

11.1.4 HOT WORK POLICY

PURPOSE

Baylor University recognizes that there is a potential for injury to people and damage to property that can result from fire or sparks that arise when hot work is performed outside of a designated safe hot work area. This operating procedure establishes a permit authorization system to ensure that all hazards are evaluated and that appropriate safety measures and controls are taken prior to and during any operation that uses an open-flame or spark-producing apparatus.

This operating procedure is written in accordance with the Occupational Safety & Health Administration's (OSHA) workplace standard, 29 CFR 1910.252, Welding, Cutting and Brazing and the National Fire Protection Association (NFPA) code standard 51B, Fire Prevention in Use of Cutting and Welding Processes.

NOTE: The use of pyrotechnics is excluded from this policy. More information detailing pyrotechnic use may be found in section 11.1.10, **Fireworks & Pyrotechnics**, of the Risk Management Manual.

SCOPE

Hot work operating procedures shall apply to all Baylor University personnel and all contract personnel conducting hot work at, in, and around all University-owned, leased, and/or occupied properties.

DEFINITIONS

- Hot Work - any work using an open-flame or spark-producing apparatus. Hot work includes, but is not limited to, welding, cutting, burning, grinding, and any related heat-producing job that could ignite combustible materials or flammable atmospheres.
- Designated Safe Hot Work Area - areas that have been designed and constructed for performing open-flame or spark-producing work.
- Fire Watch - trained personnel who are in attendance during the entire hot work operation and are immediately available to extinguish a fire or take other effective action if needed.
- Hot Work Operator - any employee or contractor who operates an open-flame or spark-producing apparatus or performs any hot work
- Hot Work Permit - a special permit issued by the Department of Risk Management which authorizes specified hot work at a specific location and time.

RESPONSIBILITY**A. Departments**

Departments are responsible for ensuring that the requirements of this operating procedure are understood and practiced by their employees. Any department that employs an outside

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contractor, with the exception of Baylor Facility Services, who will be performing any hot work, as defined, must comply with the requirements of this procedure. Baylor Facility Services (BFS) will assume responsibility to obtain a required HOT WORK PERMIT and follow guidelines defined in this policy when working on a BFS project. Specific responsibilities of individual departments conducting or coordinating any hot work operations include:

1. Contact the facility manager or person responsible for the area in which the hot work is to take place, inform that person of the scope of work to be performed, and determine if they have any specific concerns about the procedure.
2. Determine the combustible materials and hazardous areas present or likely to be present in the work location.
3. Protect combustibles in the work location by:
 - a. moving the work to a designated safe hot work area or a location free of combustibles;
 - b. moving the combustibles (if the location cannot be changed) to a safe distance from the work or properly shielding the combustibles against ignition; or
 - c. scheduling the hot work during a time when the combustibles are not likely to be in the area.
4. Obtain a HOT WORK PERMIT from the Baylor University Department of Risk Management for any work that is to be performed outside of a designated safe hot work area.
5. Ensure that workers are provided with and using proper safety equipment, including personal protective equipment and fire extinguishing equipment.
6. Designate a responsible person to serve as a fire watch.
7. Ensure that the work area is given a final inspection one hour after completion of the job to detect and extinguish possible hot spots or smoldering fires. The fire watch shall be released after the final inspection.

B. Baylor University Department of Risk Management

Risk Management is responsible for the development and maintenance of this operating procedure, providing resources for equipment and personnel training and for auditing all operations to ensure compliance to this procedure. Specific responsibilities include:

1. Review and approve, in coordination with a departmental representative, locations approved for hot work operations (designated safe hot work areas).
2. Maintain a list of designated areas.

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3. Periodically inspect designated areas to ensure that conditions have not become unsafe for hot work.
4. Issue a HOT WORK PERMIT for work being done outside of the designated safe hot work areas, after the area has been inspected and approved by Risk Management.
5. Provide training for fire watches, and ensure that the proper fire fighting equipment is in working condition and is available to standby personnel.
6. Suspend hot work if conditions become unsafe for the work being performed.

