

PROPERTY PROTECTION: PROTECTING YOUR ENTERPRISE

Maurice Marvi
Property Loss Control Expert
MunichRe Specialty Insurance

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**Thank you for allowing me to speak
with you again!**

Property Perils

FIRE	WATER	WIND
HAIL	AIRCRAFT	RIOT
VEHICLES	EXPLOSION	SMOKE

Property Perils

FIRE

What is Fire?

From the National Fire Protection Association (NFPA)

A rapid oxidation process, which is a chemical reaction resulting in the evolution of light and heat in varying intensities.

Fire has it's place

- Cooking
- Heating
- Controlled Processes

Preventing Destructive Fire

Fire requires 3 elements

- Oxygen
- Fuel
- Source of Ignition (Spark)

Oxygen

- Air is 21% Oxygen

Limited Control

- Oxidizers

Pool Chemicals, Water treatment, Welding Gases,

Fuel

- Limit supplies to needs
- Housekeeping

Fuel

- Keep areas near sources of ignition free of combustibles
 - Heating Equipment
 - Electrical Service
 - Cooking equipment
- Control Combustible load
 - Storage
 - Decorative assemblies
 - Substitution of less combustible materials
- Limit and control combustible waste
 - Use appropriate containers
 - Clear receptacles regularly
- Oxidizing agents
 - Watch for incompatible storage

Source of Ignition (Spark)

- Heating Elements
- Electrical Equipment
- Cooking Equipment
- Smoking
- Candles
- Hot Work

Source of Ignition (Spark)

- Smoking Control
 - As education facilities, smoking on campus is tightly controlled
 - As a result, control of surreptitious smoking is a high priority

Source of Ignition (Spark)

- Electrical Equipment
 - Thermographic (Infrared) Testing
 - Frequency is based on power and use
 - Overloading of circuits
 - Our infrastructure was not built for the proliferation of devices
 - Computer/Tablets/Cell Phones
 - LCD Panels/Projectors

Source of Ignition (Spark)

- Electrical Equipment (Continued)
 - Temporary Fixtures
 - Lighting
 - Holiday
 - Special Events
 - Extension Cords
 - Minimize Use
 - Inspect

Source of Ignition (Spark)

- Electrical Equipment (Continued)
 - Lithium Ion Batteries
 - Personal Mobility (Scooters, “Hoverboards”, E-Bikes)
 - Power tools
 - Computers/Tablets/Battery Banks
 - The Hazard
 - Unauthorized repairs to batteries
 - Batteries with no UL or similar listing

Source of Ignition (Spark)

- Cooking
 - Housekeeping – Noted before
 - Appropriate equipment and Location
 - Treat temporary cooking like Hot Work

Source of Ignition (Spark)

Hot Work

Hot Work

- Know what constitutes Hot Work
- Hot Work Designated Area
- Hot Work Program
 - Documented
 - In House and Contractors

What is Hot Work

From NFPA 51B

Standard for Fire Prevention During Welding, Cutting, and Other Hot Work

3.3.4 Hot Work.

Work involving burning, welding, or a similar operation that is capable of initiating fires or explosions.

From NFPA 241

Standard for Safeguarding Construction, Alteration, and Demolition Operations

A.3.3.7 Hot Work.

As applies to this standard, hot work includes cutting, welding, Thermit welding, brazing, soldering, grinding, thermal spraying, thawing pipe, torch-applied roofing, or any other similar activity.

What is Hot Work

Welding / Burning

Brazing

Cutting

Grinding or Drilling Ferrous Metals

Propane Soldering

Burning

Oxyacetylene Cutting

Torch Applied Roofing

Operations capable of initiating FIRE or EXPLOSION

What is *not* Hot Work

Hot Work performed in a “Designated Area”

What is a Designated Area?

Designated Area (NFPA51B 3.3.6.1)

“A specific location **designed and approved for hot work operations that is maintained fire-safe**, such as a maintenance shop or a detached outside location, that is of noncombustible or fire-resistive construction, essentially free of combustible and flammable contents, and suitably segregated from adjacent areas.”

What is a Hot Work Program?

- Documented
- Applicable to In House personnel and Contractors equally

Why a Hot Work Program?

December 2022

Chesterton Indiana

Westchester Intermediate School

September 2022

Worcester Massachusetts

Doherty Memorial High School

Hot Work Program Basics

1. Determining that this work is necessary
2. Confirmation that Fire Protection is in place and not impaired
 - Sprinkler Protection - Fire Extinguishers - Smoke Detection - Hose Stations
3. Confirmation that those performing Hot Work and Fire watch are trained in procedure
4. Inspection of and Confirmation that Hot Work equipment is in good working order
5. Combustibles Cleared within 35 feet of work
6. Fire Watch
7. Final inspection

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7. **Final inspection**

How About Some Details?

