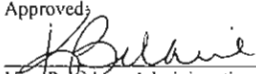
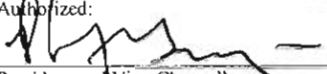
 <p>McMaster University Risk Management Manual</p>	<p>RMM # 201 Title: Hot Work Permit System</p>	<p>Date: Sept 2008 Page: 1 of 8</p>
<p>Submitted: Risk Management Support Group</p>	<p>Approved:  Vice President, Administration</p>	<p>Authorized:  President and Vice-Chancellor</p>

## 1 PURPOSE

- 1.1 To provide for the protection of faculty, staff, students and property by implementing and maintaining a permit system that promotes awareness of the hazards associated with hot work and the procedures required to conduct hot work safely.
- 1.2 To ensure compliance with the Ontario Fire Code and the Occupational Health and Safety Act (OHSA).

## 2 SCOPE


- 2.1 All faculty, staff, students and contractors.

## 3 RELATED DOCUMENTS

- 3.1 Ontario Fire Code (O Reg. 388 / 97 Section 5.17 Welding and Cutting, See Appendix A).
- 3.2 OSHA O. Reg. 851 Industrial Establishments, Section 78. (See Appendix A).
- 3.3 Hot Work Permit (See Appendix B).
- 3.4 McMaster University Health and Safety Policy, RMM #100
- 3.5 Confined Space Entry Program, RMM #305
- 3.6 Fire Safety Plan, RMM #1201.
- 3.7 Safety Orientation and Training Program, RMM #300.
- 3.8 Red Tag Permit
- 3.9 Contractor Due Diligence Program, RMM#111
- 3.10 Confined Space, RMM 305.

## 4 DEFINITIONS

- 4.1 Hot Work: Any trade or work activity that uses or produces flames, or heat that would act as an ignition source for any flammable or combustible material. (e.g. industrial brazing, cutting and welding indoors) and / or academic projects which involve the ignition of combustible material. (e.g. Works of Art that involve open flame). **NB. This program does not apply to the controlled use of open flame or heat in laboratories or designated workshops.**
  - 4.2 Hot Work Permit: Written authorization to perform service or construction work capable of producing a source of ignition and / or academic projects that involve the burning of combustible material in other than a controlled laboratory environment.
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- 4.3 Red Tag Permit: A program managed by Facility Services that sets out procedures to be taken when Fire Protection Systems are taken out of service for any reason.
- 4.4 Supervisor: Person who has charge of a workplace or authority over a worker.
- 4.5 Worker: Person who performs work or supplies services for monetary compensation.
- 4.6 Contractor: a person who undertakes a project for an owner and includes an owner who undertakes all or part of a project by himself/herself or by more than one employer; also called the general or prime contractor. The constructor has complete control of the work on behalf of the construction project owner, and would have responsibility for regulatory compliance and safe work procedures on the job site.
- 4.7 Acronyms:
- OHSA – Occupational Health and Safety Act
  - HWP – Hot Work Permit
  - HWPS – Hot Work Permit System
  - JHSC – Joint Health and Safety Committee
  - EOHSS – Environmental & Occupational Health Support Services
  - FHSc – Faculty of Health Sciences Safety Office

## 5 RESPONSIBILITIES

### 5.1 Role of Senior Managers (Directors/Deans /Chairs/Department Managers):


Senior Managers shall:

- Provide the resources and direction necessary to ensure that an effective Hot Work Permit System (HWPS) is in place and strictly adhered to.

