

Northwestern

Welding, Cutting, and Brazing
(Hot Work)

Risk Management

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I. Purpose

This program establishes the minimum safe working procedures and guidelines for welding, cutting, brazing, grinding, soldering, and any other similar operation throughout Northwestern. It also covers the control of ignition sources, such as spark-producing tools and devices in hazardous areas.

II. Scope

These procedures are intended to protect life, health, and property from fire and the byproducts of combustion that can result from welding and cutting, open flames, and ignition sources. All Northwestern employees and contractors involved in the use of flame- or spark-producing equipment on Northwestern premises are required to conform to these guidelines.

The following are exemptions to this program and do not require a hot work permit:

- A. Boilers and furnaces that are permanently-installed,
- B. Bunsen burners and other flame operations in laboratories or spaces designed and supplied for this type of equipment,
- C. Chafing fuel for catering chafers,
- D. Electric soldering irons used for repairing electronics, and
- E. Stoves and other cooking operations.

III. Definitions

- A. **Hot Work** – Any temporary operation involving open flames or producing heat and/or sparks. This includes, but is not limited to: welding, cutting, brazing, grinding, soldering, and torch-applied roofing.
- B. **Fire Watch** – A worker whose job is to watch for fire during and after hot work activities and extinguish them if possible or activate the fire alarm. The fire watch must have immediate access to appropriate fire extinguishers and be trained on the use of the equipment. The fire watch must continue after the completion of the hot work to detect and extinguish any smoldering fires, the duration of which can be found in **Table 1**.
- C. **Designated Hot Work Areas** – Designated areas where hot work is performed routinely. These areas may include mechanical spaces, metal shops, heating plants, and student labs (see **Designated Hot Work Areas**).

IV. Responsibilities

- A. **Risk Management**
 - i. Oversee the development and implementation of the Welding, Cutting, and Brazing (Hot Work) Program.
 - ii. Provide Hot Work Permits to Facilities Operations.
 - iii. Review and revise this program to reflect changes in regulatory requirements as necessary.
 - iv. Review and investigate hot work incidents (i.e., injuries, fires, and explosions), and report the root cause and corrective action to prevent a recurrence.
 - v. Provide guidance and consultation for any questions about the Welding, Cutting, and Brazing (Hot Work) Program.
 - vi. Designate specific areas as “Designated Hot Work Areas.”

B. Facilities Engineers

- i. Inspect welding, cutting, and brazing (hot work) areas prior to issuing and authorizing hot work permits.
- ii. Retain hot work permits until the annual audit or for one year.
- iii. Supervisors or A Engineers must pick up the hot work permit from the jobsite and verify the jobsite was left in a clean and safe state.

C. Contractors

- i. When contractors are performing hot work, they must notify Facilities Operations at least 48 hours prior to the work being performed to allow them sufficient time to:
 - a. Verify no fire detection or fire suppression systems will be shut down or impaired,
 - b. No environmental conditions exist that could be hazardous during hot work,
 - c. No other conflicts are anticipated, and
 - d. An Engineering Supervisor or A Engineer is available to issue the permit.
- ii. On the day of the hot work, an Engineering Supervisor or A Engineer will meet the contractor at the jobsite to ensure the Hot Work Permit is properly filled out and work area is secured with all safety protocols implemented, at which time the Engineer will sign the permit to authorize the hot work activity.
- iii. In an emergency situation when 48 hours of notice is not feasible, approval by the Director of Facilities Operations, Chief Engineer, or Assistant Chief Engineer must be received prior to the hot work commencing.

D. Hot Work Permit Holders

- i. All contractors and employees involved in the use of flame- or spark-producing equipment must have a copy of the Hot Work Permit and signage posted when working.
- ii. Before starting work, all contractors and employees must ensure to Facilities Operations they have:
 - a. Personnel who are trained to recognize the hazards associated with hot work and welding, cutting, and brazing activities and
 - b. A qualified Fire Watch is on the premises.
- iii. Follow all of the safety requirements outlined in this program.

