Hot Work

Permit Program

Revised January 30, 2024

Contents

1.0 INTRODUCTION

1.1 PURPOSE

To establish precautions which should be followed prior to any hot work operation, and to provide procedures for using hot work permits. A valid, authorized, Hot Work Permit is required for each hot work operation performed by Great Basin College personnel, contractors or their subcontractors. It is the responsibility of the Firesafety Supervisor, or a properly trained and designated alternate, to ensure that all hot work permit requirements are satisfied.

1.2 Scope

1.2.1

For the purposes of this policy, “hot work” is defined as any temporary operation involving open flames or producing heat and/or sparks. This includes, but is not limited to: grinding, cutting, brazing, soldering, thawing frozen pipes by torch, torch applied roofing, welding and removal of weeds via torch.

1.2.2

This policy applies to all personnel on campus who are involved within construction and maintenance activities and/or who may be involved in “hot work” activities.

1.2.4

Contractors doing hot work shall either use GBC’s Hot Work Program or their own if authorized by The Facilities Operations Director.

1.2.5

This program does not apply to normal routine supervised activities in classrooms, laboratories and academic vocational shops that are designed and equipped for “hot work” operations.

2.0 RESPONSIBILITIES

All employees who will authorize hot work, conduct hot work or serve as fire watch must be trained in the proper use of the hot work permit system. FM Global offers free online training on the use of the FM Global Hot Work Permit System at https://fmglobaltraining.skillport.com.

2.1 Facilities Manager

The ultimate responsibility and authority for the hot work permit program rests with The Facilities Operations Director and The

Executive Director Mining Center & Workforce Development. *Each department must designate a properly trained person as a* ***Firesafety Supervisor***. This person must understand the FM Global hot work permit system. For a hot work permit to be valid, it must be first signed and issued by a Firesafety Supervisor.

2.2 Managers, Supervisors, Project Leaders

Individuals who have a supervisory responsibility play a key role in the hot work permit program. They have responsibility for:

- Ensuring that the FM hot work permit system is being followed.
- Ensuring that their subordinates are trained and understand the applicable provisions of the program.
- Ensuring that their subordinates fulfill all requirements before any hot work is performed, including:
    - Ensuring that the Facilities and Safety-Security Department is contacted.
    - Ensuring that, where installed, the building fire alarm system is in working order.
    - Ensuring that, where installed, the building fire sprinkler system is operational.

2.3 Individuals Performing Hot Work

Individuals performing the hot work play what is perhaps the most important role in the program. They are responsible for:

- Receiving training on the hot work permit program and their responsibilities.
- Obtaining approval and hot work permits from a firesafety supervisor.
- Ensuring that conditions are safe before commencing the hot work.
- Being prepared to contact their firesafety supervisors should conditions change or warrant reassessment during the hot work project.
- Using appropriate personal protective equipment (PPE) while performing hot work (welding helmets, safety glasses, gloves, jackets, etc.).
- Completing the appropriate section(s) of the hot work permit.

2.4 Firewatches

- Receiving training on the hot work permit program and their responsibilities.
- Being aware of the inherent hazards involved in the hot work.
- Ensuring that safe conditions are maintained during the hot work.
- Ensuring that appropriate fire extinguishers are readily available and in good working order. These extinguishers are not from the immediate area but are additional ones.

- Activating the nearest fire alarm in the event if fire.
- Knowing how to report a fire or other emergency.
- Maintaining the watch for at least 1 hour after the work is completed.
- Using the appropriate PPE

2.5 Facilities Management

Facilities Management (Director and Assigned Supervisors) shall recognize its responsibility for safe usage of welding, cutting and other spark or flame producing equipment on campus property and shall be responsible for:

- Establishing designated areas for welding, cutting, brazing, torch soldering and grinding operation where the potential fire danger is limited.
- Establishing procedures for hot work in other areas.
- Designating a firesafety supervisor.
- Requiring employees performing hot work and their supervisors to be suitably trained in the safe operation of the equipment.
- Advising all contractors about flammable materials or hazardous conditions in areas where they will be working.

2.6 Facilities Staff

- Maintaining cutting or welding equipment in safe operating condition.
- Ensuring the precautions listed on the Hot Work Permit are understood and followed by the individual performing the hot work.
- Informing outside contractors and service personnel of the expectations of this policy.

2.7 Fire Safety Supervisor

- Examine areas where hot work will be performed.
- Verify that GBC personnel understand how the hot work program works.
- Verifying that contractor personnel have the necessary hot work permits required for their work.
- Ensuring that properly trained fire watches are assigned when necessary.
- More responsibilities laid out in 3*.0 Hot Work Procedures*.

