

# Property Loss Management Insurance Premium Discount Program

Presentation Segment #5 "Hot Works"

#### FY2011 Property Loss Management Program:

This is a voluntary program offered by the Risk Management & Tort Defense (RMTD) Division.

State agencies and universities that establish and maintain comprehensive and effective Property Loss Management programs can earn a property insurance premium discount of up to 10%.



#### Property Loss Management Program Requirements:

- 1. Complete a Notice of Election Form signifying desire to participate in this program
- 2. Review property claims activity
- 3. Submit schedules of preventative maintenance
- 4. Submit checklists for self-inspections
- 5. Submit policies and procedures for:
  - a. Hot works
  - b. Impairment testing of fire protection equipment
  - c. Pre-fire emergency planning
  - d. Cold weather precautions
- 6. Provide construction/renovation plans involving/affecting fire suppression systems
- 7. Provide written response to recommendations



#### This Presentation Segment discusses the following Requirement:

- 5. Submit policies and procedures for:
  - a. Hot works



### What is Hot Works?

IFC Definition (International Fire Code 2009):

Operations including cutting, welding, Thermit welding, brazing, soldering, grinding, thermal spraying, thawing pipe, installation of torch-applied roof systems or any other similar activity.

**OSHA Definition** (Occupational Safety & Health Administration) (Standard 29 CFR 1917.152(a): Welding, cutting and heating (hot work)):

Riveting, welding, flame cutting or other fire or spark-producing operation.

NFPA Preferred Definition (National Fire Protection Association 2005): Work involving burning, welding, or similar operation that is capable of initiating fire or explosion.



#### NFPA Secondary Definitions:

Any work that is a source of ignition, including open flames, cutting and welding, sparking of electrical equipment, grinding, buffing, drilling, chipping, sawing, or other similar operations that create hot metal sparks or surfaces from friction or impact.

Operations including cutting, welding, Thermit welding, brazing, soldering, grinding, thermal spraying, thawing pipe, torch-applied roofing, or any other similar situation.

Any activity involving riveting, welding, burning, the use of powder actuated tools or similar fire producing operations as well as grinding, drilling, abrasive blasting, or similar operations not isolated physically from any atmosphere containing more than 10 percent of the lower explosive limit of a flammable or combustible substance.

Any work involving burning, welding, or similar operations that is capable of initiating fires or explosions.

Any work involving burning, spark producing, welding, or similar operations that is capable of initiating fires or explosions.



### What is Hot Works?









#### **Operations including:**

- cutting,
- ✓ welding,
- ✓ Thermit welding,
- ✓ brazing,
- ✓ soldering,
- ✓ grinding,
- ✓ thermal spraying,
- $\checkmark$  thawing pipe,
- ✓ installation of torch applied roof systems
- $\checkmark$  or any other similar activity



### What is Hot Works?









# Or any other similar activity which produces:



- ✓ slag
- ✓ molten material,
- ✓ similar waste products

Or any other similar activity which:

- is capable of initiating fire or explosion
- $\checkmark$  is a source of ignition



Hot work continues to be a leading cause of industrial fires.

- Hot work consistently ranks in the top five across all industries as a cause of fires.
- Hot work losses are costly- more than 3X smoking related losses, and 1.5X housekeeping related causes.

✓ Hot work claims are common.

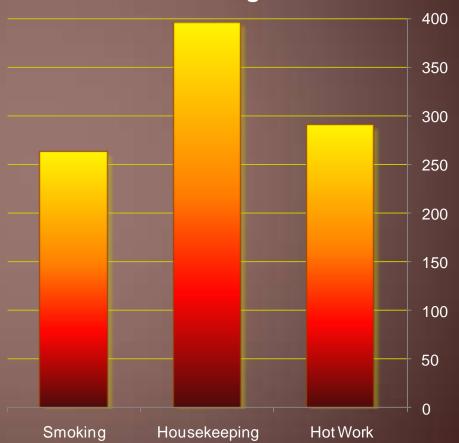


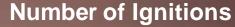
Statistics from a major insurance company for a recent 5-year period showed the average loss for hot work ignitions far exceeded those of other common causes.