V. General Requirements

- A. When means other than gas or electric arc cutting or welding could provide equal or superior work quality, the least hazardous means of performing the job should be used.
- B. Hot Work Permits are only valid for the day and operation for which it is issued. Jobs with more than one day of hot work require a separate permit for each day's work.
- C. A Hot Work Permit must be issued by Facilities Engineers before any operation involving welding, cutting, or use of flame- or spark-producing equipment in the areas not specifically designated for such use.
- D. When a question arises pertaining to the advisability of issuing a permit to any party involved when welding and cutting is to be done in a location not designated for such purpose, work **cannot** begin until the Director of Facilities Operations, Chief Engineer, or Assistant Chief has completed an on-site inspection and concluded it is safe to proceed.

- E. In confined spaces or other such hazardous areas, use of gas and electric arc welding or cutting equipment cannot be permitted until the Director of Facilities Operations, Chief Engineer, or Assistant Chief has inspected the area and Risk Management has been consulted. Confined spaces also require an entry permit or reclassification form.

VI. Fire Watch and Fire Monitoring

- A. Continuous fire watch must be performed during the hot work and for 30 minutes to one hour after the hot work is complete, depending on the construction and occupancy factors (see **Table 1**). After the post-work fire watch has been conducted, perform fire monitoring within the hot work area for 0 to 5 hours, depending on the construction and occupancy factors (see **Table 1**). Below are the fire monitoring options available:
 - i. Automatic smoke detection system with a remote alarm that alerts University Police (i.e., fire detection system inside a building).
 - ii. Personnel to patrol the hot work area for fire-safe conditions, at a minimum, at least every 15 minutes. Personnel must be trained to monitor for fire-safe conditions, maintain required precautions in place, and notify emergency contacts prior to attempting to extinguish a fire, regardless of size.
- B. A Fire Watch must be provided for each torch operation at a construction site and in connection with torch-applied roofing system operations.
- C. A Fire Watch must be provided for each torch in operation when the hot work area and person performing the hot work are not visible from a single vantage point.
- D. An additional Fire Watch must be provided on the floor or level below the torch operation.
- E. Use **Table 1** to determine post-work fire watch and monitoring periods.

Table 1 – Construction and Occupancy Factors for Determining Post-Work Fire Watch and Fire Monitoring Periods ¹

		Construction Factors					
		Noncombustible construction or designated building materials ²		Combustible construction without concealed cavities ³		Combustible construction with unprotected, concealed cavities ⁴	
		Watch	Monitor	Watch	Monitor	Watch	Monitor
Occupancy Factors	Noncombustible with any combustibles contained within closed equipment (e.g., ignitable liquid within piping)	30 min.	0 hours	1 hour	3 hours	1 hour	5 hours
	Office or retail with limited combustible loading ⁵	1 hour	1 hour	1 hour	3 hours	1 hour	5 hours
	Warehousing	1 hour	2 hours	1 hour	3 hours	1 hour	5 hours
	Exceptions: Occupancies with processing or bulk storage of combustible materials capable of supporting slow-growing fires (e.g., paper, books)	1 hour	3 hours	1 hour	3 hours	1 hour	5 hours

¹ When performing torch-applied roofing, conduct a minimum 2 hours fire watch and 2 hours fire monitoring. If an infrared camera is utilized, reduce to a 1 hour fire watch and 1 hour fire monitoring.

² Insulated steel deck roof on purlins and steel trusses and insulated metal panel walls are not considered to be combustible materials.

³ This construction-type does not contain small, combustible wall or ceiling cavities where smoldering fires can grow undetected (e.g., open wood frame walls [sheathed on one side], exposed wood joists, beams, or trusses,

or non-insulated metal panels).

⁴ This construction-type allows for smoldering fires to grow undetected within small, combustible wall or ceiling cavities. Typically these cavities are sufficiently small to not warrant sprinkler protection or subdivision via fire barriers (e.g., enclosed wood frame wall [sheathed on two sides], EIFS, or channels created between combustible floor and joist with ceiling construction tightly fastened underneath).

⁵ Combustible loading describes the amount of combustible material in a building or confined space and the amount of heat it can generate; the more flammable materials there are present in a space, the higher the fire load, and therefore the faster a fire will spread, increasing the potential impact of the fire.

