



## ENSURING STRUCTURAL INTEGRITY OF TENTS/CANOPIES IN A DISASTER

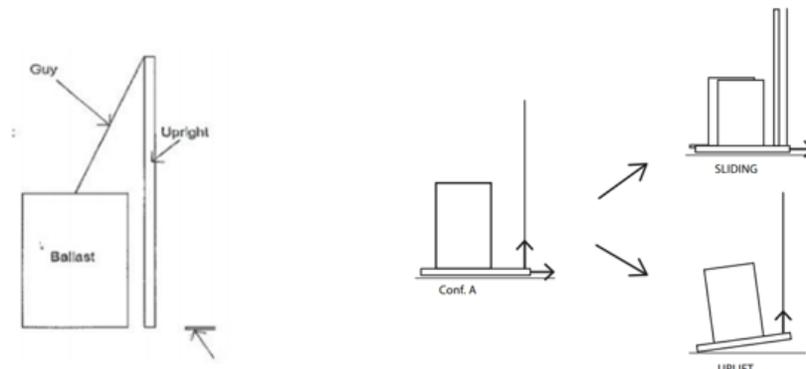
As part of the return to on-campus instruction, commercial tent canopies have been installed at many schools for outdoor classrooms and other uses. Tents should be checked for damage after natural disasters and other incidents that may have damaged them, as they are more susceptible to impact than permanent buildings. Additional items accompanying the tents must also be checked, including generators, electrical equipment, and lighting.

Assign a team to assess the condition of tents post-disaster before the tents are used again. If there is a building evacuation, assess conditions of any tents adjacent to the Assembly Area to reduce the chance of injury.

### Post-Disaster Tent Assessment

After a disaster or other hazardous conditions, each component of the tent system needs to be thoroughly checked to ensure that its structural stability has not been compromised, including:

- **Hardware components** that are bent, cracked, frayed, or damaged. Any hardware components that come into contact with the tent's fabric membrane should be inspected for sharp edges, burrs, or any other conditions that could rip or cut the fabric.
- **Fabric** that is torn or frayed; pay special attention to seams and weld locations. Check all hardware, grommets, webbing, cables, etc. for any signs of fatigue or deterioration.
- **Web guy/ropes** that are frayed or have mechanism issues.
- **Poles** out of position, bent, or otherwise damaged.
- **Anchoring devices** including ratchets, ropes, cables, and web straps should receive an extra level of scrutiny. If ropes have snapped or pulled out of the ground, tent weights have moved, or there are loose poles, ropes or straps, re-secure the tent before use.
- **Ballast** failure: any movement of a ballast (tent weights such as water-filled barrels), from its installed position, including:
  - Plate slides on the ground.
  - Plate lifts off the ground.
  - Ballast slides on the plate or on the ground surface on which it sits.
  - Ballast tilts on the plate or tilts on the ground surface on which it sits.



Example: LAUSD SoFi Stadium Vaccine Site tent poles out of position after the 4.0 earthquake centered near the stadium (April 2021).

1. Tent pole in place on plywood plate as designed



2. Tent pole knocked off plywood plate



3. Tent pole knocked off plywood plate



### Hazardous Conditions

Monitor weather and other emergency situations that may impact the integrity of the tent.

Hazardous Situation	Safety Concern
Damaging winds	The tent could collapse and injure occupants; the tent cannot protect occupants from flying debris.
Fire or explosion	The tent cannot protect occupants from excessive heat, flames or flying debris.
Lightning	Lightning poses a risk of electrocution (through the metal tent poles), electric shock or fire.
Excessive rainfall	Saturation of ground with water may compromise securement. The tent could collapse and injure occupants.
Flash flooding	Saturation of ground with water may compromise securement. The tent could collapse and injure occupants.
Gas leak	The tent cannot protect occupants from unhealthy or dangerous atmospheric conditions.
Earth movement (earthquake, landslide)	Ground conditions may compromise the tent's securement.

### Tent Structure Overview

A traditional pole tent features center poles, perimeter side poles, and anchoring devices to attach to ropes or web guys for tensioning. The poles support the fabric and define its shape through the tensioning to the anchoring system.

A tent must be properly anchored to the ground upon which it sits to ensure safe and proper function. Anchoring involves attaching sufficiently strong ropes or straps between the tent and the anchor system, which may be a stake or a ballast system. Ballast anchoring is common at school sites, using ballasts that sit on the ground and use their weight to counteract the forces being applied to the tent. Ballasting is usually accomplished by positioning a weight (plastic barrel filled with water or similar) on top of a plate that is attached to the baseplate of the tent. A surface modifier, which may be a steel or plywood plate, rubber mat, or neoprene pad, may be placed between the ballast and the ground.