





Risk Management Manual Program

Complete Program Title: Hot Work Program	Risk Management Manual (RMM) Number: 201
Approved by:  <hr/> Vice-President Operations and Finance  <hr/> President and Vice-Chancellor	Date of Most Recent Approval: October 2021
Date of Original Approval: April 2007	Supersedes/Amends Program dated: November 2013
Responsible Executive: Vice-President, Administration	Enquiries: Environmental and Occupational Health Support Services (EOHSS) eohts@mcmaster.ca
DISCLAIMER: <i>If there is a discrepancy between this electronic program and the written copy held by the program owner, the written copy prevails.</i>	

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, visitors and contractors.

3 RELATED DOCUMENTS

- 3.1 Ontario Fire Code (O Reg. 213/07 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 RMM #100 Workplace and Environmental Health and Safety Policy

- 3.5 RMM #111 Contracting Work Safety – Due Diligence Program
- 3.6 RMM #300 Safety Orientation and Training Program
- 3.7 RMM #305 Confined Space Entry Program,
- 3.8 RMM #1201 Fire Safety Plan
- 3.9 Red Tag Permit

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.
- 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** – means any of the following, but does not include an inmate of a correctional institution or like institution or facility who participates inside the institution or facility in a work project or rehabilitation program:
 - 1. A person who performs work or supplies services for monetary compensation.
 - 2. A secondary school student who performs work or supplies services for no monetary compensation under a work experience program authorized by the school board that operates the school in which the student is enrolled.
 - 3. A person who performs work or supplies services for no monetary compensation under a program approved by a college or applied arts and technology, university or other post-secondary institution.
 - 4. Such other persons as may be prescribed who perform work or supply services to an employer for no monetary compensation (“travailleur”).
- 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:**

CJHSC – Central Joint Health and Safety Committee

EOHSS – Environmental & Occupational Health Support Services

FHSSO – Faculty of Health Sciences Safety Office

HWP – Hot Work Permit

HWPS – Hot Work Permit System

OHSA – Occupational Health and Safety Act

RMM – Risk Management Manual

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.

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;
- sign the HWP and retain a copy for the Facility Services records;
- retain a copy of the HWP;
- 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.

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;
- check the work site condition of the hot work area;
- ensure that all the conditions of the HWP are met before during and after the hot work operation has been completed;
- post the above mentioned permit;
- ensure the permit is removed at completion of work.
- 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.

5.6 Role of EOHSS/FHSSO:

Environmental & Occupational Health Support Services/FHS safety office shall:

- in consultation with Facility Services and the CJHSC review and update the McMaster University Hot Work Program on a regular 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. (Non-facilities/Non-FHSc activities)

5.7 Role of Central JHSCs:

CJHSCs shall:

- Review and update the McMaster University Hot Work Program on a regular 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 a combustible gas 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.;
- 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.

Appendix A

Regulatory Excerpts

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 pressure 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 11m from the work area or otherwise protected against ignition by sheet metal, asbestos blankets or other noncombustible material.

Appendix B

Hot Work Permit:

 HOT WORK PERMIT		
<p>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: <i>Brazing, Cutting, Grinding, Soldering, Torch Applied Roofing and Welding.</i></p>		
<p>PART 1 = Top Copy PART 1A = Middle Copy PART 2 = Bottom Copy</p>		
<p align="center">INSTRUCTIONS</p> <p>1. Supervisor</p> <p>A. Verify precautions listed at right (or do not proceed with the work).</p> <p>B. Complete and retain Part 1. (Part 1A is a copy for expanded hot work awareness).</p> <p>C. Issue Part 2 to person doing Job.</p>		
<p align="center">HOT WORK BEING DONE BY</p> <p><input type="checkbox"/> EMPLOYEE</p> <p><input type="checkbox"/> CONTRACTOR</p>		
DATE	JOB NUMBER	
LOCATION / BUILDING AND FLOOR		
NATURE OF JOB		
NAME OF PERSON DOING HOT WORK		
<p><i>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.</i></p> <p>Signed (Fire Safety SPVSR/Operations SPVSR)</p>		
PERMIT EXPIRES	DATE	TIME
<p>REQUIRED PRECAUTIONS CHECKLIST</p> <p><input type="checkbox"/> Available sprinklers and extinguishers are in service/operable.</p> <p><input type="checkbox"/> Hot Work equipment in good repair.</p> <p>Requirements within 35 ft (11m) of work</p> <p><input type="checkbox"/> Flammable liquids, dust, lint and oily deposits removed.</p> <p><input type="checkbox"/> Floors swept clean.</p> <p><input type="checkbox"/> Remove other combustibles where possible. Otherwise protect with fire-resistant tarpaulins or metal shields.</p> <p><input type="checkbox"/> Protect or shut down ducts and conveyors that might carry sparks to distant combustibles.</p> <p>Work on Walls, Ceilings or Roofs</p> <p><input type="checkbox"/> Construction is non-combustible and without combustible covering or insulation.</p> <p><input type="checkbox"/> Combustibles on other side of walls, ceilings or roofs are moved away.</p> <p>Fire Watch / HotWork Area Monitoring</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 personnel are supplied with suitable extinguishers.</p> <p><input type="checkbox"/> Fire watch personnel are trained in use of equipment and in sounding alarm.</p> <p>Other Precautions Taken:</p> <p><input type="checkbox"/> _____</p> <p>_____</p>		