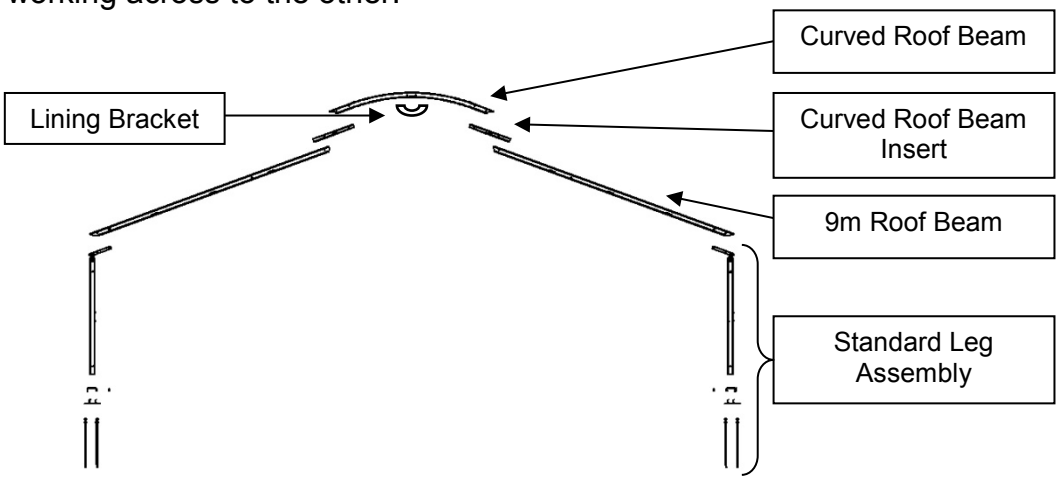
MARQUEE INSTALLATION HANDBOOK

Curved Structures

12m Curved Roof Beam Assembly Instructions

- Ensure there are no overhead or underground obstructions or services before starting to assemble frame.

- Square the marquee as per standard and lay out all the components as below. Assemble each A-Frame starting at the base plate one side and working across to the other.



- The pin that goes through the leg and base plate should be facing outside the tent and secured with an R-clip. (*Note; for the 3m leg configuration, the gable end A frames require additional bracing and this means that the foot pin is replaced by a special M12 eyebolt. This eyebolt should be fitted with the eye on the inside of the structure allowing an R clip to be used to secure the ground rail.)*

- The eave knuckle should then be attached to the top of the leg using two bolts, the lower one using a wing nut, making sure that the end of the eave knuckle with the cut-out for the curtain rail is inserted into the leg. The end of the 9m roof beam with 2 holes in it is then attached to the eave knuckle, and secured using a roof pin through the second hole up the beam.

- The Curved roof beam is then fitted to the first roof beam using a steel insert and in turn, the second roof beam is fitted to that. The steel insert is secured to the first arch with a nut and bolt and two bolts in the end of the curved roof beam.

- Secure the insert into the second and subsequent arches with an eye bolt in the top of the 9m roof beam Single roof wires are required in **all** bays, except one, in the pattern shown on the sketch below; this is to ensure the wind loads are evenly distributed into the frame. Undo each roof wire completely and pass the bolt on the end of the wire **without** the bottle screw through the

holes in the roof beam. Make sure that the wires are in the correct orientation when the A-frames are upright. *See Below.*

- *When a 3m leg configuration is to be used an additional gable bracing is required and the side cross bracing is replaced by wires. Fit the brackets to the gable leg hole in the 9m roof beam and attach the gable support bracing wire.*

- Complete the A-frame by attaching the other eave knuckle, leg, and base plates, using the same holes and bolts as the other side. Assemble the remaining A-frames the same way as the first two.

- If marquee is to be lined, bolt curve beam lining brackets to the underside of each curved beam. It is advisable to attach pulleys and ropes while the A-frames are on the ground to avoid unnecessary ladder work when later fitting linings.

