W&M | ENVIRONMENTAL HEALTH & SAFETY

Environment, Health and Safety
William & Mary
P.O. Box 8795
Williamsburg, VA 23187-8795

Director (757)221-2146
Safety Engineer (757)221-2288
Fire Safety Officer (757)221-1745

Hot Work Permit Program

W&M | ENVIRONMENTAL HEALTH & SAFETY

I. Purpose/Scope

This procedure is for the protection of persons from injury and illness and the protection of college property from damage by fire and explosions arising from hot work operations. This procedure shall be used as guidance for operators, managers and supervisors for the process of obtaining and implementing a hot work permit.

II. Definitions

Confined Space – a small or restricted space such as a tank or pressure vessel. Confinement implies poor ventilation as a result of size or shape rather than egress of personnel.

Competent person – an OSHA competent person is an individual who, by way of training and/or experience, is knowledgeable of applicable standards, is capable of identifying workplace hazards relating to the specific operation, is designated by the employer, and has authority to take appropriate actions.

Hot Work – any operation that produces sparks, arcs, utilizes high temperature equipment or uses open flame. Operations include cutting, welding, brazing soldering, grinding, etc.

Hot Work Area – the area exposed to the hot work

III. Responsibilities

a. Departments

1. Determine if the work will be conducted in an area which contains flammables, combustibles, or other hazardous materials.
2. Protect the flammables, combustibles, or other hazardous materials in the area by using one of the following methods.
    a. Move the work area to another area free of combustibles

   b. Move the combustibles or protect them from the hot work by covering them.
   c. Schedule the work when the combustible material will not be in the area.
3. Obtain a Hot Work Permit from the Department of Environment, Health and Safety.
4. Ensure that Personal Protective Equipment is provided and being utilized correctly in accordance with the work.
5. Designate a fire watch when required.
6. Conduct a final inspection of the work area at least thirty minutes after hot work has ceased. The inspection process is intended to locate and extinguish any hot spots or fires.

b. Department of Environment, Health, and Safety
1. Responsible for the review and approval, in coordination with a departmental representative, locations approved for welding and cutting activities (designated areas).
2. Maintain a current list of designated areas.
3. Periodically conduct inspections of designated areas to verify that conditions have not changed.
4. Issue Hot Work Permits for work being done outside of the designated areas. The issuance of a permit will only occur after the area has been inspected and approved.
5. Provide training for fire watches.
6. Ensure that proper fire fighting equipment is maintained and readily available to personnel.
7. Suspend welding and cutting work if conditions are deemed unsafe.

c. Fire Watch
1. Must be trained by the Department of Environmental, Health and Safety in the use of appropriated fire fighting equipment and notification procedures in the event of a fire.
2. Correct of Stop any conditions that may lead to a fire. Report these conditions to the department immediately.
3. Monitor the hot work on all sides of the affected area (walls and floors). Be alert for any indication of fire.
4. Attempt to extinguish the fire if feasible with the available equipment on hand and in accordance with the training provided.

5. Dedicated to the work site as a fire watch. There can be no other assigned duties during this time. If the fire watch must leave the job site all hot work must cease until his return or the appointment of another qualified fire watch.
6. The fire watch will remain on the job thirty minutes after hot work ceases to check for any hot spots or flare ups.
7. Shall be trained in the use of portable fire extinguishers. A minimum of one portable fire extinguisher with at least a 2-A:20-B:C rating shall be within thirty feet of the hot work operation.

d. Welders

1. Ensure the welding equipment is in good working order
2. Use appropriate PPE as necessary (i.e. eye and face protection, rated shields, hearing protection, etc.)
3. Obtain a Hot Work Permit for any non-designated area.
4. Do not conduct welding and cutting operations in unsafe locations.
5. Stop work if conditions change or the fire watch must leave the area.
6. The fire watch will remain on the job thirty minutes after hot work ceases to check for any hot spots or flare ups.
7. Be trained in accordance with standards set forth by the Environment, Health and Safety Office.

IV. Procedures

a. Work Areas

i. Designated Areas: Hot work activities are permitted at any time in designated areas if conditions are appropriate and proper safety precautions are taken.

ii. Permit Required Areas: When Hot Work is being conducted outside of a designated area, it is necessary to obtain a Hot Work Permit from the Fire Safety Officer or his designee before work can be started. Notification of Hot Work shall be given at least forty eight hours in advance.

Special Procedures for Permit Required Areas:

1. Hot Work Permit: The area must be inspected by the Fire Safety Officer or his designee. All precautions must be complied with in accordance with the permit.
2. Combustible Materials: Combustible materials within thirty five feet of the work must be removed or shielded with fire

resistant material. Edges of the cover must be tight to the floor and overlaps properly secured.