1. Hot Work Permit
2. Team Members
 - i. Permit Authorizing Individual – PAI
 - ii. Hot Work Operator
 - iii. Fire Watch
3. Process
 - i. Preparation
 - ii. Execution
 - iii. Wrap Up

How About Some Details?

1. Hot Work Permit

2. Team Members

- i. Permit Authorizing Individual – PAI
- ii. Hot Work Operator
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3. Process

- i. Preparation
- ii. Execution
- iii. Wrap Up

Hot Work Permit

The Hot Work Permit documents 4 steps of the procedure

1. Scope of work to be performed
2. Agreement by the PAI to perform the work
3. Sign off by the operator at the completion of the work
4. Sign off by the PAI that the Fire Watch is complete.

When complete, the PAI (Permit Authorizing Individual) should file the permit for review during safety audits by in house safety management, or an Authority Having Jurisdiction



PERMIT FOR CUTTING AND WELDING WITH
PORTABLE GAS OR ARC EQUIPMENT

DATE	BUILDING	DEPARTMENT	FLOOR
WORK TO BE DONE			
SPECIAL PRECAUTIONS			
IS FIRE WATCH REQUIRED?			
The location where this work is to be done has been examined, necessary precautions taken, and permission is granted for this work. (See other side.)			
Permit expires			
Signed (Individual responsible for authorizing welding and cutting)			
Time Started Completed			
FINAL CHECK			
Work area and all adjacent areas to which sparks and heat might have spread [including floors above and below and on opposite side of wall(s)] were inspected 30 minutes after work was completed and were found fire safe.			
Signed (Supervisor of Fire Watcher)			
This permit does not purport to set forth all hazards nor to indicate that other hazards do not exist. By providing this permit, neither HSB Professional Loss Control nor any of its employees makes any warranty, express or implied, concerning the use of this permit. Furthermore, neither the Company nor any of its employees shall be liable in any manner (other than liability that may be expressed in any policy of insurance that may be issued by the Company) for personal injury or property damage or loss of any kind arising from or connected with this permit.			
7/11 RPU/4/13 (FWS) Taken from MP26 5/10, Appendix 6			

ATTENTION

Before approving any cutting and welding permit, the fire safety supervisor or appointee shall inspect the work area and confirm that precautions have been taken to prevent fire in accordance with NFPA 51B.

PRECAUTIONS

☐ Sprinklers in service
☐ Cutting and welding equipment in good repair

WITHIN 35FT OF WORK

☐ Floors swept clean of combustibles
☐ Combustible floors wet down, covered with damp sand, metal or other shields
☐ No combustible materials or flammable liquids
☐ Combustibles and flammable liquids protected with covers, guards, or metal shields
☐ All wall and floor openings covered
☐ Covers suspended beneath work to collect sparks

WORK ON WALLS OR CEILINGS

☐ Construction noncombustible and without combustible covering
☐ Combustibles moved away from opposite side of wall

WORK ON ENCLOSED EQUIPMENT
(Tanks, containers, ducts, dust collectors, etc.)

☐ Equipment cleaned of all combustibles
☐ Containers purged of flammable vapors

FIRE WATCH

☐ To be provided during and 30 minutes after operation
☐ Supplied with a fully charged and operable fire extinguisher or small hose
☐ Trained in use of equipment and in sounding fire alarm

FINAL CHECK

☐ To be made 30 minutes after completion of any operation unless fire watch is provided.

Signed (Supervisor)

How About Some Details?

1. Hot Work Permit

2. Team Members

- i. *Permit Authorizing Individual – PAI*
- ii. *Hot Work Operator*
- iii. *Fire Watch*

3. Process

- i. Preparation
- ii. Execution
- iii. Wrap Up

1. Team Members

- i. *Permit Authorizing Individual – PAI*
 - a. *This is usually the manager overseeing the operation*
 - 1) *Reviews the work to be done*
 - 2) *Inspects the worksite to make sure combustibles are removed or protected*
 - 3) *Issues the Hot Work Permit*
 - 4) *Signs off Hot Work Permit after the end of the Fire Watch and files it for review*
- ii. *Hot Work Operator*
 - a. *Inspects the worksite to make sure combustibles are removed or protected*
 - b. *Inspects equipment*
 - c. *Posts the Hot Work Permit*
 - d. *Performs the Hot work*
- iii. *Fire Watch*
 - a. *A SEPARATE PERSON*
 - b. *Assists in preparing the work site*
 - c. *Observes the operation*
 - d. *Reacts to any fugitive sparks that could ignite surrounding equipment*
 - e. *Observes the site for 60 minutes after the work is complete*

How About Some Details?

