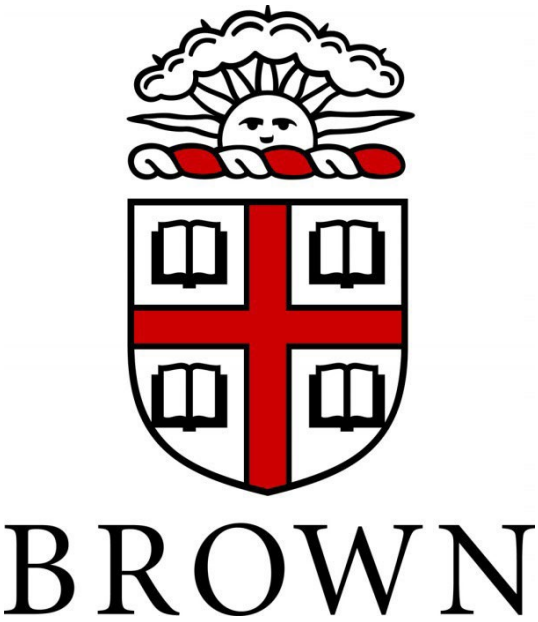

BROWN

Hot Work Program

Prepared By:
Environmental Health & Safety
401-863-3353

TABLE OF CONTENTS

1 PURPOSE

The University has established a Hot Work Program to minimize the potential for a fire incident to occur as a result of hot work on campus. This purpose is consistent with the loss prevention approach of the Office of Environmental Health and Safety.

1.1 Guidance

This policy shall provide guidance for all persons, including staff, outside contractors, project managers and property managers, who manage, supervise, and perform hot work.

2 SCOPE

The following procedures have been established to ensure that hot work will be done safely on Brown University property. The program establishes procedures, responsibilities, and a permit system to support safe work and reduce risk.

2.1 Loss Prevention

This policy shall cover provisions to prevent loss of life and property from fire or explosion as a result of hot work. All hot work fires are preventable.

3 APPLICATION

This standard shall apply to the following hot work processes:

- Welding and allied processes
- Heat treating
- Grinding
- Thawing pipe
- Brazing
- Soldering
- Torch-applied roofing in conjunction with the requirements of NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations*
- Similar applications producing or using a spark, open flame, or heat guns

3.1 Other Processes

This standard shall not apply to the following:

- Candles
- Pyrotechnics or special effects
- Cooking operations
- Electric soldering irons
- Design and installation of gas cutting equipment and welding equipment covered in NFPA 51, *Standard for the Design* and Installation of Oxygen–Fuel Gas Systems for Welding, Cutting, and Allied Processes
- Heat producing gas burners used in laboratories as part of normal research activities

- Additional requirements for hot work operations in confined spaces
- Lockout/tag out procedures during hot work

3.2 Permissible Areas

Hot work shall be permitted only in areas that are, or have been made fire safe. A permit is required for both interior and exterior hot work, anywhere on Brown property.

3.2.1 Designated or Temporary Permit-Required Areas

Hot work shall be performed in either designated areas or permit-required areas. Permit required areas shall be permitted on a case by case basis and shall have a designated end date noted on the permit.

.

3.2.2 Designated Areas

A designated area shall be a specific area designed or approved for hot work, such as a maintenance shop or a detached outside location that is of noncombustible or fire-resistive construction, essentially free of combustible and flammable contents, and suitably segregated from adjacent areas. These areas are fixed locations. Signs shall be posted.

3.2.3 Temporary Permit-Required Areas

A permit-required area shall be an area that is made fire safe by removing or protecting combustibles from ignition sources. These are temporary areas where equipment is typically rered or fabricated in place. The permit shall be visibly posted.

3.2.4 Non-permissible Areas

Hot work shall not be permitted in the following areas:

- In areas not authorized by management
- In sprinkled buildings where sprinklers are imred, unless the requirements of NFPA25, *Standard for the Inspection,* Testing, and Maintenance of Water-Based Fire Protection *Systems*, are met
- In the presence of explosive atmospheres (i.e., where mixtures of flammable gases, vapors, liquids, or dusts with air exist)
- In the presence of uncleansed or improperly prepared equipment, drums, tanks, or other containers that have previously contained materials that could develop explosive atmospheres
- In areas with an accumulation of combustible dusts that could develop explosive atmospheres

3.3 Responsibility

All persons performing hot work on Brown University property must be familiar with, and qualified to operate the hot work equipment. Managers, supervisors and contractors that have staff performing hot work shall be familiar with the policy, procedures and precautions needed to perform hot work safely.

