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 1910.252), Ohio Fire Code Rule 35, 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:
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
- Soldering
- Similar Application Producing a Spark, Flame or Heat

Responsibility:
All individuals conducting hot work are responsible for the initiation and execution of approved hot work procedures as defined by this protocol. Contractors are required to follow Bowling Green State University’s hot work program. Before any hot work is to be conducted, Campus Operations Supervisor(s) or other qualified personnel must advise contractors about flammable materials or hazardous conditions of which they may not be aware.

Procedure:

1. Hot Work Areas

   Campus Operations Supervisors, or other qualified personnel (as determined by Risk Management/EHS 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 and do not have to fill out a permit when performing hot work tasks. These areas must be made 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.

   List of Designated, Non-permit Required Hot Work Locations at Bowling Green State University:
   - Wolfe Center – Designated area in 115 scene shop
   - Tucker Center - Campus Operations Weld Shop
   - Tucker Center – Room 109A (Bench Grinder)
   - Campus Operations- Grounds Maintenance and Mechanic Shop
   - Fine Arts - Sculpture Room
   - Fine Arts - Glass Room
   - Fine Arts - Metals Shop
   - Ice Arena – Zamboni Shop and Skate Sharpening Areas
   - Technology - Workshop
   - Kuhlin Center - SMC 118 Engineering Shop (Soldering Only)
   - Firelands - Manufacturing Lab in North Building
The following is a list of non-permissible hot work areas:

- Areas not authorized by the Campus Operations Supervisor or other qualified personnel.
- Sprinklered buildings while such protection is impaired.
- In the presence of an explosive atmosphere including improperly stored 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.

Personal protective equipment (PPE)
Clothing, health protection and ventilation requirements, such as gloves, welding curtains and eye protection, must be identified prior to work. To determine which PPE is required, please view BGSU’s PPE Program. If unsure of what PPE is required, please consult with Permit Authorizing Individual (PAI) or supervisor. 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.

2. Hot Work Permit

The hot work permit identifies the risk of the potential for fire and is a tool used by Campus Operations personnel, Contractors, and by all other persons that perform hot work on any Bowling Green State University 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 PAI. At Bowling Green State University, the PAI are considered to be Campus Operations Superintendents. The hot work permit must be displayed at the job site during the hot work and shall be returned to Campus Operations at the conclusion of the shift. 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 by the permit holder and verified by the PAI. A permit for hot work operations shall not be issued unless the individuals in charge of performing such operations are capable of doing so safely.

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

Requirements within 35 ft (11m) 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 cannot be moved are shielded or protected against ignition.
- Combustible materials on the floor have been swept for a radius of 35 ft (11 m).
- 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 30-60 minutes 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.

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.
• Best practice would be 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. Please consult Environmental, Health and Safety for assistance if there are any discrepancies on how to conduct confined space hot work tasks.

3. Responsibilities During Hot Work Operations

Permit Authorizing Individuals (PAIs) are responsible for:

• Issuing hot work permits and the time allotted for each permit, not to exceed 24 hours;
• The safe operation of hot work activities;
• 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 30 minutes after the completion of hot work to detect and extinguish possible smoldering fires.

Before hot work is permitted and at least once per day while the permit is active, the hot work area shall be inspected by the PAI to ensure that the location is fire safe. A pre-hot work check must be completed to verify that all equipment is safe and hazards are recognized and protected. All applicable sections of the BGSU hot work permit must be filled out and maintained on file at Campus Operations for one full calendar year following the completion of the hot work.
List of permitted PAIs:

Campus Operations - As designated by Campus Operations Director of Energy Management

Fire Watch Personnel

A fire watch is required when hot work is performed in a location where 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 (11 m) 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;
- Having 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 30 minutes 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.

