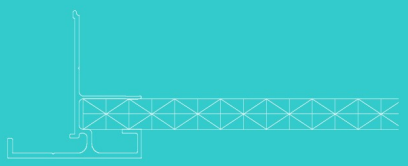
CAHIER TECHNIQUE
Architectures Polycarbonate

Poly-Pac

Poly-Top ©

16



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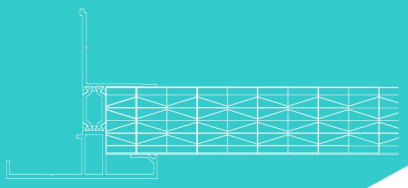


POLYTOP®

Poly-Pac

Contents

1 – Module definition

Poly Top is a system pre-assembled in factory as modules used in realisation or replacement of roofing or sheds.

2 – Field of application

The module allows creating float zenithal lighting or opaque pitched tool of slope ≥ 5° (about 9%). The system is suitable for both new construction and refurbishment, with any level of humidity (from low to very high).
In roofing, minimal slopes are the ones of the supporting structure.
Maximal length of the modules:

Module	WITHOUT Overlap	WITH Overlap (max 2)
Poly Top 16	7 m	21 m
Poly Therm 40	6 m	18 m

Poly Top does not contribute to the functions of loads transmission, bracing and shock resistance for security purpose (railing function). Those functions are dealt with by the supporting structure.
The utilisation of this module in mountains (altitude > 900m) will be the object of a particular analysis by our R&D department.
Any application falling out from those criteria can be submitted to our technical department to be assessed within a specific analysis.

3 – Technical assistance

Technical assistance and distribution over France and UK are provided by Poly-Pac, ZA La Porte de Ker Lann, Bruz (France).

Poly-Pac analyses the solution best suited to the project and develops a detailed list of panels, profiles and accessories required for the installation.

Even though Poly-Pac does not install, the company can attend the beginning of the implementation and provide advices at customer request.

4 – Module specification

4.1 Structural information

- **Poly Top 16:**

Module	620	720	1 000
Module width (mm)	620	720	1000
Height overall (mm)	80	80	80
Width of filling (mm)	600	700	980
Weight (kg/m²)	6.2	5.7	4.8
Panels thick ± 0,5 (mm)	16	16	16
Colours of PC panels	Cristal – Opale - Others Colours *		
Colours of full panels	White - Others colours *		

- **Poly Therm 40:**

Module	630	730	1 080	1 230
Module width (mm)	630	730	1 080	1 230
Height overall (mm)	103	103	103	103
Width of filling (mm)	600	700	1 050	1 200
Weight (kg/m²)	8.7	8.0	6.6	6.2
Panels thick ± 0,5 (mm)	40	40	40	40
Colours of PC panels	Cristal – Opale - Others Colours *			
Colours of full panels	White - Others colours *			

*: Available following constraints of factory production

Panels of polycarbonate can receive the following treatments:
UV Matt: External and/or internal matt finish
IR: Infrared treatment (prevent from heat increase within the building)
Due to extrusion module constraints, a visual difference in colour shade is admitted as long as it does not interfere with the mechanical characteristics of the polycarbonate components.

4.2 – Thermal expansion

The linear expansion coefficient is 0,065mm/ml/°C.
Panels are in free expanding within the edge profiles.
Expansion works towards the ridgepole.

4.3 – Thermal specifications

Module / Panels	Poly Top 16 PC 16 mm RDC	Poly Therm 40 PC 40 mm - 11 W
Uc (W/m². K)	2.2	1.0

Reports CSTB : BV 02/MC036 et DEIS/HTO 2016-034-KZ/LS

4.4 – Sound absorption

Panel	Interior	Exterior	Rw (C, Ctr)
16 mm RDC	20 dB(A)	17 dB(A)	20 (-1; -3)

Report CFI: ACOU/09/03

4.5 – Optical characteristics

Module/Panels PC associated	Colour	Light Transmission (TL) in %	Solar factor (SF) in %
Poly Top 16 PC 16 mm RDC	Cristal	64	69
	Cristal IR	56	47
	Opale	42	56
Poly Therm 40 PC 40 mm - 11 W	Cristal	44	51
	Cristal IR	36	29
	Opale	22	41

Reports CSTB: CMP/05-0024 and EMI 15-26057688-1

4.6 – Fire resistance

Module/Panels	Fire Classification	Combustible Mass (MJ/m²)
Poly Top 16 16 mm RDC	B, s1-d0	76
Poly Therm 40 40 mm - 11 W	B, s1-d0	126

Study report AFITI LICOF n°2900T15-10 dated 17/05/16

4.7 – Shock resistance

Module / Panels	External shocks	Internal shocks
Poly Top 16 PC 16 mm RDC	Q4	O3
Poly Therm 40 PC 40 mm - 11 W	Q4	O3

4.8 – Resistance to chemical agents

Chemical agents	Resistance
Diluted acids	Good
Concentrated acids	Average to good
Alkali	Low to average
Organic solvents – alcohol	Low
Chlorinated hydrocarbons	Low
Aromatic hydrocarbons	Low
Aliphatic polycarbons	Low
Lubricating oils	Good
Detergents	Good

The AG/HP treatment improves the resistance to chemical agents.

Preliminary tests are recommended in case of intense or specific exposure. Use of solvent must be avoided.

4.9 – Storage

"Poly Top" should be stored avoiding exposure to direct sunlight and rain. Should storage be outside, it should not be directly in contact with the ground (a ventilation space must be kept) and should be protected with a light-coloured non-transparent tarpaulin.
To avoid oxidation, untreated aluminium profiles should be unpacked straight away after unloading to avoid any contact with potential residual humidity within the package and stored in a dry environment. In any case, untreated aluminium profiles should not be kept in contact of each others in a humid environment.

Do not store more than two pallets on top of each other.

In case of heavy wind, use straps.

5 – Maintenance

5.1 Cleaning

The module should be frequently cleaned with mild soapy water (neutral detergent) and thoroughly rinsed with clear water. Do not use warm water. Do not use organic solvents, abrasive or alkaline products

5.2 – How to replace a damaged module?

Provide for a new complete module and new screws (5.5 x 25) for the replacement of a damaged module.

5.3 – Prevention

The utilisation of "Poly Top" module implies the respect of security rules applicable for the access to light material roof. Particular attention must be paid to load spread by standing on purlins and not directly on the panels. These rules apply to both installation and maintenance.

6 – Screws characteristics to fix the module

Module	Wooden support	Steel support 2 mm ≤ width. ≤ 5 mm	Steel support width. > 5 mm	Minimum tearing resistance
Poly Top 16	DRILLNOX BOIS TH 6.3 X 60	DRILLNOX TH 6.3 X 38	DRILLNOX TH 6.3 X 38	230 daN
Poly Therm 40	DRILLNOX BOIS TH 6.3 X 60	DRILLNOX TH 6.3 X 38	DRILLNOX TH 6.3 X 38	230 daN

7 – Maximum load charts

7.1 - Poly Top 16

Nb	Module	Distance between supports	Maximum load daN/m²	
2 supports	620	L ≤ 1 500 mm	Positive pressure	205
			Negative pressure	205
		1 500 < L ≤ 2 000 mm	Positive pressure	160
			Negative pressure	160
		2 000 < L ≤ 2 500 mm	Positive pressure	135
			Negative pressure	135
		2 500 < L ≤ 3 000 mm	Positive pressure	95
			Negative pressure	95
		3 000 < L ≤ 3 500 mm	Positive pressure	75
			Negative pressure	75
		3 500 < L ≤ 4 000 mm	Positive pressure	60
			Negative pressure	60
	720	L ≤ 1 500 mm	Positive pressure	195
			Negative pressure	195
		1 500 < L ≤ 2 000 mm	Positive pressure	120
			Negative pressure	120
		2 000 < L ≤ 2 500 mm	Positive pressure	85
			Negative pressure	85
		2 500 < L ≤ 3 000 mm	Positive pressure	75
			Negative pressure	75
		3 000 < L ≤ 3 500 mm	Positive pressure	60
			Negative pressure	60
	1 000	L ≤ 2 000 mm	Positive pressure	95
			Negative pressure	95
		2 000 < L ≤ 2 500 mm	Positive pressure	75
			Negative pressure	75
		2 500 < L ≤ 3 000 mm	Positive pressure	60
			Negative pressure	60
		3 000 < L ≤ 3 500 mm	Positive pressure	50
			Negative pressure	50

Nb	Module	Distance between supports	Maximum load daN/m²	
3 supports and more	620	L ≤ 1 500 mm	Positive pressure	205
			Negative pressure	205
		1 500 < L ≤ 2 000 mm	Positive pressure	160
			Negative pressure	160
		2 000 < L ≤ 2 500 mm	Positive pressure	135
			Negative pressure	135
		2 500 < L ≤ 3 000 mm	Positive pressure	95
			Negative pressure	95
		3 000 < L ≤ 3 500 mm	Positive pressure	75
			Negative pressure	75
	720	L ≤ 1 500 mm	Positive pressure	195
			Negative pressure	195
		1 500 < L ≤ 2 000 mm	Positive pressure	120
			Negative pressure	120
		2 000 < L ≤ 2 500 mm	Positive pressure	85
			Negative pressure	85
		2 500 < L ≤ 3 000 mm	Positive pressure	75
			Negative pressure	75
		3 000 < L ≤ 3 500 mm	Positive pressure	60
			Negative pressure	60
	1 000	L ≤ 2 000 mm	Positive pressure	95
			Negative pressure	95
		2 000 < L ≤ 2 500 mm	Positive pressure	75
			Negative pressure	75
		2 500 < L ≤ 3 000 mm	Positive pressure	60
			Negative pressure	60
		3 000 < L ≤ 3 500 mm	Positive pressure	50
			Negative pressure	50

