

## 2.12 Flame Effect Performance Application Requirements (2019)

**Reference:** The requirements of this bulletin are referenced from the San Francisco Fire Code (SFFC) and the National Fire Protection Association Standard for the Use of Flame Effects before an Audience (NFPA 160). Flame effect plans and flame effect activities shall also comply with any and all applicable code requirements and standards adopted by the SFFC including, but not limited to, SFFC Chapters 1, 50, 57, 61; NFPA 53, 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 provide general and specific requirements for individuals or groups using flame effects before an audience. It establishes minimum requirements for the design, production, and operation of flame effects to ensure the protection of life and property. This bulletin also provides SFFD guidelines for the submission of an application to produce a flame effect within the City and County of San Francisco.

**Scope:** This bulletin applies to temporary installations and activities of Group I, III, VI, and VII flame effects, as defined in 2016 NFPA 160, used in outdoor or indoor venues with attended operation and manual or automatic fuel control. This bulletin also applies to attended, manually-operated portable flame effects produced by devices or appliances such as propane accumulators. It encompasses, but is not limited to, flame effects produced by hand-held burning torches, cigarette lighters, candles, matches, jugglers burning batons, fire rings that are jumped through, and other fire effects that have the illusion of danger to a performer. It also pertains to traveling entertainment events and includes various venues like operas, musicals, stage plays, trade shows, corporate events, and visual art displays.

The use of pyrotechnics shall comply with Chapter 56 of the San Francisco Fire Code, Title 19, Chapter 6, of the California Code of Regulations, and 2016 NFPA 1126, the Standard for the Use of Pyrotechnics before a Proximate Audience.

**NOTE:** This bulletin does not apply to Group II, IV, or V flame effects, as defined in NFPA 160, that are either temporarily or permanently installed inside or outside a structure or to any unattended, automatically-controlled flame effects. Group II, IV, or V flame effects or any unattended, automatically-controlled flame effects shall meet additional guidelines which are not addressed in this bulletin. Please contact the San Francisco Fire Department (SFFD) Permit Section for fire department requirements in those cases.

### I. Definition (See NFPA 160, Chapter 3 for additional definitions).

**Safe Clearance Distance:** The minimum *approved* distance required from the heat of the flame effect that ensures spectators, performers, support personnel, and the operator are not exposed to a hazardous situation; also, the minimum *approved* distance required from the heat of the flame effect to combustible materials that ensures the ambient temperature of combustibles will not exceed 117 degrees Fahrenheit (47.2 ° C) after equilibrium temperatures are attained.

**II. Required Submittal Documents.** All required documents for flame effect performances shall be submitted a minimum of ten (10) business days prior to the use of the flame effect to allow for a timely review and consideration of alternate proposals should the original proposal be disapproved.

The San Francisco Fire Department may require a standby fire safety watch (SFFD Inspector) for the use of the flame effect. If a fire watch is required, a "Service and Overtime Request Agreement"

application form with appropriate fee shall be submitted at least five (5) business days before the proposed date of use of the flame effect.

Some or all of the documents (or portions thereof) listed below will be required for the use of flame effects on a case-by-case basis, depending on the nature of the effect.

**A. SFFD Fire Permit Application.** A San Francisco Fire Department “Temporary Open Flame Permit” is required for the use of temporary flame effects.

1. Performer, company, or agent must obtain the Temporary Open Flame Permit prior to any flame effect performance.
2. The use permit is only valid for the venue site and time(s) indicated on the approved permit. The submission of a permit application.
3. The acceptance of an application by the Department is only a request to perform the flame effect and shall not be considered as an approval or permission to conduct the requested activity.

**B. Certificate of Liability Insurance.** A signed certificate documenting proof of current liability insurance for the responsible person, group, or organization in the amount of at least one million (1,000,000) dollars (or more if specified by the City’s Risk Manager or the Fire Code Official) shall be provided in the submittal package. The certificate shall list the City and County of San Francisco and its employees as “Additional Insured”.

**C. Supplemental Application for Special Events.** A completed “Supplemental Application for Special Events” form shall be included in the submittal package. This form provides both general and specific information related to the event and assists the Fire Department in determining if any other activities warrant further clarification or additional operational permits.