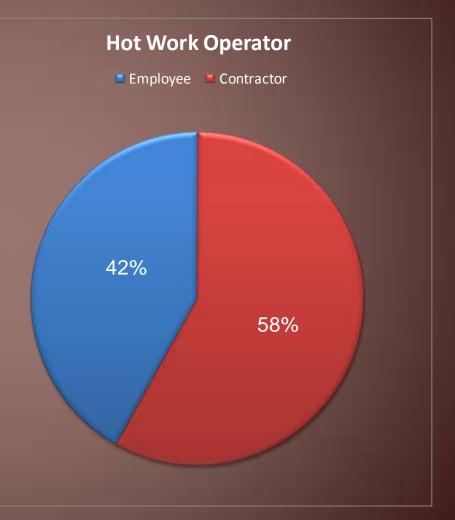
Statistics from a major insurance company for a recent 5-year period showed hot work continually ranked highly as a cause of ignitions.







Statistics from a major insurance company for a recent 5-year period showed 42% of hot work ignitions were caused by employees while 58% were caused by outside contractors.

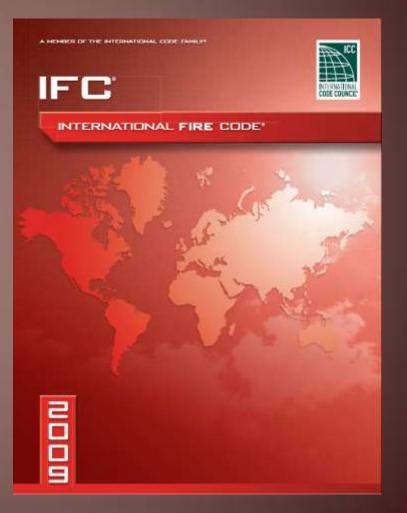




#### What is a Hot Works Program?

For the Property Loss Management Program, RMTD considers the requirements set by International Fire Code 2009 Edition (IFC2009).

The State of Montana, State Fire Marshall has adopted this as the source of Code for the state.





General:

(IFC 2009, Section 2601)

Hot work shall only be conducted in areas designed or authorized for that purpose by the personnel responsible for a Hot Work Program.

Areas designed for hot work include some shop area. These areas may be designed for this purpose however, precautions are required nonetheless.

Areas authorized for hot work are areas not designed for this purpose. Because they are not designed for hot work, precautions must be taken to make these areas safe for hot work activities.

There are areas which cannot be made safe and situations which are not safe for hot work activities.



(IFC 2009, Section 2601)

Hot work shall not be conducted in the following areas unless approval has been obtained from the fire code official:

1. Areas where the sprinkler system is impaired.





(IFC 2009, Section 2601)

Hot work shall not be conducted in the following areas unless approval has been obtained from the fire code official:

2. Areas where there exists the potential of an explosive atmosphere, such as locations where flammable gases, liquids or vapors are present.





(IFC 2009, Section 2601)

Hot work shall not be conducted in the following areas unless approval has been obtained from the fire code official:

3. Areas with readily ignitable materials, such as storage of large quantities of bulk sulfur, baled paper, cotton, lint, dust or loose combustible materials.





(IFC 2009, Section 2601)

Hot work shall not be conducted in the following areas unless approval has been obtained from the fire code official:

5. At other locations as specified by the fire code official.





(IFC 2009, Section 2601)

Compressed gas cylinders and fuel containers shall comply with this chapter and Chapter 30, <u>Compressed Gases</u>.





# Definitions:

(IFC 2009, Section 2602)

HOT WORK AREA. The area exposed to sparks, hot slag, radiant heat, or convective heat as a result of the hot work.

HOT WORK PERMITS. Permits issued by the responsible *person* permitting welding or other hot work to be done in locations referred to in Section 2603.3 and pre-permitted.

➢ Hot work permits are not issued by the fire department or fire code official. Flexibility is given to allow facilities to designate a trained, responsible individual.

**HOTWORK PROGRAM.** A permitted program, carried out by *approved* facilities-designated personnel, allowing them to oversee and issue permits for hot work conducted by their personnel or at their facility. The intent is to have trained, on-site, responsible personnel ensure that required hot work safety measures are taken to prevent fires and fire spread.



# Definitions:

(IFC 2009, Section 2602)

**RESPONSIBLE PERSON (**Permit Authorizing Individual**).** A person trained in the safety and fire safety considerations concerned with hot work.

Responsible for reviewing the sites prior to issuing permits as part of the hot work permit program and following up as the job progresses.

