



Proximate Pyrotechnics Checklists

Disclaimer

The following Checklists contain safety information associated with the presentation of an indoor or “proximate” pyrotechnics event and are intended to provide an overview regarding the proper procedures to be followed. These Checklists are offered by the American Pyrotechnics Association (APA) to assist in safely producing events incorporating indoor pyrotechnics.

The Checklists are not intended to be all encompassing, exhaustive treatments of every aspect of a proximate pyrotechnics production. The Checklists also do not apply to certain types of productions, for example, motion picture and television productions, and other events where the audience is not proximate to the pyrotechnics. The checklists may need to be augmented by the team members to include special circumstances and shifting responsibilities for certain aspects of an event.

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PROXIMATE PYROTECHNICS CHECKLISTS

I. Pre-Production Checklist (Pyrotechnician)

1. Prepare and file permit application for pyrotechnics (NFPA 1126: 4.2, 4.3)
2. Determine what regulatory standard is used for the jurisdiction
3. Prepare pyrotechnic material description (NFPA 1126: 4.3.2 (j))
4. Review production schedule
5. Installation plot plan and specifications (NFPA 1126: 4.3.2 (k))
6. Determine insurance levels, have insurance certificate prepared with appropriate additional insureds and filed (NFPA 1126: 4.3.2 (i))
7. Determine any pyrotechnic licenses required and other qualifications of Personnel (NFPA 1126: 4.3.2 (h))
8. Plan pyrotechnic transportation, handling and storage (NFPA 1126: 3.1, 3.2)
9. Determine and plan for security requirements (NFPA 1126: 6.1.3, 6.1.4, 6.5.6)
10. Determine venue management contact information (NFPA 1126: 4.3.2, 6.1.3)

II. Site Inspection Checklist (Pyrotechnician & Venue Management)

1. Confirm venue management consent to pyrotechnics
2. Confirm venue management or production permit for event
3. Verify plot plan measurements and accuracy (NFPA 1126: 4.3.2 (j) and (k))
4. Verify AHJ approval of venue compliance with life safety standards
5. Determine fire protection systems, controls and equipment
6. Determine HVAC systems and controls
7. Determine show management production plan
8. Determine venue management safety plans, crowd control, security and emergency plans and procedures
9. Determine personal safety requirements for pyrotechnicians (e.g., fall protection plans and equipment)
10. Verify AHJ approval of flame retardant materials in public areas and pyrotechnic installation sites
11. Determine approved & secure storage and work areas for pyrotechnics (NFPA 1126: 3.1.1, 4.3.2 (l) and (m), 6.1.3, 6.1.4)
12. Determine hazmat shipping depot (venue) if required

III. Production Meeting Checklist (Production Management)

1. Confirm installation plan and schedule (NFPA 1126: 4.2, 4.3)
2. Schedule live pyrotechnic demonstration (NFPA 1126: 4.4.1, 4.4.2)
3. Schedule rehearsal and performance
4. Determine need for HVAC/fire protection system control adjustments and personnel responsibilities (NFPA 1126: 4.4.3, 6.1.6, 6.6.6, 6.7.6, 6.7.7)
5. Assign responsibility for hazard communication with participants and staff (NFPA 1126: 6.6.1)
6. Review emergency action plan and assign responsibilities

7. Coordinate pyrotechnic control points, communications and line of sight (NFPA 1126: 6.3.5, 6.3.6, 6.6.5)
8. Review crew lists and assignments
9. Review safety plans and procedures and personal protective equipment (NFPA 1126: 6.5.7)

IV. Walkthrough Inspection Checklist (AHJ)

1. Pyrotechnic walkthrough and demonstration
 - A. Confirm venue management consent to pyrotechnics
 - B. Verify pyrotechnic plot with actual site dimensions/adjustments
2. Type of devices – verify indoor/proximate use & performance specifications (NFPA 1126: 5.1, 5.2, 5.3, 5.4)
3. Verify quantities, locations, and cueing of devices to be used
4. Verify secure areas and methods for restricting unauthorized persons from entering.
5. Verify that all devices are securely fixed with proper audience separation
 - A. Minimum 15ft or 2X fallout radius (NFPA 1126: 6.4.1)
 - B. Concussion mortars min 25ft in secured area (NFPA 1126: 6.4.2)
 - C. Trajectory of comets/mines not over audience (NFPA 1126: 6.2.11)
 - D. Waterfall effect area to be free of flammable materials (NFPA 1126: 6.2.12)
 - E. Wire rocket effects to be properly secured and terminated (NFPA 1126: 6.2.9)
 - F. Airbursts over audience to be minimum height of 3 times the diameter of effect, and no sparks within 15 ft of floor (NFPA 1126: 6.2.14(1) & (2))
6. Check fire fighting equipment
 - A. Minimum of 2 approved water fire extinguishers (NFPA 1126: 6.1.1.1)
 - B. Other firefighting equipment as needed/required (NFPA 1126: 6.1.1 & 6.1.1.2)
 - C. Existing on-site fire fighting equipment/systems
7. Pyrotechnic firing systems
 - A. Verify operational/safety features and functions of systems (NFPA 1126: 6.3.2 & 6.3.3)
 - B. Verify operator & spotters have clear view of effects and communication with operator (NFPA 1126: 6.3.5)
8. Determine plan for HVAC /detectors adjustments & notification of demonstration
9. Determine need for demonstration of representative effects
10. Check plans for approved and secure on-site storage and preparation areas (NFPA 1126: 4.3.2 (I), 6.1.3 & 6.1.4)
 - A. Separation from heat/flame sparks (NFPA 1126: 3.3)
 - B. No smoking within 25ft (signage) (NFPA 1126: 6.5.5)
 - C. Materials stored/handled neatly and orderly (NFPA 1126: 6.5.1)
11. Check plan for personal protective equipment for preparation and loading of pyrotechnics (NFPA 1126: 6.5.7)

V. Rehearsal & Show Checklist (Pyrotechnician)

1. Hold safety meeting with all participants
2. Hold rehearsal, if required (all requirements of following section apply)
3. Performance

- A. Determine how final alert will be given to all performers, crew and support personnel and who will give the alert
- B. Conduct final inspection immediately preceding performance
 - a) Confirm pyrotechnic wiring connections and firing system
 - b) Confirm device placement, mounting, orientation and readiness
 - c) Confirm firefighting equipment in position
 - d) Confirm spotters in place with communication
- C. Execute or fire show
 - a) Confirm and maintain audience separation, performers positioned correctly, support personnel readiness
 - b) Confirm and maintain unobstructed view of effects by operator and/or spotter
 - c) Observe effect performance for safe operation

VI. Post-Show Checklist (Pyrotechnician)

- 1. Inspect all pyrotechnic devices to confirm firing (NFPA 1126: 6.7.1)
- 2. Confirm the integrity of fallout zones and adjacent areas
- 3. Return unfired devices to approved storage or repackage for transportation (NFPA 1126: 6.7.2)
- 4. Confirm reactivation of any disarmed fire detection/HVAC systems to normal operating mode (NFPA 1126: 6.7.6)
- 5. File post-show report, if required

Source: Proximate Pyrotechnics Committee, American Pyrotechnics Association

Reference: National Fire Protection Association, NFPA 1126 Standard for the Use of Pyrotechnics Before a Proximate Audience, 2001 Edition.

Question & comments may be directed to:

American Pyrotechnics Association
P.O. Box 30438
Bethesda, MD 20824
(301) 907-8181