Temporary Structures: Gazebos and Marquees

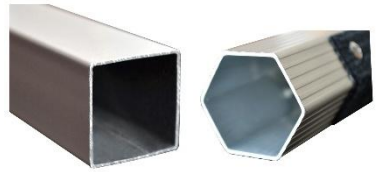
Introduction

This guidance can be used by volunteers and staff who will be erecting gazebos or marquees at their event. This guidance can only be used for pop up gazebos/small self-assemble marquees and structures that do not require notification to the Health and Safety Executive (HSE) under Construction Design Management (CDM) 2015.

Marquees should only be installed by competent suppliers who have passed the supplier vetting process. You can find a competent supplier at https://www.muta.org.uk/

Structures

Structures	
Garden Gazebo	
	• Push together poles or pop out frame with legs less than 30mm • Cord guide ropes, if at all • Limited to wind gusts of 20mph max • Should be avoided, where possible

Professional Grade Gazebos	
 	• Robust steel frame. Legs over 30mm in diameter square or hexagonal tubing • Wind rating and weighted to be checked with supplier. • Ensure each frame leg is pinned on grass surfaces • Use two per weights on each leg (24kg), if on hard standing • Ensure 4 guide ropes are attached and pegged • No regulation so the use of a pro-grade gazebo doesn't mean that it will have sufficient pegging or weights – CHECK! CHECK! CHECK!
Self Build Marquee	
	• Generally 6x6m or similar • Unlikely to have maintenance/service records • Competence of erector not guaranteed • Built by following manufacturer instructions • Weighting, pegging and wind rating by manufacturer's instructions • Generally, should not be used by a supplier and unsuitable for long term installations

Frame or Clear Span Marquee	
	• Constructed by specialist company • Best companies are MUTA members • Frame or clear span structures that can be tens of metres wide • Robust aluminium frames • Will have a bracing bar between uprights • Wind rating usually over 50mph, to be checked • Pins usually over 750mm or around 200kg per leg
Traditional Marquee	
 	• Constructed by specialist company • Best companies are MUTA members • Will have poles in the middle of the structure • Multiple pins surrounding the whole structure • Weighting, pegging and wind rating to be checked with supplier • Pins usually over 750mm not usually compatible with hardstanding

Safe Gazebo Use

For an example, wind management plan, please see the table at the end of this document.

A temporary structure is any structure that is not attached to a permanent foundation. This includes marquees, stages, gantries, obstacles and inflatables. This makes them more susceptible to collapse or damage in strong winds.

Rule One: Do not use a structure or allow a structure to be used on your event site that does not have suitable weights or pegs

Ensure you know what structures are being brought on to site and how much space they need including how much space will be required for construction and make sure you know their wind ratings

Rule Two: Use an anemometer for wind speeds on site, don't rely only on weather apps

Check suppliers' safe methods of working and risk assessments for setting up and dismantling any kit and ensure that they include how structures will be affected by strong winds and maximum wind loading. Consult with suppliers about how they will monitor the wind and make the decision about removal of structures.

Rule Three: Remember as Event Manager you can remove or ask for a structure to be taken down if you are concerned about its safety.

Rule Four: DO NOT USE A GAZEBO THAT DOES NOT HAVE ANY WEIGHTS OR PEGS!

Rule Five: All of these will depend on conditions on your event site but if you're concerned then don't put it up

Top Tips

- Event organiser should monitor weather throughout the event. Ideally, you should have an anemometer on site.
  - Where an anemometer is not available, the Beaufort wind scale categories should be used as a guide. They can be found below.
- In general:
  - Pegged professional grade gazebos can be used in wind gusts up to 35mph.
  - Double weighted professional grade gazebos on hard standing are usable in gusts up to 25mph.
  - Non-professional grade gazebos/Garden gazebos should not be used in wind gusts over 20mph.
- Above these speeds, gazebos should not be used. Events can still go ahead we just need to be mindful of things that can be blown away.
- Taking down back and side panels of marquees. They can catch the wind and lift the marquees off the ground or blow them away. Where wind speeds are above 20mph, remove sides from gazebos to allow wind to move through
- Gazebos should be dropped and not re-erected until the wind speed has dropped

- All gazebos should be made of flame retarded fabric or durably flame retarded fabric when tested to BS 7837.

Constructing the gazebo

Think about what the gazebo or marquee will be used for, what it needs to be able to do, who will use it and how – is it fit for purpose?

- Make sure you assess the risks involved with erecting the gazebo and how you will minimise risks.
- Make sure there is sufficient time and resources available to build and dismantle the structure safely.
- Use volunteers or staff who have the necessary experience and knowledge.
- The area where the gazebo or marquee will be erected should be sufficiently far from over ground services, e.g. overhead power lines.
- Follow the manufacturer's instructions

Anchorage

- Anchors are critical to the stability and safety of the structures.
- If the wind speed is high enough to make erecting the gazebo difficult, the structure should not be erected until wind speeds have subsided. If wind speeds are forecast to remain high, the structure should not be erected at all.
- Loose soil provides the least resistance and may require special anchors. In these situations tests would be expected in order to verify the anchorage resistances.
- You should be aware of underground services and tree roots which may be damaged by long stakes used for anchorage.
- Where ground penetration is not possible or the resistance provided is not sufficient to stabilise the structure, heavy ballast weights can be used to withstand uplift winds check the manufacturer's guidance on adequate weights.
- Safe wind speed recommendations by the supplier/manufacturer should be adhered to.
- Stakes and ropes near exits or other walking routes should be fenced off or clearly marked to prevent anyone from walking into or tripping over them.