1. The applicant shall indicate all activities occurring on the event grounds and shall provide an available on-site contact person with a contact number. An estimate of the number of persons in the audience shall be provided.
2. A pre-event inspection by a Fire Department representative with the on-site contact person is required at least one (1) hour prior (or as required by the San Francisco Fire Department) to the flame effect performance to confirm compliance with permit conditions and fire regulations before the permit will be approved.

**D. Flame Effect Plan.** The Flame Effect Plan coupled with a Site Plan provides specific site and safety information to assist the Fire Department with evaluation of the flame effect and its compliance with fire safety standards and practices. The Flame Effect Plan shall include all of the following information:

1. Name of responsible person, group, or organization;
2. Name of flame effect operator;
3. Date(s) and time(s) of the flame effect;
4. Building address or event location;
5. Building life safety systems and building fire protection systems as applicable;
6. Detailed narrative description and summary of each flame effect to be utilized; (Note: Flame (Fire) Acts are also required to complete a Flame Act Safety Sheet as part of the Flame Effect Plan);
7. The proposed Safe Clearance Distance from the flame effect to non-performers with the justification (basis) for that distance;
  - a. An audience should not be located so that the incident thermal radiation causes the surface temperature of the audience member’s exposed skin to exceed 111 degrees Fahrenheit (44<sup>0</sup> C).

- b. Temperatures of combustible materials subject to the heat of the flame effect shall not exceed 117 degrees Fahrenheit (47.2<sup>0</sup> C) above the ambient temperature after equilibrium temperatures is attained.
- c. Documentation of the testing and evaluation of the flame effect in relation to the safe clearance distance to both the exposed skin temperature and to combustible materials shall be prepared by a third party acceptable to the SFFD.
- d. Flame effects shall be evaluated to verify that spectators, performers, support personnel, and the operator are not exposed to a hazardous situation. Other factors shall be considered in evaluating the proposed safe clearance distance, including the experience and qualifications of the operations and maintenance personnel, visual conditions, magnitude of the potential hazard, and whether the flame effect is static (stationary) or dynamic (mobile) during the performance.
- e. Confirmation by the Fire Department of the applicant's justification or basis for the safe clearance distance(s) and the proposed fire safety perimeter line may require the services of a SFFD Fire Protection Engineer. In such cases, an additional hourly fee will be charged to the applicant to cover any plan check services provided by the SFFD Fire Protection Engineer.

**NOTE:** Justification for the determination of the proposed safe clearance distance from the flame effect to the audience and combustibles denoted by the fire safety perimeter line is required and shall be included with the application document package.

8. Provisions to prevent intrusion by non-performers from the safe clearance distance into the hazard area;
9. Flame effect safety provisions for ventilation systems (if indoors) or weather conditions (if outdoors) as applicable;
10. Documentation providing proof that combustible materials and clothing are flame-proof or have been treated with flame retardant when required;

**E. Site Plan.** The Flame Effect Plan shall also include an 11 inch x 17 inch Site Plan (scaled to not less than 1/4 inch per foot) with a legend. The Site Plan shall include a dimensional plot map of the site which shall indicate:

1. Location of flame effect device(s), controls, and flame effect operator;
2. Area affected by the flame effect including all six (6) site zones, i.e. below (floor), above (ceiling), front, back, left, and right sides;
3. Fire safety perimeter line delineating the hazard area both from the audience and from combustibles;
4. Location of the audience;
5. Clearance to combustibles;
6. Storage and holding area of fuels;
7. Fuel application and use areas;
8. Means of egress from both the flame effect area(s) and audience area(s) to the public way;
9. Location of appropriate supplemental fire protection features including trained fire safety staff, fire extinguishers, "No Smoking" signs, barricades, etc.;

**F. Design Plan.** A design plan is required prior to SFFD approval of the production of flame effects using devices or appliances. The design plan shall provide the system design criteria with complete design information (including schematic drawings) and sequence of operation & shall include the following as applicable:

