

Hot Work Program



Idaho State University

Environmental Health, Safety, and Sustainability

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ROAR



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1.0 Purpose

This program establishes written procedures to prevent fires, personal injury, and property damage resulting from temporary operations involving an open flame or that produce heat, sparks, or hot slag.

2.0 Scope

This program applies to hot work performed at all Idaho State University (ISU) facilities including, but not limited to; welding, brazing, cutting, grinding, soldering, thawing frozen pipes by torch, and other torch applied activities.

2.1 Definitions:

- **Competent person** means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
- **Contracted Business Partner** contractor or subcontractor working on behalf of the university.
- **Designated hot work area** is defined as a permanent location designed for hot work.
- **Employee** means faculty, staff or contract worker, working for, or on behalf of the university
- **EHSS** Environmental Health Safety and Sustainability
- **Exhaust ventilation system** is a system for removing contaminated air from a space, comprising two or more of the following elements
 - (A) Enclosure or hood,
 - (B) Duct work,
 - (C) Dust collecting equipment,
 - (D) Exhauster, and
 - (E) Discharge stack.
- **Fire Watch** is a trained individual stationed in the hot work area who monitors the work area for 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.
- **Hood** means a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.
- **Hot Work** is any operation producing flames, sparks or heat including, but not limited to, cutting, welding, brazing, grinding, sawing, torch soldering, thawing frozen pipes, applying roof covering etc.
- **Hot Work Permit** is 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 employees’ 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.

- **NFPA** National Fire Protection Association
- **NIOSH** National Institute for Occupational Safety and Health
- **OSHA** Occupational Safety and Health Administration
- **Qualified Person** means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.
- **Supervisor** is a person, designated by the university, who is in charge of a group of people or an area of work, and is someone who is held accountable to ensure work is done correctly and according to ISU policies and procedures.
***Contracting Supervisor** means the person designated by a Contractor to oversee Contractor's employees in the performance of the work under contract to ISU.
- **University** means Idaho State University.
- **Ventilation** is a method of controlling the environment with air flow.

3.0 Responsibilities

3.1 University Leadership

- Support designated leadership in the implementation of the Hot Work Program.
- Provide resources to ensure compliance with the Hot Work Program.
- Require contractors to work in accordance with ISU EHSS Hot Work Program.

3.2 Deans, Directors, Department Heads, Managers, and Supervisors

- Assume responsibility for the safe use of hot work equipment in their operational unit.
- Determine who is a qualified person.
- Establish designated areas for hot work.
- Ensure hot work procedures are being implemented and followed by all employees & students.
- Require contracted business partners to follow this program.
- Idaho State University project managers are responsible for ensuring that outside contractors follow hot work procedures when working on ISU campuses.
- Provide a system for maintaining hot work permit copies and reporting to EHSS.
- Issue Hot Work Permit prior to the start of work.
- Ensure Hot Work Permits are displayed in proximity to hot work location prior to commencement of hot work.
- Ensure that all hot work equipment is in satisfactory condition and in good repair.

- Ensure that employees and students are suitably trained in the operation of hot work equipment and this program.

3.3 Environmental Health, Safety, and Sustainability (EHSS)

- Update Hot Work Program as needed.
- Ensure Deans, Directors, Department Heads, Managers, and Supervisors are trained in the operation of hot work equipment and this program.
- Provide assistance with program implementation and administration.
- Develop and conduct Hot Work Program training.
- Determine ventilation requirements.
- Conduct exposure assessments.
- Communicate with all parties involved in hot work.
- Maintain copies of Hot Work Permits for one year.
- Inspect designated hot work areas.
- Ensure that all hot work-related exhaust and ventilation equipment is designed, constructed, maintained and operated according to the original design specifications.
- Ensure local exhaust ventilation is sufficient to remove dusts, fumes, vapors, or gases produced by hot work processes and convey them away from all employees and building occupants.
- Determine who is a qualified and competent person.
- Determine if fire watch is needed and designate the competent person.

