HIRE AND RENTAL INDUSTRY ASSOCIATION LIMITED

EVENTS DIVISION

Temporary Structure / Marquee Weighting Guide

HIRE AND RENTAL INDUSTRY ASSOCIATION LIMITED
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Issue No. 1
Feb 2009

INTRODUCTION

EVENTS DIVISION

Temporary Structure / Marquee Weighting Guide

This guide has been put together by concerned members of the Events Division of the HRIA Ltd, including manufacturers, suppliers, rental companies and end users. It has been produced to offer guidance with regards to the safety and stability of marquees or temporary structures in outdoor areas.

The traditional methods of stability have been pegging and weighting. However, in recent years, with the increasing focus on OH&S and regulations, it has become harder and harder to use pegging because of concerns for underground services and ground quality.

Weighting has become the favoured method of achieving safety and stability with temporary structures, particularly in outdoor public areas.

This guide attempts to give all members a realistic weight guide to ensure the structure is safe. The easy to read table is based on Terrain Category TC 2.5, which covers the majority of locations. The chart defines, through bay size and width, the weight required for each leg. Also included are a number of drawings and photos showing typical methods of attaching the weights and boxes to the legs.

Members of the HRIA Events Division work to this standard as a general guide and are encouraged to share this information with other interested parties such as councils and event venues.

Feedback is welcomed. Please contact the HRIA by email: info@hireandrental.com.au or phone 1800 015166 if you wish to comment or suggest on the guide and its contents. It can be downloaded from the HRIA webpage.

As with all guides of this nature your attention is drawn to the disclaimer. Also remember that you are responsible for OH&S, so if in doubt please consult the appropriate competent persons or engineer if you feel unsure about terrain or wind rating or location.

We hope you find the document useful and relevant.

Phil Newby
HRIA Ltd CEO

Geoff Tucker
Events Division President

This guide could not have been put together without the help and support of the following members:
Harry the Hirer Pty Ltd
No Fuss Events Pty Ltd
Go Hire Pty Ltd
Harts Distribution

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WEIGHTING GUIDE TABLE
(Based on Terrain Category 2.5)

Terrain Category (TC) 2.5 has been used as (TC) 3 specifies numerous closely spaced obstructions. i.e. Terrain with moderately closely spaced obstructions 3m to 5m such as areas on the fringes of suburban areas and country towns.

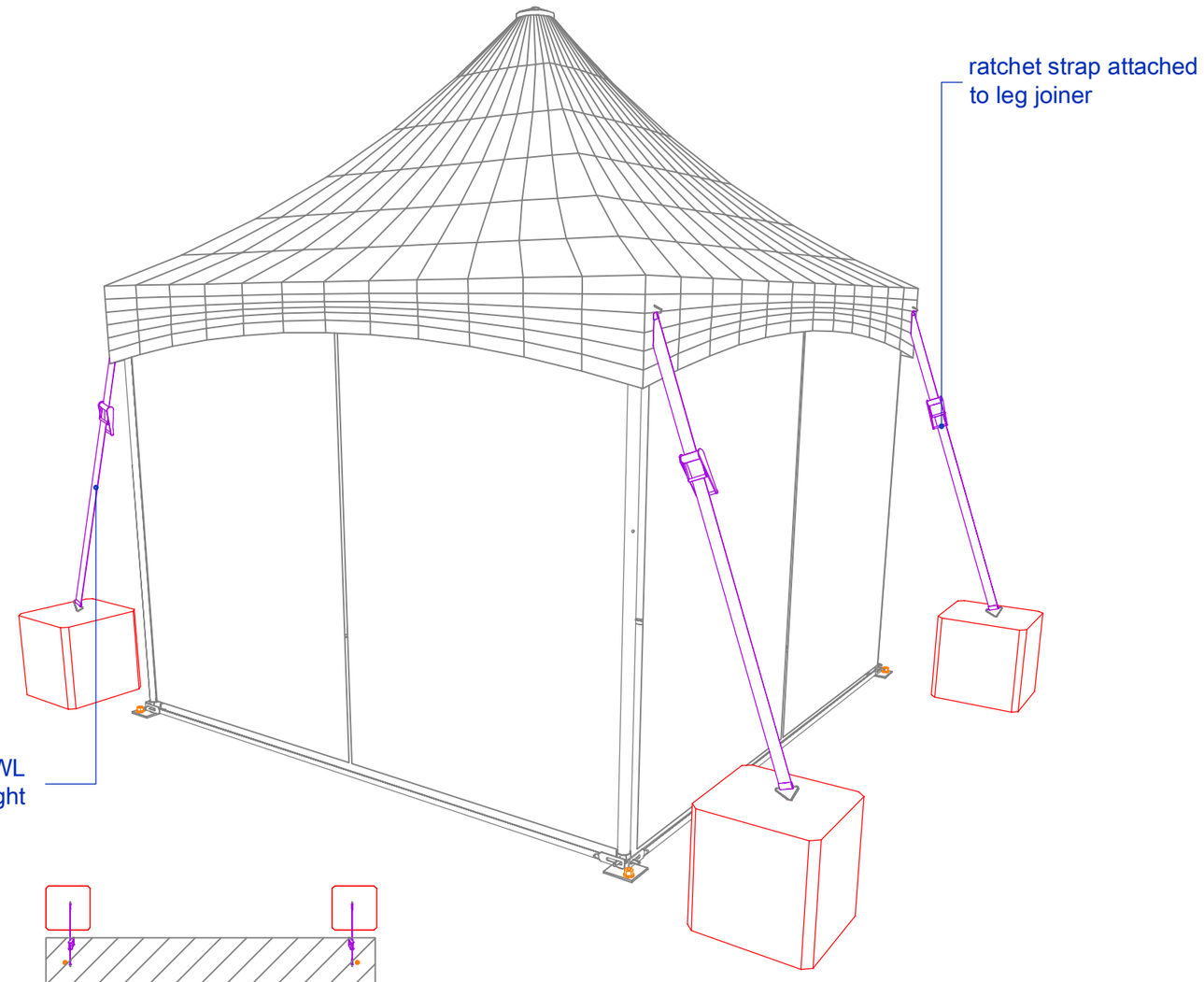
NB: Check Terrain Category with Local Authorities or Engineer if in doubt.

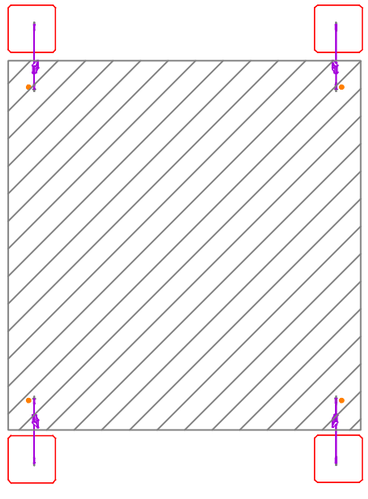
STRUCTURE WIDTH (m)	BAY WIDTH (m)	WEIGHT PER LEG (kg)	OR	No. of DYNABOLTS PER LEG
3	1.5	120		1
3	3	120		1
4	3	200		1
5	3	200		2
6	3	200		2
7	3	225		2
8	3	225		2
9	3	225		2
10	3	250		2
10	5	700		3
12	5	1000		3
15	5	1200		4
20	5	1600		4
25	5	2000		4

DISCLAIMER: This weighting guide has been produced for the use of Hire & Rental Industry Association Ltd members to offer guidance on the aspects of weighting structures as per the document. The information contained in the guide may be changed from time to time without notice. Members may verify the currency of the guide by contacting the HRIA Ltd directly by phone 02 9997 5166 or email info@hireandrental.com.au. The information contained within does not replace or replicate existing instructions, procedures, manuals, warnings or other programs available to owners or users of temporary structures. All information in the guide is given in good faith and is derived from sources believed to be accurate. However, the HRIA Ltd makes no representation as to the accuracy or completeness of this information and takes no responsibility for any damages or losses resulting from the use of the guide.

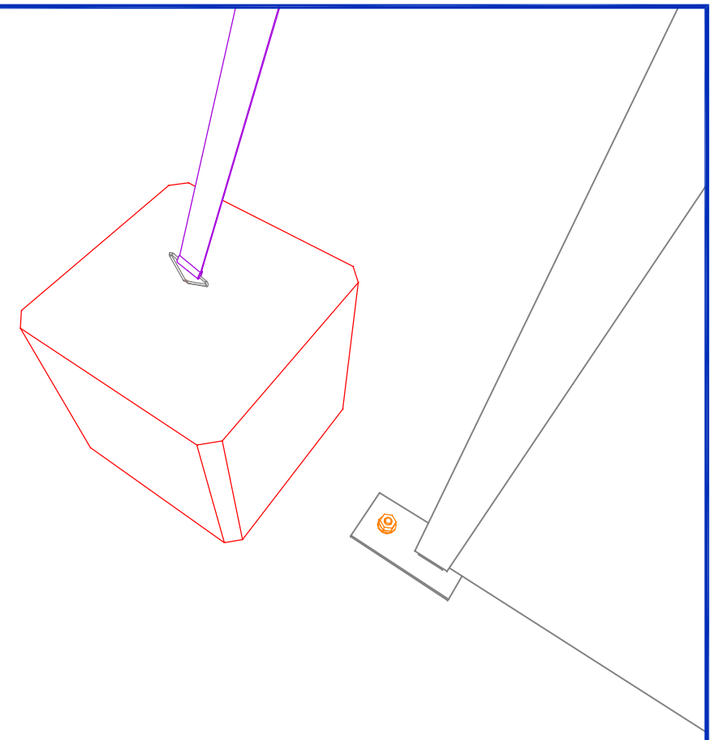
NOTE:

1. Maximum roof peak height of 10m used for design (includes structures erected on raised platforms)., e.g. 0-10m is the same formula for wind speed calculations i.e. if the structure is on a raised area 3m high, the wind speed is calculated at the same speed as ground level.
2. Design for roof only allows for maximum of 50% of the walling installed. This is worst case scenario.
3. Maximum leg height of 3000mm.
4. Terrain category multipliers Md=1.0, Mt=1.0 & Ms=0.85 have been used for design.
5. Roof pitch of 18 degrees used for design.
6. Weights can be tied down from top of leg with tie-downs of capacity equal to hold down weight minimum.
7. Dynabolt limitations – numbers stated are for M16 Dynabolts, 70mm min embedment, 155mm min spacings, min edge distance on slab 80mm.
8. Min structural thickness of slab for Dynabolt fixing of 110mm & min concrete strength of F'c=25MPa.
9. To reduce slippage it is suggested that a carpet tile or rubber mat be placed under the foot-plate weight. This will also serve to protect the venue surface.
10. Where structures are located side by side the weight guidelines per leg still need to be followed.
11. For make and model specific loadings seek advice from the manufacturer or your structural engineer.
12. Various weight systems can be used as long as they are directly attached to the structure. See examples attached or as specified by the manufacturer.