3.0 HOT WORK PROCEDURES

3.1 Hot Work Permit Forms

The hot work permit form from FM Global shall be utilized. A sample is located in Appendix A. The Hot Work Permit procedure is as follows:

1. **Prior to start** of any hot work operation, the Firesafety Supervisor must personally **examine the work area** to confirm that the following minimum precautions (also listed on **FM Global Hot Work Permit**) have been taken:
   - Hot work equipment inspected and in **good working condition.**
   - The equipment or material to be worked on is **thoroughly cleaned** of all deposits of oil, carbon, dust, or other combustible/flammable residues.
   - Whenever possible, the hot work operation should be moved to a **designated hot work area** Shop, to minimize the risk of fire in the facility.
   - **Sprinklers**, where provided, are in commission and will not be taken out of service while this work is being done.
   - All **combustibles materials** have been located at least 35 feet from the operation and any combustible materials that cannot be moved, protected with metal guards or flameproof covers (i.e. fire-resistant tarpaulins).
   - The work will be **confined to the area** or equipment specified on the permit.
   - **Surrounding floors** have been swept clean and, if combustible, wet down.
   - Ample **portable extinguishing equipment** has been provided and is easily accessible. These extinguishers are not from the immediate area, but are additional ones.
   - Exhaust and return air fans (HVAC) within 35 feet have been turned off.
   - All **floor, wall, and ceiling openings** within 35 feet of the operation have been tightly covered to prevent sparks or slag from entering an unobserved area.
   - Hot work areas must be **isolated with tape, barricades, or traffic horses** to warn personnel from walking into and under this area when work is in progress and divert them from hazards.
   - **Compressed oxygen** is not to be used under any circumstances for the purpose of ventilation, comfort, cooling, blowing dust from clothes, or for cleaning the work area.

2. In order for a hot work permit to **be valid**, it must be first **signed and issued by the Firesafety Supervisor**.
3. The Firesafety Supervisor will review all appropriate emergency procedures.

4. The Firesafety Supervisor signs the permit, removes **Part 1** and gives **Part 1a** and **Part 2** to the person doing the work who must post it in a visible location in the hot work area. The original copy of **Part 1** will be kept by the Firesafety Supervisor until the job is complete.
5. **The person performing the hot work will indicate the start and stop times on part 2.**
6. **During and after hot work**, the following work rules must be implemented:
   - **Fire watch** will be provided **during and for 60 minutes after work**, including any coffee or lunch breaks.
   - **Fire watch person** is supplied with a suitable fire extinguisher and properly trained in use of fire extinguisher and activation of the nearest local fire alarm.
   - The hot work area and all adjacent area (including floors above and below) must be **monitored periodically for 1hour.** When hot work is performed on or near a wall, check the other side of wall because there is a chance that heat was transferred or radiated through the wall.
   - The **Fire watch person must sign off on Part 2** of the permit confirming fire watch is completed.
7. Upon completion of the work, the Firesafety Supervisor will conduct a **final inspection of area and sign off on Part 2 of permit** only if the area is fire-safe.
8. Collect both **copies of the permit** for documentation purposes. Copies of old permits should be kept on file in the Hot Work Permit file.

3.2 Prior To Hot Work

Several tasks must be performed before hot work begins. These include, but are not limited to:

- Check equipment to be used.
- Inspect the hot work area to identify any fire hazards.
- Remove all flammable or combustible materials within a thirty five-foot radius of the hot work.
- Properly shield combustibles that cannot be removed from the area with non-combustible blankets or other non-combustible materials.
- Seal all cracks and openings through which hot sparks or slag may enter. As an alternate means, a fire resistant shield may be used to block the openings.
- Sweep floor of all loose combustible debris.
- Place non-combustible or flame resistant screens so as to protect personnel in adjacent work areas from heat, flames, radiant energy and welding splatter.
- Protect conveyer systems that may carry sparks of slag to other parts of the building.
- Mark the area so as to warn nearby personnel of the danger.

- Cover sprinkler heads directly above the hot work area with wet rags or other non-combustible materials so they will not be triggered during the work.
- Cover smoke detectors located in close proximity of the work area.

3.3 During Hot Work

During the hot work there are other precautions that must be taken:

- Appropriate fire extinguishing equipment shall be maintained in close proximity to the hot work for its entire duration, plus at least 1 hour after.
- Combustible floors shall be kept wet during the hot work.
- Store acetylene and other fuel cylinders in a secure and upright position.
- Place hoses so that they will not be crushed or damaged.

