

IRFTS SHADOW SOLAR

SOLAR SHADE HOUSE STRUCTURE – ENERGY PRODUCTION AND
SUN PROTECTION

For 60 cell PV modules

Installation Manual IRFTS SHADOW SOLAR Garden



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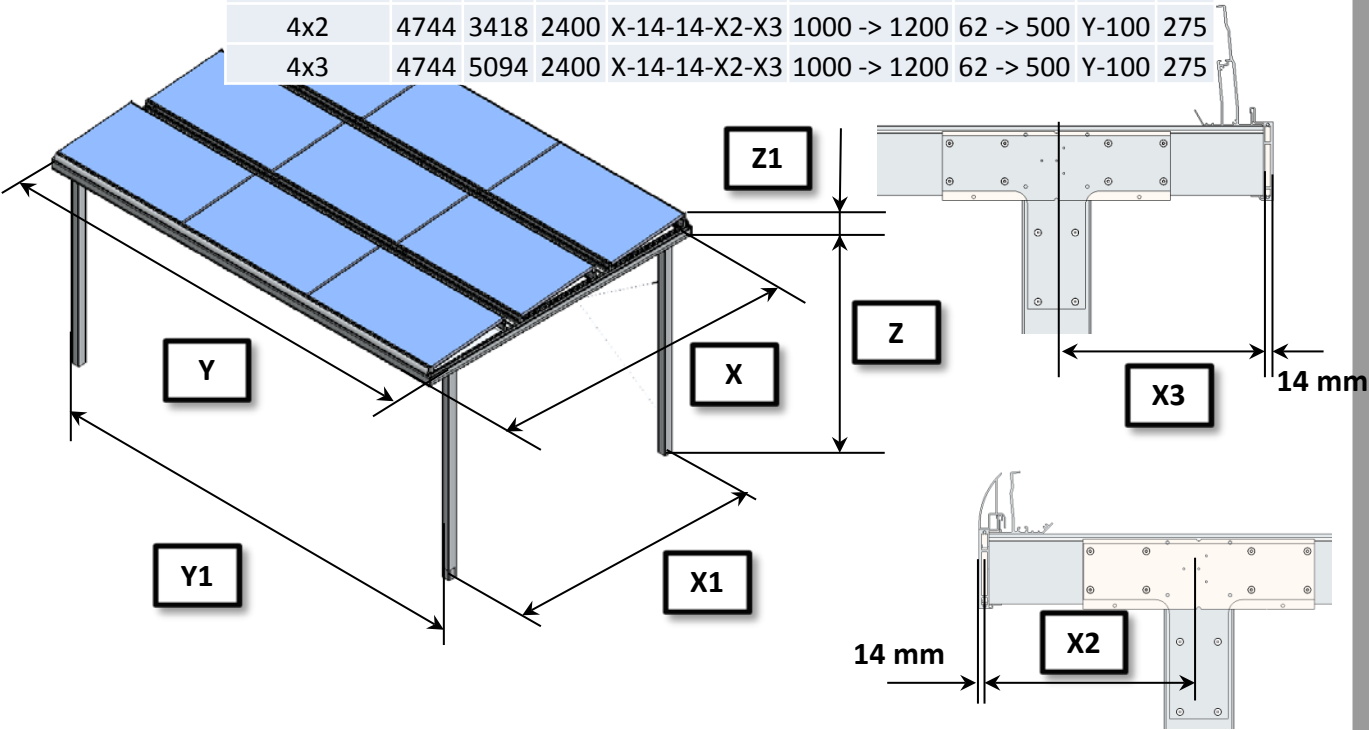
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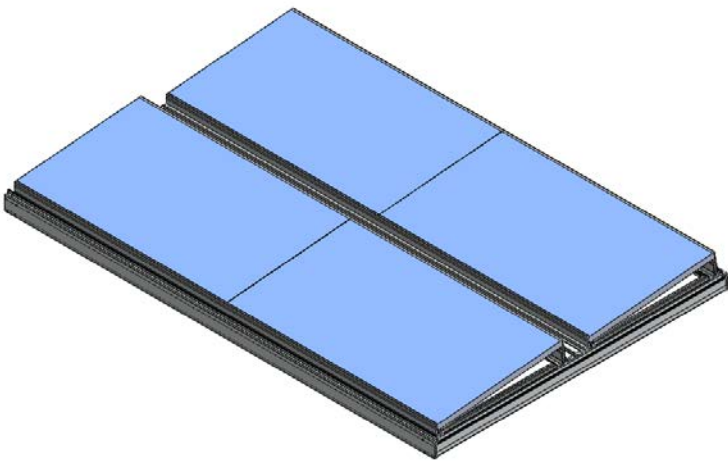
Format\Dimension	X	Y	Z	X1	X2	X3	Y1	Z1
2x2	2330	3418	2400	X-14-14-X2-X3	62 -> 500	62 -> 500	Y-100	275
3x3	3517	5094	2400	X-14-14-X2-X3	62 -> 500	62 -> 500	Y-100	275
4x2	4744	3418	2400	X-14-14-X2-X3	1000 -> 1200	62 -> 500	Y-100	275
4x3	4744	5094	2400	X-14-14-X2-X3	1000 -> 1200	62 -> 500	Y-100	275



Information et visuels non contractuels. Sous réserve de modifications techniques sans préavis.

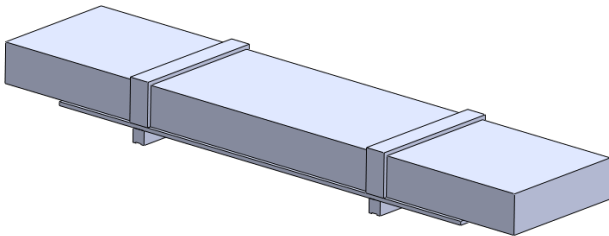
1) Installation manual

1.1) Kit IRFTS SHADOW GARDEN2 X 2



Part's name	Reference	Number	Number/kit	Total weight
Gutter 2 x	PRT00117	1	2	17,2
Front cover x2	PRT00014	2	2	10,4
Back cover x2	PRT00015	3	2	21,6
Spoiler x 2	PRT00013	4	2	17
U weather tightness between modules	PRT00025	5	2	1,2
U weather tightness between rows x2	PRT00038	6	1	15,6
Module clamp	PRT00017	7	24	0,696
Spoiler cover	PRT00108	8	4	0
Spoiler strenght X2	PRT00060	9	1	3,693
Sealing board	PRT00036	10	1	0
Square board	PRT00018	11	4	1,8
Gutter exit	PRT00106	12	2	0
Self drilling screw 6,3x38 Head H	V030V02	13	50	
Self drilling screw 4,8x60 Head H	V044V02	14	20	
Self drilling screw 4,8x50 counter sunk head Torx	V045V02	15	50	
Self drilling screw 4,8x38 counter sunk head Torx	V043V02	16	50	
Self drilling screw 3,5x25 counter sunk head Torx	V040V02	17	10	
Self drilling screw 5,5x38 counter sunk head Torx	V046V02	18	20	
Screw M6 x 30 hexagonal head	V023V02	19	100	
Large washer D6	V024V02	20	100	
Hexagonal nut M6	V025V02	21	100	
Rivet 4 x 16	V042V02*	22	30	
Screw coverTorx	V048V02*	23	80	
Screw cover foot	V049V02*	24	10	
Mounting tool	PRT00105	25	1	0
				89,3

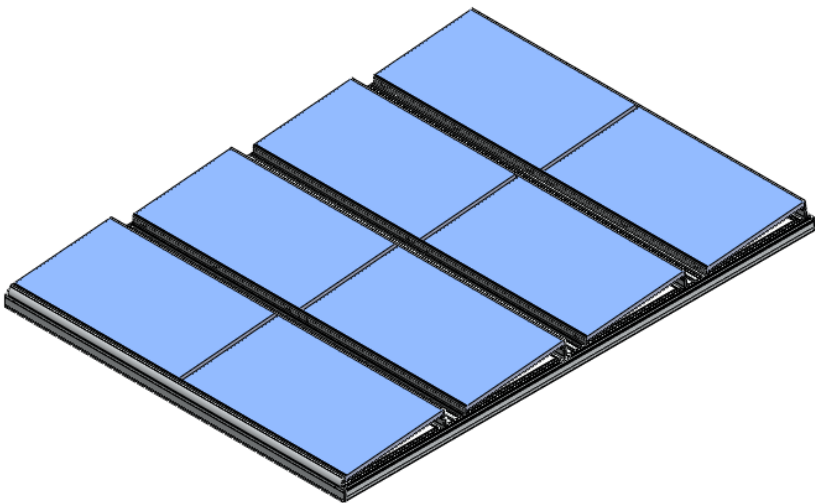
3450 x 800 x 350



* : according to color

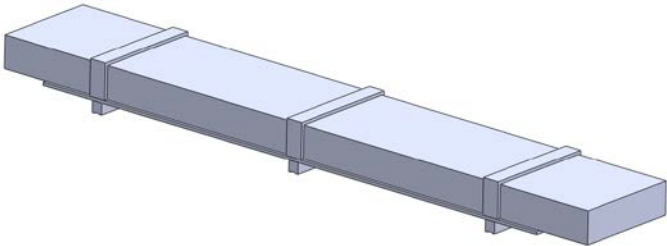
1) Installation manual

1.2)Kit IRFTS SHADOW GARDEN4 X 2



Part's Name	Reference	Number	Number/kit	Total weight
Gutter 4 x	PRT00016	1	2	35,2
Front coverx2	PRT00014	2	4	20,8
Back coverx2	PRT00015	3	4	43,2
Spoiler x 2	PRT00013	4	2	17
U weather tightness between modules	PRT00025	5	4	2,4
U weather tightness between rows x2	PRT00038	6	3	14,7
Module clamp	PRT00017	7	48	1,392
Spoiler cover	PRT00108	8	4	0
Spoiler strength X2	PRT00060	9	1	3,693
Sealing board	PRT00036	10	1	0
Square board	PRT00018	11	4	1,8
Gutter exit	PRT00106	12	2	0
Self drilling screw 6,3x38 tête H	V030V02	13	50	
Self drilling screw 4,8x60 tête H	V044V02	14	20	
Self drilling screw 4,8x50 counter sunk head Torx	V045V02	15	50	
Self drilling screw 4,8x38 counter sunk head Torx	V043V02	16	50	
Self drilling screw 3,5x25 counter sunk head Torx	V040V02	17	10	
Self drilling screw 5,5x38 counter sunk head Torx	V046V02	18	20	
Screw M6 x 30 hexagonal head	V023V02	19	100	
Large washer D6	V024V02	20	100	
Hexagonal nut M6	V025V02	21	100	
Rivet 4 x 16	V042V02*	22	30	
Screw cover Torx	V048V02*	23	80	
Screw cover foot	V049V02*	24	10	
Mounting tool	PRT00105	25	1	0
				140,2

4750 x 800 x 350

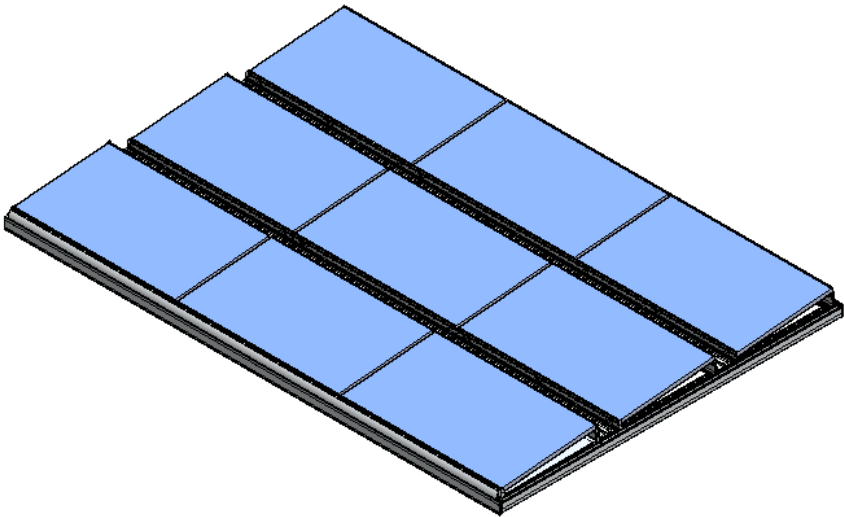


* : according to color

Information et visuels non contractuels. Sous réserve de modifications techniques sans préavis.

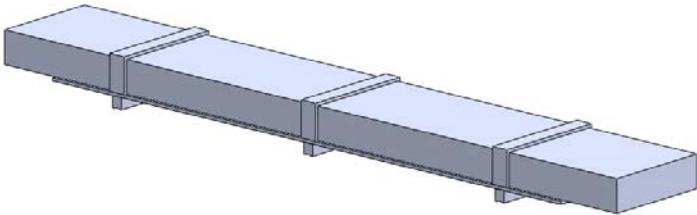
1) Installation manual

1.3) Kit IRFTS SHADOW GARDEN3 X 3



Part's Name	Reference	Number	Number/kit	Total weight
Gutter 3 x	PRT00026	1	3	39
Front coverx3	PRT00027	2	3	23,7
Back coverx3	PRT00028	3	3	48,6
Spoiler x 3	PRT00029	4	2	25,8
U weather tightness between modules	PRT00025	5	6	3,6
U weather tightness between rows x3	PRT00039	6	2	14,76
Module clamp	PRT00017	7	54	1,566
Spoiler cover	PRT00108	8	4	0
Spoiler strength X3	PRT00061	9	1	5,5
Sealing board	PRT00036	10	1	0
Square board	PRT00018	11	4	1,8
Gutter exit	PRT00106	12	2	0
Self drilling screw 6,3x38 tête H	V030V02	13	50	
Self drilling screw 4,8x60 tête H	V044V02	14	20	
Self drilling screw 4,8x50 counter sunk head Torx	V045V02	15	50	
Self drilling screw 4,8x38 counter sunk head Torx	V043V02	16	50	
Self drilling screw 3,5x25 counter sunk head Torx	V040V02	17	10	
Self drilling screw 5,5x38 counter sunk head Torx	V046V02	18	20	
Screw M6 x 30 hexagonal head	V023V02	19	100	
Large washer D6	V024V02	20	100	
Hexagonal nut M6	V025V02	21	100	
Rivet 4 x 16	V042V02*	22	30	
Screw cover Torx	V048V02*	23	80	
Screw cover foot	V049V02*	24	10	
Mounting tool	PRT00105	25	1	0
				164,3

5120 x 800 x 350

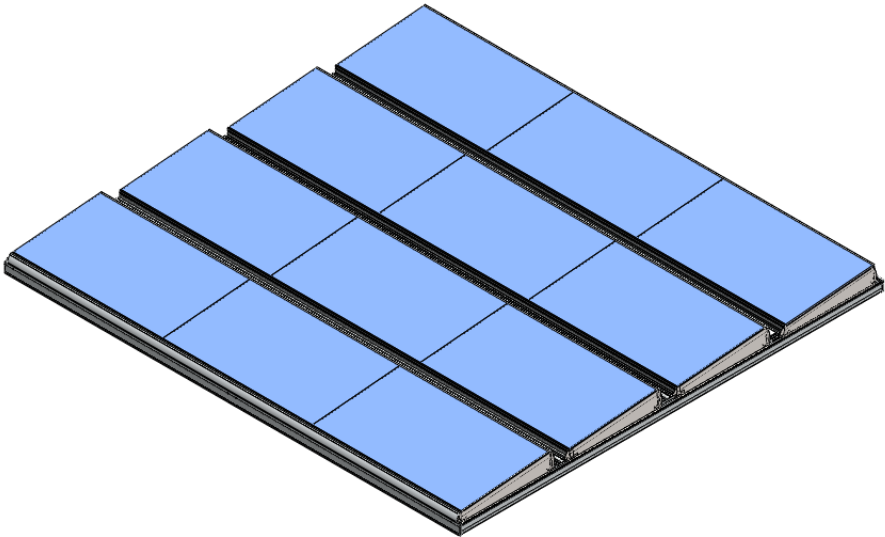


* : according to color

Information et visuels non contractuels. Sous réserve de modifications techniques sans préavis.

