UNIVERSITY OF PITTSBURGH HOT WORK PROGRAM

All hot work creates conditions which increase the probability of fire-related injury or property loss. Hot work is defined as any maintenance, construction, or repair activity involving open flames, sparks, or heat-producing tools capable of igniting combustible materials, fires, or explosions. Each type of hot work presents specific hazards depending on the methods used, the materials used, and the environment involved.

This Hot Work Program aims to reduce the risk of injury, fire, and explosion during hot work. It applies to all University of Pittsburgh employees, property managers, and outside contractors, and is overseen by the Department of Environmental Health and Safety (EH&S).

The Hot Work Program prohibits hot work activities at University facilities, until specific safety precautions are taken, and the work has been properly authorized. Hot Work locations are either interim or long-term. Interim locations require an approved Hot Work Permit; Long-term locations do not require a Hot Work Permit.

The following operations do not require a Hot Work Permit:

- Bunsen burners in laboratories
- Small electric soldering irons (electronics repair only)
- Authorized grills on campus
- Sterno products for University events
- University glass shop activities

Sprinkler systems must not be disabled, and fire alarm systems must be operational during hot work. Smoke detectors in the vicinity of hot work should be covered with paper bags to prevent inadvertent activation, and paper bags must be removed immediately after work is completed.

1. **Definitions as identified in the International Fire Code**:

   Fire Watch: A temporary measure intended to ensure continuous and systematic surveillance of a building or portion thereof by one or more qualified individuals for the purposes of identifying and controlling fire hazards, detecting early signs of unwanted fire, raising an alarm of fire and notifying the fire department.

   Hot work: Operations including cutting, welding, Thermit welding, brazing, soldering, grinding, thermal spraying, thawing pipe, installation of torch-applied roof systems or any other similar activity.

   Hot Work Area: *The area exposed to sparks, hot slag, radiant heat, or convective heat as a result of the hot work.* These designated areas require a completed Hot Work Permit.

Hot Work Permit: *Permits issued by the responsible person at the facility under the hot work permit program permitting welding or other hot work to be done in locations referred to in Section 3503.3 and pre-permitted by the fire code official.*-Completed permits shall be maintained by the EH&S Department for one year.

Responsible Person: *A person trained in the safety and fire safety considerations concerned with hot work. Responsible for reviewing the sites prior to issuing permits as part of the hot work permit program and following up as the job progresses.* Responsible person shall determine the hazards present or likely to be present at the work location and the precautions necessary to prevent an incident and have the authority to stop work if necessary.

2. **Hot Work Operational Requirements**

2.1. Hot work is permitted only in fire-safe areas, either designated areas or permit-required areas. A permit-required area is one made fire-safe by removing or protecting combustibles from ignition sources.

2.2. A designated hot work area is a specific area designed or approved for such work, such as ~~a~~ maintenance shops or another location that's composed of noncombustible or fire-resistive construction, free of combustible and flammable contents, and suitably separated from adjacent areas.

2.3. Hot work shall **NOT** be permitted in the following situations:

2.3.1. In unauthorized areas, such as occupied office space.
2.3.2. In sprinklered buildings, while such protection is impaired.
2.3.3. In the presence of explosive atmospheres or potentially explosive atmospheres (e.g. on drums previously containing solvents).
2.3.4. In explosive atmospheres that can develop in areas with an accumulation of combustible dust (e.g. shop dust collectors).

2.4. Any hot work conducted in a confined space must be approved by the PITT Department of Environmental Health and Safety.

3. **Permitting Instructions**

3.1. No individual shall be allowed to perform hot work operations unless the individual has been trained and authorized by their supervisor to do so.

3.2. Permits shall be completed and signed by the individual responsible for the hot work.

3.3. All applicable precautions listed in the permit shall be followed.

3.4. Active permits shall be posted at the worksite and sent to the Department of Environmental Health and Safety at the completion of work.

3.5. Permits are only valid for a single shift on a single day.

3.6. When completing the Precautions Checklist of the permit, list an "X" in the appropriate column indicates that this individual precaution is required or N/A to indicate that the precaution is not applicable. The exact precautions will be left to the determination of the responsible individual based upon the hazard(s) present and the extent and type of hot work.

