

FESHM 6020.2: WELDING, BURNING, BRAZING, & SPARK PRODUCING OPERATIONS

Revision History

Author	Description of Change	Revision Date
Jim Niehoff	Revised 25-ft. to 35-ft. distance from flammable and combustibles to comply with NFPA 51B and ANSI Z-49.1	April 2018
Jim Niehoff	Added applicability statement for Fermilab Leased Spaces	December 2017
Chuck Kuhn & Jim Priest	Changed SSO to DSO. Revised chapter to include spark producing operations such as grinding and cutting activities in the presence of combustibles.	October 2015
Chuck Kuhn & Jim Priest	Applied FESHM Chapter format template.	February 2013
Bill James	Initial release Chapter 6020.2	March 2010

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1.0 INTRODUCTION

Work done on site that involves welding-burning-brazing or spark producing grinding or cutting is regulated through the use of a Burn Permit. This system allows for risk evaluation, required controls, and approval by authorized personnel. This chapter describes procedures for the issuance of permits for such activity operations by Fermilab employees, subcontractors, and experimenters.

This chapter only applies to the Fermilab site. Leased spaces will follow the rules and regulations set forth by the partnering institute and/or state or local codes and standards.

2.0 DEFINITIONS

- **Burn Permit** - a set of precautions to be followed, verification of training, and provisions for supervision to assure safe work practices.

3.0 RESPONSIBILITIES

3.1 Fermilab Fire Department (FFD)

- Issuing burn permits.
- Providing fire safety instruction for welding, burning, brazing and/or spark producing operations.
- Temporary permits (30 day) will be issued by the FFD when requested with the option of a single 30-day extension. For permits over 60 days, the FFD will issue a continuous permit. The location of the continuous permit will be decided upon by the FFD.
- No permit will be issued without all the proper equipment being at the work site. Permits must be visible or available upon request.

3.2 Division Safety Officer (DSO)

- Approving planned work within 35 feet of any flammable liquid or gas hazard and near combustibles including spark producing cutting/grinding including near dry brush (grasses).

3.3 Task Manager, Construction Coordinator, or Service Coordinator (for subcontracted activities)

- Obtaining a Burn Permit for any welding-burning-brazing activity.
- Spark producing cutting or grinding in buildings containing combustibles or unprotected insulation, for example, foam insulation on cryogenic tanks, or floors, or walls.
- Contacting Facilities Engineering and Services - Fire System Maintenance (FSM) Technicians for disablement of fire detection systems.

4.0 PROGRAM

4.1 Welding, Burning, Brazing, Spark Producing Operations

- Task Manager, Construction Coordinator, Service Coordinator, or employee shall contact the Fermilab Fire Department on behalf of the subcontractor prior to any welding, burning, and/or brazing operation. Fire Department personnel will examine the proposed operation, prescribe precautions, review safety procedures with the employee and/or subcontractor, and then issue


a written Burn Permit. When required, hazards and precautions must also be listed in the hazard analysis or work procedure prior to commencing the work.

- Additional safety review and approval may be required by the appropriate Division Safety Officer if work involves radioactive materials or if work will be conducted in a confined space or other hazardous operations area. In particular, prior written approval of the DSO shall be obtained for work within 35 feet of any flammable liquid or gas hazard and near combustibles including spark producing cutting/grinding including near dry brush or grasses.
- Long term permits may be issued for areas that contain frequent or continuous welding-burning-brazing operations. The Fire Department inspects continuous welding areas monthly and has the authority to revoke permits in non-complying areas.
- When it is likely that a fire detection system will be activated by a welding, burning, brazing or spark producing operations, the system may be temporarily disabled or shielded by the FSM Technicians. All planned and emergency requests for disablement shall be made in accordance with FESHM 6030.
- The use of key switches or buttons for disabling detection systems (for example the air sampling smoke detection (VESDA) system) by a designated individual shall be preceded by contacting Security (Ext. 3414) or from a cell phone (630-840-3414) and Fire Department (Ext. 3428) or from a cell phone (630)-840-3428, the building manager and other interested parties. Enabling the key switch or button(s) shall be completed at the end of the normal workday preceded by contacting Security, the Fire Department, the building manager and the other interested parties.

4.2 Safety Precautions

- All subcontractors shall have UL or FM listed check valves and flash back arrestors attached to the regulator side of their oxyacetylene cutting units.
- Subcontractors shall furnish their own fire extinguishers. Units shall be of type and size suitable for the job to be completed and listed as such in the hazard analysis.
- Inspections tags and seals shall be current for all extinguishers used on all jobs.

4.3 Welding, Burning, Brazing, or Spark Producing Operations

 Fermilab

WELDING CUTTING BRAZING

PERMIT NO. _____

AREA _____
Dept. Bldg. Area

DATE ISSUED _____ FROM _____ TO _____
Time

EXPIRES _____

CHECK LIST

<input type="checkbox"/> FIRE EXTINGUISHERS	<input type="checkbox"/> EXITS
<input type="checkbox"/> TELEPHONE EXT. _____	<input type="checkbox"/> CONFINED SPACE
<input type="checkbox"/> DETECTORS/SPRINKLERS	<input type="checkbox"/> TWO MAN RULE
<input type="checkbox"/> HALON SYSTEM	<input type="checkbox"/> FIRE WATCH
<input type="checkbox"/> COMBUSTIBLES	<input type="checkbox"/> DOSIMETER/FILM BADGE
<input type="checkbox"/> FLAMMABLE GASES	<input type="checkbox"/> SPECIAL NOTIFICATION
<input type="checkbox"/> REMOTE AREA	<input type="checkbox"/> VENTILATION

FLASHBACK ARRESTORS REQUIRED ON ALL OXYACETYLENE EQUIPMENT

DESCRIBE THE JOB _____

TO BE DONE BY: _____

EMPLOYED BY: _____

FERMILAB EMPLOYEE RESPONSIBLE:

Dept. Employee's Name

ALARM/EXTINGUISHING SYSTEM DISABLEMENT
NECESSARY? _____

SPECIAL INSTRUCTIONS: _____

PERMIT ISSUED BY: _____

FIRE PREVENTION CAPT. _____

DIAL 3131 for Emergencies
DIAL 3428 for Fire Department Business Phone

5.0 REFERENCES

- FESHM 6010, Fire Protection Program
- FESHM 6030, Disablement of Fire Protection Systems
- FESHM 7010, ES&H Program for Construction
- OSHA 1910.252, Subpart Q, Welding, Cutting, and Brazing
- Fermilab's Fire Department procedure FD-RO-202
- American National Standard (ANSI) Z-49.1 Safety in Welding, Cutting and Allied Processes, which identifies safety precautions, including personal protective equipment.
- NFPA 51B, Standard For Fire Prevention During Welding, Cutting, & Other Hot Work, 2014 Edition