Solar tunnel dryer type Hohenheim

How to manufacture a solar tunnel dryer type Hohenheim

1. Checklist before installation

Before you start to manufacture the tunnel dryer you have to consider following requirements:

- an even plane for installation of the tunnel dryer
- the main wind direction must not blow into the outlet of the tunnel dryer
- the collector and drying section should be free of shades
- you need two person for installation

2. Tools you will need during installation:

- drill machine
- water-level
- gripper for blind rivet
- screw drivers
- hammer
- screw clamps
- measuring rod
- welding apparatus

3. Installation

- preparation of the even plane
- manufacturing of all parts considering the parts list. (unit of measurement are in mm; 1 inch = 25,4mm)
- gradually follow the guidance

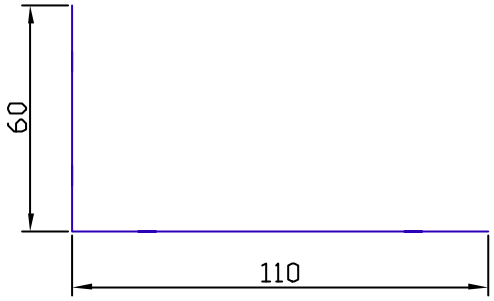
4. Management

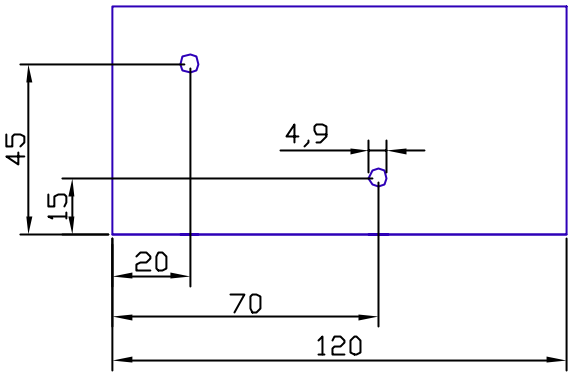
- As the product has usually a high nutrient value it is easily spoiled by mould or microorganisms when it is warm and not dried enough. Therefore, it is essential that the product is placed in the dryer section latest 10:30 a.m.
- Contamination of the product, e.g. by falling on the ground must not be used anymore as the whole lot can be spoiled.
- To avoid insects from product close the back from the dryer with a net.

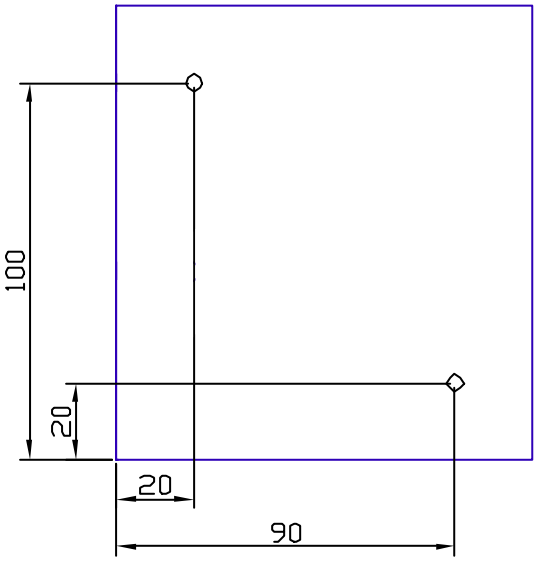
Parts list

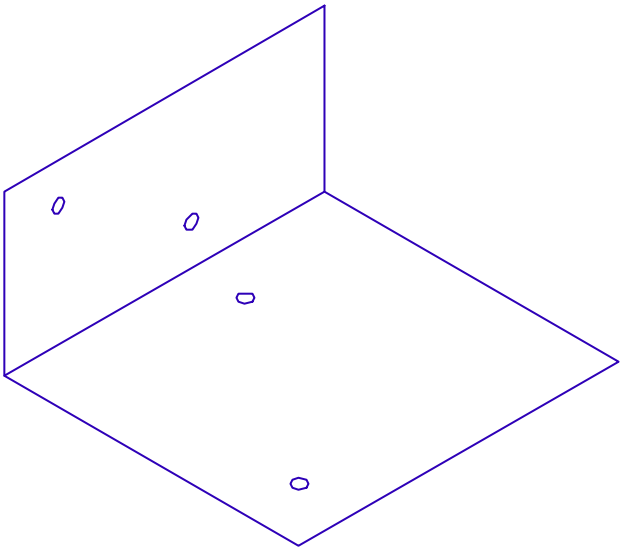
Position	Marking	Semifinished part	Units	Total demand	Unit
1	side plate short	blank sheet 2,0mm	4	1	m²
2	side plate long	blank sheet 2,0mm	16		
3	side plate	blank sheet 1,5mm	18	8	m²
4	base frame	square pipe 30mm x 30mm	10	33	m
5	u-profil	20mm x 20mm x 1mm		38	m
6	wooden floor			36	m²
7	wooden border (distance piece)	48mm x 24mm		60	m
8	fan plate	blank sheet 1,5mm x 300mm x 2000mm	1	0,6	m²
9	corrugated iron	0,75mm x 800mm x 2000mm	12		pieces
10	fan		3		pieces
11	blank sheet	blank sheet 0,6mm x 1000mm x 2000mm	8		pieces
12	roof rack	pipe 16,5mm x 2,25mm	20	21	m
13	roof connector	pipe 26mm x 1,5mm	10	1,5	m
		round bar 12mm	10	1,5	m
14	solar panel		1		piece
15	roof support	flat steel 30mm x 8mm	3	6	m
16	blind rivet (roof and u-profil)	4mm x 8		150	pieces
17	blind rivet (roof)	4,8mm x 10		50	pieces
18	blind rivet (base frame)	4,8mm x 8		180	pieces
19	wood srcew	4mm x 20mm		150	pieces
20	machine screw	M10 x50	6		
21	roof pipe	pipe 22mm x 2mm		19	m
	foil holder	pipe 1 inch		9	m
	foil	20m x 2,8m		56	m²
	foil clip	1 inch	18		pieces
	edge protection			31	m
	black colour			20	m²

