Hot Work Permitting Program

Environmental Health, Safety, and Risk Management Department

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Original: January 2004
Revised: January 2011, April 2018
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I. Purpose
Hot work is defined as any operation that generates heat, sparks or flames. Cutting, welding and other hot work operations present a serious fire hazard to university property and personnel. Fires caused by hot work operations routinely result when sparks or hot metal spread and come into contact with combustibles. The combustible materials smolder and eventually catch fire, sometimes after work has ended and employees have left the area. Because following safe hot works precautions and having a hot work permit process are important steps to help control these types of fire, Stephen F. Austin State University (SFA) created this Hot Works Permitting Program.

II. Scope
This program applies to hot work performed by any SFA employee, student or contractor performing work in existing buildings, new renovations attached to existing buildings or work on university property outside buildings where permanent combustible materials are in close proximity. This procedure does not apply to new construction where there is no attachment to existing buildings or to areas specifically designed and equipped for such operations, i.e. maintenance shop areas and designed welding areas.

III. Definitions

Hot Work - Any operation producing flames, sparks or heat including cutting, welding, brazing, grinding, sawing, torch soldering, applying roof covering, etc.

Hot Work Permit - A special permit, which authorizes “Hot Work” activities at a specific location and time. The permit will be properly filled out, displayed on site and returned to the employee supervisor when the hot work is complete. Permits contain a checklist to be completed prior to commencing hot work activities and at the conclusion of the hot work.

Fire Watch - A trained individual stationed in the hot work area who monitors the work area for the beginning of potential, unwanted fires both during and after hot work. Individuals must be trained by Environmental Health, Safety and Risk Management Safety Officers in the operation of portable fire extinguishers and building fire alarm systems.

IV. Responsibilities
A. Environmental Health, Safety and Risk Management (EHSRM)
EHSRM Safety Officers will be responsible for:
1. Maintaining the written Hot Works Permit Program,
2. Revising the program as necessary;
3. Retaining all program records as required by SFA’s record retention policy;
4. Assisting with hot works permit procedure training; and
5. Periodically inspecting operations.
B. Supervisors including Faculty and Instructors
Supervisors will be responsible for:
1. Being thoroughly familiar with hot works procedures;
2. Providing proper personal protective equipment to employees or students;
3. Ensuring employees or students are trained in and use proper hot work practices;
4. Inspecting the area prior to hot work to determine if combustible materials are present or likely to be present in the hot work location and protecting combustibles from igniting;
5. Making arrangements for a fire watch to remain on site during hot work and for at least 30 minutes after the completion of hot work to detect and extinguish possible smoldering fires;
6. Contacting Physical Plant Electronics Shop to coordinate isolating fire protection devices (smoke/heat detectors);
7. Providing hot work permits by filling out the top portion of online hot work permit at http://www.sfasu.edu/safety/documents/Hot_Works_Permits.pdf;
8. Distributing authorized hot works permit to employees, contractors or students;
9. Periodically inspecting hot work sites for safe work practices, ensuring compliance with procedures by employees, contractors or students;
10. Collecting completed hot work permits to forward to EHRSM;
11. Selecting contractors to perform hot work who employ suitably trained personnel who have an awareness of the magnitude of the risks involved; and
12. Advising contractors of their duties and responsibilities during hot work operations.

C. Employees
Employees will be responsible for:
1. Completing the required hot works permitting training program;
2. Sharing the responsibility for being familiar with and performing proper hot work practices;
3. Using all PPE and equipment in the correct manner;
4. Maintaining a clean work area; and
5. Signing hot work permits at the completion of hot work.

D. Fire Watch
Employees standing fire watch will be responsible for:
1. Completing the required hot works permitting training program;
2. Having fire-extinguishing equipment readily available and be trained in its use by EHSRM;
3. Watching for and extinguishing spot fires in the exposed areas during and up to 30 minutes after all hot work activities;
4. Communicating fires to the University Police Department and understanding the procedures for initiating the fire alarm in the event of a fire
5. Using all PPE and equipment in the correct manner;
6. Maintaining a clean work area; and
7. Signing hot work permits at the completion of fire watch.
E. Contractors
Contractors performing hot work at SFA will be responsible for:
1. Providing Certificate of Insurability;
2. Following all SFA Hot Work Permitting procedures;
3. Following OSHA 29 CFR 1910.252 Hot Work standards; and
4. Communicating all fire hazards to SFA point of contact.