- Once all the bays are assembled, lay the cross bracing wires out by the side of the first bay. Bolt the wires through the first frame with the bottle screws at the lower position. With two people lift the first bay. Hold the frame then lift the second A-frame and bolt the legs into the cross brace wires. *See below.*

- Take an eave rail and insert the curved hook into the bracket on the side of the eave knuckle. Lift the eave rail and drop the straight hook into the opposite eave knuckle bracket (make sure if using bar tension eave rails, the channel is facing inwards). Repeat this process with the purlins using the purlin prop and fitting them into the brackets on the sides of the roof beams. Tension the wall bracing wires to provide a stable first bay.

- To assemble the remaining bays take two eave rails and insert the curved end into the eave knuckles on the bay that is standing, resting the straight hook on the floor. Lift the next A-frame and drop the eave rail into the other eave knuckle bracket. Insert the purlins as before. Fit the roof wire brace as per the sketch below. Assemble the remaining bays in the same way. Add extra wall bracing wires as per the bracing pattern, tensioning to stabilise the frame.

- Attach a base plate to the bottom of the gable leg and bolt the top end through the holes in the roof beams. Adjust the bottom of the gable leg to ensure the leg is stable. For a gable fitted in the centre of a bay, adjust the bottom of the leg and pass it through the bracket on the ridge knuckle, and secure with an R-clip. When using a 3m eave, attach the gable bracing wire to the base plate and tension.

- If the structure is **18m or longer** then an **additional external guy** is required. When the structure is 30m or longer a second external guy is required. *See detail D in drawings below*.

- Once the frame is assembled, throw two ropes with carbine hooks over the frame. One person should then attach the hooks to the D-rings on the PVC roof, making sure the opening is facing upwards, and the bungee flange is on the inside of the roof. Feed the keder into the channel on either side of the roof and pull evenly and together until the roof is all the way over and there is an equal amount of valance hanging down on either side. NOTE: the design of the top hat in the insert is wider than standard to allow a gable leg to pass through when used in the 9m configuration. This makes the purlin vulnerable to being rolled out as the roof sheet is pulled over. TAKE CARE as the roof sheet passes these positions and it may be necessary to manually stabilise them during the install. Repeat this process for all roofs.

- Now take the roof wires and loosen the bottle screws off all the way. Take the wire and attach it to the opposite roof beam on that side of the tent; to the hole nearest to the end of the beam. Make sure all wires are in before tightening the bottle screws. If the wires do not fit in, the tent is either not square or on uneven ground. To tension the roofs, take one end of the bungee cord, pass it over the eave rail, around the leg and hook it back onto itself. Do the same at the other end of the roof and then pass the rest of the hooks over the eave rail and clip them onto the channel.

- The gable PVC will slide into the top channel of the roof beams. Make sure the lacing is facing inwards. They will then lace up and attach to the gable legs by straps. The edges of the roofs and gables can then be covered by the Velcro flaps.

- The walls are fitted by sliding the bottom half followed by the top half of the wall into the leg channel through the cut out at mid height. The walls should have rings at the top and a pocket on the outside at the bottom. Repeat this for the other half of the wall. Take the curtain rail and slide it through the rings at the top of one half of the wall and hook it into the slot on the leg, take the other end of the curtain rail and slide the rings of the other half of the wall and using the adjustable hook, locate the curtain rail in the leg. Lace the walls up, and then slide the ground rail into the pocket at the bottom of the wall, securing it at either end using the base plate pins and R-clips. On the gable ends, corner brackets should be fitted to the base plates at each corner to locate the ground rail on the gable side. Once the walls have been fitted and you are happy with the position of the marquee, drive the stakes fully in to the ground.

Note: Dismantle in reverse

Wind Management

Wind management extract from Temporary Demountable Structures published by the Institute of Structural Engineers (4th Edition).

The operational maximum gust speed should be taken as a three second gust measured 10m above ground level

Two levels of warning are suggested;

Level 1; When wind monitoring registers a gust wind speed in excess of 75% operational maximum gust speed in conjunction with an increasing general trend of recorded wind speed. Staff to be put on alert that action may be required. If erection in progress consideration to be taken whether to delay erection.

Level 2; When wind monitoring registers a gust wind speed in excess of 90% of operation maximum gust speed in conjunction with an increasing trends in wind speed the operational management plan should be implemented and the site secured against access by the public.

