

5.13 Fire Safety Rules And Practices For Roofing Operations

Reference. The requirements of this bulletin are referenced from the San Francisco Fire Code and the National Fire Protection Association Standard for Liquefied Petroleum Gas Code including, but not limited to, SFFC Chapters 1, 3, 14, 26, 30, and 38, and NFPA 58. For all referenced documents in this bulletin, the most current edition shall be used unless an older edition is currently adopted by the State of California.

Purpose. The purpose of this bulletin is to describe fire code requirements and safe roofing practices that pertain to various operations typically utilized by roofers in their work.

Scope. The requirements in this bulletin pertain to all persons conducting roofing operations who utilize torches (open flames), tar kettles, or bituminous melters.

Operational Permit Required. Operational permits are required to conduct hot work operations as defined by the California Fire Code, and/or to use or store LP-Gas or other compressed gases.

Requirements for Permit. Annual operational permits for Hot Work – Roofing Operations and LP-Gas (use or storage) may be obtained by California licensed C-39 contractors with a current San Francisco Business License. Prior to issuance of a permit to conduct Hot Work Operations in roofing, the licensed contractor shall successfully convince the SFFD Permits Inspector that he or she is thoroughly familiar with the contents of this administrative bulletin and the provisions of the California Fire Code applicable to this activity by successfully answering a series of verbal questions. The applicant shall provide a copy of their pre-hot-work-checklist which must be approved by the Permits Inspector (See the Fire Code for recommended checklist items). In addition, the applicant shall sign the written statement contained in this bulletin certifying that they understand their responsibilities as the permit holder.

Safe Roofing Practices-General. Preventing a fire during roofing projects is often a simple matter of training, safe fire practices, and having the right equipment at the right place.

1. A pre-inspection of the site must be performed before any hot work is started. The inspection includes ensuring all equipment is safe and hazards are recognized and protected. A copy of the completed pre-hot-work-checklist must be kept on site and be available upon request.

2. A fire watch is required during all hot work activities and shall include the entire area where open flame is used or other hot work is conducted. At least one employee trained in the use of a portable fire extinguisher shall be dedicated to perform fire watch duties. If the work is not observable at all times by a single individual, additional personnel must be designated.
3. The trained fire watch person shall remain on site for a minimum of one (1) hour following completion of the torch work to monitor the site for conditions that could cause a fire such as smoldering embers or a flare-up. The designated fire watch person shall have the appropriate equipment (cell phone with a strong signal) and responsibility of communicating an alarm, as well as the responsibility of extinguishing spot fires.
4. **Prior to the commencement of hot work operations at any work site located in the City of San Francisco, the contractor shall notify the San Francisco Fire Department no later than 8:30 am on the first day of work by calling (415) 558-3300. The caller shall provide their business name (DBA), a description of work, and the address of the work site.**
5. All employees shall wear appropriate personal protective equipment and clothing in accordance with CAL OSHA guidelines.
6. All roofing operations shall conform to the safety regulations of the manufacturer of the roofing material for the roofing material's proper safe installation.
7. Check the roof surface for combustible materials. Remove what can be removed and encapsulate the rest with hot or cold applied membranes, sealing off all intakes and projections to prevent flame from spreading into combustible materials.
8. Open-flame shall be applied only to roofing materials; keep flame away from combustible surfaces, air in-take ducts or open roof penetrations.
9. Torches or open-flame devices for roofing applications shall not be used in an enclosed area.
10. All combustibles such as paper, weeds, or trash shall be kept a minimum of 10 ft. away from all LP-gas tanks or open flame devices.
11. All kettles, torches, and melters shall be attended at all times by a qualified, responsible, and experienced individual trained in the use of all equipment.
12. All open flames shall be extinguished and equipment shall be allowed to cool prior to re-fueling operations.
13. Smoking shall be prohibited at all times within ten (10) feet of equipment and LP-gas storage areas.
14. Fire extinguishers (current and fully operational) shall be minimum size 2A:20B:C located within thirty (30) feet of the work area, unobstructed and visible, serviced

annually, and possess current inspection tags. Individuals responsible for performing hot work and individuals responsible for fire watch duty shall be trained in the proper use of extinguishers.