7.2 - Poly Therm 40

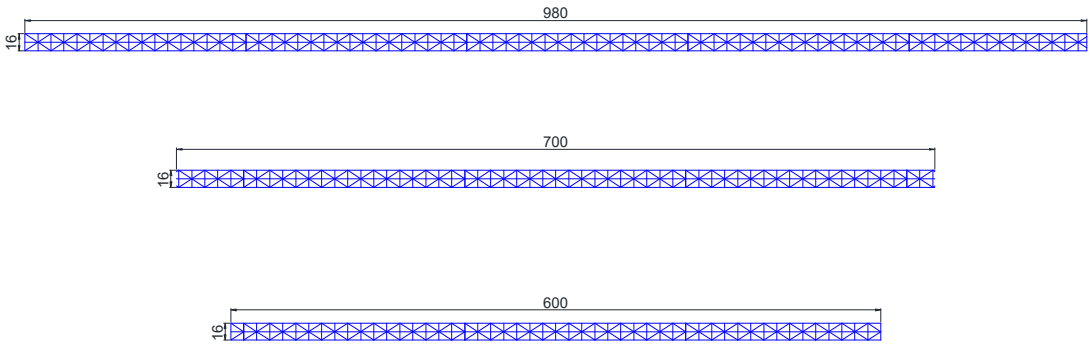
Nb	Module	Distance between supports	Maximum load daN/m²	
2 supports	630 730	L ≤ 1 500 mm	Positive pressure	205
			Negative pressure	205
		1 500 < L ≤ 2 000 mm	Positive pressure	175
			Negative pressure	175
		2 000 < L ≤ 2 500 mm	Positive pressure	160
			Negative pressure	160
		2 500 < L ≤ 3 000 mm	Positive pressure	155
			Negative pressure	155
		3 000 < L ≤ 3 500 mm	Positive pressure	95
			Negative pressure	95
		3 500 < L ≤ 4 000 mm	Positive pressure	75
			Negative pressure	75
	1 080	L ≤ 1 500 mm	Positive pressure	165
			Negative pressure	165
		1 500 < L ≤ 2 000 mm	Positive pressure	145
			Negative pressure	145
		2 000 < L ≤ 2 500 mm	Positive pressure	130
			Negative pressure	130
		2 500 < L ≤ 3 000 mm	Positive pressure	130
			Negative pressure	130
		3 000 < L ≤ 3 500 mm	Positive pressure	95
			Negative pressure	95
		3 500 < L ≤ 4 000 mm	Positive pressure	60
			Negative pressure	60
	1 230	L ≤ 1 500 mm	Positive pressure	155
			Negative pressure	155
		1 500 < L ≤ 2 000 mm	Positive pressure	115
			Negative pressure	115
		2 000 < L ≤ 2 500 mm	Positive pressure	90
			Negative pressure	90
		2 500 < L ≤ 3 000 mm	Positive pressure	85
			Negative pressure	85
		3 000 < L ≤ 3 500 mm	Positive pressure	60
			Negative pressure	60

Nb	Module	Distance between supports	Maximum load daN/m²	
3 supports and more	630 730	L ≤ 1 500 mm	Positive pressure	205
			Negative pressure	205
		1 500 < L ≤ 2 000 mm	Positive pressure	175
			Negative pressure	175
		2 000 < L ≤ 2 500 mm	Positive pressure	160
			Negative pressure	160
		2 500 < L ≤ 3 000 mm	Positive pressure	155
			Negative pressure	155
	1 080	L ≤ 1 500 mm	Positive pressure	165
			Negative pressure	165
		1 500 < L ≤ 2 000 mm	Positive pressure	145
			Negative pressure	145
		2 000 < L ≤ 2 500 mm	Positive pressure	130
			Negative pressure	130
		2 500 < L ≤ 3 000 mm	Positive pressure	130
			Negative pressure	130
	1 230	L ≤ 1 500 mm	Positive pressure	155
			Negative pressure	155
		1 500 < L ≤ 2 000 mm	Positive pressure	115
			Negative pressure	115
		2 000 < L ≤ 2 500 mm	Positive pressure	90
			Negative pressure	90
		2 500 < L ≤ 3 000 mm	Positive pressure	85
			Negative pressure	85

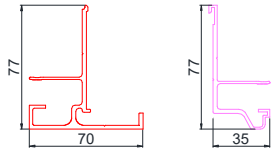
Modules Presentation

Poly Top 16

Panels for standard frames



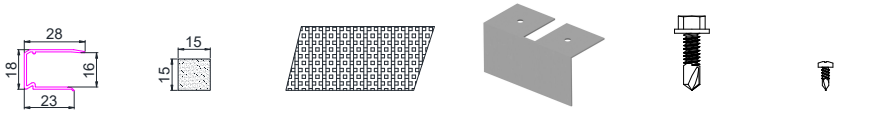
Profiles



Lug profile Pac 710

Socket profile Pac 711

Accessories



Block-cover : OBT 16

Gasket 15 x 15 : pe-ld

Micro-perforated adhesive : 4083 of 50 mm

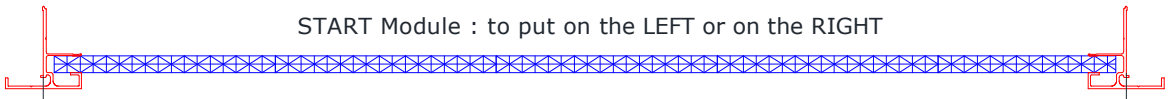
Supporting square 712

Screw 5.5 x 25 fix module

Screw 4.2 x 13 fix square

Types of modules

START Module : to put on the LEFT or on the RIGHT



Standard frames : 620 - 720 - 1000 mm

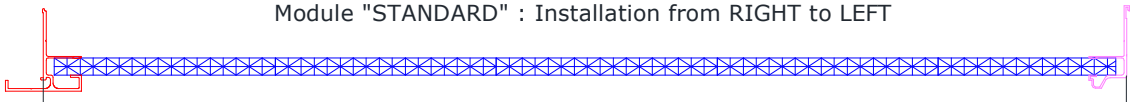
Cut to size frame : until 1000 mm

Module "STANDARD" : Installation from LEFT to RIGHT

Standard frames : 620 - 720 - 1000 mm

Cut to size frame : until 1000 mm

Module "STANDARD" : Installation from RIGHT to LEFT

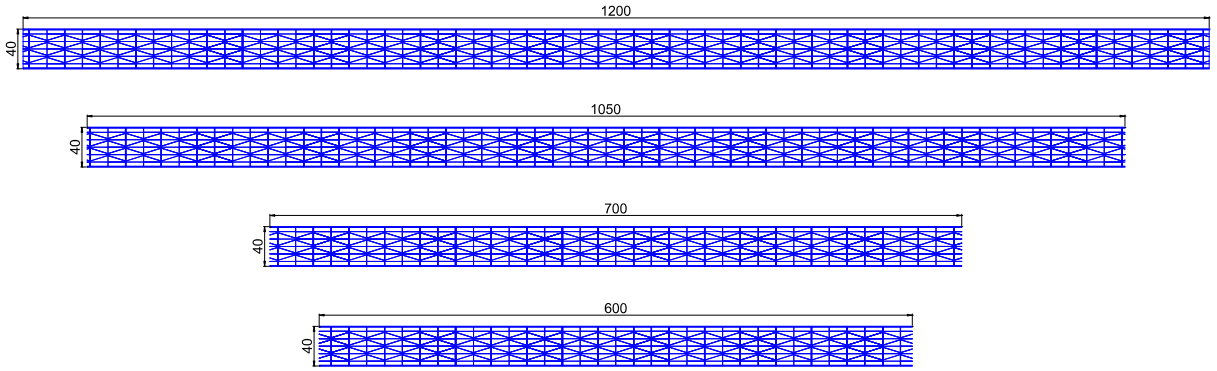


Standard frames : 620 - 720 - 1000 mm

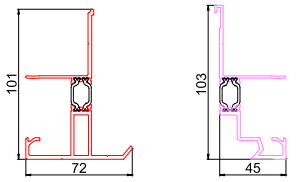
Cut to size frame : until 1000 mm

Poly Therm 40

Panels for standard frames



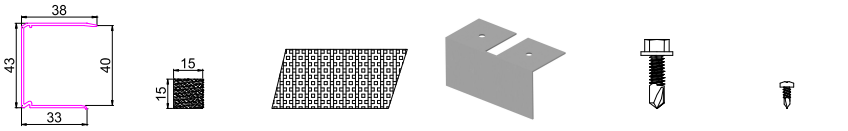
Profiles



Lug profil Pac 740

Socket profil Pac 741

Accessories



Block-cover : OBT 40

Gasket 15 x 15 : pe-ld

Micro-perforated adhesive : 4083 of 90 mm

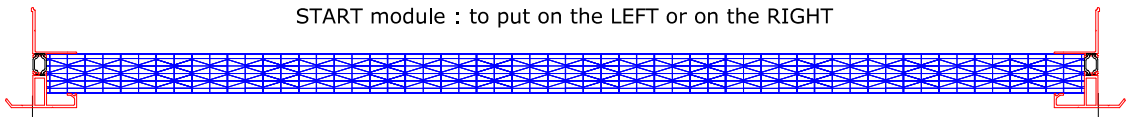
Supporting square 742

Screw 5.5 x 25 fix module

Screw 4.2 x 13 fix square

Types of module

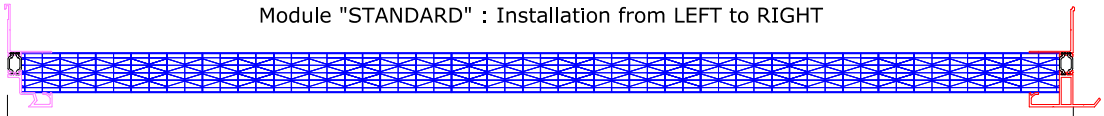
START module : to put on the LEFT or on the RIGHT



Standard frames : 630 - 730 - 1080 - 1230 mm

Cut to size frame : until 1230 mm

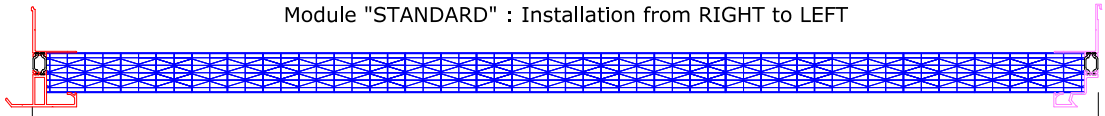
Module "STANDARD" : Installation from LEFT to RIGHT



