
Hot Work Program



DARTMOUTH

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Section 1 - Scope

This program includes all aspects of a Hot Work Program described in 29 CFR 1910.252, 29 CFR 1926.352, NFPA Code 51B, and by Factory Mutual (FM) Insurance Company "Hot Work Guidelines." The procedures contained in this Program apply to all employees (including student employees), property managers, and outside contractors working at Dartmouth College. The Department of Environmental Health and Safety provides oversight for this Program.

Section 2 - Purpose

To provide written procedures to prevent the outbreak of fire, fire alarm activations, and smoke and odor migration in buildings resulting from any temporary operation involving open flames or producing heat and/or sparks.

This includes, but is not limited to, brazing, cutting, grinding, torch soldering, thawing pipes, torch-applied roofing, and welding.

Section 3 - Definitions

Fire Watch – A trained individual stationed in the hot work area who monitors the work area for the beginnings of potential, unwanted fires both during and after hot work. Individuals must be trained and familiar with the operation of portable fire extinguishers and methods to activate building fire alarm systems.

Hot Work – Any operation producing flame, sparks, or heat, including cutting, welding, brazing, grinding, sawing, torch soldering, thawing frozen pipes, applying roof covering, etc.

Hot Work Permit – A special permit that authorizes "Hot Work" activities at a specific location and time. The permit, which is available from the Environmental Health and Safety Hot Work Permit site <http://ehs.psu.edu/hot-work/forms>, will be properly filled out, displayed on site, and returned to the employee's 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.

Section 4 - Roles and Responsibilities

The Hot Work Program roles and responsibilities are identified and delineated in this section. The success of the Hot Work Program relies on and charges Dartmouth employees and Contractors to adhere to, follow, and provide full support of this Program.

4.1 Environmental Health and Safety (EHS)

- Develop, implement, and maintain an OSHA-compliant Hot Work Program.
- Provide Hot Work procedures training for employees.

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- Periodically audit operations, documentation, and training records.

4.2 Facility Managers, Department Heads, and/or Supervisors

- Provide management commitment and operations support for successfully implementing and maintaining the Hot Work Program.
- Implement the Hot Work Program and provide the necessary tools for adherence to the Program.
- Identify employees who may perform hot work as defined in the Program.
- Ensure employee participation in hot work training.
- Collect and review Hot Work Permits and send them to EHS at the end of each month.
- Ensure employee compliance with procedures.

4.3 Employees

- Attend hot work training.
- Be thoroughly familiar with Hot Work procedures.
- Adhere to all hot work procedures.
- Complete Hot Work Permit.
- Provide a four-hour fire watch.

4.8 Contractors

Contractors shall always comply with OSHA 29 CFR 1910.252 and 1926.352 requirements.

- Responsible for ensuring their employees and subcontractors are adequately trained in all aspects of conducting Hot Work safely, including individual completion of approved Hot Work Training.
- Obtain blank Hot Work Permits from Environmental Health and Safety at 37 Dewey Field Road. The permits are located outside room 115.
- For call-in or emergency hot work, Hot Work Permits can be obtained from the Troubleshooters. The Contractor or the Troubleshooters are expected to complete the four-hour fire watch, which must be decided before the beginning of hot work.
- Ensure a fire watch is always present before beginning the Hot Work and provide a four-hour fire watch.
- Provide completed Hot Work Permits to the Project Manager or Environmental Health and Safety after the project/work.

Section 5 – Hot Work Operational Requirements

Hot work should not be done if the work can be avoided or performed more safely.

When practical, welded, cut, or heated objects should be moved to a designated safe location, i.e., maintenance shops.

If hot work must be performed, a Hot Work Permit must be completed.

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All precautions on the Hot Work Permit must be met before any work commences. The supervisor or the employee performing the hot work will complete the permit.

The Hot Work Permit is only suitable for the date specified on the permit.

The Hot Work Permit must be displayed at the site during all hot work activities.

All building occupants must be suitably protected against hazards generated by the work. E.g., heat, sparks, fumes, welding rays, etc.

