THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UT Health Science Center: FS5303 – HOT WORK POLICY	
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No./Title: FS5303 – HOT WORK POLICY	**Resp. Office: Campus Safety and Emergency Management**	**Effective Date: 9/1/2020**
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Related Policies: UT System Safety Policy SA0100 UT System Safety Policy SA0700		
Forms:		

PURPOSE, SCOPE, AND APPLICABILITY

The University of Tennessee Health Science Center (UTHSC) recognizes a potential for fire from hot work operations. For that reason, this program should be implemented in all departments at the University to protect employees and property from fire resulting from hot work operations.

UTHSC's goal is establish and maintain a program and procedures for controlling fire hazards resulting from work activities that have the potential to produce flames, sparks or significant heat. The purpose of this program is to provide guidance for persons, including outside contractors and property managers, who manage, supervise, and perform hot work operations. The program will establish written procedures and a permit system to prevent fires resulting from hot work operations involving open flames or operations that may produce heat or sparks set forth by the following standards NFPA 51B, OSHA 1910.252, OSHA 1926.352, OSHA 1926.350.

This policy applies to all University of Tennessee Health Science Center staff and contractors who perform construction or maintenance work on campus.

This program does not apply to designated areas that have been equipped for such operations, i.e. maintenance shop's designated welding areas. The designated areas will be defined by department supervisors in correlation with Campus Safety. Hot work operations conducted outside the designated areas should only occur when all other means to perform the task have been exhausted.

This policy covers the following types of construction or maintenance work:

- Welding and allied processes
- Heat Treating

- Grinding
- Soldering
- Heat Gun and/or Torch applied roofing
- Thawing pipe
- Powder-driven fasteners
- Similar applications producing a spark, flame or heat

This Hot Work Program does not apply to:

- Candles
- Pyrotechnics or special effects
- Cooking operations
- Hand held hair dryers below 2000 watts and/or 140 degrees Fahrenheit.
- Paint stripping guns below 2000 watts and/or 140 degrees Fahrenheit.
- Electric soldering irons.
- Equipment with permanently mounted internal heaters or burners

ABBREVIATIONS, ACRONYMS AND DEFINITIONS:

1. **Designated Area**: An area that has been designated to perform hot work operations such as welding, torching, grinding, cutting, etc.
2. **Fire Safety Officer**: A position under Campus Safety that has the primary responsibility for Fire Loss Prevention and Life Safety for the UTHSC Campus.
3. **Fire Watch:** Trained personnel who are in attendance before and at least 30 minutes after the hot work, and are immediately available to extinguish a fire or take other effective action if needed.
4. **Hot work**: Hot work is defined as any temporary maintenance, renovation or construction activity using gas or electrically powered equipment, which produces flames, sparks, or heat that is sufficient to start a fire or ignite flammable/combustible materials.
5. **Hot Work Permit:** A document issued for the purpose of authorizing a specified activity.
6. **Hot Work Operator (HWO):** An individual designated to perform hot work under the authorization of a supervisor.
7. **NFPA**: National Fire Protection Association
8. **NFPA 51B, Section 5.1** : PPE shall be clothing selected to minimize the potential for ignition, burning, trapping hot sparks, and electrical shock.
9. **OSHA**-Occupational Safety and Health Administration
10. **PAI**-Permit Authorizing Individual

11. **Permit Authorizing Individual (PAI):** Inspects hot work sites prior to the start of hot work operations using the checklist found on the Hot Work permit form.
12. **SDS**- Safety Data Sheet
13. **Temporarily protect:** Actions taken to prevent nuisance alarms with smoke detectors in affected hot work areas.
14. **Welding and Allied Processes:** Those processes such as arc welding, oxy-fuel gas welding, open-flame soldering, brazing, thermal spraying, oxygen cutting, and arc cutting.

RESPONSIBILITES:

a. Supervisors shall:

1. Ensure that only approved equipment, such as torches, manifolds, regulators and pressure reducing valves are used.
2. Ensure that all individuals involved in the hot work operations are familiar with UTHSC's hot work policy.
3. Ensure that all individuals involved in the hot work operations are trained in the safe operation of their equipment and the safe use of the process. These individuals must have an awareness of the risks involved and understand the emergency procedures in the event of a fire.
4. Consult with Campus Safety when questions or concerns arise.

b. **PAIs shall:**

1. Confirm fire alarm components affected by hot work are temporarily protected and reestablished once hot work is complete as specified in the Permit Authorizing (PAI) hot work training.
2. Identify site-specific flammable materials, hazardous processes, or other potential fire hazards that are present or likely to be present in the work location.
3. Ensure combustibles are protected from ignition by:
4. Moving hot work to a location free of combustible materials.
5. Moving combustible materials to a safe distance (35 feet) away from hot work.
6. Shielding combustibles with materials designed for that purpose.
7. Scheduling hot work for a time when minimal amounts of combustibles are present.
8. Determine that fire protection and extinguishing equipment are properly located and readily available.