Standard frames : 630 - 730 - 1080 - 1230 mm

Cut to size frame : until 1230 mm

Module "STANDARD" : Installation from RIGHT to LEFT

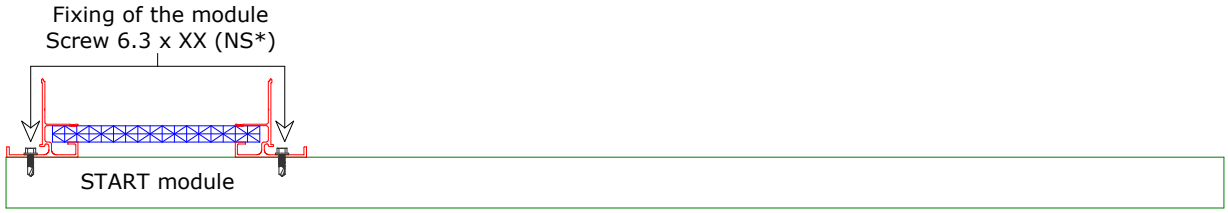


Standard frames : 630 - 730 - 1080 - 1230 mm

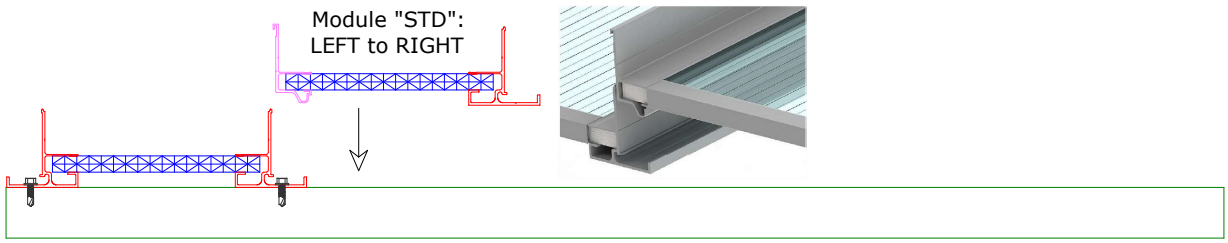
Cut to size frame : until 1230 mm

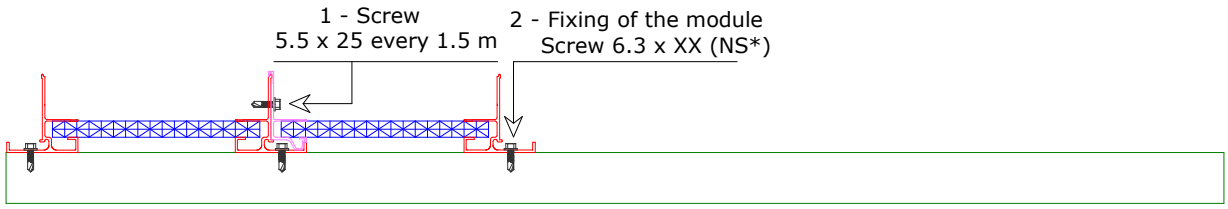
Installation principle “from LEFT to RIGHT”

1 - Installation of the START module on the LEFT

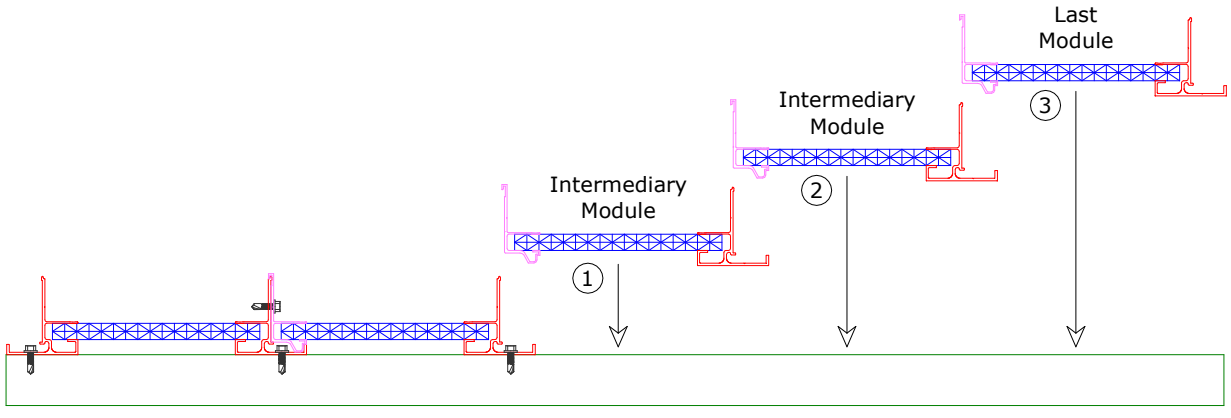


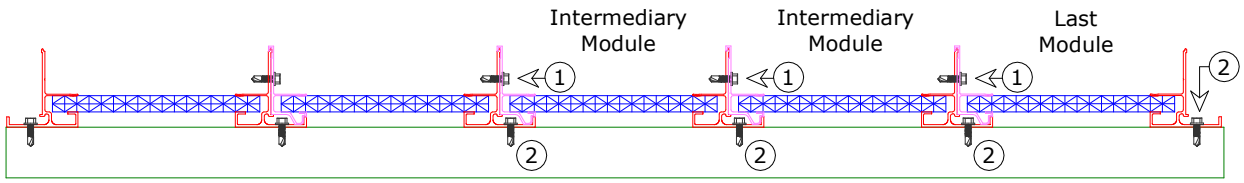
2 - Installation of the first module "STANDARD" LEFT on the RIGHT





3 - Installation of the other modules "STANDARD" LEFT to RIGHT





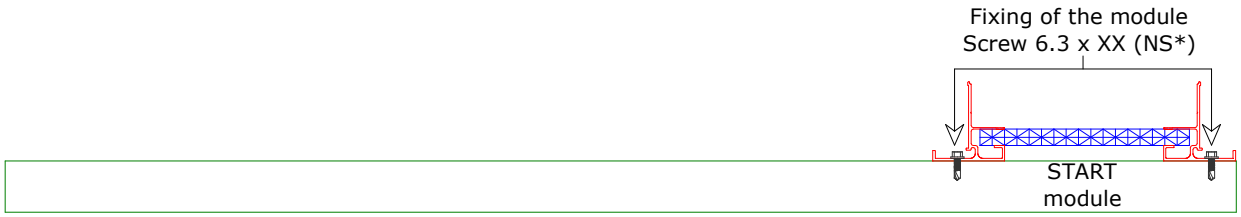
1 - Screw 5.5 x 25 every 1.5 m

2 - Fixing of the module
Screw 6.3 x XX (NS*)

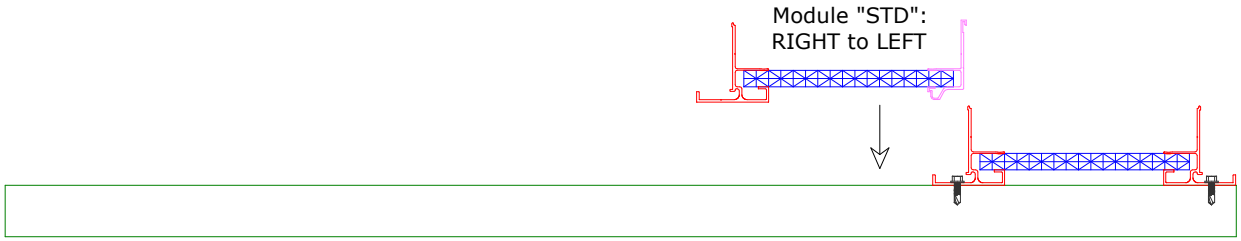
NS* = Not supplied

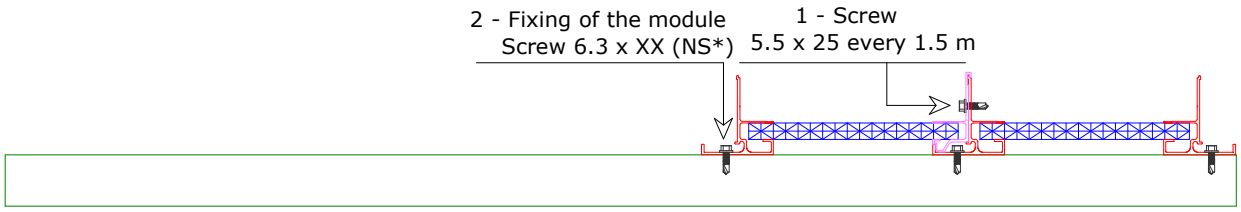
Installation principle “from RIGHT to LEFT”

1 - Installation of the START module on the right

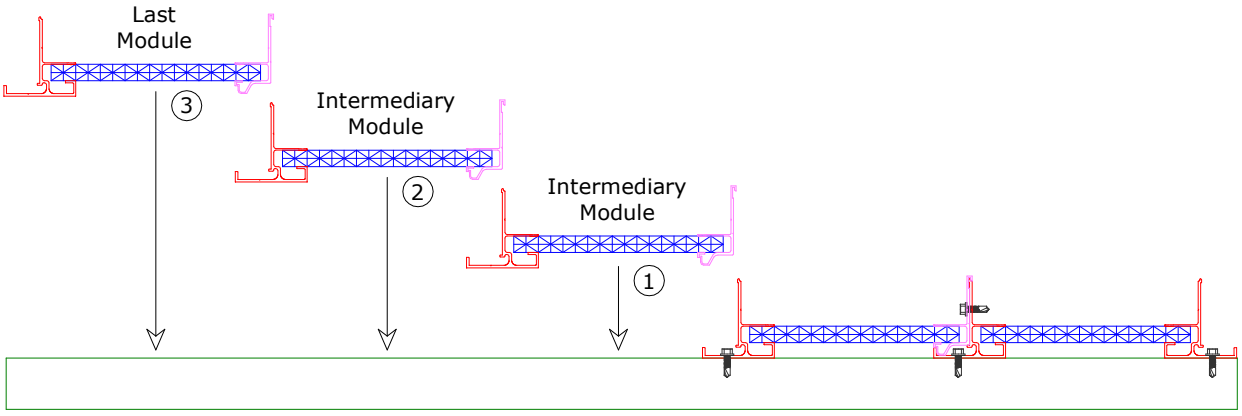


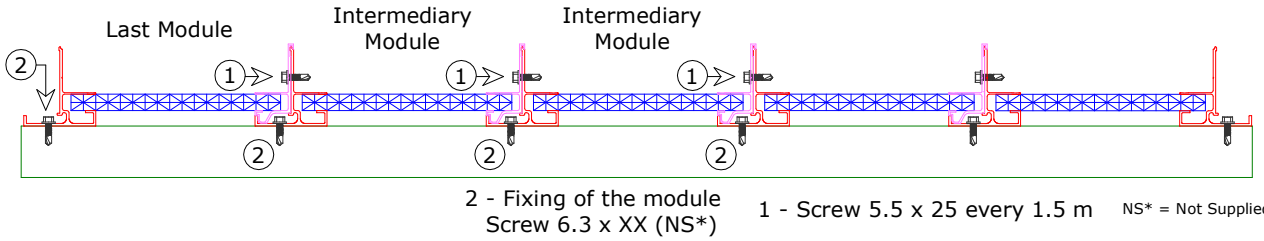
2 - Installation of the first module "STANDARD" RIGHT to LEFT





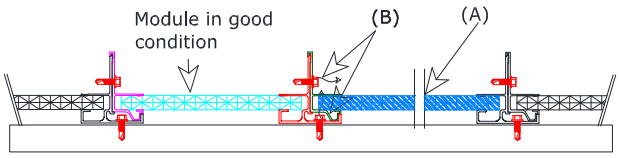
3 - Installation of the other modules "STANDARD" RIGHT to LEFT



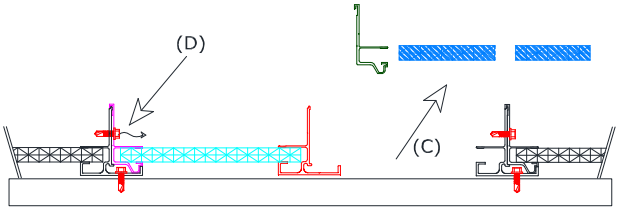


How to replace a damaged module?

