

# Performing Arts Safety Bulletin

(Safety & Health In Arts Production & Entertainment)

## RIGGING SYSTEMS AND FLOWN SCENERY

### 1. OPERATION AND MAINTENANCE OF PERMANENT RIGGING SYSTEMS:

a) The owner of rigging equipment should ensure that proper equipment is used as intended and within the designed safety factor. The owner should ensure that all equipment is properly operated and maintained by a competent person.

***NOTE: For the purposes of the sectors covered by this guideline, typically the qualified person is a live performance technical director or rigging technician, or a professional engineer. The qualified person must be knowledgeable of the work, the hazards involved, and the means to control the hazards, by reason of education, training, experience or a combination of these.***

b) The methods and frequency of maintenance of a rigging system should be determined by the owner or by a contractor on behalf of the owner in accordance with:

- The manufacturer's or his/her agent's recommendations for maintenance;
- The system's current condition;
- The frequency and method of use of the rigging system;
- WorkSafeBC regulations.

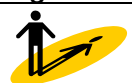
c) The maintenance of a rigging system should include:

- An inspection and examination by a competent person at least once a year of all parts and functions of the rigging system (Items that receive frequent use or considerable wear should be inspected more often.);
- Cleaning, lubricating and adjusting all parts of the rigging system at regular intervals, and repairing or replacing worn or defective components;
- Repairing or replacing damaged or broken parts.

d) The inspector should be satisfied that the rigging system is in a safe operating condition and that the parts and functions will remain in a safe operating condition until the next scheduled inspection and examination.

e) A permanent log of maintenance and inspections should be kept. All entries should be signed by the inspector and verified by the owner or designate.

f) Where a part of a rigging system is replaced for any reason, the replacement part should be at least equivalent to the original part as supplied by the manufacturer or as specified in the design submission.



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g) The operator should have such knowledge of and experience in operating the rigging system that:

- The operator is able to operate the rigging system safely without supervision;
- The operator is aware of all likely hazards in using the rigging equipment.

**2. TEMPORARY FLOWN SCENERY – HARD OR FRAMED:**

a) The construction of individual pieces of flown scenic units, and the assembly of the pieces into the unit(s), will be done by a competent person or approved by a supervisor.

b) In constructing pieces of hard or framed scenic units to be flown, all elements should be joined by gluing and screwing or bolting or welding or an equivalent permanent method of joinery.

c) In flown units, pieces that move and that may create fouling hazards or may change the balance of the unit in the air should be secured before the unit is flown.

d) The pins of hinges used in the assembly of flown units should be safetied to the unit.

e) All load-bearing or potentially load-bearing hardware should be bolted or welded to the piece.

f) The assembled unit should be inspected by a competent person or supervisor before the unit is flown.

**3. TEMPORARY FLOWN SCENERY – PICK-UP POINTS AND LINES:**

a) The number and placement of the pick-up points on a flown unit should be adequate to prevent any undue stress on or sagging within the unit.

b) The pick-up points on a flown unit should be placed to ensure the structural integrity of the unit. All flying hardware should be bolted or welded to the flown unit.

**4. TEMPORARY FLOWN SCENERY – SOFT:**

a) Bottom pipe or chain in a pipe or chain pocket should be fastened securely to prevent the pipe or chain from falling out of the pocket.

b) The spacing and strength of ties should be adequate for the weight of the piece.



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c) For information on fire proofing scenery, refer to *Performing Arts Safety Bulletin #XX: Fire Resistant Treatment of Scenic Elements*.

**5. TEMPORARY FLOWN SCENERY – RIGGING:**

a) All ropes, chains, bolts, clamps and other elements of the rigging of a flown unit should be of appropriate size and strength for the load that they will bear. Manufacturers' recommendations and guidelines for the use of such materials should be followed where available.

b) The minimum strength-to-load ratio for the elements of the rigging of a flown unit is eight-to-one.

c) Turn-buckles, trim chains and other devices for the adjustment of the trim of a flown unit should be secured in position.

d) Any ropes, chains or other lines on which scenery is flown should be safely terminated and secured.

