



Environmental Health and Safety

Hot Work Permitting Program

Permitting Process for Welding, Cutting, and Brazing

Adopted Date: 3-6-07

Revised Date: 2-22-23

Purpose

Hot work operations include tasks such as welding, brazing, torch cutting, grinding, and torch soldering. These operations create heat, sparks and hot slag that have the potential to ignite flammable and combustible materials in the area surrounding hot work activities. The United States averages 12,630 hot work fires annually, resulting in over \$484 million in property damages and 31 deaths per year. A single hot work fire can be devastating, as seen in the hot work fire pictured below. The repairs and restoration work associated with this fire resulted in the expenditure of over \$5 million.

Hot work is frequently performed in St. Lawrence University facilities and the university Hot Work Permitting Program was developed in accordance with OSHA regulations and NFPA recommendations with the goal of preventing hot work fires.



A Hot Work Operator performing hot work.



Photo by Gary Galluzzo, University News Services, University of Iowa

Scope

This policy applies to all faculty, staff, students, contractors and visitors of St. Lawrence University.

Responsibilities

Department Supervisors: Oversee and ensure the Hot Work Permit program procedures are followed for hot work operations conducted by their employees. Supervisors are responsible for designating employees as Hot Work Operators (HWO), who will perform hot work operations. Any employee who has successfully completed hot work safety training, has the skillset necessary to complete the work, may be an HWO. Hot Work Operators are not allowed to issue their own Hot Work Permits.

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. When a fire watch is required, the PAI will designate an employee to serve as Fire Watch. Once all requirements on the form have been satisfied and the form is signed by a PAI, the document becomes a Hot Work Permit and must be posted in the area where hot work is to be performed. Designated PAIs are listed below in this document.

Environmental Health and Safety: Overall program coordination and program review. Issue permits and provide safety training opportunities to HWO and Department Supervisors.

Safety and Security: Provide emergency and other safety services per their normal department procedures.

Definitions

Hot Work: Any task including welding, brazing, cutting, grinding, or soldering which results in spark or excessive heat production which creates a fire hazard.

Hot Work Operator (HWO): Employees who are trained to perform hot work operations. A HWO must obtain a hot work permit prior to beginning hot work.

Hot Work Permit: An official document authorizing the intended use of hot work in a given space at a specific time.

Fire Watch: Designed to monitor safety of hot work operations and to watch for fires. Fire Watches are assigned by the PAI if the situation requires one and shall last for a minimum of 30 minutes upon conclusion of hot work. Any employee who has completed hot work training can serve as the Fire Watch. See below for information on when a fire watch is required.

Designated Hot Work Area: A permanent location for hot work activity that does not require a permit to perform hot work. These areas are designated by the SLU Environmental Health and Safety Department and are inspected periodically.

Process for obtaining a Hot Work Permit

1. A HWO and Department Supervisor determines a need for hot work.
2. The HWO ensures the area around hot work activities follows the safety requirements of the Hot Work Permit.
3. The HWO coordinates with the PAI.
4. The PAI inspects the hot work site and completes the Hot Work Permit Form.
5. The PAI posts a Fire Watch if the situation requires one.
6. Once all permit safety guidelines are satisfied, the PAI signs and posts the permit.
7. The PAI notifies Safety and Security, who records the activity in their logbook.
8. The HWO can then begin hot work.
9. At the end of the job, the PAI notifies Safety and Security. The permit will be kept on file for a period of not less than one year in the EHS Office.

Safety Measures

The 35-Foot Rule:

- All flammable and combustible materials within a 35-foot radius of hot work must be removed.
- When flammable and combustible materials within a 35-foot radius of hot work cannot be removed they must be covered with flame retardant tarps and a fire watch must be posted.
- Floors and surfaces within a 35-foot radius of the hot work area must be swept free of combustible dust or debris.
- All openings or cracks in the walls, floors, or ducts that are potential travel passages for sparks, heat and flames must be covered.

Fire Detection and Suppression

- A fire extinguisher rated not less than 2-A:20-B:C must be readily available and accessible.
- Smoke detection and fire alarms must be operable throughout the building.
- Smoke detectors in the area of hot work may be covered for the duration of hot work to prevent false alarms. These detectors must be restored to normal function immediately upon completion of hot work.
- Automatic sprinkler systems may not be shut down to perform hot work. Instead, individual sprinkler heads in the area of hot work may be covered with a wet rag to prevent accidental activation. If hot work operation extends multiple days, the shields shall be removed at the end of each workday.

Fire Watch

A Fire Watch must be posted by a PAI if the following conditions exist:

- Combustible materials cannot be removed from within a 35-foot radius of the hot work.
- Wall or floor openings within a 35-foot radius of hot work expose combustible materials in adjacent areas, including concealed spaces in walls or floors.
- Combustible materials are adjacent to the opposite side of partitions, walls, ceilings, or roofs and are likely to be ignited.