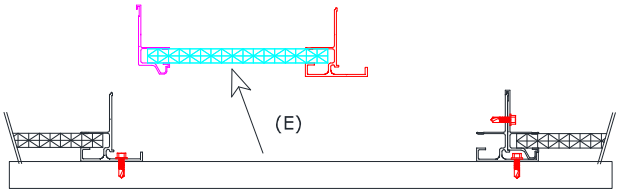
1 - Cut the damaged module (A) and then unscrew it (B).



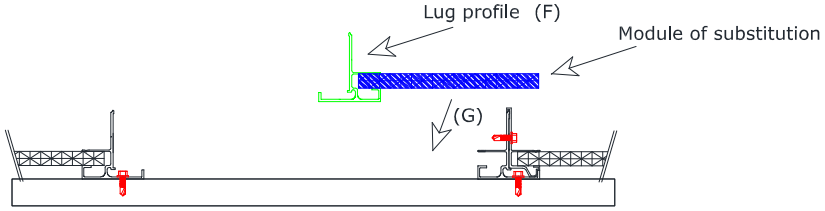
2 - Put out the damaged module (C) and unscrew the module in good condition (D).



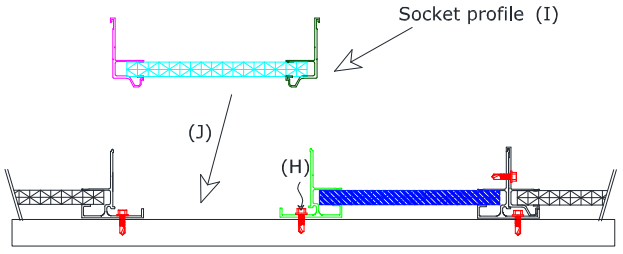
3 - Put out the module in good condition (E).



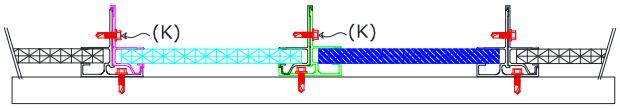
4 - A lug profile is installed on the module of substitution (F). In first, install the module of substitution



5 - Fix the module of substitution (H), replace the lug profile of the module in good condition by a socket profile (I) and install it (J)

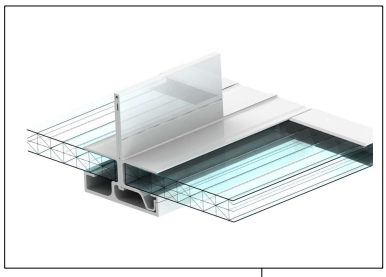


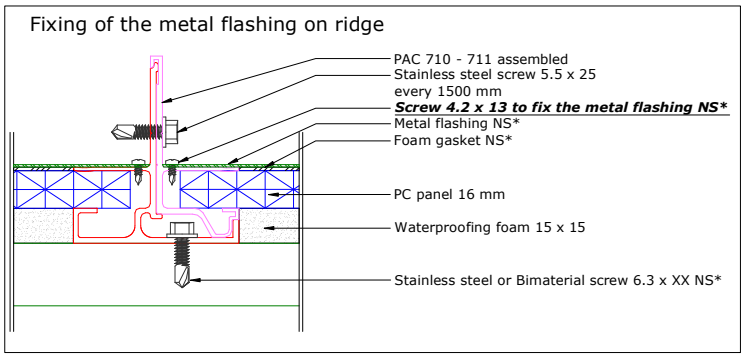
6 - Screw the modules (K)