3.4 After Hot Work

After hot work these precautions must be taken:

- Maintain the fire watch for at least 1 hour following the completion of the hot work. If circumstances require, fire watches shall be maintained for periods longer than 1 hour. The area may be monitored by personnel routinely present in the hot work area trained to monitor for fire safe conditions.

  The area may also be inspected by personnel intermittently patrolling the hot work area for fire safe conditions at least every 15 minutes.

- Keep fire-extinguishing equipment readily accessible in the area until the firewatch is secured.
- Remove any covers from sprinkler heads immediately upon completion of the hot work.
- Remove covers from any smoke detectors immediately upon completion of the hot work.
- Complete the appropriate section(s) of the hot work permit and return the completed form to the Manager.

3.5 Prohibited Hot Work Locations

Hot work activities are prohibited in the following locations:

- Areas equipped with sprinkler systems that are out of order. In the event of a sprinkler system impairment during work, the area supervisor or contractor must be notified to cease hot work operations until the impairment can be corrected.
- Areas, including those with confined spaces, where atmospheres of explosive gases, vapors, or dusts exist or could accumulate.

- On metal walls, ceilings or roofs built of composite, combustible, and sandwich-type panel construction or having combustible coverings.
- On or near containers where flammable liquids, solids or vapors may be present.
- On pipes that are in contact with combustible walls, ceilings, roofs or partitions where heat by conduction can cause ignition.
- Permits must not be issued for work areas that cannot be made fire safe.

4.0 RECORD KEEPING

4.1 Hot Work Permits

All hot work permits shall be returned to the issuing Manager for record retention. Records of hot work permits should be maintained for one calendar year from the date of completion. Hot work permits on record should be reviewed for program improvement or modification purposes prior to disposal.

4.2 Training

Copies of records of all program related training shall be maintained in the department personnel files.

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

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**.

HOT WORK BY
☐ Employee
☐ Contractor _____

DATE	JOB NUMBER

LOCATION OF WORK (BUILDING/FLOOR/OBJECT)

WORK TO BE PERFORMED

NAME OF PERSON PERFORMING HOT WORK

NAME OF PERSON PERFORMING FIRE WATCH

I verify the above location has been examined, the Required Precautions have been taken, and permission is authorized for this work.

PERMIT AUTHORIZER (PRINT AND SIGN)

THIS PERMIT EXPIRES ON (LIMIT AUTHORIZATION TO ONE SHIFT):

DATE: TIME: ☐ AM ☐ PM

Note: Emergency notification on back of form.

Additional FM Global Resources:
Property Loss Prevention Data Sheet 10-3, *Hot Work Management*
Hot Work Permit form (F2630) via fmglobalcatalog.com
Online training at training.fmglobal.com
FM Approved equipment via fmapprovals.com

Part 1

Required Precautions

Y	NA	
☐	☐	The fire pump is in operation and switched to automatic.
☐	☐	Control valves to water supply for sprinkler system are open.
☐		Extinguishers are in service/operable.
☐		Hot work equipment is in good working condition.

Requirements within 35 ft. (10 m) of hot work

☐	☐	Shield combustible construction using listed (e.g., FM Approved) welding pads, blankets and curtains.
☐	☐	Remove or shield nonremovable combustibles using listed (e.g., FM Approved) welding pads, blankets and curtains.
☐	☐	Isolate potential sources of flammable gas, ignitable liquid or combustible dust/lint (e.g., shut down equipment).
☐	☐	Remove ignitable liquid, combustible dust/lint and combustible residues.
☐	☐	Shut down ventilation and conveying systems.
☐	☐	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.
☐	☐	Is work on a combustible building assembly (e.g., torch-applied roofing)? If yes, provide **ADDITIONAL REQUIRED PRECAUTIONS** below.

Hot work on/in closed equipment, ductwork or piping

☐	☐	Isolate equipment from service.
☐	☐	Remove ignitable liquid and purge flammable gas/vapor.
☐	☐	Prior to work, and/or during work, monitor for flammable gas/vapor. LEL reading(s):
☐	☐	Remove combustible dust/lint or other combustible materials.
☐	☐	Is work on/in equipment with nonremovable combustible linings or parts? If yes, provide **ADDITIONAL REQUIRED PRECAUTIONS** below.

Fire watch/fire monitoring the hot work area
Times listed are sufficient for majority. Use Table at back of permit for guidance for combustible concealed cavities, roof work or favorable factors.

☐		Perform a continuous fire watch during hot work.
☐		Perform a continuous fire watch post-work for ☐ 1 hour or Other ____ hours.
☐	☐	Perform fire monitoring for ☐ 3 hours or Other ____ hours.

ADDITIONAL REQUIRED PRECAUTIONS:

WARNING

HOT WORK IN PROGRESS! Watch for fire!