### 5.2 Role of Facility Services:

Facility Services is responsible for the implementation and management of the HWPS for all work on facilities and service equipment on campus that shall include but not be limited to the following elements:

- a clear assignment of responsibilities for the implementation and maintenance of an effective HWPS;
  - a system to notify contractors of the need to follow the HWPS and Red Tag Permit; and
  - training for all Facility Services staff required to conduct hot work in University facilities.
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### 5.3 **Role of Facility Services Project Managers:**

Facility Services Project Managers shall:

- notify contractors of the need to follow the HWPS for all hot work on existing University facilities and equipment;
- provide contractors with a HWP for all hot work;
- check the completed HWP and work site condition;
- sign the HWP and retain a copy for the Facility Services records;
- retain a copy of the HWP;
- ensure that all the conditions of the HWP are met before during and after the hot work operation has been completed; and
- ensure that a Red Tag Permit has not been issued for any fire suppression system in the area where the hot work is being conducted;
- post the above mentioned permit;
- ensure the permit is removed at completion of work.

### 5.4 **Role of Supervisors:**


Supervisors shall:

- ensure that a HWP is issued for all hot work on existing University facilities and equipment;
- ensure that only workers trained in HWP procedures are assigned to projects involving hot work;
- retain a copy of the HWP and notify the JHSCs;
- contact EOHSS when introducing hot work projects that do not meet the definition of controlled laboratory use of open flame or heat and that if uncontrolled could cause injury or ignite any flammable, explosive or harmful substance or a surrounding structure, and
- follow the hot work procedures provided by EOHSS.

### 5.5 **Role of Authorized Person:**

Persons authorized by their Supervisor to conduct hot work shall:

- be trained in HWP procedures;
  - work in compliance with the requirements outlined in the HWP;
  - ensure that the conditions of the HWP are met before during and after the project has been completed;
  - ensure that a Red Tag Permit has not been issued for any fire suppression system in the area where the hot work is being conducted;
  - in the case of a fire suppression system shut down ensure a Red Tag Permit has been issued and a fire watch is in place for a minimum of 4 hours; and
  - notify security.
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**5.6 Role of EOHSS/FHSc:**

Environmental & Occupational Health Support Services/FHSc shall:

- in consultation with Facility Services and the CJHSC review and update the McMaster University Hot Work Permit System on an annual basis and
- provide Hot Work Procedures for academic projects that do not meet the definition of controlled laboratory use of open flame or heat and that if uncontrolled could cause injury or ignite a surrounding structure.


**5.7 Role of JHSCs:**

JHSCs shall:

- Review the uses of HWP System within their area of responsibility on an annual basis

**6 PROCEDURAL GUIDELINES**


- 6.1 Supervisors and authorized persons are responsible for identifying and controlling workplace hazards before hot work is performed;
- 6.2 Hot work permit procedures shall be implemented when hot work takes place in confined or restricted areas, near combustible material or activities involving volatile materials or on equipment that may contain any explosive, flammable or harmful substance. Hot work is prohibited on foam-insulated metal wall, roof or ceiling panels;
- 6.3 Hot work permit procedures shall be mandatory for contractors;
- 6.4 Combustible materials shall be removed to a safe distance (i.e. 11 meters) or protected. Enclosed equipment shall be cleaned and purged of combustible vapours and checked with an explosion meter;
- 6.5 Openings in fire partition, floors or ducts within the work site shall be sealed with fire-resistant tarpaulin or metal shields;
- 6.6 Appropriate fire extinguishing equipment shall be verified to be operable and positioned for immediate use and fixed sprinkler systems checked to ensure that a Red Tag Permit is not in place;
- 6.7 Nearby personnel shall be evacuated or otherwise protected from hot work activities;
- 6.8 The authorized person is responsible to ensure that a fire watch shall be maintained for 60 minutes after completion (or for a time deemed to be appropriate for the involved fire risk) of hot work to detect and extinguish any smoldering fire. The workplace shall be monitored for four hours after the work is completed, including areas adjacent to, above and below;
- 6.9 The supervisor shall identify the personal protective equipment (PPE) to be worn and other safety equipment required for the hot work activity;
- 6.10 Hot work activity will be conducted in compliance with safety procedures appropriate for other risks such as confined space, lockout / tag out etc.;
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- 6.11 The authorized person and / or project manager shall issue and post the HWP at the work site;
- 6.12 The supervisor shall retain a copy of the HWP within the operating unit; and
- 6.13 Upon completion of hot work, the permit shall be taken down.