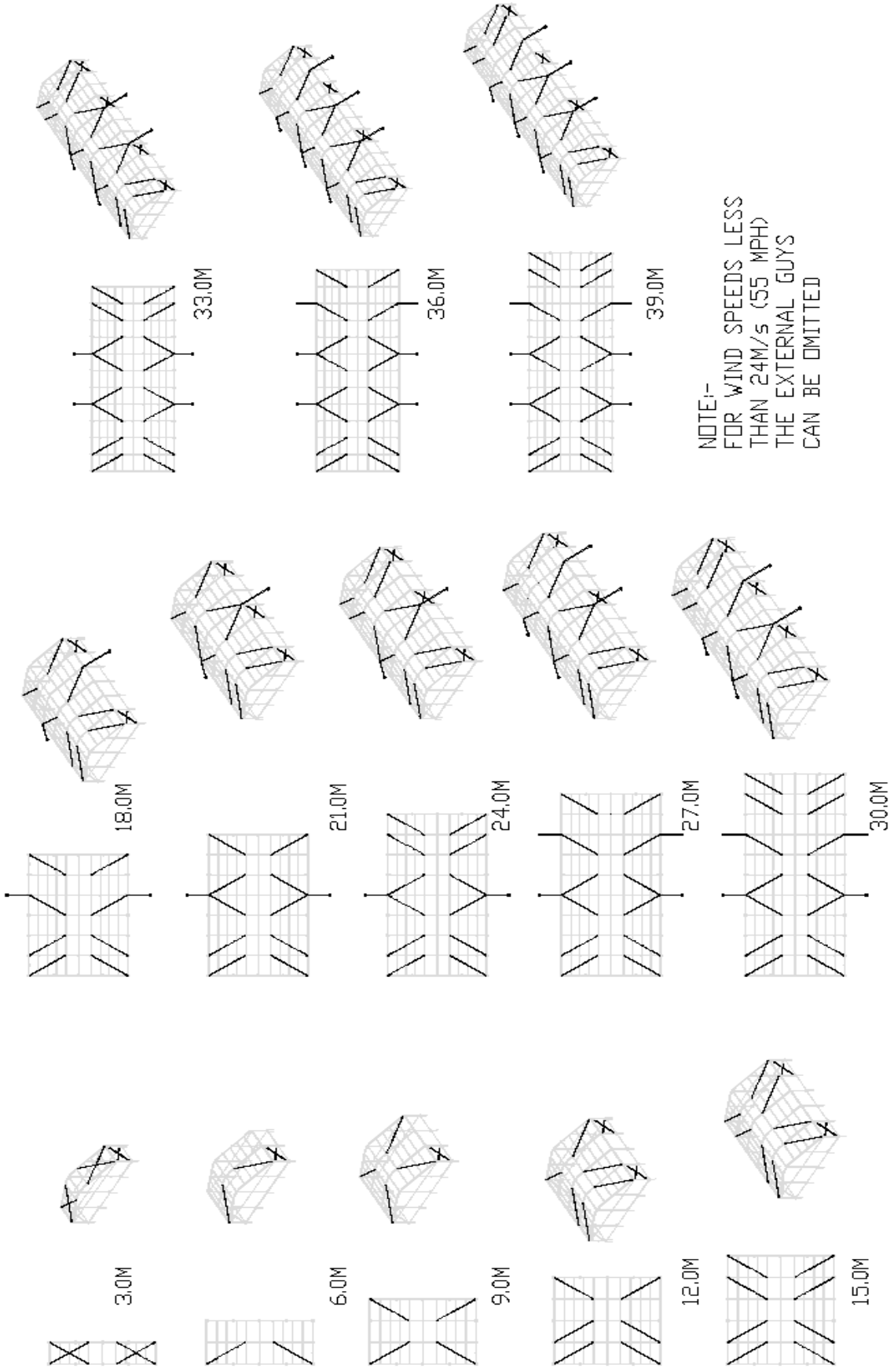
If an isolate gust exceeds either limit against a background of a decreasing trend in wind speed then further monitoring may be appropriate

CC structures	Design wind speed (mph)	Level 1 75% alert level (mph)	Level 2 90% action level (mph)
Standard 3,6, 9m frame Standard 15m frame Curved 3,6,9 & 12m frame	62	46.5	55.8