Appropriate Campus Operations Supervisors, Contractor Supervisors, or other qualified personnel:

- See that hot work is not scheduled to be performed during operations that might expose combustibles to ignition;
- Tag out-of-service and immediately repair equipment if it is found to be incapable of reliable safe operation, including torches, manifolds, regulators or pressure-reducing valves and acetylene generators;
- 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;
- Inspecting the area at least once per day while the hot work permit is in effect to ensure the area is fire safe;
- Inspecting the area before cutting or welding is permitted, determining site-specific hazards, and issuing hot work permits;
- 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 Campus Operations Supervisor, other qualified personnel or the PAI, if an unsafe condition occurs; and
• Deliver completed hot work permits to the Help Desk or Campus Operations Supervisor (If completed after hours permit can be dropped off at Campus Operations via key drop-off box at the north entrance).

4. Training

Training must be provided to all responsible parties on:
• The inherent risks involved;
• The emergency procedures in the event of a fire;
• Instructions on all equipment and processes;
• The use of a portable fire extinguisher if performing hot work or providing a fire watch; and
• The provisions of this program.

See attached Bowling Green State University- AIG Hot Work Permit.
Appendix A: Hot Work Permit

HOT WORK PERMIT

PART 1

Required Precautions Checklist

☐ Review of the operations / tasks have been conducted and temporary Management of Change issued as necessary.
☐ Work permits or line cutting permits have been reviewed and issued as necessary.
☐ Sprinkler protection, hose streams and fire extinguishers are in service and operational.
☐ Hot work equipment is in good repair and secured as necessary.

Within 35 ft (11 m) of work area(s):
☐ Floors have been swept clean of combustibles.
☐ Flammable liquids, combustible liquids, combustible dust, lint and oil deposits have been removed.
☐ Combustible floors have been wet down or covered with damp sand, metal or other noncombustible shield.
☐ Combustible materials have been removed or protected with fire resistive tarpaulins or metal shields.
☐ All wall and floor openings have been covered.
☐ Fire resistive tarpaulins have been suspended beneath the work to collect sparks.

Work on Walls or Ceilings
☐ Construction is noncombustible and without combustible coverings or insulation.
☐ Combustibles have been removed away from opposite side of wall or ceiling.

Work on Enclosed Equipment
☐ Equipment has been cleaned of all combustibles.
☐ Containers have been purged of flammable, combustible liquids, vapors or gases.
☐ Pressurized vessels and piping have been removed from service, isolated and vented (LOCK-OUT TAG OUT).
☐ Equipment with stored energy or electrical energy has been removed from service and isolated (LOCK-OUT TAG OUT).

Fire Watch
☐ Fire watch will be provided during the task for a minimum 1-hour after the task has been completed or for the extended fire watch duration.
☐ Fire watch has been trained in the use of and provided with portable fire extinguishers or charged fire hose line(s).
☐ Fire watch is posted on lower floors if an opening exists that would allow sparks or embers to drop down.
☐ Fire watch is trained on how to properly report a fire alarm via the plant fire alarm procedures or fire alarm system.
☐ Hot work area will be monitored for 3-hours after the job is finished.

Can the work be completed using a different method or at a less hazardous location, such as the maintenance shop, which would not require the use of a hot work permit?

Instructions:

1. Verify that all applicable precautions have been implemented and that the site is safe for hot work.
2. Part 1 (first page) should be completed and retained for records.
3. Issue Part 2 to individual(s) conducting the hot work and see additional instructions on Part 2.
4. Important note: The facility should follow the guidelines listed on this form or those required by local jurisdiction, if more stringent.

This permit does not purport to set forth all hazards nor to indicate that other hazards do not exist. By providing this permit, neither AIG nor any of its employees make any warranty, express or implied, concerning the use of this permit. Furthermore, neither AIG nor any of its employees shall be liable to any person for any loss or liability that may be expressed in any policy of insurance that may be issued by the Company for personal injury or property damage or loss of any kind arising from or connected with this permit.

Form 023 (6/2016)