1. Team Members

- i. Permit Authorizing Individual – PAI
- ii. Hot Work Operator
- iii. Fire Watch

2. Hot Work Permit

3. Process

- i. *Preparation*
- ii. *Execution*
- iii. *Wrap Up*

The Hot Work Process

Preparation

1. Fire Protection is in place and not impaired
 - Sprinkler Protection - Fire Extinguishers - Smoke Detection - Hose Stations
2. Hot Work Operator and Fire watch are trained in procedure
3. Hot Work equipment is in good working order
4. Combustibles Cleared within 35 feet of work

Hot Work Ignition Causes

Factor Contributing to Ignition	Fires		Damage (in Millions)	
Heat source too close to combustibles	940	(48%)	\$45	(42%)
Cutting or welding too close to combustibles	540	(28%)	\$30	(28%)
Equipment not being operated properly	120	(6%)	\$4	(4%)
Unclassified misuse of material or product	80	(4%)	\$3	(3%)
Equipment unattended	60	(3%)	\$2	(2%)
Unclassified factor contributed to ignition	50	(2%)	\$3	(3%)
Equipment used for unintended purpose	40	(2%)	\$1	(1%)
Electrical failure or malfunction	40	(2%)	\$1	(1%)
Unclassified operational deficiency	30	(2%)	\$11	(11%)
Unintentionally turned on or not turned off	30	(2%)	\$1	(1%)
Other known factor	180	(9%)	\$14	(13%)
Total fires	1,980	(100%)	\$106	(100%)
Total factors	2,120	(107%)	\$114	(108%)

Source: Structure Fires Caused by Hot Work, NFPA June 2021

Hot Work Clearance Requirements

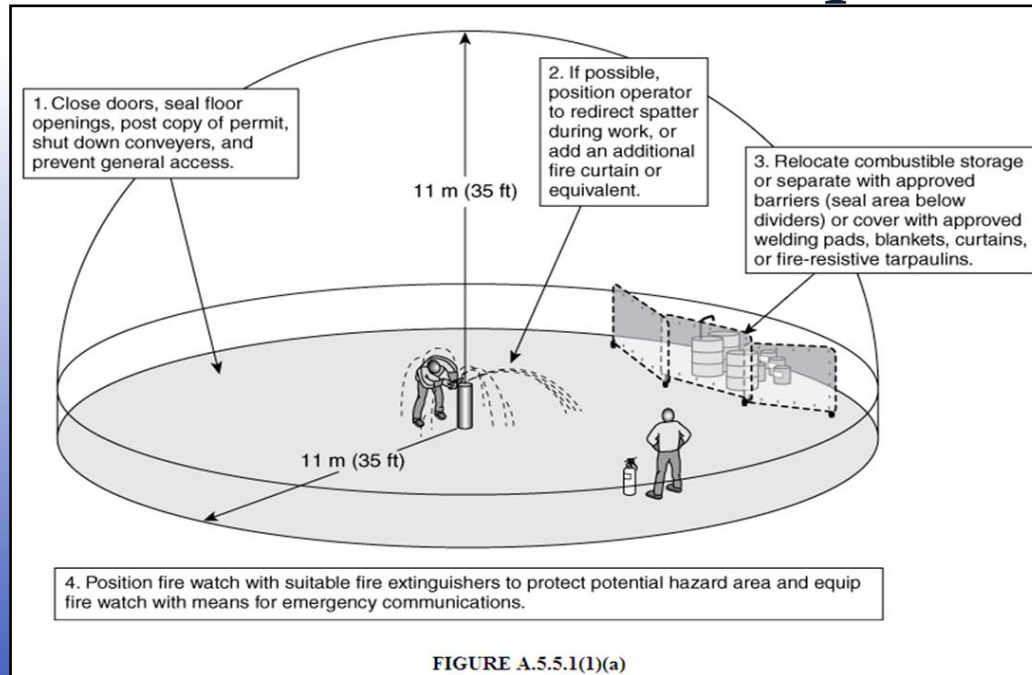
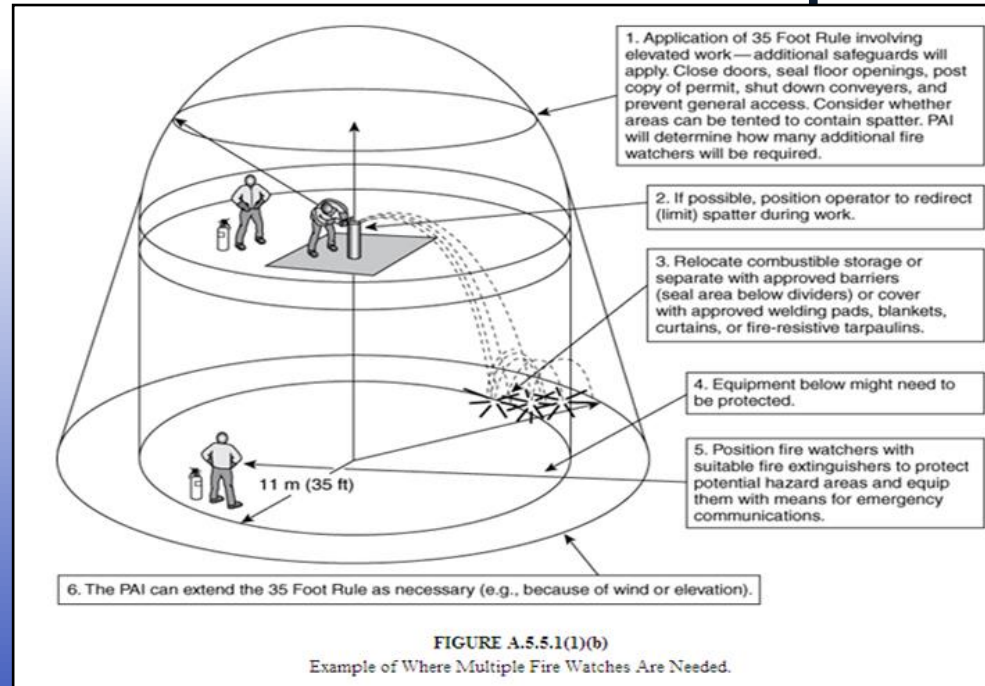


