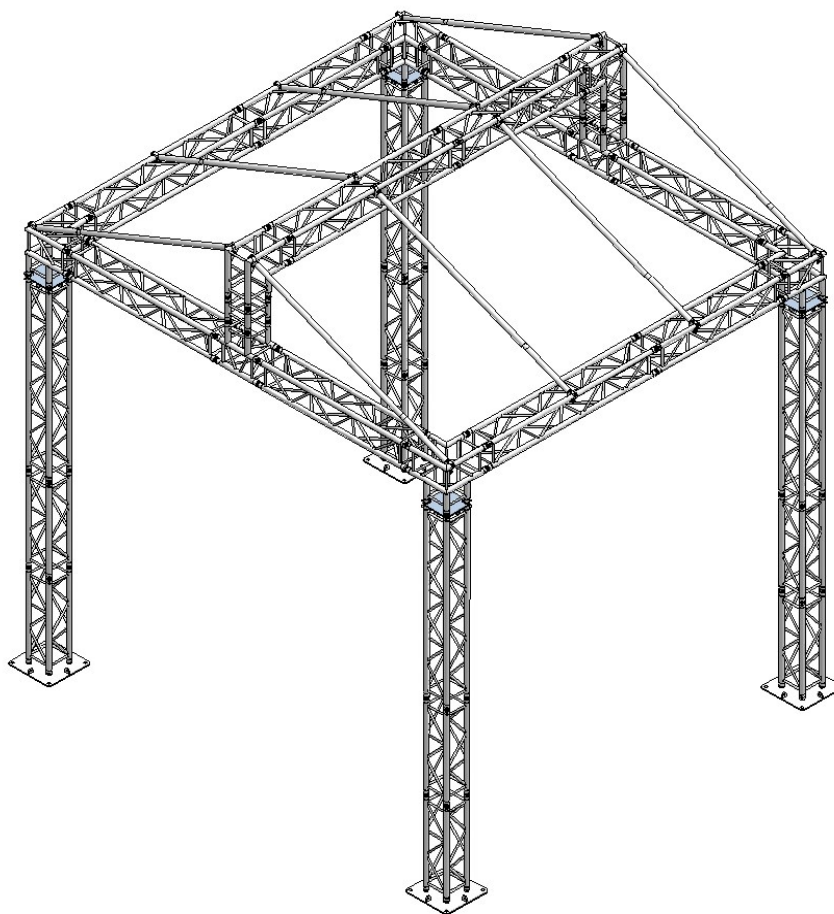




# RST 4x4

## Double pitched roof



## INSTALLATION , USE AND MAINTENANCE MANUAL

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Make sure that you read and understand this manual completely before using this product.

This manual shall be available to all those who assemble and disassemble the Double pitch ROOF RST 4x4 .

The manual refers to the intended use of the machine, to technical features and to the installation, use and maintenance instructions.

For health and safety reasons people assembling, disassembling, transporting the components should wear adequate Personal Protection Equipment like, gloves, hard hats and safety shoes.

Elements weighting 20 Kg. or more shall be carried by at least 2 persons.

## **CONTENT OF THE MANUAL**

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This manual gives all information regarding the usage and the maintenance of the products called 'RST 4x4'.

The manual refers to the intended use of the machine ,to technical features and to the installation , use and maintenance instructions.

This manual is intended for professional:

- Factory manager.
- Person in charge of the safety and the design of the temporary event.
- The personnel in charge of the installation , use and uninstal of the machine.
- The personnel interested in the usage of the machine.
- The personnel in charge of the maintenance.

The manual must be kept in a suited place so that it is always available for consultation.

In case of loss or deterioration, the substitutive documentation must be requested to the manufacturer.



## REVISIONS OF THE MANUAL

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The manual refers to the conformation of the product when it is issued in the market. The manual is an integral part of the product and it can not be considered inadequate just because it has been updated subsequently. Possible changes, corrections of the structures sold afterwards, do not oblige the manufacturer to bring changes to the equipment supplied earlier and not even to consider the structure and its manual as inadequate and lacking.

If the manufacturer should bring possible additions to the manual and consider right to send them to the users, they should keep the additions with the manual itself because the additions should become an integral part of it.