3. Ducts: Ducts or openings that may carry sparks to other areas shall be closed or covered.
4. Ventilation: Temporary local exhaust can be used to eliminate airborne contaminants.
5. Fire Watch: A fire watch shall be used when combustibles cannot be relocated or adequately protected in place.

iii. Gas Storage and Transportation:

All Cylinders Shall:

1. Be secured at all times by either an approved chain or strap.
2. Have either a cap or regulator in place at all times.
3. Be stored, transported and used in an upright position.
4. Be free of damage and leaks.
5. Be properly labeled.

b. Special Considerations

i. Work Stoppage: When work is stopped for an extended period of time or overnight, the equipment must be shut down and secured to prevent accidental sparking.

ii. Confined Space: Any Hot Work intended for a confined space, shall be in compliance with the university's Confined Space Policy.

iii. Welding or Cutting Containers: No Hot Work is to be performed on containers that may have contained material that can produce flammable or toxic vapors when heated.

iv. Venting and Purging: All hollow spaces, cavities, or containers are to be vented prior to conducting Hot Work. Purging with an inert gas is recommended.

V. Contractors

a. Must maintain a site that is free of fire and explosion hazards.
b. New construction is exempt from obtaining a Hot Work Permit. Hot Work activities are covered under the construction permit. This practice is consistent with the VA State Fire Prevention Code.
c. The contractor must obtain their own Hot Work Permit in accordance with their in-house safety program requirements. The university will provide a Hot Work Permit template for use as appropriate. This template will be taken from NFPA 51B.

d. Will establish acceptable time limit for the duration of their hot work permits in accordance with the guidelines in ANSI Z49.1 and NFPA 51B.
e. The Project Manager will provide periodic oversight of the Hot Work activities to ensure work being performed is in accordance with the permit.
f. Any job where the contractor fails to follow Hot Work procedures will be shut down until the issues have been corrected.
g. All contractors must notify the FPD&C Assistant Project Document Manager (221-2245), who will notify the appropriate Project Manager and Fire Safety Officer (221-1745) of any Hot Work that will be performed at the university.
h. All copies of the Hot Work permits must be forwarded to the Fire Safety Officer for recordkeeping and filing no more than five days after completion of any contractor Hot Work.

The Contractor:

- Shall perform all Hot Work in accordance with the OSHA Construction Standard 29CFR 1926 Subpart J – Welding and Cutting
- Shall appoint a competent person to oversee all hot work and hot work permits
- Shall ensure that a fire watch will remain on site thirty minutes after Hot Work stops.
- Shall submit to the FPD&C Project Manager, training records indicating that employees have been trained in hot work procedures.
- Shall ensure there is adequate ventilation in the Hot Work area.
- Shall ensure that proper Personal Protective Equipment is being utilized.
- Shall ensure that an ABC fire extinguisher is present at all Hot Work activities.
- Shall ensure that flashback arrestors are installed on torches and gas bottles. The contractor must submit a statement documenting that they are installed to the FPD&C Project Manager.
- Shall ensure that torches are broken down and stored properly at the end of each work shift.

VI. Personal Protective Equipment (PPE)

Selection of appropriate PPE should be made in conjunction wit the Department of Environment, Health and Safety. PPE for eyes, face,

head, and extremities shall be used. All PPE shall be inspected before use.

i. Eye/Face Protection: suitable protection with proper filter lenses shall be used.
ii. Head Protection: Helmets that protect the face, neck and ears from radiant heat shall be worn during all welding and cutting operations.
iii. Protective Clothing: The type of operation will determine the extent of leather protective clothing that is needed.
iv. Hearing Protection: May be required if exposed to excessive noise.
v. Respiratory Protection: May be required depending on the material that is being cut, welded, etc. The individual must be medically qualified and trained to wear an approved respirator.
vi. Protective Barriers: These are used to protect against sparks or other debris from escaping a particular area. Barriers can also be used to protect others from welders flash by surrounding the individual conducting the welding.

VII. Record Keeping

All Hot Work Permits shall be returned to the Fire Safety Officer to be filed. Records of Hot Work Permits shall be maintained for one calendar year. Hot Work Permits on file shall be reviewed for program improvement or modification purposes prior to disposal.

VIII. Training

Copies of training records are maintained in the Office of Risk Management

IX. References

- 2003 Uniform Fire Code, Article 105.8.h.3
- 29 CFR 1910 Subpart Q – Welding, Cutting, and Brazing
- 29 CFR 1926 Subpart J – Welding and Cutting
- ANSI Z49.1 2005 – Safety in Welding, Cutting and Allied Processes
- ANSI/AWS A3.0 American Welding Society – Terms and Definitions – Standard Welding
- ANSI/NFPA 51B – Fire Prevention in Use of Cutting and Welding Processes
- ANSI/AWS F4.1-94 Recommended Safe Practices for the Preparation for Welding and Cutting of Containers and Piping

W&M | ENVIRONMENTAL HEALTH & SAFETY