



## CLARK COUNTY FIRE DEPARTMENT - FIRE PREVENTION BUREAU

4701 W Russell Rd, Las Vegas, NV 89118 • (702) 455-7316

Website: [Fire Department \(clarkcountynv.gov\)](http://Fire Department (clarkcountynv.gov))

Email: [FPPCQ@clarkcountynv.gov](mailto:FPPCQ@clarkcountynv.gov)

### Permit Submittal Guideline

## FLAME EFFECTS

This guide is to assist in the permitting process for a temporary operational permit for a Flame Effect(s) before a proximate audience regulated by section 308.3.2 of the IFC and NFPA 160. A permit is required per section 105.5.68 of the IFC. A permit must be completed for each performance or show. Multiple shows of the same performance may be submitted under one permit. Descriptions of the performance and devices used shall be submitted along with all additional required information as noted below.

Please Note: Pyrotechnics, fire performers, candles, food warming open flame devices, fireplaces, fire pits, restaurant cooking, and consumer fireworks are covered by another permit type.

### APPLICABLE CODES:

The following codes and standard apply to this permit.

- *International Fire Code, 2024 edition (IFC)*
- *Clark County Fire Code Amendments, 2024 edition (CCFC)*
- *Standard for the use of Flame Effects before an Audience, NFPA 160 2021 Edition*
- *Flammable and Combustible Liquids Code, NFPA 30 2024 Edition*

### SUBMITTAL REQUIREMENT CHECKLIST:

The requirements listed in this guide are not intended to be all inclusive, nor do they entail a limit to the extent of the information, etc., which may be necessary to properly evaluate the submitted plans and documents. Provide all applicable information that pertains to your permit;

**PLAN SUBMITTALS:** All documents shall be printed to .PDF file and uploaded as a PLAN.

#### 1. LICENSES AND QUALIFICATIONS:

- A copy of a valid Nevada State Fire Marshal “**Flame Effects–Operator-Propane**” and “**Flame Effects–Company-Propane**” certificate of registration and is required for any display of Flame Effects before a proximate audience.
- All Apprentice or unlicensed flame effect operators are permitted to conduct displays under the direct supervision of a Nevada State Fire Marshal registered Flame Effects Operator employed by a flame effects/pyrotechnics company licensed by the Nevada State Fire Marshal.
- Only Nevada State Fire Marshal licensed, bonded and insured flame effects & pyrotechnics companies shall submit for permits to conduct these displays.

#### 2. INSURANCE:

- “Clark County, its agents, employees and volunteers” shall be named as additional insured and certificate holder.
- General liability limits, including contractual liability, in the minimum amount of \$2,000,000 shall be provided to conduct each Flame Effect (Fire Performance) display.

- Greater liability insurance amounts may be required in certain cases as required by the Fire Code Official.

**3. PRODUCTION SCHEDULE: Provide show narrative to include the following information.**

- The name of the contact person for the property/facility, contact phone number, and email address and the location within the property, i.e. showroom for the performance
- Contact information, qualifications, ages, and experience for the flame effect operator and assistants
  - Name and license # of the effect operator
- Performance dates;
  - The date and time of the demonstration (rehearsal) inspection.
  - The date(s), time(s), number(s) of each performance.
- List of all effect(s) to be used along with a detailed description of their controls and control sequence.
- Construction type and materials used for stage and proximate surroundings. Flame certificates for all scenery, sets, displays, curtains, costumes, linens, carpets/stage coverings, and/or any other materials proximate to this effect and performance.
- Provide the ceiling height measured from the top surface of the performance location to the ceiling or nearest overhead obstruction.
- Quantity and location of all fuels used with each effect during performance.
- Security information and emergency response procedures

**4. FLAME EFFECT INFORMATION:**

- Detailed narrative describing each flame effect(s)
- Design data/material specification sheets for the flame effect appliances including operating instructions, start-up, show operations, normal shutdown, and emergency shutdown procedures
- A detailed description of how each device is constructed including all safety features associated with these effects. Note if device is pre-engineered by a manufacturer or manufactured by user.
- Details description of how each effect is ignited and fueled.
  - The fuels to be used, quantities of fuels to be onsite at any one time and the estimated consumption of fuels per display or event.
  - Details on how devices are fueled and location of fueling
  - Information on flammable materials piping
  - Description or means of activation (firing/lighting) of the appliance or effect. Activation shall be a 2-step process. (1) Arming system and then (2) activation
  - Location of the automatic fuel shut-off valve (effect valve)
  - Fuel storage location
  - Material Safety Data Sheet (MSDS) for each fuel used
  - Information on ventilation, where used to exhaust the products of combustion of the flame effect
  - If using Fuel Accumulators, they must meet NFPA 160 section 9.3.2.5 and NFPA 30

