

**I. PURPOSE**

The purpose of this policy is to protect employees and prevent property loss due to fire and/or explosion during hot work procedures, and to comply with OSHA Regulation 29 CFR 1910.252 and 29 CFR 1910.119(k).

**II. SCOPE**

This policy applies to all Hot Work jobs performed on the Calhoun mill property by Resolute Forest Products employees, contractors, vendors, or other visitors.

**III. DEFINITIONS**

- A. Hot Work – Any work practice capable of providing a source of ignition (for example, welding, cutting, burning, grinding, and heating).
- B. Welding - Any process in which two or more pieces of metal are joined together by the application of heat, pressure, or a combination of both.
- C. Oxygen/acetylene - Acetylene is burned in oxygen, producing a very hot flame used for cutting and welding metal.
- D. Combustible - Any material or substance readily capable of igniting and burning when exposed to an ignition source.
- E. Operations Coordinator – An employee from the operating department (may be hourly or salaried) who is responsible for issuing the Hot Work Permit and ensuring that all provisions of this policy are in effect before Hot Work begins.
- F. Fire Watch – A person whose only responsibility is to monitor the area around Hot Work activities to prevent and/or put out a fire caused by these activities.
- G. Explosive Atmospheres - Mixtures in the air of flammable gases, vapors, liquids, or dusts which may provide an explosive concentration.
- H. Atmospheric Testing - Testing of an atmosphere for oxygen content, flammable vapors, and toxic gases by a trained operator using a calibrated portable gas monitor.
- I. Fire-resistant Construction - Any container or vessel capable of withstanding or preventing damage by fire for two hours or more.
- J. Fire Extinguishers - A portable apparatus containing water or chemicals that can be discharged to extinguish a fire.
- K. Hot Tapping - Term for burning, welding, and drilling into a pipe which is pressurized or in operation.

- L. Conduction - Transfer of heat energy through solid matter. The specific concern of this policy is with the transfer of heat capable of starting a fire in the presence of combustible materials.
- M. Radiation - Transfer of heat energy in the form of waves or particles through gaseous matter.
- N. Fire Protection System - Any system which provides a means to suppress a fire. Examples include: sprinkler systems, oxygen depletion systems, fire extinguishers, water hoses, and pails of sand or water.
- O. Hot Work Permit - A written authorization to perform work capable of providing a source of ignition (for example, welding, cutting, burning, grinding and heating). This permit ensures fire prevention safeguards are taken for performing hot work in designated areas.

#### **IV. POLICY & PROCEDURES**

In an industrial setting, the potential for catastrophic loss due to fire is a very real concern. The ignition potential created by welding and oxygen/acetylene processes is one aspect which must be minimized through the application of sound fire safety practices as described in the following guidelines. These guidelines are intended to comply with OSHA Regulation 29 CFR 1910.252.

The following guidelines will address the specific prevention issues to be utilized, the steps designed to contain any inadvertent stray sparks, the training to be given, and the documentation which will be required. The policy section is therefore divided into four sections: Prevention, Containment, Training, and Documentation.

##### **A. Prevention**

1. Hot Work should be moved to a location where fire hazards are negligible whenever possible. If this is not feasible, then all moveable fire hazards shall be moved to a safe distance of 35 feet or more from the point the welding or cutting will be performed. In the case of immovable fire hazards, guards should be used to confine the heat, sparks, and slag to protect those items.
2. Care should be taken to ensure that ignition sources cannot come in contact with combustible materials (i.e. slag, sparks, conducted or radiated heat cannot move or transfer through floor openings or cracks, doorways, piping, walls, etc.) Fire blankets, wet felt, metal covers, etc. can serve to provide fire protection. Before the Hot Work begins, a careful inspection of the work area is required by the person issuing the permit and the person performing the work.
3. Particular fire prevention care must be taken with respect to paper dust, dried pulp, paper, oil saturated equipment, sawdust, wood chips, and other wood residuals. A good cleanup of these and other combustibles from the work area is required before the Hot Work can begin. In addition, soaking the area with water before and after the hot work will help minimize the risk that undetected combustibles will be ignited.
4. Proper purging and atmospheric testing for combustibles (lower explosive limit - LEL) will be required in situations where Hot Work is performed in potentially flammable or explosive atmospheres, and pipelines that may contain TRS gases, sulfuric acid, turpentine, methanol, natural gas, etc.