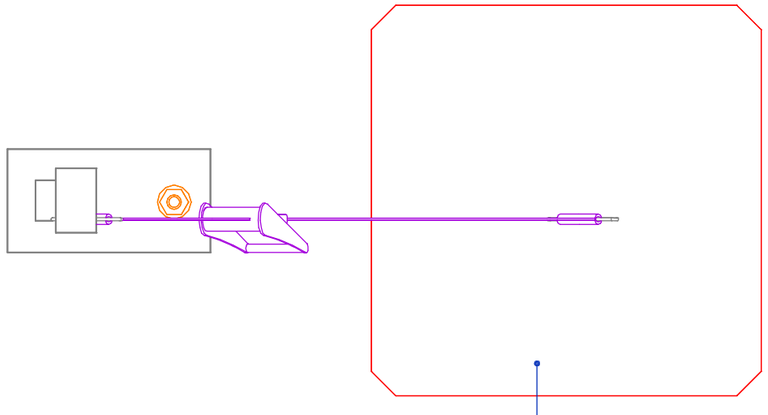




x1 weight per leg refer table
for weight requirements



PERSPECTIVE ELEVATION: Concrete Weight Detail



TOP ELEVATION: Concrete Weight Detail

3x3m & 4x4m FETE STALL_MARQUEE

Revised: James Weeding	**Rev Date:** 18/04/08	**Revision:** 2	
Drawn: James Weeding	**Dwn Date:** 15/04/08	**Scale:** NTS	A3

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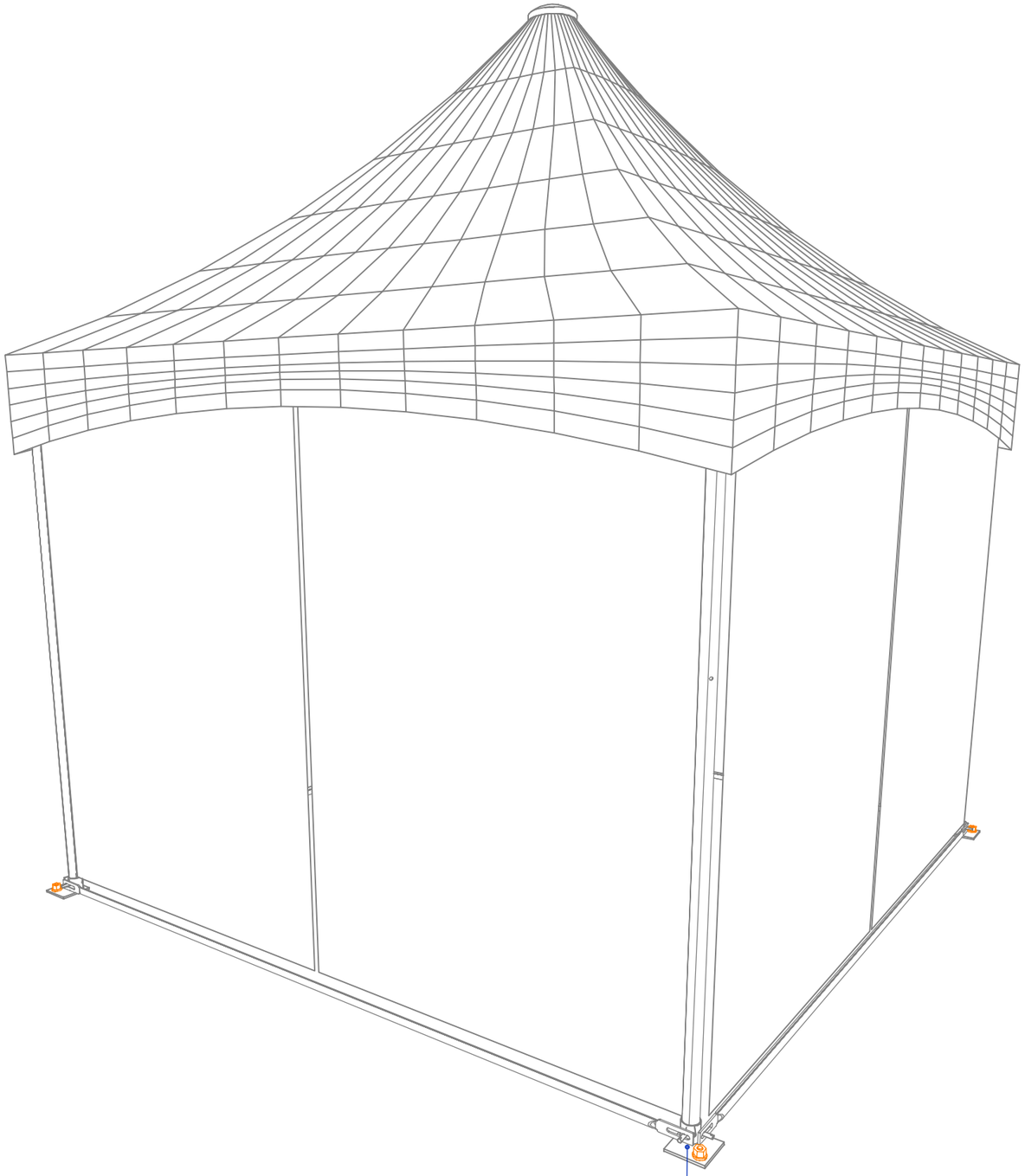
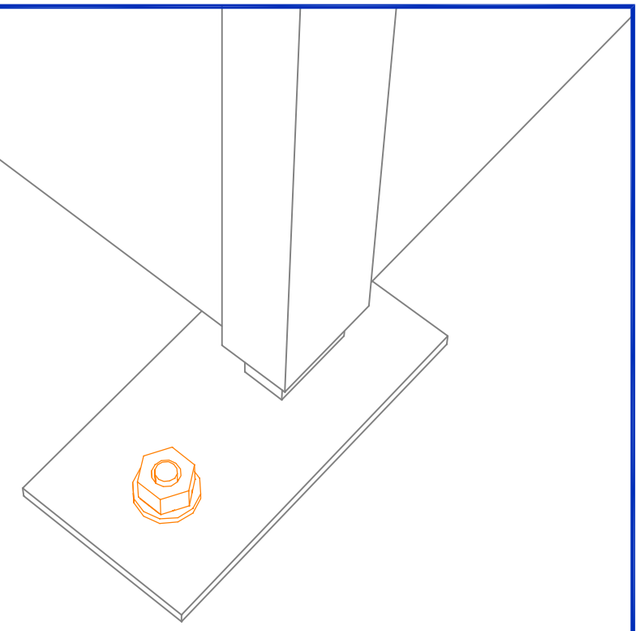
CLEARSPAN STRUCTURE

Weighting Guidelines

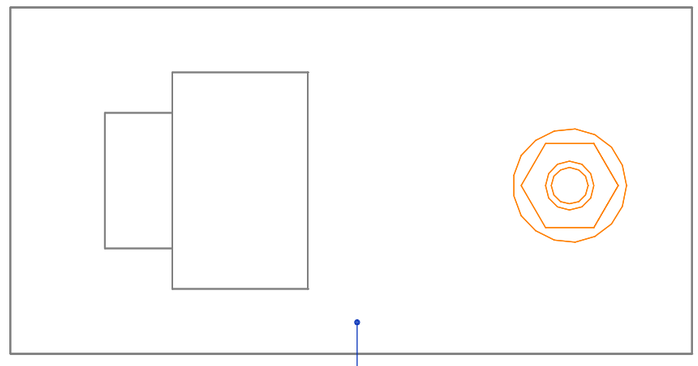
April 2008



x1 M16 Dyna bolts OR
x1 Structure pegs
every footplate



PERSPECTIVE ELEVATION: Footplate Detail



M16 Dyna bolts minimum
embedment 85mm

TOP ELEVATION: Footplate Detail

3x3m & 4x4m FETE STALL_MARQUEE (2)

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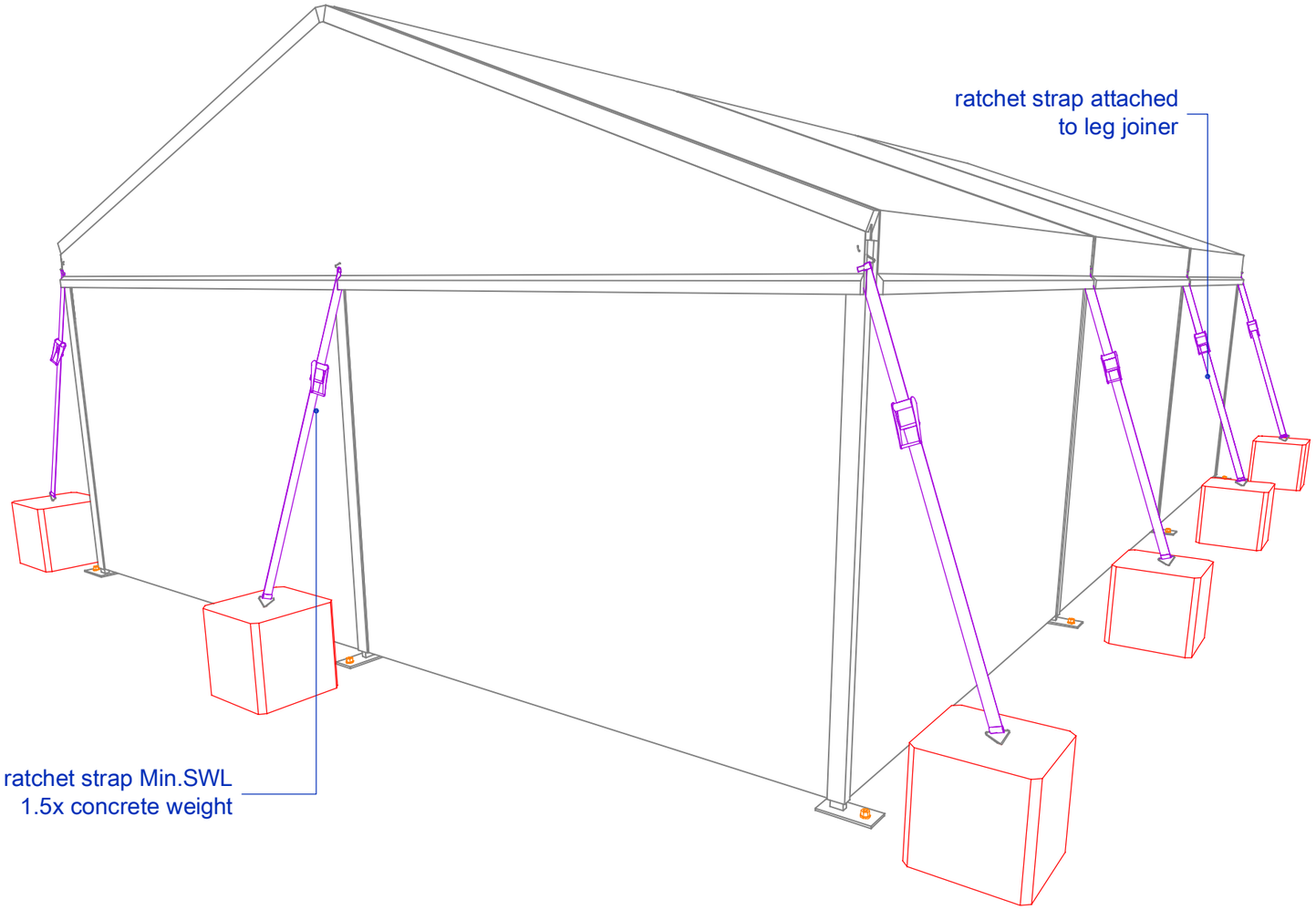

