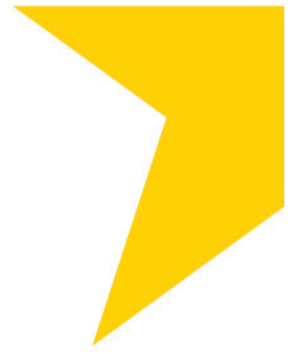


# Performing Arts Safety Bulletin #12

## SAFE SET-UP AND USE OF SMALL TENTS



### SMALL TENTS: SAFE SET-UP AND USE

Tents are frequently used in festivals and for outdoor arts events. These guidelines provide recommendations on the safe set-up and use of small tents up to 60 m<sup>2</sup> (645 ft<sup>2</sup>). Tents larger than this require a building permit in the City of Vancouver.

### TYPES OF COMMONLY USED TENTS

**Marquee tent:** Usually refers to a high peak, square or hexagon frame tent. They feature a design with a “floating centre pole”.

**Pop-Up tents:** Fold out into either a 10'x10' or 10'x20' structure and are very simple to erect. They must be either weighted down with sandbags or tied down because of their lightweight nature. These tents are not completely waterproof.

**Frame tents:** Are aluminum framed and have no center pole. The poles reach the peak from either side and when the canvas is stretched over it the roof resembles that of a house.

### RISK ASSESSMENT

A risk assessment is required before setting up any tent, or conducting any work related activity. In addition, risk assessments must be done whenever the situation changes or a new location or new equipment are in use.

As per WorkSafeBC, “The purpose of a risk assessment is to determine whether enough has been done to control the risk or whether further control measures need to be put in place.” Assessments involve the recognition, evaluation and control of hazards and should be performed at intervals sufficient to eliminate the development of unsafe work conditions.

Considerations when setting up a small festival tent may include:

- What wind speed is the tent rated to withstand? When must it be dismantled?
- Has the weather forecast been thoroughly reviewed?  
Tents are inherently unsafe in lightning storms or severe winds.
- Tents may be flame-resistant but not fireproof; the fabric will burn if left in continuous contact with a flame source – Are flame and heat sources kept at an adequate distance from tent fabric?
- What kind of activities are taking place in the tent?
- What kind of activities are required when setting up the tent?
- Is there adequate marking of guy ropes and stakes that pose trip hazards, especially during night time work?
- Assess the stability of the ground where stakes are to be driven – will stakes still hold if the ground becomes muddy and saturated during a rainstorm?
- How close are overhead or underground power lines, branches or other obstacles?
- Are there any underground pipes or cables in the area?
- Consider the placement and function of the tent.
- Can you identify any other potential risks?

Tents should have been treated with a fire retardant. Wall tents sold in Canada must be treated with fire retardant rated to CPA1-84. All tents should be checked for a label indicating their fire retardant status.

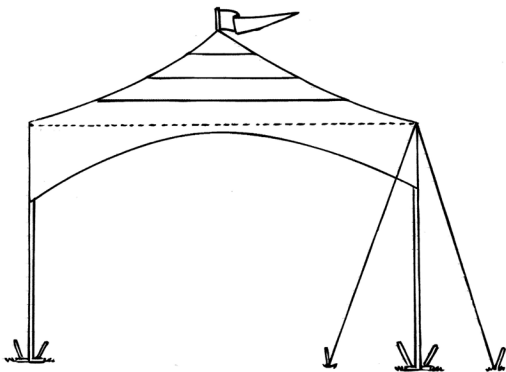
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Once a risk assessment has been conducted, address the risks you have identified.

1. **Eliminate the hazard:** Can the hazard be eliminated?
2. **Substitution:** Depending on the hazard, could a different location / tent / approach be used?
3. **Apply an engineering solution:** Can the hazard be controlled? If the risk assessment reveals wind poses the greatest risk, ensuring that the tent is approved for maximum anticipated wind speeds could provide a solution.
4. **Administrative:** Can the work practices be altered? If the risk relates to ladder use, can a lift be used instead? If the risk relates to wind, can the event be moved to a day with calmer weather in the forecast? These would be examples of an administrative solution.
5. **Personal Protective Equipment:** If the issue were a concern that driving stakes into concrete posed an injury risk to set-up crew, one example would be to require the workers to wear steel toed boots.

