

 CSN Procedure	Facilities Management
Category: Environmental Health and Safety	Effective Date: 06/01/2022
<b>Hot Work Program</b>	

## I. PURPOSE

The purpose of this program is to establish the minimum requirements and procedures for preventing fires that may result from hot work at College of Southern Nevada (CSN) properties. This program also establishes the basic requirements for the issuance of hot work permits.

## II. SCOPE

This procedure applies to all college departments, employees, and contractors involved with hot work activities. This program does not apply to normal or routine supervised activities in classrooms, laboratories, and academic vocational shops that are designed and equipped for hot work operations.

## III. DEFINITIONS

**Fire Watch:** A temporary measure intended to ensure continuous and systematic surveillance of a building or portion thereof by one or more qualified individuals for the purpose of identifying and controlling fire hazards, detecting early signs of unwanted fire, raising an alarm of fire and notifying the fire department.

**Hot Work:** 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, and welding.

**Hot Work Permit:** A document obtained through approval from EHS for hot work outside of a permanently established hot work area and must be kept onsite of the work until the work is completed.

**Permanently Established Hot Work Area:** A specific location designed and approved for hot work operations that is maintained fire-safe, such as a maintenance shop or detached outside location.

## IV. PROCEDURE

### A. Responsibilities:

1. CSN Environmental Health and Safety (EHS)
  - Develop, implement, and maintain the CSN Hot Work Program.
  - Provide training on the Hot Work Program and individual responsibilities.
  - Provide when requested, technical support and guidance for planning hot work operations.
  - Evaluate and approve permanently established hot work areas.
  - Perform periodic inspections of hot work areas.
  - Approve or deny hot work permits.
  - Maintain a file of completed hot work permits.

## 2. CSN Departments

- Contact EHS to evaluate and approve permanently established hot work areas.
- Ensure that a hot work permit has been completed and approved by EHS prior to the start of hot work in a non-designated area.
- Ensure that employees involved in hot work are assigned to fulfill duties in the following positions and verify they have completed hot work safety and fire extinguisher training:
  - Individual Performing Hot Work
  - Fire Watch Attendant
  - Hot Work Operations Supervisor
- Ensure that properly trained Fire Watch Attendant(s) are assigned when necessary.
- Ensure that outside contractors are made aware of the CSN Hot Work Program and that they are expected to comply with National Fire Protection Association (NFPA) and Occupational Safety and Health Administration (OSHA) requirements.

## 3. Hot Work Operations Supervisor

- Complete hot work safety and fire extinguisher training courses.
- Prepare hot work permit (Appendix A) for EHS approval prior to the start of hot work in a non-designated area. Ensure that all requirements of the Hot Work Permit are followed.
- Ensure properly trained fire watch attendant(s) are assigned when necessary. Request additional fire watch attendants for areas with vertical or horizontal fire exposures and combustible materials that are not observable by a single individual.
- Ensure that proper equipment and supplies are on-hand and checked for proper operation:
  - Fully charged fire extinguisher appropriate for the possible types of fire.
  - Hot work equipment, shields, and PPE for all hazards.
  - Communications equipment.
- Conduct, for all hot work participants, briefings that summarize the permit, potential hazards, protective measures, and any additional relevant issues related to the project.

## 4. Individual Performing Hot Work (Worker)

- Complete hot work safety and fire extinguisher training courses.
- Ensure hot work permit is approved and posted prior to start of work, if required. Follow all requirements of the permit.
- Perform a hot work check prior to work that includes ensuring:
  - All equipment is in safe operational condition.
  - All hazards within the hot work area are protected from heat and/or flame.
  - All combustibles within 35 feet are removed from the vicinity of the work or adequately covered.
  - Action has been taken to prevent accidental activation of the fire suppression and/or detection equipment in accordance with 2018 IFC 3504.1.9.
  - Automatic sprinkler protection system shall not be shut off while hot work is being performed unless otherwise approved by EHS and the fire code official.
- Notify Hot Work Operations Supervisor if conditions change or warrant reassessment of the hot work project.
- Use equipment properly and safely.
- Use appropriate personal protective equipment (PPE) while performing hot work operations.

- Place warning sign(s) if work area is accessible to anyone other than the individual performing hot work.