3.3.1 Mutual Responsibility

Management, contractors, Brown Fire Safety, the fire watch, and the hot work operators shall recognize their mutual responsibility for safety during hot work operations.

3.3.2 Shop and Designated Area Supervision

Designated hot work areas such as various rer shops or fabrication areas shall be placarded. The name and contact information of the person responsible for the area shall be displayed on the placard.

3.3.3 Fire Safety Office

The Fire Safety Office shall maintain a current list of designated hot work areas and provide support and training as requested or needed. The Fire Safety Office shall inspect these areas for compliance at least annually.

3.4 Plan Management

Under Brown University Environmental Health & Safety (EH&S), the Fire Safety Office shall have overall responsibility for the management, application and administration of the hot work program.

3.5 Prior to Requesting a Hot Work Permit

3.5.1 Alternative Methods

Prior to performing hot work an evaluation should be performed to determine if there are safer, alternative methods available instead of hot work, or if the equipment requiring hot work could be moved to an outside location or a safer environment. Pro Press instead of soldering, using a sawzall rather than a grinder, or bolting instead of welding are a few examples of alternative methods.

3.5.2 Fire Alarm Concerns

Requests to have smoke detectors removed or covered should be submitted to Facilities Management through the appropriate Responsible Person. The Hot Work Operator is responsible for confirming that any fire alarm bypass needed to perform the work is in place prior to the beginning of hot work. All fire alarm bypasses and alterations shall be performed under the supervision of Division 3 (electrical).

3.5.3 HVAC Concerns

Prior to requesting a permit, the area to be permitted should be reviewed for HVAC and air movement concerns. If the hot work will generate considerable smoke or odors, the air intakes for that space may need to be covered. All alterations to HVAC flow and equipment shall be performed under the supervision of Division 8 (HVAC).

3.6 Permitting Process

The Fire Safety Office shall be responsible for issuing and tracking all hot work permits. The Fire Safety Office staff shall assume the role of the Permit Authorized Individual ().

3.6.1 Hot Work Request/ Notification

Notifications for planned hot work shall be made at least twenty-four (24) hours in advance via email to the Fire Safety Office at fire_safety@brown.edu with the words “Hot Work” in the subject line **or** call the Fire Safety Office at (401) 863-3462 and speak with a staff member. This request should come from a Hot Work Operator (the person performing the task) or the Responsible Person overseeing the task or project. Emergency work will be permitted on a case by case basis.

3.6.2 Required Information

The following information is required for all hot work permits:

- The names of the hot work operator and the fire watch
- The company (or division if employed by Brown) that the hot work operator is employed by
- The responsible person who provides general oversight. This would be a supervisor or general contractor.
- The building and exact location such as room number or name
- The type of hot work to be performed
- The date(s) and time(s) that the work is expected to be performed

***Permission to proceed must be received with a valid control number from the Fire Safety Office.**

3.6.3 Emergency Requests

Emergency requests for hot work will be handled on a case by case basis. Contact the on-duty fire safety officer for assistance.

3.6.4 Training

The Fire Safety Office will provide hot work training to staff and contractors upon request and scheduling.

3.7 Parent Permits for Long Term Projects

Parent permits may be issued to contractors doing long term projects on a case by case basis, at the discretion of the Fire Safety Office.

- One parent permit will be issued to the general contractor of record**,** per project.
- A site foreman or superintendent shall be designated as the Permit Authorizing Individual (PIA) for that project. The PIA shall be responsible for issuing individual permits on a daily basis, as needed, to all contractor staff and subcontractors under his supervision.
- Individual permits shall be issued for each, separate hot work operator.
- The PIA shall assume responsibility for the safe practices as outlined in this document, and the completion of all paperwork related to the hot work practices under his supervision.
- The PIA shall notify the Fire Safety Office prior to the start of any daily hot work using the spread sheet provided by the Fire Safety Office.

3.8 In House-Brown University Staff Hot Work Operator

It shall be the responsibility of each Facilities Management trade supervisor or manager to ensure that any staff member working under them has received the appropriate training prior to performing hot work. In addition, staff shall be directed on the process and expectations for obtaining a hot work permit.