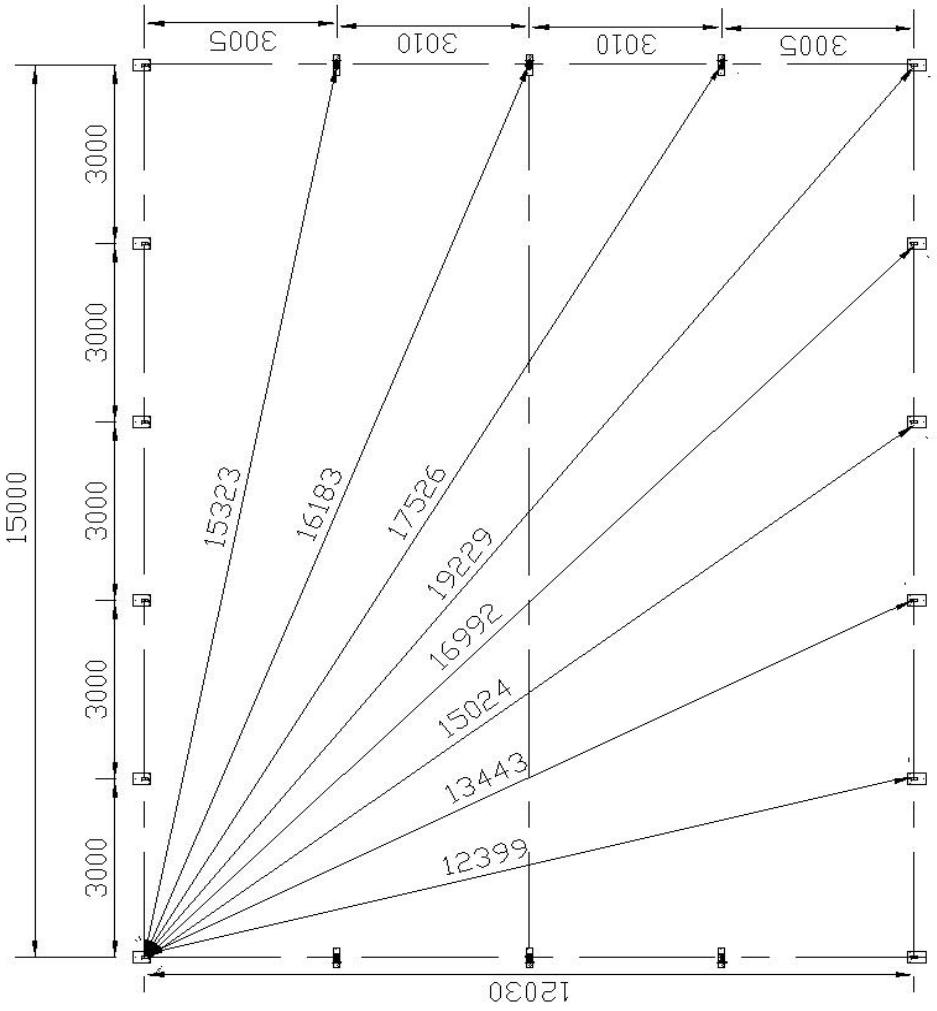
When Level 1 is reached the structures should be checked to ensure that all stakes and ballast are firmly in place and that all openings are securely closed. Consideration should be given to providing additional forms of protection by adding additional guying where possible