5. In the Kraft Mill, Chem Prep, TMP, and Utilities areas, an atmospheric test will be performed before a Hot Work Permit is authorized when performing Hot Work on any process piping or equipment. In areas of known hazardous atmosphere.
6. When performing atmospheric testing the tester must be able to access the inside of piping or equipment to determine if it is safe to perform the Hot Work.
7. Hot Work within 50ft of U-drains that may contain potentially flammable liquids or materials (Turpentine or other flammables) must be shielded to prevent sparks from entering u-drains. Continuous monitoring may be required. Atmospheric test must be performed to ensure LEL is less than 10%.
8. Kerosene and other flammable liquids and gases are used intermittently throughout the mill. The pre-work inspection must be completed before work begins that identifies the location of flammable or combustible material, and takes the proper precautions for fire prevention.

**B. Containment**

1. Fire Watches shall be utilized on all hot work jobs (excluding exception). The Fire Watch shall have the appropriate type of fire extinguishing equipment on-hand, ready for use, and they shall be trained in its use. They shall be familiar with the work area and shall know how to respond in case of a fire. They will be able to determine if fire extermination is within the capability of the equipment on-hand and how to summon the Mill Emergency Response Team.
2. During the Hot Work activity, the only responsibility of the Fire Watch shall be to monitor the potential fire ignition sources. They will check for ignition in all locations within the spread of the sparks, slag, etc. They will also check in cracks and openings where a fire might go undetected for a long enough period of time that a major fire could develop before being noticed. Floors below hot work with a reasonable chance of having sparks, slag, and other ignition sources reach them shall also be monitored by a an additional Fire Watch. The Fire Watch is required to continuously monitor the area for one hour after the job is completed to ensure no potential fires may start. A full survey of the area shall be performed before the Fire Watch is completed.

**C. Training**

1. All employees involved in the Hot Work permit process (Operations Coordinator, maintenance employees, contractor employees, person performing the Hot Work, and the Fire Watch) shall be trained. The Operations Coordinator responsible for the work shall review the Fire Watch's responsibilities with them before beginning a Hot Work task. Also these employees must be trained in the use of basic fire extinguishing equipment. In addition, the proper response steps to report a fire should be reviewed annually as outlined in the Emergency Response Plan.

**D. Documentation**

1. The primary document for properly executing Hot Work is the **HOT WORK PERMIT**. This permit will be utilized in all locations of the mill except those mentioned in the Exceptions section of this policy. The permit contains a specific checklist of safety precautions to be undertaken whenever Hot Work is performed.

The Hot Work permit checklist shall be filled out after the person issuing the permit has physically inspected the work site and prior to beginning Hot Work. The appropriate signatures are required before the work begins. The Operations Coordinator that issues the permit must be at the work site before releasing the permit for work to begin. The permit shall be conspicuously displayed at the work location during the time it is in force. At the completion of the work, a thorough inspection of the area by the Fire Watch and person doing the work shall be performed. Following this inspection, the employee who performed the Hot Work shall sign the permit, and leave the permit at the jobsite. The Fire Watch will remain at the job site for one hour to watch for potential fires or issues. The Fire Watch is responsible for signing the permit after he has inspected the job and notifying the area operations coordinator that the Hot Work is complete.

2. An hour after the Fire Watch notifies the Operations Coordinator that the Hot Work is complete the Operations Coordinator will then survey the work area, sign the permit and remove the permit., Terminated permits must, be sent to the Safety Department.