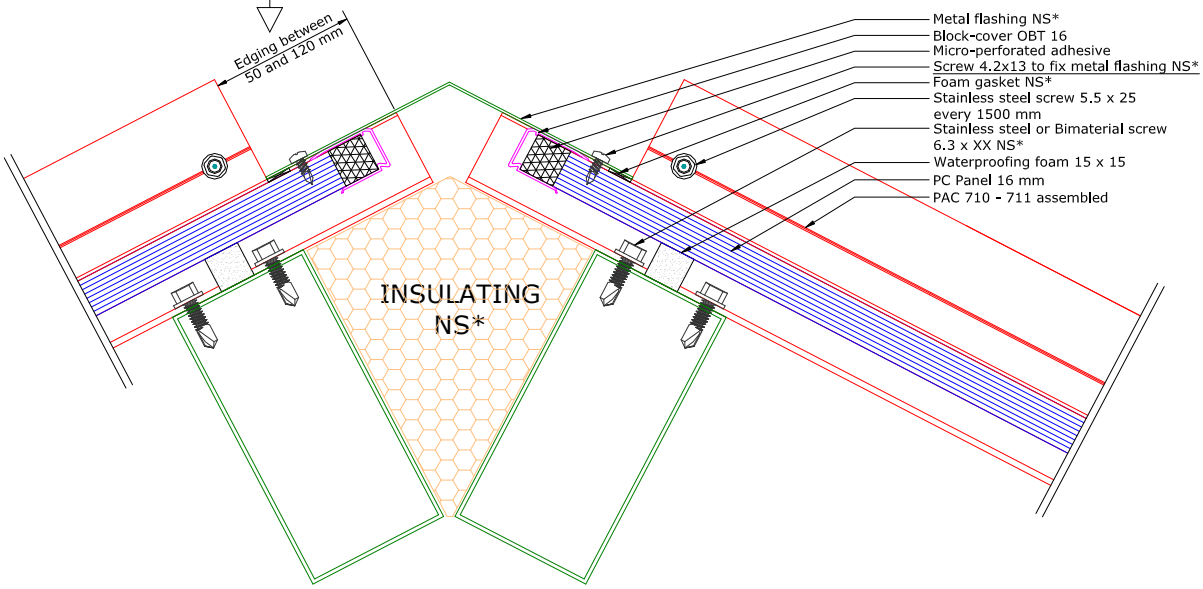


Poly Top 16

Installation principle - double pitch ridge







① PAC 710 -711 assembled

② Metal flashing NS*

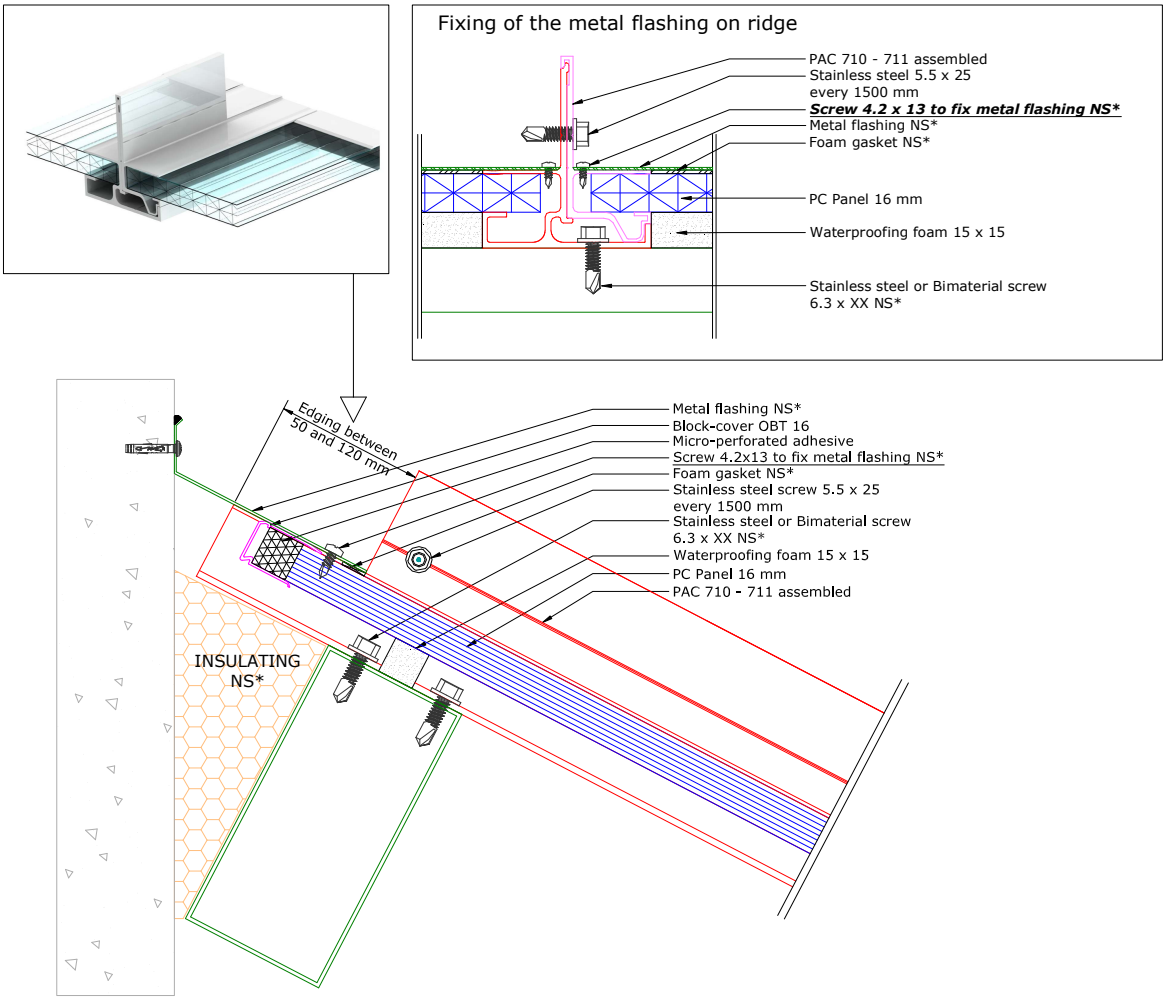
③ PC Panel 16 mm

④ PAC 710 on edge

⑤ Fixing metal flashing on Poly Top 16 profil

NS* = Not supplied

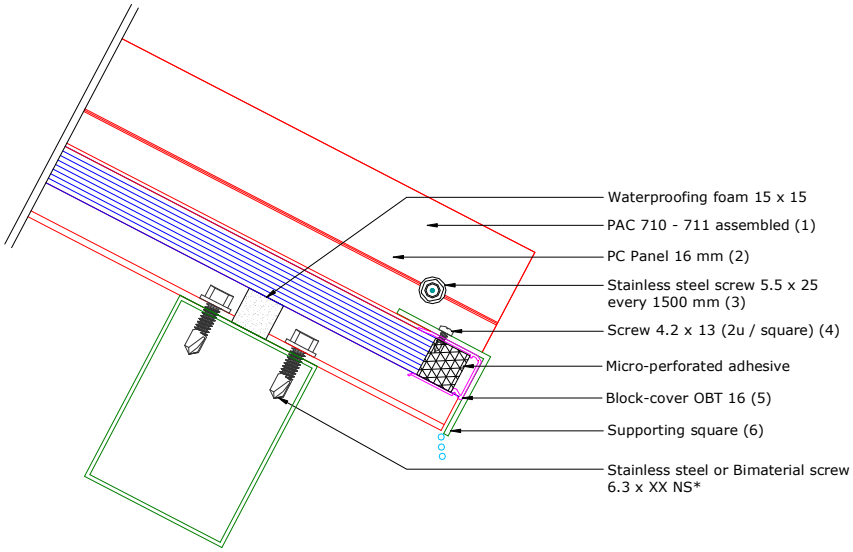
Installation principle - mono pitch ridge

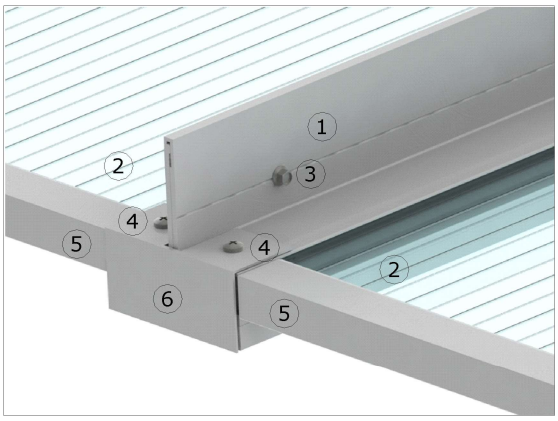


1. PAC 710 -711 assembled
2. Metal flashing NS*
3. PC Panel 16 mm
4. PAC 710 on edge
5. Fixing metal flashing on Poly Top 16 profil

NS* = Not supplied

Installation principle - on low part





① PC Panel 16 mm

② PAC 710 -711 assembled

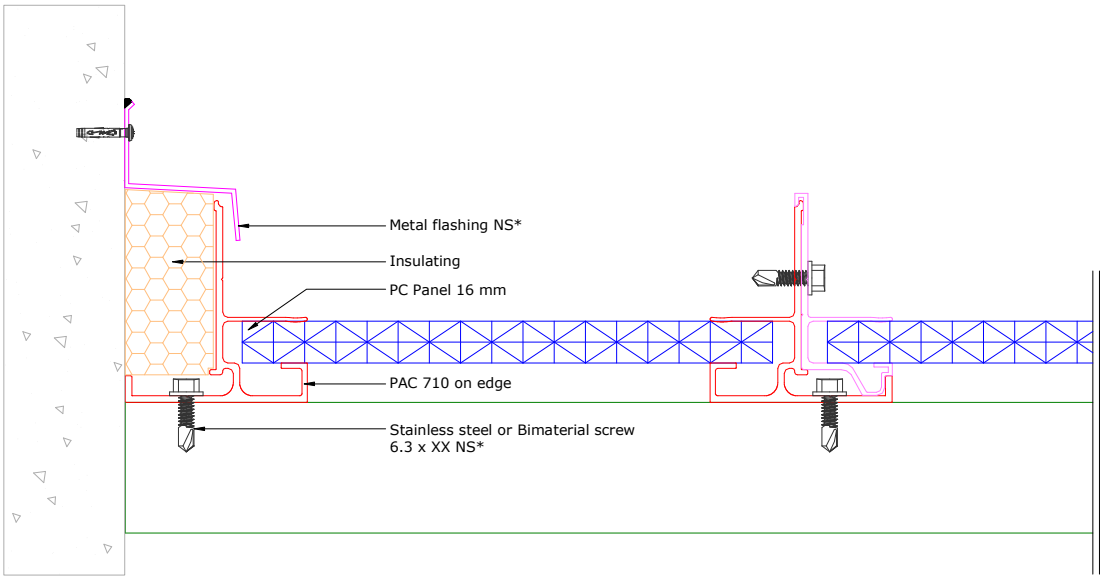
③ Block-cover OBT 16

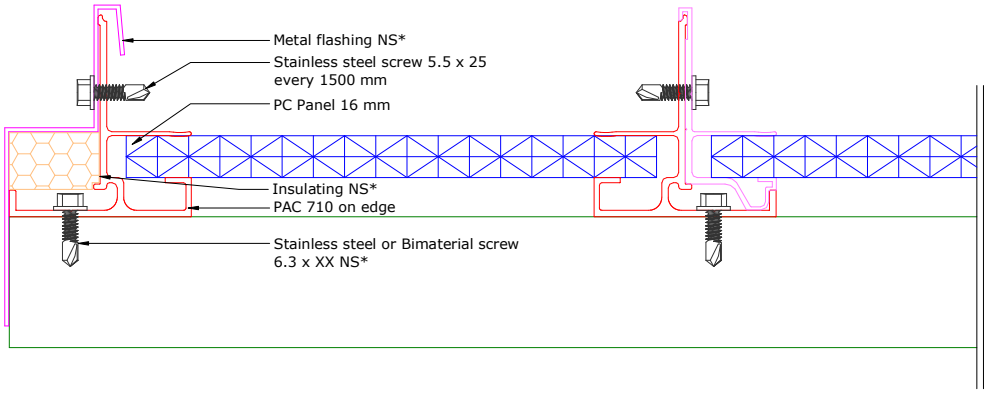
④ Supporting square

⑤ Screw 4.2 x 13

NS* = Not supplied

Installation principle - on edge

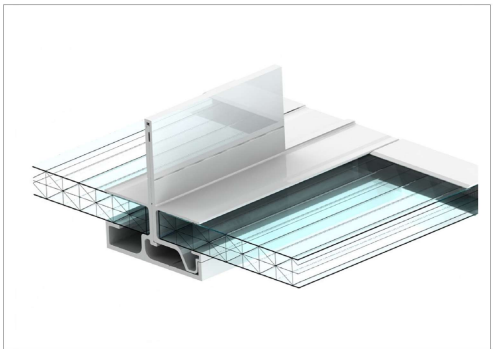


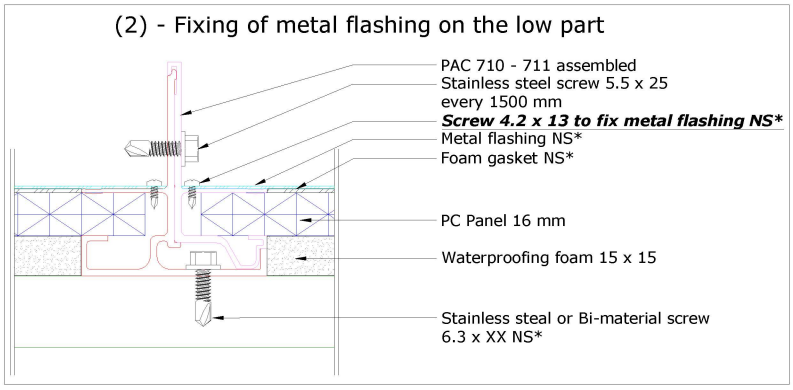


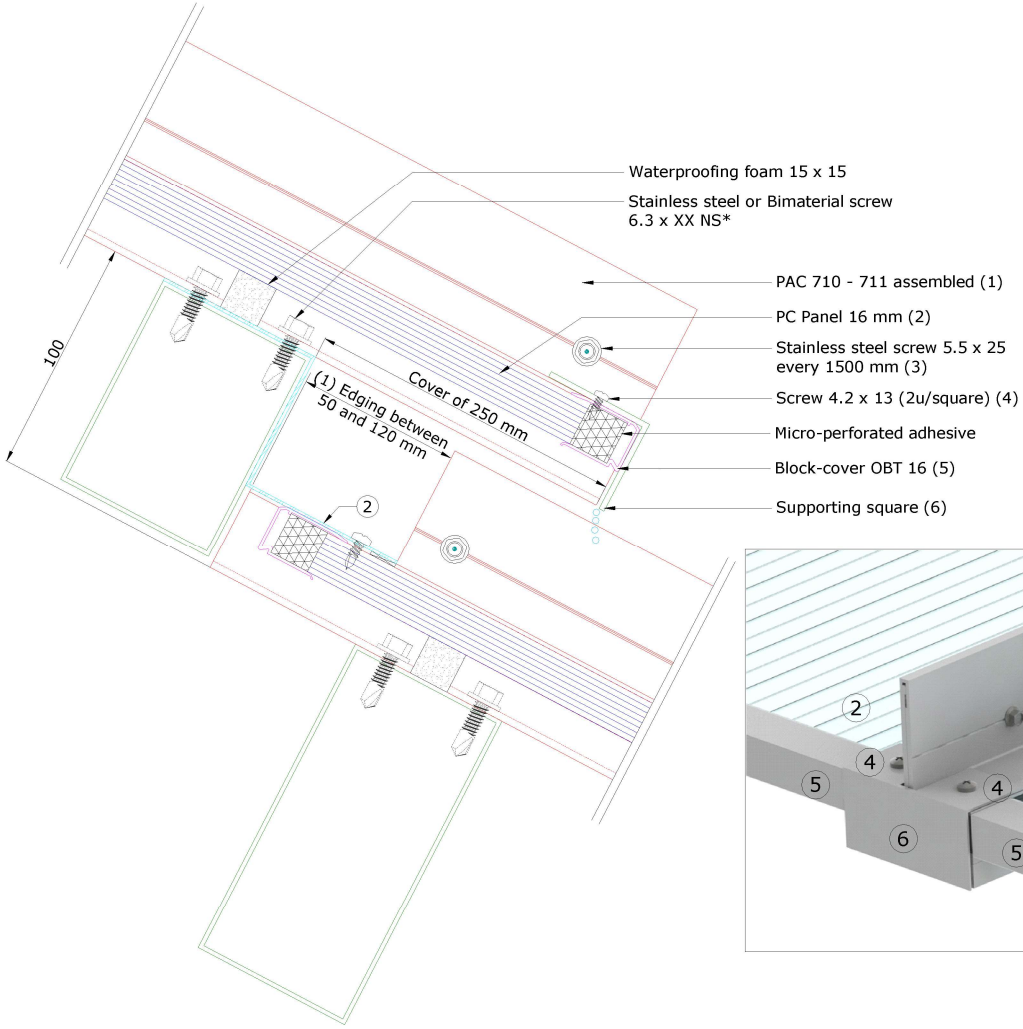
1. Metal flashing NS*
2. Screw 5.5 x 25 every 1500 mm
3. PAC 710 on egde
4. PC Panel 16 mm
5. Screw 4.2 x 13
6. Supporting square
7. Block-cover OBT 16