3.9 Contractors and Vendors Hot Work Operator

It shall be the responsibility of each contractor to ensure that anyone performing hot work for their company directly, or as a subcontractor working under them, has received the appropriate training prior to performing hot work.

3.10 Hot Work Operator

The Hot Work Operator shall be suitably trained and familiar with all hot work procedures, equipment and precautions. Do not conduct any hot work operations without a dedicated fire watch in place.

3.10.1 Hot Work Operator Requirements

- The Hot Work Operator shall have a permit and authorization from the Fire Safety Office prior to starting.
- The Hot Work Operator shall ensure that all related equipment is in good condition and working order and in place prior to starting operations. (See Equipment)
- Hot work shall not begin until the fire watch is in place.
- Floors shall be swept clean prior to hot work operations.
- Exposed combustibles within 35 feet shall be covered with fire resistant blankets.

The individual(s) performing hot work shall be responsible ensuring the presence of a continuous fire watch during all hot work, through any breaks, and for a minimum of 60 minutes after all hot work has been completed in any building provided with smoke detection.

In buildings without smoke detection, a fire watch in the hot work area shall be maintained for a minimum of 4 hours following completion of the work.

A charged 10 lb. ABC dry powder fire extinguisher will be maintained in the area of the hot work at all times. The person performing the hot work is responsible for providing a fire extinguisher. A charged garden hose may also be required.

Persons performing hot work shall make themselves aware of the location of the nearest fire alarm pull station, so any fire can be reported immediately. In the event of a fire the worker should activate the pull station and immediately call Brown Public Safety at (401) 863-4111 to describe the location and nature of the fire.

A "**WARNING-HOT WORK IN PROGRESS-WATCH FOR FIRE**" sign must be posted in the hot work area while work is in progress. This sign is located on the back of the **Hot Work Permit** issued by the University Fire Safety Office.

3.11 Responsibilities for Persons Performing Hot Work

3.11.1 University Employees and Contractors performing hot work shall:

- Obtain hot work permit from the University Fire Safety Office.
- Read and check all requirements before starting any hot work operation.
- Make necessary arrangements for equipment shutdowns to prevent false fire alarms. Call FM Service Response at 3-7800 to request a fire alarm shutdown.
- Set up a fire watch for the area while hot work is in progress and for at least 60 minutes after its completion.
- Up to a four-hour fire watch may be required for areas without smoke detection.
- Return the completed (signed) hot work permit to the Fire Safety Office after the work is completed.

3.11.2 Environmental Health and Safety – Fire Safety Office Will:

- Develop and revise this policy as needed
- Respond to locations whenever a fire safety problem exists, to provide advice
- Ensure the presence of fire protection equipment in all hot work areas
- Ensure that all University fire watch personnel are proficient in the use of fire extinguishers
- Issue hot work permits, upon request
- Provide training to Facilities Management personnel on the hot work safety program

Facilities Management will:

- Obtain Hot Work permits from the University Fire Safety Officer for their work or the work of their hired contractors, as needed.
- Provide fire alarm system shut downs and HVAC support, as needed.
- Make notification to Brown Department of Public Safety and the Fire Safety Officer when any fire alarm or sprinkler systems are shut down in the same building as the active hot work, and again when the equipment is restored to normal condition.

4 FIRE WATCH

4.1.1 Fire Watch Responsibilities During Hot Work

A fire watch shall be required anytime hot work is performed on campus property. This is usually a small, restricted area. Sprinkler imrments are not allowed during hot work operations. See Section 3 for a list of hot work operations.

4.1.2 Situational Awareness

The fire watch is responsible for being familiar with the hot work process and his surroundings, including:

- Inspect the area for any hazards or restrictions
- Do not allow accumulation of combustibles
- Marked aisles, egress pathways and exits shall be kept clear of congestion and materials at all times

- Identify the two closest exits to make sure that they are kept clear
- Identify the location of the nearest fire alarm pull station
- Identify the closest building fire extinguisher. (This should be left in place unless needed. The hot work operator is responsible for providing his own fire extinguisher.)
- All fire watch personnel shall have communications such as radios or cell phone.