1. Flame effect equipment and components with proof of UL listings or proof of compliance

- with appropriate standards;
- 2. Flame effect control system including emergency stop, fuel management, effect valve, and the enabling, arming and firing of the effect;
- 3. Flame effect control sequence;
- 4. Manual fuel shutoff valve and power control;
- 5. Automatic fuel shutoff valve;
- 6. Method of confirmation of means of ignition;
- 7. Method and frequency of leak detection;
- 8. Type(s) of fuel used;
- 9. Minimum amount of fuel required to produce the flame effect and minimum size of fuel tank required for the duration of the performance with supporting calculations;
- 10. Provisions for the removal of unconsumed fuel from the device or appliance in a safe location;

**III. Review Process.** The SFFD Permit Section will only accept and review a complete application package with supporting documents. The Fire Department's determination of your proposal will be forwarded to you in a timely manner for your review. Please note the following:

- A. ALL FLAME EFFECTS SHALL BE DEMONSTRATED TO THE FIRE DEPARTMENT AND EVALUATED FOR COMPLIANCE WITH FIRE SAFETY REQUIREMENTS PRIOR TO APPROVAL OF THE FLAME EFFECT PLAN.  
Recorded visual media of each flame effect as proposed may be accepted in lieu of a live demonstration if agreed to in advance by the fire department.
- B. A site visit may be required to determine the feasibility of conducting the flame effect at the proposed site location. A demonstration utilizing the flame effect(s) at the site may also be required.
- C. Any modification to a flame effect, addition of flame effect(s), or modification(s) to any of the submitted documents after the Temporary Open Flame Permit application has been reviewed shall require the resubmission of the appropriate application document(s) and additional review of the flame effect(s) prior to SFFD approval of the use of the flame effect.
- D. It is the applicant's responsibility to ensure compliance with all San Francisco Fire Department requirements and guidelines.

**IV. Fee Payment.** A permit fee shall be collected when a permit application is submitted for consideration of approval. All fees shall be collected prior to San Francisco Fire Department approval of the application and issuance of the permit. Refunds will not be issued after the Fire Department has reviewed the plan regardless of whether or not the permit is approved.

- A. The Temporary Open Flame (Permit fee allows for three (3) hours of Fire Department personnel time (processing, review, and inspection).
- B. An application which requires more than three (3) hours of processing, review, and inspection time by the fire department will be back-charged additional fees at an hourly rate.
- C. A separate hourly fee will be back-charged to the applicant if plan check services are required by a SFFD Fire Protection Engineer to confirm any calculations or justifications.
- D. If the Fire Department determines that SFFD Fire Safety Watch services are required for the use of the flame effect, a separate overtime standby fee for a minimum of four hours for each event (or as determined by the SFFD) shall be provided.
- E. Any additional permits which may be required will be charged at a reduced application fee if

submitted at the same time as the Temporary Open Flame Permit application.

**V. Forms and Fee Submittal Process.** Permit application packages shall be submitted in person to the Permit Section of the San Francisco Fire Department at: SFFD Headquarters, Bureau of Fire Prevention, Room 109, 698 Second Street, San Francisco, CA 94107. The application package will be checked to confirm all required submittal documents are included and required fees are submitted **before** the application package will be accepted by the fire department for review of your proposal.

- A. All required documents for flame effect performances shall be submitted a minimum of ten (10) business days prior to the use of the flame effect.
- B. If a fire watch is required, a completed “Service and Overtime Request Agreement” application form with appropriate fee shall be submitted at least five (5) business days before the proposed date of use of the flame effect.
- C. Checks shall be made payable to the San Francisco Fire Department. VISA and MasterCard credit cards are also accepted. SFFD accounting procedures require separate payments for permit applications, service and overtime requests, plan check services, and additional permit review, processing, and inspection time.
- D. The current Permit Application form, the “Supplemental Application for Special Events” form, and the Flame Act Safety Sheet form are available online at the San Francisco Fire Department website at [www.sf-fire.org/permits](http://www.sf-fire.org/permits). Submittal forms may also be obtained in person from the Permit Section of the San Francisco Fire Department at: SFFD Headquarters, Bureau of Fire Prevention, Room 109, 698 Second Street, San Francisco, CA 94107.
- E. Please contact the Permit Section at (415) 558-3303 for a current fee schedule or with questions regarding the application process.