NS* = Not supplied

Overlap principle

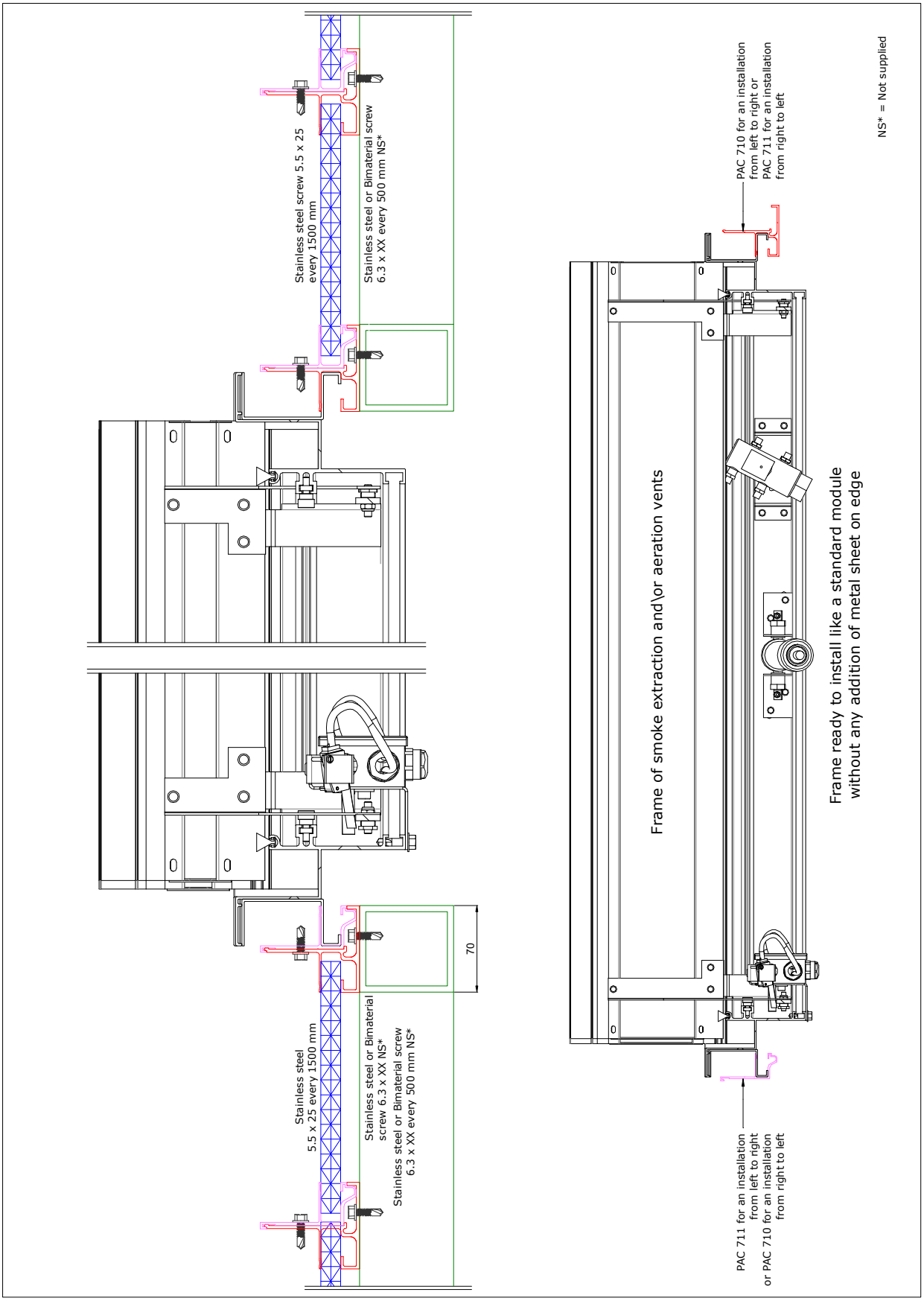




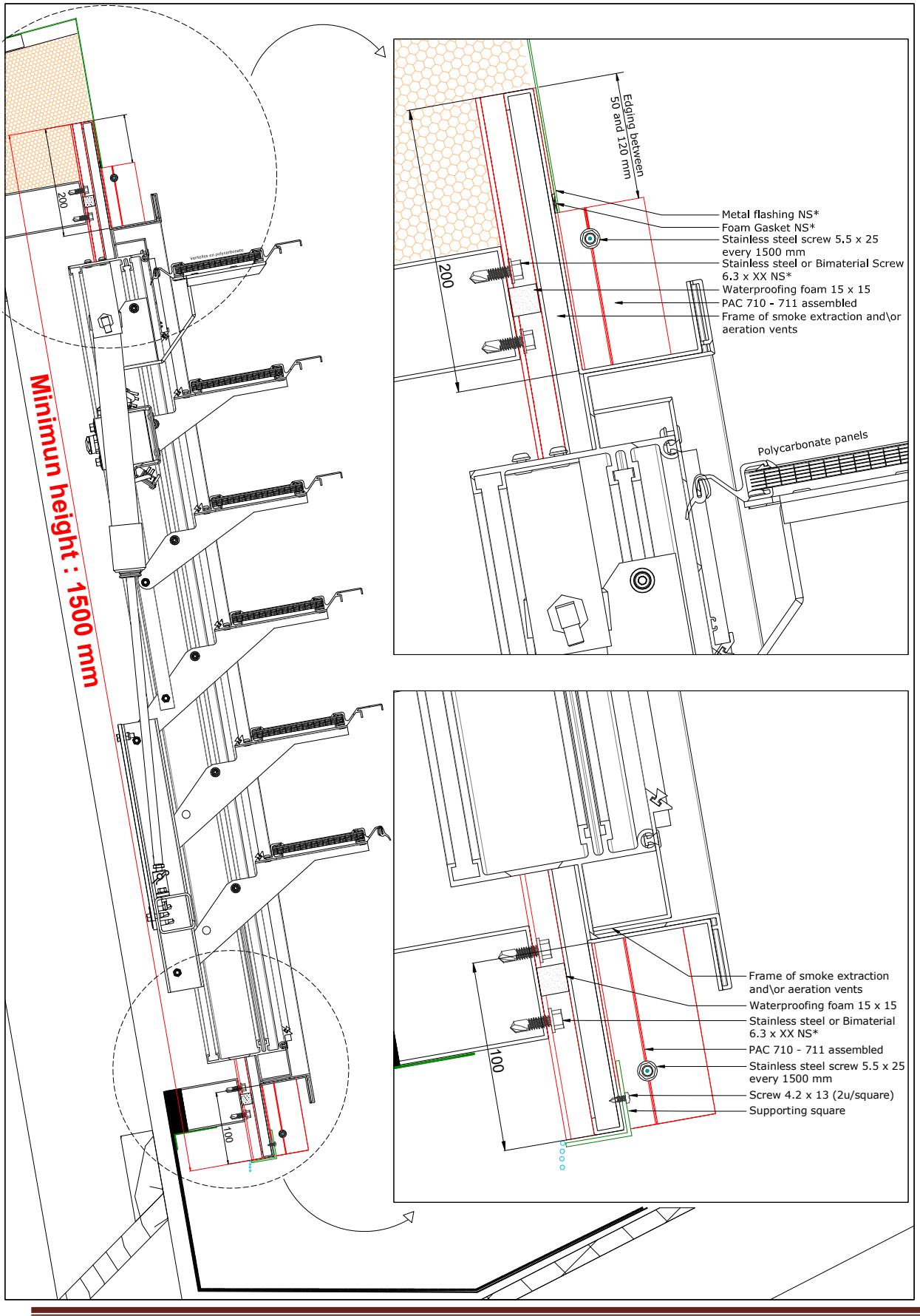


NS* = Not supplied

Integration of frame of smoke extraction and\or aeration vents 1/2

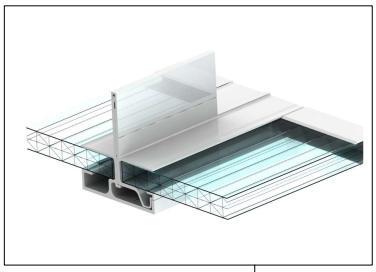


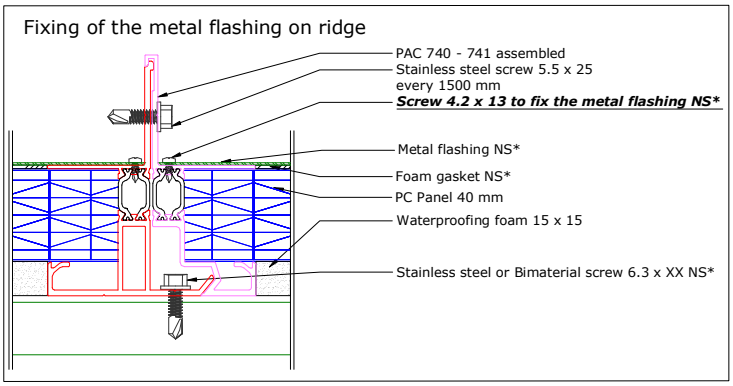
Integration of frame of smoke extraction and\or aeration vents 2/2

