

VDL Pavilion

by Dion & Richard Neutra

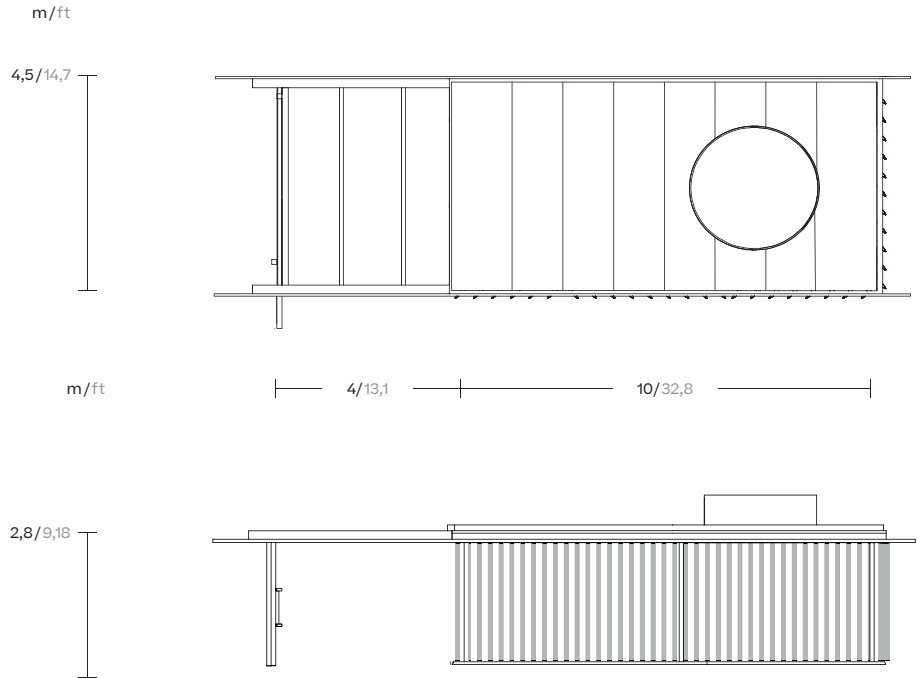
**kettal**

# VDL Pavilion

Designers  
Dion & Richard Neutra

Collection  
VDL

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Kettal Structures seek to bring order, form and structure to outdoor areas, although functionally they are designed to provide shelter: to shade and cool or protect from the rain and wind.

VDL Penthouse is a rectangular building of 63m<sup>2</sup> of which 45m<sup>2</sup> are covered and 18m<sup>2</sup> of terrace, exterior dimensions 14x4.5x2.8m.



