DIVISION 09 . SB-DOM

Cable-Net Inflatable Air Domes

Barrel-vault air dome with external net

Not a bubble. The envelope is a barrel vault held by internal pressure, restrained by an external cable net, so the shape stays stable in wind and the snow can be shed by melting rather than by structure.

CLEAR SPAN **25 - 75 m**	SHAPE **Barrel vault**	MEMBRANE **1,150 g/m2**
NET **External cable**	INSULATION **Double layer R-16**	SNOW **Melt system**

Structure

· Air-supported barrel vault, internal pressure typically 200-400 Pa, maintained by two blowers.
· External cable net over the envelope, anchored to a continuous ring beam.
· Double-layer envelope with insulation between, R-16 as standard for cold climates.
· Emergency exit doors with independent pressure relief and a backup blower on standby.

Membrane & envelope

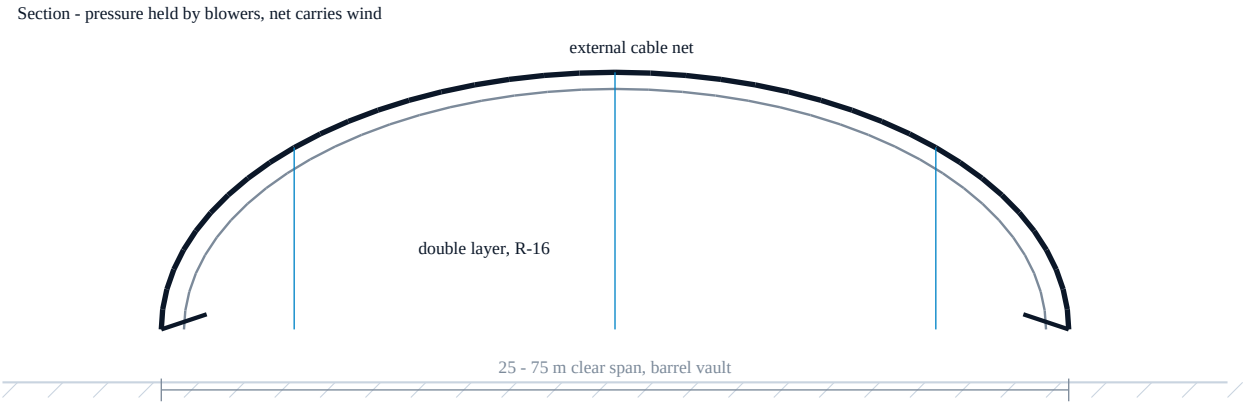
· 1,150 g/m2 PVDF structural envelope, UV stabilised, with a separate inner liner.
· Double-layer build-up gives R-16 without a separate insulated panel.
· Translucent strip or full translucent roof for daylight.
· Repair patches and a pressure monitoring panel supplied.

Openings & options

· Snow melt: warm air between the layers, or a heated gutter at the ring beam.
· Air lock entry, revolving door, or a framed vestibule.
· Sports flooring, line marking, netting and lighting.
· Dehumidification for ice rinks and pools.

What we need in order to quote

Site location and altitude drives snow and wind, not just the tier	**Clear span and length** whole bays; whole containers for DIV-07	**Opening size** door or end wall clear width and height
Largest machine or aircraft sets the door, not the span	**Floor and foundations** slab by others, or our anchor design	**Services** lighting, power, ventilation, fire strategy



Section - schematic, not to scale. Dimensions are confirmed on the project drawing. Site photographs of delivered buildings are available on request.

Size and price matrix

EXW price per square metre of covered area, standard configuration, excluding installation, freight, concrete and VAT. The three columns are the snow-load packages L1 to L3; steel weight is the L2 column.

Clear span x length	Area	Steel	L1 0.5 kN/m2	L2 2.0 kN/m2	L3 3.5 kN/m2
25 x 40 m	1000 m2	0 kg/m2	$98	$101	$113
35 x 60 m	2100 m2	0 kg/m2	$83	$85	$92
45 x 80 m	3600 m2	0 kg/m2	$78	$79	$84
55 x 100 m	5500 m2	0 kg/m2	$75	$76	$80
70 x 120 m	8400 m2	0 kg/m2	$74	$74	$78
75 x 130 m	9750 m2	0 kg/m2	$73	$74	$77

Load basis

Tier	Snow load	Equivalent snow depth	Typical use
L1	**0.5 kN/m2**	**250 mm at 200 kg/m3**	**Sheltered sites, temporary cover, low-altitude temperate**
L2	**2.0 kN/m2**	**900 mm at 220 kg/m3**	**Central and northern Europe, most of North America**
L3	**3.5 kN/m2**	**1,250 mm at 280 kg/m3**	**Alpine, Nordic, Canadian prairie, heavy drift sites**

Wind: designs are checked against the basic wind speed for the site, up to 180 km/h at the lightest tier. Snow and wind are always recalculated for the project; the tier is a commercial package, not the site load.

Typical applications

Indoor football and tennis, equestrian arenas, swimming and leisure, bulk storage where a column-free volume matters.

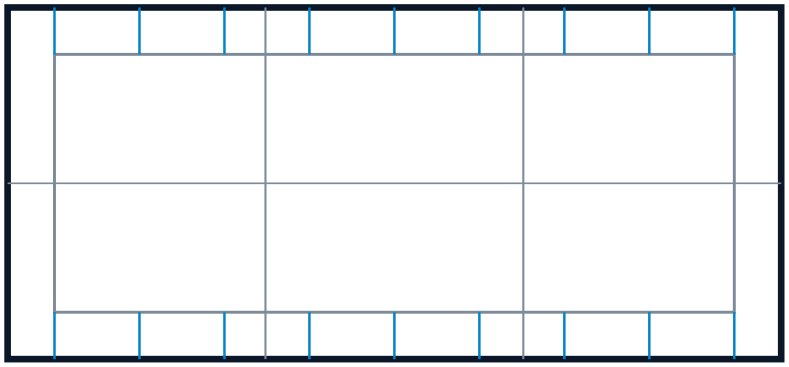
Notes, exclusions and basis of quotation

- Continuous power is a structural requirement: loss of pressure deflates the dome. Standby power is recommended.
- Not suitable where a permanent hard wall and conventional facade are required.
- Snow performance relies on the melt system operating; it is not a passive structure.

Design basis: ASCE 7-16 or EN 1991-1-3 / 1-4 as applicable; steel to Q235B / Q355B; hot-dip galvanising to ISO 1461; membrane PVDF-polyester, PVC on request. Certification documents, mill certificates and membrane test reports are issued with the shipping documents. Warranty: 25 years on the structure, membrane per manufacturer's data.

Plan

ring beam, cable net anchored



Plan - barrel vault, net anchors on both sides

Plan - schematic, not to scale. Bay module and anchor positions as described above.