

Hot Work Program

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PURPOSE

Fires resulting from hot work historically have produced major losses in property, business interruption and human lives. Mineta San Jose International Airport (SJC) and the City of San Jose (CSJ) are committed to a proactive risk management strategy to minimize the risks for employees, airlines, tenants, and contractors' exposure to fire hazards by implementing an effective hot work program.

AUTHORITY

Assistant Director of Aviation
(Facilities & Engineering Deputy Director oversees Hot Work Permit Program)

SCOPE OF APPLICATION

The Hot Work Program applies to SJC/CSJ employees, airlines, tenants, and contractors who perform or supervise hot work activities in existing buildings, such as repairs of facility operational systems, and any new construction or expansions of existing buildings.

POLICY

Hot work program procedures and the issuance of a SJC Hot Work Permit are required prior to commencing the following work: all hot work that involves using an open flame or which generates heat, sparks, hot slag, or other superheated materials (this includes, but is not limited to, brazing, cutting, grinding, soldering, thawing pipes, torch applied roofing and welding). The procedures establish each employee's responsibility.

This written Hot Work Program meets and/or exceeds the following regulations on the date of the program:

- California Code of Regulation, Title 8, Section 4848
- California Code of Regulation, Title 8, Section 5189
- NFPA 51B Standard Requirements

FAILURE TO COMPLY

Penalties for failure to comply with the requirements of this policy shall result in a stoppage of work at a minimum and could result in termination of the involved company or individual.

DEFINITIONS

Applicability - The Hot Work Program is applicable to SJC/CSJ employees, airlines, tenants, and contractors providing service work or construction-related work activities.

Department Supervisor – The Facilities & Engineering Deputy Director oversees the Hot Work Permit Program for hot work operations under their supervision and is responsible for designating employees as Permit Authorizing Individuals (PAI), who will issue SJC Hot Work Permits.

Fire Watch (FW) - A person designated to monitor the safety of hot work operations and watch for fires. Fire watchers are required during hot work operations and for at least 60 minutes after hot work has been completed. Any employee who has successfully completed hot work safety training can be designated as the Fire Watch.

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Hot Work (HW) - Hot work is defined as any welding, cutting, grinding, or any other activity involving open flames, sparks, or other ignition sources that may cause smoke, fire, or can trigger fire detection systems. It includes, but is not limited to the following types:

- Arc Welding
- Acetylene Welding or Cutting
- Exothermic Welding
- Brazing
- Soldering
- Propane-Type Torches
- Drilling
- Grinding
- Heliarc
- Hot Tapping Lines or Vessels
- Magnafluxing
- Induction or Resistance Heating
- Air Arcing or Plasma Cutting
- MIG welding
- Torch-applied roofing
- Powder-actuated tools

Hot Work Operators (HWOs) – The individual who performs hot work operations. The HWO must inspect the hot work site prior to the start of hot work operations using the checklist found on the SJC Hot Work Permit form. A HWO must always obtain a SJC Hot Work Permit before beginning hot work and must have successfully completed hot work safety training.

Permit Authorizing Individual (PAI) - A person who authorizes hot work operations. Once all requirements on the SJC Hot Work Permit form have been satisfied, the form becomes a SJC Hot Work Permit after being signed by a PAI. The SJC Hot Work Permit must be posted in the area where hot work operations are to be performed. Any employee who has successfully completed hot work safety training may be designated as a PAI by the Department Supervisor. Hot Work Operators can be a PAI, but they are not allowed to issue their own SJC Hot Work Permits.

RESPONSIBILITIES

There is a mutual responsibility among management, contractors, PAI, fire watchers, and HWO for safety in hot work operations.

Department Responsibilities:

- Provide a safe and healthful work environment
- Ensure that required hot work equipment, tools, personal protective equipment, and training are provided and used properly
- Ensure that SJC/CSJ employees, airlines, tenants, and contractors follow the hot work program requirements and implement safe work practices and procedures
- Resolve safety concerns impartially and fairly

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Department Supervisor and PAI's Responsibilities:

The responsibility for the SJC Hot Work Program rests with the Facilities & Engineering Deputy Director and designated PAI's.