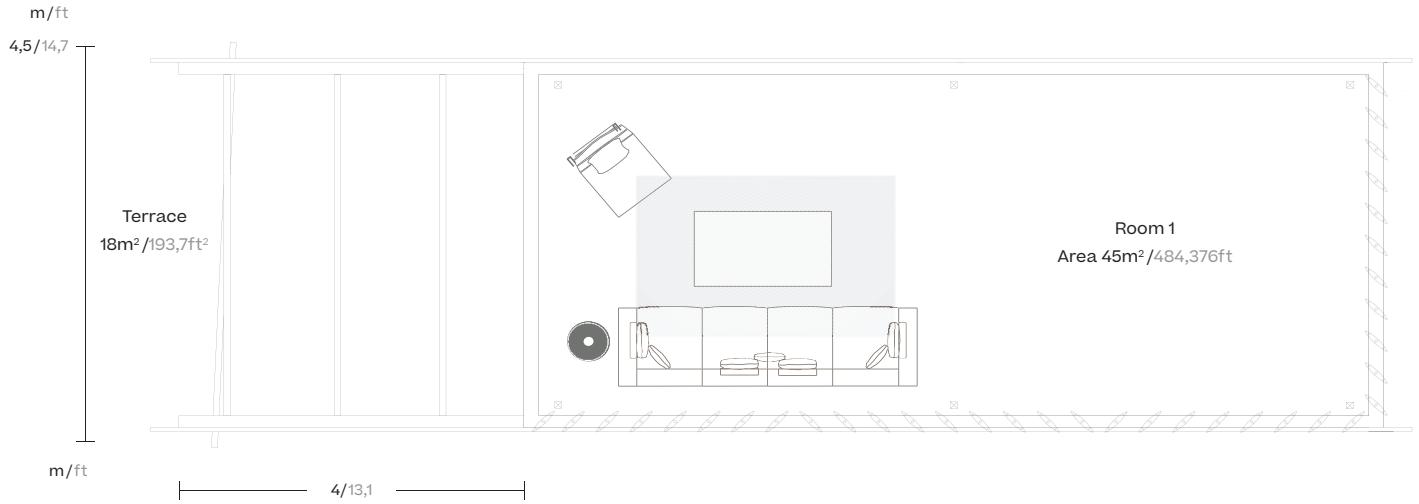
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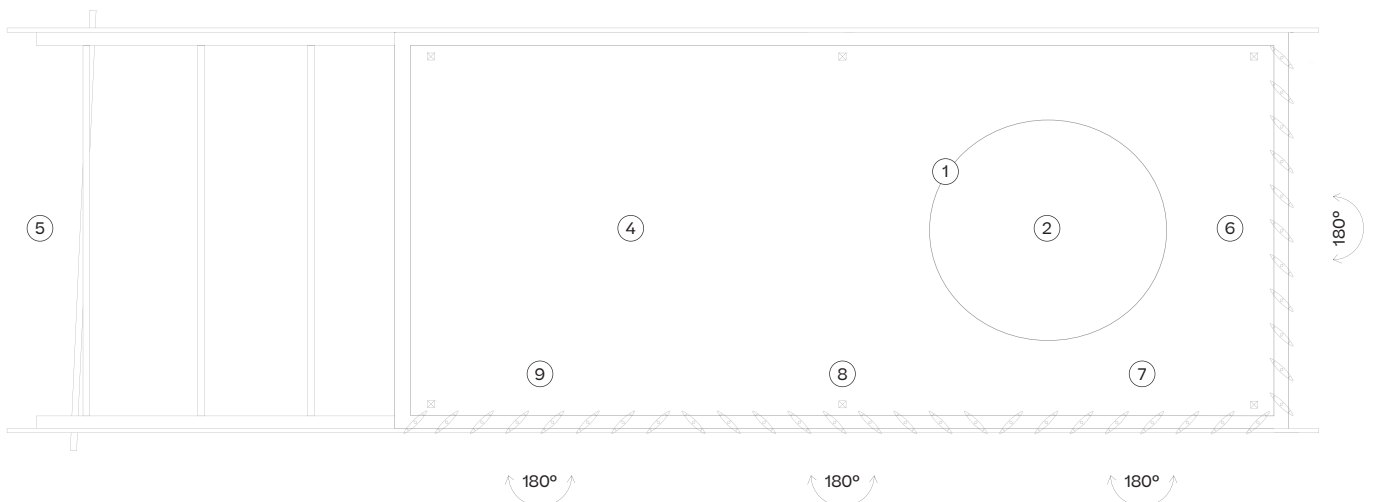
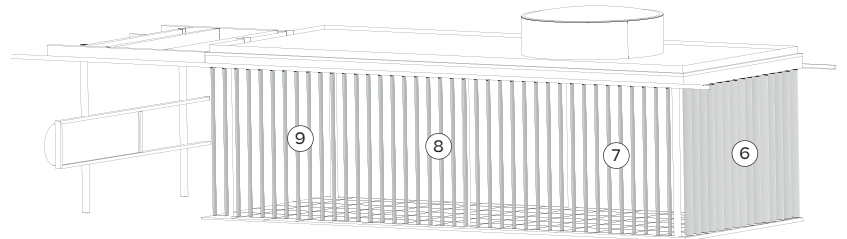
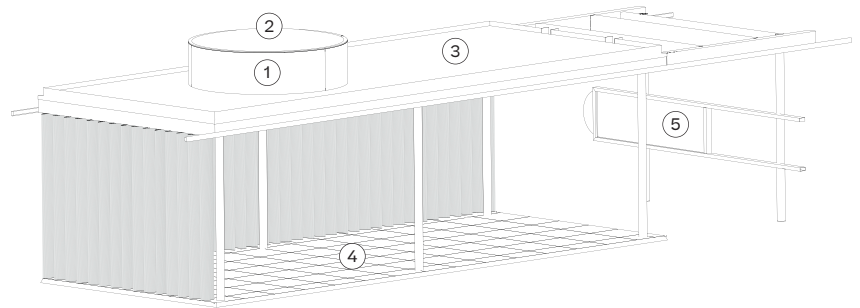
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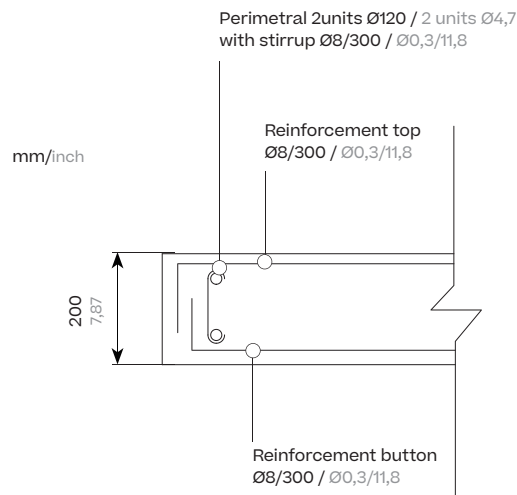
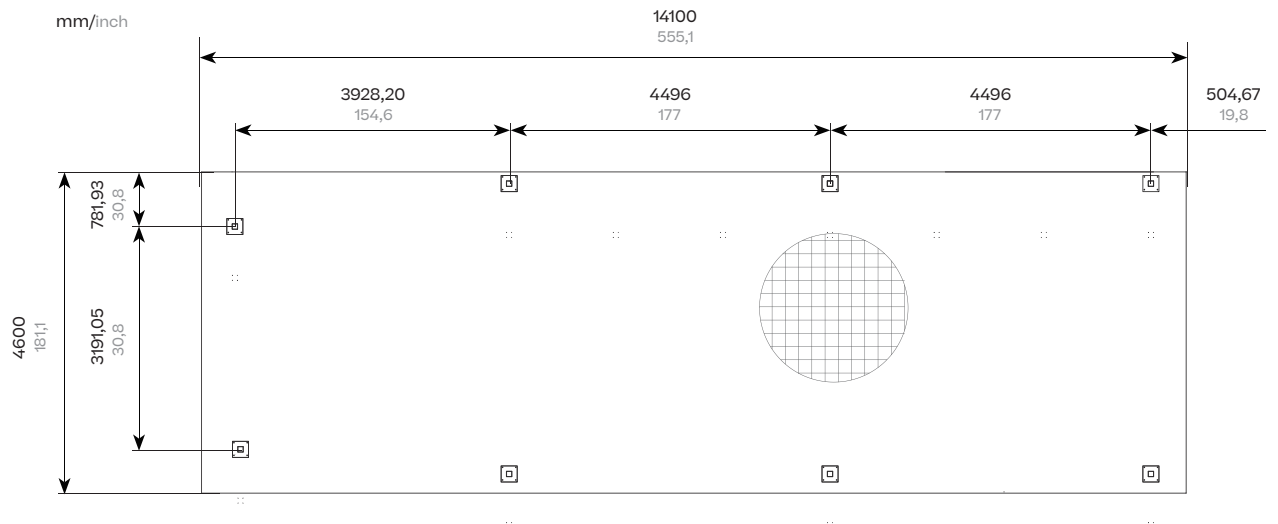
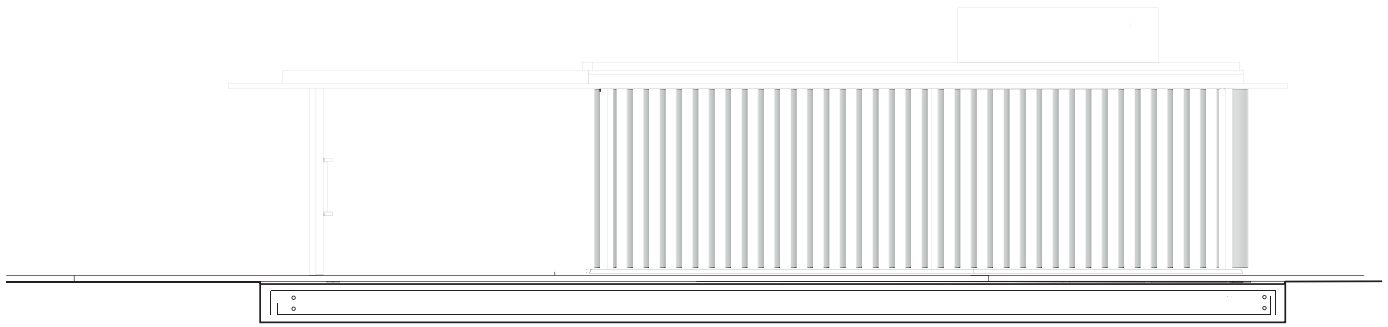
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1. Circular aluminum structure of 2000mm (78,7in) diameter and 550mm (21,6in) high, its function is to skylight.
2. Circular glass 4+4mm laminated for top of skylight (optional).
3. The roof is formed by a 30mm (1,18in) thick aluminum sandwich panel supported by structural belts.
4. The floor is a porcelanic slab of 600x600 mm and 12mm thick or (23,622x23,622in and 0,472441in thick).
5. Parasol structure in the shape of a flag, iconic piece of Ricard Neutra's VDL, built in aluminum and 8mm (0.31 in) tempered glass.
6. Panel of manual louvers 4500mm (177in), with 34 pcs of louvers, measure of pcs is 120mm (4,7in) for 2300mm (90,5in).
7. Panel of manual louvers 3300mm (129,9in), with 27 pcs of louvers, measure of pcs is 120mm (4,7in) for 2300mm(90,5in).
8. Panel of manual louvers 3370mm or (132,6772 in), with 28 pcs of louvers , measure of pcs is 120mm (4,7in) for 2300mm(90,5in).
9. Panel of manual louvers 3300mm or (129,9in), with 27 pcs of louvers , measure of pcs is 120mm (4,7in) for 2300mm (90,5in).