VII. Designated Hot Work Areas

- A. Designated hot work areas may include mechanical spaces, metal shops, heating plants, and labs and must comply with all applicable fire protection regulations.
- B. Designated hot work areas encompass the point where the hot work is being performed and 35 feet beyond that point.
- C. The following precautions must be in place at all times in designated hot work areas:
 - i. Portable firefighting equipment (e.g., appropriate portable fire extinguisher, fire suppression system) is available, and those working in the area are knowledgeable of their locations and how to use them.
 - ii. Hot work equipment is in good repair.
 - iii. Required personal protective equipment is available.
 - iv. The surrounding area is free of flammable and combustible liquids and materials (e.g., dust, lint, and oil deposits), or appropriate shielding is provided to prevent ignition from sparks, slag, or heat.
 - v. The surrounding area is suitably segregated from adjacent areas (i.e., openings or cracks in walls, floors, ducts, or shafts must be tightly covered to prevent the passage of sparks to adjacent or hidden areas).
 - vi. The construction of the area is noncombustible or protected with fire-resistant tarps.
 - vii. Adequate ventilation is available to remove smoke/vapor from the work area and discharge it to a safe location.
 - viii. All compressed gas cylinders have been removed to a safe location.
 - ix. Chemical hazards (e.g., coatings, paints, cleaners, fumes) have been evaluated and removed.
- D. Signage must be posted at designated hot work areas indicating the space as such.
- E. Designated hot work areas must be approved by Risk Management; to apply for a space to become a designated hot work area, complete a Designated Hot Work Area Application (see **Appendix 2**) and submit it to Risk Management for review.
 - i. Designated hot work areas will be inspected by Risk Management during building inspections to ensure they still meet the above guidelines.
 - ii. If the space configuration and/or occupancy is changed, contact Risk Management to re-assess the space to ensure it still meets the above precautions and can continue being classified as a designated hot work area.
- F. In the event of a fire suppression system impairment, all hot work must be discontinued for the duration of the impairment.

VIII. Required Precautions

The contractor or Northwestern employee performing the work is required to adhere to all of the following provisions, unless otherwise specified:

- A. The fire pump is in operation and switched to automatic (Engineering Supervisors or A Engineers will verify).
- B. The fire alarm panel registers the water supply and sprinkler system are functioning properly and no supervisory alarms have been tripped (Engineering Supervisors or A Engineers will verify).
- C. Fire extinguishers are in service/operable.
- D. Hot work equipment is in good condition.
- E. Anytime hot work is performed, the following requirements must be followed within 35 feet of the hot work activities being performed:
 - i. Shield combustible construction using listed welding pads, blankets, and curtains, which must prevent the passage of sparks, slag, and heat from the hot work area.
 - ii. Remove combustibles or shield non-removable combustibles using FM-approved welding pads, blankets, and curtains, which must prevent the passage of sparks, slag, and heat from the hot work area.
 - iii. Combustible waste cannot be allowed to accumulate on floors and other surfaces within the hot work area. Hot work-permitted areas must be regularly cleaned, and combustible waste must be disposed of in appropriate containers.
 - iv. Isolate potential sources of flammable gas, ignitable liquid, or combustible dust/lint (e.g., shut down equipment).
 - v. Remove ignitable liquid, combustible dust/lint, and combustible residues.
 - vi. Shut down ventilation and conveying systems.
 - vii. Where openings or thermally-conductive materials pass through the floor, wall, ceiling, or roof, a second Fire Watch is present on the opposite side.
 - viii. If work is to be performed on a combustible roof, treat it as a “Hot Work High-Risk Area” and provide additional required precautions on the permit, such as:
 - a. Extra measures to ensure combustibles have been identified and removed or isolated,
 - b. Laying charged firefighting hoses and stationing trained firefighting personnel in the hot work area,
 - c. Increasing post-work watch and monitoring periods from **Table 1**, and/or
 - d. Requiring permit authorization by the Director of Facilities Operations, Chief Engineer, or Assistant Chief.
- F. For hot work on/in closed equipment, ductwork, and piping (e.g., oxygen gas line):
 - i. Isolate equipment from service.
 - ii. Remove ignitable liquid and purge flammable gas/vapor.
 - iii. Prior to and/or during work, monitor for flammable gas/vapor.
 - iv. Remove combustible dust/lint or other combustible materials.
 - v. If work is to be performed on/in equipment with non-removable combustible linings or parts, list additional required precautions on the permit.

