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HOT WORK PERMIT PROGRAM

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

OFFICE OF PRIMARY RESPONSIBILITY

Duke OESO-Fire Safety Div. (Ashley Fletcher)
(919) 668-3242
Supersedes Hot Work Permit OI dated May 2005

Certified By: Director, (Fred J. Knipper)
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Pages: 6

This instruction establishes policy and procedures and assigns responsibilities and requirements to ensure a comprehensive policy and program exists to perform work during new construction, repair, renovations and/or alterations that require hot work. It applies to all Duke employees, contractors, and tenants on Duke premises. Violations of this policy may result in appropriate disciplinary action to include administrative actions such as written or criminal prosecution under applicable North Carolina State Statute.

1. Objective.

- 1.1. Sparks, in the presence of flammable vapors, may cause immediate fires or explosions. Smoldering material hidden from sight can suddenly burst into flame hours after work has been completed and personnel have left the area. Heat produced by hot work on one side of a wall can ignite combustible material on the other side. Due to the high fire potential, all hot work will require a Hot Work Permit.

2. Definitions

- 2.1. **Hot Work:** Hot Work is defined as any construction or maintenance procedure that produces sufficient heat or sparks to ignite combustibles/flammables, requires heat or open flame to conduct work. This includes, but is not limited to: cutting, grinding, brazing, welding, soldering, thawing pipes, sweating pipes or applying roofing materials with torches.
- 2.2. **Hot Work Shop:** Any work shop that does hot work as part of its normal duties. Hot Work Shops will be inspected by the Fire Safety Division annually and the shop will be given a "Hot Work Permit" for one year.
- 2.3. **Hot Work Sites:** Immediate area where hot work is to be accomplished. Includes all areas adjacent (includes above, below, and next to work site) to, on opposite side of wall surfaces, and an area encompassing a Thirty-five foot (35 ft.) radius around the immediate area where hot work is to be performed.

- 2.4. **Hot Work Permit Form:** A Hot Work Permit is a three-part form issued for all hot work. The Hot Work Permit Form may be obtained from Fire Safety Division and Duke Project Managers and will be the only recognized form for use.
- 2.5. **Hot Work Safe Area:** Any area of a building (other than a work shop) that is determined to be a "hot work safe area" will require an initial inspection by the Fire Safety Division to ensure that it meets all criteria. These "hot work safe areas" shall have no fuel loading or very low fuel loading, in addition to other requirements. Examples of this type of area would be a non-occupied concrete basement or crawl space under a building.
- 2.6. Non-Permissible Areas
- 2.6.1. See NFPA 51B:5.3
- 2.6.1.1. Hot Work Shall not be permitted in the following areas:
- 2.6.1.1.1. In areas not authorized by management
- 2.6.1.1.2. In sprinklered buildings where sprinklers are impaired, unless the requirements of NFPA 25, et al, are met.
- 2.6.1.1.3. In the presence of explosive atmospheres (i.e. where mixtures of flammable gases, vapors, liquids, or dust with air exists)
- 2.6.1.1.4. In the presence of uncleared or improperly prepared equipment, drums, tanks, or other containers that previously contained materials that could develop explosive atmospheres
- 2.6.1.1.5. In areas with an accumulation of combustible dusts that could develop explosive atmospheres.
- 2.7.
- 2.8. **Devices:** Devices refer to any smoke detector, heat detector, duct smoke detector, beam detector or any other fire alarm system detection device that might require deactivation during hot work. (*Manual fire alarm pull stations will not be deactivated during hot work.*)
- 2.9. **Device Number(s):**
- 2.9.1. Addressable Fire Alarm Systems (Smart Systems): Device Number refers to the individual number assigned to each detection device that might be impacted by Hot Work.
- 2.9.2. Conventional Hard Wired Systems: detection devices are not given an individual number, the Fire Zone along with room locations should be utilized.
- 2.10. **Fire Watch:** After completion of the Hot Work, a selected trained individual with an appropriate fire extinguisher must remain in the immediate area of the Hot Work to ensure that a fire does not start. Fire Watch will be in accordance with Duke Fire Safety Instruction 1-3, (3.1.7) Fire Watch must be maintained every half-hour for 4 hours. If smoldering is detected the Fire Watch will follow the RACE procedures:

- | | |
|----------|---|
| R | Remove persons from danger |
| A | Activate the fire alarm system |
| C | Close all windows and doors |
| E | Extinguish the fire or Evacuate the area. |

3. Procedures

- 3.1. Supervisors, Project Managers, and Contractors will determine if welding, cutting, soldering and/ or heating is absolutely necessary as part of the project or work order and there are no alternative options to complete the job. If hot work is required, it will be the responsibility of the supervisor, project manager, or contractor to determine if the work can be performed outside the facility. Hot Work conducted outside still requires a permit be obtained. If outside, maintain a minimum of 35ft away from any structure or other combustible. If hot work cannot be completed outside the facility, a Hot Work Permit is required and will be completed in accordance with the procedures in Attachment 1 of this Instruction.
- 3.2. Regardless of completing the work outside or inside the facility, the general fire safety guidelines outlined in this section shall be followed.
- 3.3. **Permit Issue:** Hot Work Permits can be issued by the Fire Safety Division, OR; selected personnel from Engineering and Operations for Medical Center or Hospital buildings, OR; selected personnel from FMD that have completed the online training for Campus buildings. Hot Work Permits shall be requested at least 24 hours or last working day in advance of needed work. Hot Work Permits may be issued for any time period up to two weeks (10 working days).
- 3.4. Individuals issuing Hot Work Permits will ensure that:
 - 3.4.1. Hot work site is acceptable for Hot Work and that there are no excessive combustibles or combustible/flammable liquids in the hot work area;
 - 3.4.2. Individual(s) performing the Hot Work understand the minimum safety precautions as outline on the Hot Work Permit by completing the appropriate blocks on the form;
 - 3.4.3. A copy of the Hot Work Permit is forwarded to the Fire Safety Division prior to starting any hot work; unless it is deemed 'emergency work', but still must be approved by an FMD supervisor or Project Manager.
 - 3.4.4. Original copy of the Hot Work Permit is posted in the hot work area in clear view;
 - 3.4.5. If a Fire Watch is required that the appropriate information is completed on the Hot Work Permit Form.
 - 3.4.6. Hot Work Permits are issued on a day-to-day basis, with the exception of designated "Hot Work Zones". Hot Work Zones are approved by representative in the Duke Fire Safety Division after a site visit, and are typically granted for long-term projects only. A "Hot Work Zone" permit may be issued for work requiring daily hot work over a lengthy period of time.