### IMPORTANT SAFETY CONSIDERATIONS WHEN SETTING UP FESTIVAL TENTS

1. Identify the location where you plan to setup tents on the site map.
2. All tents should be erected on firm ground to ensure stability and prevent shifting/movement. Care should be taken to ensure all structures are securely fastened to the ground and are properly electrically grounded (as applicable).
3. Take into consideration the effects of rain, lightning and wind when setting up, dismantling and working in tents.
4. Allow a minimum of 10' around the perimeter of the tent for setup. You have to add an additional 5' for the guy lines that secure the tent down and another 5' on top of that for work area.



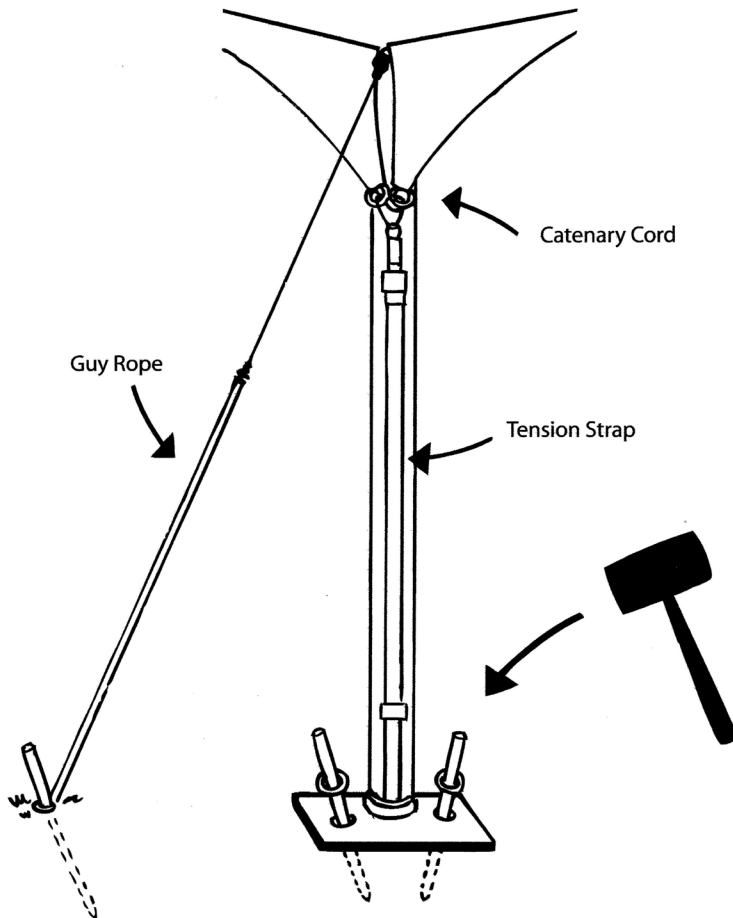
5. Don't forget to look up to see if there are any tree branches hanging down, or power lines across the area. Underground and overhead utilities are always important to watch out for when erecting a tent. You must be 7 meters from any power lines.
6. Proper ground conditions for stake anchoring are required for all tent installations. In some cases weighted ballast for the tents are needed, but for safety reasons, only tents up to 20' x 20' in size should be weighted down and only for short duration (i.e.: setup in the morning and removed the next day) depending on the potential exposure to wind should there be a storm.

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### TENT ANCHORING

Use steel stakes that are 20" to 36" long driven into the ground. The actual number of stakes and their size will vary depending on what size of tent it is, how much wind load they may be subjected to and the length of time they will be set up.

Anyone who disturbs the ground anywhere in BC runs the risk of contacting buried pipes, cables and power lines. Contact BC One Call before you dig: [bconecall.ca](http://bconecall.ca)



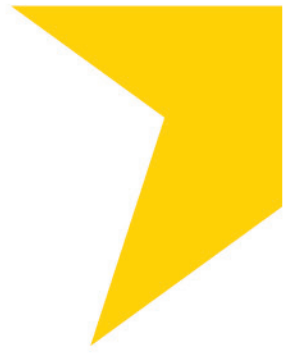
### TRIP HAZARDS

1. Entrance and exit routes must be kept clear of obstructions.
2. Guy ropes and stakes can pose a trip hazard in high traffic areas. Consider marking them with colored flags, balloons, traffic cones or caution tape. Ensure they are obvious to everyone on site.