IX. Hot Work Permit Limitations

A Hot Work Permit will be issued with the understanding that the contractor or Northwestern employee CANNOT perform hot work activities when:

- A. Facilities has not authorized to perform torch work in a given area.
- B. A qualified Fire Watch is not assigned during the operation.
- C. Sprinkler protection is shut down or impaired. Where hot work is performed close to sprinklers, noncombustible barriers or damp cloth guards must shield the individual sprinkler heads and must be removed when the work is completed. If the work extends over several days, the shields must be removed at the end of each workday.
- D. Appropriate fire extinguisher equipment is not readily available.
- E. Explosive, flammable, or other hazardous vapors, gases, or dusts may be present in the area.
- F. A container or equipment contains or has contained flammable liquids, gases, or solids, until the container or equipment has been thoroughly cleaned, inerted, or purged.
- G. There is a potential for heat transfer along or through walls, pipes, tanks, or other metal surfaces that may cause ignition or decomposition of ignitable or toxic substances in contact with the metal.
- H. There is potential for production of sparks, slag, or molten metal by welding or cutting within 35 feet of unprotected combustible or flammable substances that may cause fire.
- I. The area is a confined space without proper ventilation.
- J. The operation could result in the accumulation of smoke and hazardous gases in the space.
- K. The person issuing the permit or employee performing the work believes the issuing of a permit would or could result in undue hazards of any nature.
- L. Proper signs and placards are not in place to inform people in the area.
- M. Proper engineering controls are not in place to prevent exposure to fumes of adjacent area occupants.
- N. Proper barriers are not in place to prevent people from inadvertently entering into the area.

X. Recordkeeping

Completed forms, including hot work permits, must be maintained by Facilities Engineers until the annual audit or for one year.

XI. Regulatory Authority and Related Information

Northwestern and contractors will comply with the Occupational Safety and Health Administration's (OSHA) standards, National Fire Protection Association (NFPA)'s codes, and any other applicable codes and standards, including:

[OSHA 29 CFR 1910 Subpart Q – Welding, Cutting, and Brazing](#)

[NFPA 51B – Standard for Fire Prevention During Welding, Cutting, and Other Hot Work](#)

[FM Global Property Loss Prevention Data Sheets 10-3 – Hot Work Management](#)

XII. Contact

For questions, contact Gwen Butler, Director, Environmental Health and Safety, at gwen.butler@northwestern.edu or (847) 491-4936.

Appendix 1 – Hot Work Permit

The below Hot Work Permit must be completed and signed by an Engineering Supervisor or A Engineer and, if work is being performed by a contractor, by the contractor as well. A signed copy must be posted near the work site.

HOT WORK PERMIT

STOP!
Avoid hot work when possible! Consider using an alternative cold work method.

This Hot Work Permit is required for any temporary operation involving open flames or producing heat and/or sparks conducted outside a Hot Work Designated Area. This includes, but is not limited to: brazing, cutting, grinding, soldering, torch-applied roofing and welding.

Instructions for Permit Authorizer	Part 1																																																																																							
<ol style="list-style-type: none"> 1. Specify the precautions to take. 2. Fill out and keep Part 1 during the hot work process. 3. Issue Part 2 to the person doing the job. 4. Keep Part 2 on file for future reference, including signed confirmation that the post-work fire watch and monitoring have been completed. 5. Sign off the final check on Part 2. 	<table style="width: 100%;"> <tr> <td style="width: 10%; text-align: center;">Y</td> <td style="width: 10%; text-align: center;">NA</td> <td style="width: 80%;"></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>The fire pump is in operation and switched to automatic.</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Control valves to water supply for sprinkler system are open.</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Extinguishers are in service/operable.</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Hot work equipment is in good working condition.</td> </tr> <tr> <td colspan="3">Requirements within 35 ft. 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<p>HOT WORK BY</p> <p><input type="checkbox"/> Employee</p> <p><input type="checkbox"/> Contractor _____</p> <p>DATE _____ JOB NUMBER _____</p> <p>LOCATION OF WORK (BUILDING/FLOOR/OBJECT)</p> <p>_____</p> <p>WORK TO BE PERFORMED</p> <p>_____</p> <p>NAME OF PERSON PERFORMING HOT WORK</p> <p>_____</p> <p>NAME OF PERSON PERFORMING FIRE WATCH</p> <p>_____</p> <p style="background-color: yellow; padding: 2px;">I verify the above location has been examined, the Required Precautions have been taken, and permission is authorized for this work.</p> <p>PERMIT AUTHORIZER (PRINT AND SIGN)</p> <p>_____</p> <p>THIS PERMIT EXPIRES ON (LIMIT AUTHORIZATION TO ONE SHIFT):</p> <p>DATE: _____ TIME: _____ AM/PM</p> <div style="border: 1px solid black; padding: 2px; margin-top: 5px;"> <p>Note: Emergency notification on back of form.</p> </div> <p>Additional FM Global Resources: Property Loss Prevention Data Sheet 10-3, <i>Hot Work Management</i> Hot Work Permit App via fmglobal.com/apps Hot Work Permit form (F2630) via fmglobalcatalog.com Online training at training.fmglobal.com FM Approved equipment via fmapprovals.com</p> <div style="text-align: center; margin-top: 10px;"> <p style="font-size: small;">F2630 © 2018 FM Global. (01/2018) All rights reserved.</p> </div>																																																																																								