9. Ensure sufficient local exhaust ventilation is provided to prevent accumulation of any smoke and fume.
10. Ensure that the hot work permit is updated daily.
11. Re-inspect area on a final check one hour (60 minutes) after hot work is completed. The area must be monitored for four hours beyond the completion of work. Note monitoring may be conducted by electronic means (e.g. smoke detection).
12. Document the hot work permit and insuring all the guidelines on the permit are followed.
13. Ensure that a fire watch is posted at the site when:
14. Hot work is performed in a location where other than a minor fire might develop, or where the following conditions exist.
15. Combustible materials in building construction or contents are closer than 35 ft to the point of hot work.
16. Combustible materials are more than 35 ft away but are easily ignited by sparks.
17. Wall or floor openings are within 35 feet and expose combustible materials in adjacent areas. This includes combustible materials concealed in walls or floors.
18. Combustible materials are adjacent to the opposite side of partitions, walls, ceilings, or roofs and are likely to be ignited.

c. **Employees performing hot work shall**:
   1. May temporarily protect smoke detectors if instructed to by the PAI.
   2. Obtain a Hot Work permit prior to performing the work.
   3. Ensure that combustible materials are not in the vicinity of the work. •
   4. Safely handle hot work equipment so as not to endanger lives and property.
   5. Stop work immediately should unsafe conditions develop and have EHS access conditions.
   6. Follow all precautions listed on the permit and follow UTK's Hot Work policy.

d. **Employees performing the fire watch shall**:
   1. Watch for fires, smoldering material or other signs of combustion.
   2. Be aware of the inherent hazards of the work site and of the hot work.
   3. Ensure that safe conditions are maintained during hot work operations and stop the hot work operations if unsafe conditions develop.
   4. Ensure fire-extinguishing equipment is readily available and be trained in its use.
   5. Extinguish fires when the fires are obviously within the capacity of the equipment available. If the fire is beyond the capacity of the equipment, sound the alarm immediately.

6. Be familiar with the facilities and procedures for sounding an alarm in the event of a fire.
7. Ensure that a fire watch is maintained for at least one hour after completion of hot work operations in order to detect and extinguish smoldering fires. More than one fire watch shall be required if combustible materials that could be ignited by the hot work operation cannot be directly observed by a single fire watch (e.g. in adjacent rooms where hot work is done on a common wall).
8. Remain at their post for the prescribed period, including through breaks and lunches, where applicable.
9. Fire watch cannot do any other job duties while performing fire watch.

e. **Campus Safety shall**:

1. Provide training to individuals who will issue permits.
2. In coordination with supervisors, review and approve UTHSC's hot work program on an annual basis, or when regulations or policies are changed.
3. Provide regulatory assistance to supervisors, employees and contractors concerning Hot Work.

f. **Contractors and Subcontractors shall:**

1. Ensure that a fully qualified hot work program is in effect with the contractor/sub-contractor organization. The program is the responsibility of the Contractor and Subcontractors, individually. If a contractor sub-contracts to complete the work, then the Contractor is responsible for verification and compliance of the hot work safety program of the subcontractor.
2. Ensure full adherence to UTHSC's Hot Work policy.
3. Provide appropriate personal protective equipment or other hazard control measures appropriate with work being conducted
4. Ensure that permits are obtained for any hot work being performed and are updated on a daily basis.

   NOTE: Permits are not necessary for construction projects which are solely under the control of the contractor and do not impact any UT occupied facilities.

5. Ensure that proper conditions exist to allow safe performance of hot work and following precautions listed on the permit.
6. Provide certifications of training when applicable, and requested.
7. Ensure that his or her employees are appropriately trained and authorized.

8. Ensure that a safety briefing has been completed prior to any work initiated, with all personnel involved including applicable University staff.

PROCEDURES:

Hot Work Permit System:

A hot work permit (See Appendix A) shall be utilized before hot work operations begin in a non-designated location. These are to be used by all UTHSC employees, and contractors working within UTHSC premises.

The Fire Safety officer is the only authorized PAI for all hot work on campus. This is to ensure that the area is safe, and any building life/fire safety systems are disengaged during the course of the hot work, to prevent unnecessary triggering of the building fire safety systems.