- Reviewing and providing authorization for Hot Work Permits
- Designating department employees to become a "Permit Authorizing Individuals" for the Hot Work Program
- Anticipating the risks that may arise from the hot work and ensure that the permit request form is complete and thorough
- Maintain copies of Hot Work Permits on file for a minimum of 6 months

HWO Performing Hot Work Responsibilities:

- Responsible for eliminating all fire hazards before beginning any hot work
- Correcting all equipment, machines, or conditions found to be defective or presenting a potential safety hazard
- Ensuring that all persons involved in hot work are properly trained in their functions, as well as understanding and accepting his/her personal responsibility for safety while performing hot work procedures
- Anticipating the risks that may arise from changes in equipment or methods and adjusting Hot Work procedures accordingly, or contacting their supervisor for reassessment if changed conditions are significant
- Will utilize appropriate personal protective equipment (PPE) while performing hot work (e.g., welding helmets, gloves, jackets, etc.)
- Must complete the appropriate section(s) of the hot work permit form prior to commencing work
- Must return the completed hot work permit to the PAI for cancellation after hot work is completed

Fire Watchers Responsibilities:

- Must be trained in their duties and responsibilities as outlined in this Hot Work Program
- Must have completed fire extinguisher training
- Must be aware of the inherent hazards involved in the hot work
- Must inspect area before any hot work operations commence to ensure that all precautions have been taken
- Must have fire-extinguishing equipment such as fire extinguishers, water hose, pail of water or sand, etc., on site and readily available. Also ensure access to communication devices such as radios, cellphone, etc. to call 9-1-1 in case of emergency
- Must continue to be on the watch at least 60 minutes after all hot work has been completed
- May have minimal additional duties in the immediate area; however, these other duties must not interfere with their fire watch responsibilities
- Will only try to extinguish a fire if obviously within their trained capacity to safely do so
- Must be provided and positioned where more than a minor fire might develop or where:
 - a. Appreciable combustible material is within 35 feet of the point of operations
 - b. Appreciable combustibles that may be easily ignited by sparks are in the work area
 - c. Wall or floor openings within 35 feet expose combustibles in adjacent areas, including concealed spaces in floors or walls

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- d. Combustibles could be ignited by conduction or radiation through metal partitions, walls, ceilings or roofs
- e. Any hazardous materials that can give off dust, mist, or fumes when heated are present and may need to be removed from the area

Airlines, Tenants, and Contractors' Responsibilities:

- Ensure staff performing and involved with hot work are trained and knowledgeable about the duties they will be performing
- Ensure staff performing and involved with hot work adhere to the SJC Hot Work Program

Project/Property Manager Responsibilities:

- Ensure that airlines, tenants, and contractors adhere to the SJC Hot Work Program when working on any SJC properties. SJC management is committed to minimizing risk by informing airlines, tenants, and contractors about the requirements outlined in this SJC Hot Work Program
- Advise all airlines, tenants, and contractors about known site-specific flammable materials or hazardous conditions in areas where they will be working prior to obtaining a hot work permit and commencing hot work operations
- Inform airlines, tenants, and contractors of the expectation that they must follow all Cal/OSHA requirements and that they must use a hot work permit, if applicable to the job being performed
- Verify that the Hot Work Permit has been correctly filled out and appropriate site inspections have been performed prior to submittal to the PAI
- Confirm fire watch requirements with the HWO and the need for full building fire watch in addition to the local fire watch

PROCEDURES

Personal Protective Equipment (PPE)

- All persons performing arc welding or arc cutting operations will use helmets or hand shields (eye and face protection)
- Fire watchers or those assisting HWO's will be equipped with proper eye protection
- Goggles or other suitable eye protection will be used during all gas welding or gas cutting operations
- All HWO's and those assisting with welding or brazing will use goggles or face shields.
- Gloves, aprons, and other PPE will be worn to protect against recognized hazards

Location Evaluation for Hot Work

Evaluation of the intended hot work location is critical to ensure that any known or possible hazards are identified, and appropriate measures are taken as part of a hot work permit.