- This is the person designated and authorized to administer the hot work program. They should be trained in hot work operations and fire safety.
- Since this person reviews sites prior to issuing hot work permits (if they approve) this person should not be the hot work operator.



# Individuals



Responsible Person (Permit Authorizing Individual) - This is a facility employee with the knowledge and authority to administer the hot work program.



Hot Work Operator- This is an employee or contractor who performs the actual hot work activity.



Fire Watch- This is an individual responsible to be present during hot work activities and monitoring the areas for fire. This could be an employee or a contractor's employee.



Monitor- This is an individual who checks on the hot work area for a period of time after the work is completed. This is usually an employee.



# General Requirements:

(IFC 2009, Section 2603)

Hot work permits shall be available for review before during, and after the work.

- Proper signatures, indications of precautions taken, and all required copies of the permit should be available.
- Review may be by the facility's personnel, the responsible person, RMTD, or others.





# **General Requirements:**

(IFC 2009, Section 2603)

A permit for hot work operations shall not be issued unless the individuals in charge of performing such operations are capable of performing such operations safely.

- The Permit Authorizing Individual should confirm this prior to issuing a hot work permit.
- Every job is different making it impractical to consider an individual 'qualified' in a blanket fashion.
- The qualifications of contractors should considered.





## **General Requirements:**

(IFC 2009, Section 2603)

Visible hazard identification signs shall be provided at the hot work area. Where the hot work area is accessible to persons other than the *Hot Work Operator*, conspicuous signs shall be posted to warn others.

- Often this signage is conveniently provided on the back of the hot work permit.
- Multiple warning signs may be needed.
- Discussion of the work process and safety concerns can be beneficial.
- Signage is also needed at fixed hot work locations when hot work activities are underway.



WARNING!



(IFC 2009, Section 2604)

- These requirements should be incorporated in the permit program.
- Check-offs can be on the permit form to assist those involved and to document precautions are met.
- Required precautions must be taken prior to hot work activities being permitted to begin.
- Required precautions can vary and are specific to the job.
- The *Permit Authorizing Individual* verifies a safe condition is established per these requirements prior to issuing a permit authorizing hot work activities.



(IFC 2009, Section 2604)

#### Combustibles:

Hot work areas shall not contain combustibles or shall be provided with appropriate shielding to prevent sparks, slag or heat from igniting exposed combustibles.

- Ideally the hot work area should be void of combustibles in all directions.
- A shield may need to be both noncombustible and insulating.
- This condition should be verified by the hot work operator and the permit authorizing individual.





(IFC 2009, Section 2604)

#### Openings:

Openings or cracks within the hot work area shall be tightly covered or shielded to prevent passage of sparks or slag.

- Shielding should be by metal fire-resistant guards.
- Approved curtains may be used.
- This condition should be verified by the hot work operator and the permit authorizing individual.





(IFC 2009, Section 2604)

#### Floors:

Floors shall be kept clean within the hot work area.

For fixed hot work areas, the floor should be of noncombustible material.

- This is a basic fire safety issue.
- Extra attention may be warranted in buildings under renovation because of a higher concentration of dust and other combustibles.
- This condition should be verified by the hot work operator and the permit authorizing individual.





(IFC 2009, Section 2604)

#### Conveyors:

Conveyor systems that are capable of carrying sparks to distant combustibles shall be shielded or shut down.

This condition should be verified by the hot work operator and the permit authorizing individual.





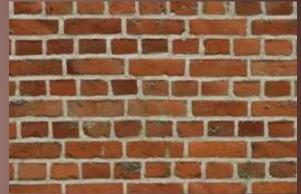


(IFC 2009, Section 2604)

#### Partitions:

Partitions segregating hot work areas from other areas shall be noncombustible. In fixed hot work areas, partitions shall be securely connected to the floor. Partitions shall prevent the passage of sparks, slag, and heat from the hot work area.

- Conscious awareness of partitions should be given avoiding assumptions of their integrity.
- This condition should be verified by the hot work operator and the permit authorizing individual.





(IFC 2009, Section 2604)

#### Flammables:

Hot work shall not be performed on containers or equipment that contains or has contained flammable liquids, gases or solids until the containers and equipment have been thoroughly cleaned, inerted or purged.

- Exception: "hot tapping" may be allowed on tanks and pipe lines when such work is conducted by *approved* personnel. The facility may address this exception.
- This condition should be verified by the hot work operator and the permit authorizing individual.





