Louisiana State University - Facility Services Operating Instruction 4016

HOT WORK

I. Basic precautions for fire prevention in welding or cutting work

A. If possible, the object to be welded or cut should be moved to a designated hot work area. A list of designated hot work areas is kept with the LSU EHS department. A hot work permit is NOT required.

B. If the object to be welded or cut cannot readily be moved, all movable fire hazards in the vicinity shall be removed. A hot work permit NOT is required.

C. If the object to be welded or cut cannot be moved and if all the fire hazards cannot be removed, then guards shall be used to confine the heat, sparks, and slag, and to protect the immovable fire hazards. A hot work permit IS required.

D. If the requirements stated in A, B, or C of this section cannot be followed then a procedure for performing the hot work must be developed and approved by LSU EHS & a Facility Services Director. A hot work permit is required and approval from LSU EHS & Facility Services Director.

II. When the nature of the work to be performed requires the use of fire prevention guards or alternate methods that have been approved by LSU EHS & a Facility Services Director, certain additional precautions may be necessary.

A. Wherever there are floor openings or cracks in the flooring that cannot be closed, precautions shall be taken so that no readily combustible materials on the floor below will be exposed to sparks which might drop through the floor. The same precautions shall be observed with regards to cracks or holes in walls, open doorways and open or broken windows.

B. Suitable fire extinguishing equipment shall be maintained in a state of readiness for instant use. Such equipment may consist of pails of water, buckets of sand, hose or portable extinguishers depending upon the nature and quantity of the combustible material exposed.

C. Fire Watch

1 Fire watchers shall be required whenever welding or cutting is performed in locations where other than a minor fire might develop, or any of the following conditions exist.

a. Combustible material, in building construction or contents, closer than 35 feet to the point of operation.

b. Combustibles are more than 35 feet away but are easily ignited by sparks

c. 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.

d. Fire watchers shall have fire extinguishing equipment readily available and be trained in its use. They shall be familiar with facilities for sounding an alarm in the event of a fire. They shall watch for fires in all exposed areas, try to extinguish them only when obviously within the capacity of the equipment available, or otherwise sound the alarm. They shall use and be trained in the use of gas detection equipment when the possibility of a combustible or flammable gas is present. A fire watch shall be maintained for at least a half hour after completion of welding or cutting operations to detect and extinguish possible smoldering fires.

D. Before any hot work is permitted, the area shall be inspected by the individual responsible for authorizing hot work operations. They shall designate precautions to be followed and authorize hot work operations on the LSU Hot Work Permit. A list of hot work permit authorizers can be found by contacting the LSU EHS department at EHS@LSU.edu or by calling 578-5640.

E. 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 feet. If the floor itself is combustible, it shall be kept wet, covered with damp

sand, or protected by fire resistant shields. Where floors have been wet down, personnel operating arc welding or cutting equipment shall be protected from possible shock.

F. When possible, all combustibles shall be relocated at least 35 feet from the hot work site. Where relocation is not possible, combustibles shall be protected with flame proofed covers.

G. Ducts and conveyor systems that might carry sparks to distant combustibles shall be suitably protected or shut down.

H. Where cutting or welding is done near walls, partitions, ceilings or roof of combustible construction, fire-resistant shields or guards shall be provided to prevent ignition.

I. If welding is to be done on a metal wall, partition, ceiling or roof, precautions shall be taken to prevent ignition of combustibles on the other side, due to conduction or radiation, preferably by relocating combustibles. Where combustibles are not relocated, a fire watch on the opposite side from the work shall be provided.

J. Cutting or welding on pipes or other metal in contact with combustible walls, partitions, ceilings, or roofs shall not be undertaken if the work is close enough to cause ignition by conduction.

K. In areas where combustible or flammable gas may be present, a gas detector shall be used to detect any gases that may be present. If the presence of any gas is detected, hot work must be stopped.

III. Designated Hot Work Areas

A. A designated hot work area is a permanent location designed for hot work. These areas do not require a hot work permit to perform hot work.

B. Designated hot work areas shall be:

1 Inspected and approved by Facility Management and/or EHS
2 Inspected by EHS on an annual basis after being approved
3 Kept free of combustibles and flammables
4 Constructed using non-combustible or fire resistive materials
5 Equipped with fire extinguisher(s)
6 Equipped with mechanical ventilation to control smoke and fumes

IV. Hot Work Permit

A. A hot work permit is required before beginning any work involving electric or gas welding, cutting, brazing, grinding, torch work or similar flame or spark producing operations within 35 feet of LSU buildings or other combustible/flammable material on campus.

B. The hot work permit can be found in the appendix of the operating instruction or on the EHS and Facility Services website.

C. The hot work permit must be filled out and signed by a permit authorizer before hot work can begin.

D. A list of Hot work permit authorizers can be found by contacting the LSU EHS department at EHS@LSU.edu or by calling 578-5640

E. The hot work permit is only valid for the duration indicated on the permit. The hot work permit becomes expired at the end date and time listed on the permit. Hot work permits for multiple days must be initialed by the work crews at the beginning of the new shift verifying permit requirements are still in place.

F. All controls listed on the hot work permit must stay in place and followed for the duration of the hot work permit.

G. If a work crew has already received a hot work permit for their work and the job scope changes or the hot work being performed changes, a new hot work permit must be obtained for the change in work being performed.

V. Hot Work Permit Procedures

A. The supervisor or manager is responsible for identifying Hot Work and making sure work crews are prepared ahead of time for hot work jobs.

B. Work crews are responsible for preparing the work site for hot work and ensuring the Hot Work permit is filled out before the supervisor or Hot Work permit authorizer arrives to the work site.