- Before a hot work permit is issued, the HWO must conduct the location evaluation and complete the hot work form according to the results of the evaluation
- During the approval process of the hot work permit, the PAI may ask for additional information, and if necessary, may conduct an additional review of the hot work location to ensure the appropriateness of the hot work permit measures

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- For locations that have a fire monitoring system and the hot work operation requires the building system to be deactivated (placed in test mode or otherwise affected), then a building fire watch will be required in addition to a hot work site fire watch

Training

Staff involved in the Airport's Hot Work Program (such as HWO, PAI, and FW) are required to complete appropriate HW training that ensures correct identification of known and possible hazards. The training should cover the following safety and compliance areas, but are not limited to these criteria:

- Hot Work Hazard Assessment and Evaluations Skills
- How to Complete a Hot Work Permit
- Hot Work Requirements and Policy Administration
- Proper selection of Personal Protective Equipment (PPE)
- Fire Prevention and Suppression Techniques (ie. fire extinguisher, etc.)
- Safe Work Practice procedure for each type of hot work
- Must be trained in their duties and responsibilities as outlined in this Hot Work Program, to include fire extinguisher training

Construction Projects

If a Capital Improvement Project will have significant on-going hot work required, the Contractor can potentially use an approved project/company Hot Work Program to authorize the Hot Work, rather than utilizing individual, daily SJC Hot Work Permit approvals. The Contractor Hot Work Program must meet all requirements of this SJC Hot Work Policy at a minimum. The Project Manager is responsible to ensure that the Contractor's Hot Work Program Submittal meets all requirements of the SJC Hot Work Policy and approves the document for Hot Work use.

The Project Manager must ensure that a PAI is involved in the review process prior to approval. During the contract execution, the Project Manager is responsible for ensuring that all requirements of the Contractor's Hot Work Program are being followed and must stop work if the requirements are not being met until corrections are made. A copy of the Contractor's Hot Work Program and all additional Hot Work Program documentation must be provided to the PAI to be kept on file for six (6) months after completion of work.

SJC Hot Work Permit Procedures

A. Obtaining a SJC Hot Work Permit:

Hot work may begin only upon the authorization and approval of a SJC Hot Work Permit (See Appendix A). All employees, airlines, tenants, and contractors will use the SJC Hot Work Permit to maintain a safe work environment.

B. Before Completing a SJC Hot Work Permit Form, the PAI, Project Manager, Management Representative, and/or Supervisor Ensures that the HWO adheres to the following:

1. Hot work will not be performed if the work can be avoided using alternative methods other than hot work or cannot be performed in a safe manner. When practical, objects to be welded, cut, or heated must be moved to a designated safe location, e.g., maintenance shops.

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2. All precautions on the SJC Hot Work Permit Form must be inspected prior to commencing any work. A PAI will approve the permit. The permit contains a checklist that must be completed by the HWO prior to submitting the permit to the PAI for approval.
3. **The Hot Work Permit is valid for one day maximum with the date and time (by number of hours) specified on the permit.** A copy of the permit must be posted in hot work operations and must remain at the hot work location until the fire watch has ended and the area is cleared.
4. A copy of every SJC Hot Work Permit must be filed by the PAI in a location designated by the Facilities & Engineering Deputy Director and kept for a period of at least 6 months.
5. All personnel (employees, contractors, building occupants) must be suitably protected against hazards generated by the work (i.e., heat, sparks, fumes, welding rays, etc.) This may include, but is not limited to, the use of PPE, shields, screens, and local exhaust ventilation.
6. Hot work equipment to be used must be in satisfactory operating condition and in good repair.
7. Combustible materials such as paper clippings, wood shavings, dust, or textile fibers that are on the floor must be swept clean for a radius of 35 feet. Combustible floors must either be kept wet, covered by wet sand, or be protected by noncombustible or fire-retardant shields.
8. All combustibles must be relocated at least 35 feet horizontally from the hot work site. If relocation is impractical, then combustibles must be protected with fire-retardant covers or otherwise shielded with metal or fire-retardant guards or curtains. Edges of covers at the floor must be tight to prevent sparks from going under them, including overlapping covers when protecting a large pile.
9. When hot work is performed at an elevated level, it should be noted that sparks or slag can fall farther than 35 feet horizontally from a point directly underneath the HWO. The 35-foot circle may need to be expanded accordingly.
10. Openings or cracks in walls, floors, or ducts within 35 feet of the hot work site must be tightly covered with fire-retardant or noncombustible material to prevent the passage of sparks to adjacent areas.
11. Paint on metal walls can release toxic fumes when heated by conduction from hot work performed on the opposite side. This is especially true for freshly painted surfaces. If the potential for release of toxic fumes exists, other workers should not be allowed in the area while hot work is underway, and the operator and fire watcher (if present) should use proper respiratory protection.
12. If hot work is performed near walls, partitions, ceilings, or roofs of combustible construction, then fire-resistive shields or guards must be provided to prevent ignition.