4.1.3 Supervision of Hot work

The fire watch shall be responsible for maintaining a safe environment. The fire watch should not leave the watch for any reason without having another qualified person taking over. This includes breaks and lunch. All hot work shall be supervised and inspected for a minimum of sixty (60) minutes after the completion of the hot work, unless otherwise noted on the permit. Longer durations may be applied if there are no smoke detectors present or conditions warrant longer supervision.

4.1.4 Duties

The fire watch for hot work shall be responsible for the fire safety and compliance guidelines specified herein. Hot work is usually confined to a small area where the work involves a single component with a short duration, or multiple components requiring extended hot work. Ensure that all hot work equipment is in good working condition, including fire extinguishers.

4.1.5 Authority

The fire watch shall have the authority to halt any hot work operation due to unsafe practices, the introduction or discovery of combustibles, increased hazards or any other reason that the fire watch considers the operation has an increased risk.

4.1.6 Removal and Protection of Combustibles

The fire watch shall ensure that there are no combustible or flammable materials within thirty-five feet (35’) of the hot work. As this is not always achievable, materials may be covered or protected with the use of fire resistive, blankets, tarps, curtains or shields. Fixed combustibles, such as wood floors or walls shall be covered and/or wet down.

4.1.7 Operational Equipment

The fire watch shall have a dedicated, compliant, Class A (water) or Class ABC (dry chemical) fire extinguisher on hand. This shall not be one of the building fire extinguishers. In some cases, a charged garden hose may be allowed or additionally required, dependent on the risk involved. The fire watch shall have a cell phone or working radio communications available for notifications.

4.1.8 Permitting

A hot work permit is required from the Fire Safety Office prior to the start of any hot work. This is the responsibility of the hot work operator. The fire watch shall review the permit for any special instructions and make sure it is noticeably displayed during hot work. operations. Please refer to the Hot Work Policy for further information.

5 DEFINITIONS

- **Designated Area-** A permanent location designed or approved for hot work operations.
- **Fire Watch** – A temporary set of measures intended to ensure continuous and systematic surveillance of a building, or portion of a building, by one or more qualified individuals for the purpose of identifying and controlling fire hazards, detecting early signs of unwanted fire, initiating an alarm of fire, and notifying the fire department.
- **Hot Work**- Any temporary operation involving open flames or which produces heat and/or sparks. Work involving burning, welding, or a similar operation that is capable of initiating fires or explosions.
- **Hot Work Operator-** The person performing the actual hot work and who is trained or licensed, as required, to perform such duties.
- **Management-** For the purpose of hot work, all persons, including owners, contractors, educators, and so on, who are responsible for hot work operations.
- **Permit-** A document issued by the authority having jurisdiction for the purpose of authorizing performance of a specified activity.
- **Permit Authorizing Individual ()-** The individual designated by management to authorize hot work. This will be the Fire Safety Office
- **Responsible Person-** The individual who is generally responsible for the oversight of the person performing the hot work. This could be a contractor, construction manager, supervisor, project manager or another designated individual. This is not the fire watch personnel.
- **Welding and Allied Processes.** Processes such as arc welding, oxy/fuel gas welding, open-flame soldering, brazing, thermal spraying, oxygen cutting, and arc cutting.
- **Welding Blanket-** A heat-resistant fabric designed to be placed in the vicinity of a hot work operation. Intended for use in horizontal applications with light to moderate exposures such as that resulting from chipping, grinding, heat treating, sand blasting, and light horizontal welding. Designed to protect machinery and prevent ignition of combustibles such as wood that are located adjacent to the underside of the blanket.
- **Welding Curtain-** A heat-resistant fabric designed to be placed in the vicinity of a hot work operation. Intended for use in vertical applications with light to moderate exposures such as that resulting from chipping, grinding, heat treating, sand blasting, and light horizontal welding. Designed to prevent sparks from escaping a confined area.
- **Welding Pads-** A heat-resistant fabric designed to be placed directly under a hot work operation such as welding or cutting. Intended for use in horizontal applications with severe exposures such as that resulting from molten substances or heavy horizontal welding. Designed to prevent the ignition of combustibles that are located adjacent to the underside of the pad.

6 REFERENCES

NFPA 1 – Uniform Fire Code, 2018 Edition and its Amendments, as adopted by the State of R.I.

NFPA 51B – Standard for Fire Prevention During Welding, Cutting and Other Hot Work, 2014 Edition

AXA XL Hot Work Permitting- Various Documents