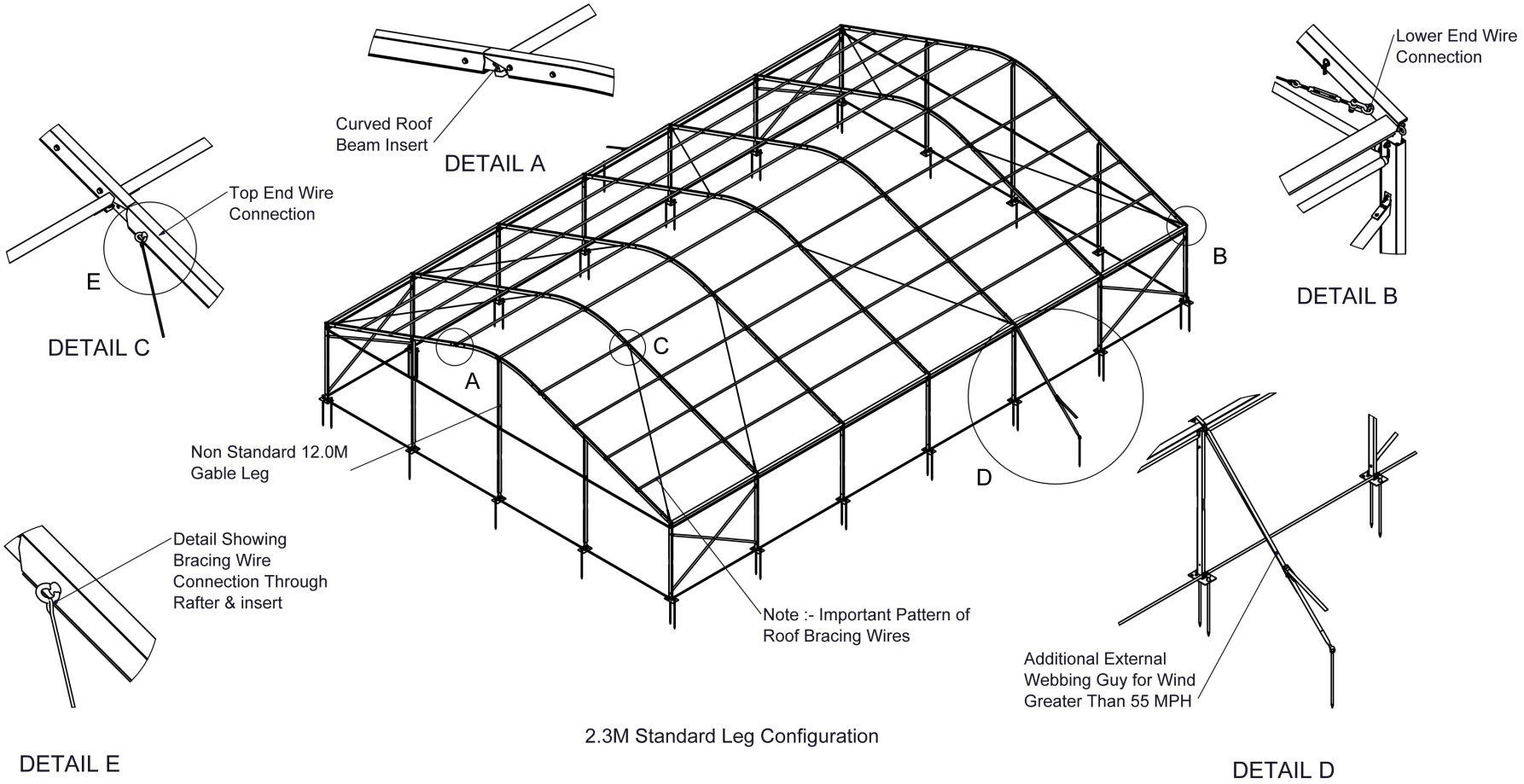
When level 2 is reached evacuation is necessary for all but safety critical staff