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13. Hot work must not be attempted on a partition, wall, ceiling, or roof that has a combustible covering/insulation or on walls/partitions of combustible sandwich-type panel construction.
14. Fully charged and operable portable fire extinguishers that are appropriate for the type of possible fire must be available immediately at the hot work area. If fire hose lines are located within the hot work area defined by the permit, they must be connected and ready for service, but must not be required to be unrolled or charged.

C. Displaying the Hot Work Permit:

The SJC Hot Work Permit must be displayed in a visible location any time hot work activity is in progress. Failure to display this permit will result in an immediate stoppage of work.

D. SJC Hot Work Permit – Prohibited Conditions:

Cutting or welding **will not** be permitted in the following situations:

- In areas not authorized by an approved SJC Hot Work Permit
- Floor and wall openings that cannot be covered
- Flammable vapors or gases that are present
- Appropriate fire-fighting equipment is not available
- In sprinklered buildings while such protection is impaired
- In the presence of potentially explosive atmospheres (e.g., flammable liquids or gases)
- In areas near the storage of large quantities of exposed, readily ignitable materials (e.g., paper, flammable liquids, wood, etc.)

E. The SJC Hot Work Permit will be terminated under the following conditions:

1. When continued use of source of ignition becomes hazardous
2. Any time the conditions of its issuance change
3. Upon completion of designated hot work
4. When SJC Hot Work Permit is not being displayed or followed correctly

F. Completion of Work

Upon completion of hot work and final fire check, return the SJC Hot Work Permit to the PAI for cancellation.

G. Record Retention

A copy of each SJC Hot Work Permit issued is to be kept on file for a minimum of 6 months by the PAI.

Hot Work Program**1.7****SJC Hot Work Checklist Requirements**

All precautions on the SJC Hot Work Permit must be met prior to commencing work. A PAI will issue the SJC Hot Work Permit. It is valid only for the date and time(s) specified. A copy of the permit must be displayed at the hot work location until the hot work is completed and the permit terminated.

Hot Work Precautions at the Work Site for Hot Work Operators and Fire Watchers

The 35-Foot Rule

- All flammable liquids, oil deposits, dust, lint and other combustible materials are removed at least 35 feet from hot work area
- When flammable and combustible materials within a 35-foot radius of the hot work area cannot be removed they must be covered with flame retardant tarps and a fire watch must be posted
- Floors and surfaces within a 35-foot radius of the hot work area must be swept clean of combustible dust and debris
- If required per the site assessment, the hot work area may need testing for hazardous and explosive atmospheres and to determine that it is safe for introduction of a heat source prior to start of hot work
- All openings or cracks in the walls, floors, or ducts that are potential travel passages for sparks, heat and flames must be covered

Fire Detection and Suppression

- Fully charged and operable portable fire extinguishers that are appropriate for the type of possible fire must be available immediately at the hot work area. If fire hose lines are located within the hot work area defined by the permit, they must be connected and ready for service, but must not be required to be unrolled or charged.
- For locations that have a fire monitoring system and the hot work operation requires the building system to be deactivated (placed in test mode or otherwise affected), then a building fire watch will be required in addition to a hot work site fire watch. If you can protect the smoke and heat detectors in hot work, then the building fire monitoring system does not need to be placed in test or deactivated mode but kept online.
- Cover sprinkler heads directly above the hot work area with appropriate covers so sprinklers will not be triggered during the work

