

## NAFAA Performer Safety Guidelines. (Revision 3.0)

The purpose of this document is to provide a minimum set of voluntary fire performer safety guidelines that attends to the concerns of public health and safety as applied to open flame performance. This document is meant to supplement and clarify the NFPA 160 standards involving 'Group I' devices before an audience. It is not intended to supplant local fire codes, all diligence should be used to discover the local codes for open flame performance.

### Definitions:

- NFPA 160 - National Fire Prevention Agency section 160, Standard for Flame Effects Before an Audience
- Group I- NFPA 160 category for "An attended, manually controlled flame effect."
- Performer - Any personnel who will be handling open flame devices, except for the purposes of extinguishing, while lit. Equated to NFPA 160 "Flame Effects Assistants"
- Troupe Leader - Person in charge of the overall performance, shall be equated to NFPA 160 "Flame Effect Operators"

- I. Performer - all artists should act in a professional manner. They should be capable, well rehearsed, and safe each time they light up.
  - A. Capable
    1. Performers should not attempt performance under the influence of any judgment or reaction impairing substance.
    2. Performers should be in good physical health, with no temporary or permanent debilitating health issue that could interfere with the planned routine.
  - B. Practice
    1. Each performance should be practiced lit several times to verify duration and capability before a performance is attempted.
    2. Troupe leader should verify performers are ready for an audience.
  - C. Costume
    1. Regular performance costumes should be made of flame resistant or high heat material (ie can withstand 800 degrees or more, for more than 3 seconds), if available.
    2. If not, each part of the costume should be checked for flammability, and flame retarded if needed.
    3. Before the performance, the performer should practice lit in the expected costume several times to insure safety.
- II. Safety Personnel - Each performance and lit practice should have at least one spotter ready to meet fire emergency needs, with additional spotters and guards as needed.
  - A. Guards
    1. Guards provide audience containment duties, keeping audience away from performance area, fuel station, and spinout zones.
    2. Fire safety training is beneficial with guards, but not required.
  - B. Spotters
    1. Spotters are in charge of onstage and backstage fire safety including emergent and intentional wick extinguishing.
    2. Spotters should be well aware of the various aspects of fire performance and familiar with the routine to be performed.
    3. Spotters should be trained in flame extinguishing, response times, untangling equipment and audience control.
    4. When needed, the spotter responds to the audience needs, the venue's needs, then the performer's needs, in that order.
  - C. First aid training
    1. Troupe Leader should have strong first aid or medical training.
    2. For particularly large performances, the venue should provide on-call ambulance or medical team for the event who should be aware of the duration of the performance.
  - D. Equipment
    1. Intentional extinguishing can be managed with a safety towel or damp cloth, flame treated cloth, or high heat material.
    2. Spotters should be dressed with the same care as a performer and should have a safety towel at all times.
    3. Ideally, all spotters and guards should have an extinguisher available to them. Extinguisher should at least have a "B" rating, ABC is preferred. Current inspection tag as per local laws is also recommended.
- III. Tools - NAFAA performers should use well-maintained tools. Not only should they be constructed to prevent uncontrolled wicks, they should be regularly tested to insure capability.
  - A. Wick Attachment
    1. Wicks should be attached to the fire tool via some hard limiting method. Wire, screws or bolts should be run through the wick and device. Glues or friction should not be the primary method of wick attachment.
    2. Wicks should be made in such a way as to prevent loss of any part during use, typically by using fireproof materials in construction.
  - B. Handle Attachment
    1. Shafted tools (clubs, staff) should either be made of fireproof materials (metal, carbon fiber, etc) or have a protective covering that extends at least 4 inches beyond typical flame contact zones (for a spinning staff, this is 4 inches in either direction of a wick).
    2. Handles should be attached with much the same care as wicks. Balls or tethers should not depend on glue or friction to remain on the shaft; some hard device should be employed to maintain attachment.
    3. Chain grips should be made of durable materials, or augmented with metal grommets when soft goods (e.g. leather, nylon) are used, and should be thoroughly checked before each use. Any sign of wear should be considered cause for replacement.