3.7. If the potential for an explosive or flammable atmosphere exists, an initial test with an analytical instrument capable of identifying % LEL shall be conducted. If the potential exists for accumulation of combustible gases or vapors throughout the hot work process, periodic atmospheric tests are required.

3.8. Enclosed equipment shall be thoroughly cleaned and purged of combustible and flammable materials or sufficiently neutralized.

3.9. A fire watch shall be posted and supplied with suitable fire extinguishing equipment.

4. **Fire Watch (as defined by OSHA)**

4.1. A Fire watch is required for any task requiring a pe rmit and whenever welding or cutting is performed in locations where any of the following conditions exist:

4.1.1. Appreciable combustible material, in building construction or contents, closer than 35 feet to the point of operation.

4.1.2. Wall or floor openings within a 35 feet radius expose combustible materials in adjacent areas including concealed spaces in walls or floors.

4.1.3. Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.

4.2. Personnel performing a fire watch:

4.2.1. Shall have fire extinguishing equipment readily available and trained in its use.

4.2.2. Shall be familiar with components for activating an alarm in the event of a fire.

4.2.3. Shall watch for fires in all exposed areas, try to extinguish them only when obviously within the capability of the equipment available, and activate the alarm if necessary.

4.2.4. Shall have no other primary function.

4.2.5. Shall be maintained for 1 hour after completion of the hot work and during breaks and lunches to detect smoldering fires.

4.2.6. Shall contact University Police (412-624-2121) in the event of an emergency.

5. **Designated Hot Work (Permissible Areas)**

All recognized Departmental Shops; Shops at Melwood (Facilities Management and Motor Pool) Frick Fine Arts - Machine shop, and the Theater Arts – Scene Shop in the Cathedral of Learning are designated hot work areas.

5.1. Designated hot work areas do not require a hot work permit and shall meet the requirements identified in NFPA 51B Chapter 5 Section 5.5.1. Additionally, all other applicable University safety procedures shall be followed including but not limited to personal protective equipment, confined space entry, compressed gas safety, and lockout/tagout.

5.5.1.1 The hot work equipment to be used shall be in satisfactory operating condition and in good repair.

5.5.1.2 Where combustible materials, such as paper clippings, wood shavings, or textile fibers, are on the floor, the floor shall be swept clean for a radius of 35 ft (11 m).

5.5.1.2.1* Combustible floors shall be kept wet, covered with damp sand, or protected by a listed welding blanket, welding pad, or equivalent.

5.5.1.2.2 Where floors have been wet down, personnel operating arc welding equipment or cutting equipment shall be protected from possible electric shock.

5.5.1.3* Combustibles shall be relocated at least 35 ft (11 m) in all directions from the hot work area.

5.5.1.3.1* If relocation is impractical, combustibles shall be shielded by a barrier constructed of noncombustible materials or otherwise protected by a listed welding curtain, welding blanket, welding pad, or equivalent.

5.5.1.3.2 To prevent the entrance of sparks, the edges of covers at the floor shall be tight, including at the point where covers overlap.

5.5.1.4 Openings or cracks in walls, floors, or ducts within 35 ft (11 m) of the hot work site shall be covered or sealed with listed fire-rated or noncombustible material to prevent the passage of sparks to adjacent areas.

5.5.1.5 Ducts and conveyor systems that might carry sparks to distant combustibles shall be shielded, shut down, or both.

5.5.1.6* If hot work is done near walls, partitions, ceilings, or roofs of combustible construction, they shall be protected by a listed welding curtain, welding blanket, welding pad, or equivalent.

5.5.1.7* If hot work is done on one side of a noncombustible wall, partition, ceiling, or roof, the criteria of one of the following shall apply:

(1) The PAI shall verify that no combustibles are at risk of ignition on the other side.
(2) Precautions shall be taken to prevent ignition of combustibles on the other side by relocating the combustibles.
(3) If it is impractical to relocate combustibles, a fire watch shall be provided on the side opposite from where the work is being performed.

5.5.1.8 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.

5.5.1.9 Hot work that is performed on pipes or other metal that is in contact with combustible walls, partitions, ceilings, roofs, or other combustibles shall not be undertaken if the work is close enough to cause ignition by conduction.