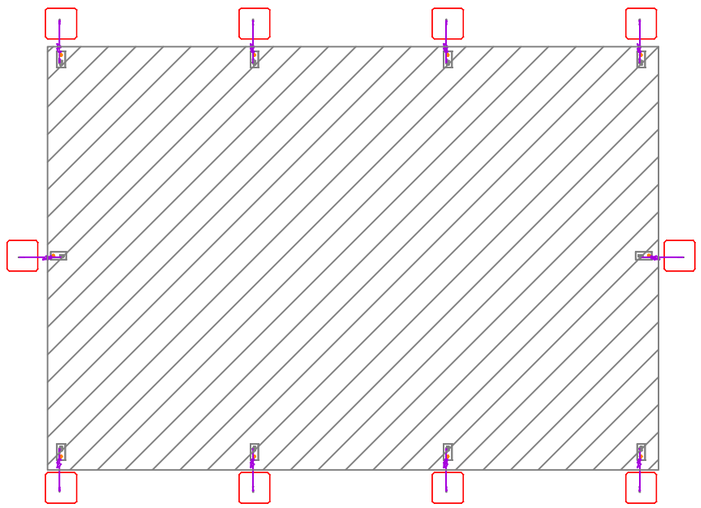

x1 weight per leg refer table
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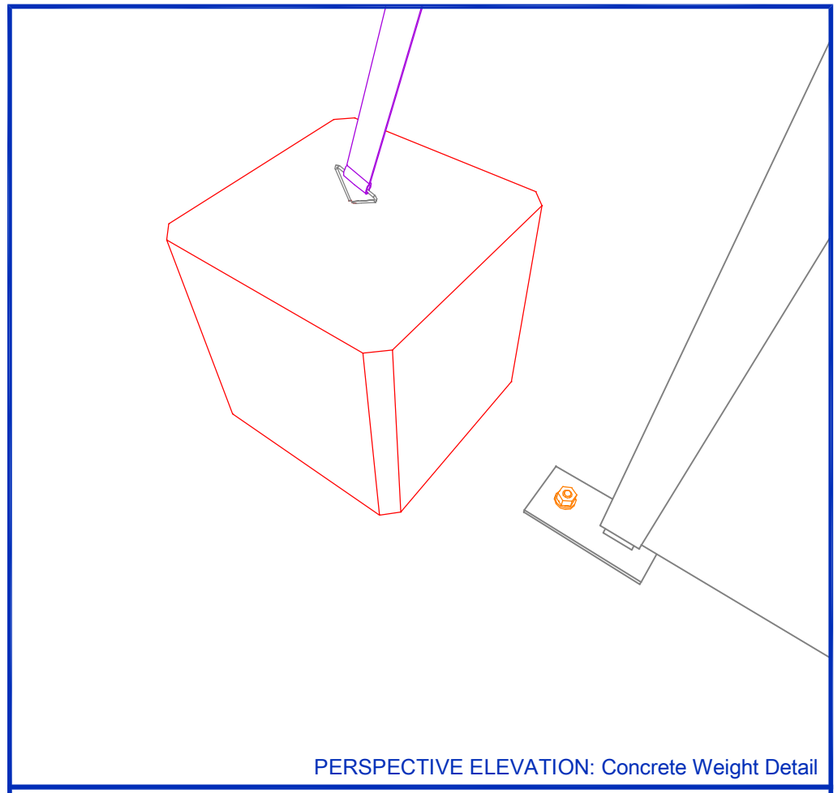
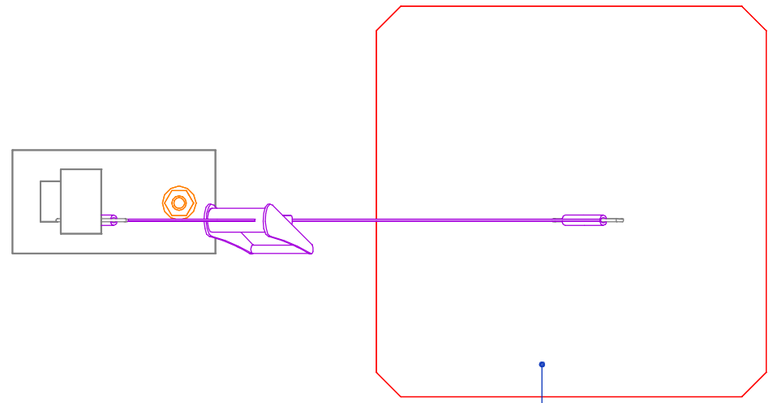


PERSPECTIVE ELEVATION: Concrete Weight Detail



TOP ELEVATION: Concrete Weight Detail

3m_4m&6m STRUCTURE

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CLEARSPAN STRUCTURE

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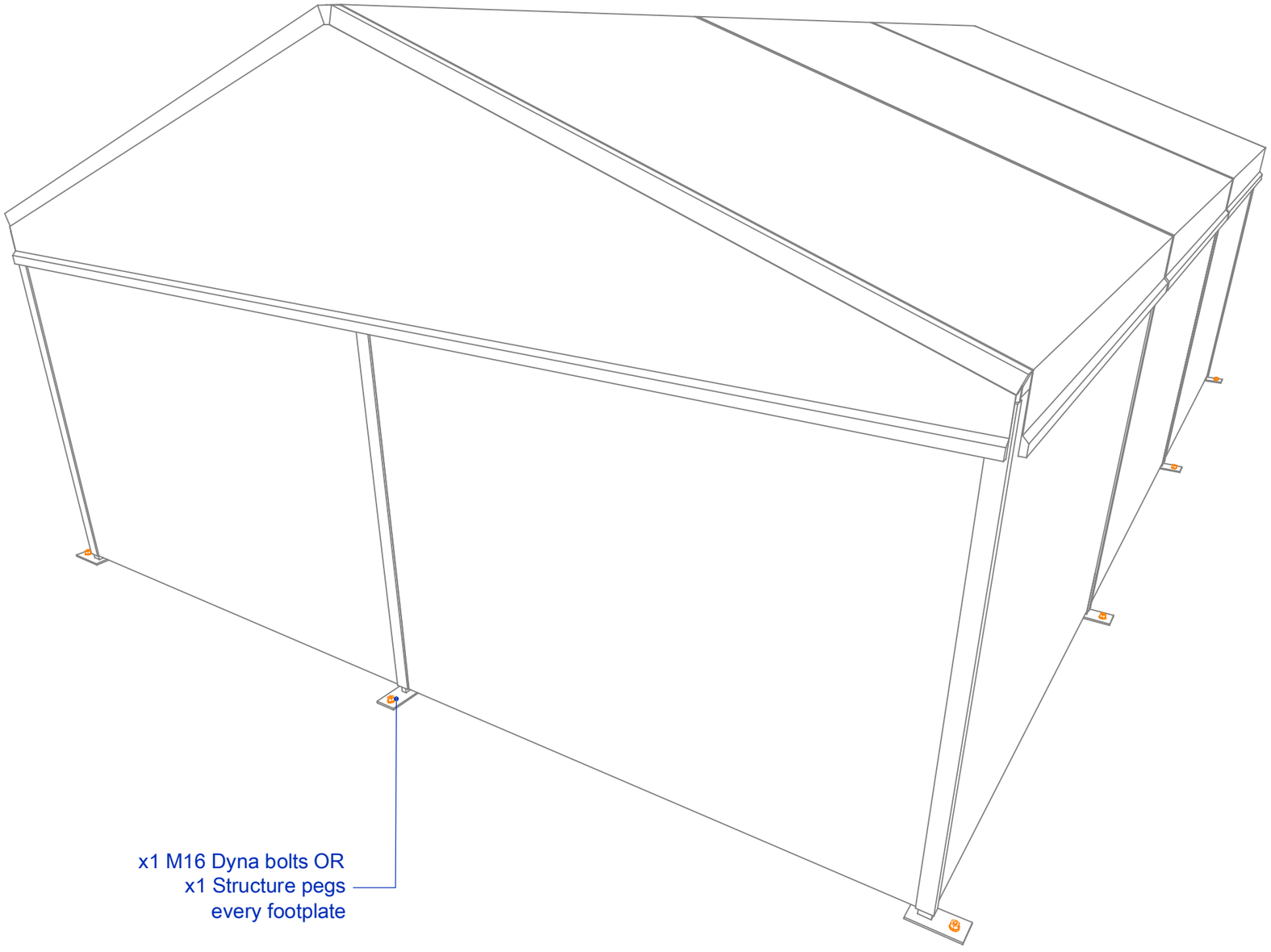
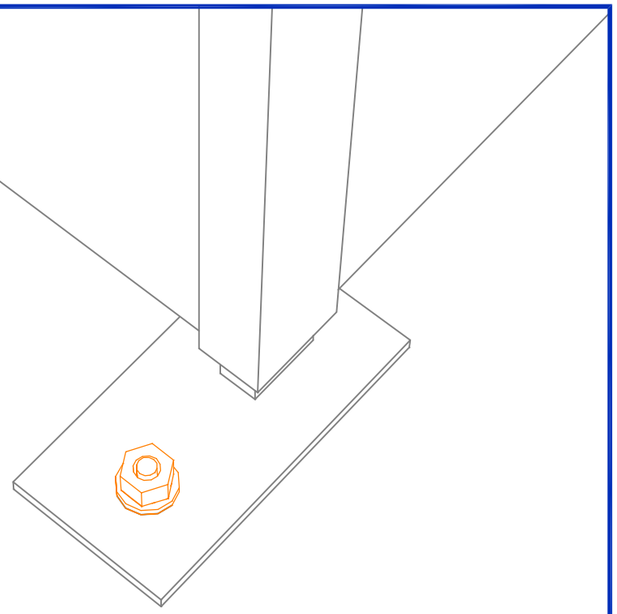
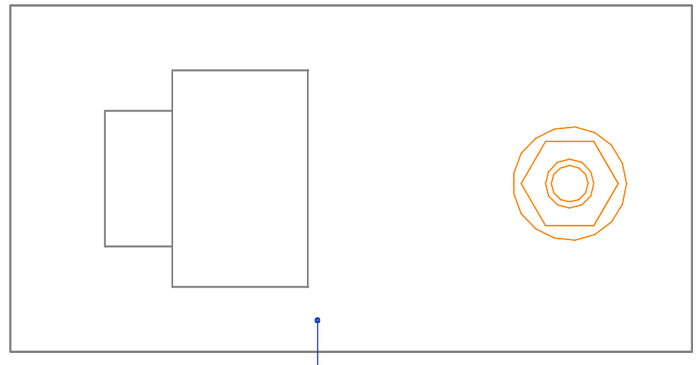


x1 M16 Dyna bolts OR
x1 Structure pegs
every footplate

M16 Dyna bolts minimum
embedment 85mm



PERSPECTIVE ELELVATION: Footplate Detail



TOP ELEVATION: Footplate Detail

3m_4m&6m STRUCTURE (2)