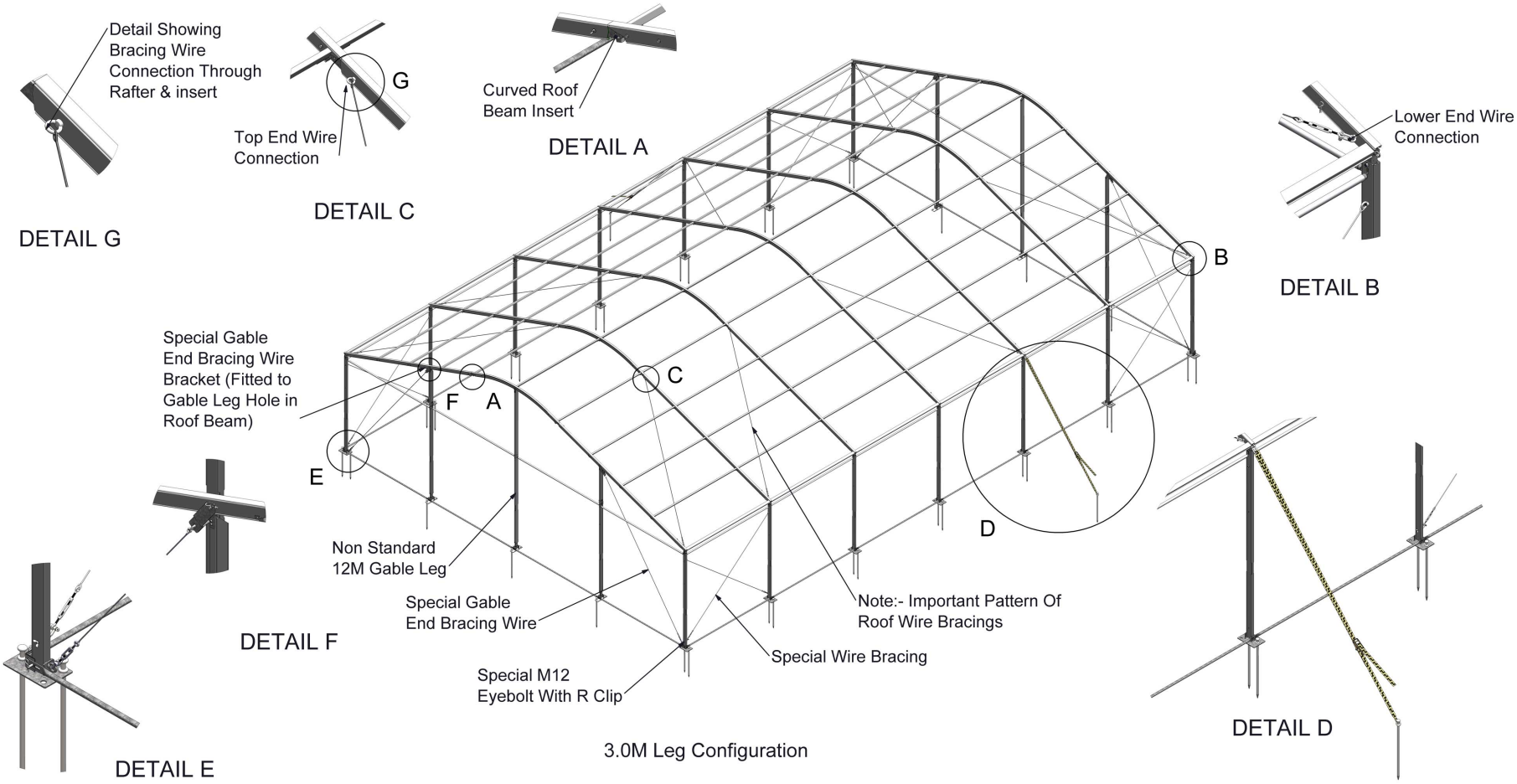
12m Curved Roof Beam Bracing Requirements

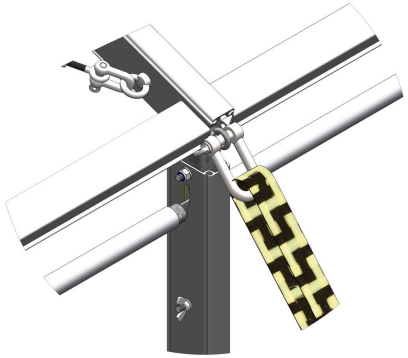


12m Curved Roof Structure Base plate layout

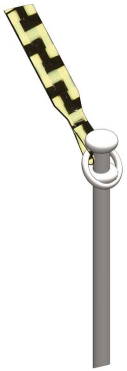



Curved Roof
Beam Insert
DETAIL A
Top End Wire
Connection
E
DETAIL C
Lower End Wire
Connection
B
DETAIL B
A
C
D
Non Standard 12.0M
Gable Leg
Detail Showing
Bracing Wire
Connection Through
Rafter & insert
Note :- Important Pattern of
Roof Bracing Wires
Additional External
Webbing Guy for Wind
Greater Than 55 MPH
2.3M Standard Leg Configuration
DETAIL E
DETAIL D