A Hot Work Permit is valid for no more than 24 hours. Once a Hot Work Permit has been signed as completed, the permit cannot be used again for the same or another job – a new permit is required. A new Hot Work Permit must be filled out each day, even on jobs which continue for many days.

#### E. Personal Protective Equipment

1. Eye and Face Protection - CFR 1910.133

##### Cutting Goggles

Cutting goggles must be worn:

1. When oxygen/acetylene cutting.
2. Torch brazing or soldering (minimum protective shade range 3-5). See ADDENDUM II

##### Welding Shields/Hoods

Welding shields must be worn when:

1. Welding or assisting the welder.
2. Plasma cutting or welding.
3. MIG or TIG welding (minimum protective shade range 9-11). See ADDENDUM II

##### Face Shields/Eye Protection

Face shields may not be worn alone. Appropriate eye protection is also required anytime a face shield is required. Face shields must be worn when grinding.

2. Other Protection

##### Welding Jackets

Welding jackets must be worn when welding, cutting, burning, brazing, or utilizing portable grinders, or as department rules dictate.

V. **RESPONSIBILITIES**

A. Management

Department management personnel will be responsible for ensuring the safe use of Hot Work equipment and that proper procedures are used by both company and contract employees. These Responsibilities shall include establishing approved areas for performing the Hot Work tasks, requiring that only approved equipment be used, and ensuring that proper training has been provided.

B. Mill Contact for Contractor Services

As a requirement for contractors performing work on the mill site, the planner, engineer, or other requisitioning supervisor will be responsible for enforcing compliance with this Hot Work Policy. Responsibility will also include checking contractor supervision to ensure they have a working knowledge of this policy.

C. Operations Coordinator

The Operations Coordinator shall be responsible for ensuring the area is clear of combustibles such as dust, liquids, gases, and providing protective covering for any combustible or delicate equipment that cannot be moved from the area. Their responsibility also includes issuing an approved Hot Work Permit and scheduling work so operations are curtailed as necessary. The Operations Coordinator will also conduct the final inspection of those areas where hot work has recently been performed within one hour of the completion of the fire watch. After their review, the permit shall be removed and collected within the department. After review, the hot work permits will be forwarded to the Safety Department at the end of the month.

D. Fire Watch

The Fire Watch will work with the person performing the Hot Work. They are to help prepare the area for the Hot Work and are to diligently observe the area around the work to prevent a fire from starting. They shall have fire extinguishing equipment readily available, be trained in its use, or have a water hose readily available. They shall be familiar with facilities for sounding an alarm in the event of a fire. They shall watch for fires in all exposed areas, try to extinguish fires only when obviously within the capability of the equipment available, or otherwise sound the alarm.

The Fire Watch is required to check the area **1 hour** after the job is complete to ensure no potential fires may start.

E. Person Performing the Work

The person performing the work is responsible for previewing the job and the work area to verify the Hot Work can be performed safely. They must review the "Safety Precaution Checklist" on the Hot Work Permit to ensure all items listed have been addressed before starting the Hot Work. They shall be well trained in handling the equipment safely to prevent endangering lives and property. They shall also be responsible for erecting appropriate flash-burn barriers as well as barriers to prevent the spread of sparks, etc. At the end of the work, the person performing the work is responsible for signing the permit and notifying Operations that the hot work has been completed.



**VI. ADDENDUM/EXCEPTIONS**

**A. Addendum**

The following Resolute Forest Products, Calhoun Operations Safety Policies are incorporated into this policy by reference:


- Personal Protective Equipment Policy
- Confined Space Policy
- Line Breaking Policy
- Harness/Lifeline (Fall Protection) Policy

**B. Exceptions**

All shops (maintenance and contractor) designed with adequate fire prevention and ventilation may be accepted from this permit policy.

Temporary field fab shops must be approved by the Safety Department before work begins.