5.5.1.10 Fully charged and operable fire extinguishers that are appropriate for the type of possible fire shall be available immediately at the work area.

5.5.1.11 If existing hose lines are located within the hot work area defined by the permit, they shall be connected and ready for service but shall not be required to be unrolled or charged.

5.5.1.12* During hot work, special precautions shall be taken to avoid accidental activation of automatic fire protection systems.

5.5.1.13 The operator and nearby personnel shall be suitably protected against dangers such as heat, sparks, and slag.

5.5.1.14* In instances where the scope of work and the tools used to conduct hot work result in possible travel of slag, sparks, spatter, or similar mobile sources of ignition farther than 35 ft (11 m), the PAI shall be permitted to extend the distances and areas addressed in 5.5.1.2 through 5.5.1.4.

5.5.1.15* In instances where the scope of work and tools used to conduct hot work are known to be incapable of generating slag, sparks, spatter, or similar mobile sources of ignition capable of leaving the immediate area of the applied hot work, the PAI shall be permitted to reduce the distances and areas addressed in 5.5.1.2 through 5.5.1.4.

5.5.1.16 Where hot work operations are to be performed on tanks, containers, or piping that have contained ignitable liquids or other combustible materials, such operations shall be permitted only if the tanks, containers, or piping have been cleaned or purged in accordance with NFPA 326.

6. **Contractors**

6.1. Contractors who have been awarded a project through the bidding process shall follow specifications documents for contractors.

6.2. Contractors are responsible for using paper bags to cover area and duct smoke detectors that may be accidentally activated due to their work activities. The contractor will work with the FM Project Manager and the EH&S Construction Safety Sector to identify and document affected detectors. The detectors **must** be uncovered at the completion of the shift and the work.

6.3. Contractors who have entered the project under a non-bidding process (i.e. purchase orders, standing purchase orders, and blanket orders) shall use Hot Work Permits obtained/issued by the EH&S Construction Safety Sector or the FM Project Manager.

6.4. Contractors shall not initiate any Hot Work activities until the University receives a permit from a trained and designated responsible person. When

required, contractor must secure appropriate permits from the City of Pittsburgh.

6.5. The Contractor is responsible for ensuring their employees and subcontractors are trained in all aspects of conducting Hot Work safely, including individual completion of approved Hot Work Training.

6.6. Contractors are responsible for ensuring that their tools and equipment are in satisfactory condition and good repair, and the proper use of all appropriate personal protective equipment.

6.7. Contractors are responsible for protecting nearby personnel and passersby against heat, sparks, and hazards when working in occupied areas.

6.8. Contractors must ensure a Fire Watch is in place before beginning the Hot Work.

6.9. Do not weld, cut, or perform any other hot work on used drums, barrels, tanks, or similar containers until they have been thoroughly cleaned and verified free of flammable materials and residues. Cleaning must eliminate substances—such as grease, tars, acids, or any other materials—that could, when heated, generate flammable or toxic vapors.

6.10. University Contractors should retain the completed Hot Work Permit Part 2 until the project is 100% complete and receive final acceptance by the University. Then turn the Hot Work Permit(s) into the PITT FM Project Manager or EH&S Construction Safety Group.

Caution

Hot Work Permit

Part 1

Part 1: Retained by Permit Issuing Authority to file

A Hot Work Permit issued by the **Permit Issuing Authority** is required before starting any operation involving open flames or producing heat and/or sparks.

Ensure Hot Work equipment is in satisfactory condition

Prohibitions

- Hot work is ***not to be done*** on walls with combustible covering, insulation, sandwich panel.
- Hot work is ***not to be done*** in explosive atmospheres.
- Hot work is ***not to be done*** in areas of dust.

Fire Watch

- For 30 min. after completion of work.
- During Hot Work where combustible construction or contents are within 35 ft., or there are wall openings within 35 ft., or where combustibles are on the other side of walls, partitions, floors, or ceilings.

Before beginning work — Complete the Precautions Checklist

Y	N	Fire Protection
☐	☐	Sprinkler system is in service.
☐	☐	A charged fire extinguisher is present.
☐	☐	Fire hose lines are available.