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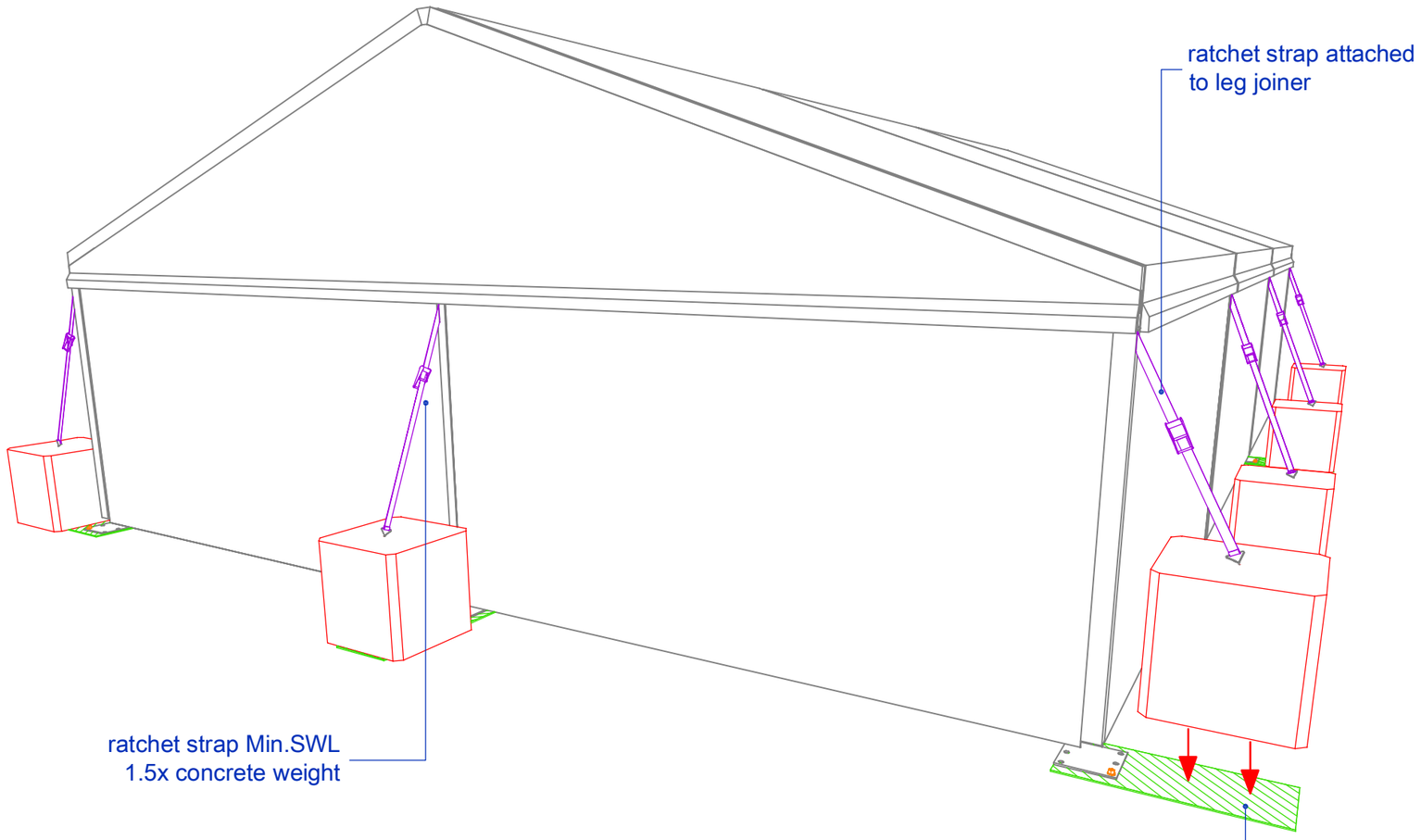
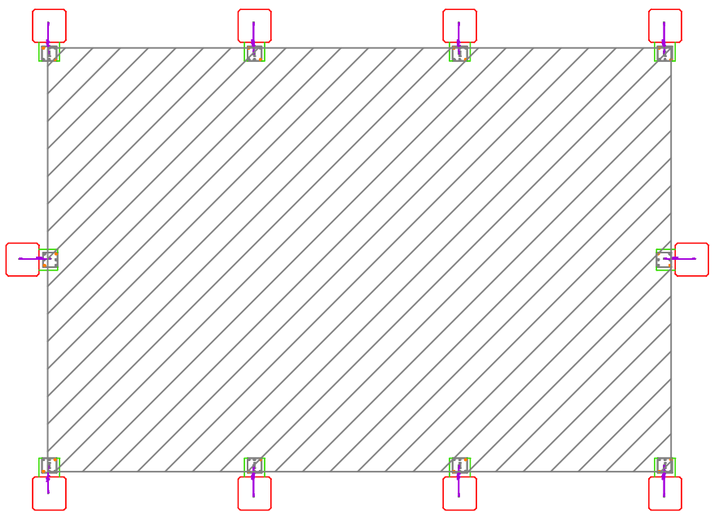
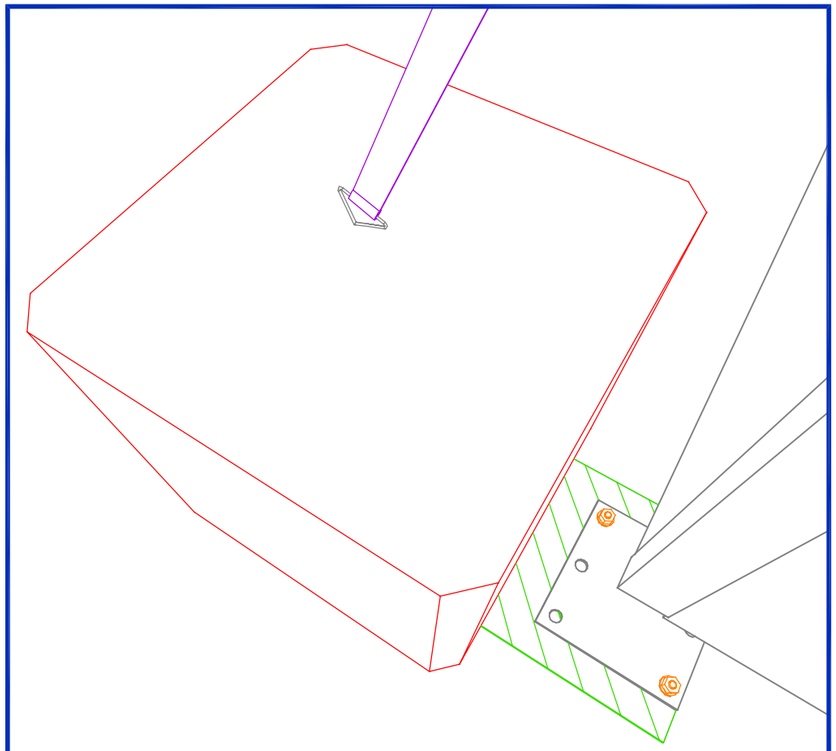
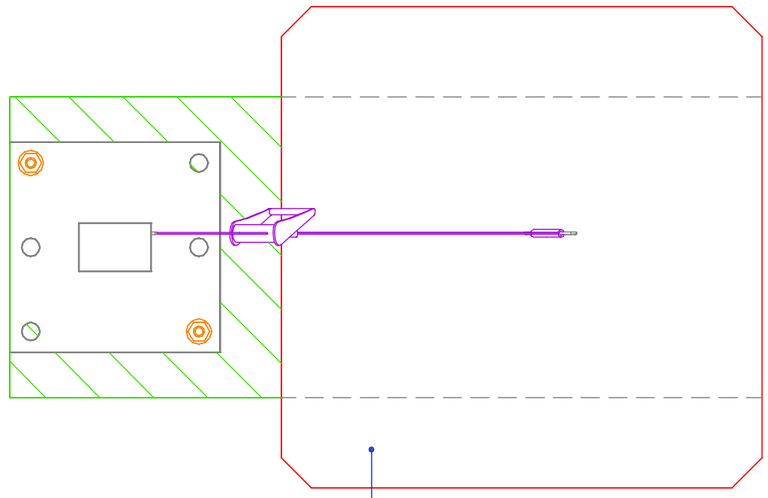






PERSPECTIVE ELEVATION: Concrete Weight Detail



TOP ELEVATION: Concrete Weight Detail

8m_9m&10m STRUCTURE

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Weighting Guidelines

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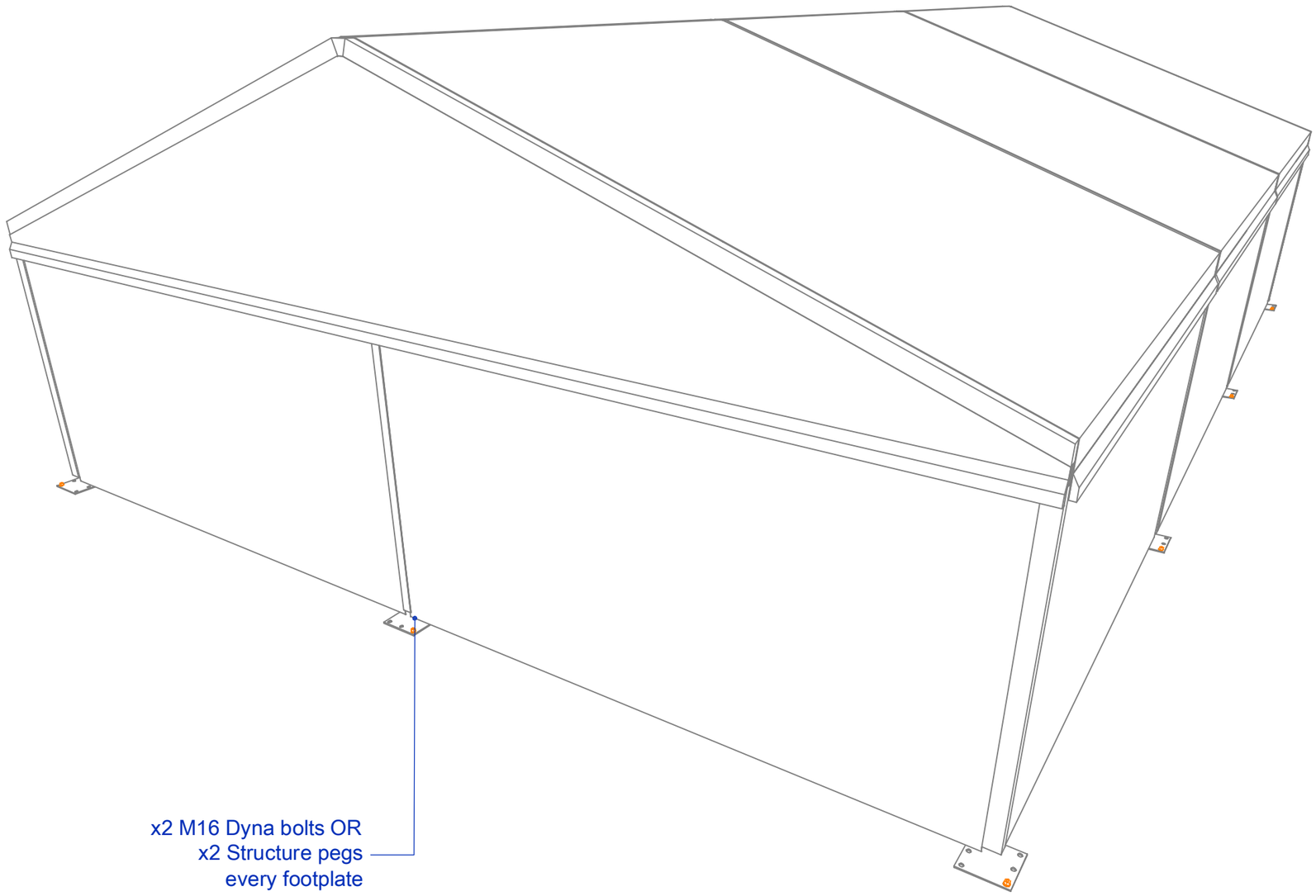
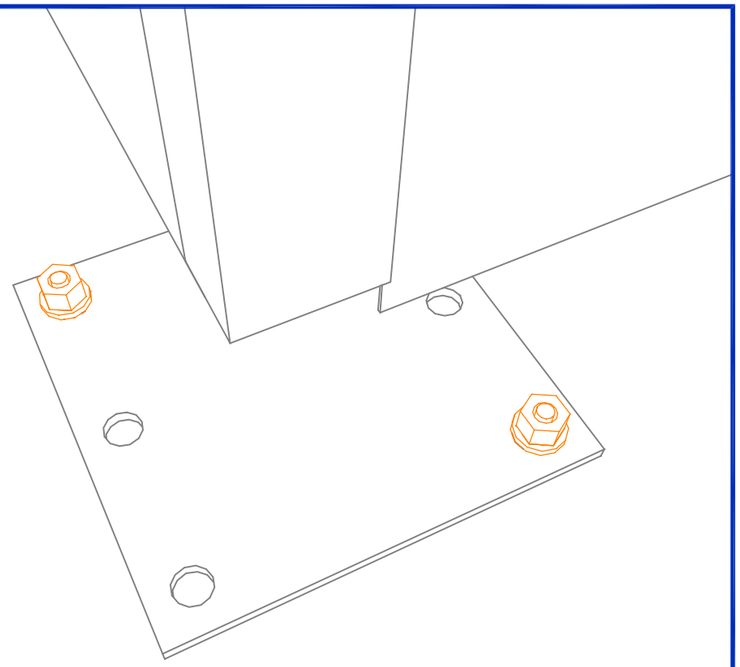
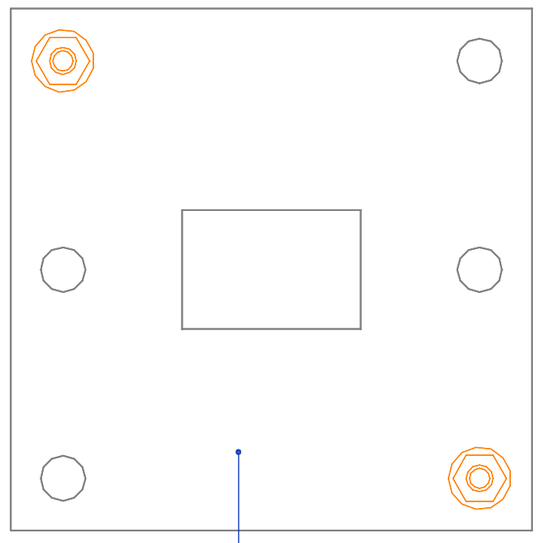