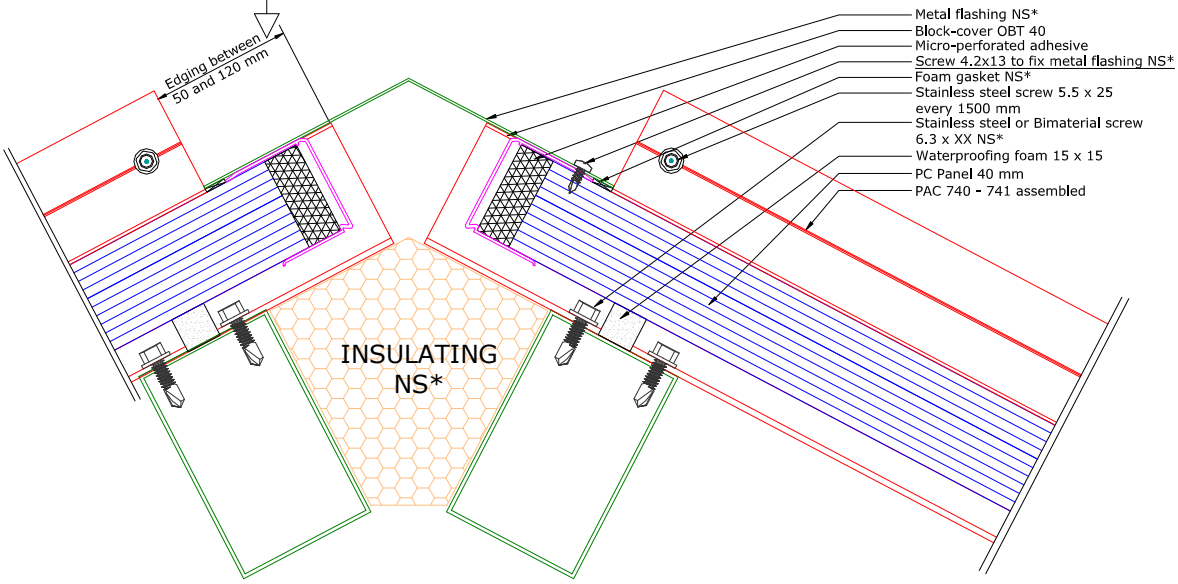


Poly Therm 40

Installation principle - double pitch ridge



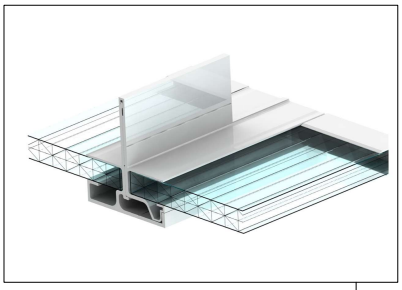


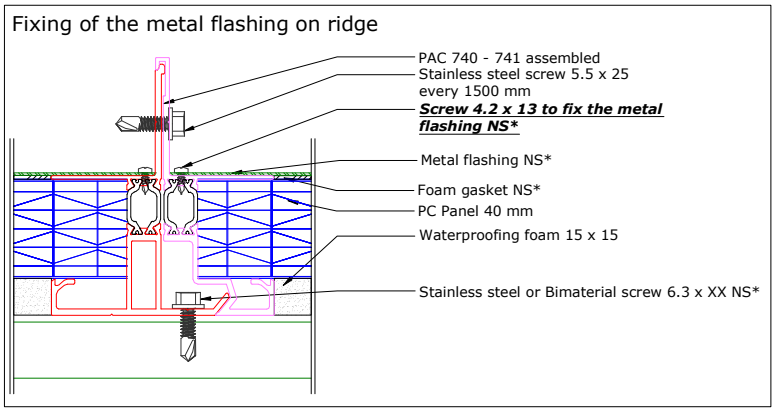


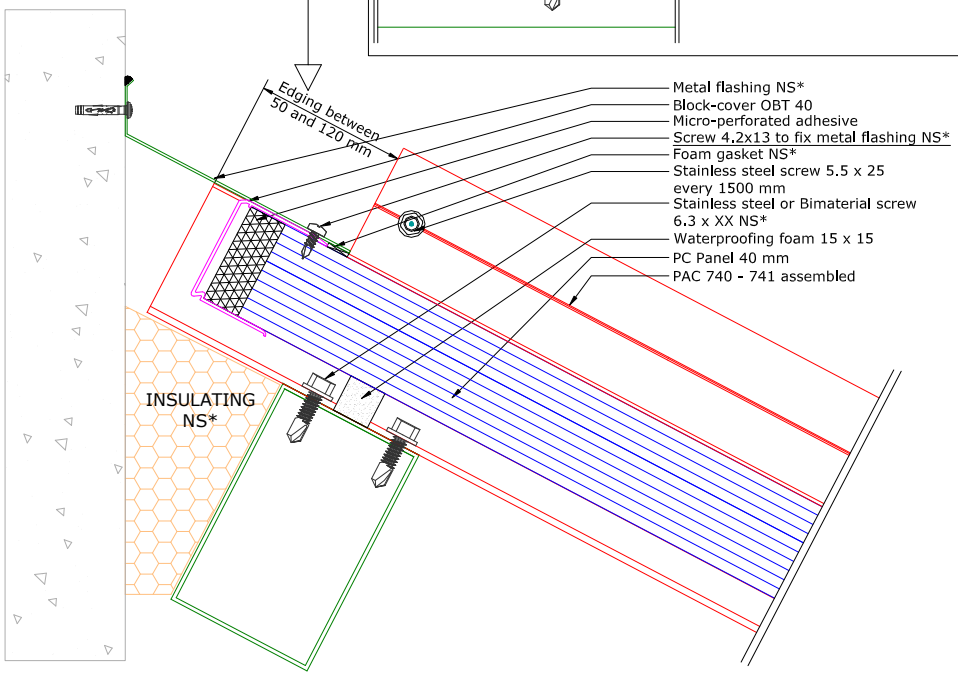
1. PAC 740 -741 assembled
2. Metal flashing NS*
3. PC Panel 40 mm
4. PAC 740 on edge
5. Fixing metal flashing on Poly Top 40 profil

NS* = Not supplied

Installation principle - mono pitch ridge



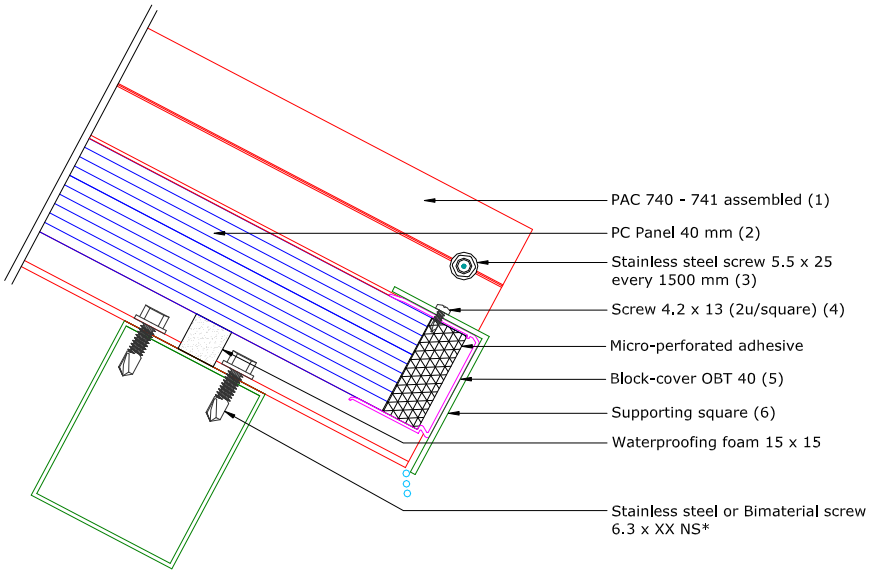




1. PAC 740 -741 assembled
2. Metal flashing NS*
3. PC Panel 40 mm
4. PAC 740 on edge
5. Fixing metal flashing on Poly Top 40 profil

