

Performing Arts Safety Bulletin

(Safety & Health In Arts Production & Entertainment)

FIRE RESISTANT TREATMENT OF SCENIC ELEMENTS

1. LEGAL REQUIREMENTS:

Fire Code Section 2.3.2.1 Drapes, Curtains, and Decorative Materials:

Drapes, curtains and other decorative materials including textiles and films used in buildings shall meet the requirements of CAN/ULC-S109, "Standard for Flame Tests of Flame-Resistant Fabrics and Films"

Materials which are not inherently flame proof or which do not meet the standard for flame resistance must be treated with an approved Flame retardant. **Note: treatment with a fire retardant product will only provide a resistance to open flame – it will not render the material Fire-proof**

Fire Code Section 2.3.2.2 Flame Retardant Treatments:

Flame retardant treatments shall be renewed as often as required to ensure that the materials will pass the match flame test in NFPA 701, "Standard Methods of Fire Tests for Flame-Resistant Textiles and Films."

2. BEST PRACTICE:

There are many flame retardant products available to individuals who wish to treat the scenic products themselves – however, if the local fire authority insists on a certificate of flame proofing, the work must be performed by a commercial contractor. Large items, such as stage draperies, are often best treated and certified by a professional company.

It is important to note that the fire resistance value of treated materials will be affected by excessive handling, washing, or painting of the material. **Testing of permanently installed goods should be conducted annually, with the results documented and kept in a log book.**

The samples tested should be at least 6cm x 12cm. The sample should be taken from an inconspicuous piece of the scenic element that has been treated and should be compared to one that is non-treated. To view the SHAPE video on how to conduct a field-flame test, visit the following link:

<http://www.youtube.com/user/SHAPEbc>

PLEASE NOTE: A field flame test should only be conducted when a material's flame retardant documentation is not available. It is a last resort to check for flame retardation.

Safety Bulletins Are Recommended Guidelines Only; Consult All Applicable Rules and Regulations



3. HOW TO DETERMINE IF A SCENIC ELEMENT MEETS THE STANDARDS FOR FLAME RESISTANCE (THE BURN TEST):

The following guidelines are excerpted from the National Fire Protection Association *NFP 705: recommended practice for a field flame test for textiles and films* (www.nfpa.org)

1.2.1 The purpose of this recommended practice is to provide authorities having jurisdiction with a field means of determining the tendency of textiles and films to sustain burning subsequent to the application of a relatively small, open flame.

1.3.1.1 The field test method may be useful to regulatory officials as an indicator of whether a material being used or installed burns very easily or may be flame resistant as indicated by the following:

- (a) Cessation of burning when the igniting flame is removed
- (b) Failure to burn at all
- (c) Continuing to burn non-aggressively after the igniting flame is removed

The field test method has utility only when the authority having jurisdiction has no reliable data and, therefore, is forced to rely solely on the field test findings

4.1.1 Materials: Specimens should be samples removed from the existing material.

4.1.2 Specimens should be dry and should be a minimum of 12.7 mm × 101.6 mm (1/2 in. × 4 in.).

4.2 Open Flame: The fire exposure should be from a common wood kitchen match or source with equivalent flame properties.

4.2.1 The flame should be applied for 12 seconds.

4.3.1 Method: The test should be performed in a draft-free and safe location free of other combustibles.

4.3.2 The sample should be suspended (preferably by means of a spring clip, tongs, or similar device) with the long axis vertical, the flame supplied to the center of the bottom edge, and the bottom edge 1/2 in. (12.7 mm) above the bottom of the flame.

4.3.3 After 12 seconds of exposure, the match is to be removed gently away from the sample.

4.4 Requirements: During the exposure, flaming should not spread over the complete length of the sample or in excess of 4 in. (101.6 mm) from the bottom of the sample (for larger size samples).

4.4.1 There should be no more than 2 seconds of after-flame

4.4.2 Materials that break or drip flaming particles should be rejected if the materials continue to burn after they reach the floor



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5.1 Limitations: The deficiencies and limitations of the field test method can lead to misleading or erroneous results, and the error can be in both directions. It is quite possible to have a too-small sample show several seconds of after-flaming, causing the material to be rejected. It is equally possible for improper or inadequate field procedures to indicate satisfactory flame resistance. This can result in dangerous errors.

5.2 Precautions: Field procedures are useful, but they must be used with good judgment and their limitations should be recognized. Field tests should not be relied on as the sole means for ensuring adequate flame resistance of decorative materials, but, they are useful in augmenting a comprehensive regulatory program.

4. OPEN FLAMES ON STAGE SETS:

These guidelines are intended to give recommendations on the safe use of open flames on stage sets. This Safety Bulletin does not apply to fire breathing or fire juggling. Such stunts should be performed only by qualified stunt persons under carefully controlled conditions.

- a) When torches, candles, fireplaces or other open flames are used on a stage set, such use shall be under controlled conditions with due regard for the safety of all involved.
- b) A responsible person shall be designated for the handling, placement, safe use and securing daily of any open flame devices.
- c) Firmly secure all stationary open flame fixtures.
- d) Flammables and combustibles shall be kept a safe distance from open flames. Additionally, where required, such materials shall be kept in approved and properly labeled containers.
- e) All cast and crew should be notified reasonably in advance of their involvement with open flames. Open flames which could cause a burn or other injury must be positioned or shielded to prevent contact by workers.
- f) When fire is used, appropriate and properly maintained fire extinguishment equipment must be in close proximity and properly trained personnel should stand by.
- g) Appropriate fire authorities should be contacted prior to the use of open flames.
- h) The person responsible for igniting the flame should ensure he or she maintains a clear line of sight of the flame or maintains direct communication with a designated observer.

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