V. Hot Work Hazards

A. Welding and Cutting
The hazards of welding and cutting may include fire, explosion, electrical shock, eye injury, burns and noxious fume inhalation. Therefore, safe welding practices must be observed at all times. Because of the increased hazard of hot work on containers, no welding, cutting or other hot work shall be performed on used drums, barrels, tanks or other containers until they have been cleaned to make absolutely certain there are no flammable materials present. These containers should be free of any substances such as greases, tars, acids or other materials which when subjected to heat, might produce flammable or toxic vapors. Any connections to the drum or vessel shall be disconnected or blanked. All hollow spaces, cavities or containers shall be vented to permit the escape of air or gases before preheating, cutting or welding. Purging with inert gas is highly recommended.

B. Brazing
Silver brazing alloy, frequently called "silver solder," is an extremely valuable industrial material used for joining metals and alloys such as silver, copper, brass, bronze, stainless steel, carbon steel and similar combinations where it is necessary to perform the joining of these metals at low temperatures. In brazing, the major hazards are heat, chemicals and fumes. Fumes generated during brazing can be a serious hazard. Brazing fluxes generate fluoride fumes when heated. Cadmium in silver brazing alloys vaporizes when overheated and produces cadmium oxide, fumes are inhaled into the respiratory tract, and they can cause pulmonary distress, shortness of breath, and in cases of severe exposure, may cause death.

C. Ventilation
Ventilation is necessary to control hazardous fumes, gases and dust. Proper ventilation can be obtained through natural or mechanical means. OSHA standard 1910.252(c)(2) indicate natural ventilation is sufficient when the following criteria are met:
• The hot work area contains at least 10,000 cubic feet;
• There are no barriers to blocking cross ventilation; and
• The hot work space is not performed within a confined space.
If any of these requirements are not met, mechanical ventilation is required, which must exhaust at least 2,000 cubic feet of air per hot work task.
D. Confined Spaces
A confined space is defined as a relatively small or restricted space such as a tank, boiler, storage bin, or pressure vessel. They are large enough and so configured that an employee can bodily enter and perform work. They also have restricted means of entry and exit. Before hot work of any type can be performed in confined spaces, employees must be trained in confined space entry. Check with EHSRM personnel for more details or see SFA’s Confined Space Entry Program.

VI. Personal Protective Equipment

A. Eye Protection
Welding helmets shall be used during all arc-welding operations. Welding goggles or other suitable eye protection shall be used during all gas welding or cutting operations and as needed for brazing operations. Eye protection shall be worn when chipping scarf or metal fragments. Workers or other persons adjacent to hot work areas shall be protected from arc rays by noncombustible or flameproof screens or shields or shall be required to wear appropriate goggles.

B. Protective Clothing
Protective Clothing. All welders should wear flameproof gauntlet gloves. Flameproof aprons may be desirable for protection against radiated heat and sparks. All clothing should be reasonably free from oil or grease. Safety shoes (steel toe shoes) should be worn whenever there is a possibility of foot injury from heavy or sharp objects being dropped.

VII. Procedures Prior to Hot Works Operations
Prior to initiating hot work, personnel conducting hot work operations shall:
1. First, Seek alternative methods to hot work:
   o Search for an equally effective way to join or cut without compromising mechanical integrity.
   o When practical, objects to be welded, cut or heated should be moved to designated safe locations specifically designed and equipped for such operations, i.e. maintenance shop areas and designed welding areas.
   o If there is no alternative to hot work within the area, communicate with supervisors exactly what hot work operations are required and that a Hot Work Permit needs to be pursued to authorize the hot work.
2. Select appropriate apparatus, such as torches, manifolds, regulators, or pressure reducing valves, and acetylene generators, to be used;
3. Where welding, cutting, or brazing is done in close proximity to a sprinkler head, a wet rag shall be laid over the head and then removed at the conclusion of the cutting or welding operation;
4. Take special caution to avoid accidental operation of fire alarm, sprinkler systems and oxygen depleting extinguishing systems;
5. Move all combustible materials to a safe distance from the work or properly shield the combustibles from ignition sources;
6. Request and inspection of the area by their supervisor responsible for the work or their designated representative and if necessary by EHSRM; and
7. Obtain an authorized hot works permit from their supervisor to keep posted near the hot work operation.

VIII. Hot Works Permit
After a supervisor inspects the area and determines if such activities are permissible, the supervisor will process an open hot works permit by following the steps below:
1. While using the Internet Explorer Browser, open EHSRM’s website, select plans and guidelines, click the link “Hot Works Permit” or select the following link http://www.sfasu.edu/safety/documents/Hot_Works_Permit.pdf
2. Fill out the top portion of the permit authorizing hot work.

3. Once the required portion of the hot works permit is complete, click the “Send to Safety” button.
4. Performing this action will open an option box asking, “How would you like to send this email?” It is recommended that personnel select the default email application and click Continue to forward the permit to Safety.