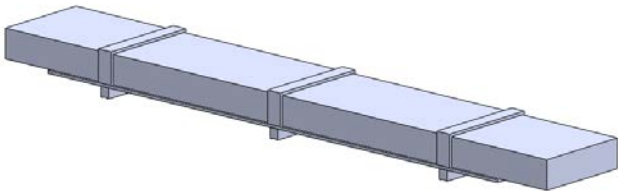
1) Installation manual

1.4) Kit IRFTS SHADOW GARDEN4 X 3



Part's Name	Reference	Number	Number/kit	Total weight
Gutter 4 x	PRT00016	1	3	51
Front coverx3	PRT00027	2	4	31,6
Back coverx3	PRT00028	3	4	64,8
Spoiler x 3	PRT00029	4	2	25,8
U weather tightness betweenmodules	PRT00025	5	8	4,8
U weather tightness betweenrows x3	PRT00039	6	3	22,14
Module clamp	PRT00017	7	72	2,088
Spoiler cover	PRT00108	8	4	0
Spoiler strength X3	PRT00061	9	1	5,5
Sealing board	PRT00036	10	1	0
Square board	PRT00018	11	4	1,8
Gutter exit	PRT00106	12	2	0
Self drilling screw 6,3x38 tête H	V030V02	13	50	
Self drilling screw 4,8x60 tête H	V044V02	14	20	
Self drilling screw 4,8x50 counter sunk head Torx	V045V02	15	50	
Self drilling screw 4,8x38 counter sunk head Torx	V043V02	16	50	
Self drilling screw 3,5x25 counter sunk head Torx	V040V02	17	10	
Self drilling screw 5,5x38 counter sunk head Torx	V046V02	18	20	
Screw M6 x 30 hexagonal head	V023V02	19	100	
Large washer D6	V024V02	20	100	
Hexagonal nut M6	V025V02	21	100	
Rivet 4 x 16	V042V02*	22	30	
Screw cover Torx	V048V02*	23	80	
Screw cover foot	V049V02*	24	10	
Mounting tool	PRT00105	25	1	0
				209,5

5120 x 800 x 350



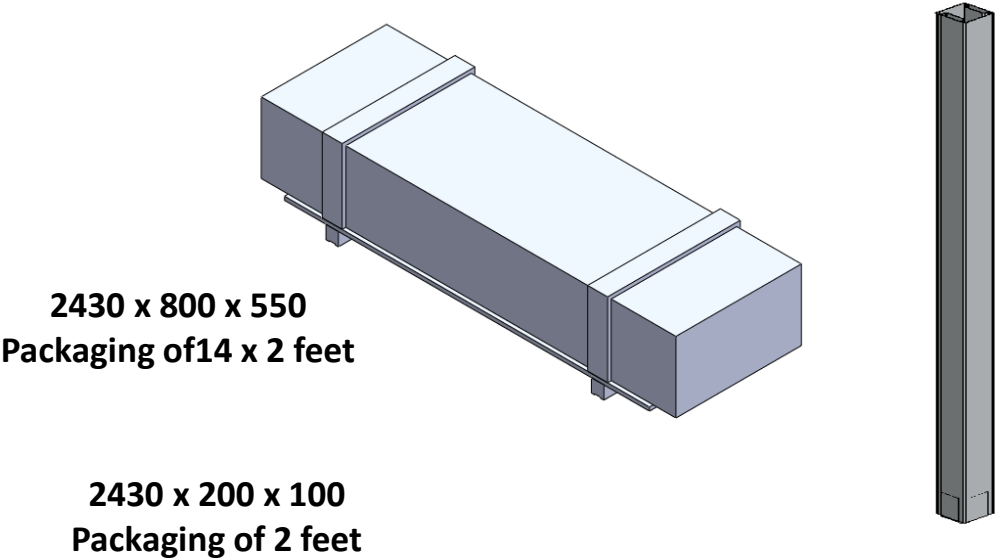
* : according to color

Information et visuels non contractuels. Sous réserve de modifications techniques sans préavis.

1)

Installation manual

1.5) IRFTS SHADOW GARDEN Feet and optional side cover



Part's Name	Reference	Number	Number/kit	Total weight
Foot	PRT00012 b	26	2	17
Support Foot	PRT00020 c	27	2	0,36
				17,36

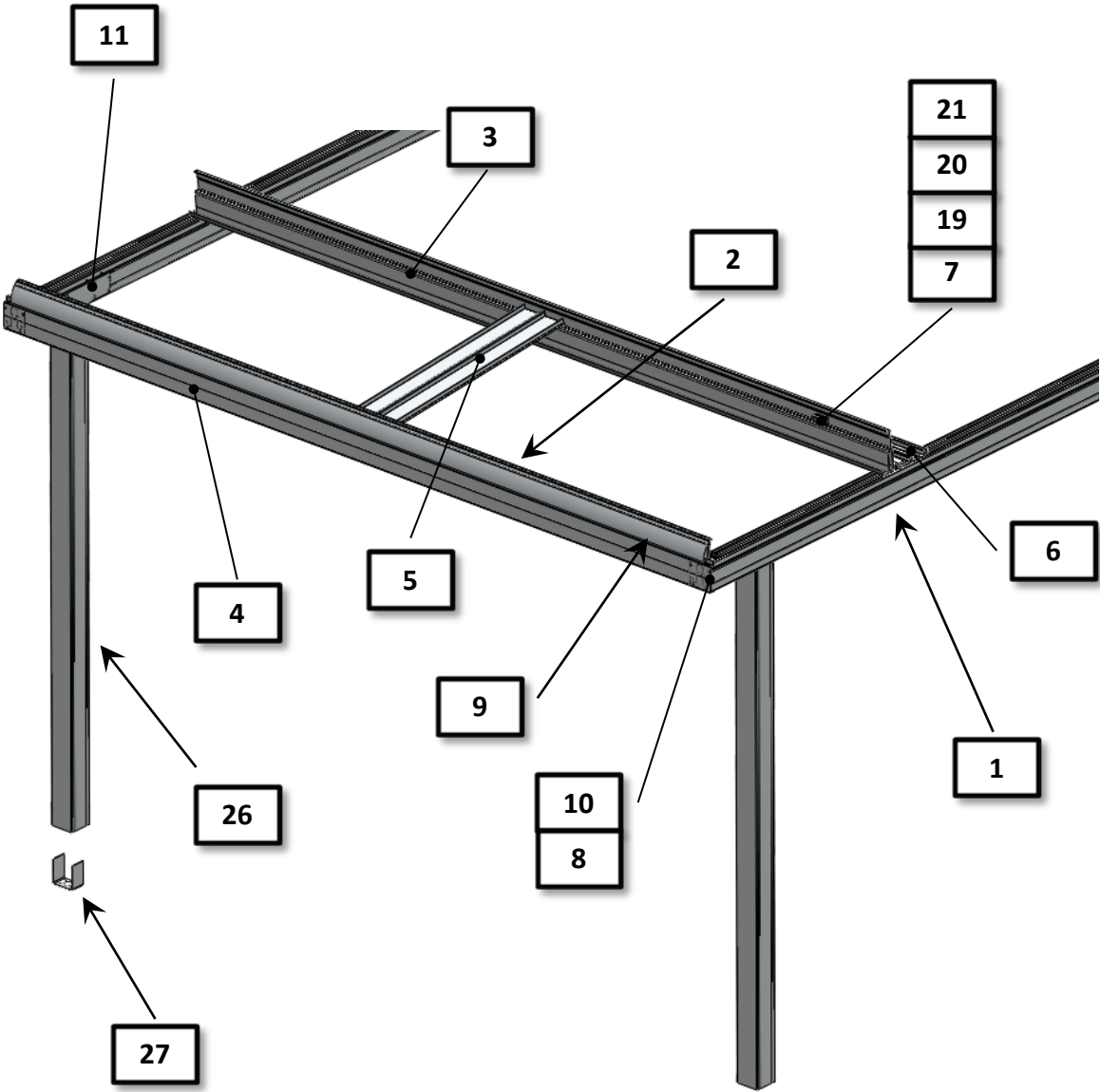
Side Cover First and Last Row

Part's Name	Part Number	Number	Number of parts/kit
Front metal sheet	PRT00111	28	2
Back metal sheet	PRT00112	29	4
Front metal sheet without strenght	PRT00118	30	2
Right side cover	PRT00109	31	2
Left side cover	PRT00113	32	2
Profile inter module	PRT00144	33	2
Self drilling screw 4,8x22 countersunk head. Thorx	V047V02	34	30
Front spring ceiling	PRT00154	35	12
Back spring ceiling	PRT00155	36	12

Side Cover First additional Row

Part's Name	Part Number	Number	Number of parts/kit
Back metal sheet	PRT00112	29	2
Front metal sheet without strenght	PRT00118	30	2
Right side cover	PRT00109	31	1
Left side cover	PRT00113	32	1
Profil inter module	PRT00144	33	2
Front spring ceiling	PRT00154	35	6
Back spring ceiling	PRT00155	36	6

1.6) Part's presentation



Tools needed for the assembly of theIRFTS SHADOW GARDEN

	Drill bit	Hole saw	bit
Drill	Ø3-Ø4-Ø5-Ø7	Ø40	
Electrical screw driver			TX25-TX10
Rivet gun			rivet Ø4

Module's compatibility: 986 mm to 1001 mm width
1635 mm to 1676 mm length
30 to 46 mm thickness

Application field :	Format	Zone de vent 3 Eurocodes 1 NF-EN-1991
	2x2	up'to 900 m
	3x3	up'to 900 m
	4x2	up'to 900 m
	4x3	up'to 900 m

Information et visuels non contractuels. Sous réserve de modifications techniques sans préavis.