4. **Notification:**

- 4.1. It is the responsibility of the individual performing the Hot Work to ensure that the appropriate fire alarm monitoring sections be notified prior to the initiation and upon completion of any Hot Work.
 - 4.1.1. **Duke Hospital, Duke Clinic, CARL Building and Eye Center:** Contact BAS at 681-2365
 - 4.1.2. **Medical Center Buildings:** Contact E&O Maintenance at 684-5799
 - 4.1.3. **Duke Campus Buildings:** Contact OESO-Fire Safety at 684-5609

5. Enforcement:

- 5.1. OESO-Fire Safety Division has the responsibility to spot check hot work permits to ensure compliance. Permits may be revoked if the safety precautions have been violated.
- 5.2. The appropriate maintenance department has the responsibility to ensure only trained and certified personnel complete the Hot Work permit and that only qualified individuals perform Hot Work.
- 5.3. A designated Hot Work Supervisor must be onsite during all Hot Work Operations

6. Training:

- 6.1. All Duke University personnel that issue Hot Work Permits shall complete online annual training and obtain certification. No individual may complete a Hot Work Permit without this certification. OESO will maintain all records of training completion. Go to www.safety.duke.edu and click on 'Online Training' for access to the program.

7. Coordination and Approval

- 7.1. Any requested changes to this policy will be coordinated with the appropriate department approval authority and the OESO Fire Safety prior to the change being implemented
- 7.2. All departments annotated below have coordinated and given their approval via signature to this Hot Work Program Operating Instruction
- 7.3. Duke Project Managers or Project Supervisors are to sign with their approval, the Hot Work Permit, indicating that the site has been inspected for safety prior to work, as instructed on the Hot Work Form, and that a Fire Watch will be maintained by trained personnel or approved methods (i.e. detection systems in working order). The signee assumes responsibility for the work site and workers.
- 7.4. Specific Hot Work Permit instructions are attached to this Operating Instruction.

Attachment 1

Hot Work Permit Instructions

The following is a guide to filling out the Hot Work Permit form. Forms may be obtained from Duke Project Managers or Supervisors.

Fill out the form with a ballpoint pen and write legibly. Fill out completely! Information unable to be read is considered information not completed and may result in permit rejection.

E&O Forms

I. General Information

Type of Work: If unsure of type of work mark the *Other* line and describe work to be done

Company/Dept Name: Who the operator works for

Duke Project Number: If applicable

Name of Duke University Project Manager: The Duke person responsible

Name of Supervisor: Someone to call if there is a problem or question

Supervisor Contact Information: Must be an ALL HOURS number of numbers

Date Work to Begin & Date Work to End: Self-explanatory

Daily Start Time & Daily End Time: Self-explanatory

II. Building Information

Building Name: Self-explanatory

Building Number: The Plant Accounting number for the building

Floor: Self-explanatory. Obtain only 1 permit per job. If multiple floors, obtain a separate permit.

Specific Location: Be specific – room # or area description

Fire Zone: List fire alarm zone

Does building fire alarm system devices have to be deactivated: - Specifically – smoke/heat/sprinklers?

Device Number Requiring Deactivation: List all devices if it is a smart fire alarm. List zone if a conventional system

Fire Watch Duration required: 2 hours after completion of Hot Work with a detection system. 4 hours without a detection system.

III. Special Precautions

Has the operator read the Hot Work Permit Policy: The operator is the person(s) conducting the hot work. They must read the policy

Have alternatives methods been investigated? Why will they NOT work?

Can hot work be moved outside or to a safer area: Can some or all the work be done outside to minimize the hot work indoors

Are flammable vapors present or is there a possibility that flammable vapors may pass through openings: The operator must survey the area for signs of flammable liquids and gases.

Is floor swept and clear of combustible materials with in a 35ft radius: All combustible material needs to be removed or covered

Is a guard required to warn persons who might be burned by sparks or hot slag: The operator must consider vertical as well as horizontal directions

Is an adequate fire extinguisher (provided by the contractor or department) present: The operator must bring their own fire extinguisher

Has the Operator and/or Fire Watch had fire extinguisher training: The training must be documented

Operator's name and Signature: The operator must sign the form

FMD Forms

Hot Work Completed By: Check appropriate box and list department/shop/company

Date

Job # - Duke project #, if applicable

Nature of Job – type of hot work

Name: Line 1 – printed name of person conducting Hot Work

Line 2 – signature of person conducting Hot Work

Printed name and signature of Job Supervisor

Expiration Date – permits are issued for daily use only, unless granted a ‘hot work zone’.

Complete checklist