5. Print the permit using the built in “Print” button. This will enable the supervisor to print to a local device in order to sign and authorize the permit.

6. After signing the permit, the supervisor will issue the permit to employees performing the hot work operations.

7. Once received, employees sign and post the permit near the hot work operations.

8. The permit stays posted until the completion of hot work.

IX. Completion of Hot Work
When hot work is completed, personnel conducting hot work operations shall:
1. Inspect the work area and any potentially affected surrounding areas for fire, fire damage or the potential for fire;
2. Contact Physical Plant Electronics Shop at 438-3206 to reactivate smoke and fire alarms disabled because of hot work; and
3. Sign the permit verifying the time of completed hot work.
When hot work is completed, personnel standing fire watch for hot work operations shall:
1. Continue fire watch for a minimum of 30 minutes;
2. Sign the permit verifying the time fire watch finished, effectively closing the permit; and
3. Return the completed permit to supervisor.

Supervisors forward the completed hot works permit to EHSRM through campus mail, or email to safety@sfasu.edu. Once received, EHSRM files the permit utilizing SFA’s record retention policy.

X. **Accident, Injury and Emergency Reporting**

In the event of an emergency, employees should first call 911. Dialing 911 from any University phone will be connected to campus police. Dialing 911 from a cell phone will be connected to the Nacogdoches Police Department. Therefore, it may be pertinent to request to be transferred to the campus police department if experiencing emergencies on campus. The goal of the EHSRM department is zero injuries. However, in the event of an accident or injury, a 24 hour quick link is available at the EHSRM website. This injury reporting system must be completed by the employee’s supervisor or the employee involved in the accident in order to pursue medical treatment through SFA’s workers compensation program. Please contact EHSRM at 468-4514 for details.
Hot work is any operation that generates heat, spark or open flame. This includes, but is not necessarily limited to welding, cutting, grinding, soldering, torch applied roofing, heat gun use and similar activities.

Before initiating Hot Work, determine if there is a safer way to complete the work.

Date: ___________________ Location: ___________________

Timeframe: _______________ Work Order#: ___________________

Type of Hot Work: □ Soldering □ Welding □ Cutting □ Roofing □ Other: ____________

Hot Work Precautions Check List: Complete prior to any hot work beginning in an area not designated for hot work. Check each box where the statement is true. If any statements are not true, then hot work should not begin until that issue has been safely resolved.

**Required Safety Precautions**

☐ Fire suppression sprinklers, fire hoses or fire extinguishers are available and operable.

☐ Hot work equipment is operable and in good repair.

☐ Smoke/fire detectors in the immediate area of the hot work have been temporarily disabled until the hot work is complete.

☐ Building occupants have been protected or isolated from the hot work area.

☐ Drums, barrels and tanks have been cleaned and purged of flammables and toxics, all tank feeds are closed, and the tank is vented.

**Requirements within 35 feet:**

☐ Area within 35 feet of the work area has been properly swept to remove any combustible debris.

☐ Flammable and ignitable materials and debris have been moved at least 35 feet from the hot work area or covered and protected with fire resistant materials.

☐ Cracks or holes in floors, walls and ceilings (including ductwork) are covered or plugged.

☐ Combustible floors covered with fire-resistive material.

**Requirements within 50 feet:**

☐ Explosives, compressed gas cylinders or stored fuels have been moved at least 50 feet from the hot work area or have been protected from the hot work.

**Work on walls or ceilings:**

☐ Construction is noncombustible and has no combustible covering or insulation.

☐ Areas adjacent to walls being worked on are checked for combustibles and any combustibles are either removed or protected.

Supervisor Signature: _______________ Date: __________ Time: __________

Employee Signature (Issued): _______________ Date: __________ Time: __________

**When work is completed:**

☐ Inspected work area, and any potentially affected surrounding areas, for fire, fire damage, or potential for fire.

☐ Reactivated smoke/fire detectors that were disabled because of the hot work.

☐ I verify that the above location has been examined and the necessary precautions have been taken to prevent the outbreak of fire due to hot work.

Employee Signature (Closed): _______________ Date: __________ Time: __________

Fire Watch Required during Hot Work and a minimum of 30 minutes following completion of work.

Name: ___________________ Signature: ___________________ Date: __________ Time: __________

*The fire watch must have fire-extinguishing equipment readily available and be trained in its use. They must also be familiar with the procedures for sounding an alarm in the event of a fire. The fire watch will watch for fires in the exposed areas and are responsible for extinguishing spot fires and communicating alarms immediately. The fire watch may be assigned other work duties while in the hot work area; however, they need to be vigilant in watching for fires.*