WARNING

HOT WORK IN PROGRESS! Watch for fire!

Instructions			Part 2			Required Precautions																													
<p>Person performing hot work: Record time started and display permit at hot work area. After hot work is completed, record time and leave permit displayed for fire watch.</p> <p>Fire watch: Watch area during hot work and after work completion. Prior to leaving area, perform final inspection, sign, leave permit displayed and notify Fire Monitor or Permit Authorizer.</p> <p>Fire Monitor: Monitor area after post-work fire watch completion. Perform final inspection, sign and return to Permit Authorizer.</p>			<p>Y NA</p> <p><input type="checkbox"/> The fire pump is in operation and switched to automatic.</p> <p><input type="checkbox"/> Control valves to water supply for sprinkler system are open.</p> <p><input type="checkbox"/> Extinguishers are in service/operable.</p> <p><input type="checkbox"/> Hot work equipment is in good working condition.</p>			<div style="border: 1px solid black; width: 100%; height: 100%;"></div>																													
<p>HOT WORK BY</p> <p><input type="checkbox"/> Employee</p> <p><input type="checkbox"/> Contractor _____</p>			<p>Requirements within 35 ft. (10 m) of hot work</p> <p><input type="checkbox"/> Shield combustible construction using listed (e.g., FM Approved) welding pads, blankets and curtains.</p> <p><input type="checkbox"/> Remove or shield nonremovable combustibles using listed (e.g., FM Approved) welding pads, blankets and curtains.</p> <p><input type="checkbox"/> Isolate potential sources of flammable gas, ignitable liquid or combustible dust/lint (e.g., shut down equipment).</p>																																
DATE _____		JOB NUMBER _____		<p><input type="checkbox"/> Remove ignitable liquid, combustible dust/lint and combustible residues.</p> <p><input type="checkbox"/> Shut down ventilation and conveying systems.</p> <p><input type="checkbox"/> Remove combustibles and consider a second fire watch on opposite side of floor, wall, ceiling or roof when openings exist or thermally conductive materials pass through.</p>																															
LOCATION OF WORK (BUILDING/FLOOR/OBJECT)						<p><input type="checkbox"/> Is work on a combustible building assembly (e.g., Torch-Applied Roofing)? If yes, provide ADDITIONAL REQUIRED PRECAUTIONS below.</p>																													
WORK TO BE PERFORMED						<p>Hot work on/in closed equipment, ductwork or piping</p> <p><input type="checkbox"/> Isolate equipment from service.</p> <p><input type="checkbox"/> Remove ignitable liquid and purge flammable gas/vapor.</p> <p><input type="checkbox"/> Prior to work, and/or during work, monitor for flammable gas/vapor. LEL reading(s): _____</p>																													
NAME OF PERSON PERFORMING HOT WORK						<p><input type="checkbox"/> Remove combustible dust/lint or other combustible materials.</p> <p><input type="checkbox"/> Is work on/in equipment with nonremovable combustible linings or parts? If yes, provide ADDITIONAL REQUIRED PRECAUTIONS below.</p>																													
NAME OF PERSON PERFORMING FIRE WATCH						<p>Fire watch/fire monitoring the hot work area</p> <p>Times listed are sufficient for majority. Use Table at back of permit for guidance for combustible concealed cavities, roof work or favorable factors.</p>																													
<p>I verify the above location has been examined, the Required Precautions have been taken, and permission is authorized for this work.</p> <p>PERMIT AUTHORIZER (PRINT AND SIGN)</p>						<p><input type="checkbox"/> Perform a continuous fire watch during hot work.</p> <p><input type="checkbox"/> Perform a continuous fire watch post-work for</p> <p><input type="checkbox"/> 1 hour or Other ___ hours.</p> <p><input type="checkbox"/> Perform fire monitoring for</p> <p><input type="checkbox"/> 3 hours or Other ___ hours.</p>																													
<p>THIS PERMIT EXPIRES ON (LIMIT AUTHORIZATION TO ONE SHIFT):</p> <table border="1"> <thead> <tr> <th>DATE:</th> <th>TIME:</th> <th>AM/PM</th> </tr> </thead> <tbody> <tr> <td>Hot Work Date:</td> <td>Start Time:</td> <td>a m/pm</td> </tr> <tr> <td></td> <td>Finish Time:</td> <td>a m/pm</td> </tr> <tr> <td>Post-Work Fire Watch</td> <td>Finish Time:</td> <td>a m/pm</td> </tr> <tr> <td>Name</td> <td></td> <td></td> </tr> <tr> <td>Fire Monitor <input type="checkbox"/> Person <input type="checkbox"/> Other</td> <td>Finish Time:</td> <td>a m/pm</td> </tr> <tr> <td>Name/Other</td> <td></td> <td></td> </tr> <tr> <td>Final Check</td> <td>Time:</td> <td>a m/pm</td> </tr> <tr> <td>Name</td> <td></td> <td></td> </tr> </tbody> </table>						DATE:	TIME:	AM/PM	Hot Work Date:	Start Time:	a m/pm		Finish Time:	a m/pm	Post-Work Fire Watch	Finish Time:	a m/pm	Name			Fire Monitor <input type="checkbox"/> Person <input type="checkbox"/> Other	Finish Time:	a m/pm	Name/Other			Final Check	Time:	a m/pm	Name			<p>ADDITIONAL REQUIRED PRECAUTIONS:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>		
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Appendix 2 – Designated Hot Work Area Application