### ANCHORING ON ASPHALT

Stakes driven into asphalt will make a hole about 3/4 to 1 inch in size which can be repaired if needed with special asphalt plugs. It is also possible to reuse the same holes again for future setups. If you are setting up on a concrete patio or sidewalk area, you can use concrete construction anchors that use bolts and washers to take the place of stakes. These are permanent once installed but are very clean and a hex nut can be put into them flush with the ground if you want to use them again some time later.

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### USE OF PROPANE-FIRED HEATERS IN OR NEAR TENTS

Do NOT use propane-fired heaters in a tightly enclosed area. These heaters produce carbon monoxide. **Adequate ventilation is required.**

Two openings directly to the outdoors MUST be provided, one high and one low, on opposite sides of the area to be heated. Each opening must be at least 7.72 centimetres (3 inches) for every 1000 btu. Therefore, for one 50,000 btu heater, two openings of at least .093 m<sup>2</sup> (1 ft<sup>2</sup>) at each end are required.

Different sized heaters will have different requirements. Check the manufacturer's instructions. When using propane-fired heaters in or near a tent, NEVER close tent flaps due to the risk of carbon monoxide poisoning.

For more information, please refer to Actsafe's propane guidelines at <http://www.actsafe.ca/news/recent-propane-incidents-prompt-new-guidelines-for-safe-use/>.

### CAUTION: ALWAYS PAY ATTENTION TO THE WEATHER REPORTS

Check the weather reports prior to your event. Extra anchoring may be required when strong winds are forecast. If severe winds are expected, you may have to postpone your event to ensure everyone's safety. The effects of wind at various velocities are listed below:

#### WARNING ZONE

20–28 km/h	Dust and loose paper are raised. Small branches begin to move.
29–38 km/h	Branches of a moderate size move. Small trees begin to sway.

#### DANGER ZONE

39–49 km/h	Large branches begin to move. Whistling is heard in overhead wires. Umbrella use becomes difficult. Empty plastic garbage cans tip over.
50–61 km/h	Whole trees are in motion. Effort needed to walk against the wind.

#### EXTREME DANGER ZONE

62 km/h and above.	Some branches break off trees. Construction/temporary signs and barricades blow over.
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### EVENT CANCELLATION

The company should create a policy for the cancellation of the event and/or the disassembly of the tents, including specific criteria, and for implementing one of the planned contingency measures. The plan should outline but should not be limited to:

1. The circumstances under which an event is suspended or cancelled and/or tents are dismantled (lightning, rain, wind, weather watch, weather warning, weather alert, etc.);
2. Who in management has the authority to make such a decision;
3. How long you continue in severe weather;
4. How long you suspend the activity;
5. A notification process for staff and patrons.

The cancellation policy should be posted in a designated area that is available to all workers.

If possible, a member of management with the authority to cancel should be present at the event; otherwise, emergency numbers should be provided to the supervisor so that management can be contacted.

Management should assign at least one person on site who will be provided with a clearly defined set of responsibilities and authority for implementing contingency measures.

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If your event is taking place in Vancouver, BC:

1. Tents and stages located on city streets require permission from the Film and Special Events Office at 604.257.8850;
2. Tents over 60 m<sup>2</sup> (645 ft<sup>2</sup>) require a building permit;
3. When stages are greater than 1200 mm (4') from grade or greater than 40 m<sup>2</sup> (430 ft<sup>2</sup>) in area, a building permit is required for the stage;
4. The City of Vancouver recommends that productions retain a professional engineer to advise on safety and anchorage of tents (and/or stages), when temporary building permits are not required.

For more information, please see the City of Vancouver's *Guide for Special Events with Tents or Stages*:

<http://vancouver.ca/commsvcs/developmentsservices/tentsandstages/index.htm>