3.4 All Employees and Students

- Follow and use hot work procedures.
- This person should work under the supervision of a qualified person.
- Obtain a Hot Work Permit prior to starting work.
- Ensure Hot Work Permit is displayed in proximity to hot work location.
- Ensure that all hot work equipment is in satisfactory condition and in good repair.
- Attend and actively participate in hot work training sessions.
- Protect nearby personnel and passersby against heat, sparks, and etc. when working in occupied buildings.
- Inspect hot work area and remove combustible materials prior to starting hot work.
- Wear and maintain all required PPE.
- Ensure Fire Watch is in place and is a competent person.

3.5 Fire Watch

- This is a designated competent person appointed by a qualified person.
- Be properly trained in the duties of a Fire watch by a qualified person.
- Ensure proper firefighting equipment is readily available.

- Locate the nearest fire alarm pull station.
- Ensure a Hot Work Permit is visible.
- Inspect hot work area for combustible materials before any hot work is conducted.
- Extinguish fire only when within trained capabilities to safely do so.
- Stay on watch at least one hour after hot work has been completed.
- In case of unextinguished fire, activated the closest fire alarm pull station to ensure the building is evacuated.

3.6 Contractors

- Identify and become familiar with local, state, and federal rules and regulations governing activities within the scope of their work for ISU.
- Comply with all local, state, and federal rules and regulations including this program.
- Outside contractors must be able to provide a hot work program and or permit upon request by EHSS.
- If program or permit are not available, outside contractors may rely on the programs and permits set forth by ISU EHSS department.

4.0 Regulatory Basis

- 1960.9 - Supervisory responsibilities. Basic Program Elements for Federal Employee Occupational Safety and Health
 - <https://www.osha.gov/laws-regs/regulations/standardnumber/1960/1960.9>
- 1926.57 - Ventilation. Safety and Health Regulations for Construction
 - <https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.57>
- 1910.134 - Respiratory protection. Occupational Safety and Health Standards
 - <https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134>
- 1910.252- Welding, Cutting, Brazing
 - <https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.252>
- NFPA 51B- Standard for Fire Prevention During Welding, Cutting, and Other Hot Work

5.0 Procedure To Implement

- Hot work should not be performed if the work can be avoided or performed in a safer manner. When practical, objects to be welded, cut, or heated must be moved to a designated hot work area.
- If hot work must be performed outside the designated hot work area, a Hot Work Permit must be completed by a supervisor before the hot work begins. This Hot Work Permit must be posted so that it is visible and within close proximity to where the hot work is being conducted. All precautions on the Hot Work Permit must be met prior to performing any hot work. The Hot Work Permit will be issued by the supervisor and is valid only for the date(s) and time specified on the permit. A copy of the permit must remain at the hot work location until the

hot work is completed. This written program requires the issuance of a Hot Work Permit before beginning any hot work outside of a designated hot work area.

- If hot work is to be performed outdoors, all elements of this program still apply.
- All personnel (employees, students, contractors, building occupants) must be suitably protected against hazards generated by the work (e.g., heat, sparks, fumes, welding rays, etc.). This may include, but is not limited to, the use of personal protective equipment (PPE), shields, screens, or local exhaust ventilation.
- A fire watch is required whenever protective measures are necessary for the following conditions:
 - Appreciable combustible material is within 35 feet of the point of operation.
 - Appreciable combustibles more than 35 feet away may be easily ignited by sparks.
 - Wall or floor openings within 35 feet expose combustibles in adjacent areas including confined spaces.
 - Combustibles could be ignited by conduction or radiation through metal partitions, walls, ceilings, or roofs.
 - Anytime a qualified person deems necessary.

5.1 Designated Hot Work Area

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

A designated hot work area shall be:

- Non-combustible, fire resistive construction, essentially free of combustibles and flammables.
- The working surface for the use of the soldering and brazing activities should be of a non-combustible material (i.e., laboratory bench, duraboard, tile, etc.).
- Suitable segregated from adjacent areas.
- Equipped with fire extinguisher(s).
- Equipped with heat detectors rather than a smoke detector.
- Equipped with mechanical ventilation to control smoke and fumes.
- Inspected and approved by EHSS.

5.2 Prohibited Conditions

A Hot Work Permit will not be issued if any of the following conditions exist:

- Sprinkler protection is impaired.
- Appropriate firefighting equipment is not readily available.
- Combustible or flammable materials are within 35 feet and cannot be moved or protected.
- Floor and wall openings cannot be covered.