NS* = Not supplied

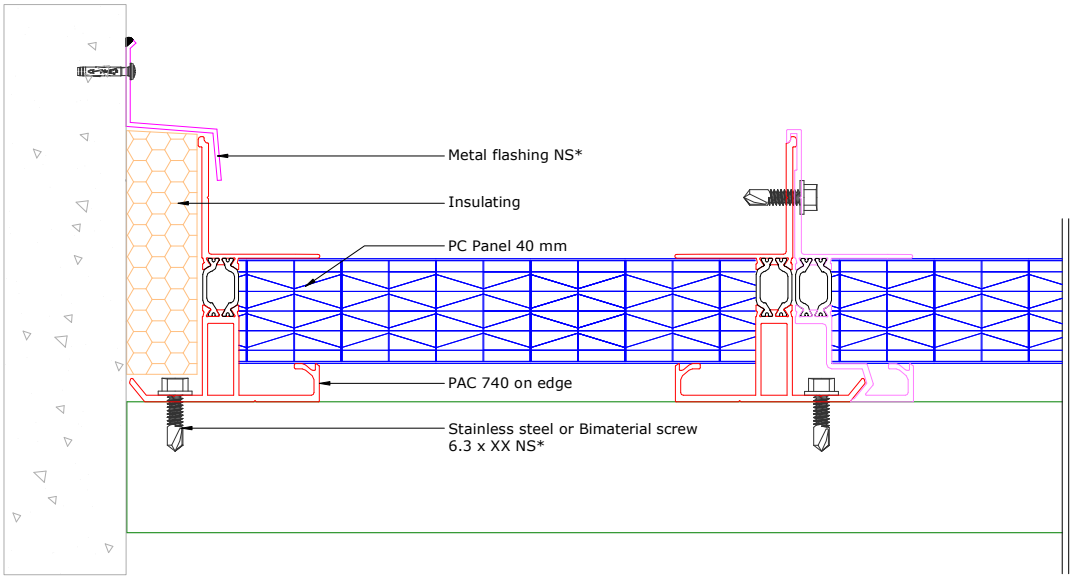
Installation principle - on low part

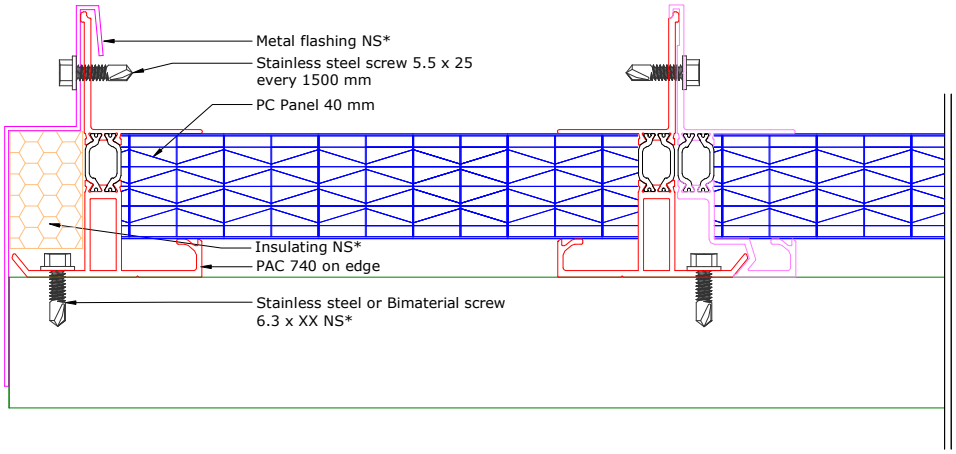


1. PC Panel 40 mm
2. PAC 740 -741 assembled
3. Block-Cover OBT 40
4. Supporting square
5. Screw 4.2 x 13

NS* = Not supplied

Installation principle - on edge

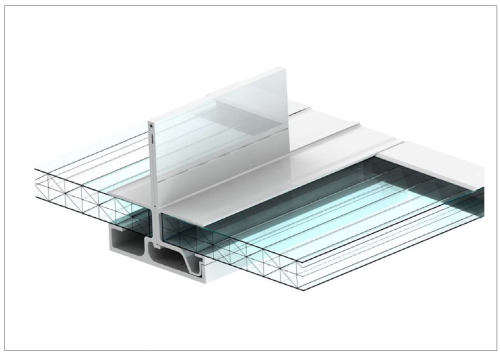


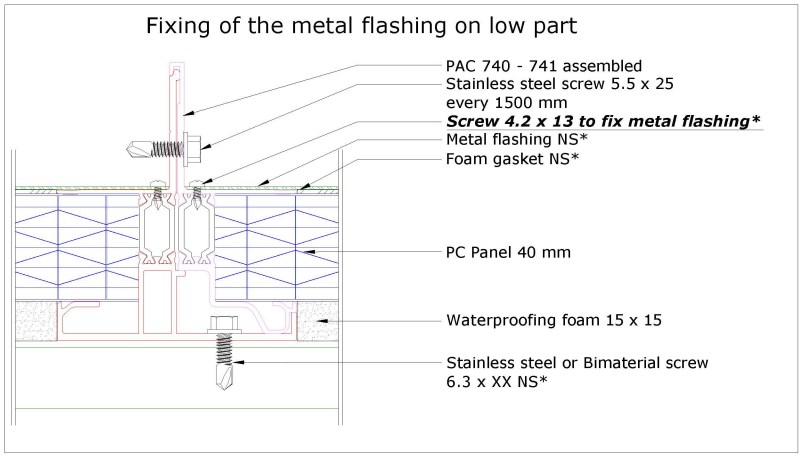


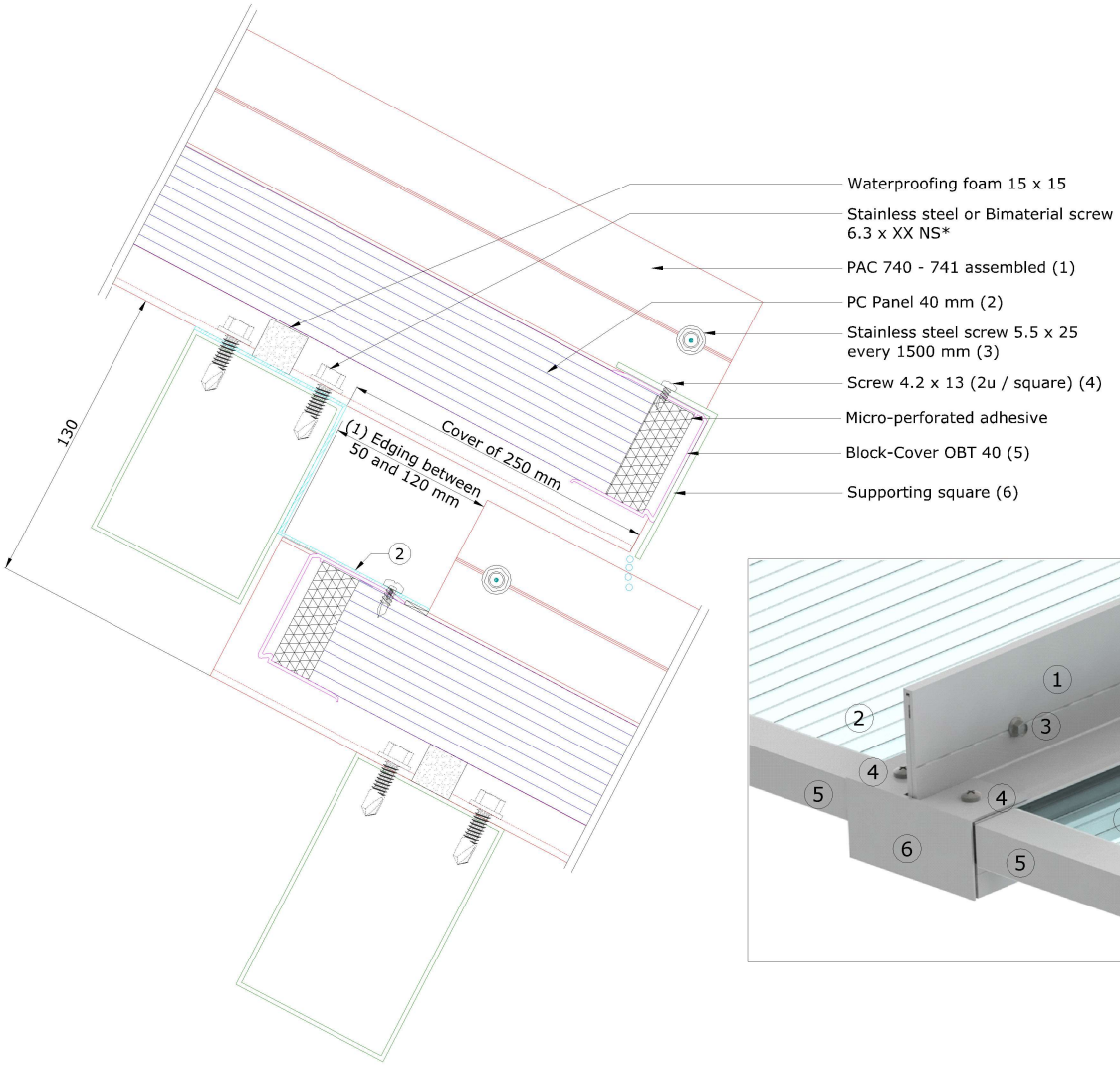
1. Metal flashing NS*
2. Screw 5.5 x 25 every 1500 mm
3. PAC 740 on edge
4. PC Panel 40 mm
5. Screw 4.2 x 13
6. Supporting square
7. Block cover OBT 40

NS* = Not supplied

Overlap principle

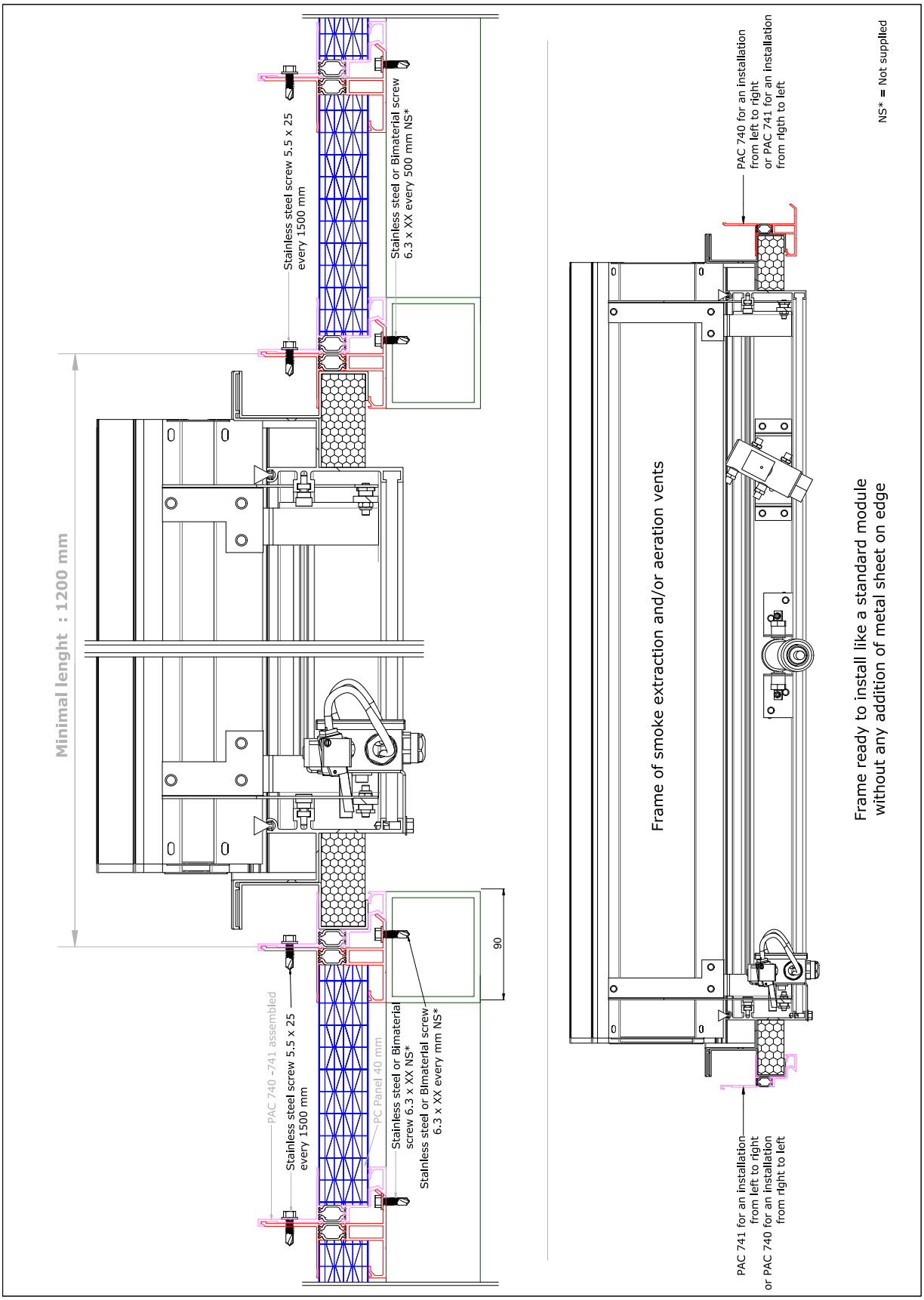






NS* = Not supplied

Integration of frame of smoke extraction and\or aeration vents 1/2



Integration of frame of smoke extraction and\or aeration 2/2