## Slab Foundation



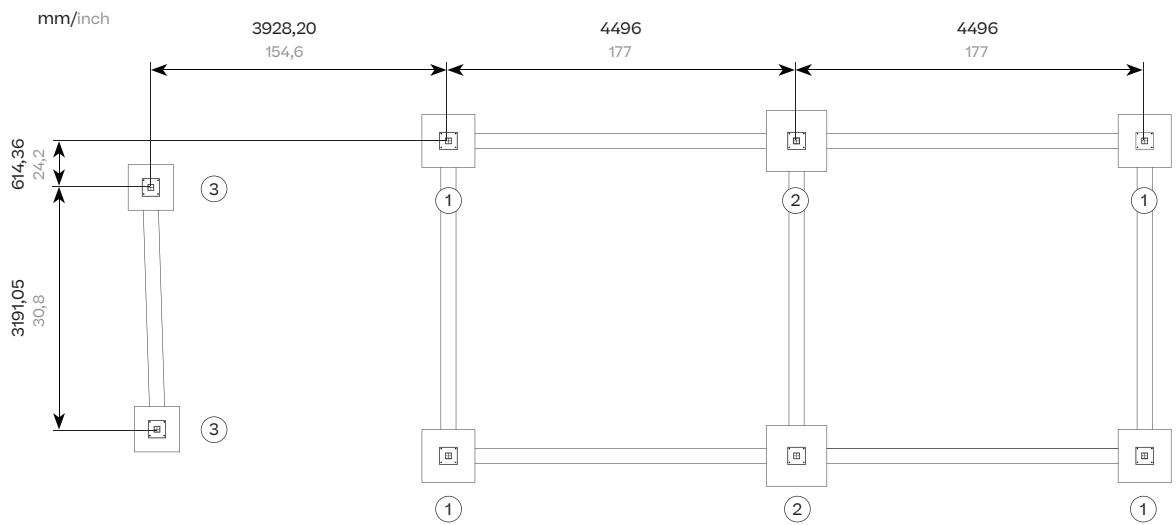
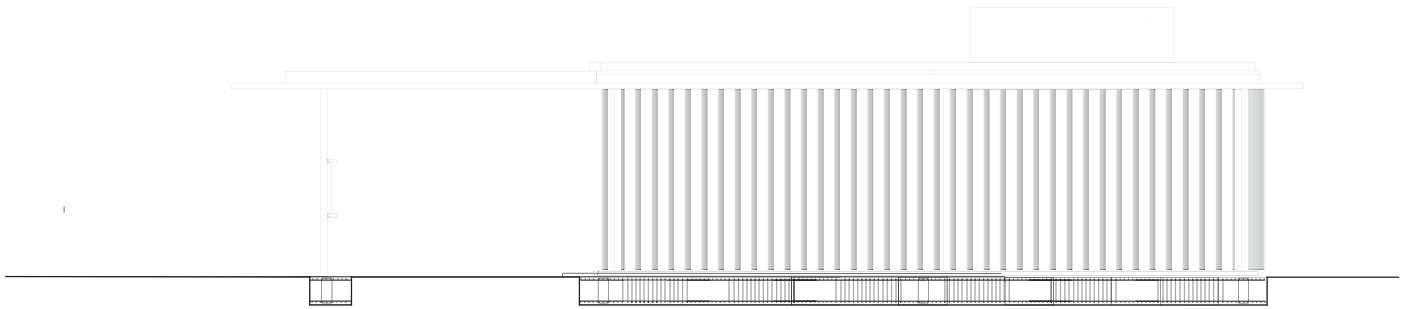
# VDL Penthouse

Designers  
Dion & Richard Neutra

Collection  
VDL

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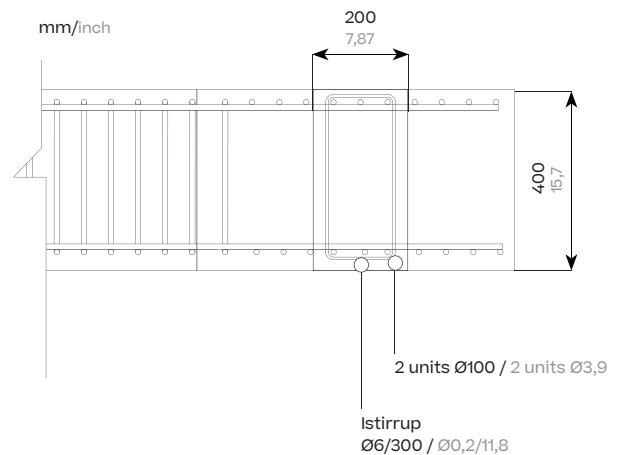
## Isolated footing



Footing	Dimensions (m/ft)	High (m/ft)	Bottom footing reinforcement (mm/in)
1	0,70 x 0,70 / 2,29 x 2,29	0,40 / 1,3	Ø12/200 / Ø0,5/7,8
2	0,80 x 0,80 / 2,62 x 2,62	0,40 / 1,3	Ø12/200 / Ø0,5/7,8
3	0,60 x 0,60 / 1,96 x 1,96	0,40 / 1,3	Ø12/200 / Ø0,5/7,8