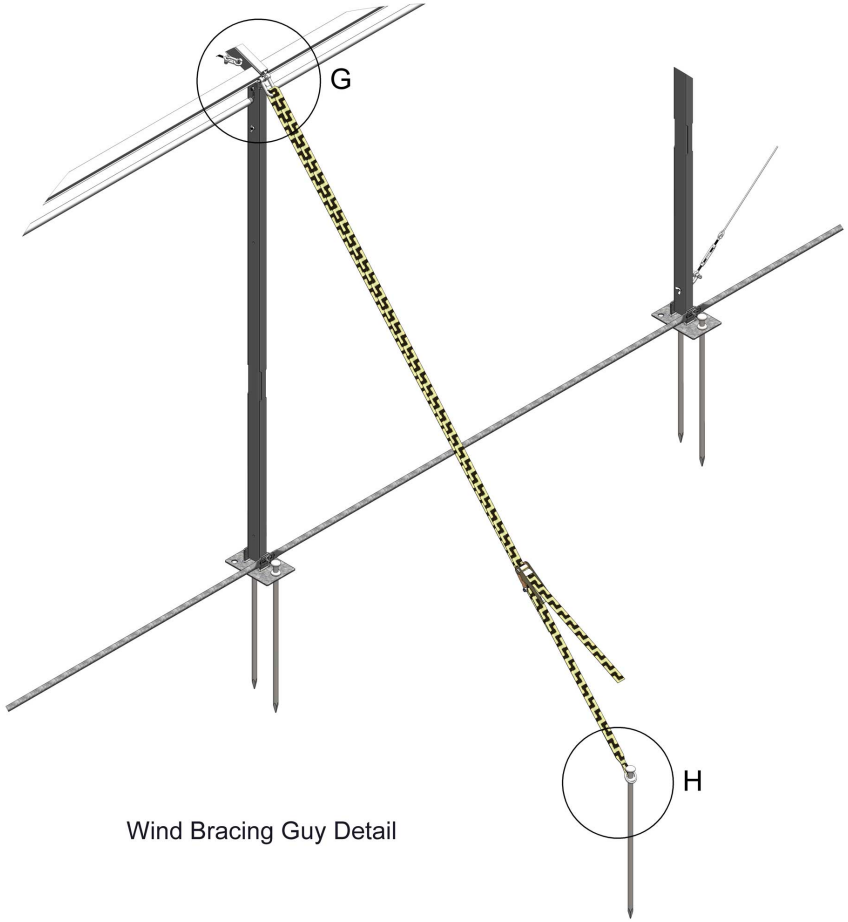

Detail Showing
Bracing Wire
Connection Through
Rafter & insert
DETAIL G
G
Top End Wire
Connection
DETAIL C
Curved Roof
Beam Insert
DETAIL A
Lower End Wire
Connection
DETAIL B
B
C
F
A
E
D
Special Gable
End Bracing Wire
Bracket (Fitted to
Gable Leg Hole in
Roof Beam)
Non Standard
12M Gable Leg
Special Gable
End Bracing Wire
Special M12
Eyebolt With R Clip
Special Wire Bracing
Note:- Important Pattern Of
Roof Wire Bracings
DETAIL F
DETAIL E
DETAIL D
3.0M Leg Configuration



DETAIL G



DETAIL H



Wind Bracing Guy Detail

90º Walkway Assembly Instructions

- Assemble 3m bay adjacent to desired 90º turn location. Half stake for stability
- Bolt the eave spacer knuckle to the holes at the top of the leg, on the inside of the curve, of the assembled bay. It may be attached on either side to give a right or a left swing.
- Assemble another full A-frame in the new direction of the walkway. Lift the frame up to meet the eave spacer knuckle and bolt into position. This defines the 90º turn.
- The intermediary A-frame is assembled, less one leg, and the roof beam bolted to the eave spacer knuckle. This defines the two 45 º sections of the roof.
- Do not stake foot plate at this stage.
- Fit eave purlins and ridge purlins by inserting the curved hooks into the brackets and then using a purlin prop to fit the other ends. The foot plates on the legs can now be half staked.
- The 45 º PVC roofs are fitted through the kader track as standard. NOTE: you must fit the roof panels from the thin (inside of the turn) end of the roofs. Ensure that the roof is pulled over evenly (to avoid snagging) using two throw ropes attached to the D-rings. The roofs can now be bungeed to the eave rails.
- PVC walls are fitted as standard using the kader tracks and hanging off the curtain rails. Lace together with the lacing on the inside and tension with the ground rails.

Note: Dismantle in reverse