**5. FIRE EXTINGUISHING EQUIPMENT: Provide a detailed list and location of all fire extinguishing equipment**

- Type/location of fire extinguisher. Reference NFPA 160 section 11.3.2, Four or more fire extinguishers of the proper classification and size in addition to the ones required by NFPA 10 for the building;

- (2) pressurized water extinguishers, each with a minimum rating of 2-A
- (2) with a minimum 10-B:C or (2) extinguishers appropriate to the fuel source being used
- Provide the number of person(s) assigned to fire watch and extinguishing duties
- How effects will be extinguished during emergency situations

**6. FLAME EFFECT PLAN: Overall site plan showing the following information:**

- Detailed description of the performance and staging including the separation distances between the audience (15ft minimum).
- Locations for safety barricades/or the means of restraint for audience members must be shown on the plans for compliance.
- Flame effect locations and area affected by the flame effect
- Operator firing location.
- Fire protection equipment locations
- Documentation that the combustible materials used for construction of (or applied to) the flame effects have been rendered flame retardant
- Information shall be provided to clarify all stage information, backdrops, signs, lighting, ceilings, prosceniums openings, drapes or curtains, monitors, storage
- Location of all performers proximate to flame effects during all displays
- Fuel storage locations and distance to flame effects to fuel sources
- Locations of all fire extinguishing equipment
- Means of Egress
- Section plan view to clarify effect height, truss heights, ceiling heights to show effects are no greater than  $\frac{3}{4}$  of height of nearest overhead obstruction

**7. CONTROL SYSTEM OPERATION:** All flame effect control systems shall be designed to implement the following functions:

- Emergency stop capability
- Fuel management
- Controlled enabling of flame effect
- Controlled arming of flame effect
- Controlled and repeatable firing of flame effect
- System interlocks shall be provided in the control system to monitor changes of condition and to automatically implement control system safety features
- The Operator shall monitor and supervise the hazard area surrounding the flame effect. If the operator is in a remote location an alternative means for monitoring the effect must be provided.

**Please note:** All flame effects must be fired by an electronic control system panel.

**8. TESTING:**

- Visual inspection of fuel storage areas, performances area(s), fire effects, safety features are installed per plans
- Flame effects will be tested to verify that they operate in accordance with their designs. The flame effects will be evaluated to verify that the spectators, performers, support personnel, and the operator are not exposed to a hazardous situation when the flame effects are activated.

- Where flame effects use piping, such piping shall be pressure tested no less than system operating pressure
- Monitoring the temperature of components (per manufacturer's specification), surroundings shall not exceed 117°F (47.2 °C), and areas proximate to spectators shall not exceed 111°F (44 °C )
- Emergency STOP. One of the following conditions shall be met prior to the use of the flame effect:
  - Approval of a plan to extinguish manually (Group I and VII)
  - Approval of a supervisory control system for the emergency stop and complete shutdown of the flame effect (Group II, IV, VII)

**Please note: A fire protection report must be submitted and approved detailing system operations when a fire notification or suppression system is disabled for repetitive show or event.**

**Please note:** Waterflow switches and the fire alarm notification systems shall not be permitted to be disabled or bypassed. System bypass shall only be performed by a licensed fire alarm contractor or owner's representative with an F-Card from the Office of the State Fire Marshal as approved by the authority having jurisdiction.

The individual(s) stationed in the fire command center room must be knowledgeable in all aspects of the fire protection, smoke control systems and fire alarm panels. These items are subject to change as required by the on-site inspector(s).

**To Disable Fire Alarm Systems: \*\*ALL CONDITIONS BELOW MUST BE MET PER NFPA 160\*\***

**5.5.1 Portions of fire protection and life safety systems shall be permitted to be interrupted during the operation of temporary indoor flame effects where the following conditions are met:**

- 1) Approval of the Authority having jurisdiction (AHJ) is received
- 2) Approval of the owner, or owner's agent is received
- 3) An approved fire watch capable of directing the operation of all fire protection and life safety systems installed in the building is present

**PERMIT DURATION:**

Flame Effects Permits are temporary permits and are limited to a duration of 180 days. If any changes are made, revisions will need to be submitted.

