 1 hour after completion, and trying to extinguish them only when they are within the scope of their training and equipment.

More than one fire watch shall be required if combustible materials that could be ignited by the hot work cannot be directly observed by only one fire watch.

D. Permit Authorizing Individual (PAI) is responsible for

- issuing hot work permits;
- inspecting the area at least once per day while the hot work permit is in effect to ensure the area is fire safe;
- the safe operation of hot work activities;
- inspecting the area before cutting or welding is permitted, determining site-specific hazards, and issuing hot work permits;
- ensuring the protection of combustibles from ignition sources;
- determining that fire protection and extinguishing equipment is properly located at the site; and
- where a fire watch is not required, making sure a final check is completed 1 hour after the completion of hot work to detect and extinguish possible smoldering fires.

E. Outside Contractors

- Contractors may utilize the University of Toledo Hot Work Permit if necessary, but are required to maintain their own hot work program. If a contractor is unable or refuses to follow these procedures or policies then the Facilities Maintenance Supervisors or other qualified personnel must stop the work in question. In addition, Facilities Maintenance Supervisors or other qualified personnel must advise contractors about flammable materials or hazardous conditions of which they may not be aware.

F. Additional Requirements

The following precautions are in addition to the requirements of a confined space entry program and must be followed when performing hot work:

- To prevent accidental contact, when arc welding is to be suspended for any substantial period of time, such as during lunch or overnight, all electrodes shall be removed from the holders and the holders carefully located so that accidental contact cannot occur and the machine must be disconnected from the power source.
- In order to eliminate the possibility of gas escaping through leaks or improperly closed valves, when gas welding or cutting, the torch valves shall be closed and the gas supply to the torch positively shut off at some point outside the confined space area whenever the torch is not to be used for a substantial period of time, such as during lunch hour or overnight. Where practical, the torch and hose shall also be removed from the confined space.
- When welding or cutting is being performed in any confined space, the gas cylinders and welding machines shall be left on the outside. Before operations are started, heavy portable equipment mounted on wheels shall be securely blocked to prevent accidental movement.

G. Training

Training must be provided on:

- the inherent risks involved;
- the emergency procedures in the event of a fire;
- instructions on all equipment and processes; and
- the provisions of this program.

H. Responsibilities during hot work operations

Appropriate Facilities Maintenance Supervisors or other qualified personnel:

- see that hot work is not scheduled to be performed during operations that might expose combustibles to ignition;
- ensure that fire protection and extinguishing equipment is properly located at the site and employees are trained in their use; and
- make a fire watch available if needed.

Hot Work Operators:

- obtain a hot work permit from the PAI and ensuring that conditions are safe before performing any hot work;
- protect combustibles from ignition by having the work moved to a location free from combustibles, moving combustibles to a safe distance, or properly shielding against ignition;
- safe handling and use of equipment, as well as determining any combustible or hazardous areas that are present in the work area;
- understand the emergency procedures in the event of a fire and have an awareness of the inherent risks involved;
- stop hot work operations and notify the appropriate Facilities Maintenance Supervisor, other qualified personnel (as determined by Safety and Health staff), or the PAI if an unsafe condition occurs; and
- send completed hot work permits to the Safety and Health Department.

I. Personal Protective Equipment

Personal Protective Equipment, Health Protection and Ventilation requirements such as gloves, welding curtains, eye protection, must be identified prior to work. The following must also be practiced for fall protection:

- A welder working on platforms, scaffolds, or runways shall be protected against falling by the use of railings, life lines, or some other equally effective means.
- Welders shall also place welding cables and other equipment so that they are clear of passageways, ladders and stairways.

See attached University of Toledo Hot Work Permit.

Source: Safety & Health Committee

Effective Date: 7/1/08

Review/Revision Date: 5/18/09
4/26/11
11/15/13
11/15/16
11/15/19
1/11/21
11/10/22

HOT WORK PERMIT

BEFORE STARTING HOT WORK, ENSURE ALL SAFETY PRECAUTIONS ARE IN PLACE.
MAKE SURE AN APPROPRIATE FIRE EXTINGUISHER IS READILY AVAILABLE.

This permit is required for hot work operations, in a location other than that of a designated area. This includes work involving burning, welding and allied processes, heat treating, grinding, thawing pipe, powder driven fasteners, hot riveting and similar operations that produce a spark, flame or heat. This permit applies to only this job, in the area specified, during the time and date noted.

INSTRUCTIONS

Permit Authorizing Individual (PAI)

1. Complete PRECAUTION AND SAFEGUARD CHECKLIST below.
2. Complete and post this form.
3. Verify fire watch.
4. Send completed permit to: Safety & Health
   HSC – FSB Rm. 1000B MS #1078
   Main Campus – PS Rm. 1110B, MS #895

PRECAUTION AND SAFEGUARD CHECKLIST

☐ Hot work equipment is in satisfactory operating condition and in good repair.
☐ Fully charged and operable fire extinguishers are provided in the immediate work area.

Requirements within 35 ft (11m) of hot work

The area is free from flammable liquids and combustible material. Combustibles that can not be moved are shielded or protected against ignition.

☐ Combustible materials on the floor have been swept for a radius of 35 ft (11m).
☐ Combustible floors have been kept wet down, covered with damp sand, or protected by shielding; personnel operating arc welding or cutting are protected from shock.
☐ Edges of covers at the floor are tight to prevent sparks from going under them.

Work on walls or ceilings/enclosed equipment

☐ Where hot work is done near combustible walls, partitions, ceilings or roofs, fire resistant shields or guards are used. Remove combustibles away from side or adjacent structures.
☐ Openings or cracks in the walls, partitions, ceilings or roofs of combustible material, have been protected with fire-retardant shields or guards.
☐ If hot work is done in close proximity to a sprinkler head, a wet rag is placed over the head and removed after completion.
☐ Ducts and conveyor systems that might carry sparks to distant combustibles are protected or shut down.

Fire Watch (required when other than minor fires might develop, when combustibles are closer than 35', when combustibles are more than 35' away, but are easily ignited by sparks, or when wall openings within 35' expose adjacent areas to sparks)

☐ A trained and equipped fire watch is provided during operations and at least 1 hour after, including breaks.
☐ Nearby personnel are suitably protected against heat, sparks, slag and so on.
☐ After welding is complete some means of warning that the metal is hot must be provided.

Permit Information

Work to be done	Location/Building/Floor
Signature of person doing job	Signature of Permit Authorizing Individual (PAI)
Permit Expires Date Time (no longer than 1 shift) Final Check Date Time	**I have verified that the above location has been inspected and the required precautions and safeguards on the checklist to the right have been taken to prevent fire. Permission is authorized for work.**
Signature of person conducting final check 1 hour after completion of hot work in the box to the right ⇨	**Signature**_____