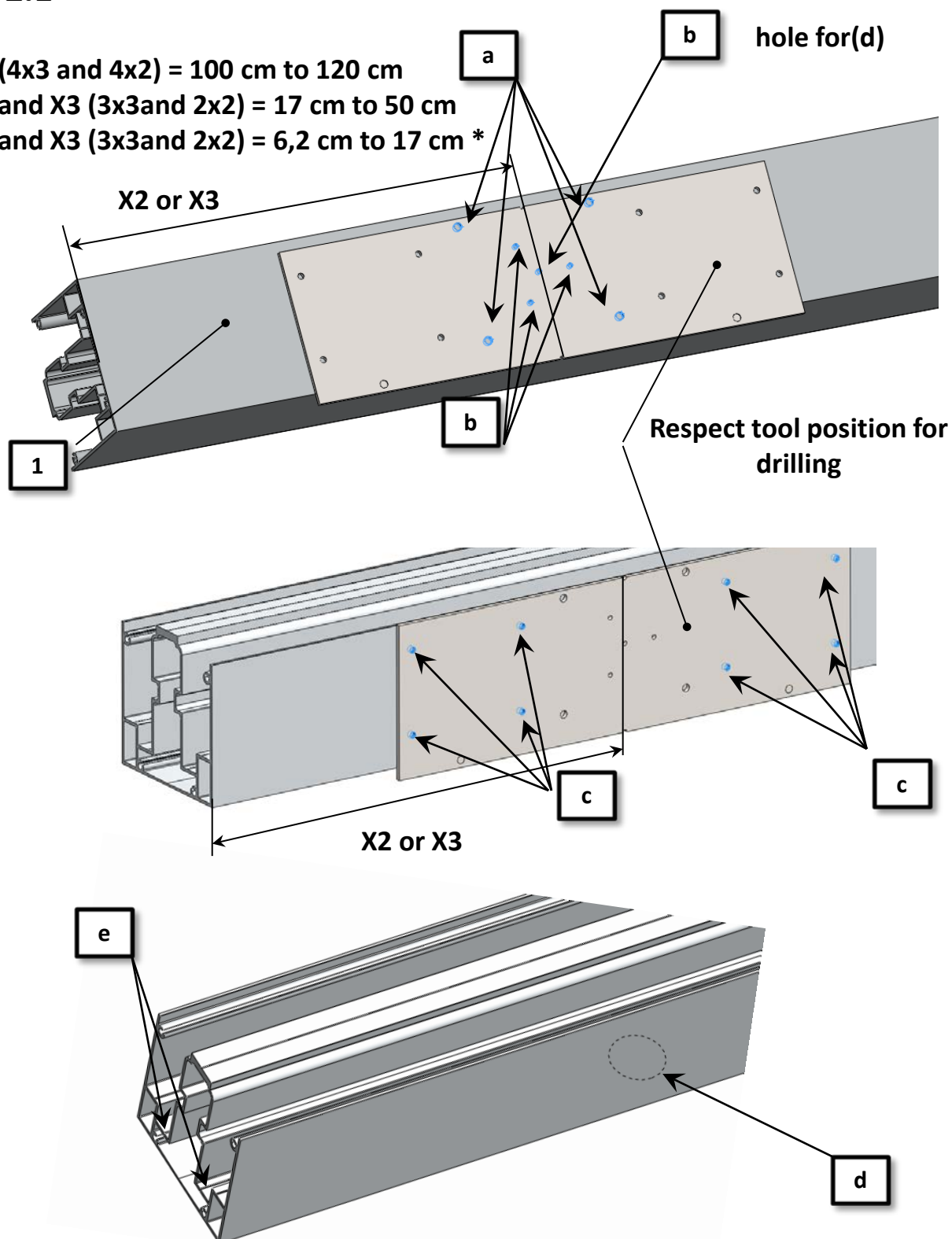
2.1

Gutter preparation

X2 (4x3 and 4x2) = 100 cm to 120 cm

X2 and X3 (3x3 and 2x2) = 17 cm to 50 cm

X2 and X3 (3x3 and 2x2) = 6,2 cm to 17 cm *

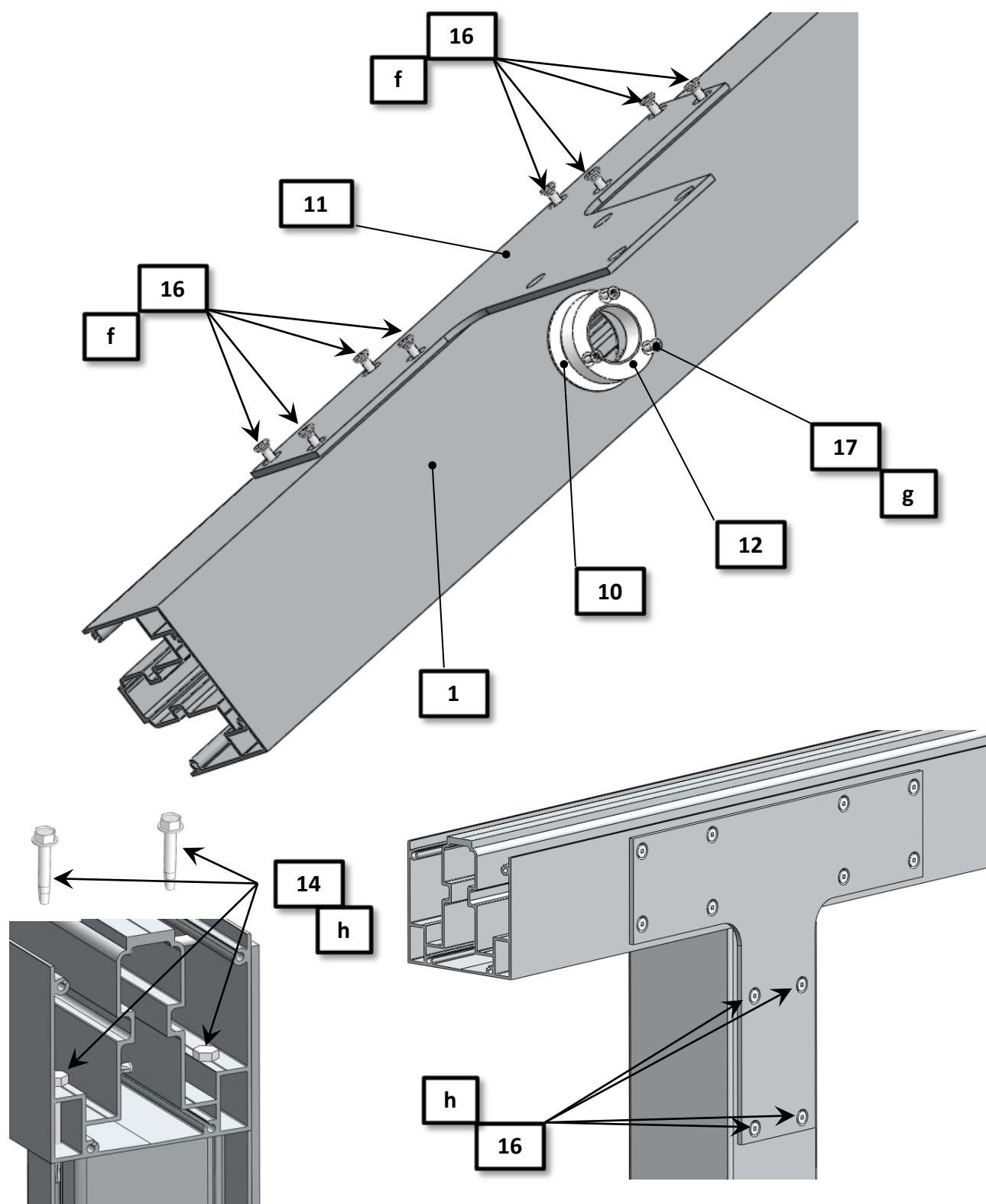


- a) Drill with a bit diameter 5mm through both walls .
- b) Drill with a bit diameter 3mm only through this wall and only on water drainage side).
- c) Drill with a bit diameter 4mm through 2 walls at the top and 3 walls at the bottom .
- d) Drill with a hole saw diameter 40 mm using the hole (b) (only on water drainage side) .
- e) Drill with a bit diameter 5mm at 20 mm from the edge then every 50mm until the drainage hole (d) then every 50cm. Only this wall.

* See # 6 .

2.1

Gutter preparation



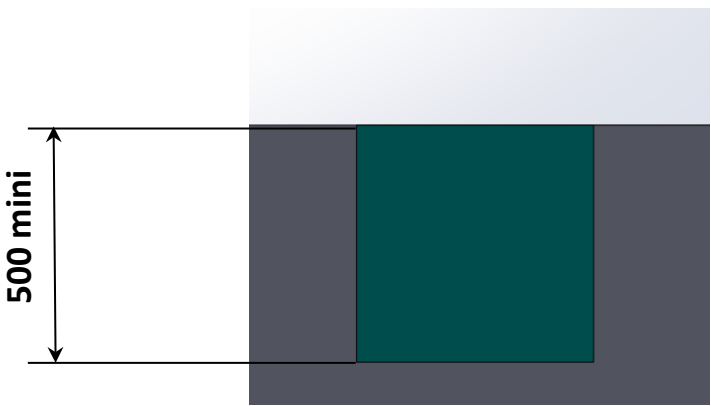
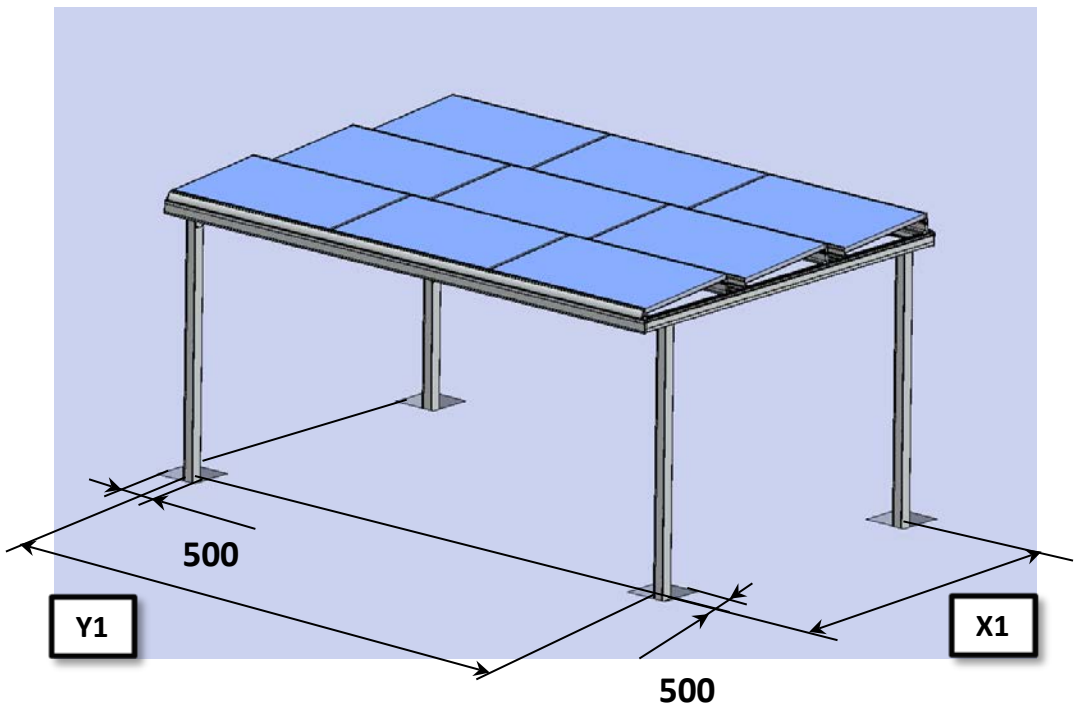
f) Screw (1) and (11) using screw (16) .

g) Screw (1),(10) and (12) using screw (17) (only on water evacuation side) .

h) Screw (1) and (26) using screw (14) and (16) . Don't forget to prepare the foot for water evacuation if needed (see #6)

i) Put the screw cover where needed(23) .

2.2 Preparation for the IRFTS SHADOW GARDEN installation

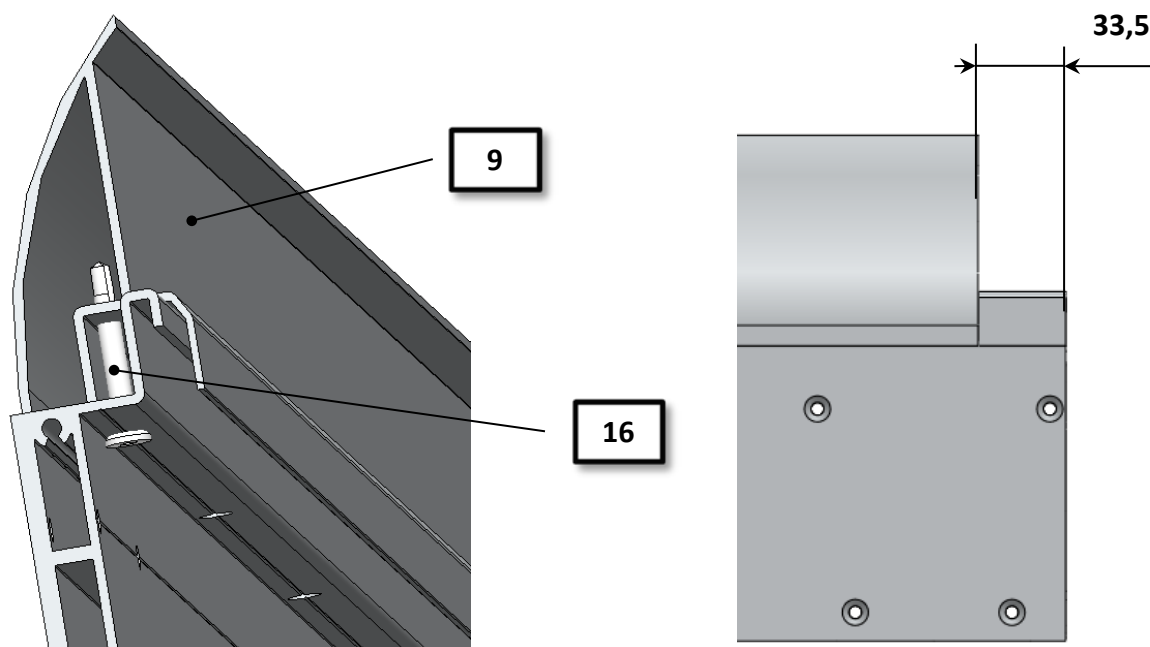
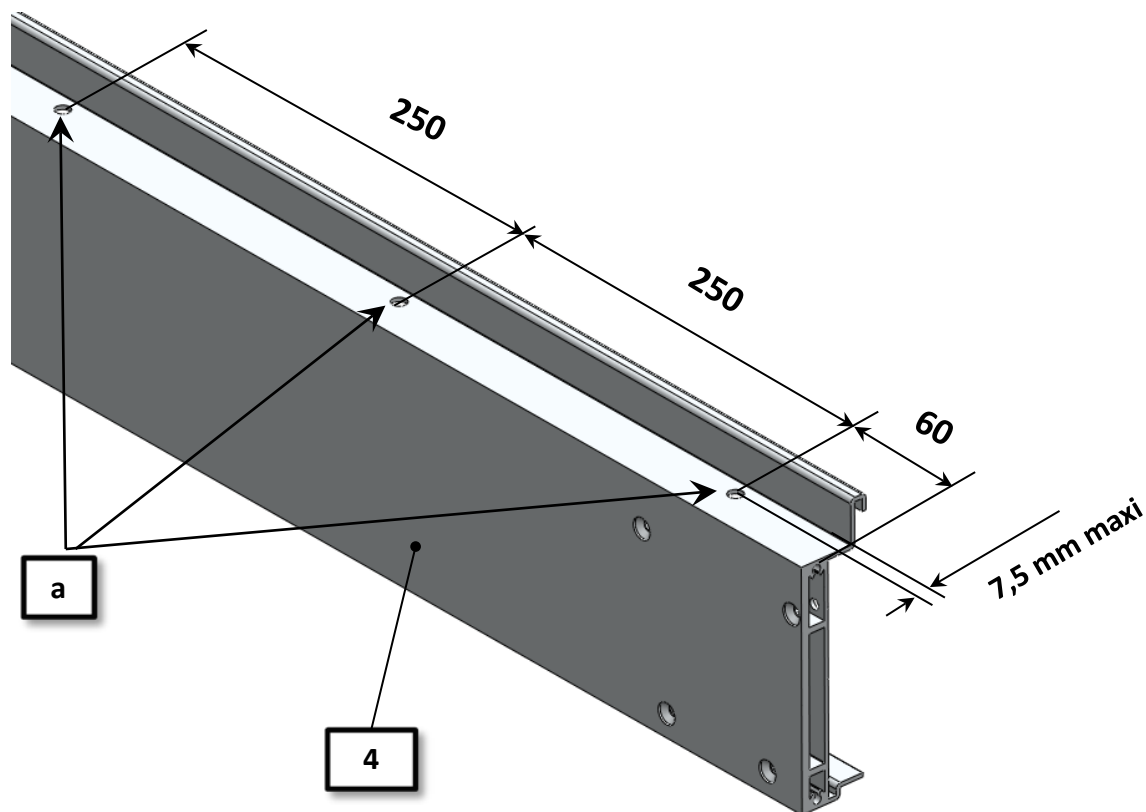


- a) Make 4 holes 50 x 50 x 50 cm respect the center distance and make sure it's square.