Concrete	Type	fc=250kg/cm <sup>3</sup> fc= 9031.8 lb/in <sup>3</sup>
	0,70 x 0,70 / 2,29 x 2,29	0,40 / 1,3



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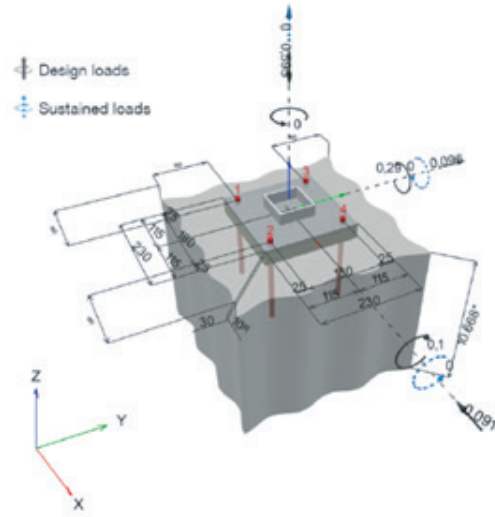
## Isolated fixation

In order to conduct a structural study with the worst conditions and combinations, the following combined loads have been taken into account:

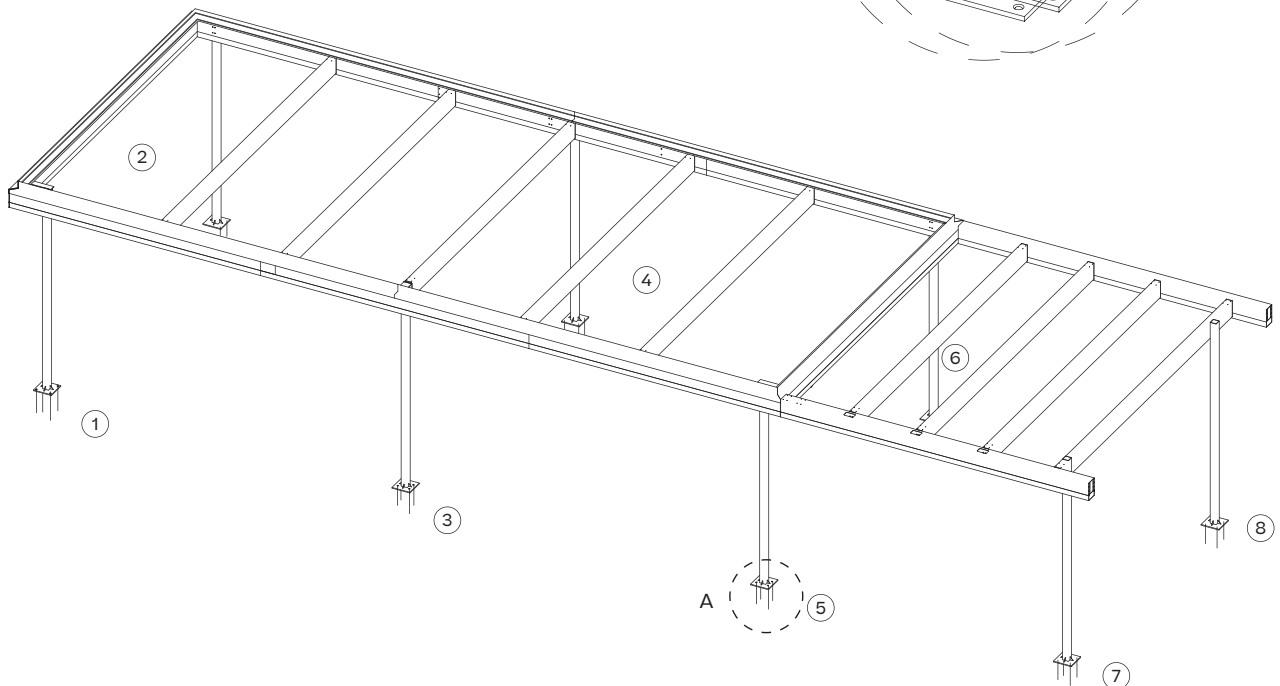
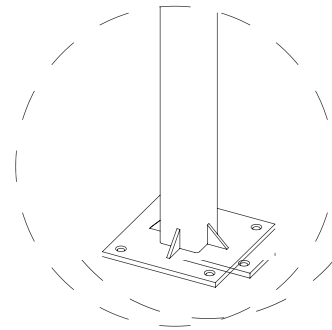
- Loads of structural profiles
- Loads of walls/side panels
- Wind Maximum wind speed in Europe according to Eurocode ENV 1991-1-4 = 25m/s = 78,7ft/s
- Snow Because the pavilion has been exposed to the outdoors, the snow load has been taken into account, assuming a generic value of  $1.5\text{kN/m}^2 = 150\text{Kg/m}^2 = 3559,5\text{lb/ft}^2$