(IFC 2009, Section 2604)

#### Sprinkler Protection:

Automatic sprinkler protection shall not be shut off or impaired while hot work is performed. As needed, noncombustible barriers or damp cloth guards may shield sprinkler heads and must removed when the work is completed.

- When sprinklers are shielded, responsibility should be assigned to removing the shielding after the work is completed. This additional requirement may be added to the permit form by the permit authorizing individual.
- This condition should be verified by the hot work operator and the permit authorizing individual.





(IFC 2009, Section 2604)

#### Fire Detection:

*Approved* special precautions shall be taken to avoid accidental operation of automatic fire detection systems.

- IFC does not provide methodologies for achieving this.
- If fire detection systems are de-activated, additional fire watches should be required by the permit authorizing individual. Systems should be re-activated as soon as permissible.
- This condition should be verified by the hot work operator and the permit authorizing individual.



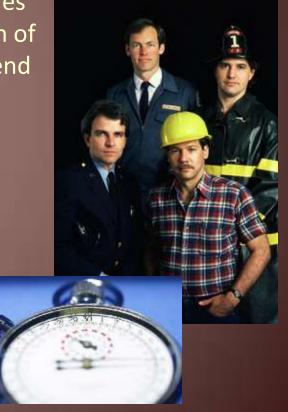


(IFC 2009, Section 2604)

#### Fire Watch (Time):

A fire watch shall be provided during hot work activities and for a minimum of 30 minutes after the conclusion of the work. The permit authorizing individual, may extend the period for a fire watch.

- The requirement of 30 minutes may not be lessened.
- More than one fire watch may be required.
- The hot work operator should ensure fire watch is positioned prior to beginning hot work activities.
- A procedure for the assignment of fire watch personnel should be established.



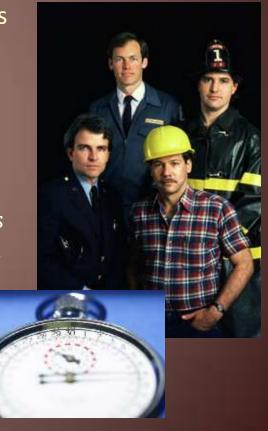


(IFC 2009, Section 2604)

#### Fire Watch (Exception):

<u>Exception</u>: Where the hot work area has no fire hazards or combustible exposures, a fire watch may not be required.

- An exception is provided by IFC for when combustibles are simply not present. This should be a rare exception and confirmed by the permit authorizing individual.
- The facility may address this exception.



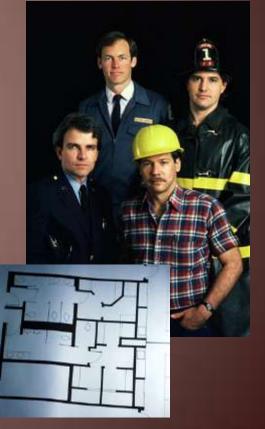


(IFC 2009, Section 2604)

### Fire Watch (Position):

The fire watch shall include the entire hot work area to include vertical or horizontal fire exposures that are not observable by a single individual.

- The type of application of hot work, the configuration and layout of the space, and the types of materials in the area should be considered when determining the positioning and number of fire watches.
- Fire watches should be able to watch the entire area with all senses (see, hear, smell).
- The permit authorizing individual may make requirements of fire watch numbers of positioning.



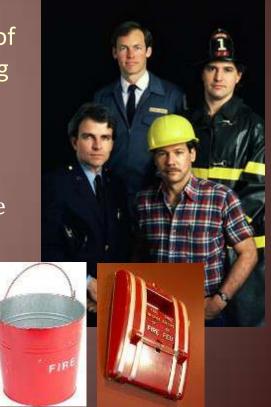


(IFC 2009, Section 2604)

### Fire Watch (Equipping & Responsibilities):

Fire watch individuals shall have fire-extinguishing equipment readily available and be trained in the use of such equipment. They are responsible for extinguishing spot fires and communicating an alarm.

- Fire watches should identify and extinguish fires in the incipient stage when possible, and activate the emergency response plan as needed.
- Fire watch individuals require training.
- Fire-extinguishing equipment may vary.
- This condition should be verified by the fire watch, work operator and the permit authorizing individual prior to beginning hot work activities.