x2 M16 Dyna bolts OR
x2 Structure pegs
every footplate



PERSPECTIVE ELEVATION: Footplate Detail



M16 Dyna bolts minimum
embedment 85mm

TOP ELEVATION: Footplate Detail

8m_9m&10m STRUCTURE (2)

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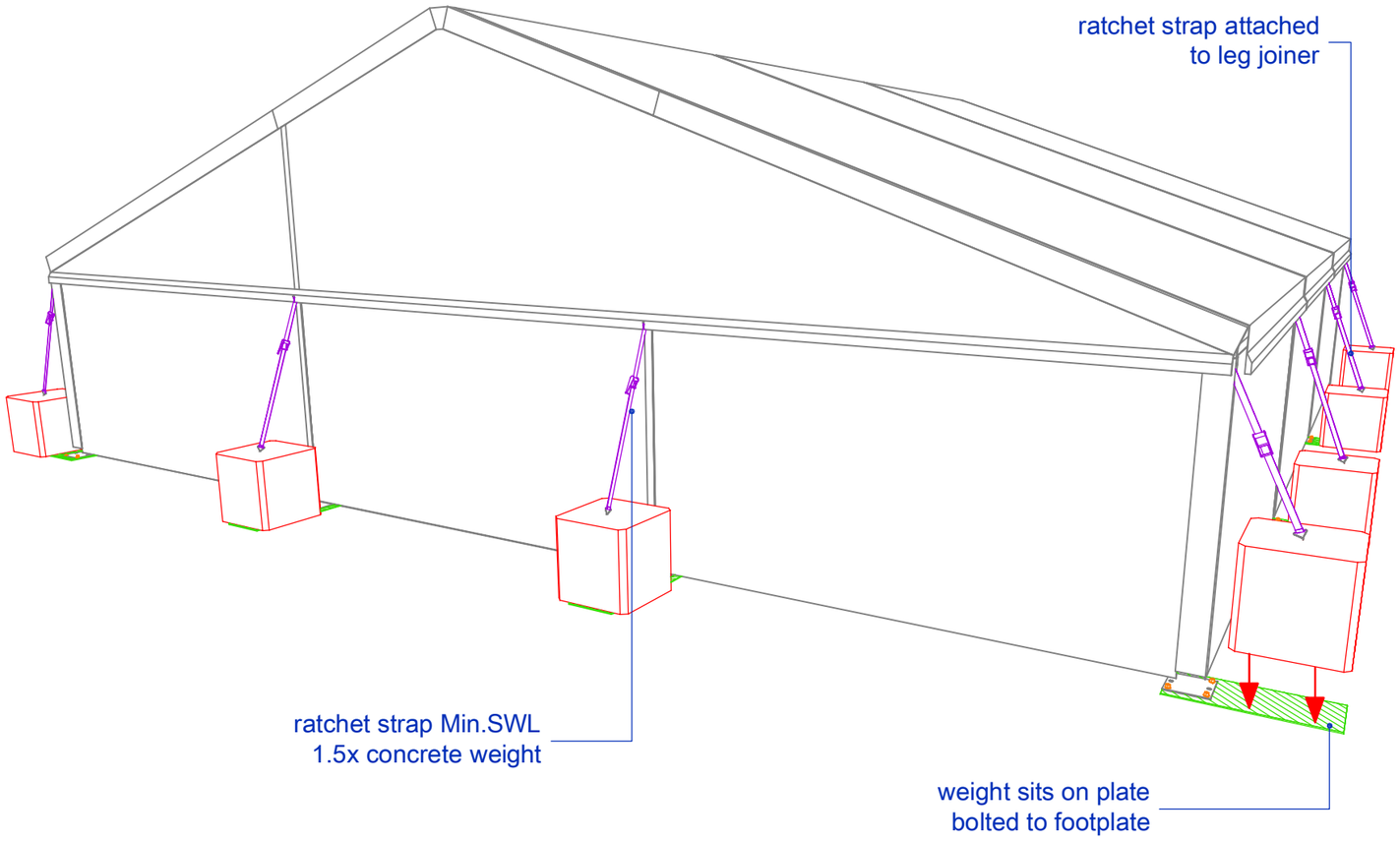
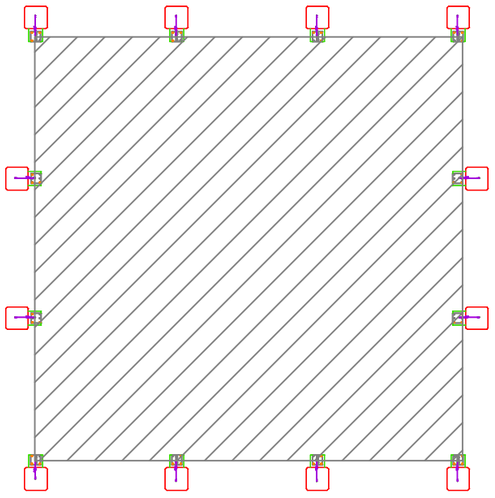
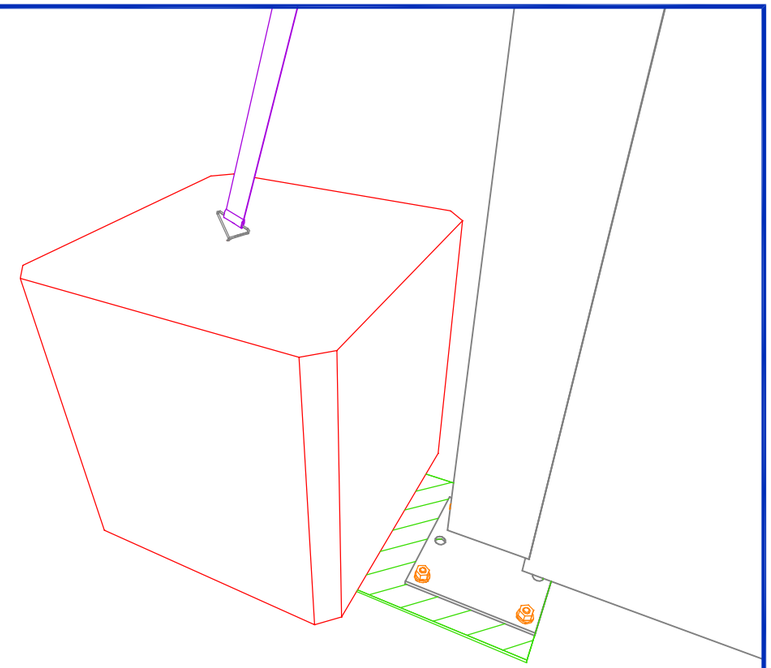
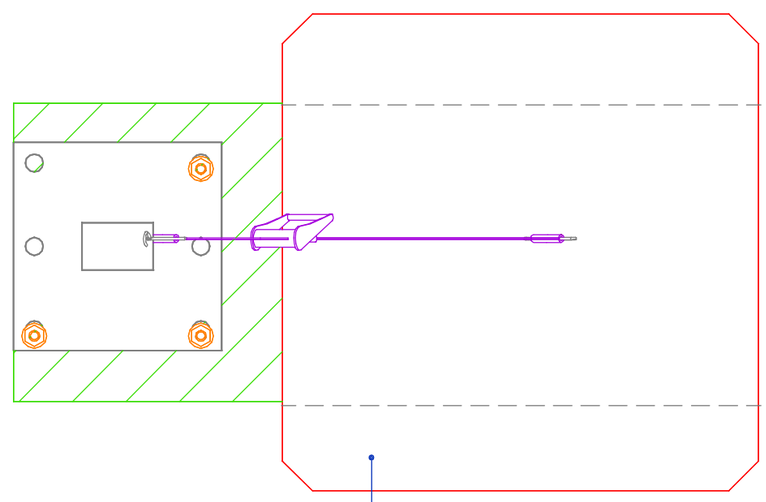