Prefabricated units

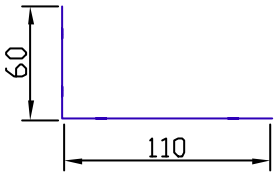


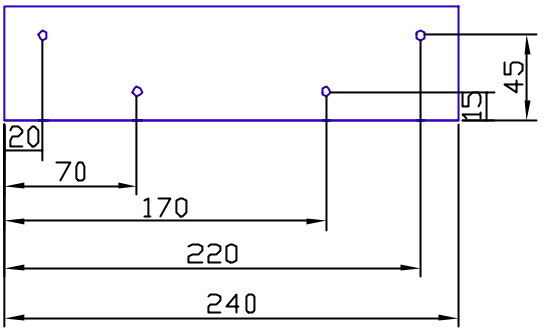


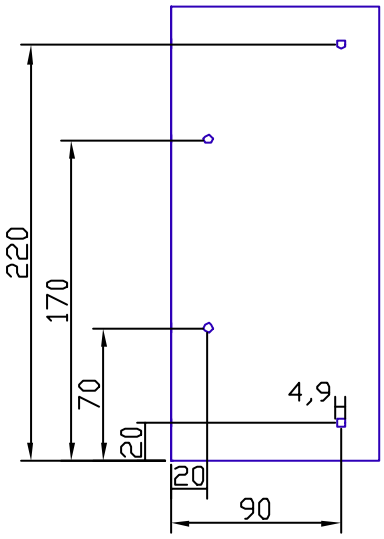


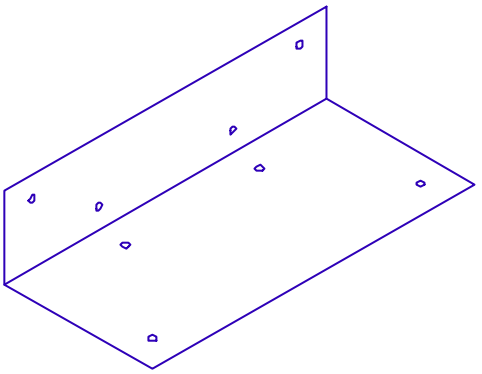


Side Plate Short	
Pos.1	4 Units

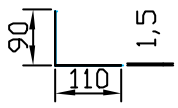


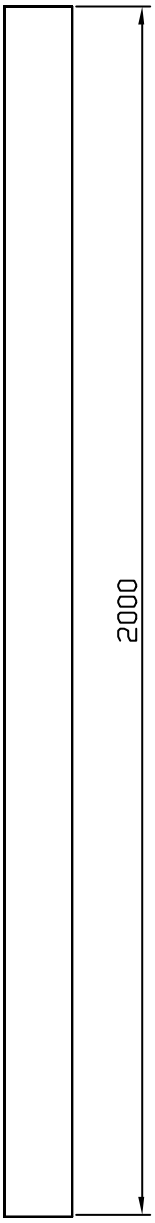


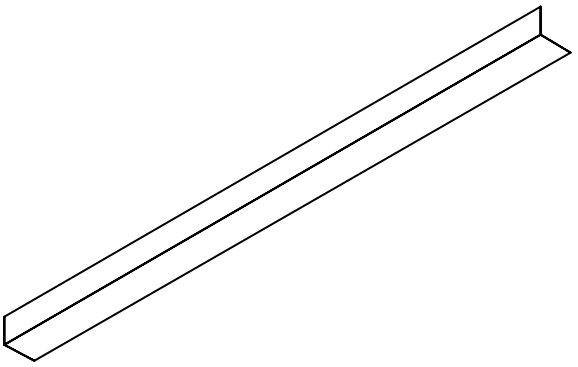




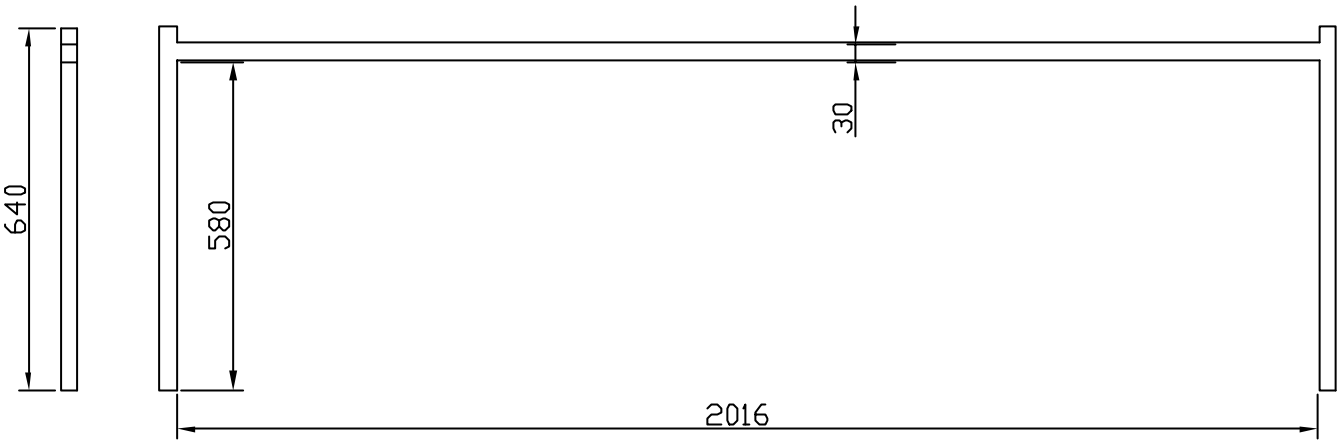
Side Plate Long	
Pos.2	16 Units

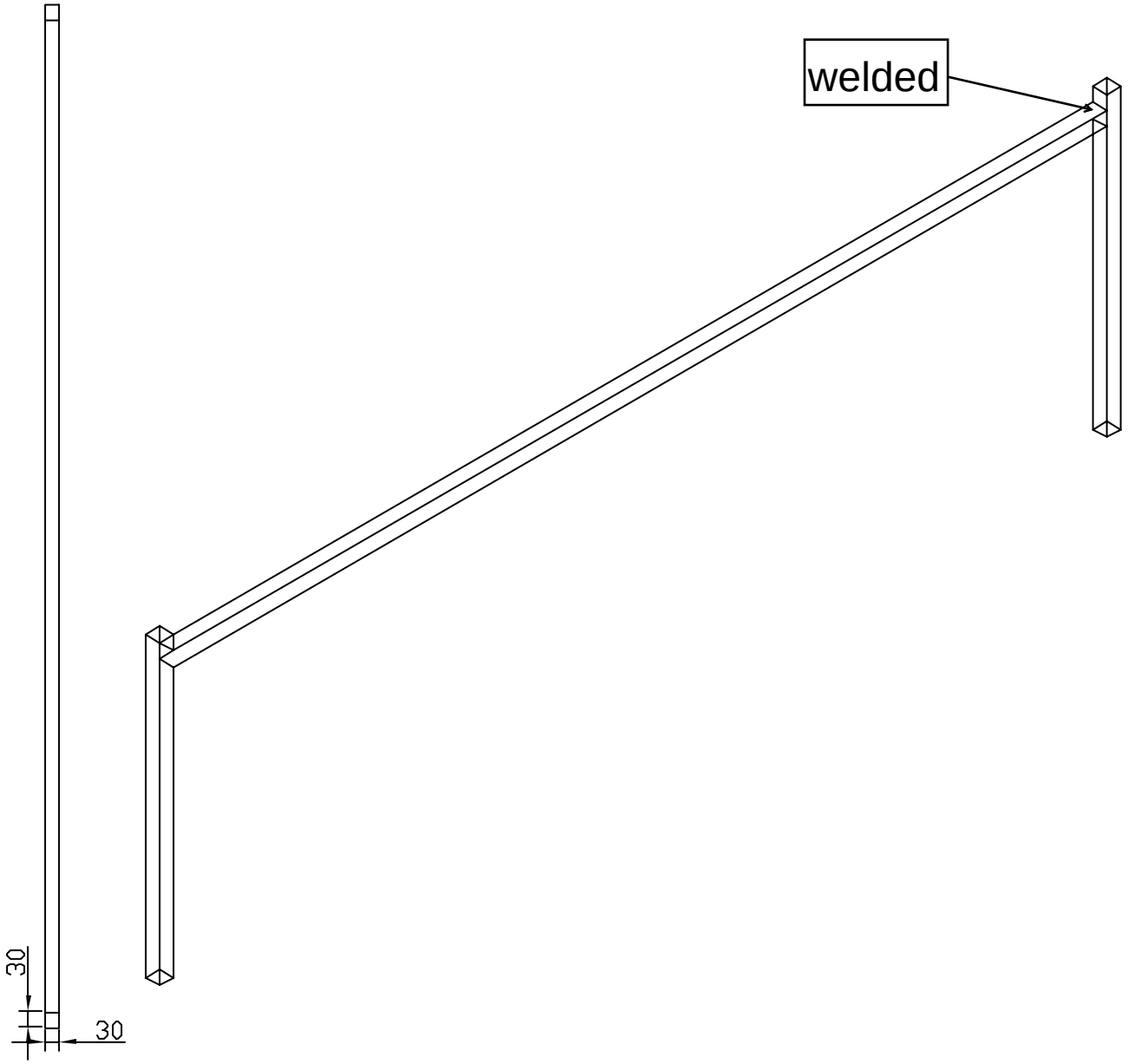