## 7 RECORDS

- 7.1 A copy of all hot work procedures shall be retained by the operating unit, for a period of 12 months.
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## Appendix A

### Regulatory Requirements:

#### O. Reg. 851, Industrial Establishments, Section 78

- 78 (1) Subject to subsection (2), where repairs or alterations are to be made on a drum, tank, pipeline or other container, the drum, tank, pipeline or other container shall:
- (a) have internal pressures adjusted to atmospheric before any fastening is removed;
  - (b) be drained and cleaned or otherwise rendered free from any explosive, flammable or harmful substance, and
  - (c) not be refilled while there is any risk of vaporising or igniting the substance that is being placed in the drum, tank, pipeline or other container.

#### Ontario Fire Code

##### Section 5, 17. 3. 1.

- (1) Welding and cutting operations in buildings shall be carried out in areas that are free of combustible and flammable contents, and that have walls, ceilings and floors of noncombustible construction or that are lined with noncombustible materials.
  - (2) When it is not practical to undertake welding and cutting operations in areas described in Section (1), combustible and flammable materials shall either be kept at least 1.1m from the work area or otherwise protected against ignition by sheet metal, asbestos blankets or other noncombustible material.
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Appendix B

Hot Work Permit:

# HOT WORK PERMIT

**BEFORE INITIATING HOT WORK, CAN THIS JOB BE AVOIDED?  
IS THERE A SAFER WAY?**

This Hot Work Permit is required for any temporary operation involving open flames or producing heat and/or sparks. This includes, but is not limited to: Brazing, Cutting, Grinding, Soldering, Thawing Pipe, Torch Applied Roofing and Welding.

INSTRUCTIONS	PART 1	REQUIRED PRECAUTIONS CHECKLIST				
<p><b>1. Firesafety Supervisor:</b></p> <p>A. Verify precautions listed at right (or do not proceed with the work).</p> <p>B. Complete and retain PART 1.</p> <p>C. Issue PART 2 to person doing job.</p> <p>HOT WORK BEING DONE BY:  <input type="checkbox"/> EMPLOYEE  <input type="checkbox"/> CONTRACTOR _____</p> <p>DATE _____ JOB NO. _____</p> <p>LOCATION/BUILDING &amp; FLOOR _____</p> <p>NATURE OF JOB _____</p> <p>NAME OF PERSON DOING HOT WORK _____</p> <p><b>I verify the above location has been examined, the precautions checked on the Required Precautions Checklist have been taken to prevent fire, and permission is authorized for this work.</b></p> <p>SIGNED: (FIRESAFETY SUPERVISOR/OPERATIONS SUPERVISOR) _____</p> <table border="1" style="width: 100%; margin-top: 10px;"> <tr> <td style="width: 30%;">PERMIT EXPIRES:</td> <td style="width: 20%;">DATE</td> <td style="width: 20%;">TIME</td> <td style="width: 30%;">AM PM</td> </tr> </table>	PERMIT EXPIRES:	DATE	TIME	AM PM	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">0914905</div>	<p><input type="checkbox"/> Available sprinklers, hose streams and extinguishers are in service/operable.</p> <p><input type="checkbox"/> Hot Work equipment in good repair.</p> <p><b>Requirements within 35 ft. (11m) of work</b></p> <p><input type="checkbox"/> Flammable liquids, dust, lint and oily deposits removed.</p> <p><input type="checkbox"/> Explosive atmosphere in area eliminated.</p> <p><input type="checkbox"/> Floors swept clean.</p> <p><input type="checkbox"/> Combustible floors wet down, covered with damp sand or fire-resistive sheets.</p> <p><input type="checkbox"/> Remove other combustibles where possible. Otherwise protect with fire-resistive tarpaulins or metal shields.</p> <p><input type="checkbox"/> All wall and floor openings covered.</p> <p><input type="checkbox"/> Fire-resistive tarpaulins suspended beneath work.</p> <p><b>Work on walls or ceilings</b></p> <p><input type="checkbox"/> Construction is noncombustible and without combustible covering or insulation.</p> <p><input type="checkbox"/> Combustibles on other side of walls moved away.</p> <p><b>Work on enclosed equipment</b></p> <p><input type="checkbox"/> Enclosed equipment cleaned of all combustibles.</p> <p><input type="checkbox"/> Containers purged of flammable liquids/vapors.</p> <p><input type="checkbox"/> Pressurized vessels, piping and equipment removed from service, isolated and vented.</p> <p><b>Fire watch/Hot Work area monitoring</b></p> <p><input type="checkbox"/> Fire watch will be provided during and for 60 minutes after work, including any coffee or lunch breaks.</p> <p><input type="checkbox"/> Fire watch is supplied with suitable extinguishers, and, where practical, charged small hose.</p> <p><input type="checkbox"/> Fire watch is trained in use of this equipment and in sounding alarm.</p> <p><input type="checkbox"/> Fire watch may be required for adjoining areas, above, and below.</p> <p><input type="checkbox"/> Monitor Hot Work area for 4 hours after job is completed</p> <p><b>Other Precautions Taken</b></p> <p><input type="checkbox"/> _____</p> <p>_____</p> <p>_____</p>
PERMIT EXPIRES:	DATE	TIME	AM PM			
<p><b>NOTE EMERGENCY NOTIFICATION ON BACK OF FORM. USE AS APPROPRIATE FOR YOUR FACILITY.</b></p>						
<p><b>FACTORY MUTUAL</b> </p> <p style="font-size: small;">2830 (1-88)PUBS PRINTED IN USA © COPYRIGHT 1998 Factory Mutual All rights reserved.</p>						