#### 5. Fire Watch Attendant

- Complete hot work safety and fire extinguisher training courses.
- Have no other duties other than performing fire watch.
- Ensure safe conditions are maintained during and immediately after the hot work by inspecting for stray sparks or other fire hazards.
- Ensure that appropriate fire extinguishers are readily available within 30 feet of hot work operations.
- Have reliable communication devices readily available to report emergencies.
- Wear appropriate personal protective equipment for the hazards present.
- Be familiar with the facilities where hot work will be done and the methods for sounding the alarm in the event of a fire.
- Maintain the fire watch at least 30 minutes (or 120 minutes for torch-applied roof work) after hot work is completed.
- Notify Hot Work Operations Supervisor if conditions change or warrant reassessment of the hot work project.

#### 6. CSN Facilities Management – Project and Construction Managers

- Ensure that outside contractors are made aware of the CSN Hot Work Program and that they are expected to comply with National Fire Protection Association (NFPA) and Occupational Safety and Health Administration (OSHA) requirements while on CSN property.
- Project/Construction Managers should review the contractor's Hot Work Program to ensure that it is adequate for the type of work being performed.
- When hot work is required, coordinate with the contractor to notify CSN EHS prior to the start of hot work.

#### 7. Contractors/Vendors Performing Hot Work at CSN

- Must have adequate training on the use and maintenance of equipment used for hot work.
- Must supply their own hot work equipment, approved fire extinguishers, signage/barricades, and personal protective equipment.
- Notify EHS through the project or construction manager of any hot work to be conducted on CSN property (or other areas of CSN responsibility) at least 24 hours prior to the start of hot work.
- Implement their company's hot work permit program as required by NAC 618.5315 and comply with NFPA and OSHA requirements. The contractor shall designate their own qualified permit authorizing individual(s). If needed, the contractor may use CSN's hot work permit (Appendix A) and EHS can serve as the permit authorizer.
- Ensure that all conditions of the hot work permit are met during and after the hot work. Hot work permits must be maintained on location during the work. Contractor/vendor must retain copies of hot work permits for the duration of the project and have available should a CSN Project Manager, EHS, or regulatory agency request copies.

## B. Hot Work Areas

### 1. Permanently Established Hot Work Areas

- Permanent hot work areas must meet the following criteria:
  - Noncombustible or of fire-resistant construction.
  - Free of combustible and flammable contents.
  - Suitably segregated from adjacent areas.
- Hot work activities are permitted at any time in permanently established areas without a hot work permit if:
  - Conditions are appropriate and proper safety precautions are taken;
  - The individual performing hot work is trained and qualified; and
  - The Hot Work Operations Supervisor approves the work.
- EHS shall inspect and approve the area's designation as a permanent hot work area using the checklist in Appendix B.
- A list of approved designated areas can be found in Appendix C.

### 2. Permit Required Hot Work Areas:

- When hot work is performed outside of a permanently established area, a hot work permit must be obtained prior to the start of work.
- The permit is valid until the job is complete or conditions change (i.e., shift change).
- If a project will require multiple days/weeks of hot work, special arrangements can be made through EHS to only require one Hot Work permit for the length of the project. Additional requirements may apply (i.e., routine inspections and daily log maintained).
- Torch-applied roof operations require prior authorization from EHS, consultation with Zurich Risk Engineering, 120-minute fire watch, and the use of the Zurich expanded hot work permit (available from EHS).
- Hot work performed inside any enclosed or confined space requires additional precautions. Employees shall follow the requirements outlined in the CSN Confined Space Entry Program.

### 3. Prohibited Hot Work Areas

- Areas where the sprinkler system is impaired (2018 IFC 3501.3). When hot work cannot be avoided during a sprinkler impairment, contact EHS who will consult with Zurich Risk Engineering.
- Areas where there exists the potential of an explosive atmosphere, such as locations where flammable gases, liquids or vapors are present. (2018 IFC 3501.3).
- Areas with readily ignitable materials, such as storage of large quantities of bulk, sulfur, baled paper, cotton, lint, dust, or loose combustible materials. (2018 IFC 3501.3).
- At other locations as specified by the fire code official. (2018 IFC 3501.3).
- Hot work shall not be attempted on a partition, wall, ceiling, or roof that has a combustible covering or insulation, or on walls or partitions of combustible sandwich type construction. (NFPA 51B, Section 5.4.2 (8)).
- Hot work that is performed on pipes or other material that is in contact with combustible walls, partitions, ceilings, roofs or other combustibles shall not be undertaken if the work is close enough to cause ignition by conduction. (NFPA 51B, Section 5.4.2 (9)).