**Note: The manufacturer has the material and intellectual property of this publication and he forbids the divulgation and the duplication, even a partial one, without his previous written permission.**

The following table resumes the revisions of the manual:

<i>RELEASE</i>	<i>ANNOTATIONS</i>	<i>DATE</i>



## WARRANTY AND RESPONSABILITY OF THE MANUFACTURER

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With reference to what is reported in this instruction manual, TAF declines any responsibility in case of::

- Use of the product in disagree with the national laws about security and industrial injury.
- Use of the machine by unauthorized technical personnel.
- Wrong predisposition of the working place and of the structures where the product operates.
- Unauthorized changes in the machine.

In order to take advantage of the warranty given by the manufacturer, the user must observe strictly the prescriptions written in this manual, above all:

- He should always work following the functional limits of the product.
- He should always make a periodic maintenance.
- He should always use the original spare parts suggested by the manufacturer



**WARNING.** It is forbidden to use the product in disagreement with the instructions given by the manufacturer. The instructions written in this manual do not substitute but complete the duties regarding the national laws about security and industrial injury.

## REFERENCE STANDARDS

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The design and the production has been realized according to the following standards:

- **EN-1991-1-1-Eurocode 1:** Actions on structures - Part 1-1: General actions - Densities, self-weight, imposed loads for buildings
- **EN-1993-1-1-Eurocode 3:** Design of steel structures - Part 1-1: General rules and rules for buildings
- **EN-1999-1-1-Eurocode 9:** Design of aluminium structures - Part 1-1: General structural rules
- **EN 13814** - Fairground and amusement park machinery and structures Safety



## - INFORMATION AND GENERAL BEHAVIOUR ABOUT SAFETY

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The assembling and disassembling operations of the product must be performed by fully trained, competent and suitably experienced people.

In particular, the following PPE must be provided during the assembling and disassembling procedures of the structure.

- Safety shoes.
- Protective gloves.
- Head protection (Helmet).

The working area should be delimited previously in order to prevent unauthorized personnel from entering during the assembling use and dismounting operations of the product.



## - DESCRIPTION OF THE STRUCTURE

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The ROOF is a temporary double pitch structure with plan dimensions of 5 x 4,5 m made with TAF FT34 truss.

In the 4 corners there is a leg with a steel base plate with a dimension of 50 x 50 cm. On this base there are 4 plates in the middle on the sides to allow the fixing of the bracing.

Two 1 m and one 2 m truss are positioned above this plate to create the column.

Above it is fixed a plate for the upper fixing of the bracing.

At the end of the column there is a 3-way corner which allows to form a ring in plan connected with it.

The front of the roof is made with two 1,75 m horizontal trusses and a T-corner in the middle with the additional direction positioned upwards.

Above this corner, a 25 cm truss and a 90° corner must be assembled to create the additional via in depth of 96 cm higher respect to the two lateral ones to create the double pitch.

The trusses that go deep, two lateral and one central, are formed with a 2 m and a 1,5 m truss.

The back side is formed like the front side to close the ring.

On the inclined part of the pitch, to help support the canopy so that it does not create pockets of water, there are n°4 Ø50x2 mm tubes per side hooked up with clamps spaced 1,45 m apart.

The whole structure is made with FT34 truss.

The whole structure is covered with a class II PVC canopy covering the two triangles, front and rear, and the two sloping roofs.

The structure must have a cross bracing on three sides formed with cables with a minimum load capacity of 1.000 kg.(See Calculation Report).

The structure is designed to have 3 canopy on the vertical parts positioned on the two short sides and on the rear side.



## **- PURPOSE OF USAGE**

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The intended use of the product is destined for entertainment activities.

Examples of entertainment activities are:

- Product presentations;
- Theatre shows, musicals, opera and ballet;
- Classical, pop and rock concerts;
- Festivals;
- Exhibitions and trade shows;
- Celebrations and parties;
- Fairgrounds;
- Conventions, demonstration meetings.

## **- CONDITION AND LIMITS OF USE**

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It is important to remember that the double pitch roof is a structure constructed for lifting loads in the entertainment industry exclusively. It is forbidden using the product for lifting loads in industrial and production fields, not even as lifting device.



## - NECESSARY BALLAST LOADING

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Please refer to the calculation report in order to know the ballast requirements. The suspended loads on the roof and the interlocking loads connected to the feet can be considered in the calculation of the ballast load.

### **frictional coefficient $\mu$**

$\mu = 0,40$  steel to wood to stone/concrete.