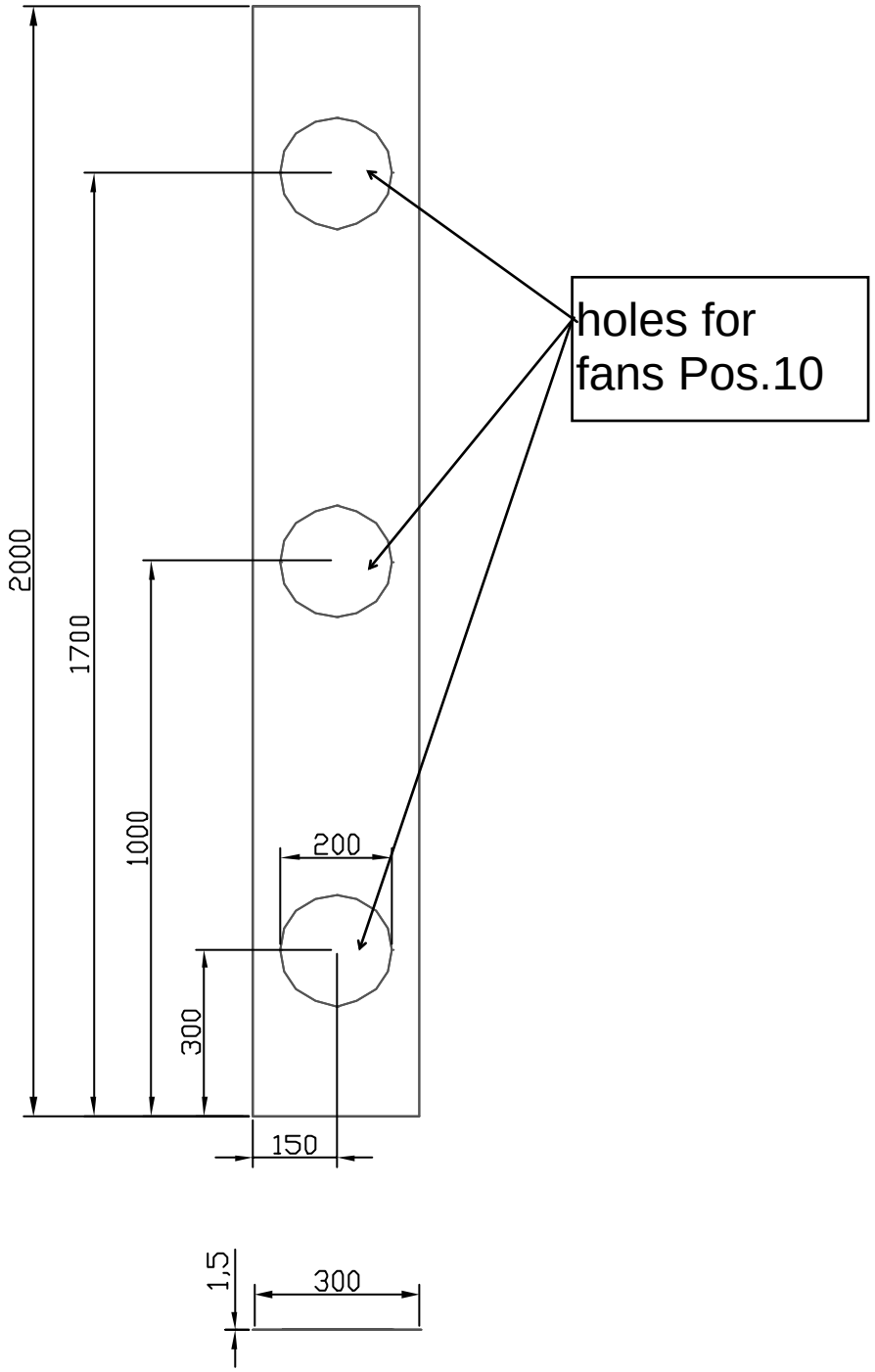


Side Plate	
Pos.3	18 Units

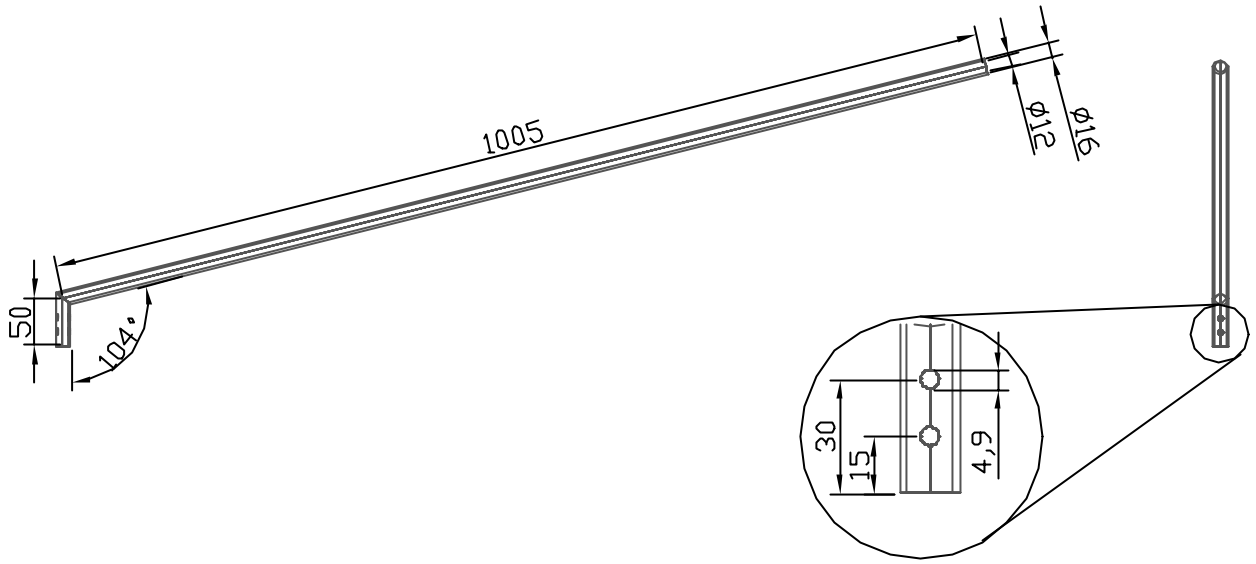


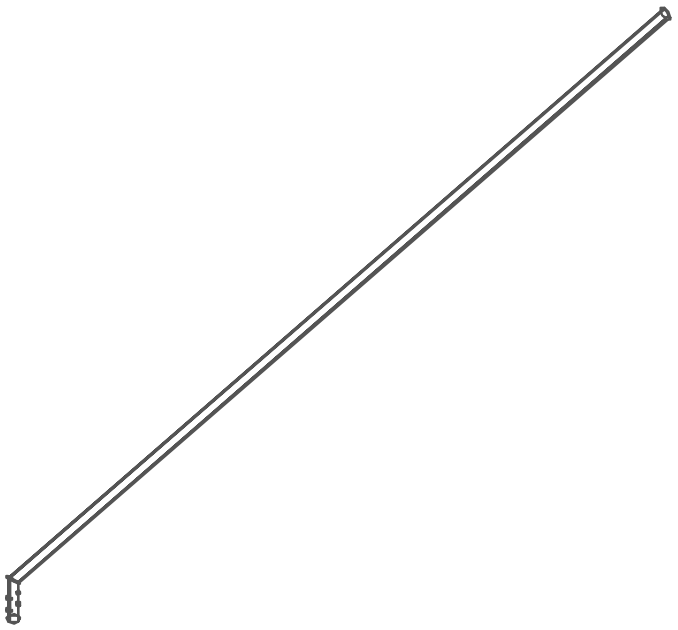


Base Frame	
Pos.4	10 Units

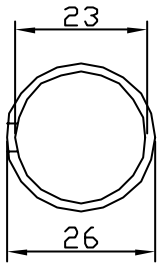


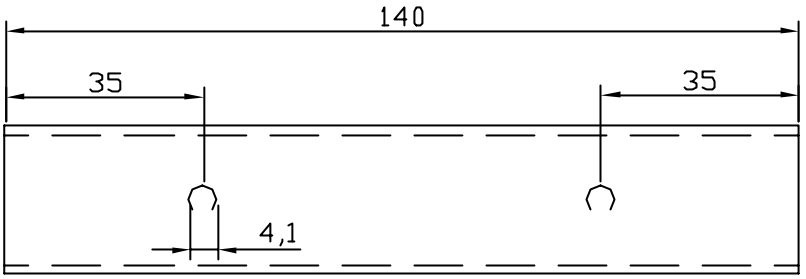
Fan Plate	
Pos.8	1 Units

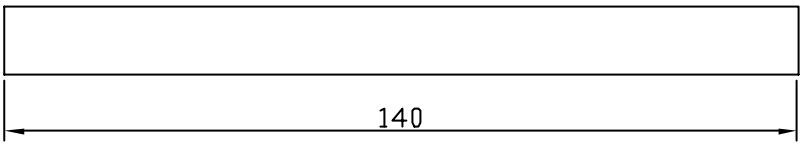


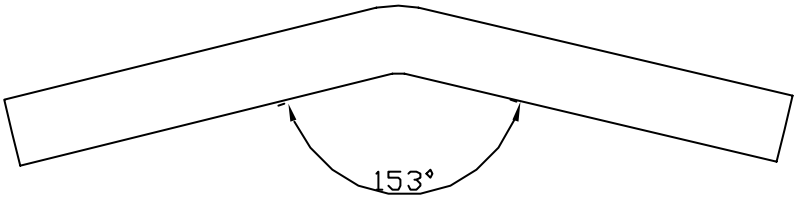


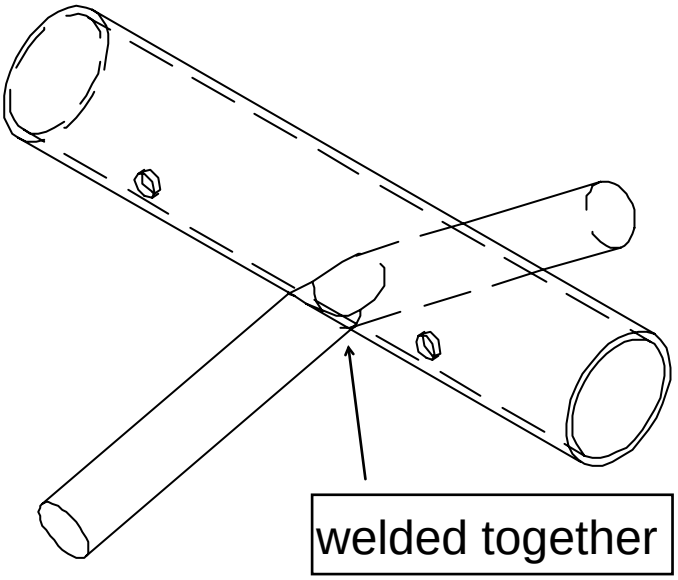
Roof Rack	
Pos.12	20 Units



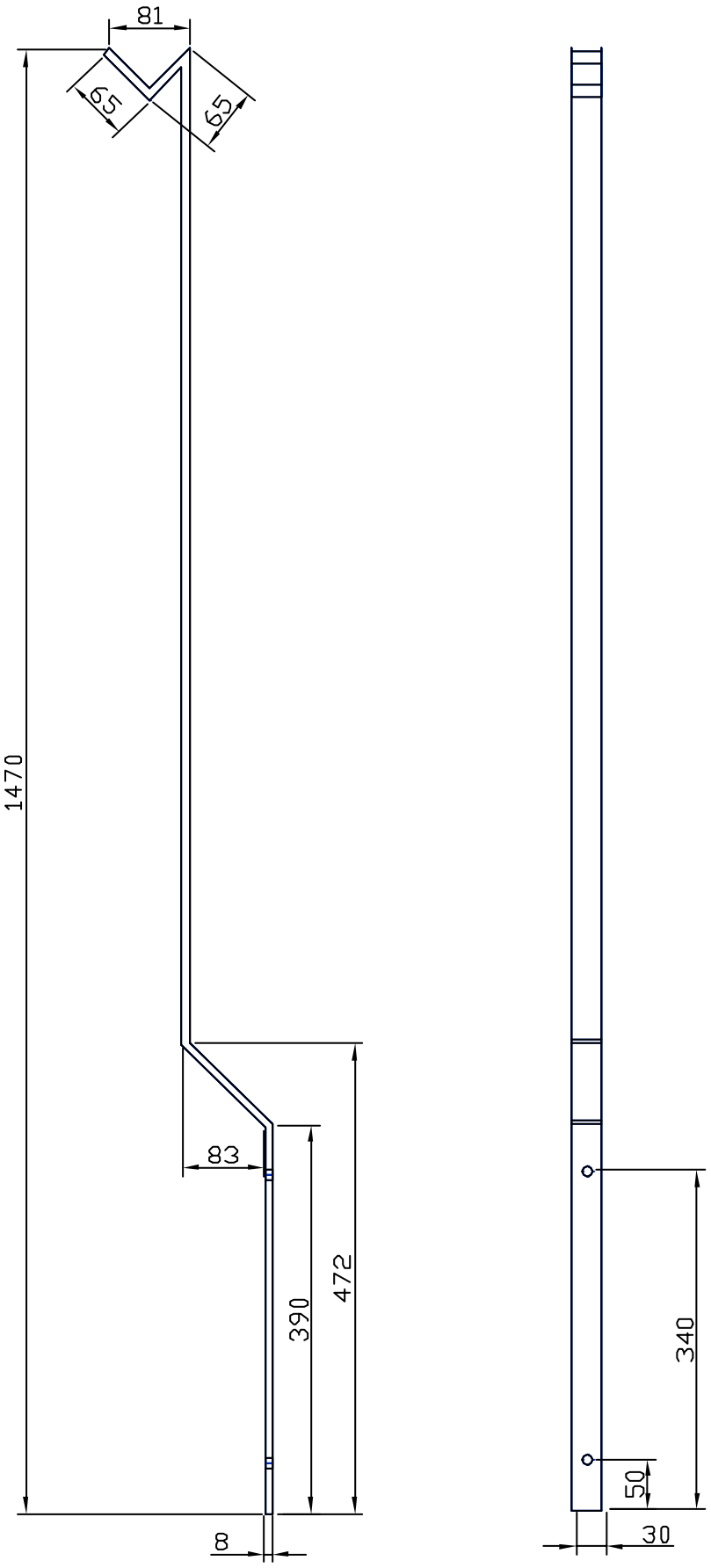