After ensuring your permanent hot work area complies with all applicable fire protection regulations and the required precautions listed below, submit this application to [Risk Management](#), who will then review the space and approve or deny the application. The space will be reviewed during subsequent building inspections. If the designated hot work area’s configuration and/or occupancy changes, notify Risk Management to ensure the area can keep its designation. In the event of a fire suppression system impairment, all hot work must be discontinued for the impairment duration.

General Information:			
Building:		Room Number/ Exact Location:	
Group Performing the Hot Work:		Supervisor’s Name:	
Emergency Contact Name:		Emergency Phone Number:	
Type(s) of Hot Work Performed:			
<input type="checkbox"/>	Welding	<input type="checkbox"/>	Brazing
<input type="checkbox"/>	Cutting	<input type="checkbox"/>	Grinding
<input type="checkbox"/>		<input type="checkbox"/>	Soldering
<input type="checkbox"/>		<input type="checkbox"/>	Other (specify)
Required Precautions:			
The following precautions must be in place at all times in the designated hot work area, which encompasses the point where the hot work is being performed and 35 feet beyond that point; if multiple types of hot work may be performed in the designated hot work area, the greatest distance applies.			
1	Portable firefighting equipment (e.g., appropriate portable fire extinguisher, fire suppression system) is available, and those working in the area are knowledgeable of their locations and how to use them.		
2	Hot work equipment is in good repair.		
3	Required personal protective equipment is available.		
4	The surrounding area is free of flammable and combustible liquids and materials (e.g., dust, lint, and oil deposits), or appropriate shielding is provided to prevent ignition from sparks, slag, or heat.		
5	The surrounding area is suitably segregated from adjacent areas (i.e., openings or cracks in walls, floors, ducts, or shafts must be tightly covered to prevent the passage of sparks to adjacent or hidden areas).		
6	The construction of the area is noncombustible or protected with fire-resistant tarps.		
7	Adequate ventilation is available to remove smoke/vapor from the work area and discharge it to a safe location.		
8	All compressed gas cylinders have been removed to a safe location.		
9	Chemical hazards (e.g., coatings, paints, cleaners, fumes) have been evaluated and removed).		
10	Designated hot work area signage is posted.		
Authorization			
By signing below, you verify the Required Precautions have been implemented to prevent fire and permit hot work in the above designated hot work area.			
Supervisor:		Risk Management:	
Print Name:		Print Name:	
Signature:		Signature:	
Date:		Date:	