## APPENDIX A: DEFINITIONS

**Flame Effect system:** The complete assembly of interconnected components, devices and/or appliances that provides all of the functions necessary to fuel, monitor, supervise, generate, and control flame effects, including the emergency shutdown of the flame effects and, where necessary, the monitoring of external conditions that affect operation.

**Assessor's Parcel Number (APN):** A unique number assigned to each property by the Clark County Assessor's office.

**Flame Effect:** The combustion of flammable solids, liquids or gases to produce thermal, physical, visual or audible phenomena before an audience.

- **Automatic Flame Effect:** A flame effect that is supervised and fired by an automatic control system.
- **Hybrid Flame Effect:** A flame effect that is used in combination with a pyrotechnic material or device. When submitting these types of permits, the plan shall identify those portions of the flame effect that require compliance with NFPA 160.
- **Manual Flame Effect:** A flame effect that is operated manually without the use of an automatic control system.
- **Portable Flame Effect:** Flame effects that are designed and installed, either in a permanent or temporary installation, that are designed to move or be moved in the course of operation or installation.

### Classifications of Flame Effect systems:

- **(Group I) Flame Effect:** An attended, manually controlled flame effect.  
**Example:** Where used to give the illusion of danger to performers using hand-held open flame devices.
- **(Group II) Flame Effect:** An individual or group flame effect designed for unattended operation that is temporarily or permanently installed outside any structure.  
**Example:** Unattended torches
- **(Group III) Flame Effect:** An attended, temporarily installed flame effect for a specific production with limited operation and fixed time for removal.  
**Example:** An attended, temporary installed flame effect used by travelling shows and concerts and effects used for limited-duration special events
- **(Group IV) Flame Effect:** A large individual or group flame effect that is permanently installed inside or outside any structure designed for unattended operation without a main show supervisory control system.  
**Example:** A burning cabin or bonfire, large single or multiple flaming brazier entrance feature used to create a "themed" atmosphere
- **(Group V) Flame Effect:** A large individual or group flame effect that is temporarily or permanently installed inside or outside any structure and is designed for intermittent or continuous operation under the supervision of a main show control system, but without full time supervision by a technician.

**Example:** A simulated building or vehicle explosion that is part of a larger theme-type attraction

- **(Group VI) Flame Effect:** A large individual or group flame effect that is temporarily or permanently installed inside or outside any structure and is designed for intermittent operation under the supervision of a main show control system and technical director, with cast members in close proximity to the effect at the time of operation.

**Example:** A live-action stunt show that is part of a larger theme-type attraction.

- **(Group VII) Flame Effect:** A large individual or group flame effect that can be temporarily or permanently installed inside or outside any structure that, due to its unique operating requirements, does not fit into any other classification.

**Example:** A fire created as part of an illusion used to make an item or individual disappear.

FEATURES	FLAME EFFECT GROUPS						
	I	II	III	IV	V	VI	VI I
<b>OUTSIDE</b>	X	X	X	X	X	X	X
<b>INSIDE</b>	X		X	X	X	X	X
<b>TEMPORARY INSTALLATION</b>	X	X	X		X	X	X
<b>PERMANENT INSTALLATION</b>		X		X	X	X	X
<b>ATTENDED</b>	X		X			X	X
<b>UN-ATTENDED</b>		X		X	X		X
<b>VISUAL FLAME SUPERVISION</b>	X		X				
<b>AUTOMATIC FLAME SUPERVISION</b>		X		X	X	X	X
<b>MANUAL FUEL CONTROLS</b>	X						
<b>AUTOMATIC FUEL CONTROLS</b>		X	X	X	X	X	X
<b>MAIN SHOW CONTROL</b>					X	X	
<b>PROXIMATE CAST</b>			X			X	X

**Supervisory Control System:** A manual or automatic control system that supervises the operation of the flame effect.

**Flame Effect Safety Controller:** A control system that is part of a flame effect appliance that is used to prove that the source of ignition is present (Flame Safeguard Control).

**Proximate Audience:** An audience closer to a fire performers display than would be permitted by the Standard for the Use of Flame Effects Before an Audience, NFPA 160 (15 feet or at a sufficient distance where the incident radiation does not cause the surface temperature of the exposed skin of a member of the audience to exceed 108°F), whichever is greater.