PERSPECTIVE ELEVATION: Concrete Weight Detail



TOP ELEVATION: Concrete Weight Detail

15x15m WEIGHT GUIDELINES

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CLEARSPAN STRUCTURE

Weighting Guidelines

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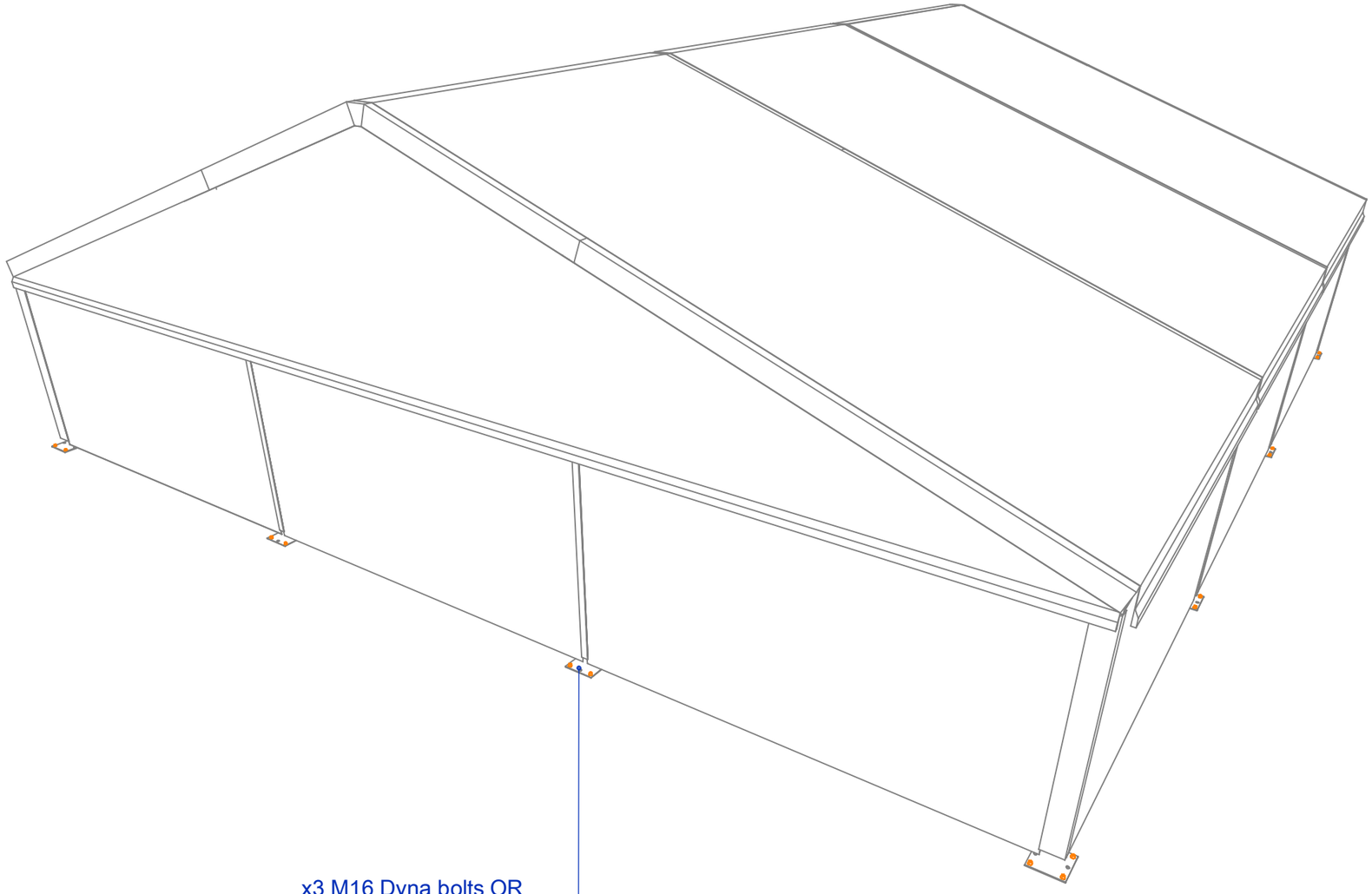
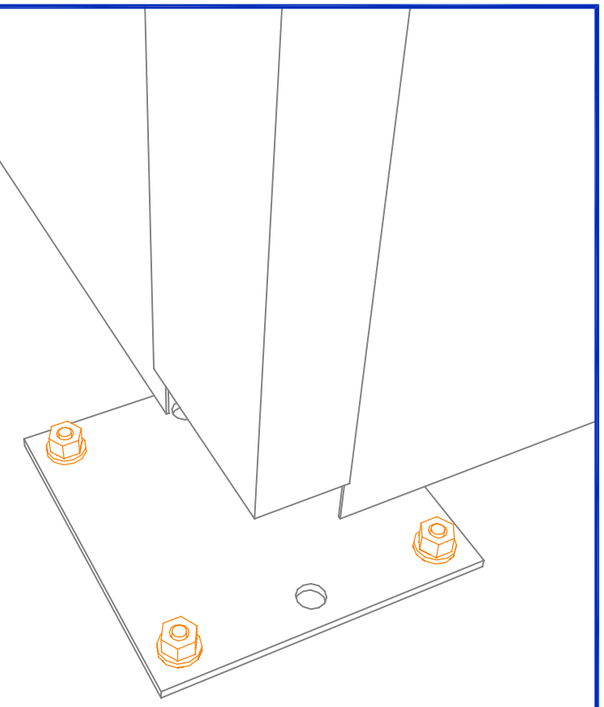
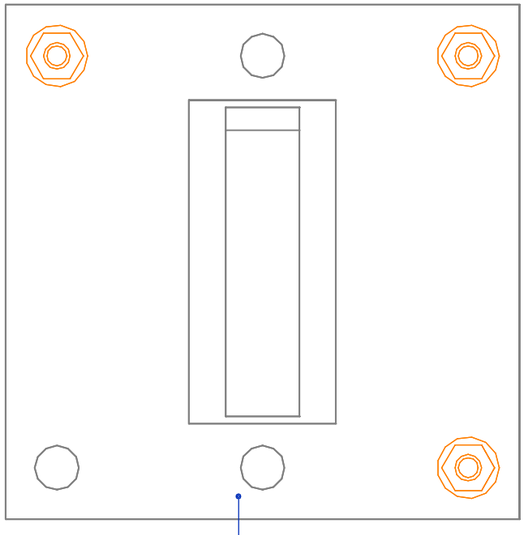


x3 M16 Dyna bolts OR
x3 Structure pegs
every footplate



PERSPECTIVE ELEVATION: Footplate Detail



M16 Dyna bolts minimum
embedment 85mm

TOP ELEVATION: Footplate Detail

15x15m WEIGHT GUIDELINES (2)

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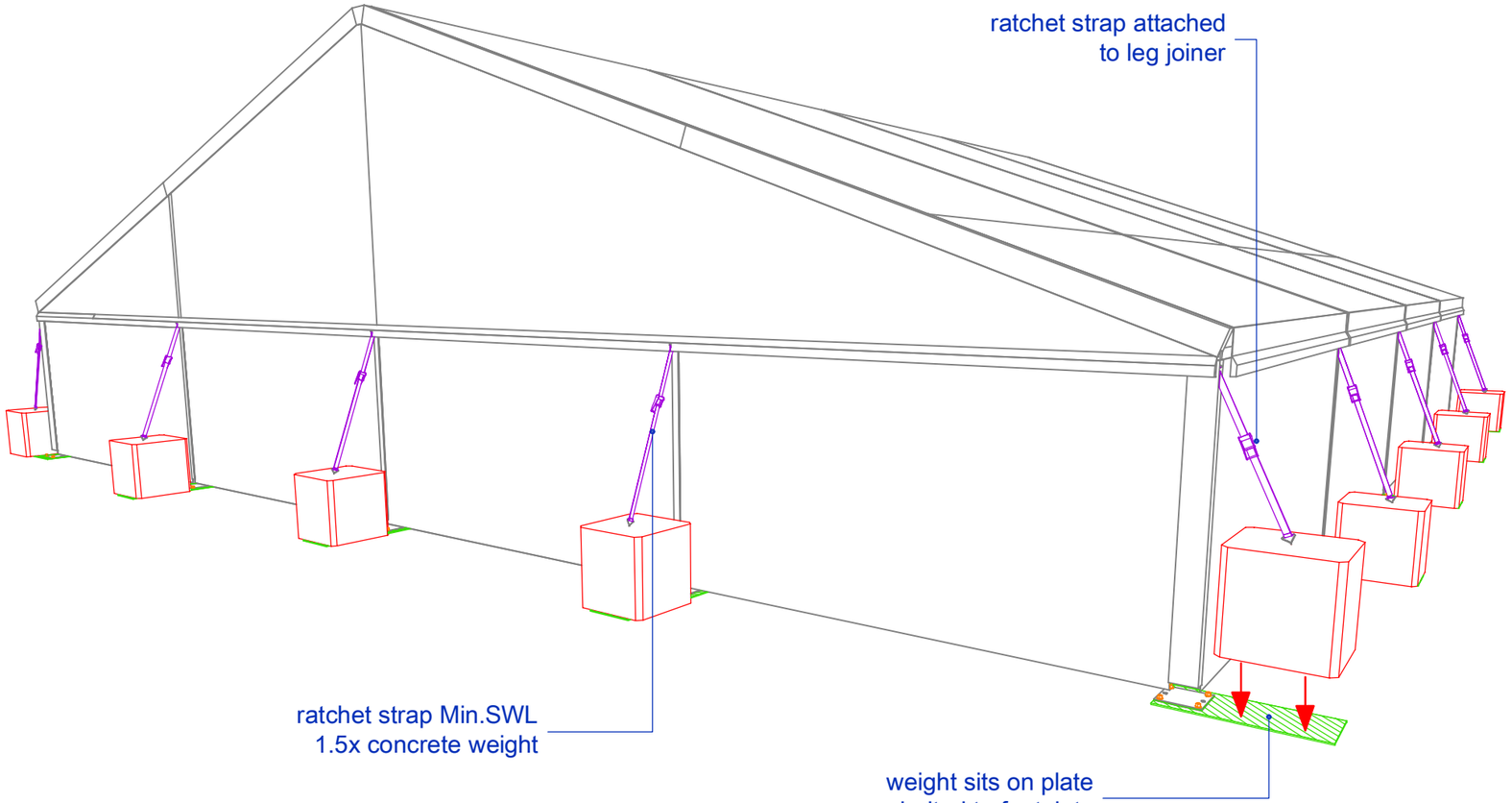
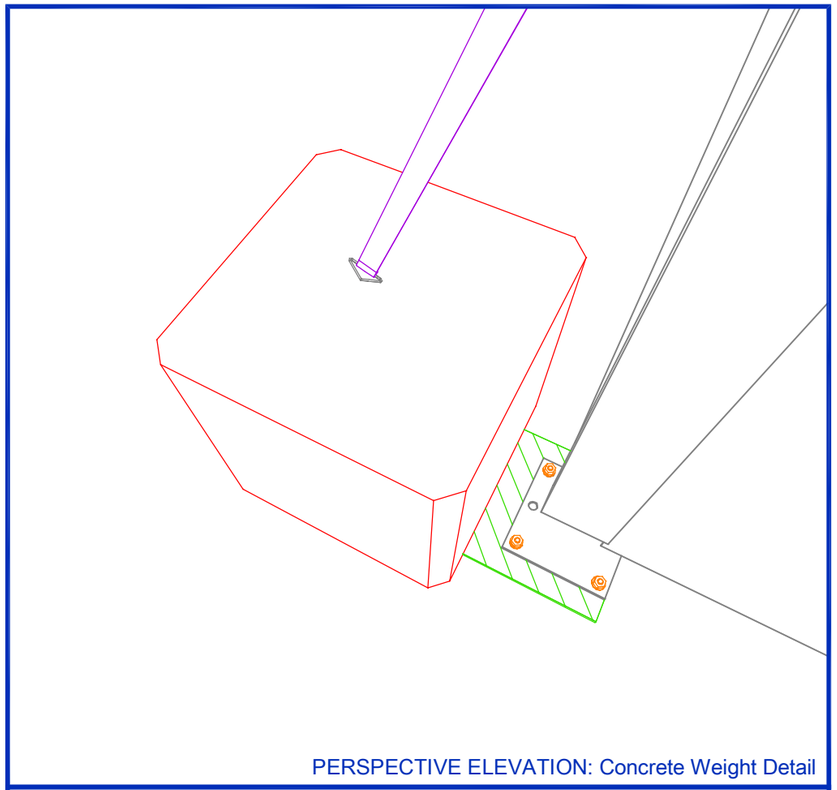
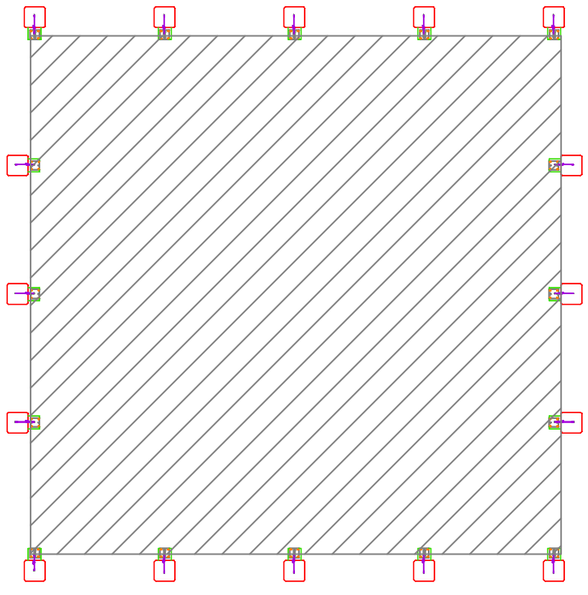
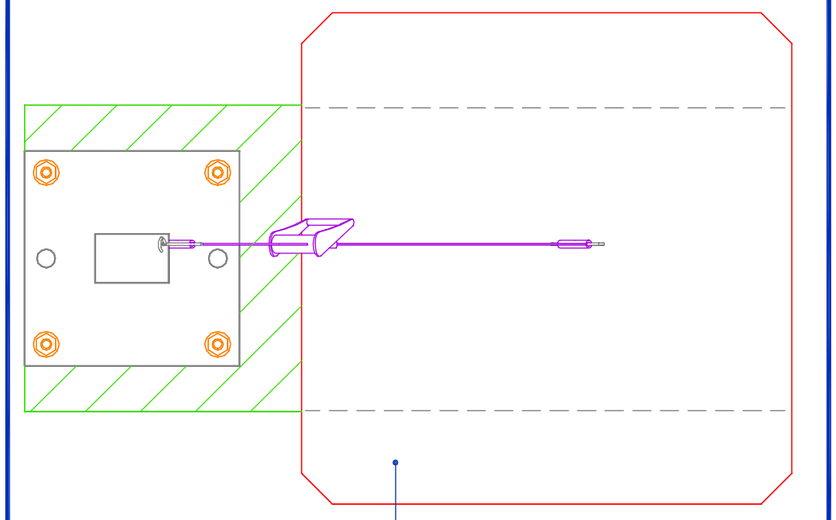