	IRFTS SHADOW SOLAR configuration			
	4x3	4x2	3x3	2x2
Dimension X1 for 4 feet	4717-X2-X3	4814-X2-X3	3510-X2-X3	2302-X2-X3

2.3

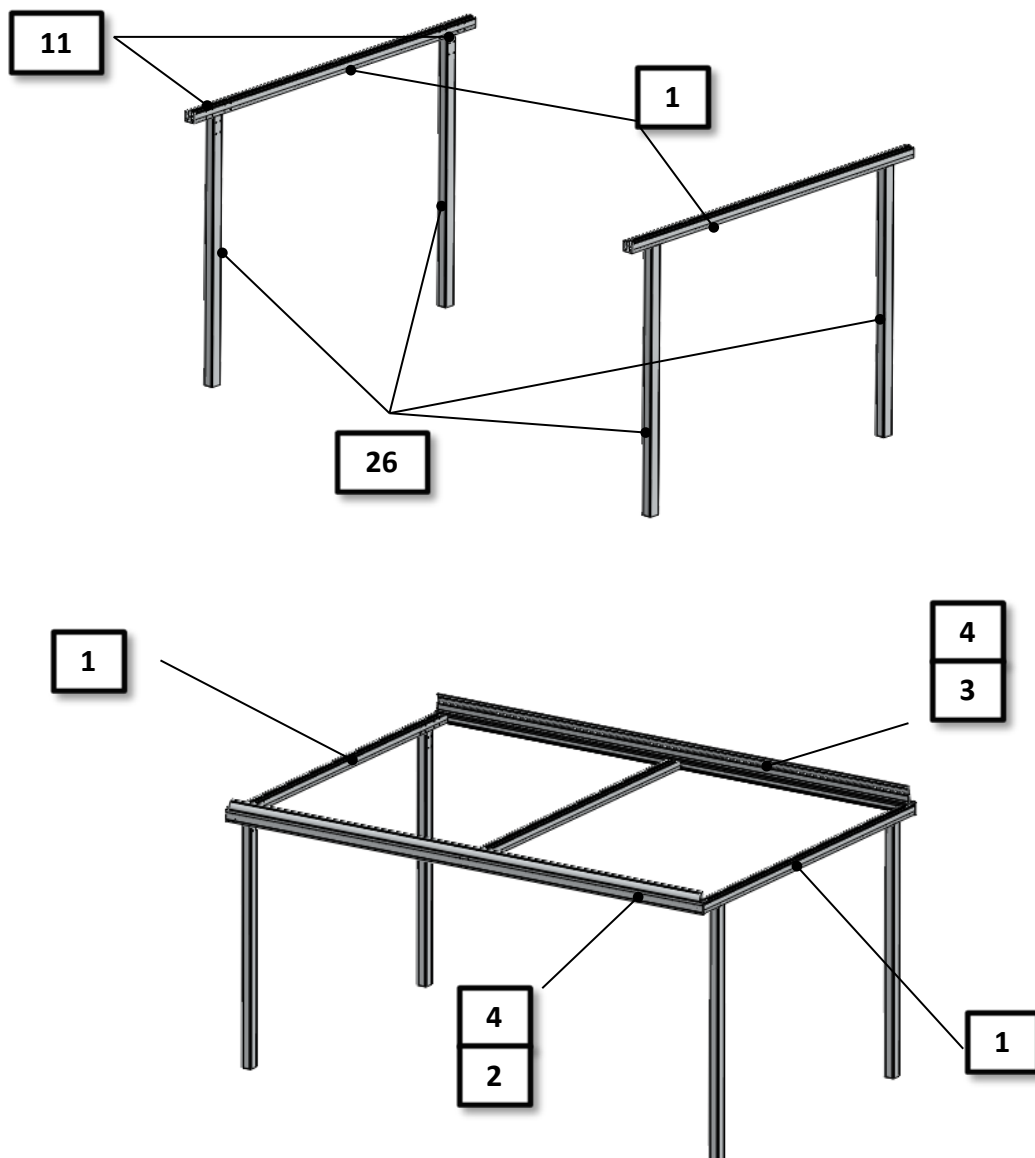
Roof preparation



- Drill a 7mm hole at 60mm from each edge, then every 250mm until the middle.
- Screw (4) and (9) using screw (16) .

2.4

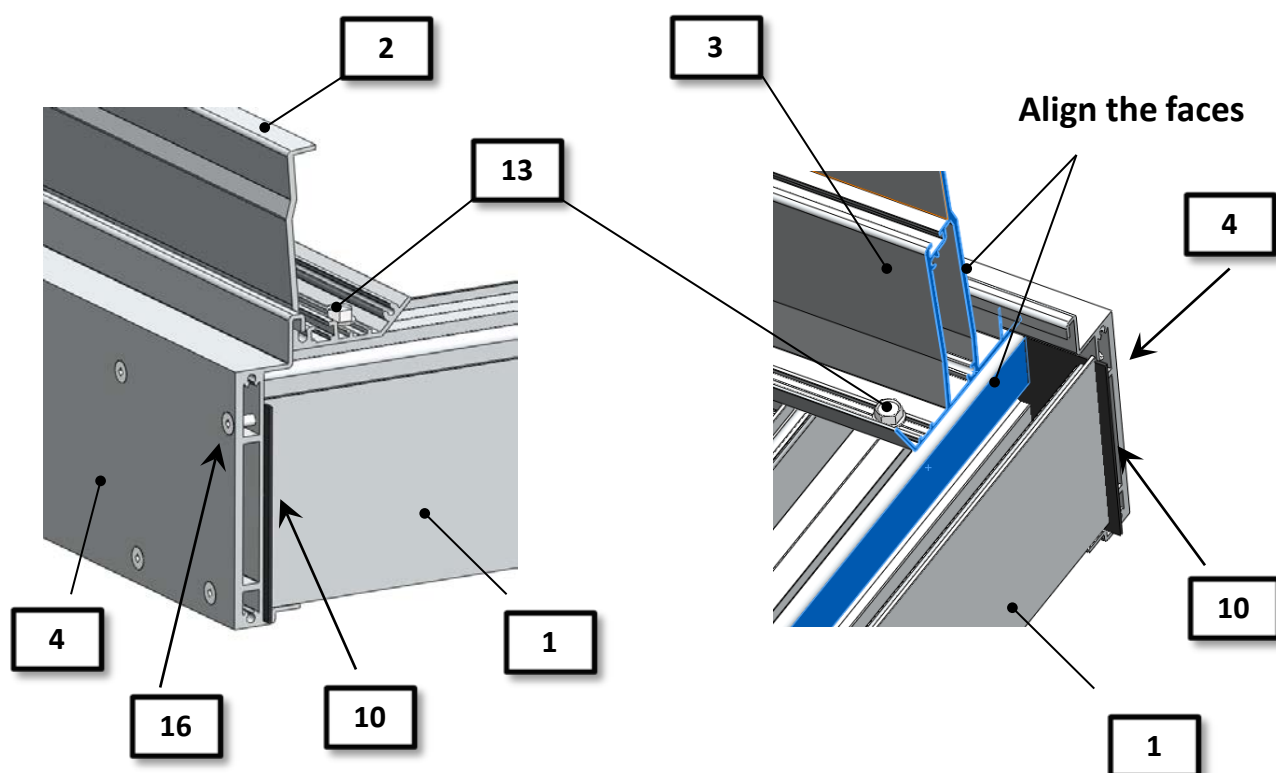
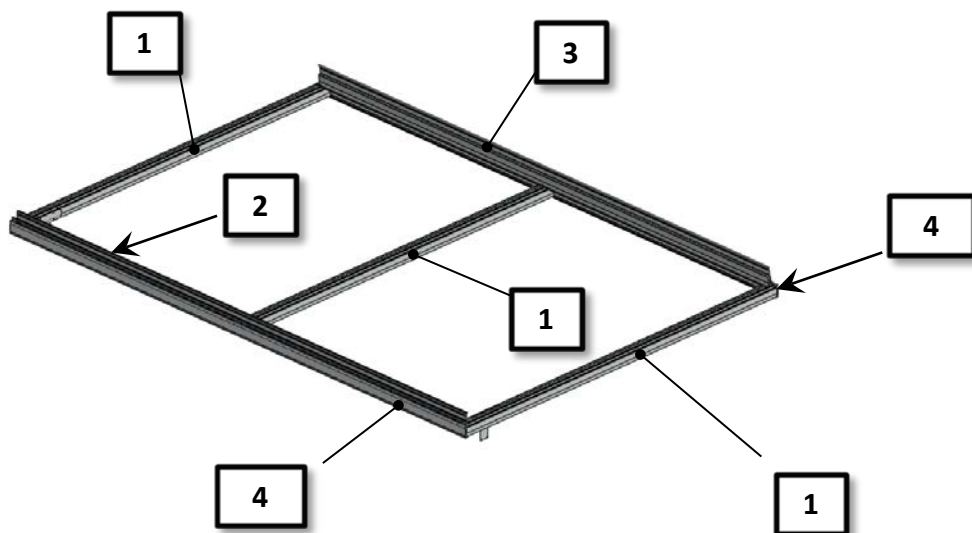
Structure fixing



- Assemble 26,1 and 11 to create the base to support (4,2) and (4 ,3) .
You can use a batten and a clamp to keep the assembly vertical.
- Assemble (4,2) with 1 , take care of the perpendicularity of the assembly , respect instructions page 14 .
- Repeat with (4,3) et 1 , screw using 16), see page 14 .

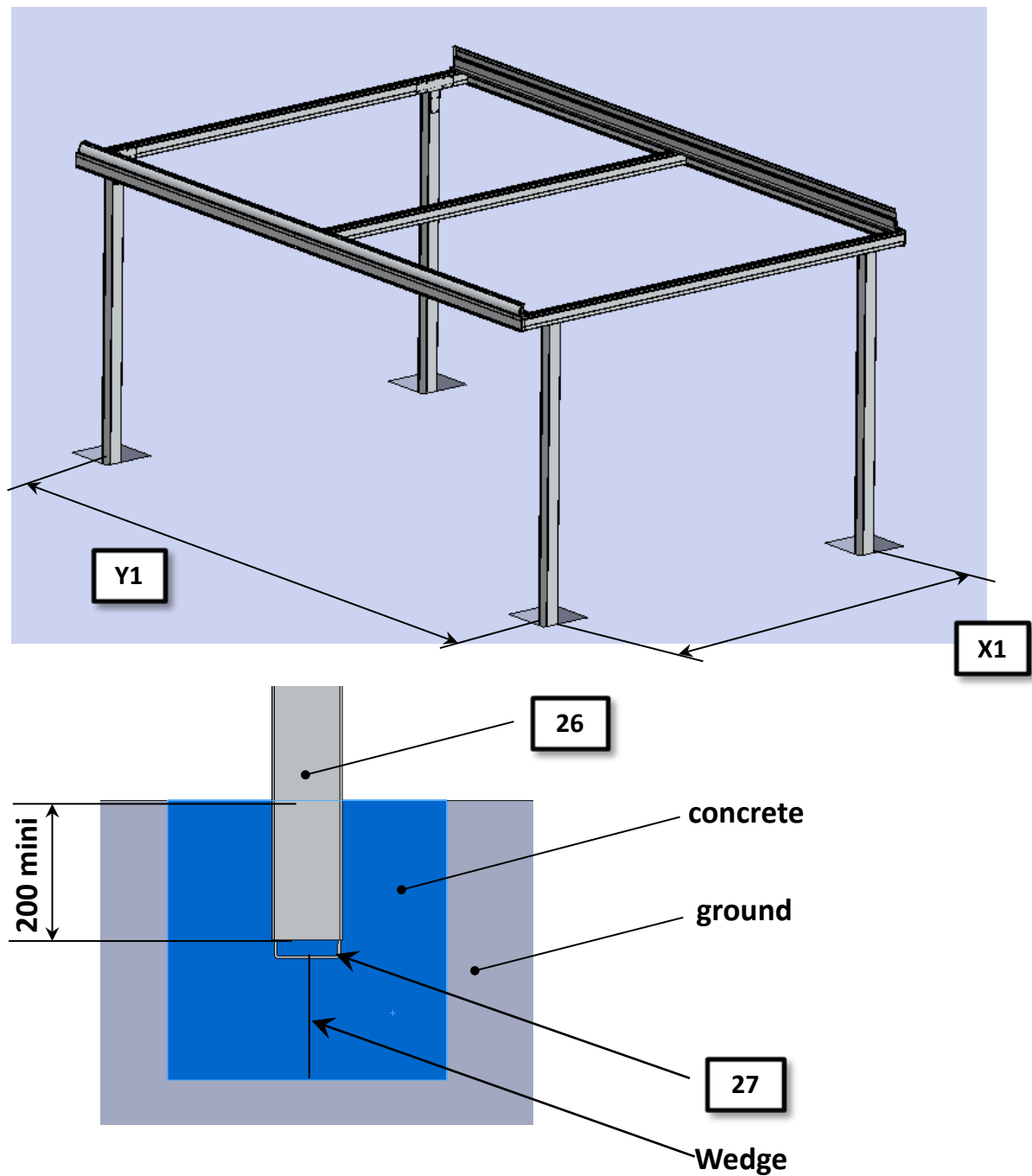
2.4

Structure fixing



- Screw (2) , (3) and (1) using screw(13), respect the face alignment (position the 4 faces together).
- Screw (4) and (1) with (10) in between using screw (16) .
- Put the screw cover (23) .