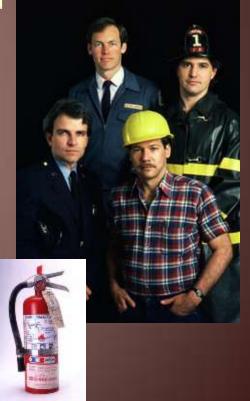


(IFC 2009, Section 2604)

### Fire Watch (Training):

The hot work operator and fire watch(es) shall be trained in the use of portable fire extinguishers. At least one 2A:20B:C extinguisher shall be readily available (within 30-feet) of the hot work area.

- Individuals need to be trained in the operation of fire control equipment they are charged to use.
- Each fire watch needs to be equipped.
- The fire watch, hot work operator and the permit authorizing individual should ensure individuals are properly trained and equipped prior to beginning hot work activities.





(IFC 2009, Section 2604)

#### Area Reviews:

Before hot work is permitted, the area shall be inspected by the permit authorizing individual to ensure that it is a fire safe area. Information shown on the permit should be verified prior to signing the permit and authorizing the work.

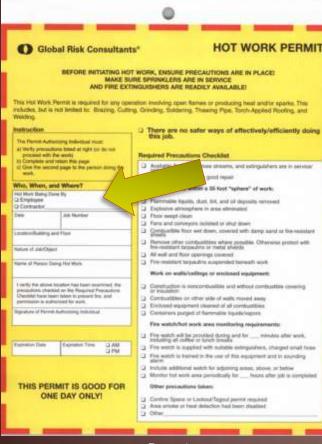


- The permit authorizing individual should personally preview the area before authorizing the work to begin.
- If the area is not safe, a permit should not be issued. The area should be made safe or alternatives should be sought.
- The work area should be reviewed daily. Hot work permits should not be issued for greater than 1-day. After 1-day the permit authorizing individual can issue a new permit or extend the existing permit after full review.





Before any hot work , the job should be reviewed to identify if there is a safer way of effectively/efficiently doing the job.



Page 1

The WHO, WHEN and WHERE information of the permit is completed

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The applicable precautions are taken and confirmed.

This can be done by the work control staff or the hot work operator for examples.

(If the work will performed by a contractor, you may ensure precautions are in place prior to their arrival.)



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Global Risk Consultant	s* HOT WORK PERM
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permit authorizing individual reviews the hot work permit and the hot work area to verify that applicable precautions are taken to ensure a safe operation.

✓ The hot work area is visited.



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() Otar		<ul> <li>Area entrole of fault shills/son had been disabled</li> <li>Other</li> </ul>
1 case		H.M. M.

The permit authorizing individual may extend the time a fire watch is required, or require additional fire watches.

A fire watch shall be provided during hot work activities and shall continue for a minimum of 30 minutes after the conclusion of the work.



This seed Milcole 2	AND FIRE EX	OT WORK, ENSURE PRECAUTIONS ARE IN PLACED UNE SPRINGLERS ARE IN SUSANCE THIGUESHERS ARE READILY AVAILABLED withon involving open Sames or producing heat and/or sparke. The		
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		D Ottai		

Page 1

The permit authorizing individual may extend the time a fire monitor must monitor the area.

 A fire monitor must check the area for at least 6 hours following the conclusion of the work.



This Seed March					
No. and Mark		IT WORK, ENSURE PRECAUTIONS AIRE IN PLACE: URE SPRINKLERS ARE IN SERVICE TINGUESHERS ARE READICY AVAILABLE:			
		wation involving open flames or producing heat and/or sparks. The ing, Grinding, Soldaring, Treaming Pipel, Torch-Applied Roofing, and			
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and a finding	and Plant	Contraction from well down, sowered with samp sand as the resistant			
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pertosano a autoread lor april. Digesture of Parrisk Automatics Instalated		Evolveed equipment cleaned of all combustibles			
Digentions of Parry	a summing residual	Centervers garged of fairmable liquids/vagars			
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		2 Finy watch will be perchded during and her minutes after work, installing at colles or furch lowada.			
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		Another feet work area periodically forinsues after job is completed.			
THIS PER	RMIT IS GOOD FOR	Other processions taken:			
	E DAY ONLY!				
	A STREET AND A STREET	Control Spece of Lociout/Tagest permit required     Anix amples of text brind/Son had been disabled			
		2) Offer			