Maximum wind speed around 90-120km  
(55,9-74,5mi)

Maximum snow load around 150-220kg/m<sup>2</sup>  
(3559,5-5220.6lb/ft<sup>2</sup>)



Detail A



## Deformed and isovalues

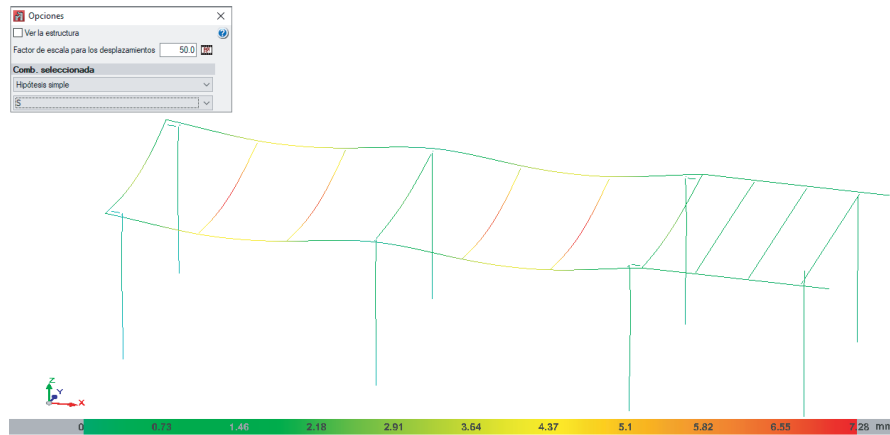


Fig. 1. Deformed and isovalues for snow load (scale x50).