2.4 Structure fixing



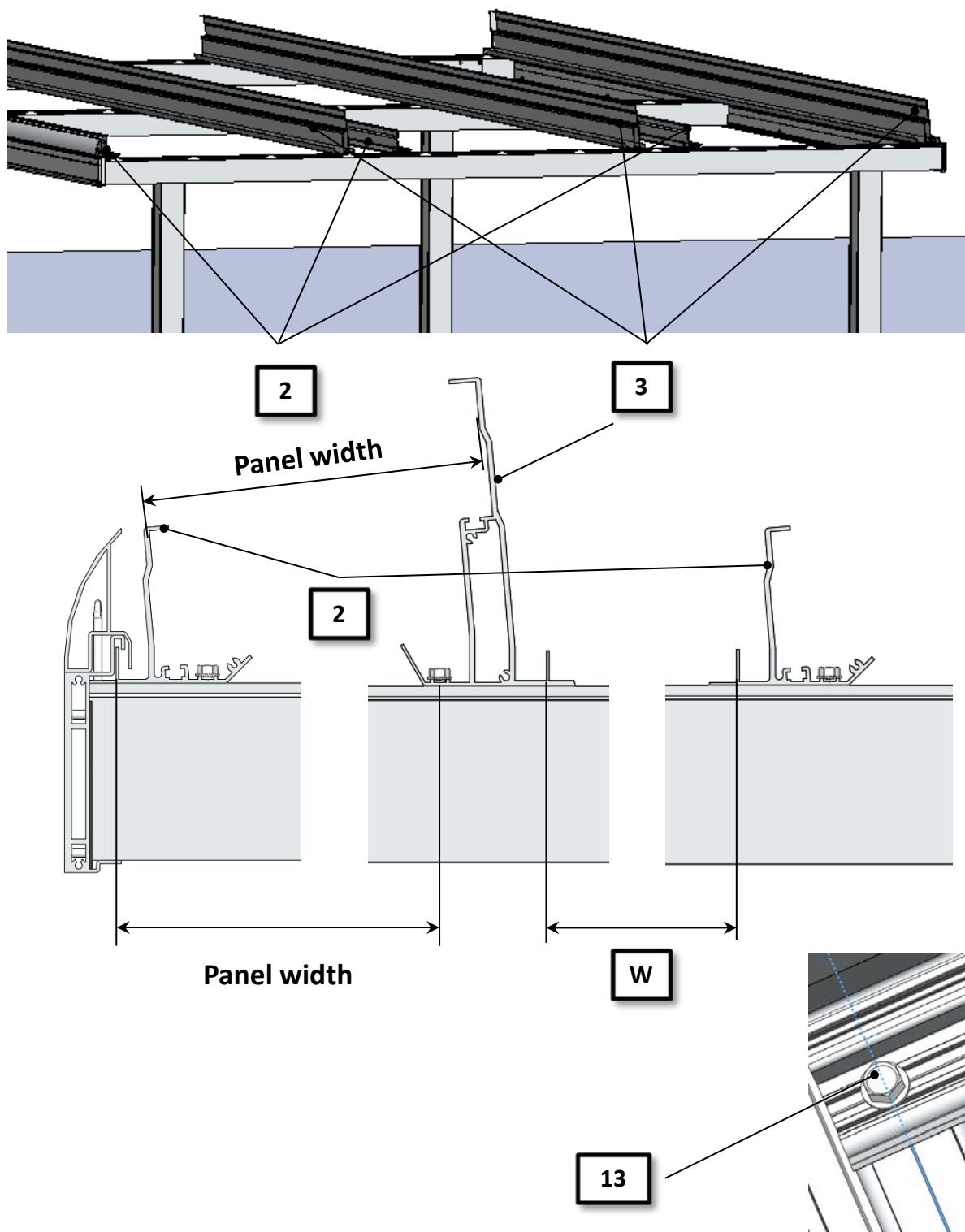
- a) Adjust the feet height using wedge (not supplied) placed in the hole (make a small slope for the water evacuation) .

	IRFTS SHADOW SOLAR configuration			
	4x3	4x2	3x3	2x2
Dimension X1 for 4 feet	4717-X2-X3	4814-X2-X3	3510-X2-X3	2302-X2-X3

- b) Center the feet in the hole, respect the dimension X1 and Y1
b) Make a small slope for the water evacuation .

2.5

Module row positioning



a) Mount parts (2) and (3) using screw (13) following the below calculation .

Format 2x2 $W = (2268 - (2x (\text{panel width} + 60)))$.

Format 3x3 $W = (3476 - (3x (\text{panel width} + 60))) / 2$.

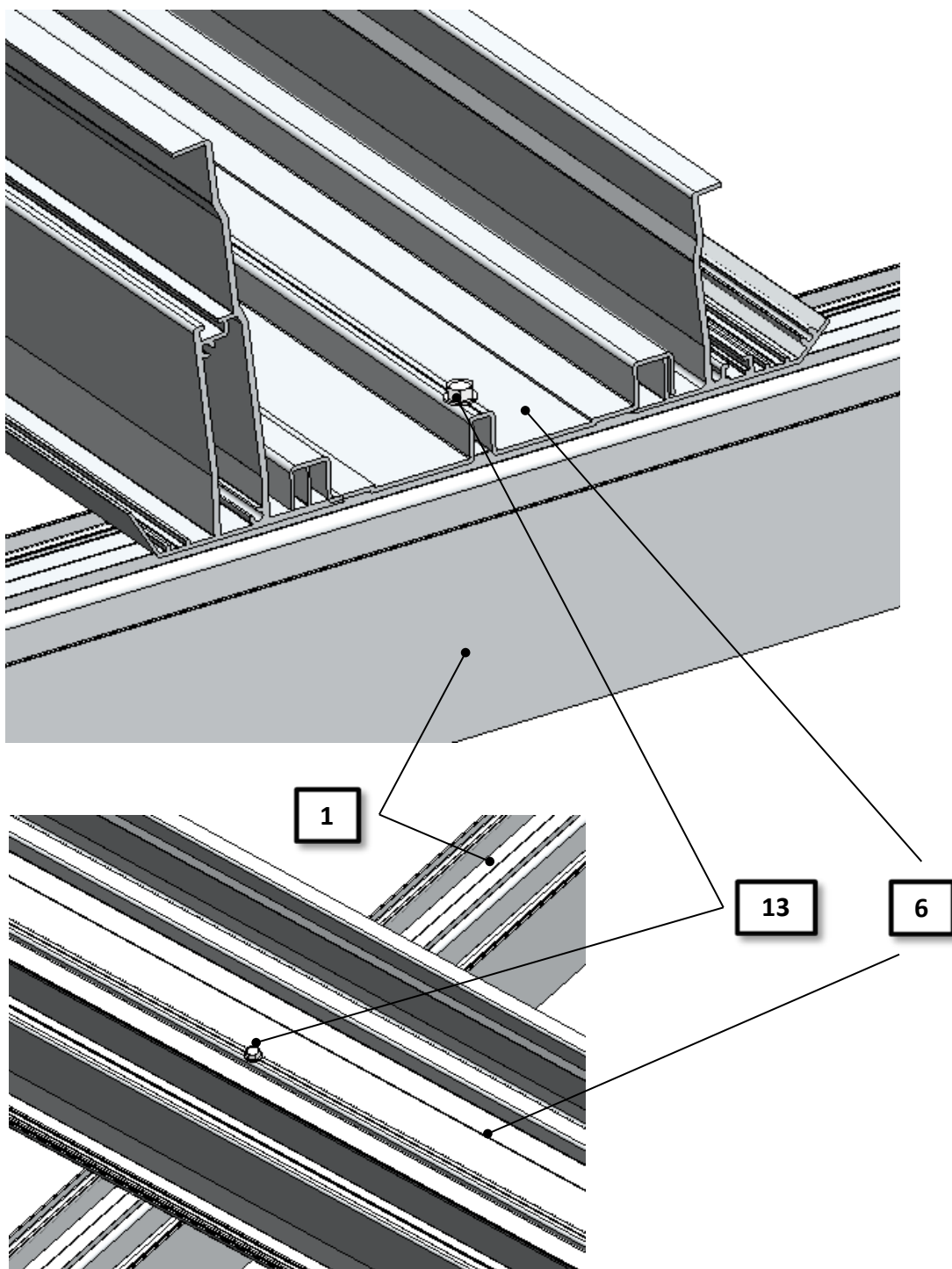
Format 4x3 and 4x2 $W = (4682 - (4x (\text{panel width} + 60))) / 3$.

Check the panel width and the distance between profile before the assembly of (3),(2) and (1)

b) Respect the alignment like shown page 13 .

2.5

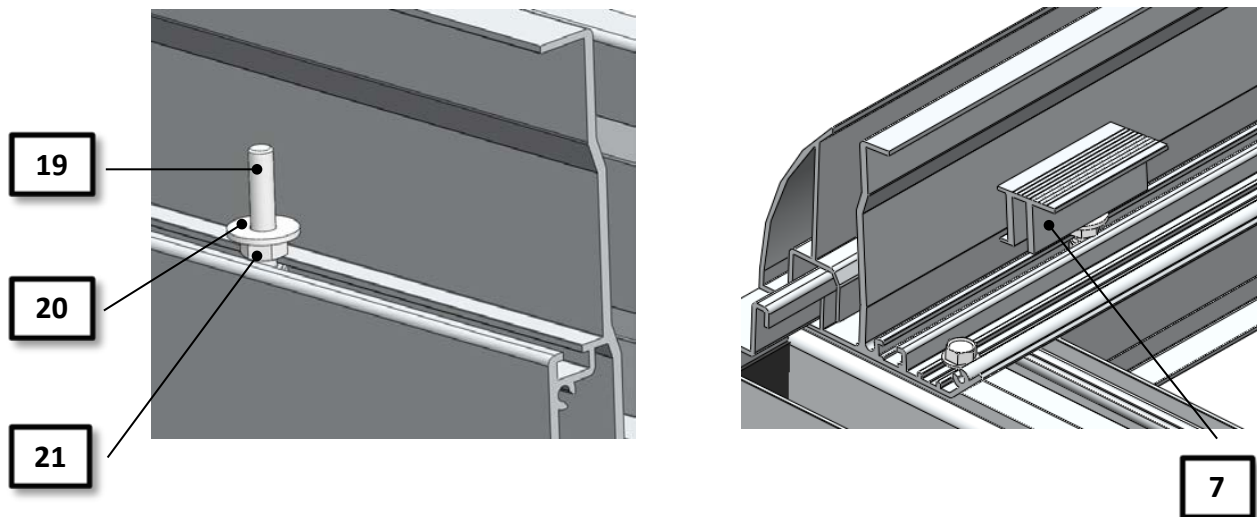
Module row positioning



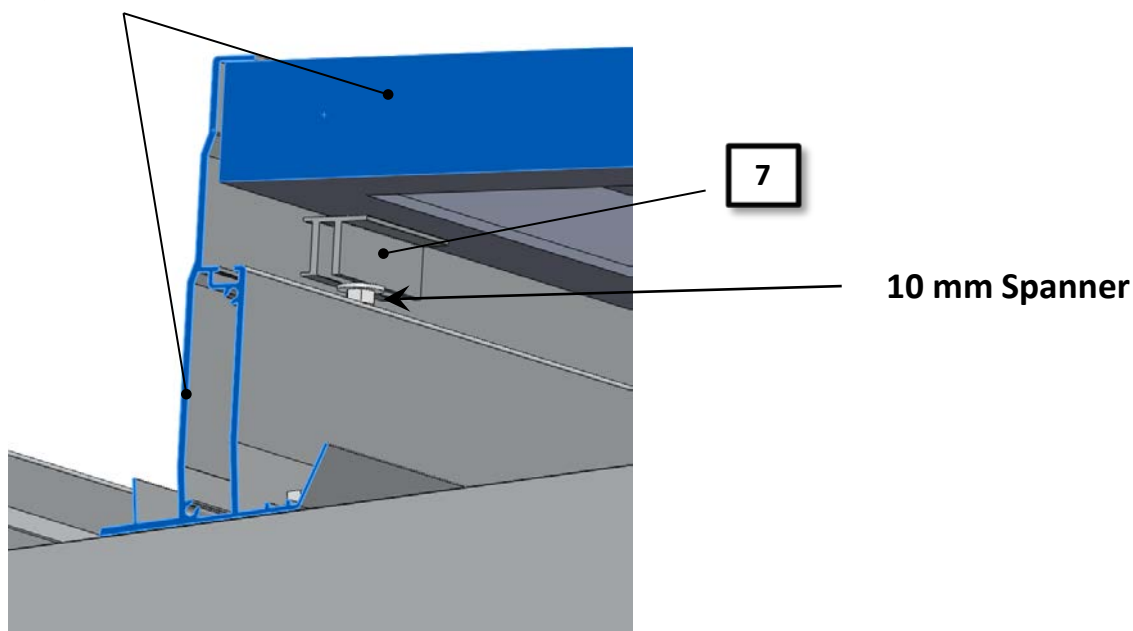
- a) Mount parts (6) and (1) using screw (13) .
- b) Respect the alignment like shown page 13 .

2.6

Module fixing



Align the faces



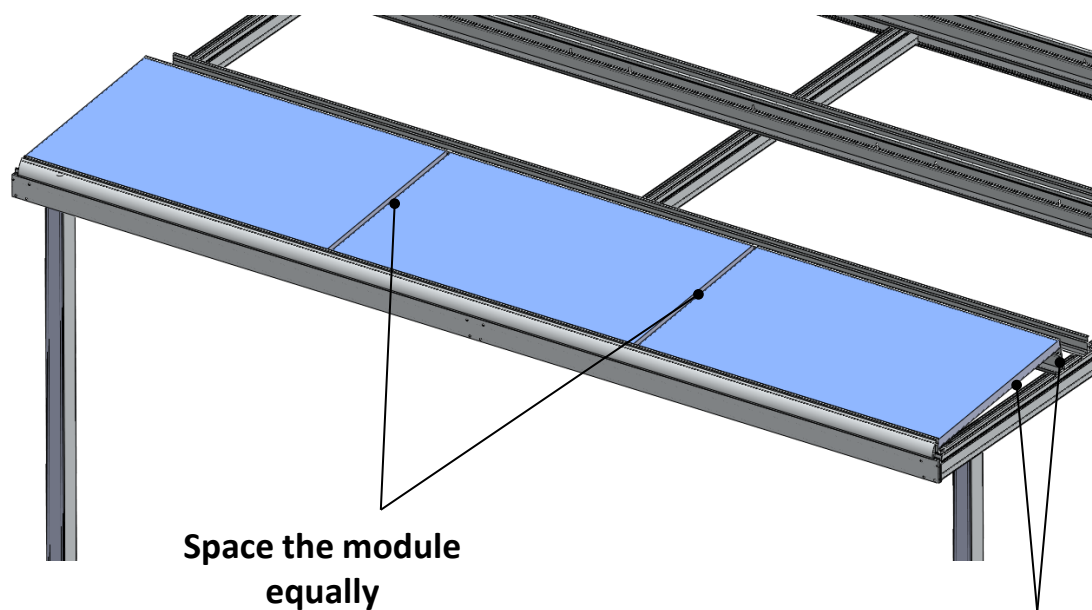
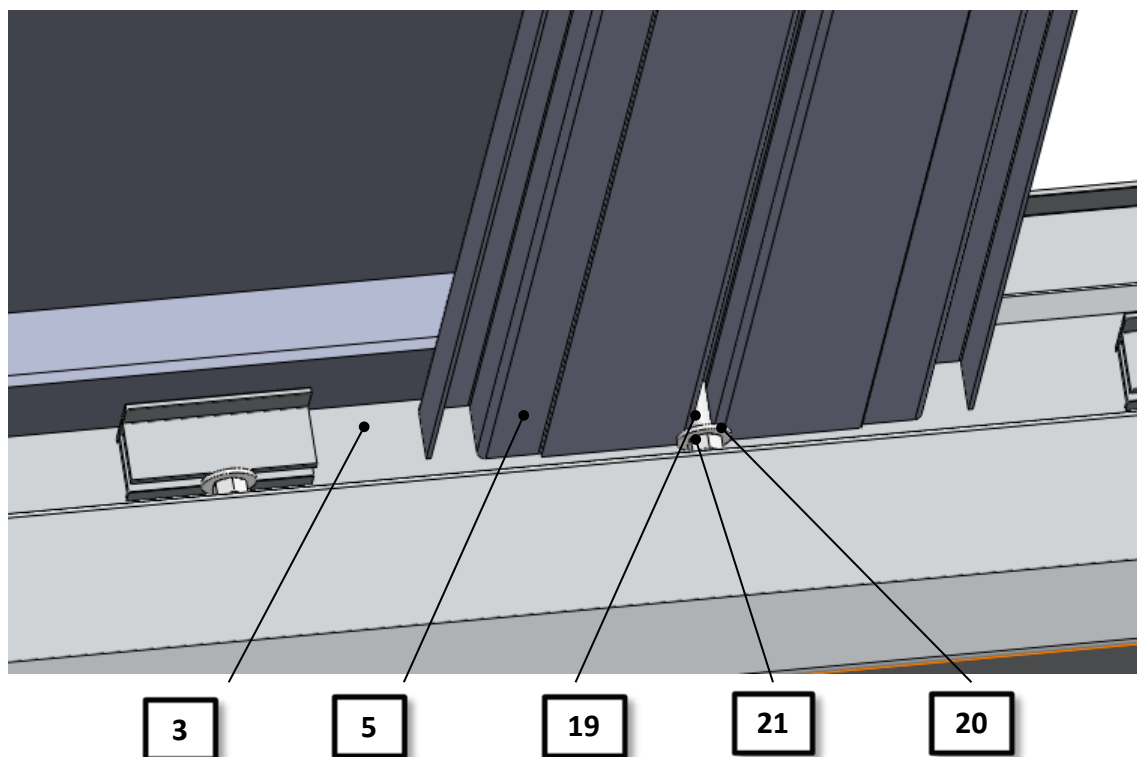
X2 : 7 x (19+20+21) per row

X3 : 11 x (19+20+21) per row

- Slide the assembly (19), (20) and (21) in the groove .
- Slide the first module , use 6 x (7)(19)(20)(21) per module (3 per side).
- Screw using a 10 mm spanner and push (7) against the module .