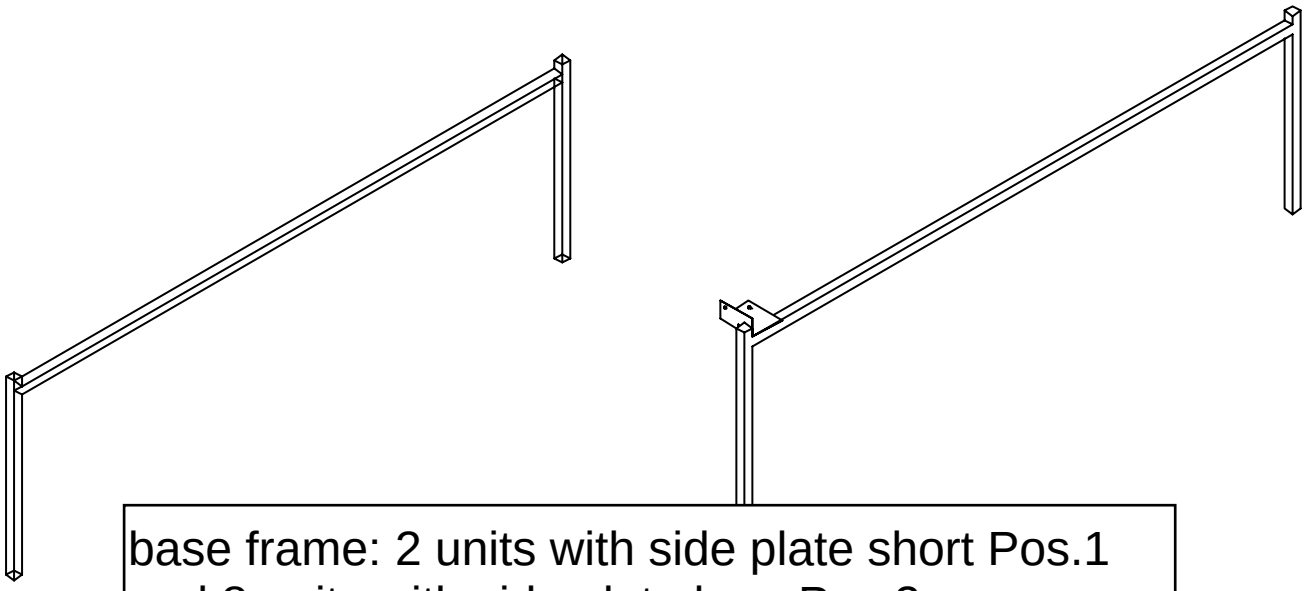


Roof Connector	
Pos.13	10 Units

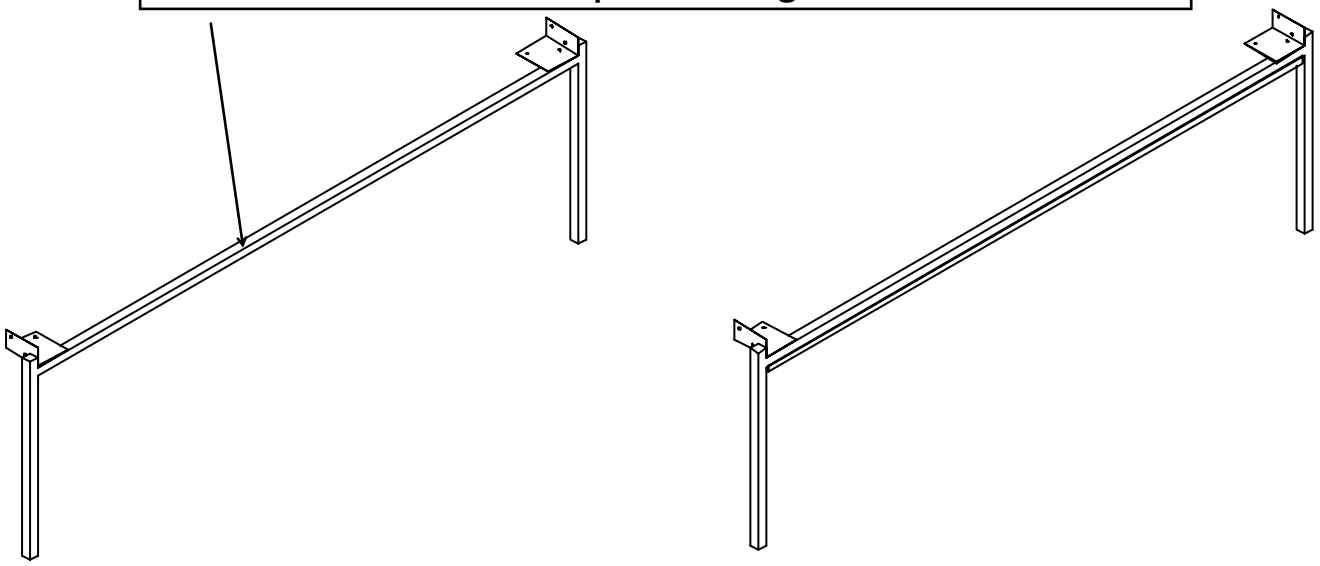


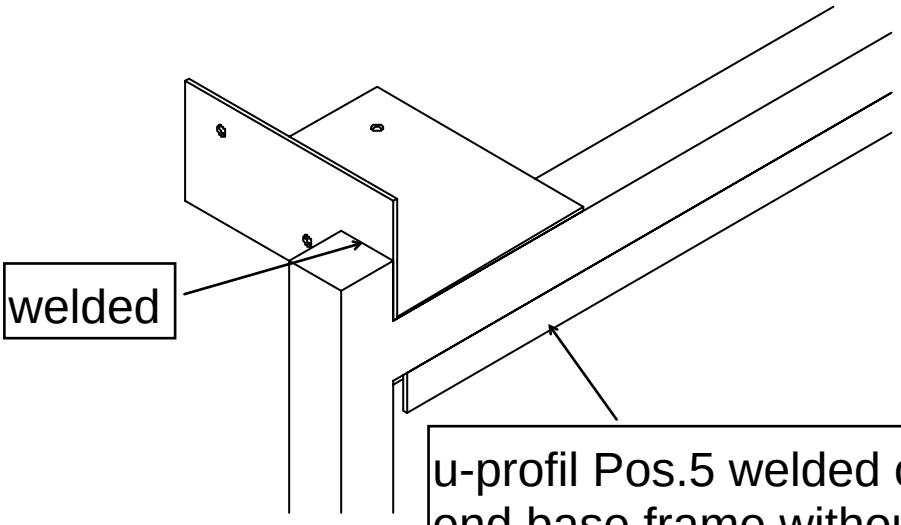
Foil Support	
Pos.16	3 Units

Base frame



base frame: 2 units with side plate short Pos.1
and 8 units with side plate long Pos.2





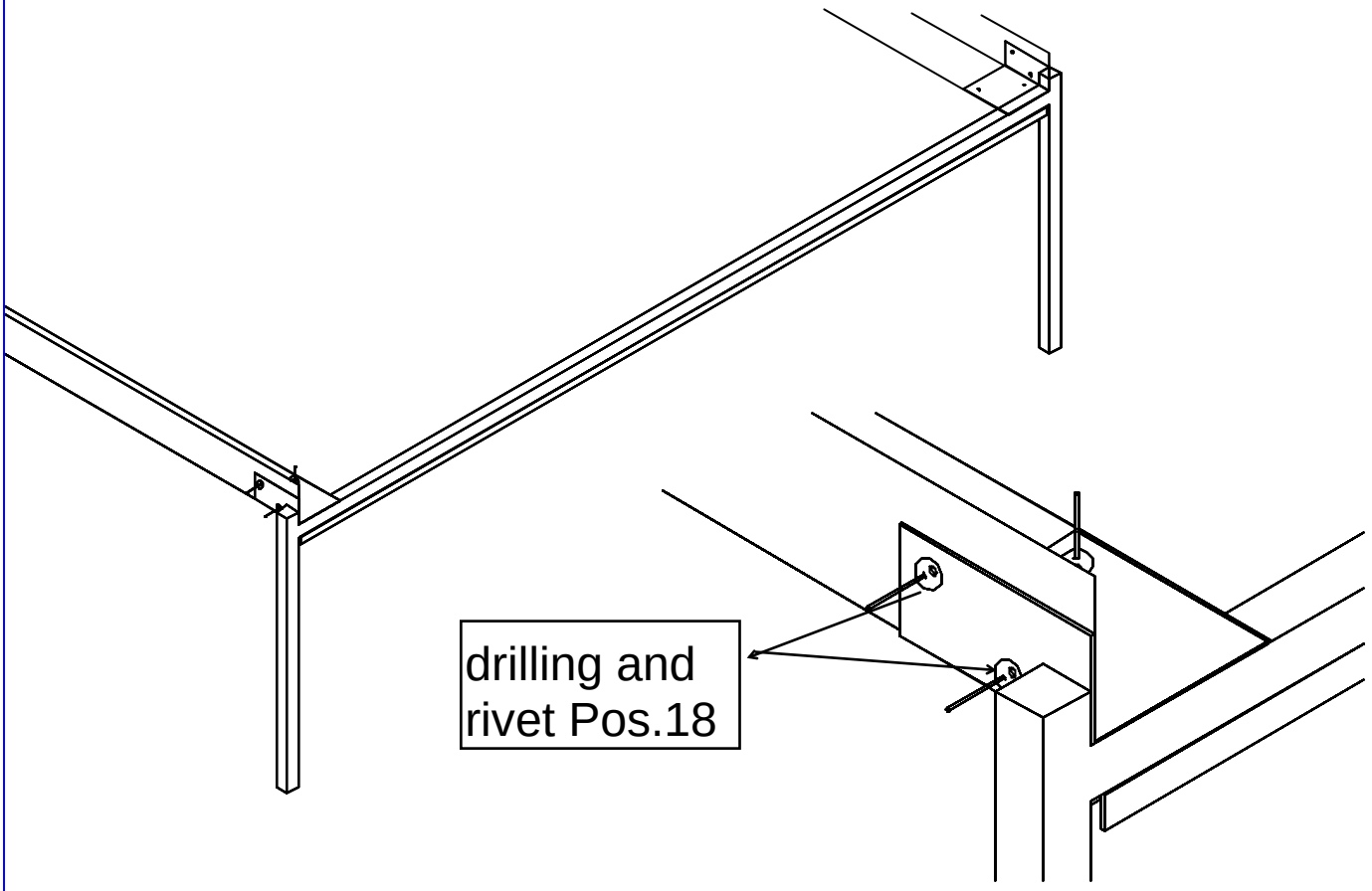
welded

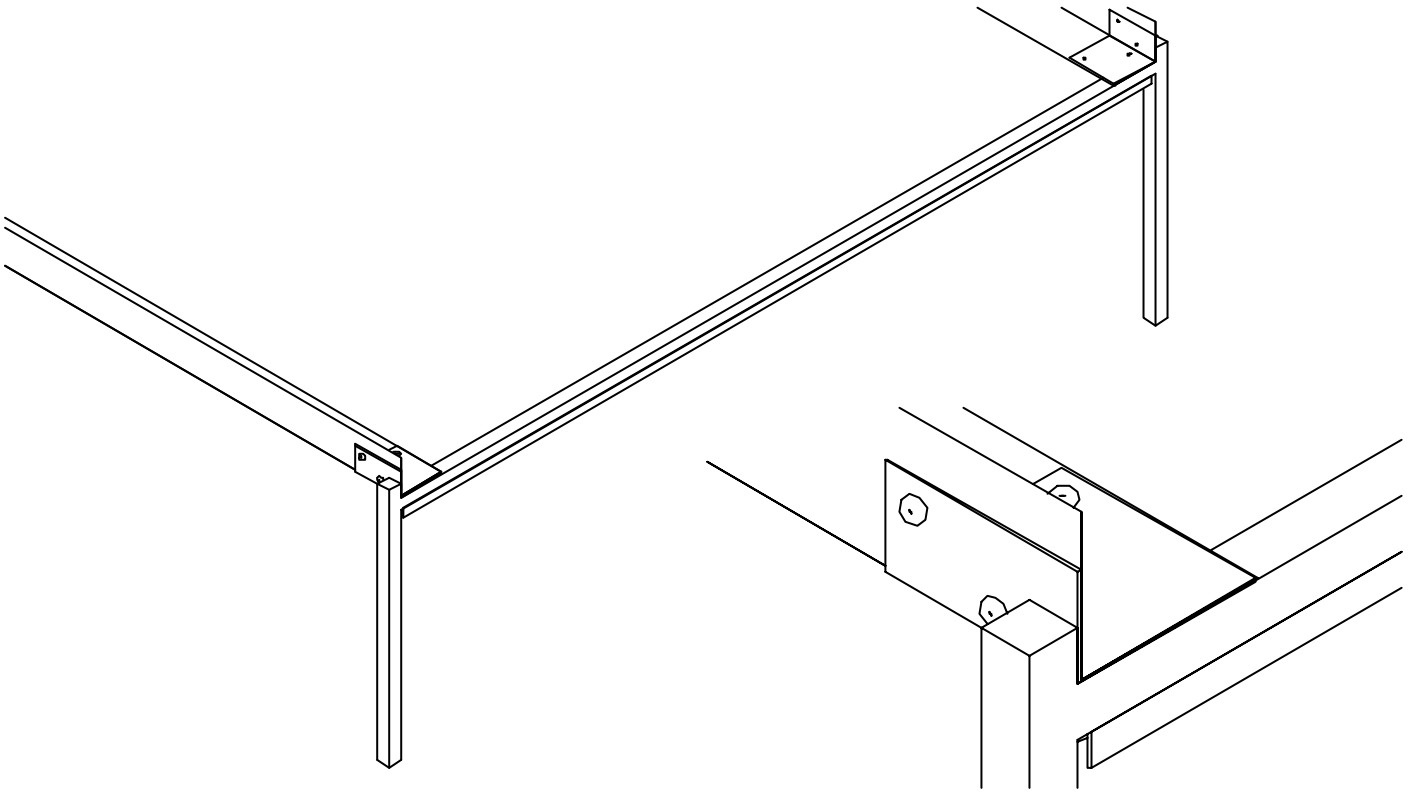
u-profil Pos.5 welded on start base frame
end base frame without u-profil