The procedures for the permits are:

a. The supervisor will inspect the area before authorizing a hot work permit
b. The supervisor will submit the hot work permit to the Fire Safety Officer for final authorization as PAI.
c. The employee/hot work operator will complete the hot work permit at the job site and post until completion of the job or the duration of the permit
d. The employee/hot work operator will return the hot work permit to the supervisor after the task is complete or at the end of the work shift
e. The supervisor will notify the Fire Safety Officer when work has been completed, area has been inspected and deemed safe.
f. Permits will then be maintained by the Fire Safety Officer for a period of time not to exceed one year.

CONTRACTOR EXCEPTION: Contractors that have a fully OSHA/NFPA qualified hot work program and employ their own hot work permit system, once verified by the Fire Safety Officer. Contractors may use, under the approval of the Fire Safety Officer, their own hot work permit system without using UTHSC Hot Work permits. However, the Fire Safety Officer shall be included as a **final authorizing PAI**. The Fire Safety officer will keep a copy for UTHSC records, and complete a final inspection at the work site before any hot work begins.

Temporary Protection of Fire Systems

In order to prevent nuisance fire alarms, measures shall be taken to guard against accidental triggering of the fire alarm system while performing hot work.

These actions include applying blue painters tape or plastic covers over smoke detectors. Temporary protection must be removed from smoke detectors when hot work activities are complete. Only PAI(s) or a designee assigned by the PAI shall perform these actions. The Fire Safety Officer will have the final authorization, and direction of these actions.

Hot Work Designated (Fixed) Area Permitting:

The Designated Hot Work Area Permit is to be issued only for permanent hot work areas that comply with all applicable fire protection regulations. Hot Work associated with construction repairs and other activities/sites with changing conditions require a Daily Hot Work Permit.

Changes in the configuration and/or occupancy of the fixed hot work area shall void this permit. The Hot Work Area Supervisor is responsible for the fixed hot work location. He /She is responsible for requesting a valid permit before the currently issued permit expires or if the designated hot work location/operation is modified.

The Hot Work Area Supervisor and Permit Authorizing Individual (PAI) shall inspect the fixed hot work area to verify all precautions have been taken before signing off on the permit. The permit is void unless signed copies of the fixed hot work permit have been appropriately distributed to the respective Building / Facility Manager and Safety Coordinator by the PAI. The Hot Work Area Supervisor will return all void and / or expired permits to the issuing PAI. All fixed hot work permits must be visibly posted in the fixed hot work area.

Designated Hot Work Permits are valid 6 months from date of issue, and must be inspected prior to reissuance.

GENERAL TRAINING AND INFORMATION REQUIREMENTS

The training requirements contained in this section apply to all employees of UTHSC performing hot work. Initial training will be provided within 30 days of assignment. The supervisor must ensure that all employees meet the requirements before assignment.

The supervisor will ensure that all new employees receive training before conducting a task that meets the criteria of hot work operations in the written program. An employee can be utilized as a helper, prior to receiving the initial training, as long as they work directly under a trained employee. Training will be given by the Fire Safety Officer. The initial training should include the following topics:

- This policy, and written program
- Hot work procedures, including how to obtain a permit
- Safe and proper equipment operation
- Roles and responsibilities
- Personal Protective Equipment (PPE)
- Handling and storage of welding materials
- Compressed gas cylinder safety
- Fire watch
- Fire precautions
- Fire extinguisher training
- Physical and chemical hazards
- Hazard control
- PPE selection and use
- Temporarily protecting fire system equipment

Refresher Training:

Employees will receive refresher training in hot work at least three years after the initial training. The refresher training will include the topics set forth by the initial training. It will also provide updates or new requirements, if applicable.

Program Evaluation:

The hot work program shall be evaluated on an annual basis utilizing protocols set forth in appendix B. The evaluation team will consist of Campus Safety, and a designee from the respective departments engaged in regular hot work.

ATTACHMENTS:

- Appendix A (HOT WORK PERMIT)
- Appendix B (Audit Checklist)

ASSOCIATED STANDARDS:

- NFPA 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
- OSHA 29 CFR 1910.252, Welding, Cutting, and Brazing
- OSHA, 29 CFR 1926.350, Gas welding and cutting
- OSHA, 29 CFR 1926.352, Fire prevention

Appendix A

HOT WORK PERMIT

UTHSC CAMPUS FIRE SAFETY HOT WORK PERMIT

This Hot Work Permit is required for any operation involving open flames or producing heat and/or sparks and must be completed by a Permit Authorizing Individual ((PAI) / Campus Fire Safety) and posted at the site. Hot Work includes, but is not limited to: Brazing, Torch Cutting, Grinding, Soldering, and Welding. **If the required precautions cannot be met, Hot Work is not permitted. Call #s: Fire Safety 448-5619; UTPD (emergencies) 448-4444**