15. Good housekeeping practices shall be maintained throughout the course of the day.

Fire Safety Practices in the Use of LP-Gases (Propane, Butane Gas):

1. All LP-gas connections shall be tested for leaks with a soapy solution prior to use.
2. LP-gas cylinders used for flame-producing devices in roofing operations shall be shielded from direct sunlight.
3. LP-gas cylinders shall be used only in well-ventilated areas and shall be removed from the roof or other areas being constructed or repaired at the end of each day's work. The storage of LP-gas on rooftops is prohibited.
4. All LP-gas cylinders shall be stored at ground level and stored at least ten (10) feet from any building, property line, sidewalk, busy thoroughfare, exit, or public gathering place when not in use and at the end of each day.
5. No other materials shall be stored on top of or around the cylinders.
6. No LP-gas shall be used in or transported through the building interior at any time. (EXCEPTION: Buildings under construction or major renovation where such buildings are not occupied by the public.)
7. All LP-gas cylinders used for roofing or similar operations shall be secured while being moved, stored, or in use, and such containers and their use must conform to the safety regulations prescribed in NFPA Standard 58.
8. Any hoisting of any LP-gas cylinder shall be done in an approved manner and in accordance with SFFC Chapter 30. Lifting by the valve assembly is strictly prohibited. When cylinders are hoisted more than 30 inches, they shall be securely fastened in an upright position in either a protective hoisting cage or properly balanced box of enclosing mesh in accordance with OSHA requirements. Bumping or dropping cylinders as they are raised or lowered should be avoided.
9. All LP-gas cylinders shall be positioned so that the pressure relief device is within the vapor space of the container at all times.
10. Single cylinders of LP-gas used for torches shall not exceed five (5) gallons in capacity and the maximum aggregate amount placed on the roof at any time shall not exceed (25) gallons.

11. The valves of empty, stored, or awaiting-use LP-gas cylinders shall be kept closed; if the cylinders have protective caps or guards, they shall be kept in place at all times.
12. A minimum of ten (10) feet shall be maintained between LP-gas cylinders and open-flame devices at all times.
13. LP-gas cylinders shall be inspected for damage regularly. Dented, rusted, or cylinders past their hydrostatic test date shall not be used.
14. Cylinders shall not be turned on their sides to increase fuel supply.
15. Open flame shall not be applied to defrost a cylinder.
16. Leaking propane equipment shall not be used. If a leak is discovered, all operations shall cease immediately, and all valves shall be closed. The tank shall not be used until the source of the leak is discovered and corrected.

Fire Safety Practices in the Use of a Torch (Open-Flame):

1. A site check shall be conducted to recognize and correct potential fire hazards prior to using open flame such as vent pipes, vents, drains, curbs, and exposed combustible construction.
2. A trained person shall be assigned the duties and responsibilities of fire watch as stated above.
3. Torches shall be inspected before use. Equipment must be in good working order, with fittings, hoses, and head secure and cylinder valves clean. Check for leaks with a soapy solution prior to use.
4. Locate at least one (1) 2A: 20B:C rated portable fire extinguisher (current and fully operational) in a readily accessible location on the job site.
5. Locate at least one (1) 2A:20B:C rated portable fire extinguishers (current and fully operational), or a charged water hose, within 10 ft. of any work involving a torch. The extinguishers or hose must be physically located on the roof when torch work of any kind is being performed on a roof.
6. All equipment such as hand-held torches and torch trolleys shall be properly listed and of an approved type. Torches shall be used in accordance with manufacturer's recommendations.
7. All hand-held torches shall be equipped with a pilot adjustment and flame height adjustment, pressure gauge, pressure regulator and a length of listed hose (25 feet minimum, 50 feet maximum).
8. LP-gas hose assembly shall be equipped with a pressure regulator and gauge. The vent hole in the pressure regulator shall be kept unobstructed at all times.

9. All torches and open-flame devices shall be equipped with an automatic or spring-loaded safety trigger that when released by the operator shall shut-off the flow of fuel to the torch head.
10. All hand held torches shall be equipped with properly installed torch stands or brackets. When not in use, set torch units in their support leg position with the torch head pointing at an upward angle. Torch units shall not be placed over a curb or roof edge.
11. All torches shall be ignited by a spark lighter or electronic ignition device only. The use of matches or lighters to light torches is prohibited.
12. No person shall use any ignited torch, open flame or other flame-producing device unless that person is trained in the use of such devices.
13. All persons (other than the torch operator) shall be kept at least six (6) feet away from the flame.
14. Torches shall never be kept ignited and unattended.
15. Torch operators shall never direct the flame at, near, or toward the LP-gas cylinder.
16. When shutting off the torch, the operator shall close the LP-gas cylinder valve first. The operators shall then let the remaining gas in the hose burn off, and then close the torch valve.
17. The torch operator shall disconnect the hose at the end of the day and store equipment in protective cases.
18. The torch operator shall not apply the direct flame to cant strips, insulation, wood, grease, lint exhaust, or any other combustible material. The operator shall never apply the direct flame to flashing, corners, voids in the roof and roof deck, or behind metal counter-flashings.
19. The torch operator shall take extra precaution when torching near pipes, fresh air vents, HVAC units, and gas and electrical lines.
20. The torch operator shall use the "torch-and-flop" method for areas he or she cannot clearly see (flashings, corners, curbs, voids, expansion joints, and small penetrations).