Base Frame Assembling 1

Fig: 1 base frame with side plate long

Fig: 2 base frame with side plate long complete





Base Frame Assembling 2

Fig: 3 base frame fixed with side plate

Fig: 4 make holes for rivet in side plate

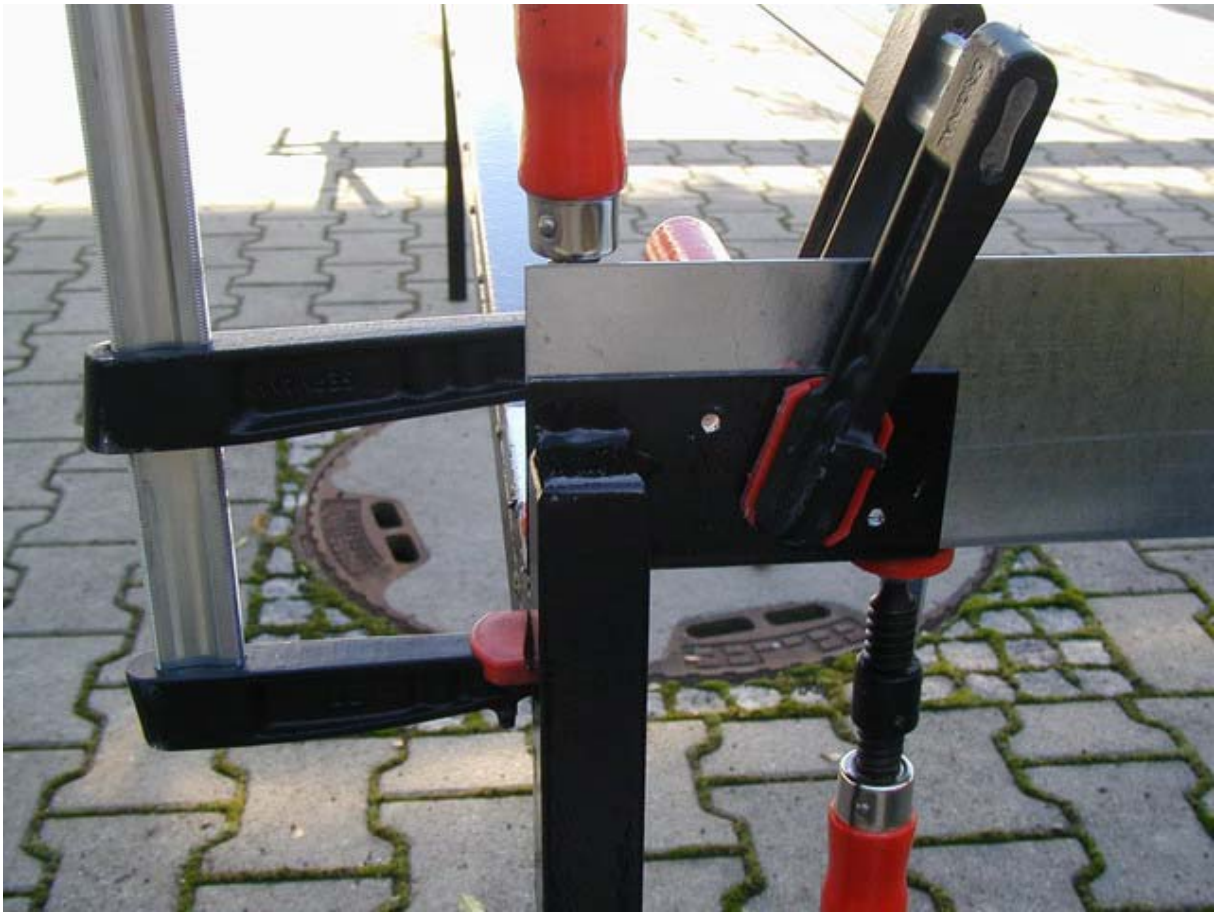


Fig: 5 base frame fixed with side plate and drilled holes

Fig: 6 rivet stick into the holes

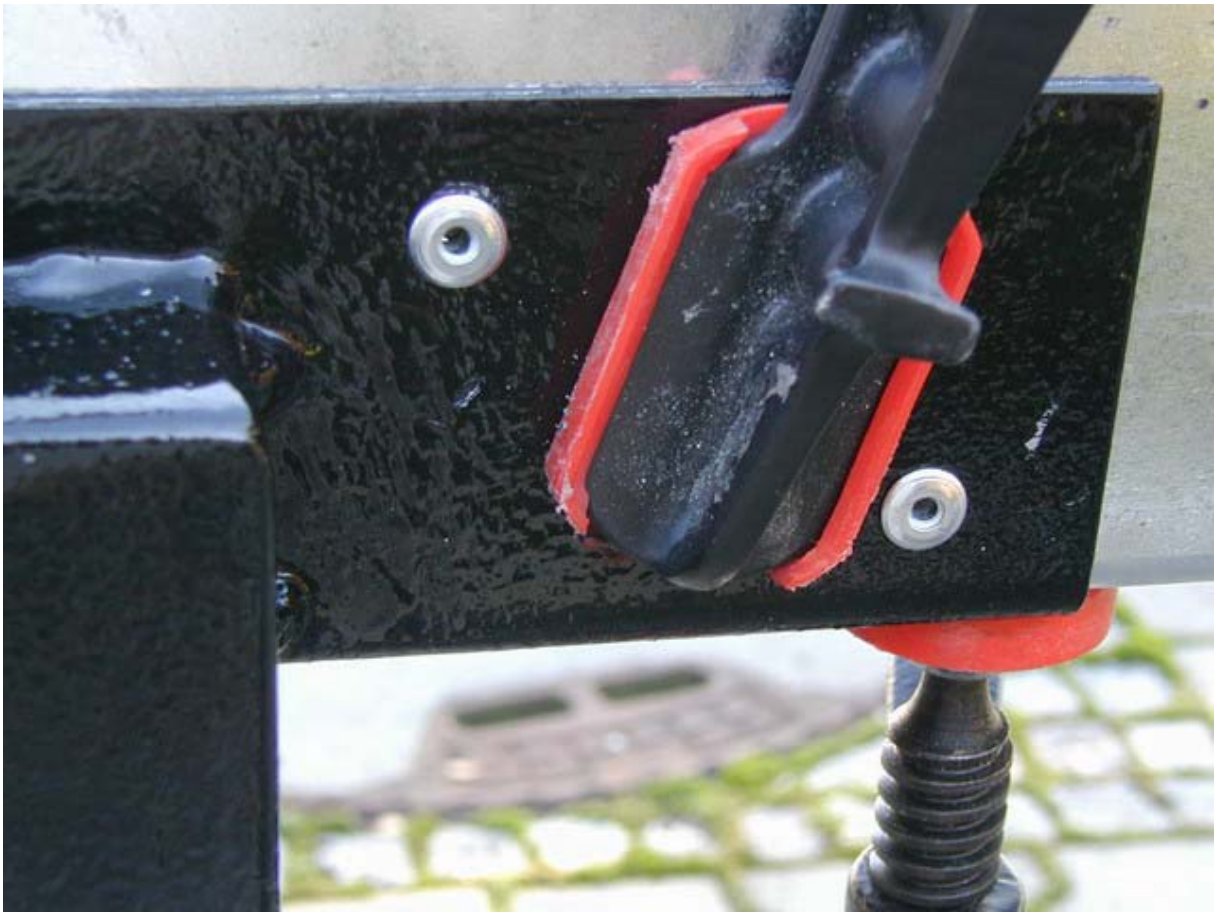


Fig: 7 finished rivet from outside

Fig: 8 finished rivet from inside

Fig: 9 base frame assembling

Fig: 10 base frame assembling

Fig: 11 fix the next side plate

Fig: 12 drilling

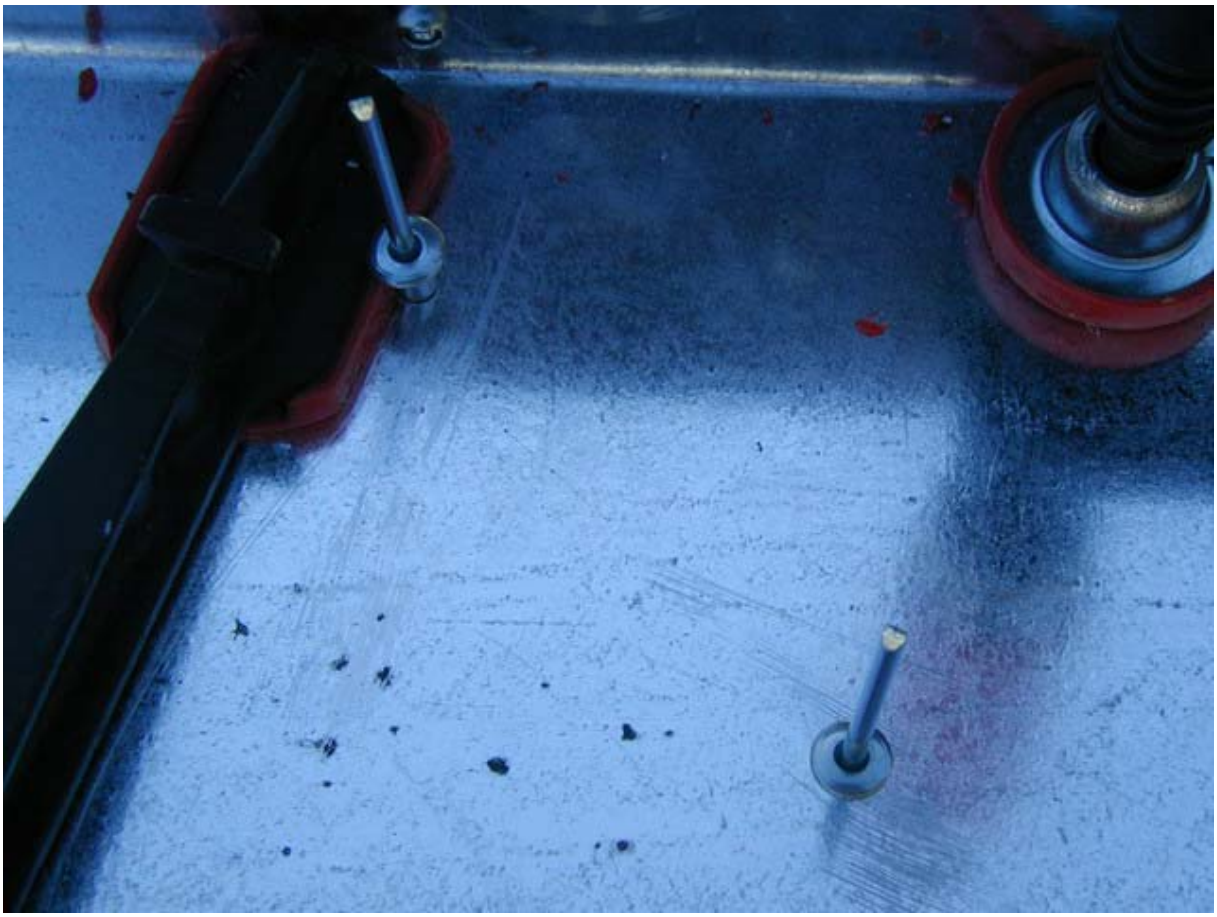


Fig: 13 rivet

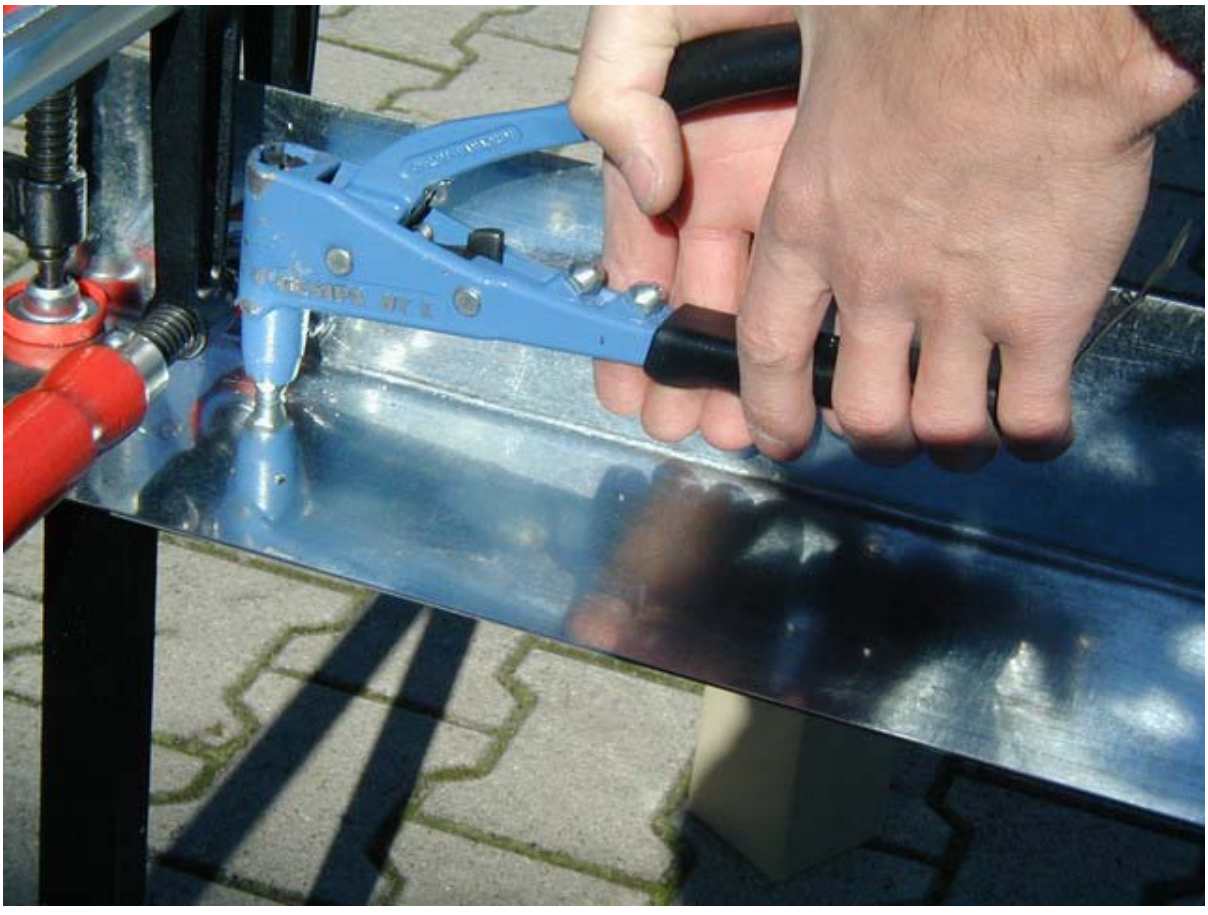
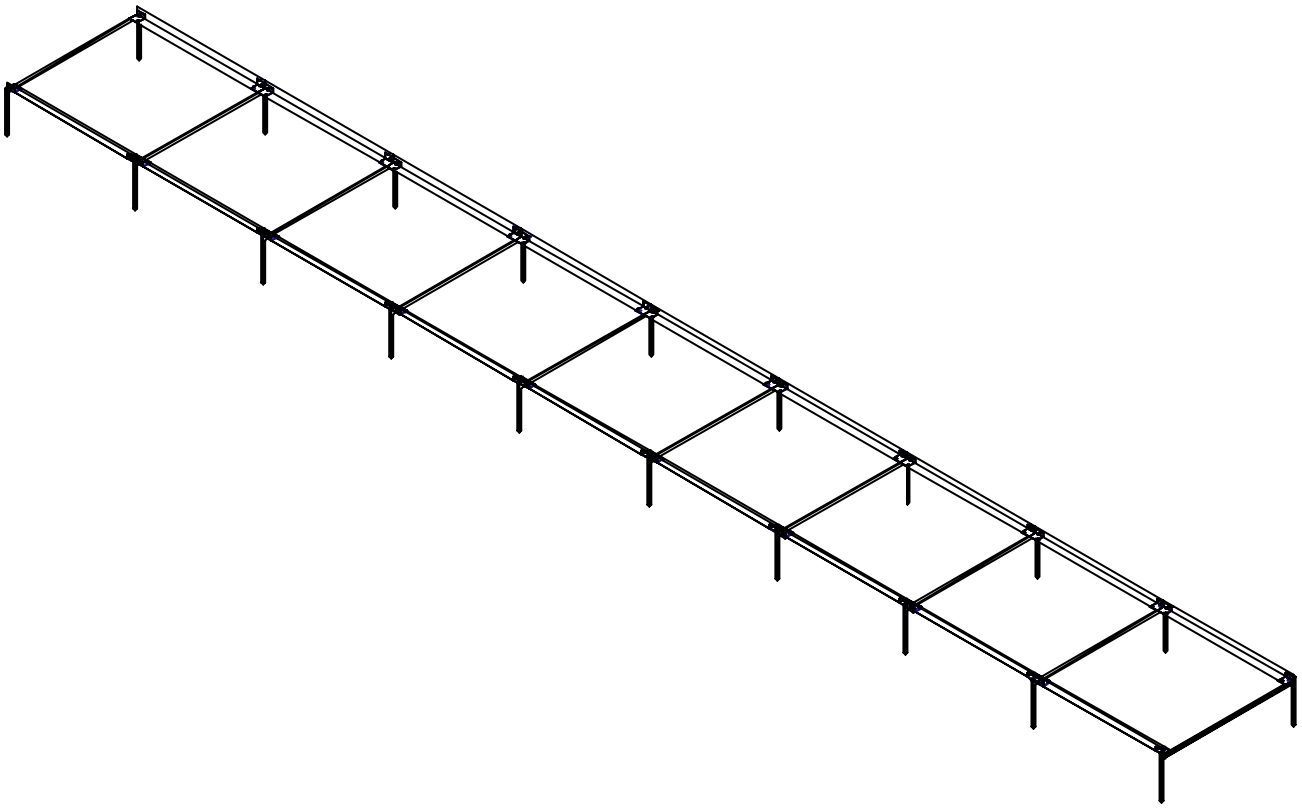
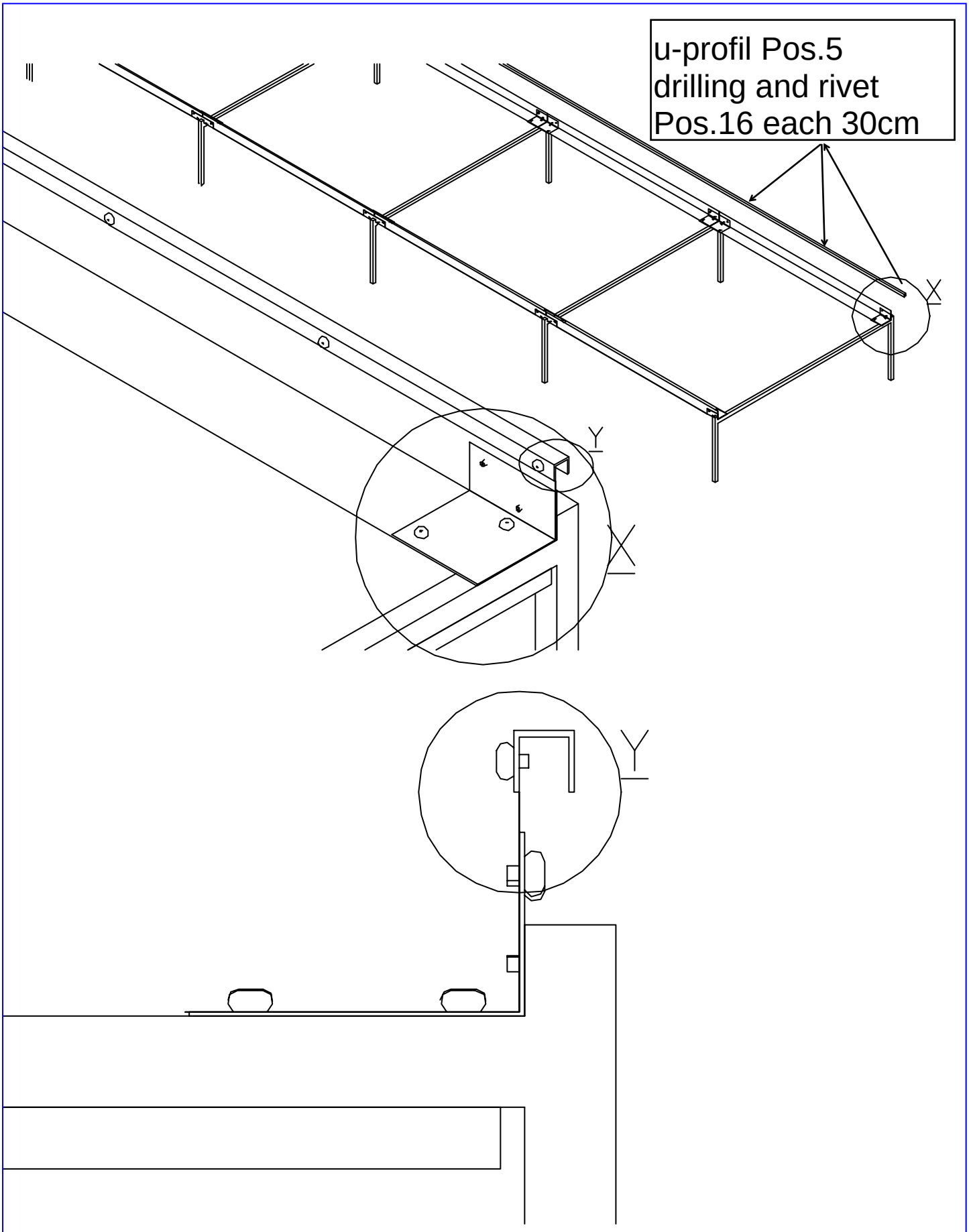