Page 1

### The permit authorizing individual may place other requirements on the hot work operation.

## Protection of the sprinkler system. Special notifications. Address special hazards.



O Globa	I Risk Consultant	ts*	HOT WORK PERM
	MAKE SU	JHE SI	RI, ENSURE PRECAUTIONS AIRE IN PLACE: PRINKLERS ARE IN SERVICE SHERS ARE READILY AVAILABLE:
			Instituting open Barnes or producing heat and/or sparks. This inding, Soldaring, Theating Pipe, Torsh-Applied Roofing, and
tratruction	the last literal street.	•	There are no safer ways of effectively/efficiently doin this job.
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El Congilese and ret El Gine frei ascond ; siark.	nale in the period doing the	9	Available Openation, hope admonts, and estinguishers are in service/ openation Hot Work essignment in good insuli
Who, When, and	WhereT	-	
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Nation of July Object		9	Remove other conductities where possible. Otherwise protect with the resultant terpsolars or metal alweds.
Name of Parson Dong Hor Work		13	All wall and floor opportings contend five-resistant targanities suspended tarmath work
and a ranke being		1	Work an address ga or ancionad equipment:
precautions shakked	Mort Ras Sear reserved or the Resident Presari state to preserve bry, an address to preserve		churidas and without combusities covering another sale of walls moved away
Digendury of Parriel Au		10	Centervers purporterit cleaned of all combustibles Centervers purporter flammable liquids/vegars
		1	www.munitoring.requirements:
	/ -		tool during and forminutes after work, -
Expression Date	Expension Town		when is supplied with suitable extinguishers, charged unail free
		10	Fire worth to horized in the use of this equipment and in paunding starm hubble additional worth for adjusting assue, shows, or below
THIS PERM	IT IS GOOD FOR	1	Monitor tort work area periodically for Hours after job is complete Other preclassificities takam:
ONE DAY ONLY			Continu Space or Locious/Tegend permit required

### The

permit authorizing individual signs the permit, authorizing the work to begin only if conditions warrant. Expiration date & time are provided.

- Permits are valid for 1 day only.
- If work lasts more than 1day, a new permit should be issued at that time.



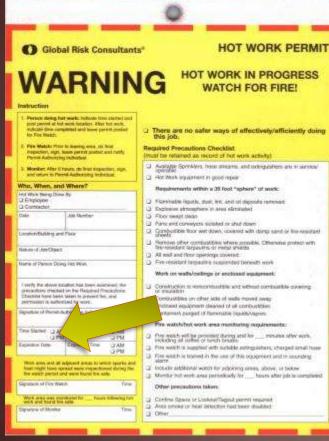
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This Hol Work P	AND	MAKE SURE FIRE EXTIN	NORK, ENGURE PRECAUTIONS ARE IN PLACE ESPIRINCERS ARE IN SERVICE DUSHERS ARE READLY AVAILABLE! Ion Insulving open fames or producing heat and/or sparks. The Gending, Soldering, Theasen Jple, Stork-Appled Rocks, and
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			<ul> <li>Benove other conductities where populate. Otherwise primit at</li> </ul>
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Narise of Parasis Georg Hos Work			Fre-mildent terpeding suspended termedit wolk.
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			Fire watchhol work area manitaring requirements
Experience Dates	Exception Tree	MAC	2 Fire watch will be provided during and for minutes after work, installing all coffee or functionals.
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			Five watch to betreef in the use of this equipment and in sounding alarm
			Q. Induits additional watch for adjancing areas, above, or below
		and and	<ol> <li>Monitor fort work area periodically for hears after job is comp</li> </ol>
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ONE	DAY ONLY!	one of the second	(a Confirm Spann in Lockow/Tegoul partial resolved)
			Area employ of head shinetion had been disabled.
			() Other

Page 1

Page 1 of the hot work permit is filed with the permit authorizing individual or responsible person.

The permit is tracked through the completion of the hot work activity.





Page 2

The hot work operator indicates on the permit the time the work started and posts the permit at the site.

 The work should not begin if the fire watch is not set, precautions are not confirmed, or the operation is not deemed to be safe.