$\mu = 0,60$  bolted/put into steel to wood to stone/concrete.

It also recommends that the assembly of the structure shall only be made in appropriate weather conditions of wind force or snow height.





## - INSTALLATION PROCEDURE

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The product could be installed and uninstalled a lot of times during its service. In order to preserve the functionality, the integrity and the safety of the product, it must to use fully trained, competent and suitably experienced people.

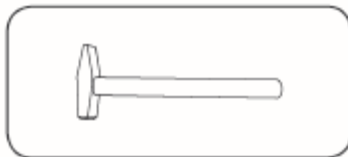
TAF is not responsible for all the things which can happen during the installation of the product. The correct installation of the product is a full responsibility of the installer who must guarantee the correctness of the installation procedure and he has to observe the regulations in force about the security of the work.

Make sure that the assembly area must comply with all the necessary safety conditions:

The installation ground must be flat, solid and capable to guarantee the maintenance of the verticality of the tower. If this condition is not guaranteed, it will be necessary to use wooden boards to divide the load and to reduce the specific pressure to the admissible value. The wooden boards must be put under the supporting point of the tower to the ground. A capable and agreed technician must evaluate the situation carefully in order to guarantee a correct installation of it. Nobody and any obstacles must be present in the working area during the installation, use and dismantling procedures of the product.

Before any installation of the ROOF , the good conditions of the components of the product must be verified.

It is necessary to use plastic or copper hammers, in order to avoid damages to the product.



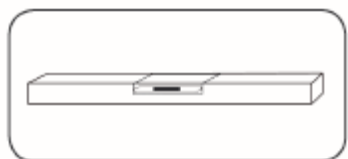
Plastic or copper hammer



Safety shoes



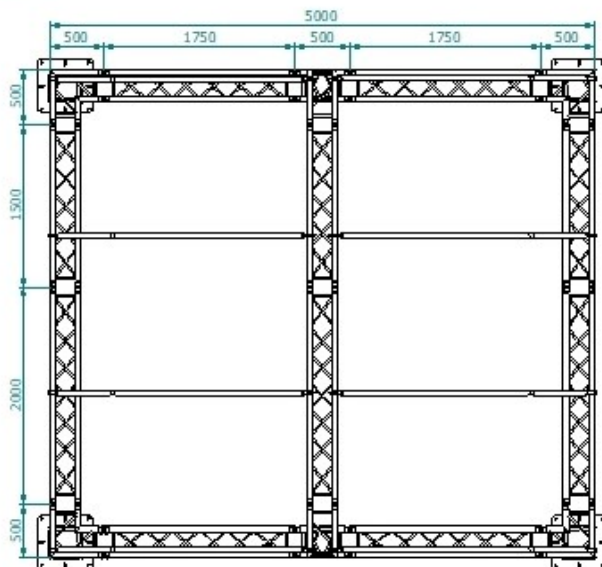
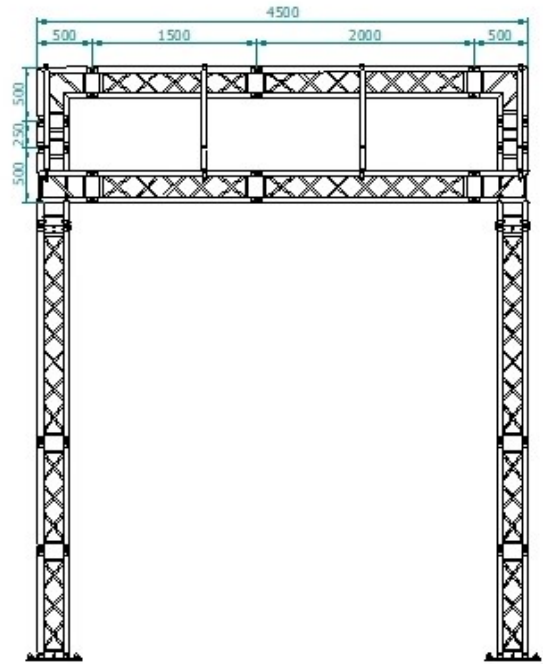
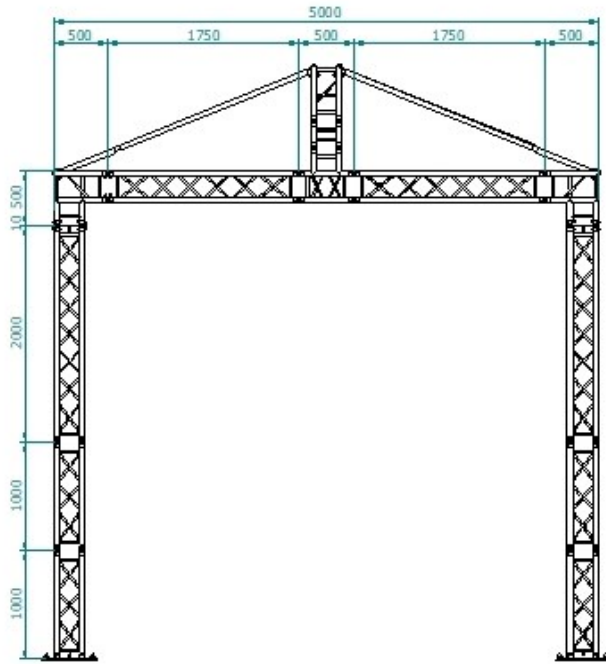
Protective gloves