Fig: 14 shows the gripper for blind rivet

Fig: 15 base frame assembling short time before finished



Base Frame Assembling 3



Base Frame Assembling 4

Fig: 16 u-profile

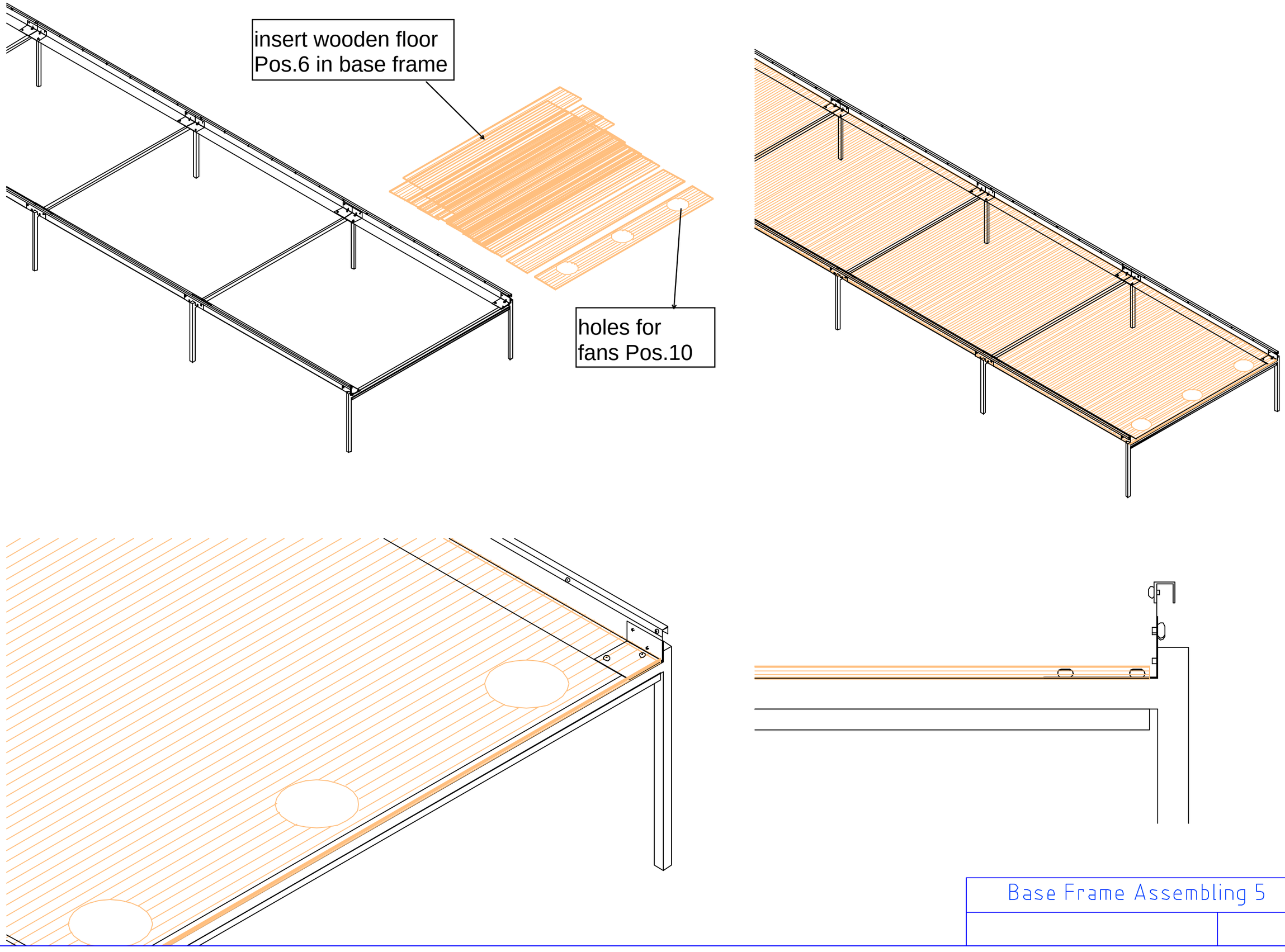
Fig: 17 fix u-profile with a clamp

Fig: 18 make holes

Fig: 19 rivet

Fig: 20 finished base frame with u-profile

Base frame with wooden floor



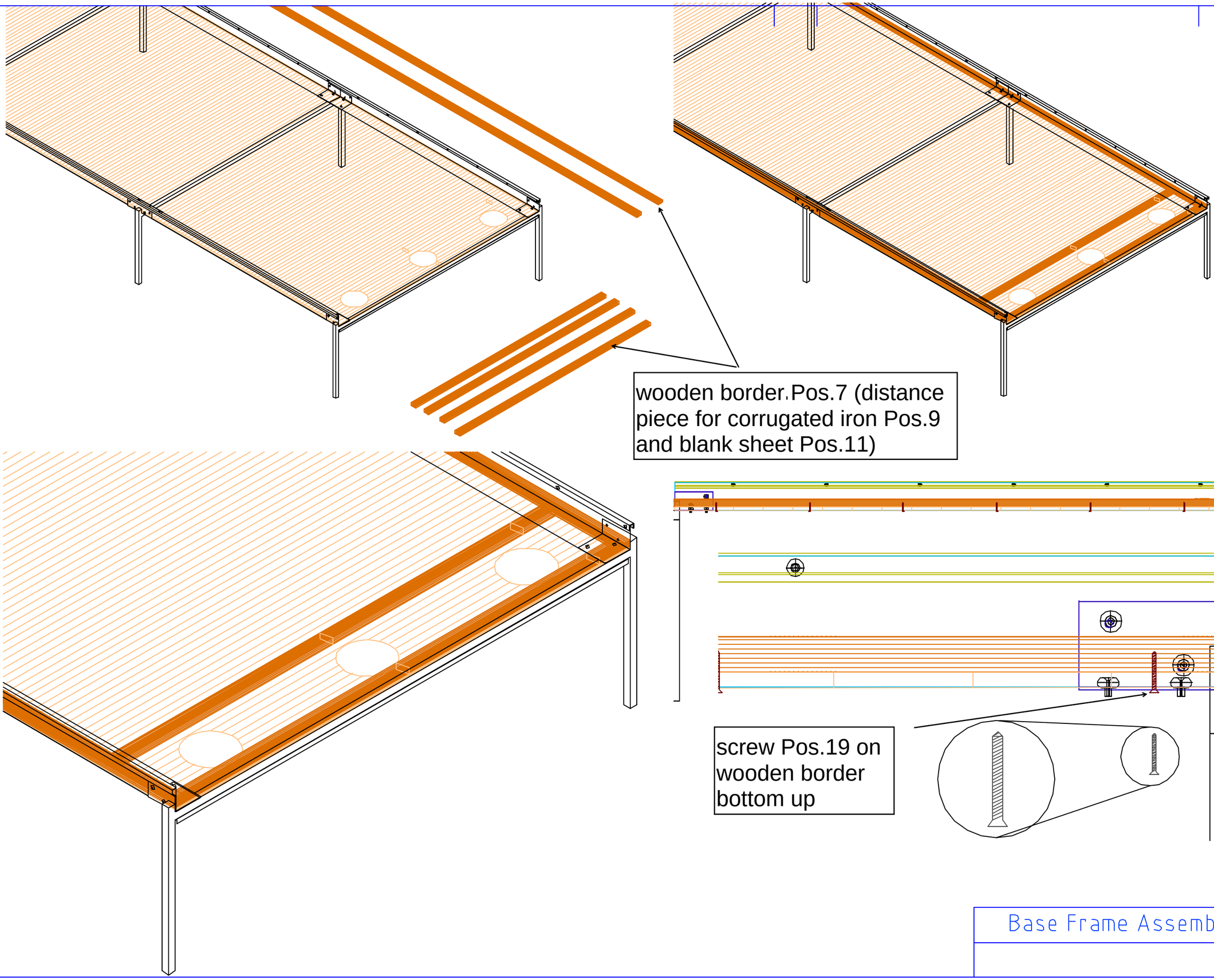
Base Frame Assembling 5

Fig: 21 wooden floor with holes for the three fans

Fig: 22 insert the wooden floor

Fig: 23 insert the wooden floor

Fig: 24 finished wooden floor

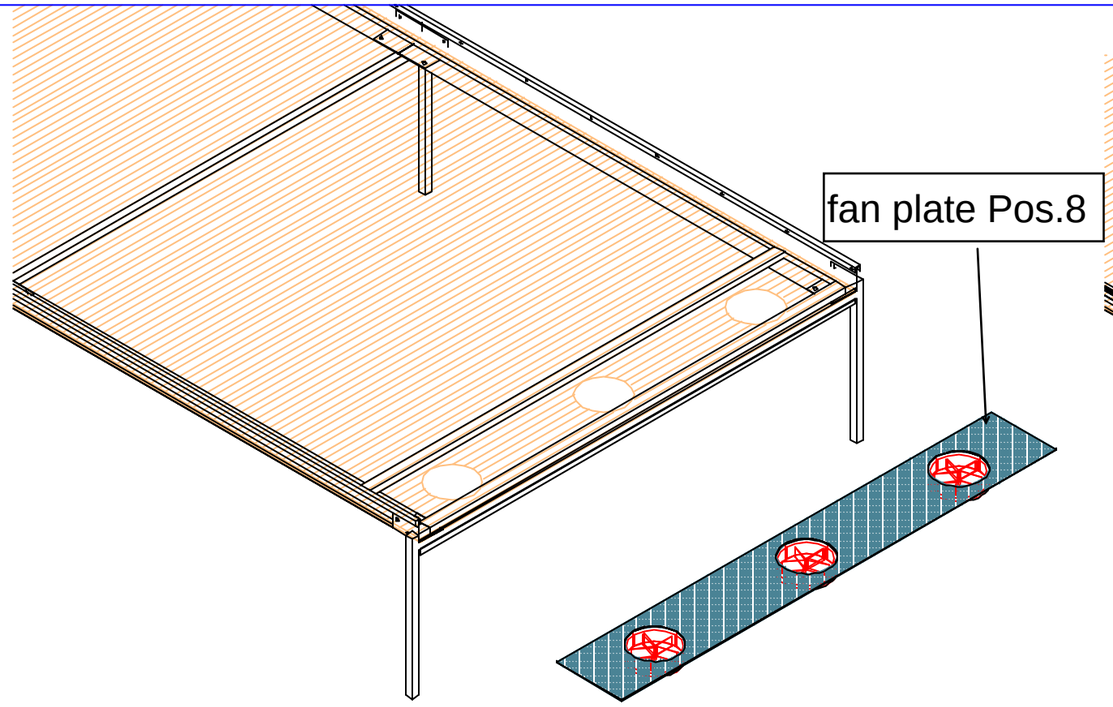


Base Frame Assembling 6

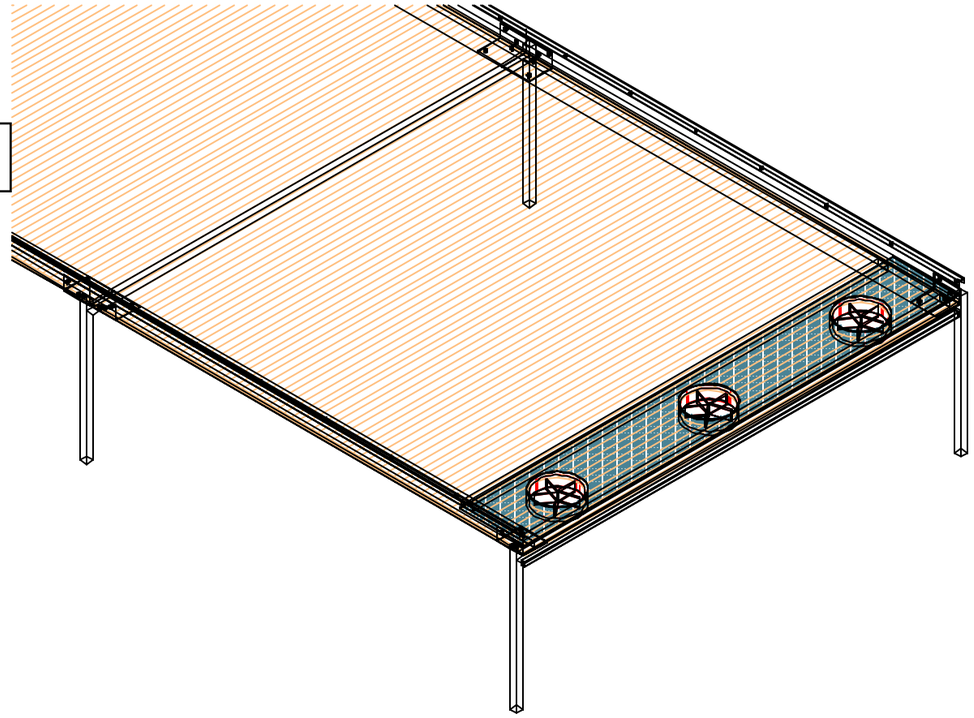
Fig: 25 make holes through side plate long

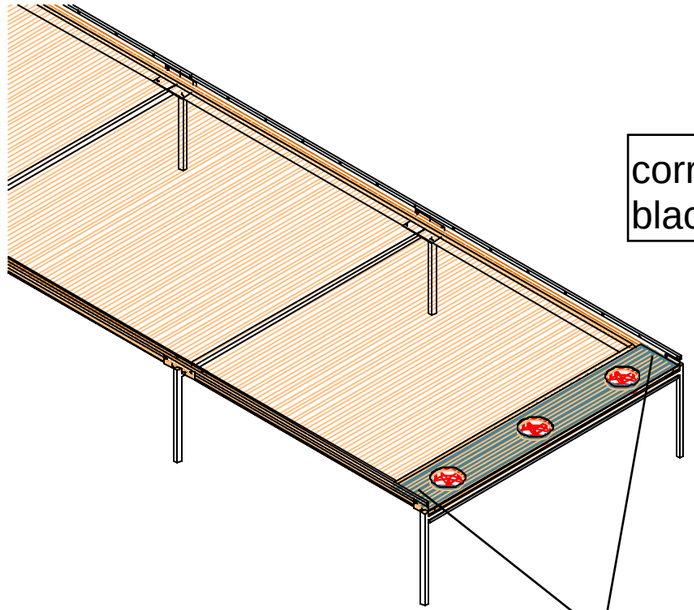
Fig: 26 screw wooden floor from underside

Base frame with blank sheet and corrugated iron

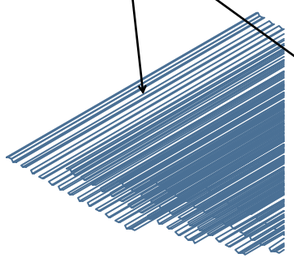


fan plate Pos.8

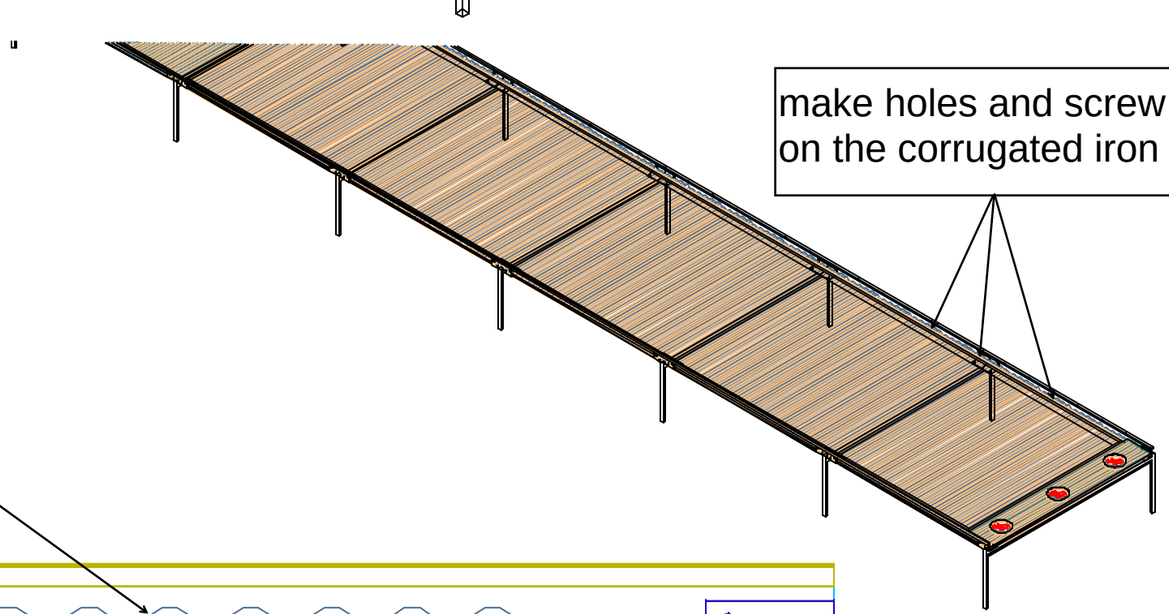




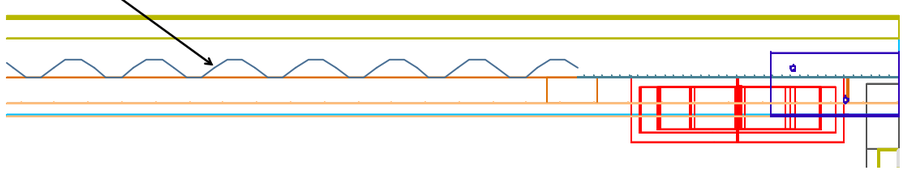
corrugated iron (painted black) as absorber Pos.9