FIGURE A.5.5.1(1)(a)

Hot Work Clearance Requirements



Hot Work Extended Hazards

Dealing with Combustible Construction, Flammable Liquids, and Gases

Where Hot Work is being considered on or near composite panels

If combustible insulation is identified or suspected

Alternative methods must be adopted and **No Hot Work performed.**

Combustible materials or linings within concealed or enclosed spaces are removed and/or protected.

Combustible Construction elements should be covered with properly sized fire resistive barriers.

Purge equipment of flammable vapors or liquids.

Remove from service, isolate, or vent pressurized vessels, piping, and equipment.

Questions? Ask!

Hot Work Wrap Up

The work isn't done until

- The tools have been put away

- Welding Rod stubs and other hot waste has been gathered and disposed of.

- The Fire Watch has been completed (60 Minutes after the end of the work)

- The Operator has signed the Permit

- The PAI individual has:

 - Inspected the site

 - Approved the end of the Fire Watch

 - Signed off and filed the permit

Your Experience May Vary

Local Knowledge is important

Preparation is key.

How Can MunichRe Specialty Help?





Munich RE



HSB

Hartford Steam Boiler

PERMIT FOR CUTTING AND WELDING WITH PORTABLE GAS OR ARC EQUIPMENT

DATE	BUILDING	DEPARTMENT	FLOOR
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WORK TO BE DONE _____

SPECIAL PRECAUTIONS _____

IS FIRE WATCH REQUIRED? _____

The location where this work is to be done has been examined, necessary precautions taken, and permission is granted for this work.
(See other side.)

Permit expires _____

Signed _____
(Individual responsible for authorizing welding and cutting)

Time Started _____ Completed _____

FINAL CHECK

Work area and all adjacent areas to which sparks and heat might have spread (including floors above and below and on opposite side of wall(s)) were inspected 30 minutes after work was completed and were found free of fire.

Signed _____
(Supervisor of Fire Watcher)

This permit does not purport to set forth all hazards nor to indicate that other hazards do not exist. By providing this permit, neither HSB Professional Loss Control nor any of its employees makes any warranty, express or implied, concerning the use of this permit. Furthermore, neither the Company nor any of its employees shall be liable in any manner (other than liability that may be expressed in any policy of insurance that may be issued by the Company) for personal injury or property damage or loss of any kind arising from or connected with this permit.

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Signed _____
(Supervisor)

2311 REV 9/03 (ENG) Taken from NFPA 51B, Appendix A

Thank you

Maurice Marvi

mmarvi@munichre.com

+1 332 209 3419