General Guidelines

- Work should be performed using alternative methods other than hot work whenever possible.
- Hot work should be performed in designated hot work rooms whenever it is practical.
- A Hot Work Permit is valid for one day and one area and must be posted in the area of hot work for the duration of the activity. On multi-day projects, a Hot Work Permit will be needed for each day.
- A copy of every permit shall be filed by the PAI and kept on record in the EHS office for a period of at least one year.

- Cutting and welding operations are restricted to properly trained and authorized individuals only.

Compressed Gas Cylinder Storage and Handling

- Oxygen and fuel gas cylinders must be stored separately with the protective valve caps in place. Except when in use, oxygen and fuel gas cylinders should be stored at least 20 feet apart or separated by a noncombustible wall at least 5 feet high.
- Cylinder carts equipped with a cylinder restraint, such as a chain or strap, must be used for the transporting of all compressed gas cylinders.
- All cylinders must be secured, when stored or in use. Securing devices in storage should prevent the tipping over of the cylinder. When in use, cylinders should remain on a welding cart and be secured to that cart.
- All cylinders not in use must have their protective valve cap in place.
- Regulators must be compatible with the cylinder and its contents. Regulators are gas specific, so ensure the correct regulator is use.

Personal Protective Equipment (PPE)

PPE specifically designed for hot work will be provided to and used by employees performing the hot work in accordance with the SLU Personal Protective Equipment Policy.

Hot Work in Confined Spaces

Performing hot work in confined spaces should be avoided and only performed when other non-hot work repair options are not available, and it is absolutely necessary. Compressed gas cylinders are not permitted in confined spaces. Hot work that must be performed in confined spaces requires a Hot Work Permit **and** a **Confined Space Entry Permit**, which is available on the EHS policies web page. **Contact EHS prior to working in any confined space** to schedule an entry. All confined space entries involving hot work must be scheduled 24-48 hours in advance unless it is an emergency. All confined space procedures must be followed.

When a Hot Work Permit is Required

Designated Hot Work Areas

A designated hot work area is a permanent location designed for hot work. These areas do not require a permit to perform hot work. For an area to be classified as a designated hot work area, it must meet the following requirements:

- It must be of noncombustible fire-resistive construction, essentially free of combustible and flammable contents.
- It must be suitably segregated from adjacent areas.



Designated hot work room

- It must be equipped with fire extinguishers.
- It must be inspected and approved annually by EHS and Facilities Operations.

Operations Not Requiring a Hot Work Permit

Operations that produce a flame, sparks, hot slag or enough heat to ignite combustible materials should be considered hot work with a few exceptions.

The following operations do not require a Hot Work Permit:

- Bunsen burners in laboratories
- Fixed grinding wheels
- Electric soldering irons



A worker using a fixed grinding wheel

If you are unsure if an operation is considered hot work, please contact your immediate supervisor.

Non-permissible Hot Work Situations

Hot work is not permitted when the following conditions exist:

- In sprinklered buildings where the entire sprinkler system is impaired.
- When an entire building fire detection system is shut down.
- In the presence of explosive atmospheres, where mixtures of flammable gases, vapors, liquids, or dusts may exist.
- In tanks, drums or other containers and equipment that contain or previously contained materials that could create explosive atmospheres.

Training

Safety Training

Individuals involved in hot work are required to complete hot work safety training including Supervisors, Permit Authorizing Individuals, Hot Work Operators and Fire Watch personnel. HWO must be capable of performing the work in a safe and proper manor. The following EHS courses must be completed:

Hot Work Permit Training – Required upon initial assignment and refresher training required every 5 years, conducted by EHS.

Fire Extinguisher Training – Required once a year. Hands-on training must be completed initially with Hot Work Permit Training, with refresher training offered as necessary. This training will be scheduled by the EHS office.

Departmental Training

Department Supervisors shall train employees on departmental Hot Work Permit procedures and specific safety procedures for the type of hot work equipment used. This training shall be completed upon initial assignment and cover the following subjects:

- Safety procedures specific to the equipment used.
- Required personal protective equipment for job tasks.
- Identification of Permit Authorizing Individuals and how they can be contacted
- Where to file copies of completed Hot Work Permits.
- Locations of designated hot work locations where a Hot Work Permit is not required.

Hot Work in Academic Programs

The welding studio in the Griffiths Art Center (Barnes Family Sculpture Yard) is a designated hot work area. This location does not require a permit to perform hot work. The faculty member in charge of the studio must be present and provide safety training to anyone performing hot work in that area. All students working in the studio must be trained to use a fire extinguisher, and follow all other guidelines provided by the Art Department's Safety Handbook prior to performing hot work.