2.6

Module fixing



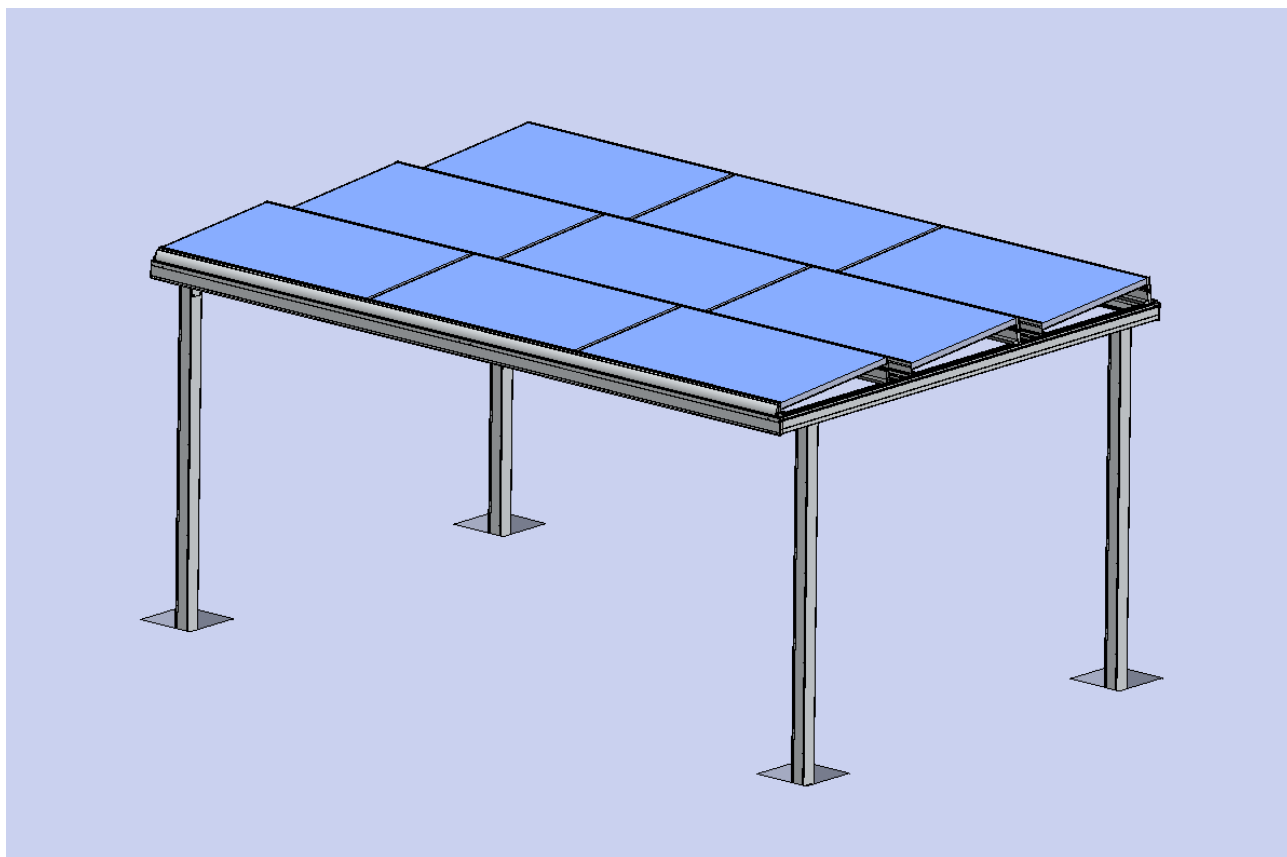
**Space the module
equally**

Align the faces

- d) Slide the assembly (19), (20), (21) and (5) in the groove.
- e) Slide the second module, repeat step a, b, c and d.
- f) Once the module are centered and tithen, center and tith (5) against the 2 modules.

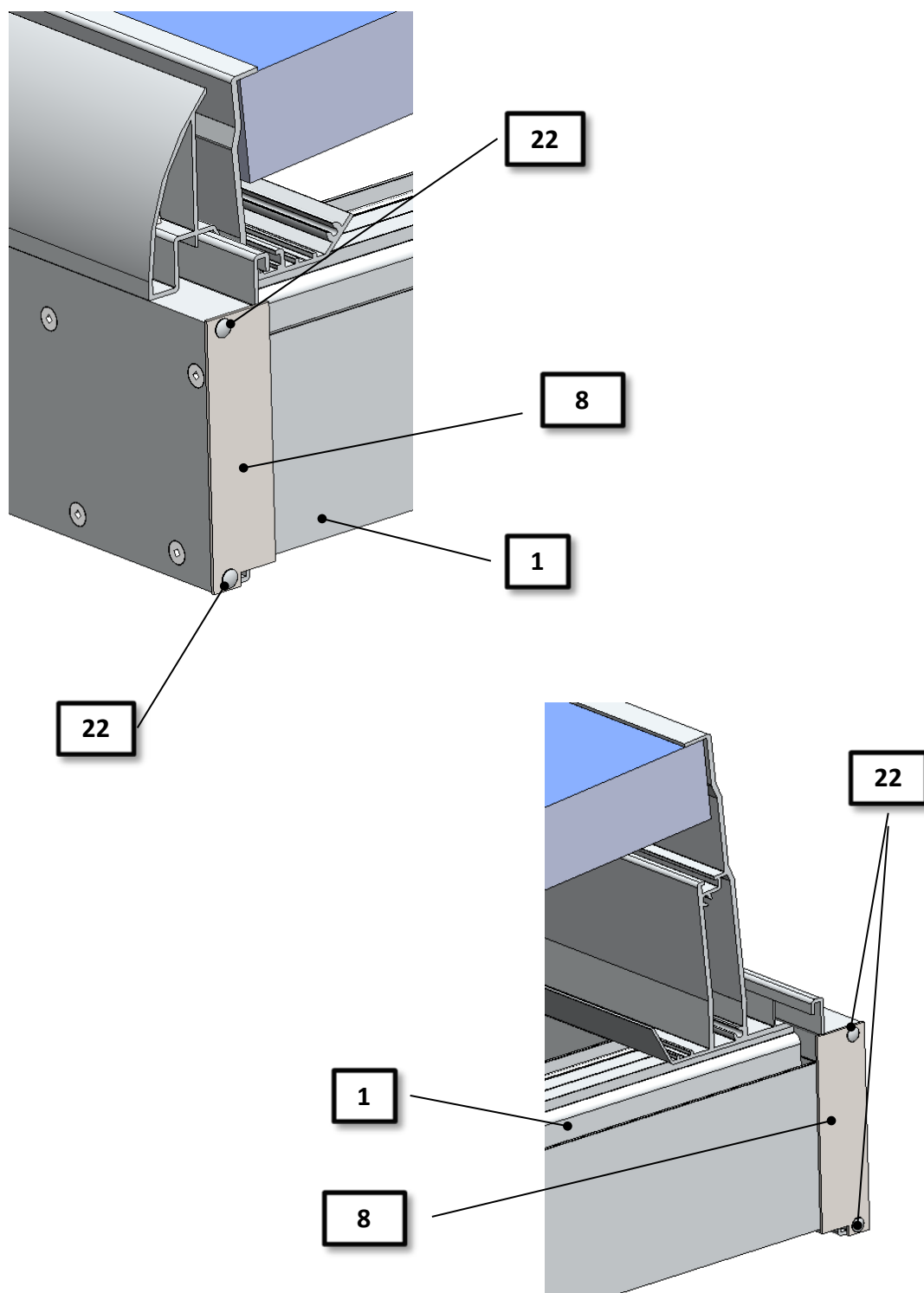
2.6

Module fixing



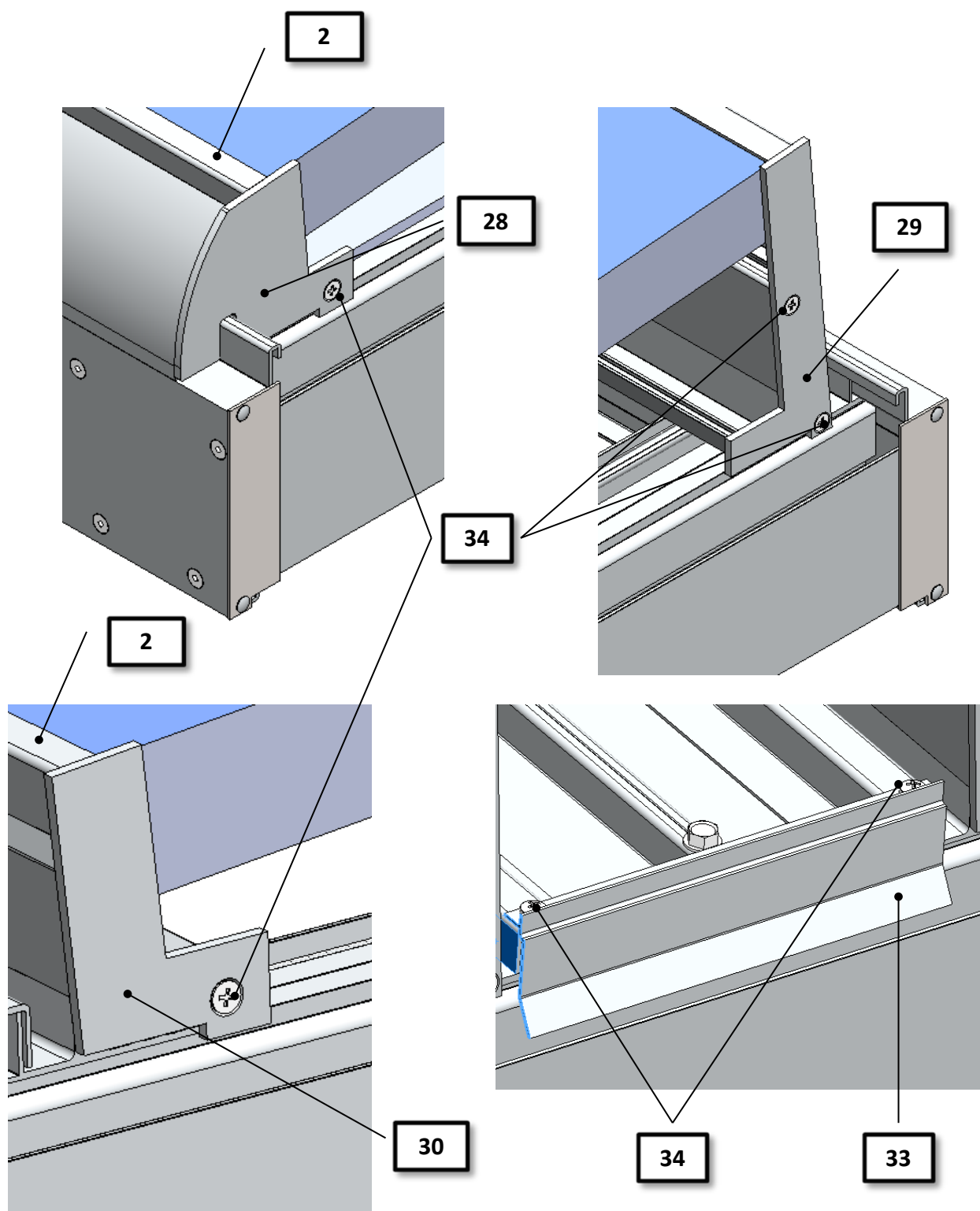
g) Repeat for the other rows of modules .