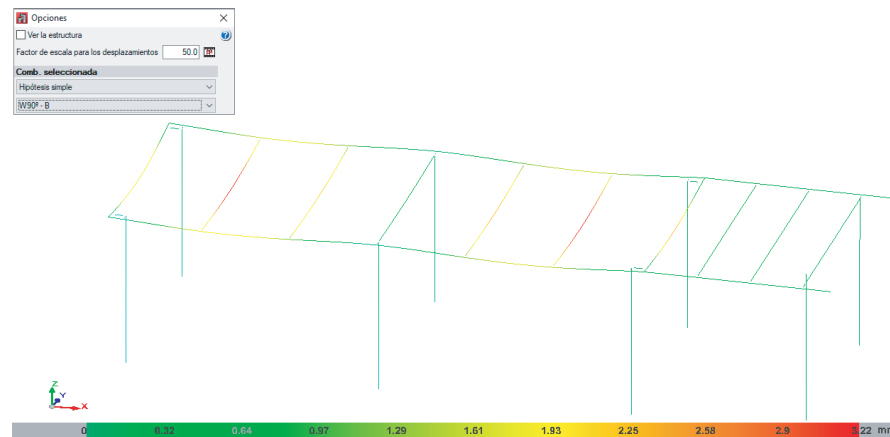


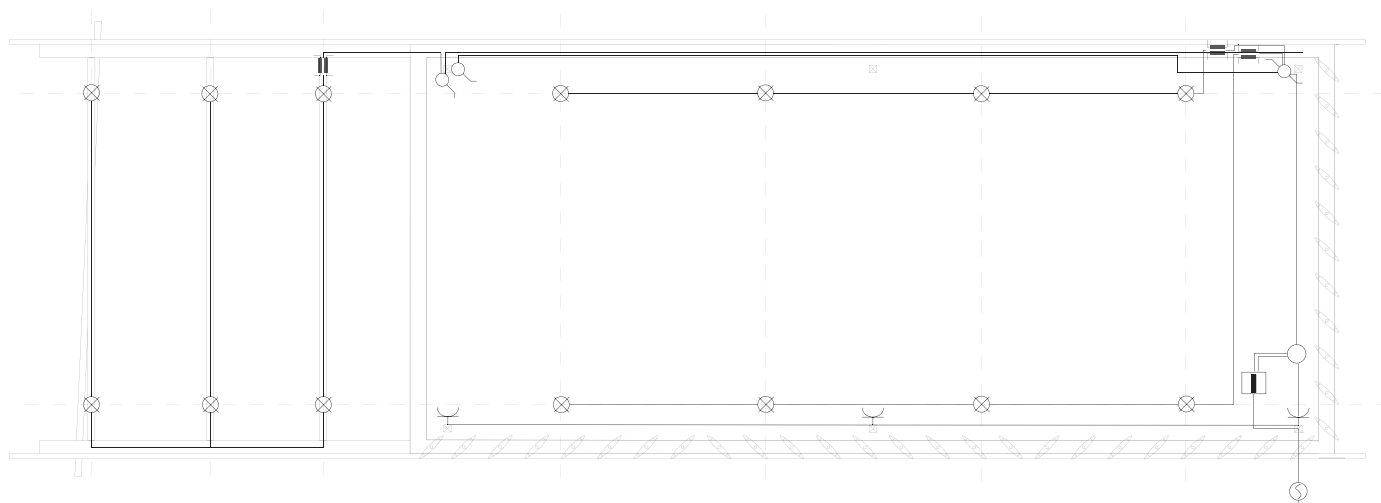
Fig. 2. Deformed and isovalues for wind 90° - B (scale x50).

## Isolated fixation study · Input data

Anchor type and diameter	HIT-HY 200 + HAS-V-36 (ASTM F1554 Gr.36) 1/2
Item number	not available (element) 2022793 HIT-HY 200R (adhesive)
Effective embedment depth	$h_{ef,opti} = 179,9\text{mm}$ $h_{ef,limit} = 254,0\text{ mm}$
Material	ASTM A 1554 Grade 36
Evaluation Service Report	ESR-3187
Issued   Valid	01/04/2019 · 01/03/2020
Proof	Design Method ACI 318-14 / Chem
Stand-off installation	Without clamping (anchor); restraint level (anchor plate) 2; eb = 30 mm; t = 10 mm
Anchor plate	Hiliti Grout CB-G EG epoxy $f_{c,Grout} = 103,00\text{ N/mm}^2$ $l_x \times l_y \times t = 230\text{ mm} \times 230\text{ mm} \times 10\text{ mm}$ ; (Recommended plate thickness: not calculated)
Profile	Square HSS (AISC), HSS3-1/2X3-1/2X, 1875; (L x W x T) = 88,9 mm x 88,9 mm x 4,8 mm)
Base material	Cracked concrete, 2500, $f'_c = 2,500\text{ psi}$ ; h = 19,668 mm, Temp. short/long: 0,0 °C
Installation	Hammer drilled hole, Installation condition: Dry
Reinforcement	Tension: condition B, shear: condition B; no supplemental splitting reinforcement present Edge reinforcement: none or < No. 4 bar
Seismic loads (cat. C, D, E or F)	Tension load: yes (17,2,3,4,3 (a)) Shear load: yes (17,2,3,5,3 (a))



## Electric system



- ⊗ Spotlight
- ⌋ Plug
- ⊙ Switch
- ⊙ Switch
- ▬ Driver
- ▬ Protection chart
- ⊙ Direct electric current