PERSPECTIVE ELEVATION: Concrete Weight Detail





TOP ELEVATION: Concrete Weight Detail

20m STRUCTURE

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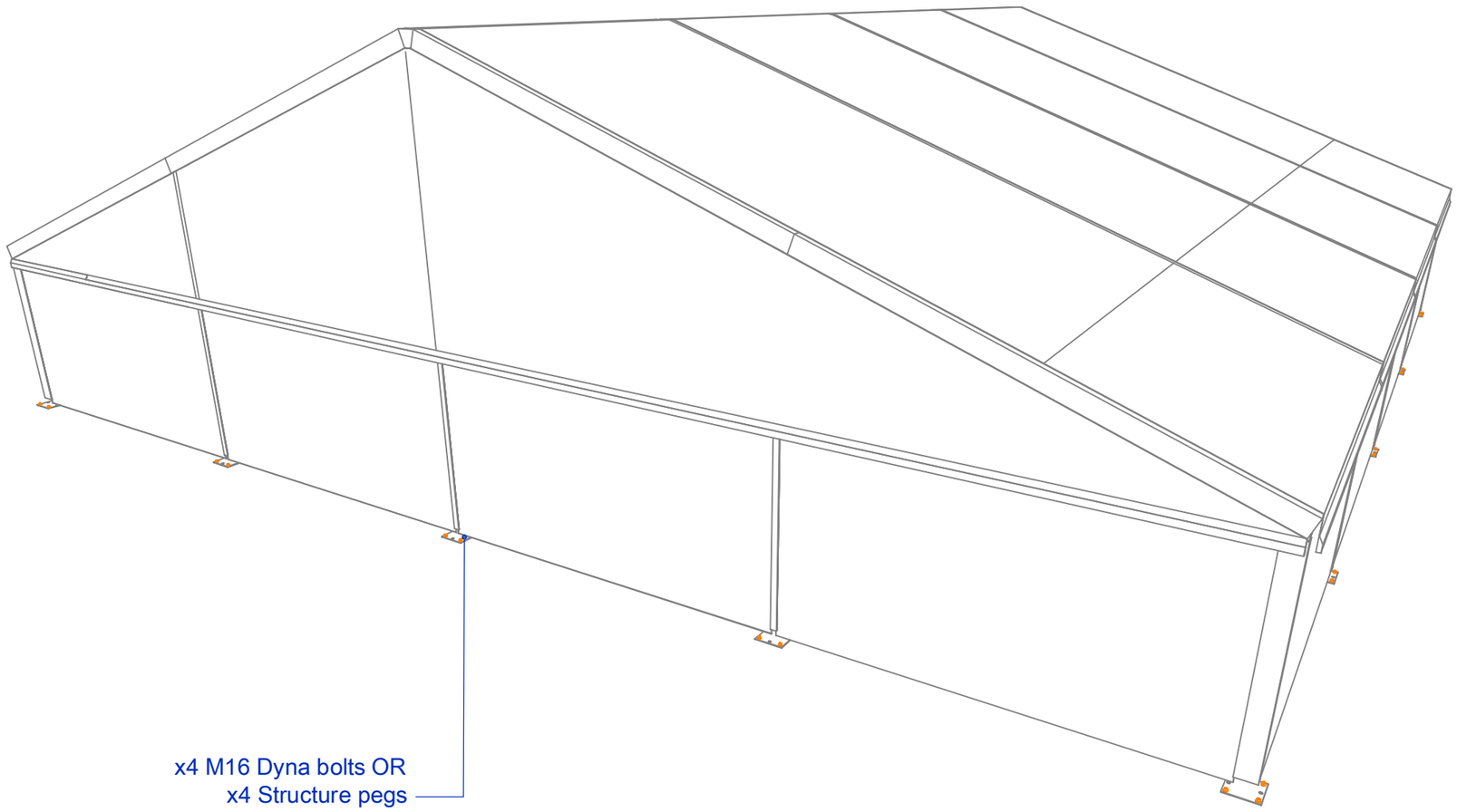
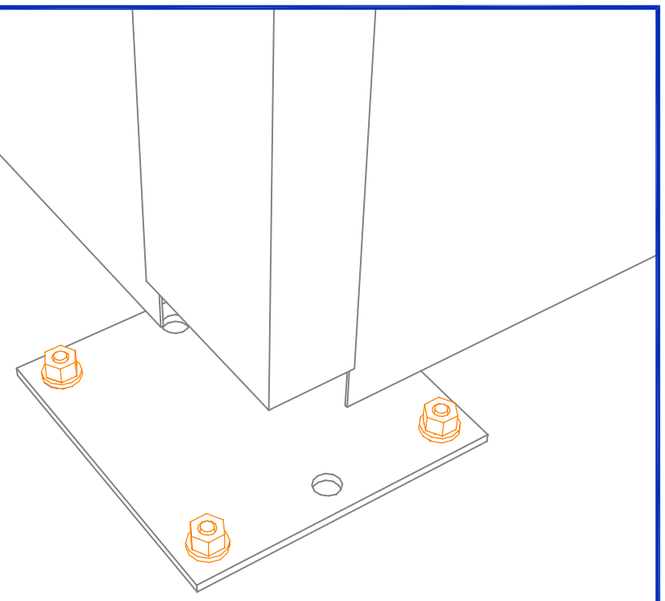
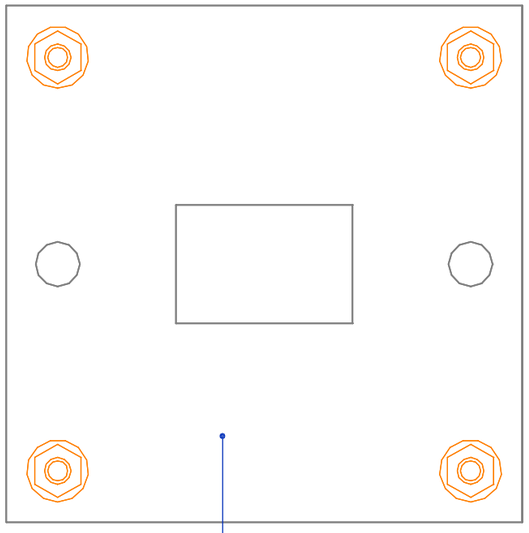


x4 M16 Dyna bolts OR
x4 Structure pegs
every footplate



PERSPECTIVE ELEVATION: Footplate Detail



M16 Dyna bolts minimum
embedment 85mm

TOP ELEVATION: Footplate Detail

20m STRUCTURE (2)