Spirit level

## - DIMENSION OF THE STRUCTURE

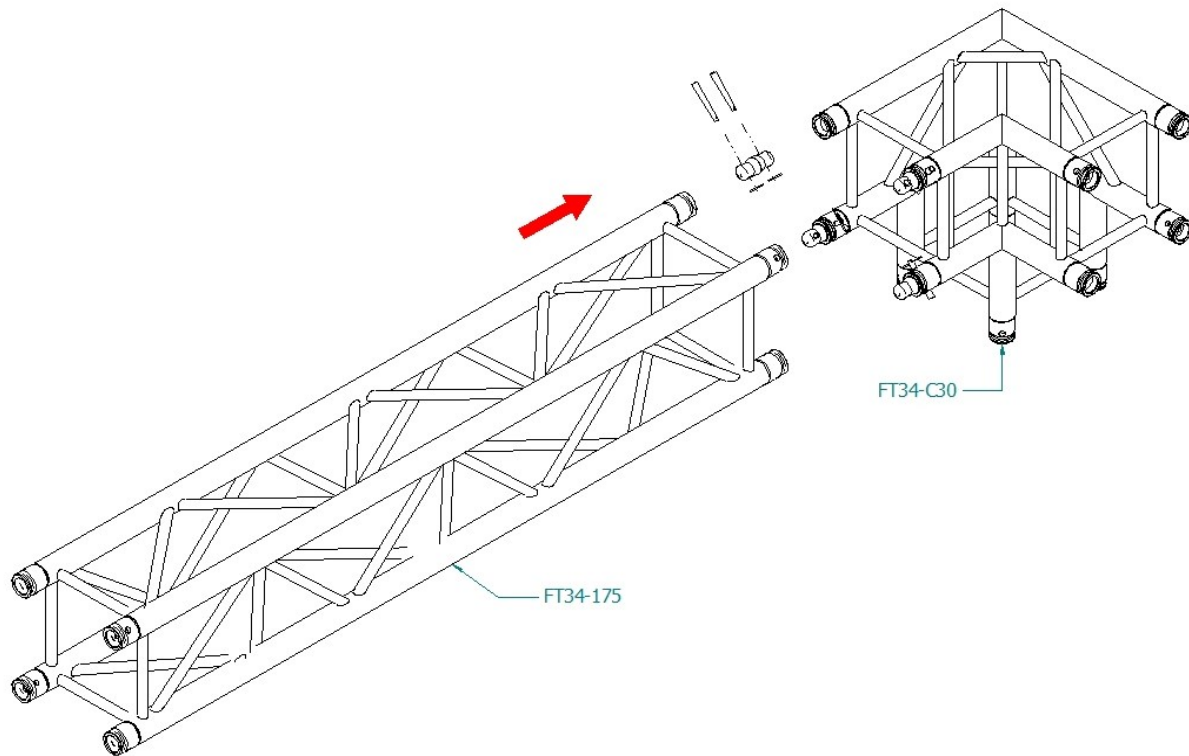
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## STEP 1

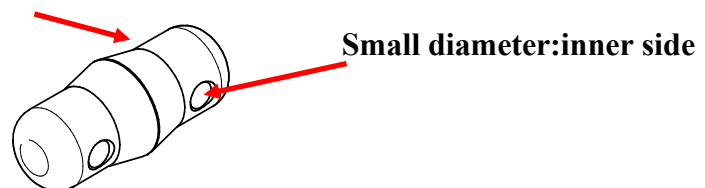
Assembly the first truss FT34-175 and the corner FT34-C30 with the conical connection set.