3.1 IRFTS SHADOW GARDEN Front and Back Cover



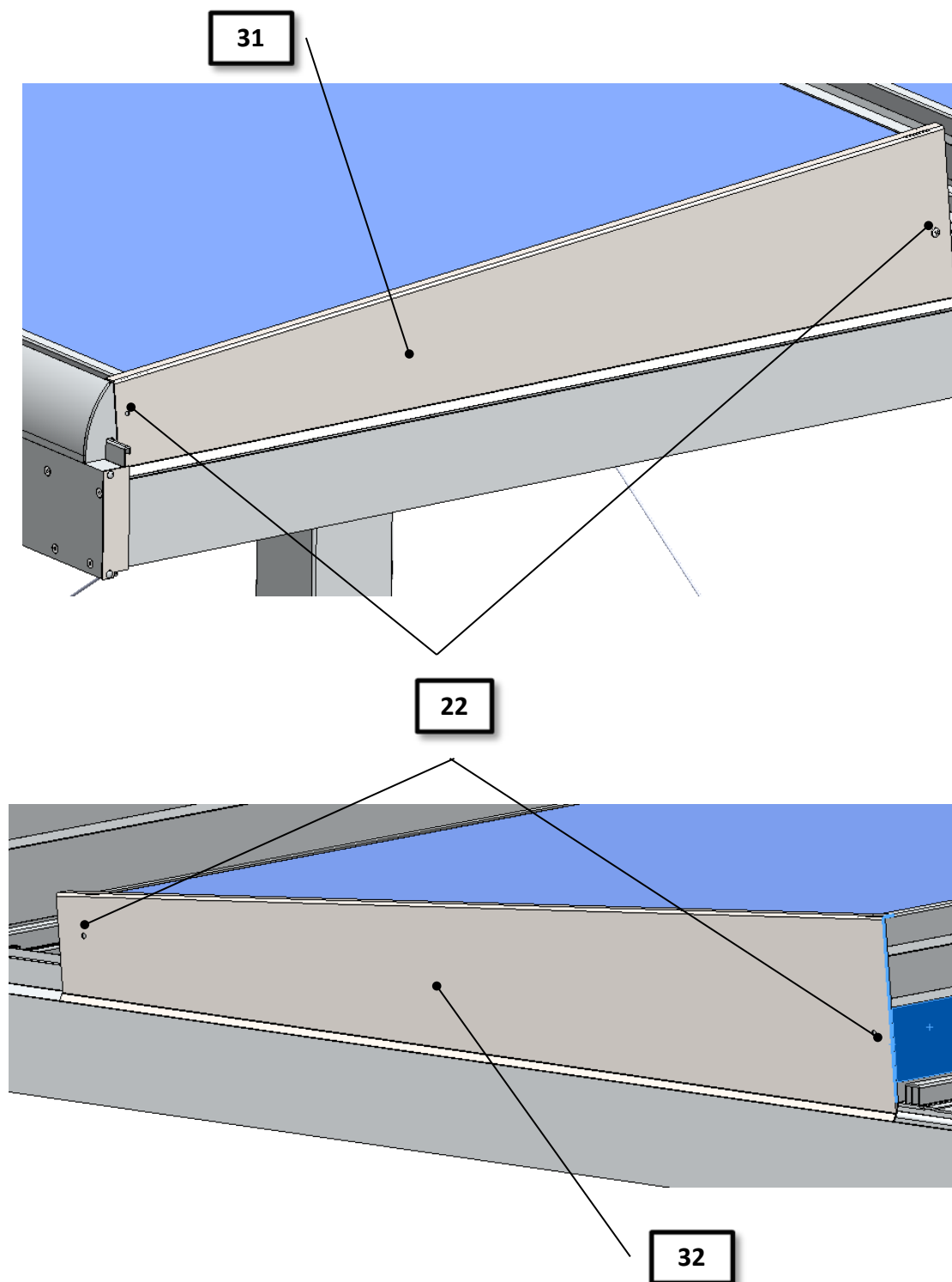
- Push (10) against (1), mount (8), using rivets (22) .
- Repeat step a for the 4 angles of IRFTS SHADOW GARDEN .

3.2 IRFTS SHADOW GARDEN Optional Side Cover



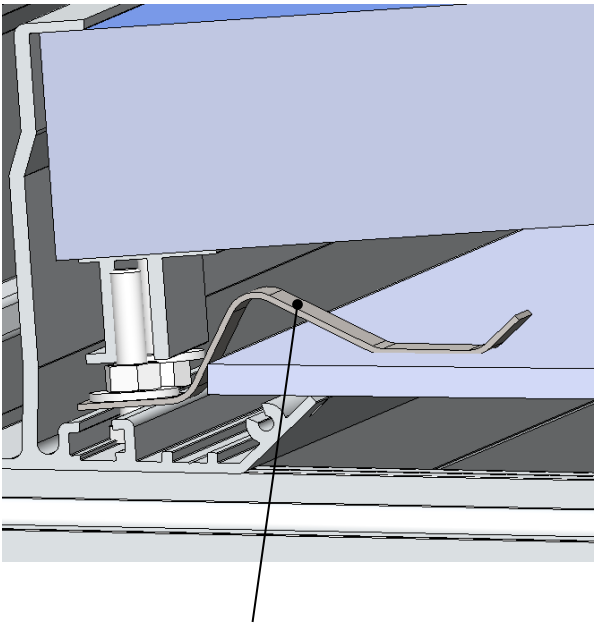
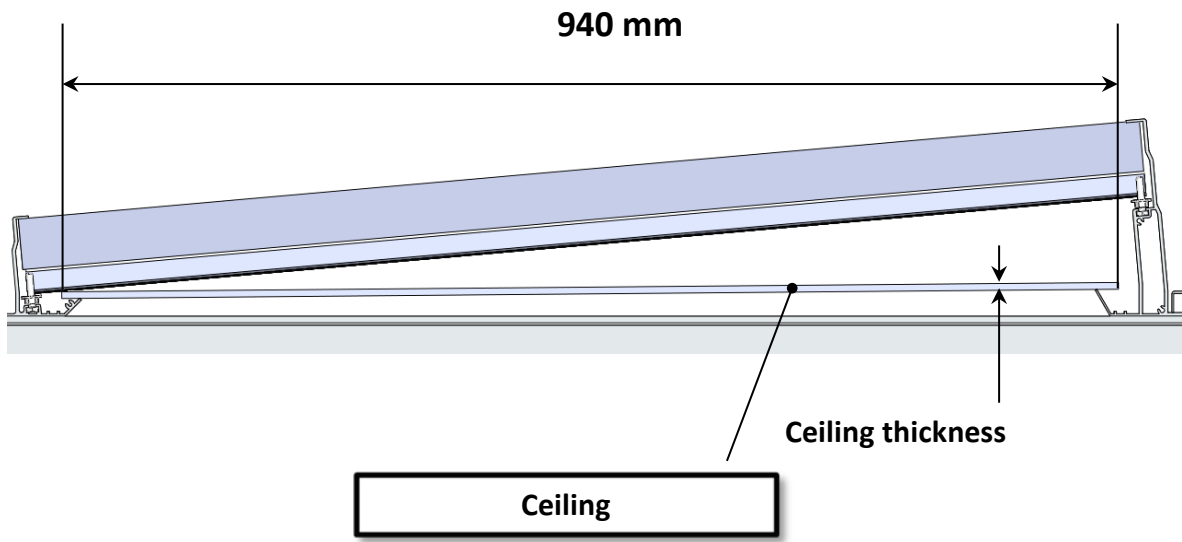
- a) Screw (28) using screw (34) and align with (2) .
- b) Screw (29) using screw (34) .
- c) Screw (30) using screw (34) and align with (2) .
- d) Screw (33) using screw (34) and align with (6) .

3.2 IRFTS SHADOW GARDEN Optional Side Cover

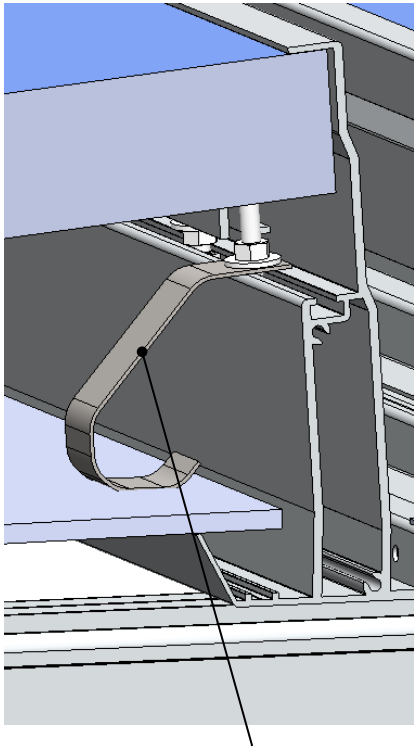


- Drill with a bit $\varnothing 4\text{mm}$ through the existing holes of the side cover (31) and (32), the parts (28)(29) and (30) .
- Use rivet (22) to fix (31) and (32) .

4.1 IRFTS SHADOW SOLAR ceiling



Ceiling spring (35)



Ceiling spring (36)

	IRFTS SADOW GARDEN configuration			
	4x3	4x2	3x3	2x2
Ceiling length	5026 mm	3350 mm	5026 mm	3350 mm

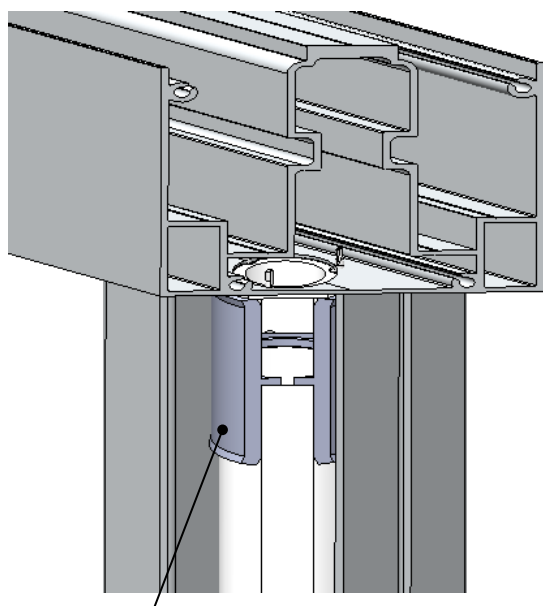
Maximum Ceiling thickness = 51 mm – module thickness
Ceiling spring (35) (36) to be adjstued according module thickness, mount with (19) (20)(21) .

Information et visuels non contractuels. Sous réserve de modifications techniques sans préavis.

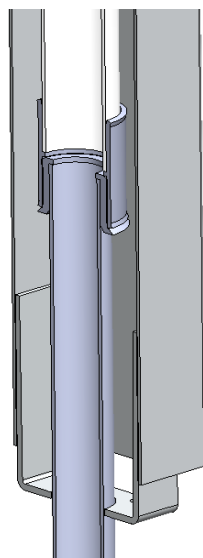
5.1

Raining water drainage

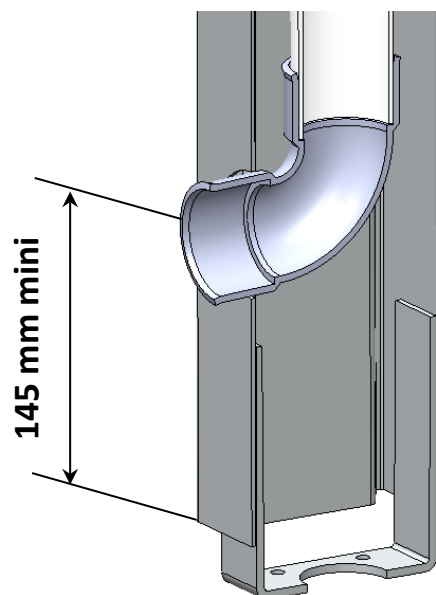
« Rigid » drainage with sleeve, tube and corde diamètre 50 mm



Sleeve D50 FF not provided

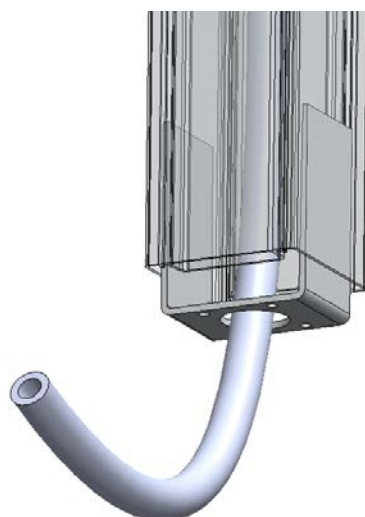
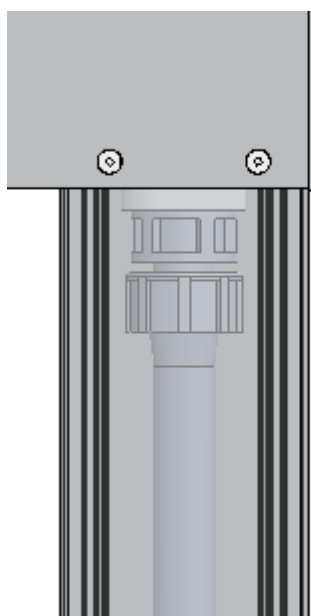


Straight output D40 mm

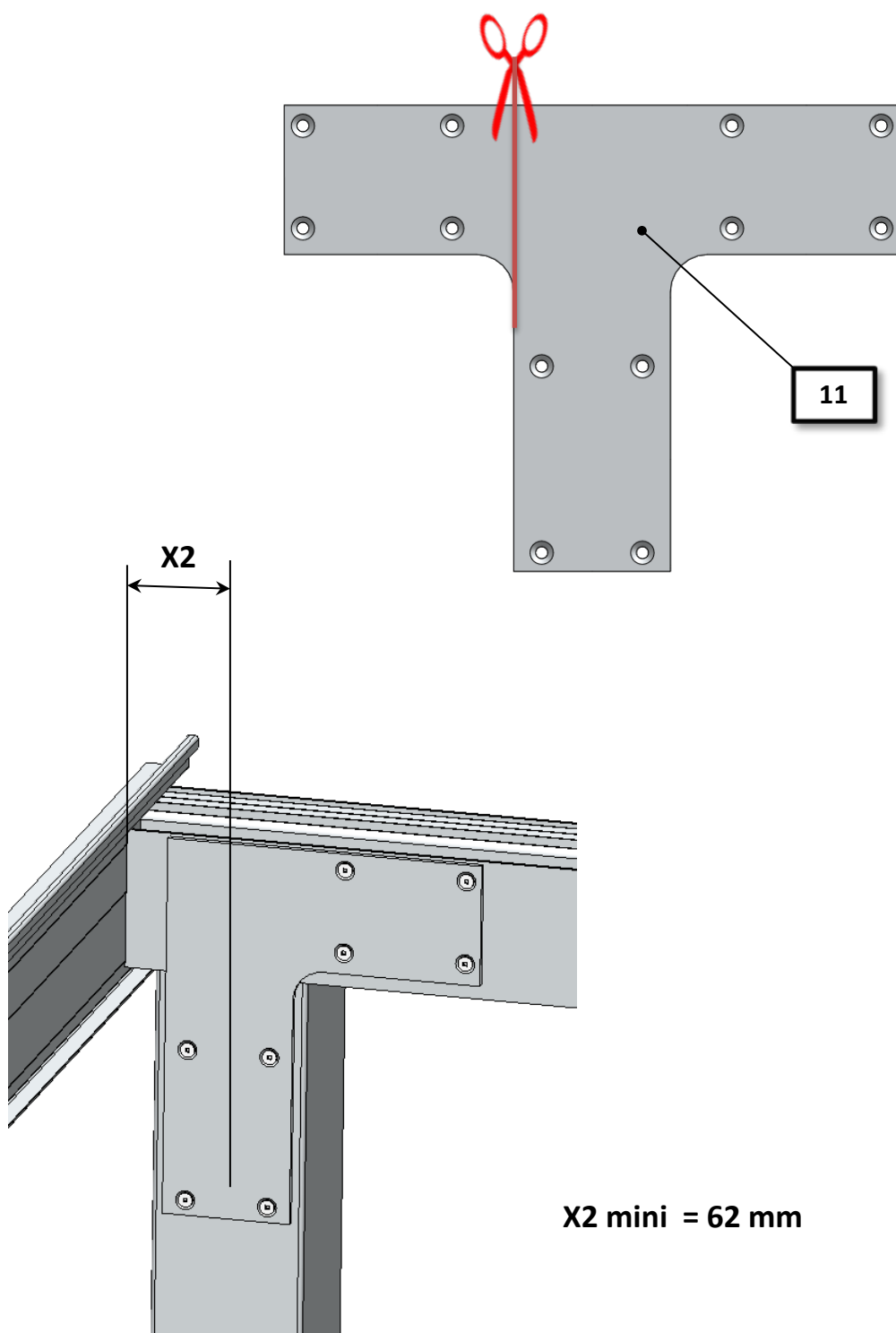


Elbow output D50 mm maxi

« Flexible » drainage fitting 1" and flexible pipe



6.1 Dimension X-2 from 62mm to 170 mm



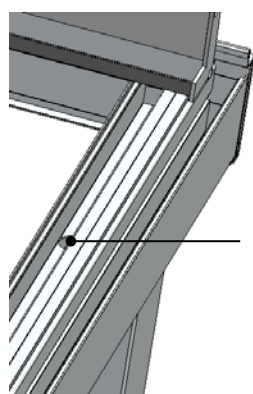
X2 mini = 62 mm

- Cut the T square plate (11) (paint needed to protect the cut) .
- Dimension X2 of the mounting tool may then vary from 62 mm to 170 mm .