C. Fire Watch

A fire watch shall be required whenever hot work is performed at any location on campus other than a designated safe hot work area. The fire watch shall be any employee or contractor designated by the individual or department requesting the hot work permit, but shall not be the actual employee(s) performing the hot work operation. Specific responsibilities include:

1. Make fire extinguishing equipment readily available and be trained in its proper use and limitations.
2. Become familiar with facilities and procedures for sounding an alarm in the event of a fire.
3. Correct or stop any conditions which may lead to a fire and report conditions to the department at the earliest opportunity. Attempt to extinguish fires appropriate to the available equipment and level of training or otherwise activate the fire alarm system.
4. Remain at the work site to monitor for smoldering fires while work is in progress and for at least thirty (30) minutes following job completion. If the fire watch must leave the work site, all hot work must stop.

D. Hot Work Operators

Shall obtain proper authorization to perform hot work operations via the HOT WORK PERMIT and shall handle the equipment safely and use it so as not to endanger lives and property. The operator is also responsible to:

1. Ensure full compliance with the requirements of this procedure.
2. Become fully trained to perform required hot work and verify that equipment and tools are in good working order.
3. Use appropriate safety equipment, including eye and face protection, hand protection, body protection, head protection, hearing protection, and respiratory protection, as needed.

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- 4. Avoid hot work operations where conditions ARE NOT SAFE.
- 5. Stop work when conditions change from those set when work was approved. If the designated fire watch must leave the work site, operations shall cease and the operator shall remain at the work site for at least 30 minutes following job completion to monitor for fires.

HOT WORK REQUIREMENTS

A. Permissible Areas

Routine hot work operations shall be allowed without the requirement of a permit only in areas that have been designated as a SAFE HOT WORK AREA. For the purpose of this operating procedure the following campus areas are designated as SAFE HOT WORK AREAS:

Building Name	Specified Locations
Facilities Operations & Maintenance	Welding shop and garage
Hooper Schaefer / Lewis Art	Welding shop and foundry Scene shop -- welding area
Sciences Building	Glass Shop, Machine Shop, and Electronics Shop
Mayborn Museum	Paint booth room
Rogers Engineering	Mechanical Shop

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B. Permit-Required Areas

In areas where it is not practical to move the work to a designated SAFE HOT WORK AREA, hot work shall only be permitted once the area is made fire safe by removing combustibles or protecting combustibles from ignition sources.

Unless prior approval has been granted by the Department of Risk Management, hot work operations are strictly prohibited under the following conditions:

1. In areas not designated as SAFE HOT WORK AREAS where a proper HOT WORK PERMIT has not been obtained;
2. In sprinklered buildings while such protection is impaired;
3. In the presence of explosive atmospheres, such as mixtures of flammable gases, vapors, liquids, or dusts with air; on or in any drum, container, or vessel that has not been properly cleaned to remove any possible explosive atmospheres that can develop inside from residual contents; or
4. In areas near the storage of large quantities of flammable or combustible materials that can readily ignite.

HOT WORK PERMIT TRAINING**A. Persons to be trained**

All persons who conduct hot work; managers, project managers and supervisors of those conducting hot work; and those issuing hot work permits shall complete an annual FM Global approved training course. A certificate of completion or a signed and dated training roster shall be sent to the Department of Risk Management and must be on file for the person requesting/requiring a permit, before the permit will be issued.

B. Training registration

To register for training, contact the Department of Risk Management at (254)710-7211.

HOT WORK PERMIT PROCEDURES**A. Preparation of work area**

Before a hot work permit is approved and issued, the department or individual requesting the permit shall verify that:

1. All hot work equipment to be used is in satisfactory condition and in good repair.
2. Any combustible materials such as paper clippings, wood shavings, or textile fibers on the floor are swept clear for a radius of 35 feet. Floors constructed of combustible

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materials are properly protected by either wetting the surface or are covered by fire-resistant shields. Where floors have been wetted down, personnel operating arc hot work equipment shall be protected from possible shock.