  
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**Scott Palmer**  
General Manager

  
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**Dallas Jones**  
Health & Safety Manager

**Addendum 1 – Hot Work Permit**



**resolute**  
Forest Products  
**HOT WORK PERMIT**  
*Valid for 24 hours only*

Date of Job: \_\_\_\_\_ Time: \_\_\_\_\_

Location of Hot Work: \_\_\_\_\_

Equipment to be Worked on: \_\_\_\_\_

Nature of Work: \_\_\_\_\_

<b>IF ATMOSPHERIC TESTING IS REQUIRED</b>			
Tester _____	Time _____	O <sub>2</sub> _____ %	LEL _____ %
<b>O<sub>2</sub> MAY NOT BE GREATER THAN 23.5%, LEL MUST BE 10% OR LESS</b>			

Operations Coordinator: \_\_\_\_\_

Issued to: \_\_\_\_\_

Fire Watch: \_\_\_\_\_

Follow Up Inspection: \_\_\_\_\_

**SAFETY PRECAUTIONS CHECKLIST**

*(Check when completed or indicates N/A)*

- \_\_\_\_\_ Work area clean?
- \_\_\_\_\_ Floor, wall and machine openings protected?
- \_\_\_\_\_ Exposed combustibles outside 35 ft. radius or protected by approved curtains?
- \_\_\_\_\_ Fire Watch duties assigned?
- \_\_\_\_\_ Appropriate fire protection equipment available?
- \_\_\_\_\_ Containers of flammables moved from affected area?
- \_\_\_\_\_ When working on walls or ceiling, combustibles on opposite side have been moved?
- \_\_\_\_\_ Areas below protected from falling sparks, 35 ft. radius?
- \_\_\_\_\_ Combustible dust removed – area wet down?
- \_\_\_\_\_ Line purging and atmospheric testing performed where required / Check the Lower Explosive Limit as required?
- \_\_\_\_\_ Flash-burn barriers erected as needed?
- \_\_\_\_\_ Are pipes or metal in contact with combustible walls, partitions, ceilings or roofs protected to prevent ignition by conduction?
- \_\_\_\_\_ Ducts and conveyor systems that might carry sparks to distant combustibles suitably protected or shut down?

**COMPLETION OF HOT WORK**

Signature of employee performing Hot Work: \_\_\_\_\_

Signature of employee performing Fire Watch: \_\_\_\_\_

(sign name after inspection 30 minutes after job is complete)

Maintenance / Contractor: After job is complete, inspect work area. Leave permit at job site.  
Operators / Coordinator: One hour after job is complete, do final inspection of work area, then sign and return this permit to Safety



**Addendum II – Filter Lenses for Protection Against Radiant Energy**

OPERATIONS	ELECTRIC SIZ 1/32 IN.	ARC CURRENT	MINIMUM SHADE
Shielded metal Arc welding	Less than 3	Less than 60	7
	3 – 5	60-160	8
	5-8	160-250	10
	More than 8	250-550	11
Gas metal arc Core arc welding And flux core arc Welding		Less than 60	7
		60-160	10
		160-250	10
		250-500	10
Gas Tungsten arc Welding		Less than 60	8
		50-150	8
		150-500	10
Air carbon (light)		Less than 500	10
Air carbon (heavy)		500-1000	11
Plasma arc welding		Less than 20	6
		20-100	8
		100-400	10
		400-800	11
Plasma arc Cutting light*		Less than 300	8
		330-400	9
		400-800	10
Torch brazing			3
Torch soldering			2
Carbon arc welding			1
Gas Welding:			
Light	Under 1/8	Under 3.2	4
Medium	1/8 to 1/2	3.2 to 12.7	5
Heavy	Over 1/2	Over 12.7	6
Oxygen cutting:			
Light	Under 1	Under 25	3
Medium	1 to 6	25 to 150	4
Heavy	Over 6	Over 150	5

\*Footnote These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used when the arc is hidden by the work piece.