- Hot work on pipes or other metals can conduct enough heat to ignite nearby combustible materials.
- The work can be completed without the use of hot work.
- Any condition that could result in undue hazards by performing the work.

***EHSS reserves the right to pause hot work activities in the event of unforeseen, unsafe working conditions.**

5.3 Respiratory Protection

When effective engineering controls for hot work are not feasible, or while they are being instituted, appropriate respirators shall be used in compliance with Idaho State University's Respiratory Protection Program.

A respirator shall be provided to each employee when such equipment is necessary to protect the health of such employees and students. The University shall provide respirators, via the University Respiratory Protection Program, for any student, faculty, or staff working directly for the University. Contracted business partner shall provide respirators for any contractors or subcontractors working at university facilities. The contracted business partner shall be responsible for the establishment and maintenance of a Respiratory Protection Program.

Appendix A



Hot Work Permit

This hot work permit is required prior to any hot work activities that involve an open flame or equipment that generates heat or sparks. These activities include but are not limited to: welding grinding, cutting, thawing pipe, torch applied roofing, chemical welding and brazing. A copy of this permit along with any documentation pertaining to the hot work activities involved will be sent

Start Date: _____ Start Time: _____ Stop Date: _____ Stop Time: _____

Hot Work Performed by:

Fire Watch Required? Yes No

(Signature) (Print)

Name of Fire Watch: _____
(Print)

Location of Hot Work:

Bldg# Name of Building

Floor Number

Description of Work To Be Performed:

Hot Work Checklist of Requirements

Requirements within 35 ft. (11 meters) of hot work

- Flammable liquids, dust, lint, and oily deposits removed
- All explosive atmospheres in area eliminated
- Trash and debris picked up and floor swept clean of combustibles
- Wall and floor openings covered with noncombustible material
- Combustible floors covered with fire resistant/noncombustible material or equivalent
- Area beneath hot work location protected with noncombustible material or equivalent
- Fixed combustible materials removed or covered with listed or approved materials or noncombustible materials

Requirements for Work on Walls, Ceilings, Roofs or Enclosed Equipment

- Building materials at the location of the Hot Work are noncombustible
- Materials that are combustible on the other side of the roof, wall or ceiling are moved or removed
- Ductwork that can carry sparks to another location are sealed
- All combustible materials are cleaned away from the site of the Hot Work area
- Hot work area is free of all flammable liquids and vapors.
- All pressurized equipment, piping, and vessels are depressurized, isolated and protected.

Requirements for Fire Watch Monitoring and Fire Monitoring

- Fire Watch is trained and supplied with fire extinguishing equipment.
- Fire Watch remains 1-hour after hot work activity is complete, unless the supervisor deems the threat of re-ignition is no longer present.
- Fire Watch is trained in activating the fire alarm in the event of a fire and know the location of the nearest alarm pull station.
- Additional Fire Watch personnel are assigned if needed for adjoining areas.
- Fire Watch is to have communication access to dial 9-1-1 to contact emergency services to report emergencies.
- Fire Watch is to be assigned no other duties and be present during hot work activities.
- Fire Monitoring will be conducted for up to 3 hrs after hot work is complete.

Additional Hot Work Safety Requirements

- Appropriately class rated Fire extinguisher(s) located within 25 feet of hot work activity site.
- All fire blankets, shielding, and fire curtains are free of flammable liquids and are in safe working condition
- Hot work area has appropriate ventilation to displace smoke, fumes, or grinding dust to the exterior.
- Workers, building occupants, and other personnel are protected from sparks, smoke, fumes, welding flash and radiation by use of screens or barriers
- When applicable, Confined Space Permits, Lock-out/Tag-out procedures in place.
- All hot work equipment in safe working condition

Final Check:

All areas to which heat and sparks could have spread including adjacent rooms below, above and opposite the hot work area, were found to be fire safe 1 hour after the completion of hot work activities.

Fire Watch/Supervisor Signature:

(signature) (print)

Permit Closeout Signature of Supervisor:

(signature) (print)