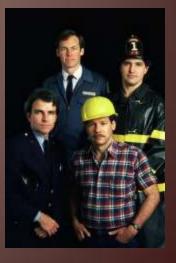


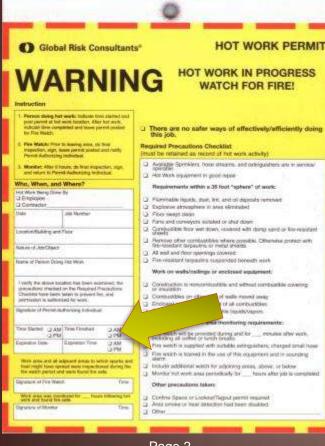


Page 2

The fire watch monitors the work area and adjacent areas during the hot work activity and for a minimum of 30 minutes after the conclusion of the work.

The permit may require fire watch for more than the minimum 30-minutes.
The permit may require more than one fire watch.

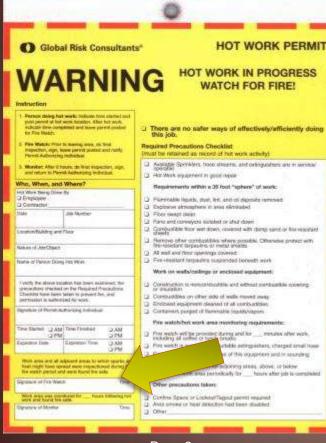




Page 2

The hot work operator indicates on the permit the time the work was completed and leaves the permit posted for the fire watch.



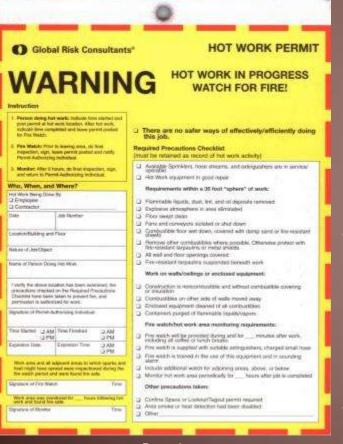


Page 2

After the prescribed time, the fire watch conducts a final inspection of all areas and signs the permit. The permit is left in place for the monitor.

The signature includes the time the fire watch leaves.
 Signature indicates a final inspection was performed and all conditions were found to be satisfactory.



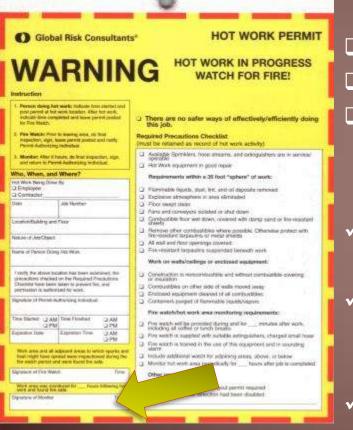


Page 2

After the work is completed, the area is monitored by a fire monitor.

Monitoring can be performed
by any individual with
awareness. Examples can be
building occupants, security
guards, or custodial staff.
The monitor checks the areas
periodically.





Page 2

- After 6-hours the monitor
  Conducts a final inspection,
  Signs the permit, and
  Returns the permit to the permit authorizing individual.
- The time requirement may be modified.
  - The signature includes the time the final inspection was performed.
  - Signature indicates a final
     inspection was performed
     and all conditions were found
     to be satisfactory.



O Gl	obal Risk Consultan	HOT WORK PERMIT
This Hol Worl Includes, but I Welding	MAKE S AND FIRE EX	OT WORK, ENSURE PRECAUTIONS ARE IN PLACE: LIRE SPRINKLERS ARE IN SERVICE TINGUISHERS ARE READILY AVAILABLE: withon intelving open flames or producing heat and/or sparks. The ing. Crinding. Soldsring, Theory Pyel. Torch Appled Roofing, and
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THIS PE	RMIT IS GOOD FOR	Other precautions laken:
ONE DAY ONLY		Control Space or Locksod Tagend parent required Area provide in Twel detection that been disabled.

The permit authorizing individual confirms final inspections were performed and the work area was found to be safe.

Pages 1 & 2 of the permit are filed and made available for review.



This Concludes This Presentation.



Feel free to contact RMTD at any time with questions or for assistance with your Property Loss Management Program.



### For Assistance or with Questions Contact:

### Aric Curtiss Risk Management & Tort Defense (406)444-2421 / 444-3486 <u>acurtiss@mt.gov</u>





# **Property Loss Management** Insurance Premium Discount Program