Instructions

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.

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.

Fire monitor: Monitor area after post-work fire watch completion. Perform final inspection, sign and return to Permit Authorizer.

HOT WORK BY
☐ Employee
☐ Contractor _____

DATE | JOB NUMBER

LOCATION OF WORK (BUILDING/FLOOR/OBJECT)

WORK TO BE PERFORMED

NAME OF PERSON PERFORMING HOT WORK

NAME OF PERSON PERFORMING FIRE WATCH

I verify the above location has been examined, the Required Precautions have been taken, and permission is authorized for this work.

PERMIT AUTHORIZER (PRINT AND SIGN)

THIS PERMIT EXPIRES ON (LIMIT AUTHORIZATION TO ONE SHIFT):

DATE: TIME: ☐ AM ☐ PM

Hot Work Date: Start Time: ☐ AM ☐ PM
Finish Time: ☐ AM ☐ PM

Post-Work Fire Watch Finish Time: ☐ AM ☐ PM
Name

Fire Monitor ☐ Person ☐ Other Finish Time: ☐ AM ☐ PM
Name/Other

Final Check Time: ☐ AM ☐ PM
Name

Part 2

Required Precautions

Y	NA	
☐	☐	The fire pump is in operation and switched to automatic.
☐	☐	Control valves to water supply for sprinkler system are open.
☐		Extinguishers are in service/operable.
☐		Hot work equipment is in good working condition.

Requirements within 35 ft. (10 m) of hot work

☐	☐	Shield combustible construction using listed (e.g., FM Approved) welding pads, blankets and curtains.
☐	☐	Remove or shield nonremovable combustibles using listed (e.g., FM Approved) welding pads, blankets and curtains.
☐	☐	Isolate potential sources of flammable gas, ignitable liquid or combustible dust/lint (e.g., shut down equipment).
☐	☐	Remove ignitable liquid, combustible dust/lint and combustible residues.
☐	☐	Shut down ventilation and conveying systems.
☐	☐	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.
☐	☐	Is work on a combustible building assembly (e.g., torch-applied roofing)? If yes, provide **ADDITIONAL REQUIRED PRECAUTIONS** below.

Hot work on/in closed equipment, ductwork or piping

☐	☐	Isolate equipment from service.
☐	☐	Remove ignitable liquid and purge flammable gas/vapor.
☐	☐	Prior to work, and/or during work, monitor for flammable gas/vapor. LEL reading(s):
☐	☐	Remove combustible dust/lint or other combustible materials.
☐	☐	Is work on/in equipment with nonremovable combustible linings or parts? If yes, provide **ADDITIONAL REQUIRED PRECAUTIONS** below.

Fire watch/fire monitoring the hot work area

Times listed are sufficient for majority. Use Table at back of permit for guidance for combustible concealed cavities, roof work or favorable factors.

☐ Perform a continuous fire watch during hot work.
☐ Perform a continuous fire watch post-work for
☐ 1 hour or Other ____ hours.
☐ ☐ Perform fire monitoring for
☐ 3 hours or Other ____ hours.

ADDITIONAL REQUIRED PRECAUTIONS:

WARNING

HOT WORK IN PROGRESS!
Watch for fire!

In case of emergency, call the contacts listed below before attempting to extinguish the fire.

Contact	Number

Construction and Occupancy Factors for Post-Work Fire Watch and Monitoring Periods

		Construction Factors					
		Noncombustible construction, or FM Approved Class 1 or Class A building materials		Combustible construction without concealed cavities		Combustible construction with unprotected concealed cavities	
		Watch	**Monitor**	**Watch**	**Monitor**	**Watch**	**Monitor**
Occupancy Factors	Noncombustible with any combustibles contained within closed equipment (e.g., ignitable liquid within piping)	30 minutes	0 hours	1 hour	3 hours	1 hour	5 hours
	Office, retail or manufacturing with limited combustible loading	1 hour	1 hour	1 hour	3 hours	1 hour	5 hours
	Manufacturing with moderate to significant combustible loading except as noted below	1 hour	2 hours	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 having bulk storage of combustible materials capable of supporting slow-growing fires (e.g., paper, pulp, textile fibers, wood, bark, grain, coal or charcoal)	1 hour	3 hours	1 hour	3 hours	1 hour	5 hours

When performing torch-applied roofing, apply additional precautions and conduct a minimum 2-hour 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.

When performing hot work on/in equipment containing nonremovable combustible linings or parts, apply additional precautions and conduct a minimum 1-hour fire watch and 3 hours fire monitoring within the equipment, and in the surrounding areas per Table above.

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