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- Cover smoke detectors located in close proximity to the hot work area
- Floors and other non-movable combustible materials are protected with fire-resistant materials.
- Place non-combustible or flame-resistant screens to protect personnel in adjacent work areas from heat, flames, radiant energy, and welding splatter

Fire Watch

A Fire Watch must be posted if the following conditions exist:

- Combustible materials cannot be removed from within a 35-foot radius of the hot work area
- Wall or floor openings within a 35-foot radius of the hot work area are exposed with combustible materials in adjacent areas, including concealed spaces in walls or floors
- Combustible materials are adjacent to the opposite side of partitions, walls, ceilings or roofs that are likely to be ignited
- Fire watch will be provided during and for 60 minutes after the completion of hot work

General Guidelines

- Work should be performed using alternative methods other than hot work whenever possible
- Hot work equipment is available and ready for use according to the manufacturer's guidelines for safety
- Post SJC Hot Work Permit at the location in a highly visible area where hot work will commence
- Evaluate the HVAC system to determine if isolation is required based on the location of the hot work
- Protect conveyer systems that may carry sparks or slag to other parts of the building
- Are other precautions needed? (Lock-out/Tag-out, Confined Space Entry Permit required, ample ventilation, etc.)

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Approved:


Assistant Director of Aviation

12.11.18
Date

Appendix A

SJC Hot Work Permit

(see following page)

SJC HOT WORK PERMIT

THIS PERMIT MUST BE POSTED AT SITE OF HOT WORK OPERATIONS

HOT WORK OPERATOR TO COMPLETE:					Pre <input checked="" type="checkbox"/>	Permit Checklist <input type="checkbox"/> Flammable and combustible materials within a 35-foot radius of hot work have been removed or covered with fire retardant tarps or shields. <input type="checkbox"/> All floors and surfaces within a 35-foot radius of the hot work have been swept free of combustible dust or debris. <input type="checkbox"/> Any openings or cracks in the walls, floors, or ducts that are potential travel for sparks, heat, flames and smoke have been covered. <input type="checkbox"/> An operable and appropriate fire extinguisher is available and accessible at the hot work area. <input type="checkbox"/> Sprinkler heads that could be activated by hot work have been covered and protected. <input type="checkbox"/> Smoke and heat detectors in the area of hot work have been covered to prevent false alarms. <input type="checkbox"/> A Fire Watch has been posted during hot work operations and for 60 minutes after hot work has been completed.	Post <input checked="" type="checkbox"/>
Print Name							
Contact Number:		Firm					
Date: of Hot Work	Est. Start Time:	AM PM	Est. Finish Time:	AM PM			
Building:							
Location:							
Description of Hot Work:							
I verify the above location has been examined and the precautions checked on the Permit Checklist will be taken to prevent fire. Signed (Hot Work Operator): _____ DATE: _____							
Date:	Actual Start Time:	AM PM	TO BE COMPLETED POST HOT WORK		Actual Finish Time:	AM PM	

FIRE WATCH TO COMPLETE:					
Print Name _____			Print Name: _____		
Local / Site Fire Watch			Building Fire Watch (if applicable)		
Date:	Actual Start Time:	AM PM	Actual Finish Time:	AM PM	
FIRE WATCH SIGNOFF:					
Hot work site was monitored for 60 minutes following Hot Work and found fire safe.					
Signed: _____			Signed: _____		
Local / Site Fire Watch			Building Fire Watch (if applicable)		

Upon completion of hot work and final fire check, return this permit to the PAI for cancellation

AUTHORIZATION: The information on this permit has been evaluated and permission is authorized for this hot work. Signed: _____ Permit Authorizing Individual			IN CASE OF AN EMERGENCY, CALL (408) 277-8911
PERMIT EXPIRES	DATE	TIME	