Academic Contacts:

Amy Hauber - Assistant Professor, Fine Arts

Brian Berg - Machine and Art Shop Manager

Rachael Jones - Visiting Assistant Professor, Art, and Art History

Hot work requirements for contractors

Outside contractors working on the St. Lawrence University campus are required to have Hot Work Safety Procedures as a part of their project safety programs. Contractors working on projects at St. Lawrence University are required to follow their approved Hot Work Safety Plan. Contractors are required to submit their written Hot Work Safety Plan to the Environmental Health & Safety Department for review and approval. This review must be completed prior to the contractor starting any hot work. Contractors are required to notify Safety and Security prior to beginning any hot work and after completion. **A separate permit issued by St. Lawrence University is not required.**

Permit Authorizing Individuals (PAIs)

Nick Ormasen - Executive Director of Business Services & EHS

Suna Stone - Environmental Compliance and Chemical Hygiene Officer

Dean Manley - Environmental Health and Safety Coordinator

* The personnel listed above may delegate permit authorizing authority to Facilities Management in case of an emergency.

Designated Hot Work Areas

Facilities Operations - Plumbing Shop
Facilities Operations - Vehicle Maintenance Shop
Barnes Family Sculpture Yard-Welding Studio
Appleton Skate Sharpening Room
Central Heating Plant

Program Contacts

Environmental Health and Safety

Nick Ormasen, Executive Director of Business Services & EHS
(315) 229-5303, Nick@stlawu.edu

Dean Manley, EHS Coordinator
(315) 229-5339 dmanley@stlawu.edu

Suna Stone, Chemical Hygiene and Environmental Compliance Officer
(315) 229-5105 smcmasters@stlawu.edu

Safety and Security

Dispatch
(315) 229-5555 security@stlawu.edu

Policy Review

Name	Date	Changes
Suna Stone	2/23/15	Update names of PAIs
Bill Ritchie	7/18/16	Revisions made at recommendation of NYS OFPC
Nick Ormasen, Dean Manley	12/9/22	Name updates and minor program revisions
Nick Ormasen, Dean Manley, Suna Stone, Pat Gagnon, Facilities Management	2/22/23	Periodic program review

HOT WORK PERMIT

Page 1 of 2

Environmental Health & Safety Phone 315-229-5339 or 315-229-5303

Date:	Building:
Location:	
Work To Be Done: Abrasive Saw / Cut Grind Heat Tile Solder Welding _____ (type) Other _____	Fumes / Vapors Location of nearest air intake: Type of control in place to prevent spread of fumes/vapors in air intake:
Permit Valid: From: _____ To: _____	
Start Time:	Completion Time:
Hot Work Operator:	Supervisor Name & Cell#:
Department:	Person Responsible for Fire Watch:
Permit Authorizing Individual Authorization:	
Security Acknowledgement:	
<p>Immediately upon completion of work notify</p> <p>Security and Safety – 315-229-5555</p> <p>Hot work before 8 am and after 3:30 pm requires approval 24 hours in advance.</p> <p>EMERGENCY 315-229-5555 or 911</p>	

The following items are the responsibility of the holder of the Permit:

1. The location where the work is to be done must be inspected by approved Permit Authorizing Individual prior to commencement of work and on completion of work.
 - Sprinkler system, or fire detectors, shall be in service while work is in progress. If systems (whole or partial) must be shut down, notify Security and Safety so a fire watch is initiated.
 - There is no flammable lint, dust, vapors and liquid, or un-purged tanks or equipment previously containing such material in the area.
 - This work is confined to the area or equipment specified in the permit.
 - Floors and surroundings have been swept clean.
2. The following safeguards have been provided:
 - All combustibles have been protected with fire resistant curtains, metal guards or flameproof covers.
 - All floor and wall openings within 35 ft of the operation have been covered.
 - Responsible persons have been assigned to watch for dangerous sparks in the immediate vicinity as well as on the floors above and below.
3. Flame or spark producing equipment to be used has been inspected and found in good repair.
4. Engineering controls must be provided to prevent fumes / vapors from entering air intakes or affecting building occupants.
5. Arrangements have been made for a patrol of the area including floors above and below during any lunch or rest period and for at least 30 minutes after work has been completed.
6. No guy ropes or support lines will be fastened to or passed over sprinkler lines.
7. Hot Work Operator will use adequate fire protection, fire resistant blankets, fire extinguishers and other devices, which may be required by the operation, 10# ABC minimum.
8. Compressed gas cylinders will be secured on approved carriers or holders. Cylinders will always be in upright position.
9. Equipment will be removed upon completion of the job.
10. Proper signs and barriers will be maintained in order to protect life safety.
11. No confined space will be entered without a Confined Space Permit.
12. Fire watch to be reasonable distance to allow for quick response to a problem.
13. OSHA/ NFPA compliance is mandatory.
14. Verify all energy sources have been isolated.
15. Notify Campus Security and Safety upon completion of Hot Work Permit.

EMERGENCY 315-229-5555 or 911