3. All combustible materials are relocated at least 35 feet horizontally from the work area. Where relocation is not practical, the combustible materials shall be protected with flame-proof covers or otherwise shielded with metal or fire-resistant shields or tarps.
4. Openings or cracks in walls, floors, or ducts within 35 feet of the work area are tightly covered to prevent the passage of sparks to adjacent areas. Where hot work is done near walls, partitions, ceilings, or roofs of combustible construction, fire-resistant shields or guards are provided to prevent ignition.
5. If hot work is to be done on a metal wall, partition, ceiling, or roof, precautions are taken to prevent ignition of combustible materials on the other side, such as relocation or covering the materials, due to conduction or radiation. If the combustible materials can not be relocated or protected, a fire watch shall be provided on the opposite side of the wall where the work is being performed.
6. No hot work is to be attempted on a metal partition, wall, ceiling, or roof having a covering, nor on walls or partitions of combustible sandwich-type panel construction.
7. Hot work is not undertaken on pipes or other metals that are in contact with combustible walls, partitions, ceilings, or roofs if the work is close enough to cause ignition by conduction.
8. Nearby personnel are suitably protected against heat, sparks, slag, etc.
9. Hot work is to be done in close proximity to a sprinkler head, and that the head is covered by a wet cloth to prevent activation. The cloth must be removed immediately at the conclusion of the hot work.
10. All smoke detectors in the area should be covered or disabled prior to hot work. The dust covers must be removed immediately or enabled immediately at the conclusion of the hot work.

B. Designation of Fire Watch

The department or individual requesting the HOT WORK PERMIT is responsible for designating a fire watch. The fire watch shall:

1. Make fire extinguishing equipment readily available and be trained in its use.
2. Know how to activate the building's fire alarm system, if applicable, or who to notify in the event of a fire.

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3. Watch for fires in all exposed areas, and try to extinguish them first, only when obviously within the capacity of the equipment available, or otherwise sound the alarm immediately.
4. Monitor the work area for at least 30 minutes after completion of the hot work to detect and extinguish any smoldering fires that may be identified. The facility manager will continue to monitor the area for an additional 4 hours.

C. BU Risk Management Notification and Approval

Once the work area has been properly prepared, the department or individual requesting the HOT WORK PERMIT shall contact the Risk Management Department for final review and approval. The Department of Risk Management shall:

1. Review the permit request and verify that all necessary precautions have been properly taken. If necessary, a visual inspection may be conducted prior to final approval.
2. Verify that the building's fire sprinkler system is operational, where applicable. Determine if the work area has any fire alarm detectors that need to be disabled to prevent false alarms, and appropriately disable only those devices that could be accidentally activated.
3. Verify the location, start time, and duration of the hot work operation. A HOT WORK PERMIT shall only be valid for the time duration identified. No HOT WORK PERMIT shall exceed an 8-hour period. If additional time is needed, the requester must notify BU Risk Management for an extension or issuance of a new permit. In cases requiring multiple work days, a permit will be issued for the duration of one week, and a log documenting each hot work occurrence will be required.
4. Once approved, the permit shall be posted at the work area for the duration of the job.

SPECIAL PRECAUTIONS

A. Work Stoppage

When work is stopped for an extended period of time the equipment must be shut down and secured to prevent accidental sparking. If the work stoppage will exceed the original duration time of the HOT WORK PERMIT, the requester must notify BU Risk Management to have the permit extended or to request issuance of a new permit.

B. Confined Spaces

Any hot work that is to be performed in a confined space shall be conducted in accordance with the University Operating Procedure, 11.2.6, **Confined Space Situations and Permits**.

C. Hot work on Containers

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No hot work is to be performed on any drums, tanks, containers or any vessel that may have contained chemicals or materials that when heated may produce flammable, explosive, or toxic atmospheres, if the container has not been thoroughly cleaned and prepared.

D. Hot Tapping

Hot work that must be performed on any utility piping used for the transmission or distribution of flammable gases or liquids shall only be performed by a crew qualified to make hot taps.

E. Outside Contractors

Contractors shall perform all hot work procedures in accordance with this operating procedure or be able to demonstrate that they have a comparable procedure that meets or exceeds the requirements of this operating procedure.

PERSONAL PROTECTIVE EQUIPMENT

A. Personal protective equipment for eyes, face, head and extremities, respiratory protection, and protective shields and barriers, shall be used and maintained in a sanitary and reliable condition. Selection of appropriate devices should be made in accordance with the University Operating Procedure, 11.2.10 **Personal Protective Equipment Hazard Assessment and Selection Program**. Outside contractors are required to provide their own protective equipment and shields; no university equipment or tools are to be loaned to outside contractors.

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