make holes and screw on fan plate



make holes and screw on the corrugated iron



Base Frame Assembling 7

Fig: 27 shows a fan insert and rivet in fan plate

Fig: 28 shows the three fans upside

Fig: 29 shows the three fans underside

Fig: 30 shows the fan plate built-in the dryer

Fig: 31 make holes and screw on the fan plate

Fig: 32 shows the fans

Fig: 35 insert the corrugated iron

Fig: 36 insert the corrugated iron

Fig: 37 insert the corrugated iron

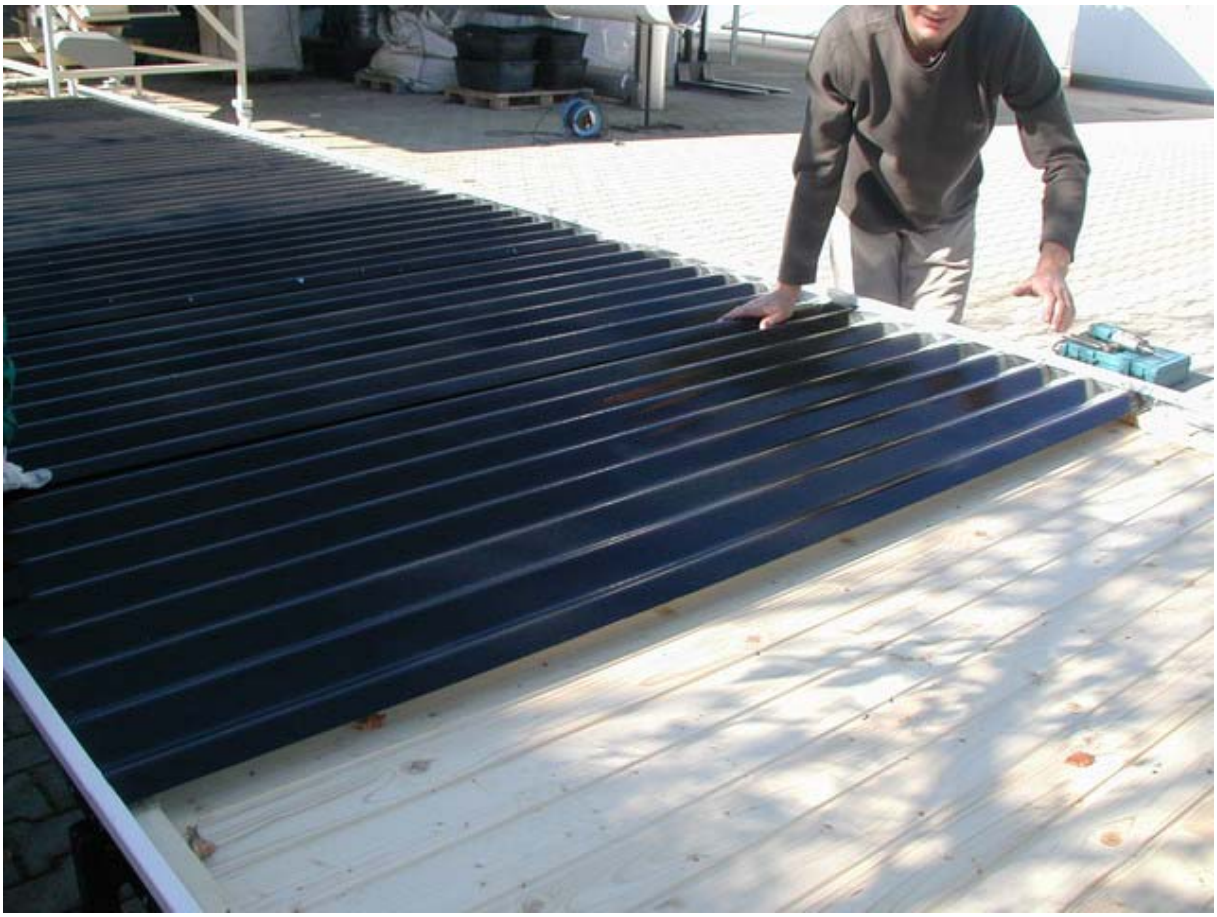
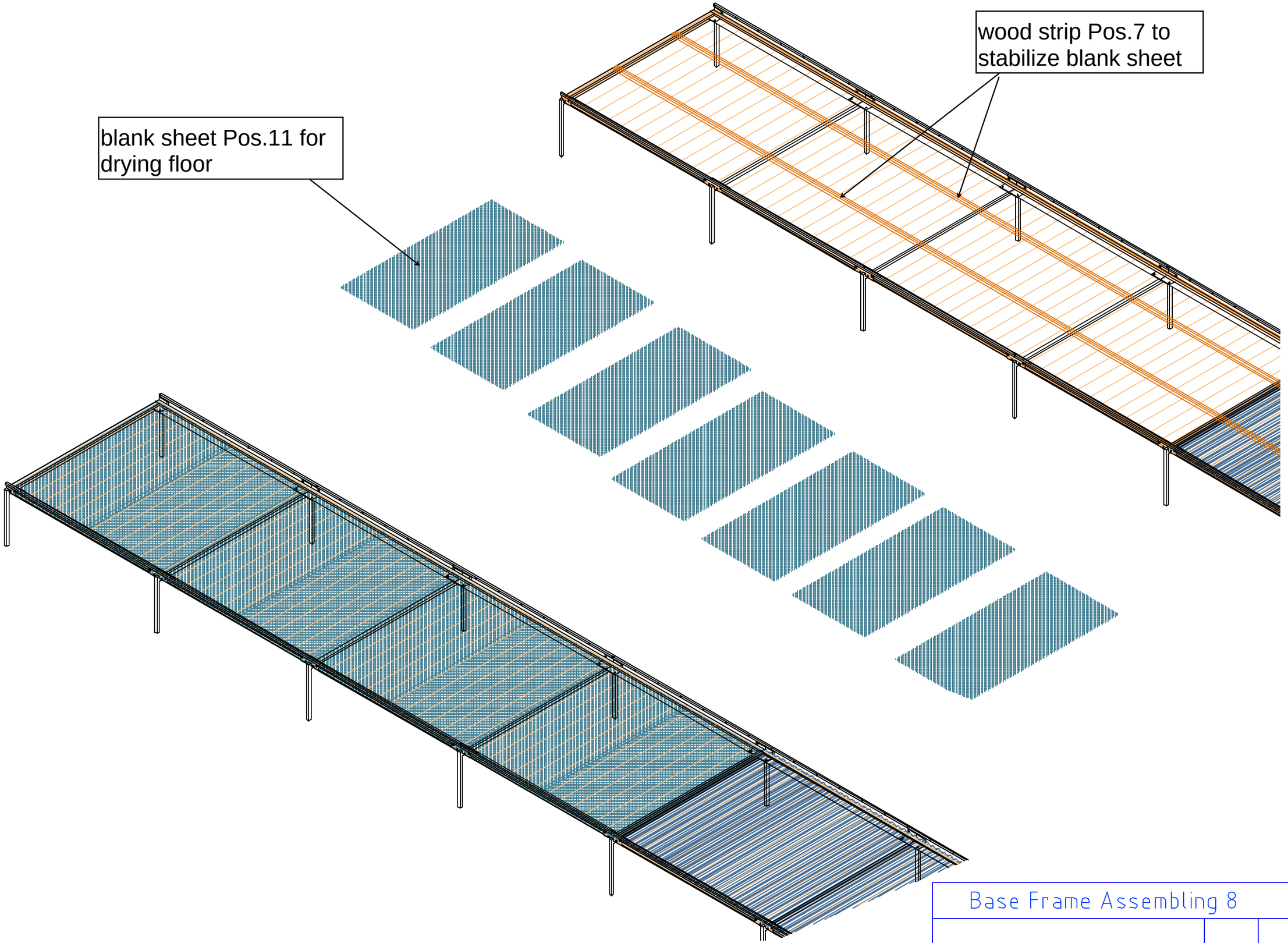


Fig: 38 insert the corrugated iron

Fig: 39 make sideward holes and screw on the corrugated iron



Base Frame Assembling 8

Fig: 40 screw on wood strip to stabilize blank sheet

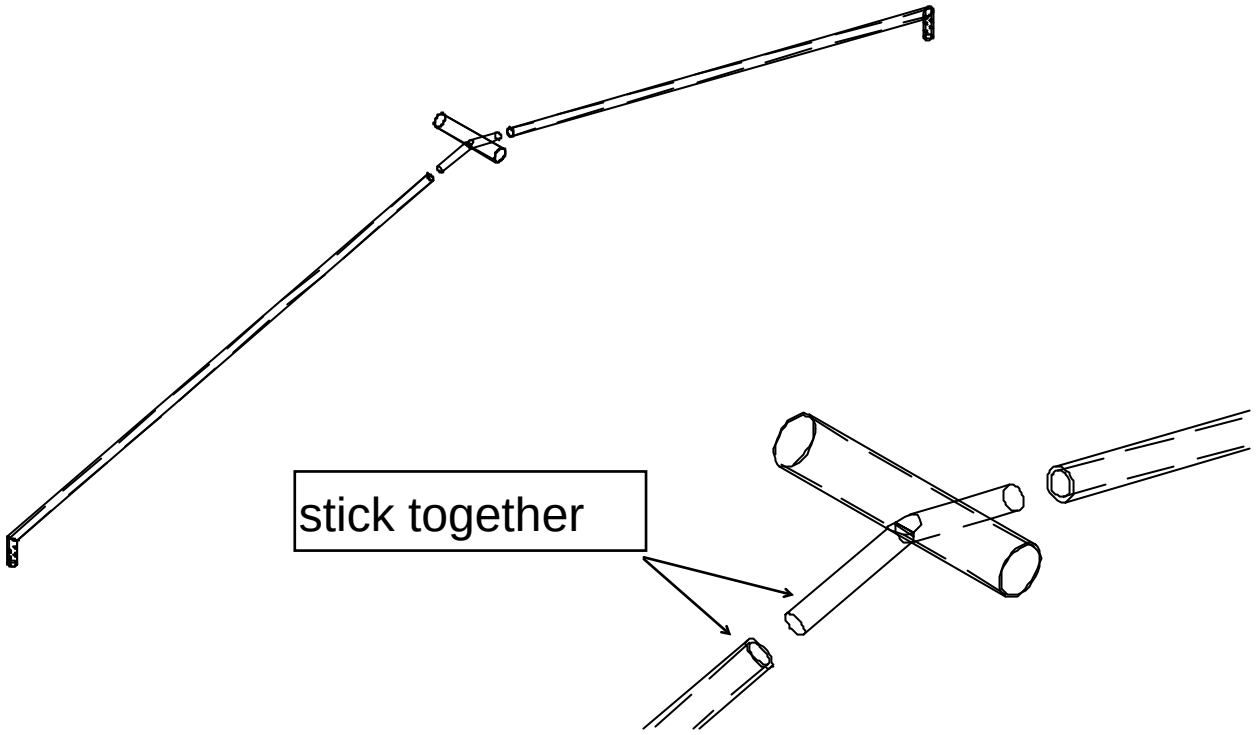
Fig: 41 screw on wood strip to stabilize blank sheet