## RED TAG PERMIT

CONTROL NUMBER <b>169903</b>		INDEX NUMBER
PRECAUTIONS TAKEN (CHECK AS APPROPRIATE)		
<input type="checkbox"/> Emergency Organization Notified	<input type="checkbox"/> Continuous Work Authorized	
<input type="checkbox"/> Public Fire Department Notified	<input type="checkbox"/> Ongoing Patrol of Area	
<input type="checkbox"/> Hazardous Operations Stopped	<input type="checkbox"/> Hydrant Connected to Sprinkler Riser	
<input type="checkbox"/> Hot Work Prohibited	<input type="checkbox"/> Pipe Plugs on Hand	
<input type="checkbox"/> Smoking Restricted	<input type="checkbox"/> Fire Hoses Laid Out	
<input type="checkbox"/> Other		
INSURED NAME		
INSURED LOCATION (City, State/Province)		
INSURED PHONE NO.		INSURED FAX NO.
CHECK IF	SPRINKLER VALVE LOCATION/NUMBER	
<input type="checkbox"/> SPRINKLER		
<input type="checkbox"/> FIRE PUMP		
<input type="checkbox"/> CO <sub>2</sub>	AREA PROTECTED	
<input type="checkbox"/> HALON		
<input type="checkbox"/> OTHER		
REASON FOR IMPAIRMENT		
PLANNED DATE/TIME TO BE CLOSED		
PLANNED DATE/TIME TO BE OPENED		
NO. OF TURNS TO CLOSE		
AUTHORIZED BY (PRINT NAME)		
<b>PART 1 INSTRUCTIONS</b>		
Firesafety Supervisor: Fill out using ball-point pen, sign and issue permit as follows:		
Phone Part 1 information or fax this part to the Factory Mutual Engineering number listed on the Red Tag Permit Wall Kit.		
Place Part 2 in center pocket of Wall Kit as visual reminder of impairment. Issue Part 3 (Red Tag) to Fire Protection Equipment Operator to attach to impaired equipment.		
	<b>RED TAG PERMIT</b>	Part 1 of 3
<small>2480-11422800 PRINTED IN USA ©1990 Factory Mutual Engineering All Rights Reserved</small>		