- C. Connectors
  1. If the device has multiple connected parts or chains, the connectors attaching all parts together should be of a sealed ring type rated above the maximum possible stress that can be applied to the device.
  2. Any connectors that could be exposed to heat should be made of tempered metal; not plastics, drop forged or spring metal.
- D. Checking
  1. Before each use, the troupe leader should inspect each device to insure that all parts are in good condition and stable. A quick test is to grasp each wick and tug it away from the normal point of contact.
  2. Grips and handles should be thoroughly checked for security and the wicks should be tested thoroughly. Any sign of wear should be treated as a failure.
- E. Fueling - Tools should be soaked, splashed or basted so that excess fuel can be completely recovered and sealed or returned to proper containers
  1. Always spin off excess fuel, in an area free from expected foot traffic and far from ignition sources, before performing.
  2. If available, make use of attachments to catch fuel before hitting the ground, avoiding the spin out zone entirely.
  3. Always mop up oily fuels before leaving. Remove oily residue from performance area between performers. Treat mops, rags, or other cleaning devices as soaked wicks.
- IV. Fuels - The principles of fuel safety are to insure that an uncontrolled burn does not occur, and that the audience and passive safety devices are not affected. Performers should have MSDS for all fuels used and be familiar with any special needs for them.
  - A. Storage and transport
    1. A fuel's original retail container is usually the best choice for storage and transport. Fuels should be kept out of direct sunlight and away from sparks or flame.
    2. If the original container is too bulky or unavailable, then a sealed metal container inside another container is the best overall choice. Canadian performers should use governmentally issued containers of the appropriate type. Insure all fuel containers are accurately and clearly labeled.
  - B. Backstage fuel
    1. All primary fueling should take place in a backstage fueling area.
    2. Backstage fuel stations should be manned by the troupe leader, guard or spotter until completely secured.
    3. Always seal fuel containers and dip buckets when not in use.
    4. When at all possible, place the fuel area outside, behind a hard wall; and have a clear corridor from the fuel area to the stage. Never move wet wicks through the audience without escort. Audience and smoking should be restricted within 30 feet of fuel station.
    5. If a hard wall between fuel and fire isn't available, place a spotter between and insure that fuel containers are sealed before any ignition.
  - C. Open Onstage Fuel
    1. If an onstage fuel reserve is needed, all effort should be made to restrict quantity and capability of accidental spills.
    2. Highly stable metal containers with self-closing lids are preferred
    3. Unneeded fuel (i.e. after use) should be removed immediately.
- V. Performance - Care should be taken to insure that each element of the performance is carried out with safe conditions for the audience and the venue. At no point should either the audience or the venue be at risk of sustaining damages from the performance.
  - A. Separation
    1. Depending on the nature of the audience an adequate separation from the performer should be maintained to prevent accidental contact.
    2. If the performer will be spinning tools, breathing fire, etc, the audience should be sufficiently separated to allow guards or spotters to intercept audience members attempting to enter performance area. Usually 15 feet or a barricade is adequate.
    3. If the performer will be using a tool that is predominantly within their field of vision, implicitly under their control (ex. fire fingers), or the audience does not require excess management (i.e. seated or fenced), then the performer may approach closer pending troupe leader approval.
  - B. Performance area
    1. The performance area should be cleared of all flammable materials, or flammable materials should be treated with approved fire retarding chemicals and tested for combustibility in a safe manner before performance.
    2. Props and other terrain features should be taken into account when designing a performance, performers should not be in danger of contact with foreign objects.
    3. Careful note of sprinkler systems should be made to determine proximity to performance, possible triggers and other specifics.
    4. During outdoor performance, avoid spinning under or near dry foliage.
  - C. Flame toxicity
    1. Petrol fuels burnt on open wicks always produce toxic fumes, smoke, or other health hazards that are augmented in an enclosed space.
    2. Petrol fuel burning should be very limited indoors, even in well-ventilated venues. When possible, use high-proof alcohols in place of petrol fuels.
    3. For outdoor spinning, semi-enclosed areas with low wind can be as hazardous as indoor locations.
    4. Whenever petrol fuels are used, the most purified fuel is preferred.
- VI. Clean Up - Immediately after each performance, fuel buckets should be closed and sealed, fuel returned to approved transport containers, fuel stations locked or removed from premises and any residual fuels mopped up and removed. Hot tools should be wrapped in safety cloth until they cool down. Any exotic materials (i.e. flame retardant) should be removed, locked or guarded.