## C. Hot Work Operations

### 1. Prior to Hot Work

- Obtain a Hot work permit if work is to occur outside of a permanently established hot work area. To obtain a permit, the Hot Work Operations Supervisor or designee shall:
  - Notify EHS of hot work at least 24 hours in advance, if possible.
  - Inspect the area where work is to occur.
  - Complete permit in Appendix A and submit to the EHS representative at the respective campus where the work will occur. EHS will sign as the permit authorizer.
- Ensure all equipment is in good operating order before work starts.
- Inspect area and remove flammable and combustible materials within a 35-foot radius of the hot work area. Properly shield combustibles that cannot be removed from the area with approved curtains or guards.
- Determine if a Fire Watch Attendant is required. Fire watch must be used when:
  - Combustibles within 35 feet of the operations cannot be relocated or adequately protected in place.
  - A significant amount of combustible material is more than 35 feet away but can easily be ignited by sparks.
  - Combustible materials are adjacent to the opposite side of partitions, walls, ceilings, or roofs and could be ignited by conduction or radiation.
- Ensure that sprinkler heads and smoke detectors in close proximity to where the work will take place are covered prior to the start of work to prevent unwanted alarms.
- Protect gas lines and equipment from falling sparks, hot materials, and objects.
- Seal all cracks and openings through which hot sparks or slag may enter or use a fire-resistant shield to block the openings.
- Sweep floor of all combustible debris and remove grease and oils.
- Ensure the appropriate fire extinguishers are available and easily accessible.
- Ensure appropriate PPE, shields, and communication devices are available at the site.
- Post permit (if required) and signs to mark the hot work area and warn nearby personnel of the hot work.

### 2. During Hot Work

- Maintain appropriate fire extinguishers and communication equipment near the hot work area.
- Store acetylene and other fuel cylinders in a secure and upright position. Place hoses so that they will not be crushed or damaged.
- Be constantly aware of conditions that may cause a fire to start.
- Conduct periodic inspections and stop work if hazardous conditions are found.

### 3. After Hot Work

- Maintain a fire watch for at least thirty minutes after hot work is complete, if applicable.
- Remove covers from sprinkler heads and/or smoke detectors immediately after completion of the hot work.
- Keep fire-extinguishing equipment readily accessible in the area until fire watch duties are complete.
- Inspect the area following the completion of work to ensure that any hot work sparks have

been extinguished.

- Hot Work Operations Supervisor or designee will complete the appropriate closeout section of the hot work permit and return the permit to EHS.

D. Training

1. CSN Environmental Health and Safety is responsible for providing Hot Work Safety and Fire Extinguisher training to CSN employees who are required to complete tasks that involve hot work.
2. Training must be conducted before an employee is first assigned and/or assigned new or additional duties as outlined in the Hot Work Program.
3. Re-training shall be provided whenever: 1) the Hot Work Program changes; 2) there is reason to believe there are inadequacies in an employee's knowledge or the Hot Work Program; 3) an employee improperly performs assigned tasks.

E. Records Management

1. Training records are maintained by the CSN CAPE Learning Management System.
2. Records of hot work permits should be maintained by EHS 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.

**V. AUTHORITY AND CROSS REFERENCE LINKS**

1. 29 CFR 1910, Subpart Q – Welding, Cutting, and Brazing
2. 29 CFR 1926, Subpart J – Welding and Cutting
3. Nevada Administrative Code (NAC), 618.5315 – Permit for Hot Work
4. 2018 International Fire Code Chapter 35, Welding and Other Hot Work
5. National Fire Protection Association (NFPA), 51B – Standard for Fire Prevention During Welding, Cutting, and Other Hot Work