C. The Hot Work permit authorizer will inspect the work site to ensure all precautions for hot work are in place and the Hot Work Permit is filled out. The Hot Work Permit will not be authorized unless all items on the Permit have been adequately addressed. A list of hot work permit authorizers can be found by contacting the LSU EHS department at EHS@LSU.edu or by calling 578-5640.

D. Hot Work Permits for multiple days are permissible if it is noted on the permit. Work crews are responsible for inspecting work areas and verifying hot work permit requirements are still in place before beginning hot work. Work crews must initial the permit verifying that they have made their daily check.

E. Work crews will be responsible for maintaining the Hot Work Permit and making sure a copy of the permit is attached to the FAMIS work order.

F. If fire detection in the work area was disabled, fire detection must be re-activated immediately following the completion of work.

G. After job completion, work crews will turn their authorized Hot Work Permits into their supervisors.

H. All completed Hot Work Permits shall be turned into the LSU Health & Safety Department.

VI. Training

A. All employees involved in hot work or may be involved with hot work, shall be trained in identifying work that would require a hot work permit, preparing hot work permits and preparing a work site for hot work.

B. Employees who perform fire watch duties shall be trained in the use of a fire extinguisher and the use of gas detecting equipment.

C. Hot work permit authorizers shall be trained in accordance with paragraph A of this section. Hot work permit authorizers shall also be trained on how to verify hot work permits and inspect hot work areas to verify all hazards have been addressed.

D. The LSU EHS Department will provide training.

VII. Examples of hot work

A. Welding

B. Grinding

C. Torch cutting

D. Brazing

E. Soldering

F. Working with an open flame

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HOT WORK PERMIT

A Hot Work Permit is required before beginning any work involving electric or gas welding, cutting, brazing, grinding, torch work or similar flame or spark producing operations within 35 feet of an LSU building or other combustible/flammable material on campus. Hot Work Permits are not required in designated hot work areas.

Can the object to be welded or cut be moved to a permanent hot work designated area? ☐ YES ☐ NO

Can this job be done without the use of hot work operations? ☐ YES ☐ NO

Is the hot work being performed at least 35 feet away from a building or any other combustible or flammable material on campus? ☐ YES ☐ NO

If "YES" was selected for any of the above, a Hot Work permit may not be required.
Contact your supervisor or the LSU EHS Department to verify.

FAMIS Work Order #

Department / Contractor Name

Contact Name Contact Number

Start Date Start Time End Date End Time

Is the work scope and hot work going to remain the same for the entire duration of the job? ☐ YES ☐ NO

If a permit is authorized for multiple shifts, the work area must be inspected by the work crew at the beginning of every shift and initialed below.

☐ Day 1 ☐ Day 2 ☐ Day3 ☐ Day 4 ☐ Day 5 ☐ Day 6 ☐ Day 7

Location of Hot Work or description of area

Description of work

Name of fire watch

Name of Person(s) performing Hot Work

Work Area has been safely prepared for Hot Work ☐

Checklist on the next page has been completed ☐

To get this permit authorized, contact LSU Health & Safety Department at 225-578-4743 or EHS@lsu.edu

Permit Authorizer Name Date Approved

Permit Authorizer Signature _____ Time Approved

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HOT WORK CHECKLIST

Equipment Check

- ☐ Fire extinguishers are in work area, charged, and have proper tagging.
- ☐ If a sprinkler system is in the building, it is in service.
- ☐ All equipment has been inspected and is in good condition.

Requirements within 35 feet of Hot Work

- ☐ Combustible materials, flammable liquids, dusts, lint, and oily deposits removed if possible or have been guarded if they are not removable.
- ☐ If working on combustible/flammable gas lines, a gas meter is located at the work location and no flammable/combustible atmosphere is present.
- ☐ Floors are swept clean.
- ☐ Combustible floors are wet down or covered with fire-resistant guards.
- ☐ All floor and wall openings are covered.
- ☐ Protect or shut-down ducts and conveyors that might carry sparks to distant combustibles.
- ☐ Fire alarm systems & sprinkler systems have been addressed to prevent an unnecessary activation during work.

Work on walls, ceilings, or roofs

- ☐ Construction is non-combustible and without combustible covering or insulation.
- ☐ Combustibles on other side of walls, ceilings or roofs are moved away, protected, or guarded by a second fire watch.

Work on enclosed equipment

- ☐ Enclosed equipment is cleaned of all combustibles.
- ☐ Containers purged of flammable liquids/vapors & atmospheric testing does not indicate an explosion or fire hazard.
- ☐ Pressurized vessels, piping and equipment is removed from service, isolated and vented.

Fire Watch/Hot Work Area Monitoring

- ☐ Fire watch is provided for all hot work occurring within 35 feet of a building or combustibles and 30 minutes after finishing hot work.
- ☐ Fire watch is provided on the opposite side of roof, partitions or walls where hot work is being performed.
- ☐ Fire watch is trained in the use of a fire extinguisher, gas meter, and how to sound the alarm in an emergency.
- ☐ When working in areas that have the possibility of a flammable or combustible atmosphere, a gas tester has been used to verify the atmosphere is safe.
- ☐ Fire watch is supplied with a gas meter for the duration of the hot work when working in areas that could have a flammable or combustible atmosphere.
- ☐ Fire watch is supplied with a fire extinguisher.

Concerns noted during the checklist review

Supervisor Signature _____ Date

AFTER HOT WORK IS COMPLETE

Has a final check been done to ensure the work area is safe? ☐ YES ☐ NO ☐ Checklist Complete

Person who verified Hot Work is complete and area is safe