Hot Work done by Contractor Name or UTHSC Employee:	**REQUIRED PRECAUTIONS CHECKLIST**
DATE: Job #	Y **Available sprinklers, hose streams, and USER supply tagged 10 lb PFE are in service /operable, if applicable.** Y Hot work equipment in good repair. Requirements within 35ft of work Y Flammable liquids, dust, lint and oil deposits removed. Y Explosive atmosphere in area eliminated. Y Floors swept clean of combustibles. o Combustible floors wet down, covered with damp sand or fire-resistant sheets. Y Remove other combustibles where possible. Otherwise protect with fire-resistant tarpaulins, screens or shields. Y All wall and floor openings covered. Y Fire-resistant tarpaulins suspended beneath elevated hot work. Work on walls or ceilings/enclosed equipment Y Construction is noncombustible and without combustible covering or insulation. Y Combustibles on other side of walls moved away. Y No danger exists by conduction of heat into another room or area Y Enclosed equipment cleaned of all combustibles. Y Containers purged of flammable liquids and vapors. Fire watch/hot work area monitoring. Y Fire watch will be provided during and continuously for 60 minutes after work, including during any work breaks. Y Fire watch is supplied with suitable Portable Fire Extinguisher Y Fire watch is trained in use of safety equipment such as PFEs Y Fire watch may be required for adjoining areas, above and below. Y Hot work area inspected 60 minutes after job is completed. Other precautions Taken Y Confined space entry permit required. Y Area is protected with smoke or heat detection. Y Ample ventilation to remove smoke/vapor from work area. Y Lockout/Tagout (29 CFR 1910.147 / LOTO) required
BUILDING NAME, BLDG #, ROOM #, LOCATION :	
NATURE OF JOB :	
Name of Hot Work Operator and Fire Watcher (Print , Signed , Phone #)	
I verify the above location has been examined, the precautions checked on the Required Precautions Checklist have been taken to prevent fire, and permission is authorized for work.	
NAME OF COMPETENT HOT WORK SUPERVISOR (CHWS) Contact # Phone #	
PERMIT REQUEST / DATE / TIME Am Pm	
PERMIT EXPIRES / DATE / TIME Am Pm	
SIGNATURE OF CHWS:	
UTHSC Campus Safety PAI Approval :	
Print name of SA approver	
Approved Date:	
Expiration Date:	
Notes:	
Comments:	

Appendix B

AUDIT CHECKLIST

Hot Work Operations Checklist

Building/Shop _____ Room_____ Supervisor_____

Assessment Performed by_____ Date_____

A. General Welding and Cutting Controls	Yes	No	NA	Comments
1. Type of hot work operations performed				
2. Welding and cutting operations restricted to authorized employees				
3. Hot work performed in a designated area				
4. Combustible materials moved at least 35 feet from worksite				
5. Floor and wall openings covered at least 35 feet from worksite				
6. Procedures developed to prevent welding and cutting in the presence of explosive or toxic air contaminants				
7. Fire resistant curtains and/or tinted shield provided				
8. Hot work permit obtained				
9. Local or general exhaust ventilation adequately used				
10. Appropriate personal protective equipment provided and used				
11. Appropriate fire extinguisher and/or fire suppression equipment provided in vicinity of hot work				
12. Building sprinkler system operational during hot work operations				
13. Procedures developed to establish and maintain fire watch in hot work areas				
14. Hot work permit used				
B. Welding or Cutting in Confined Spaces	Yes	No	NA	Comments
1. Procedures developed for confined space entry and rescue				
2. Ventilation and/or respiratory protection provided				

3. Electrodes removed from holders and/or gas supply shut off when operations are suspended for any substantial period				
4. Hot work permit used				
C. Compressed Gas Cylinders	Yes	No	NA	Comments
1. Oxygen and fuel gas cylinders stored separately with protective value caps in place				
2. Regulators compatible with gas cylinder				
3. Cylinder carts used for transport				
4. Cylinders secured from tipping while in use				
5. Empty or unused gas cylinders returned to supplier				
D. Training	Yes	No	NA	Comments
1. Workers trained in use of welding and cutting equipment, material hazards, and control methods				
2. Personal protective equipment training provided				
3. Confined space entry training provided, where necessary				
4. Workers trained in the written hot work program and/or permit system				
5. Employees trained in the use of fire extinguishers				