Fire Safety Practices in the Use of an Asphalt (Tar) Kettle:

1. Kettles may not be transported over any street, road, or highway when the heat source for the kettle is operating.
2. Locate the kettle a minimum of (20) feet from any combustible material, combustible building surface, and building opening.

3. Never place a kettle inside a building or on the roof of any structure.
4. Roofing kettles shall not block means of egress, gates, roadways, or entrances.
5. LP-gas cylinders shall be located at least ten (10) feet from the burner (EXCEPTION: Containers properly insulated from heat or flame can be within two (2) feet of the burner)
6. LP-gas cylinders installed on portable kettles shall be protected from radiant or convected heat by a heat shield or by the location of the cylinder.
7. The LP-gas burner shall be secured to the kettle so that it cannot slip free from the channel due to vibration, pulling on the supply hose, or other means.
8. All kettles shall be equipped with tight-fitting covers and temperature gauges that are in good operating condition.
9. Hi-boys shall be constructed of noncombustible materials and shall be limited to a capacity of (55) gallons. Fuel sources or heating elements shall not be allowed as part of a hi-boy.
10. An operating kettle shall be attended by at least one employee knowledgeable of the operations and hazards. The employee shall be within (100) feet of the kettle and have the kettle within sight. Access to the kettle by the employee shall not require the use of a ladder.
11. Locate at least one (1) 40B:C rated portable fire extinguisher (current and fully operational) in a readily accessible location within (25) feet of the kettle.
12. Locate at least one (1) 3A:40B:C rated portable fire extinguisher (current and fully operational) on the roof being covered.
13. Never leave a kettle unattended unless kettle is cool.

Fire Safety Practices and the Use of a Bituminous Melter:

1. The use of a bituminous melter on the rooftop of a building is limited to buildings constructed with concrete roof decks.
2. Copies of MSDS and melter manufacturer manual shall be readily accessible on the job site.
3. Each melter shall be placed in an approved metal containment system capable of holding at least 125% of the rated contents of the melter.
4. The LP-gas burner shall be secured to the melter so that it cannot slip free from the channel due to vibration, pulling on the supply hose, or other by means.

5. The number of LP-gas cylinders shall be limited to two (2) - 20 pound (4.8 gallons each nominal) cylinders per melter. No more than two (2) melters and four (4) LP-gas cylinders are permitted on the roof at any time. No additional LP-gas cylinders shall be allowed on the roof including spares.
6. LP-gas cylinders awaiting use for the melter shall be stored at least (30) feet from the melter.
7. At least two (2) 4A:40B:C portable fire extinguishers (current and fully operational) for each melter shall be located within (25) feet and on opposite sides of the melter.
8. Two (2) additional 4A:40B:C dry chemical fire extinguishers (current and fully operational) for each melter shall be readily accessible on the roof deck.
9. The melter shall not be left unattended.
10. The melter lid shall be kept closed at all times, except to add rubberized asphalt membrane cakes to the melter.

Form: [Required Statement of Understanding for Hot Work Permit Holders \(PDF\)](#)

Text of "Required Statement of Understanding for Hot Work – Roofer Permit Holders":

San Francisco Fire Department
Division of Fire Prevention & Investigation

Required Statement of Understanding for Hot Work Permit Holders

- I certify that I have received, read, and understand SFFD Bureau of Fire Prevention "Fire Safety Rules and Practices For Roofing Operations" including Use of LP-Gases, Use of a Torch, Use of an Asphalt (Tar) Kettle, and Use of a Bituminous Melter.
- I agree to provide all persons under my employ that engage in hot work operations copies of SFFD Bureau of Fire Prevention "Fire Safety Rules and Practices For Roofing Operations" including Use of LP-Gases, Use of A Torch, Use of an Asphalt (tar) Kettle, and Use of a Bituminous Melter.
- I agree to confirm all persons under my employ that engage in hot work operations have read and understand the afore-mentioned Fire Safety

Rules and shall keep a written record stating such. The written record shall include the employee's name and date of review and shall be updated every three (3) months. The written record shall be available for inspection upon request by the fire official.

- I further agree that all persons under my employ that engage in hot work operations shall implement and follow the above-mentioned Fire Safety Rules at all times.
- I understand an approved SFFD "Hot Work Operations - Roofer" permit, a current SFFD Tax Collector "Tax License Certificate", a current California C-39 Contractor's license, and a building permit issued through the Department of Building Inspection is required to perform roofing operations which involve hot work within the City and County of San Francisco.
- Additionally, I agree to comply with all city and state laws and regulations relating to fire prevention including the above-mentioned Fire Safety Rules at all times.

Signature of Permit Holder

Date

Printed Name of Permit Holder

CA Contractor License Number

Expiration

License Class

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