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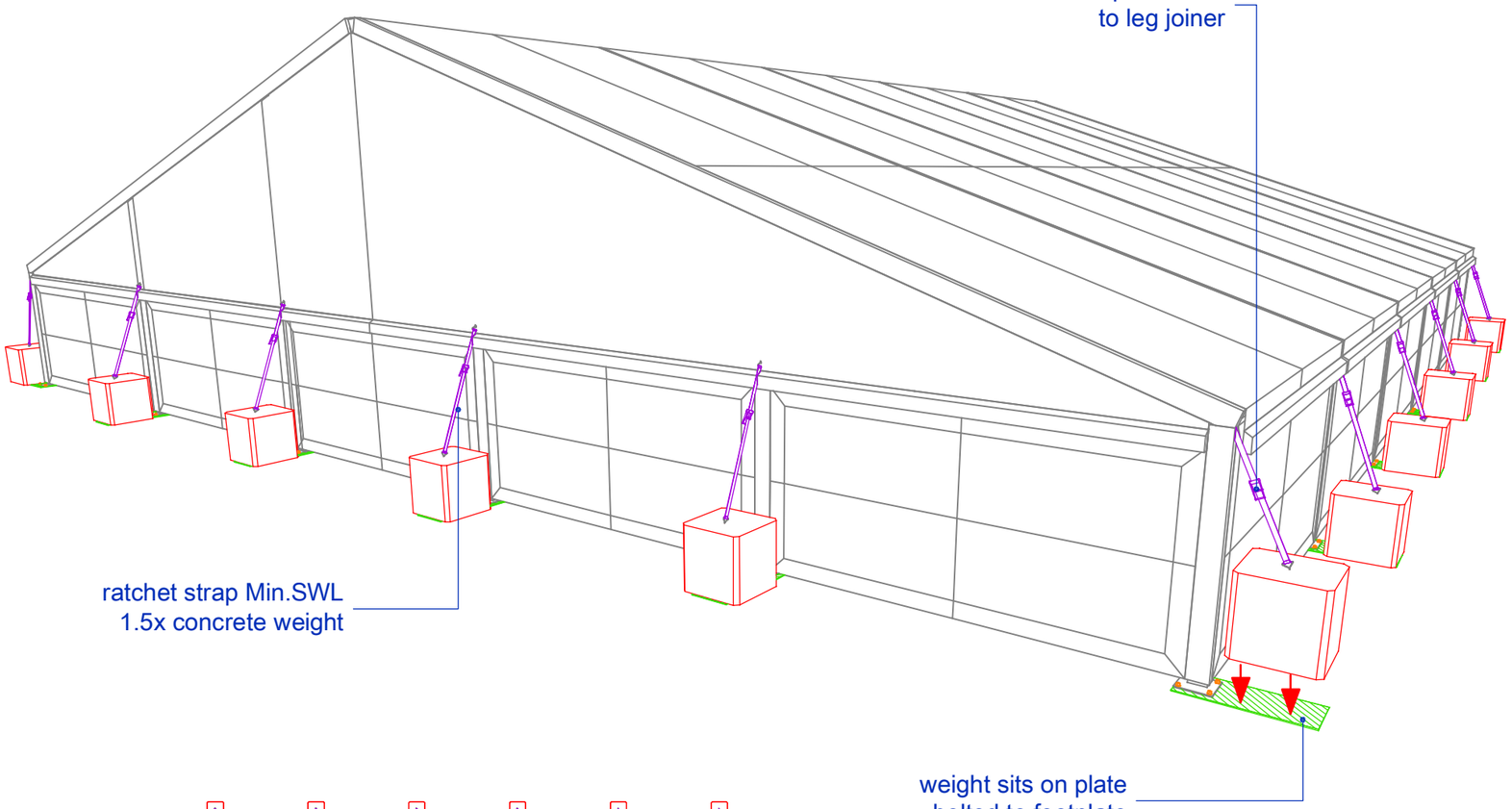
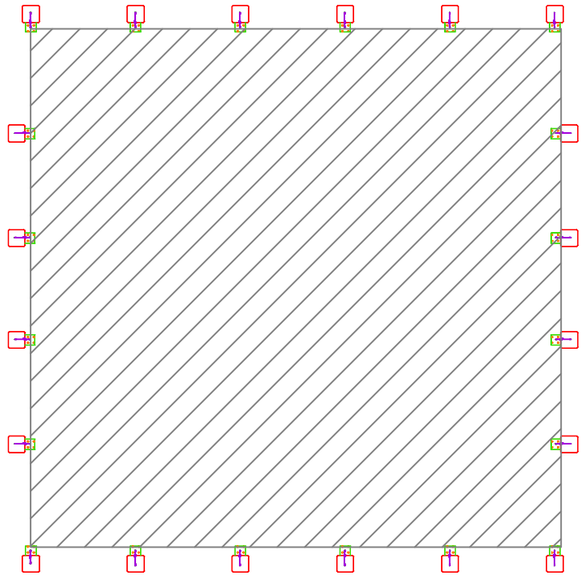
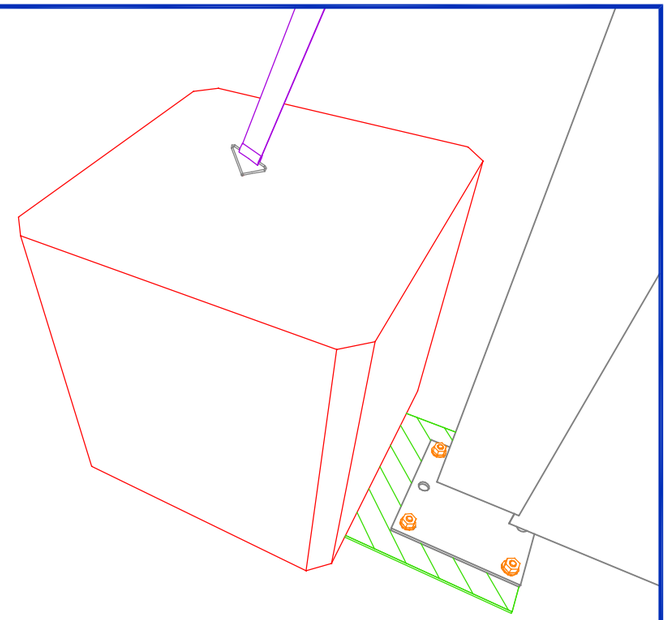
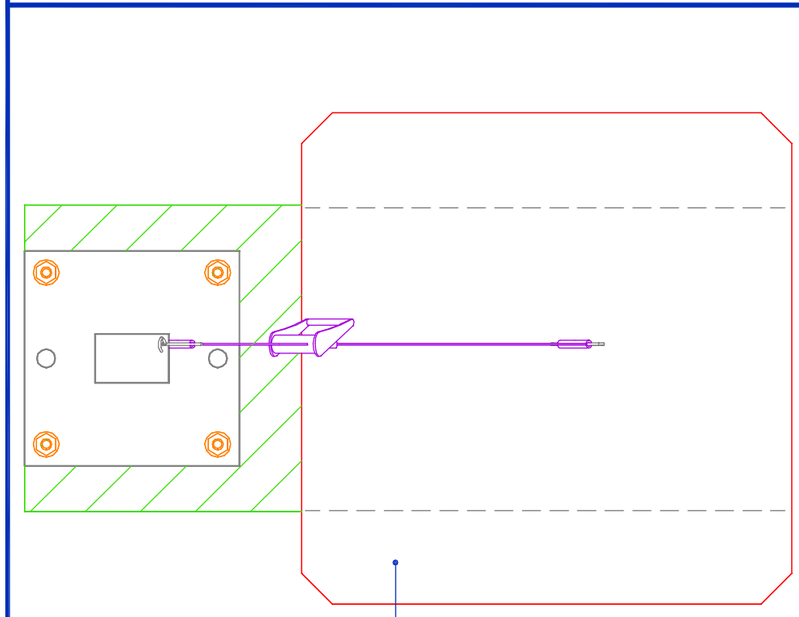






PERSPECTIVE ELEVATION: Concrete Weight Detail



TOP ELEVATION: Concrete Weight Detail

25m STRUCTURE

Revised: James Weeding	**Rev Date:** 18/04/08	**Revision:** 2	
Drawn: James Weeding	**Dwn Date:** 15/04/08	**Scale:** NTS	A3

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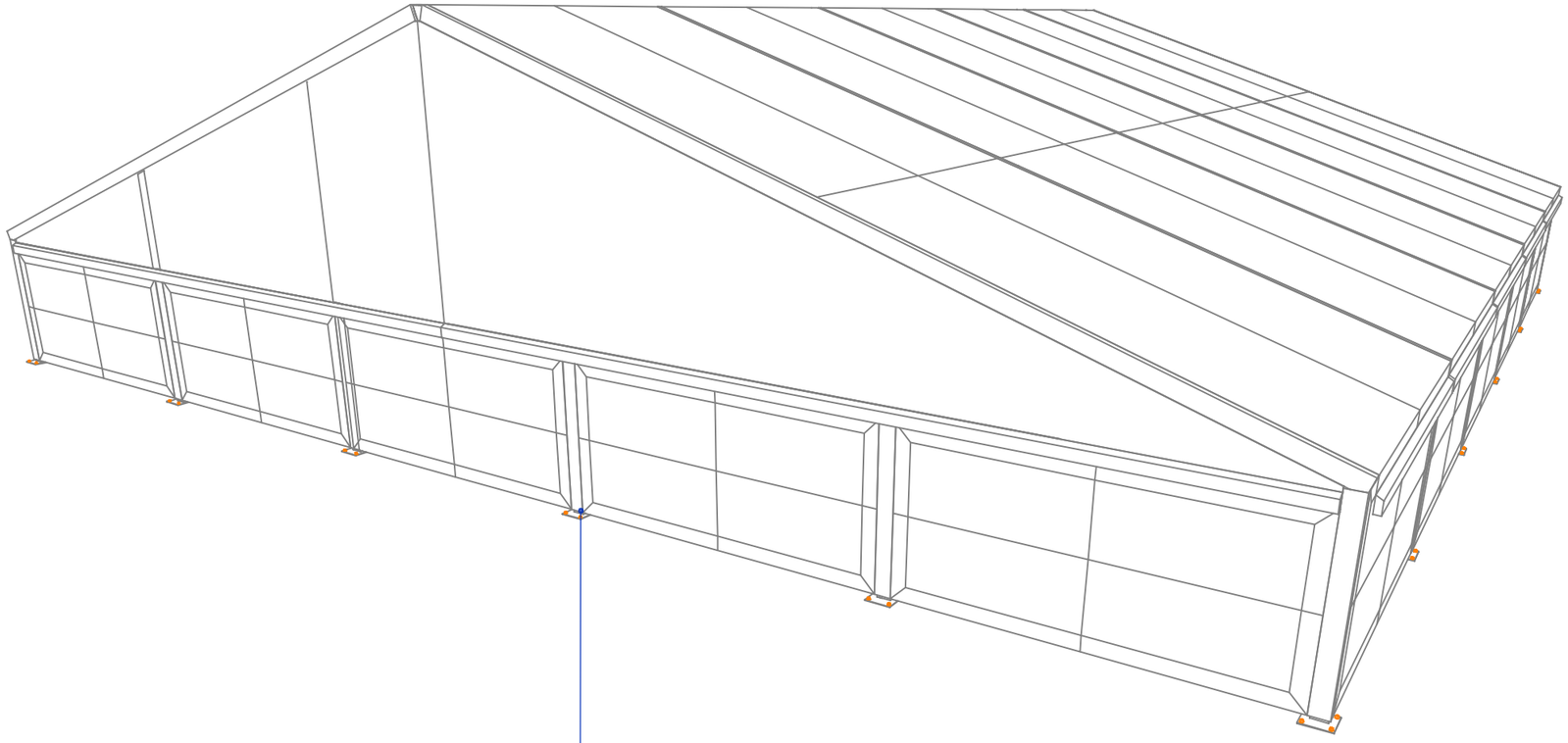
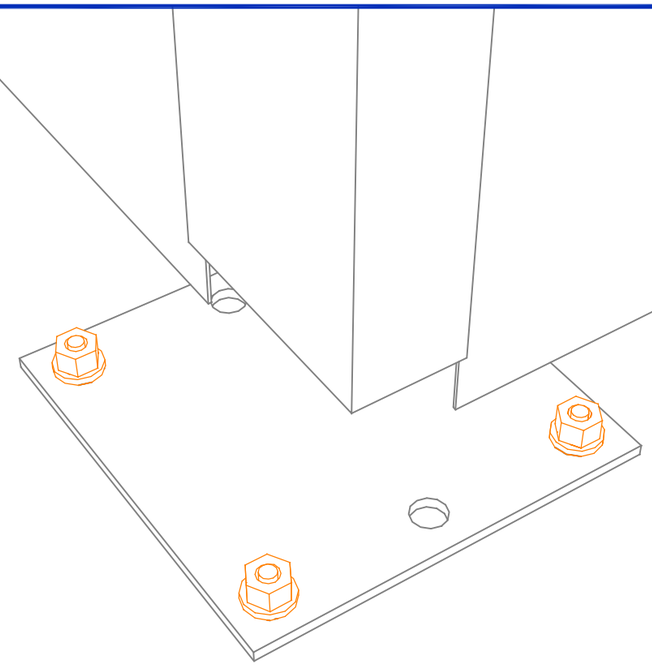
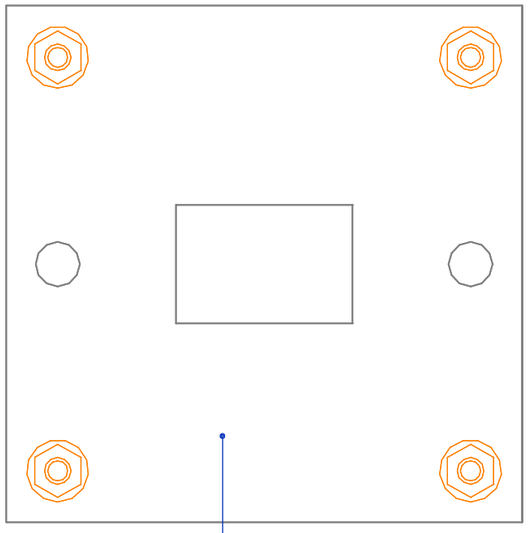


x4 M16 Dyna bolts OR
x4 Structure pegs
every footplate



PERSPECTIVE ELEVATION: Footplate Detail



M16 Dyna bolts minimum
embedment 85mm

TOP ELEVATION: Footplate Detail

25m STRUCTURE (2)

Revised: James Weeding	**Rev Date:** 18/04/08	**Revision:** 2		
Drawn: James Weeding	**Dwn Date:** 15/04/08	**Scale:** NTS	A3	

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