- Purpose-designed stakes with defined heads and/or eyes for rope attachment are generally preferred since they do not need to project significantly above the surface.

Heated Gazebos

- In winter, where there is a risk of snow, clients should be advised that most structures are not designed to withstand the weight of snow on the roof. If there is a risk of snow, you will be required to heat the structure to above 12°C to prevent snow build-up
- Use of heaters, cooking appliances and naked flames within structures should be adequately risk assessed and should only be considered if the fabric is flame retardant.

Gazebos and Marquees erected by third party contractors

- Any third parties hired to supply, build, manage and take down a structure must complete and pass the CRUK health and safety vetting form.
    - The supplier must be provided with relevant site information to allow them to carry out their own risk assessment and erect the structure safely.
    - Work with your contractors to make sure all significant risks on the site are properly controlled, e.g. use of vehicles.
    - The construction area should be cordoned off to prevent entry by unauthorised people.
    - Structures, upon completion should be assigned off by the contractor and handed over to you.
    - The supplier must provide written guidance regarding the procedures to be followed in the event of adverse weather.

Wind Speeds

High winds can cause serious issues for outdoor events. In high winds it may be necessary to remove structures as they can become unsafe and unstable. All structures should have a safe wind loading, and it is important that you liaise with suppliers to understand the impact on wind and that they are monitoring wind speed on site.

Wind Force	Description	mph	Specifications
0	Calm	<1	Smoke rises vertically. Sea like a mirror
1	Light Air	1-3	Direction shown by smoke drift but not by wind vanes. Sea rippled
2	Light Breeze	4-7	Wind felt on face; leaves rustle; wind vane moved by wind. Small wavelets on sea
3	Gentle Breeze	8-12	Leaves and small twigs in constant motion; light flags extended. Large wavelets on sea
4	Moderate Breeze	13-18	Raises dust and loose paper; small branches moved. Small waves, fairly frequent white horses
5	Fresh Breeze	19-24	Small trees in leaf begin to sway; crested wavelets form on inland waters. Moderate waves, many white horses
6	Strong Breeze	25-31	Large branches in motion; whistling heard in telegraph wires; umbrellas used with difficulty.
7	Near Gale	32-38	Whole trees in motion; inconvenience felt when walking against the wind.
8	Gale	39-46	Twigs break off trees, generally impedes progress.
9	Strong Gale	47-54	Slight structural damage (chimney pots and slates removed).
10	Storm	55-63	Seldom experienced inland; trees uprooted; considerable structural damage. Sea surface is largely white
11	Violent Storm	64-72	Very rarely experienced. Widespread damage.
12	Hurricane	73+	Devastation. Very poor visibility

Temporary Structure Checklist

Action	Complete? Y/N
The final structure is a safe distance from power lines & other hazards	
Anchors are suitable for the purpose and soil condition	
All ropes, including wire ropes, are sound	
Fabric is tensioned and not dipping/ponding in the middle	
All escape routes are clear of obstructions and sign posted	
Exposed ropes and stakes adjacent to exits and entrances are marked and/or roped off All locking pins and bolts are in place and secure	
All structural supports are sound without cracks or significant dents and not overstressed	
No unrepaired tears in fabric are present	
Carpet and other floor covering is securely fixed so as to minimise the risk of tripping	
Suspended fittings (e.g. lights/heaters) should be properly supported with suitable primary and secondary fixings.	
Walls are securely pegged and/or secured	
The main upright(s) is/are independently guyed where appropriate	
The area outside the exits should be level, uniform and non-slip	
Flame retardant labelling is in place on every panel	
Final all-round visual check to satisfy that tent is erected securely	

Professional Grade Gazebos

The following guidance is based on the City B Bmaxx Pro 46.

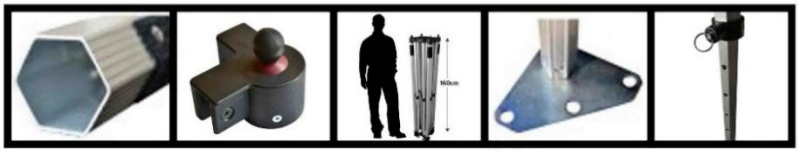
CITY B GROUP

40 Series

40 Series frames are the result of years of development, designed as a fully commercial unit and intended for extended professional use. Manufactured using 46mm hexagonal alloy tubing for the framework with an extended 2 year warranty and carbon fibre re-inforced nylon joints with our unique LIFETIME warranty, they are lighter than our 50Series models, yet remain incredibly strong. Combined with the fully flame retardant fabrics and the option of having them fully branded, 40 Series Instant Shelters are ideal for exhibitors and traders and perfect for any recreational activity.

Frame Specifications

- 46mm diameter hexagonal commercial alloy designed legs
- Stainless steel foot plates
- Carbon fibre reinforced nylon joints
- Warranty on manufacturing faults
- Internal cross bars and double apex
- Robust internal brace system
- Internal ribbing in concertina bars for extra strength
- Quick-Rrelease reinforced spring pull pin system
- 5 position height adjustment



Dimensions

Size	Weight of frame	Package Size
3m x 3m	22.3 kg	160cm x 30cm x 30cm
4.5m x 3m	28.9 kg	160cm x 38cm x 30cm
6m x 3m	37.9 kg	160cm x 49cm x 30cm

Please note that canopy and sidewall weights and package sizes vary depending upon various factors such, print method, quantity of print, how many walls are included in your kit etc.

For further information please email sales@citybgroup.com or call 01782 744961