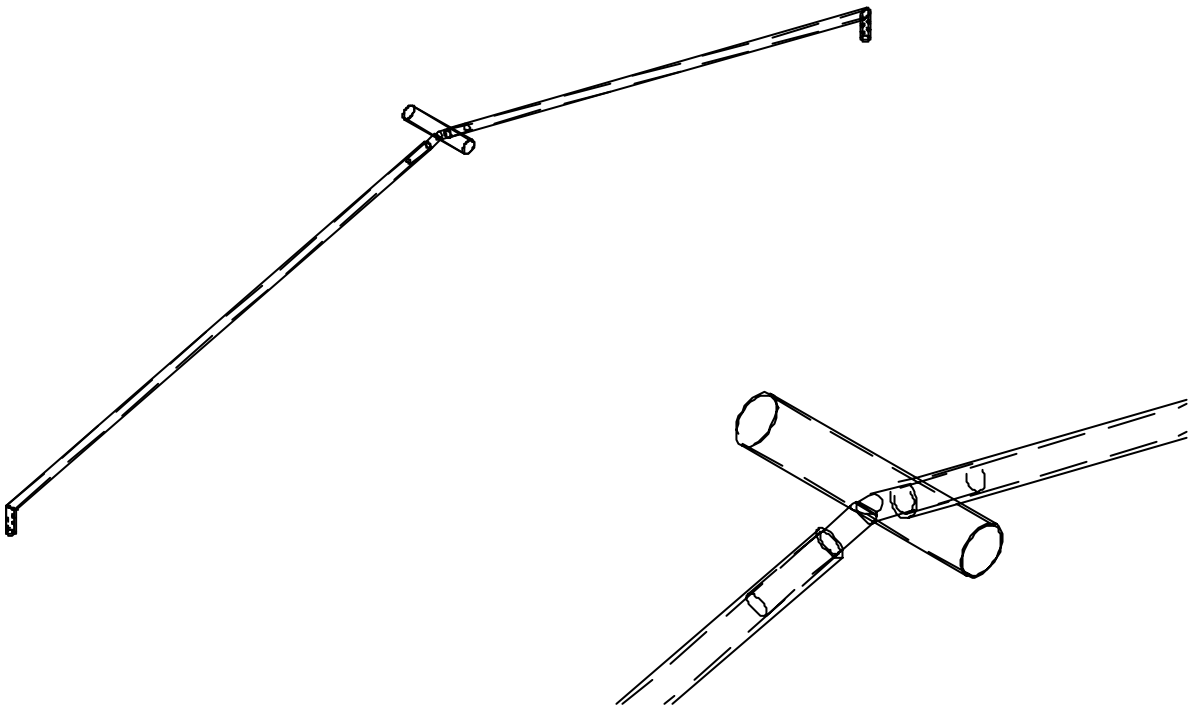
Fig: 42 insert the blank sheet

Fig: 43 insert the blank sheet, make sideward holes and screw it on

Fig: 44 finished base frame with absorber and drying area

Roof assembling

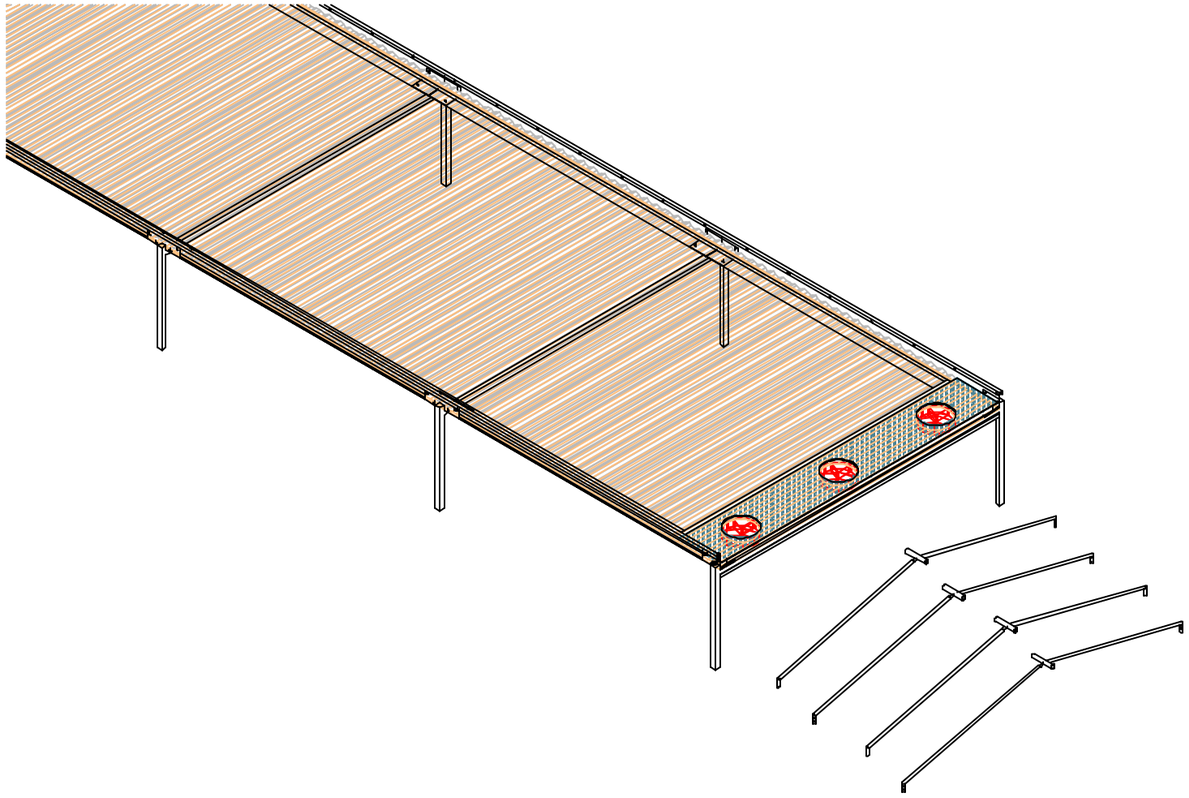


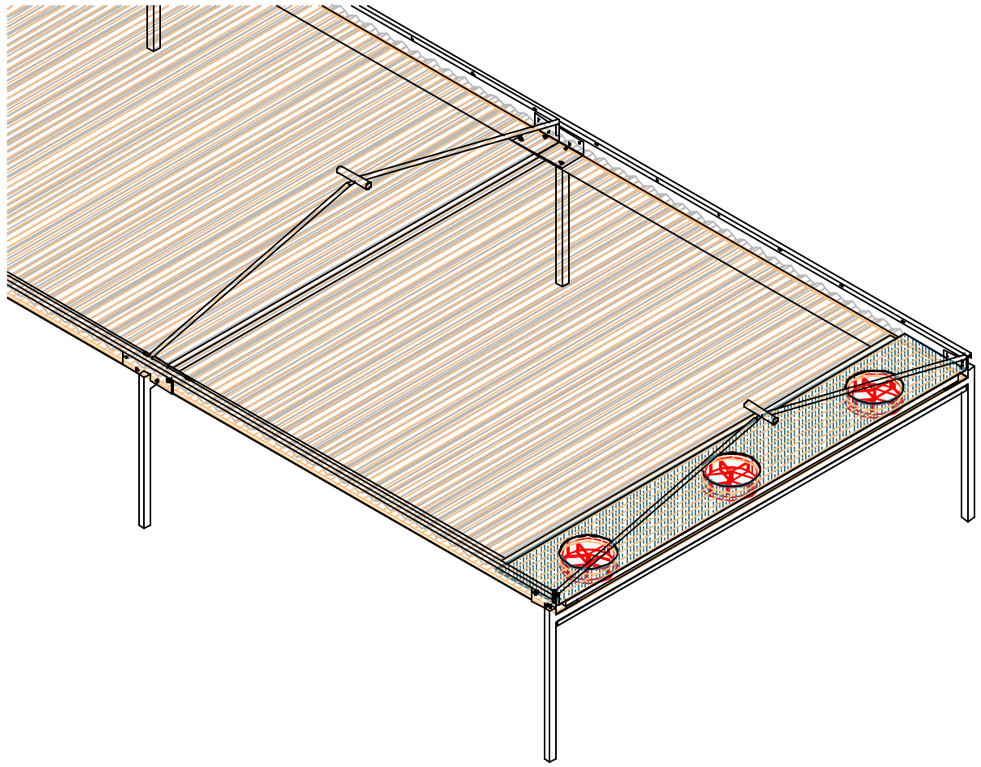


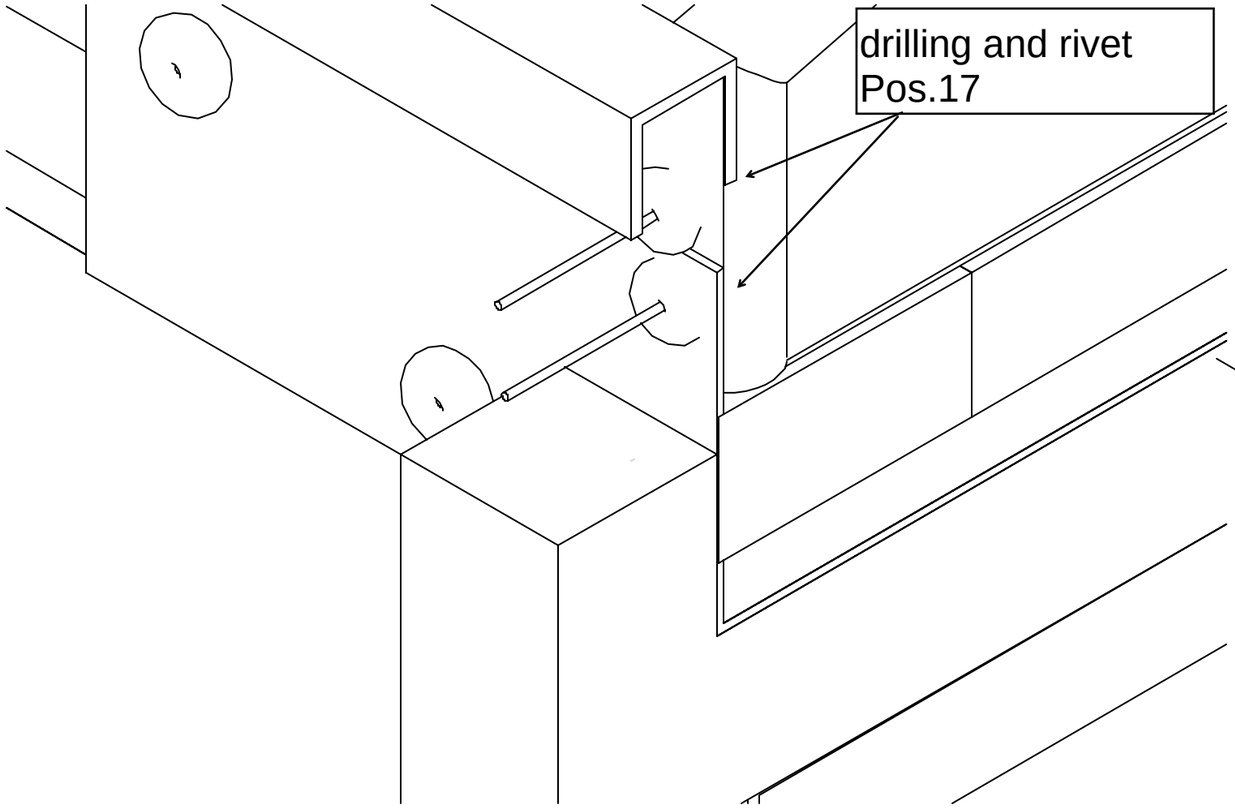
Roof Assembling	
	10 Units

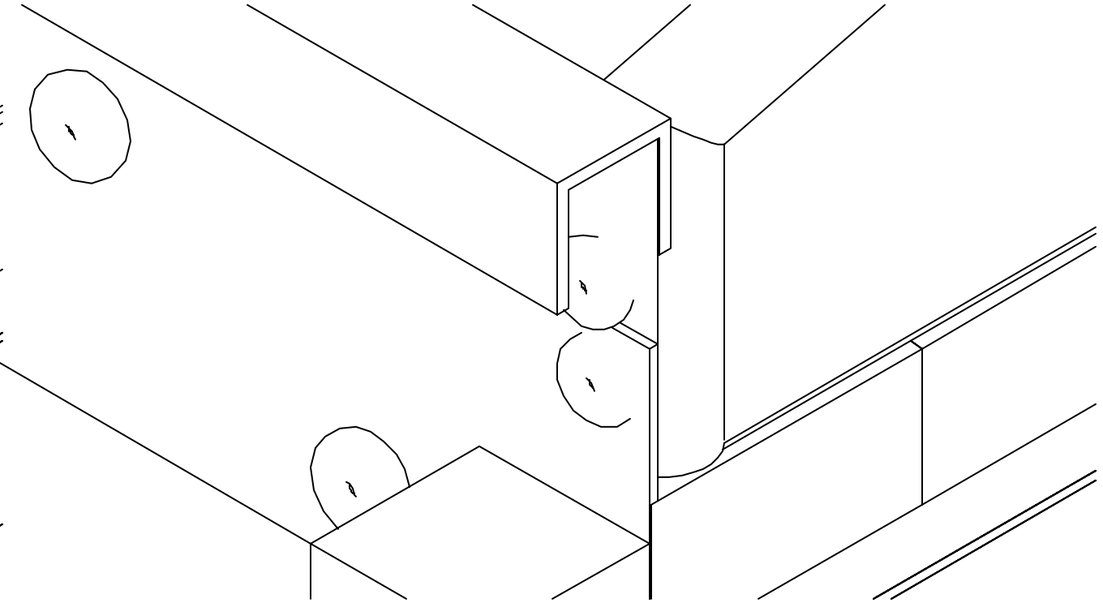
Fig: 45 roof rack

Fig: 46 roof connector



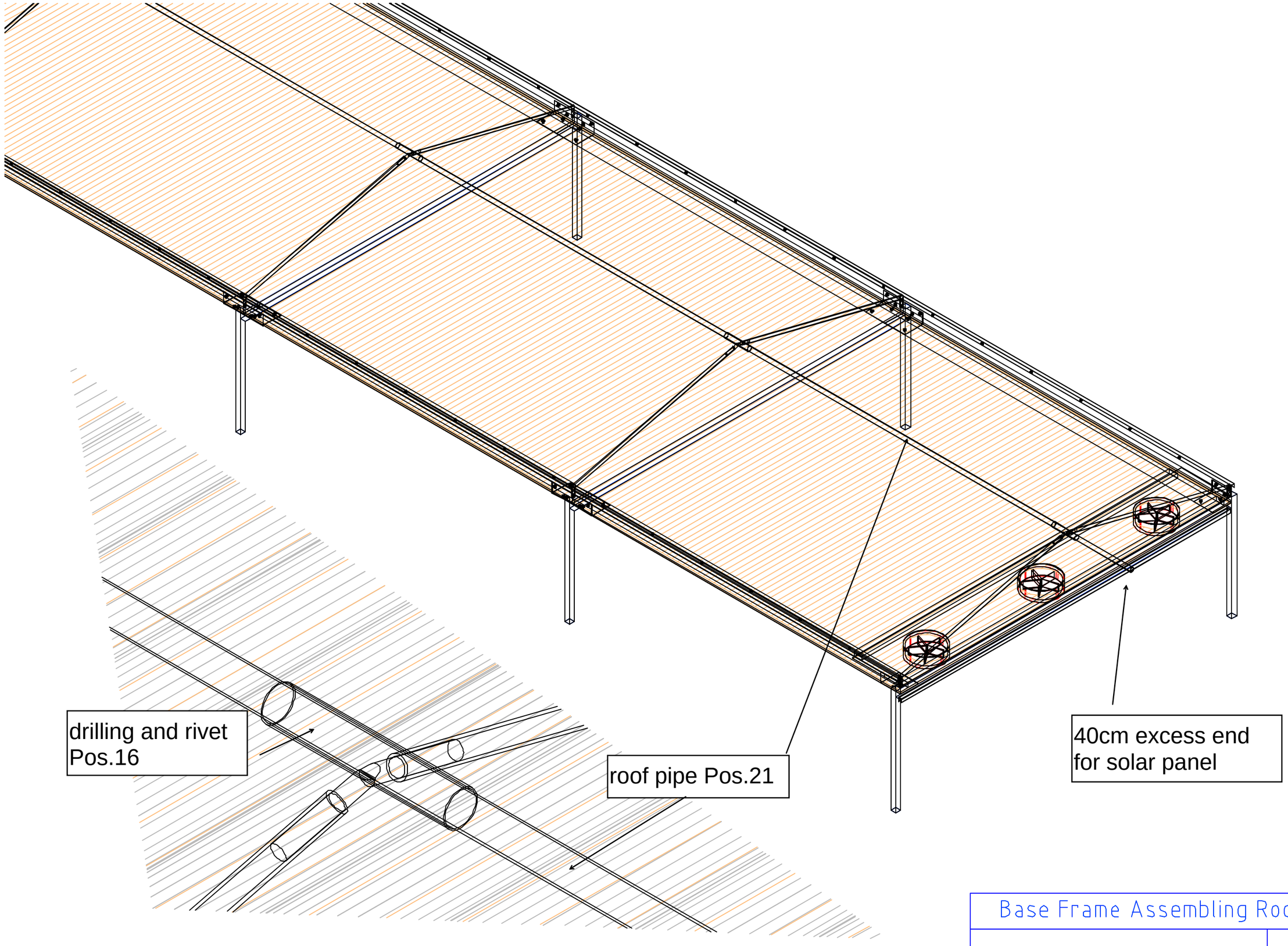






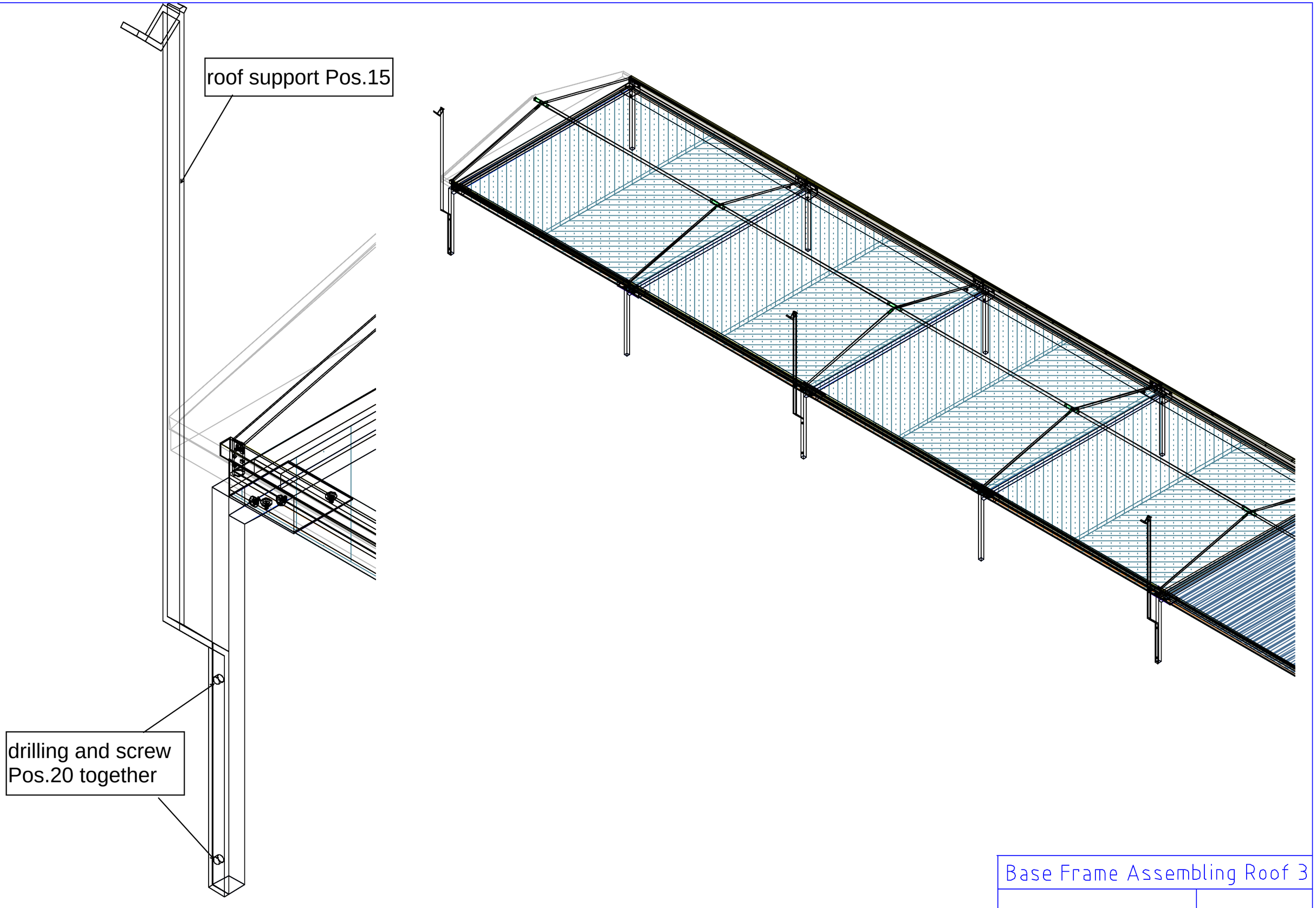
Base Frame Assembling Roof 1

Fig: 47 roof connector assembled with roof rack and roof pipe



Base Frame Assembling Roof 2

Fig: 48 shows the dryer with roof



Base Frame Assembling Roof 3

Fig: 49 shows the solar panel

Fig: 50 foil attached with edge protection

Fig: 51 front side closed with foil

Fig: 52 front side closed with foil

Fig: 53 front side closed with foil

Fig: 54 foil supporter

Fig: 55 shows foil supporter and foil holder

Fig: 56 foil clip with a rubber layer to protect foil

Fig: 57 foil holder who stretch the foil

Fig: 58 shows the opened dryer

Fig: 59 shows how the foil supporter works

Fig: 60 shows the dryer from back side