Y	N	Walls, Floors, Ceilings
☐	☐	Combustible walls/partitions, ceilings, or roofs are covered.[2]
☐	☐	Conveyors or ductwork in area of work is shut or shielded.
☐	☐	Other sides of walls, partitions, ceiling, or roof is protected.

Y	N	Requirements within 35 feet
☐	☐	Floor is swept clean of combustibles.
☐	☐	Combustible floors are wet down.[1]
☐	☐	Combustibles relocated > 35 ft. from work.
☐	☐	Combustibles < 35 ft. from work. are covered[2]
☐	☐	Cover overlaps are tight.
☐	☐	Openings/cracks in walls, floors, or ducts are sealed with fire rated material.

1. Protect personnel from possible shock in wet-down areas.
2. Coverings may include welding curtain blanket, pad, or equivalent.

Complete the Hot Work Details below

Hot Work performed by:

☐ Employee ☐ Contractor _____

Name of Employee or Contractor co.

Hot Work Begins		Completion Expected	
Date	**Time**	**Date**	**Time**
___/___/___	_____	___/___/___	_____
mm/dd/yyyy	☐ AM ☐ PM	*mm/dd/yyyy*	☐ AM ☐ PM

Location: _____

_____

Reason: _____

_____

_____ _____

Signature of Permit Issuing Authority (Fire Safety or Plant Manager, Supervisor) *Date*

Part 1: Retained by Permit Issuing Authority to file

For more information, see *Minimizing Hot Work Fires Package*, PE 3002 and *Hot Work Risk Management Guide*, PE 1004

PE 2003 R1 05/18 Part 1

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Caution

Hot Work Permit

Part 2

Part 2: Issued to person performing hot work

A Hot Work Permit issued by the **Permit Issuing Authority** is required before starting any operation involving open flames or producing heat and/or sparks.

Ensure Hot Work equipment is in satisfactory condition

Prohibitions

- Hot work is ***not to be done*** on walls with combustible covering, insulation, sandwich panel.
- Hot work is ***not to be done*** in explosive atmospheres.
- Hot work is ***not to be done*** in areas of dust.

Fire Watch

- For 30 min. after completion of work.
- During Hot Work where combustible construction or contents are within 35 ft., or there are wall openings within 35 ft., or where combustibles are on the other side of walls, partitions, floors, or ceilings.

Before beginning work — Complete the Precautions Checklist

Y	N	Fire Protection
☐	☐	Sprinkler system is in service.
☐	☐	A charged fire extinguisher is present.
☐	☐	Fire hose lines are available.

Y	N	Walls, Floors, Ceilings
☐	☐	Combustible walls/partitions, ceilings, or roofs are covered.[2]
☐	☐	Conveyors or ductwork in area of work is shut or shielded.
☐	☐	Other sides of walls, partitions, ceiling, or roof is protected.

Y	N	Requirements within 35 feet
☐	☐	Floor is swept clean of combustibles.
☐	☐	Combustible floors are wet down.[1]
☐	☐	Combustibles relocated > 35 ft. from work.
☐	☐	Combustibles < 35 ft. from work. are covered[2]
☐	☐	Cover overlaps are tight.
☐	☐	Openings/cracks in walls, floors, or ducts are sealed with fire rated material.

1. Protect personnel from possible shock in wet-down areas.
2. Coverings may include welding curtain blanket, pad, or equivalent.

Complete the Hot Work Details below

Hot Work performed by:

☐ Employee ☐ Contractor _____

Name of Employee or Contractor co.

Hot Work Begins

Date ___/___/___ *mm/dd/yyyy*

Time _____ ☐ AM ☐ PM

Completion Expected

Date ___/___/___ *mm/dd/yyyy*

Time _____ ☐ AM ☐ PM

Location: _____

_____

Reason: _____

_____

_____ _____

Signature of Permit Issuing Authority (Fire Safety or Plant Manager, Supervisor) *Date*

Part 2: Issued to person performing hot work

For more information, see *Minimizing Hot Work Fires Package*, PE 3002 and *Hot Work Risk Management Guide*, PE 1004

PE 2003 R1 05/18 Part 2

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