7.1

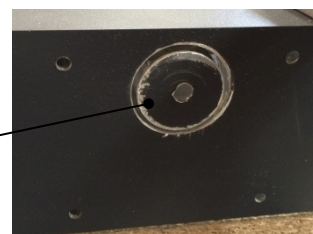
Cable passageway

Passageway line to line or through the foot

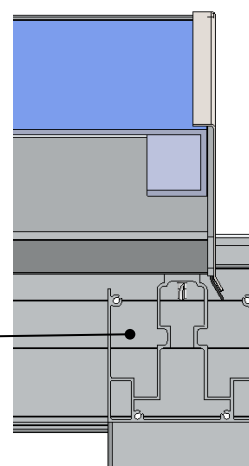


Dry area in the Gutter

Drill in the dry area
of the gutter



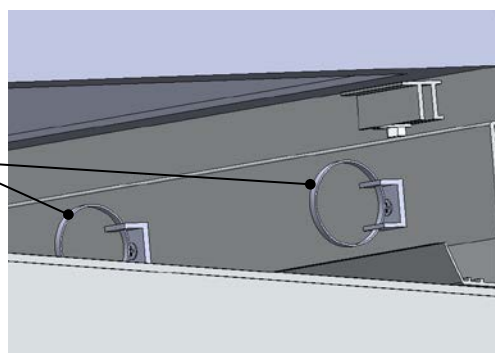
Passageway line to line in dry area



Foot output

Passageway column to column

Tie wrap

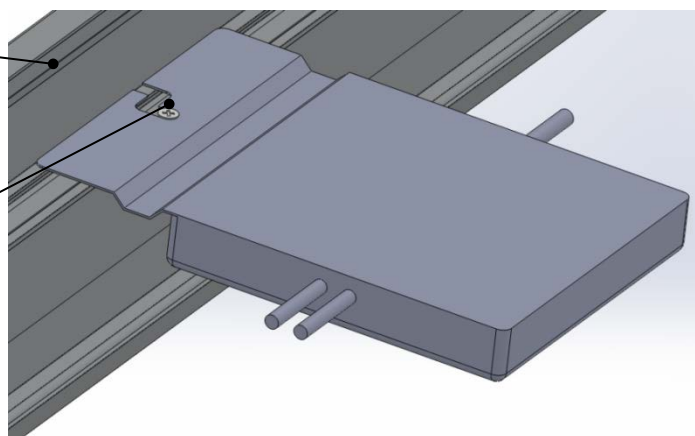


7.2

Micro inverter fixing

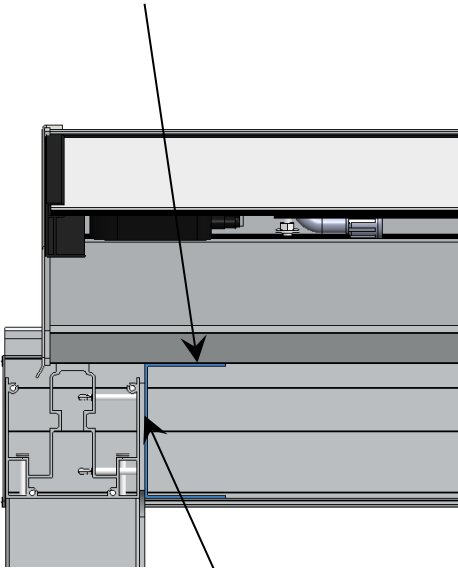
3

Self drilling screw



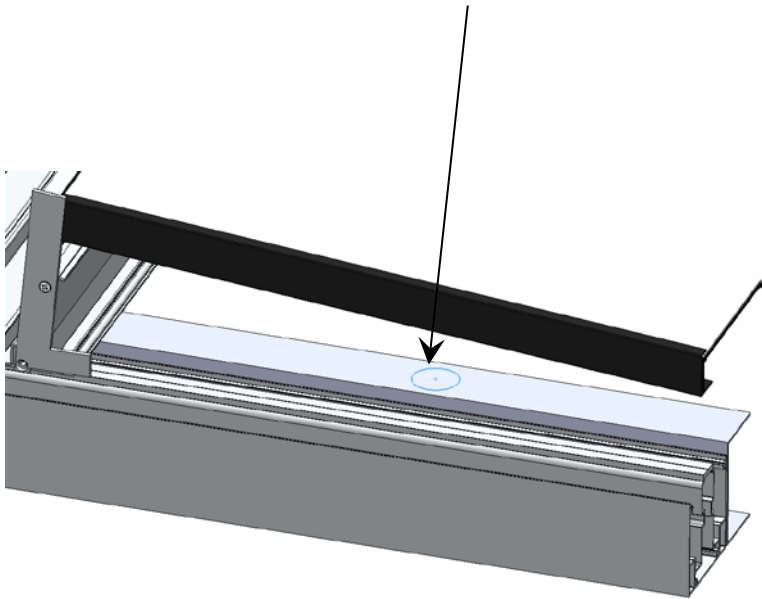
Annexe 1 : With DUALSUN hybrid panel

Fix a cable duct so the heat pipe can fit in (max height 100mm),
choose a color that match with the IRFTS Shadow Solar .

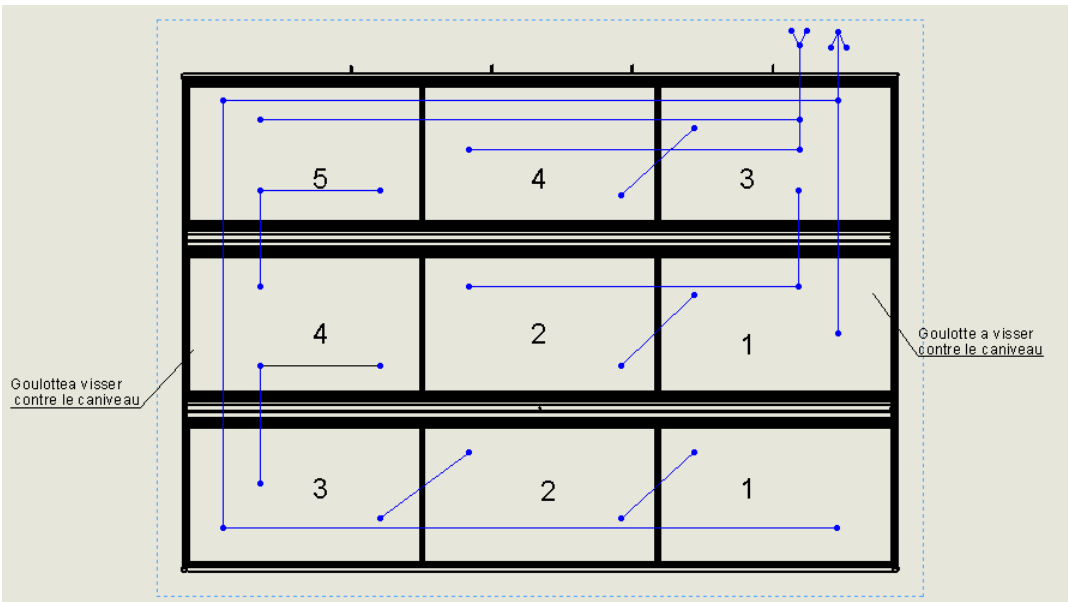


Do not drill under the
middle height of the
gutter.

Cut the cable duct for the passage
of the heat pipe. If you have a
ceiling cut also the ceiling

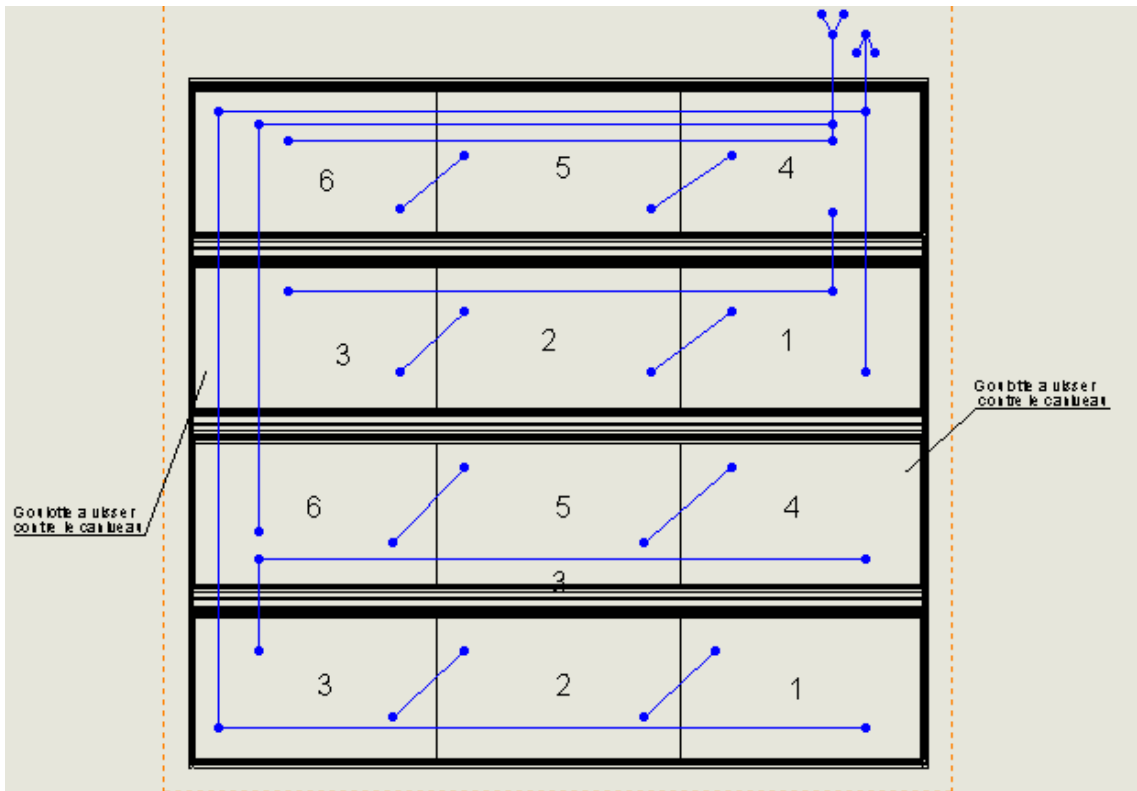


Heat pipe passageway according to the different format of IRFTS Shadow Solar Format 3x3

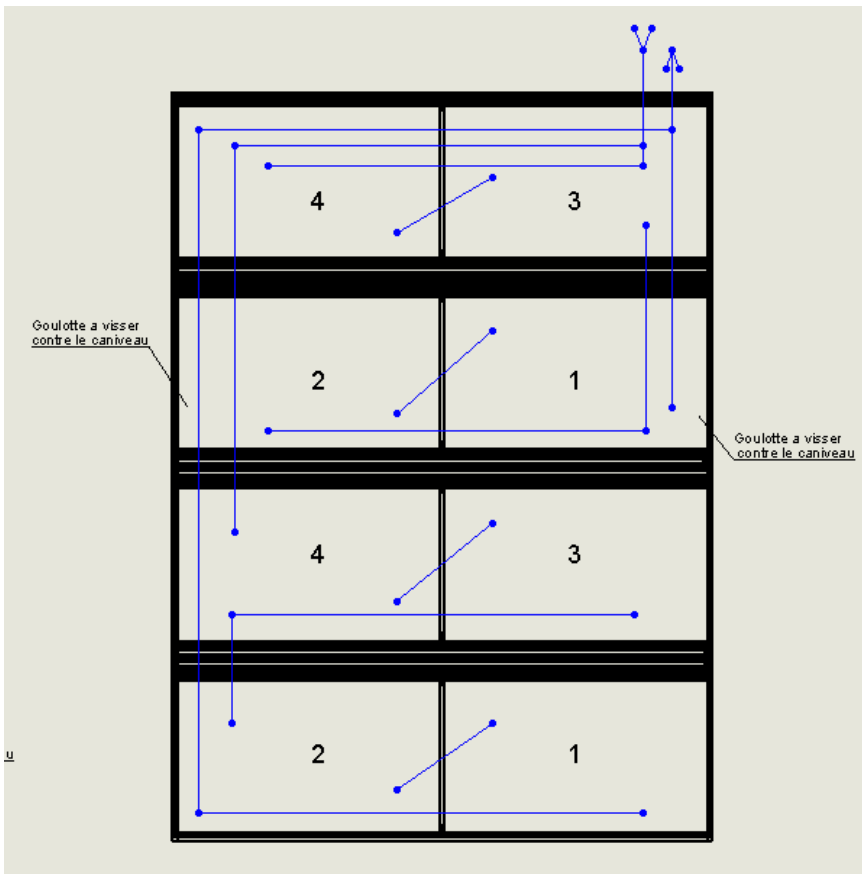


Annexe 1 : With DUALSUN hybrid panel

Format 4x3



Format 4x2



Information et visuels non contractuels. Sous réserve de modifications techniques sans préavis.