5.1 Before Hot Work Begins:

- An appropriate fire extinguisher must be available and operable.
- Flammable and ignitable materials and debris must be moved at least 35 feet from the hot work area or covered and protected from the hot work by fire-resistant material.
- Explosives, compressed gas cylinders, or stored fuel must be moved at least 50 feet from the hot work area or covered and protected from the hot work by fire-resistant material.
- Smoke and fire detectors in the immediate area of the hot work must be temporarily disabled until the hot work is completed.
- Adequate ventilation is used (especially when cutting or welding materials with painted or metal-coated surfaces).
- Building occupants have been protected or isolated from the hot work area.
- Cracks or holes in floors, walls, and ceilings (including ductwork) are properly covered or plugged.
- Hot work equipment is operable and in good repair.
- Drums, barrels, and tanks have been cleaned and purged of flammables and toxics, all tank feeds are closed, and the tank is vented.
- A Fire watch is implemented if conditions warrant. A fire watch is not required if no fire hazards or combustible exposures are present.
- Workers and Fire Watch personnel are trained to use fire extinguishing equipment and sound a fire alarm.

5.2 When Hot Work is Complete:

- The work area and any potentially affected surrounding areas are inspected for fire, fire damage, or the potential for fire for a minimum of 60 minutes following completion of the hot work.
- Smoke/fire alarms disabled because of hot work are reactivated.
- Hot Work Permit is closed out.
- The completed permit is returned to the worker's supervisor, who then submits the completed permit to the Environmental Health and Safety Office.

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Section 6 - Employee Training

All employees involved with hot work must be trained to ensure their knowledge, understanding, and skills necessary for the safe performance of their duties. Training describes the necessary measures and precautions that must be taken when conducting hot work. Employee training records showing the training date, employee attendance, and the name and signature of the instructor(s) will be maintained by EHS.

6.1 Training Includes

The hot work training must include the following (but is not limited to):

- Definition of hot work.
- Definition of Hot Work Permit.
- Dartmouth's Hot Work Program.
 - Activities that produce heat or sparks, such as welding, cutting, and brazing.
- Safe work practices.
- Identifying hazards:
 - An understanding of the potential risks involved in hot work environments.
- Safety precautions:
 - An understanding of the necessary precautions to prevent fires and injuries.
- Roles and responsibilities:
 - An understanding of the duties of workers, supervisors, and fire watchers during hot work operations.
- Emergency preparedness:
 - An understanding of how to be prepared for emergencies and respond effectively.

6.2 Training Frequency Initial/Re-training

Initial training is required for each employee involved in hot work operations before they are assigned hot work duties.

Supervisors are responsible for ensuring employees attend hot work re-training whenever one of the following situations occurs:

- Whenever there is a modification to the Hot Work Program, Hot Work Permit, or employee duties.
- If a review finds inadequacies in the Hot Work Program, all affected employees will be informed of changes.

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- There is a change in hot work operations that presents a hazard in which an employee has not been previously trained.
- If the employer has reason to believe that proper hot work procedures are not being followed.
- A supervisor has reason to believe an employee's knowledge or use of these procedures and plans is inadequate.
- If changes in the OSHA rule occur.
- Annual refresher training is required for employees who perform hot work or are designated as a fire watch.

Section 7 – Fire Watch

A person or persons who are responsible for standing by during hot work operations to prevent unwanted ignition or heating of materials. Where applicable, more than one fire watch may be required due to work involving multiple areas and/or levels. The fire watch will have a serviceable fire extinguisher nearby and immediately stop work in the event of unwanted ignition. A fire watch is required for any job requiring a permit and whenever welding or cutting is performed in locations where any of the following conditions exist:

7.1 Fire Watch Required

- Appreciable combustible materials, ignitable by sparks or slag, are closer than 35 feet to the point of operation.
- Wall or floor openings within a 35-foot radius expose combustible materials in adjacent areas, including concealed spaces in walls or floors.
- 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.

7.2 Personnel Performing Fire Watch

- Must be trained to understand the inherent hazards of the work site and of the hot work.
- Must have fire-extinguishing equipment readily available and be trained in the use of fire-extinguishing equipment.
- Ensure safe conditions are maintained during hot work operations.
- Has the authority to stop the hot work operations if unsafe conditions develop.
- Will be familiar with facilities for sounding an alarm during a fire.
- Shall watch for fires in all exposed areas, sound the alarm if necessary, and try to extinguish them only when obviously within the capability of the equipment available.
- Will have no other primary function.
- Fire watches shall be continuously maintained for one hour after work is complete.
- Fire watch shall be periodically maintained for three hours after completing the initial one hour.
 - This requires the FO&M, Contractor, or Troubleshooter to come back each hour and conduct the post-hot work inspection.
- Will know the location of the nearest phone and the Dartmouth Department of Safety and Security number. 603-646-2000.

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