**Appendix A – Hot Work Permit (Front)**

<b>HOT WORK PERMIT</b>		
(Work related to heat, flames, sparks, electrical arcs, etc.)		
Department:	Permit Number:	
Campus:	Work Order No:	
<b><i>BEFORE STARTING, consider less hazardous work methods or work off site. If hot works are performed outside of a designated area, USE THIS PERMIT.</i></b>		
Work Location:		
Work Description:		
Work By: <input type="checkbox"/> CSN Staff <input type="checkbox"/> Contractor (print name):		
Work Are Risk Assessment:		
a. Automatic sprinklers are fully operational (see note 1 on back)	<input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No
b. Hot work equipment is functional, secure and in good repair		<input type="checkbox"/> Yes <input type="checkbox"/> No
c. Within 35 ft (10 m) of the work area:		
1) Flammable liquids are removed		<input type="checkbox"/> Yes <input type="checkbox"/> No
2) Combustible materials are removed or covered with fire resisting material		<input type="checkbox"/> Yes <input type="checkbox"/> No
3) Floors swept and overhead structures are clean from dust, lint, and debris		<input type="checkbox"/> Yes <input type="checkbox"/> No
4) Floor and wall openings are protected against spread of sparks or embers		<input type="checkbox"/> Yes <input type="checkbox"/> No
d. Does work involve a tank, or other enclosed equipment? (If yes, complete 1 to 4)		
1) Adequate ventilation is provided		<input type="checkbox"/> Yes <input type="checkbox"/> No
2) Equipment thoroughly cleaned to remove all flammables and combustibles?		<input type="checkbox"/> Yes <input type="checkbox"/> No
3) Flammable vapors are purged		<input type="checkbox"/> Yes <input type="checkbox"/> No
4) Purging and ventilation is verified with gas detector		<input type="checkbox"/> Yes <input type="checkbox"/> No
e. Fire watch to be provided continuously during and after hot work		
1) First aid and fire extinguisher are provided and functional		<input type="checkbox"/> Yes <input type="checkbox"/> No
2) Fire watch duration (minutes) after hot work completed:	<input type="checkbox"/> 30 <input type="checkbox"/> 60 <input type="checkbox"/> 120 <input type="checkbox"/> ____	
<b><i>Important note: For torch-applied roof works, maintain fire watch for at least 120 min</i></b>		
Permit Valid on (Date):	From (Time):	To:
<b>Authorizer (EHS)</b>		
Print Name:	Signature:	
<b>Hot Work Operations Supervisor</b>		
Print Name:	Signature:	
<b>Hot Work Performer (Worker)</b>		
Print Name:	Signature:	
<b>Fire Watch Attendant</b>		
Print Name:	Signature:	
<b>Permit closed by Hot Work Operations Supervisor:</b>		
<input type="checkbox"/> Work complete with no hot or smoldering conditions evident		
<input type="checkbox"/> Impaired/isolated fire detection/protection systems back in operation <input type="checkbox"/> NA		
Date:	Time:	Signature:

Appendix A – Hot Work Permit (Back)

# WARNING

## HOT WORK IN PROGRESS WATCH FOR FIRE!

In case of emergency, take these actions:

Call: 911 or UPD 702-895-3669

**Note: Fire Protection Impairments**

- Only smoke detectors should be isolated to avoid unwanted alarms.
- Hot work should not be permitted in any area equipped with automatic sprinklers while sprinklers are impaired.
- Where hot work cannot be avoided during a sprinkler impairment, consult with EHS before hot work proceeds.

**Note: Fire Watch**

- Maintain an uninterrupted fire watch throughout the work area and adjacent areas.
- This includes during lunch, breaks, and shift changes.
- After work is completed, maintain continuous fire watch for at least 30 minutes (120 minutes for torch-applied roof work).





**Appendix B – Permanently Established Hot Work Area Designation Form**

<b>Permanently Established Hot Work Area Determination Form</b>		 <small>College of Southern Nevada Investing in Our Future. Students First.</small>
<i>A permanent hot work area is a designated location for hot work. A hot work permit is <b>NOT</b> required when performing hot work within the designated area.</i>		
Campus:	Building:	
Room Number/Description of Location:		
<i>Instructions: In order for a hot work area to become a designated permanent area, the area must meet the criteria below and approved by a member of CSN Environmental Health and Safety (EHS).</i>		
1. Is the area constructed of non-combustible and fire resistive material?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2. Is the area essentially free of combustible and flammable gases, vapors, liquids and dusts?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
3. Is the area suitably segregated from adjacent areas?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4. Is working surface for soldering/brazing activities made of non-combustible materials? (i.e. benchtop, table)	Yes <input type="checkbox"/>	No <input type="checkbox"/> NA <input type="checkbox"/>
5. Is the area equipped with the appropriate fire extinguishers?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
6. Adequate ventilation is available to remove smoke/vapors from the work area?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
7. All compressed gas cylinders are stored properly?	Yes <input type="checkbox"/>	No <input type="checkbox"/> NA <input type="checkbox"/>
Upon reviewing the items above, this area is approved by CSN Environmental Health and Safety (EHS) as a permanently established hot work area. Yes <input type="checkbox"/> No <input type="checkbox"/>		
Comments:		
Printed EHS Employee Name:	Date:	
EHS Employee Signature:		