Connect the truss using the pins and split pins.

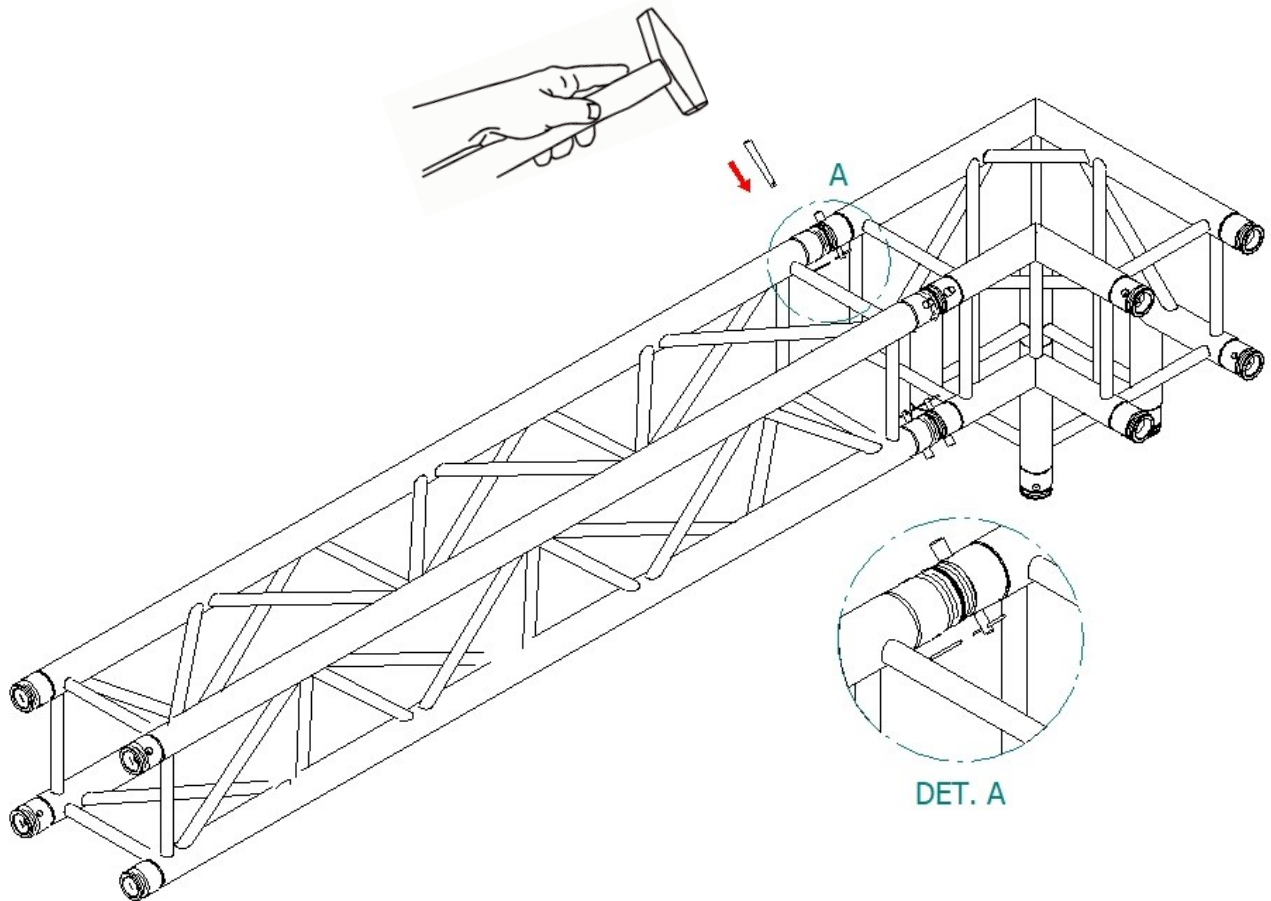


**ATTENTION:** Orientate the spigots so that the holes which have a big diameter are turned round towards the exterior.

**Big diameter: exterior side**

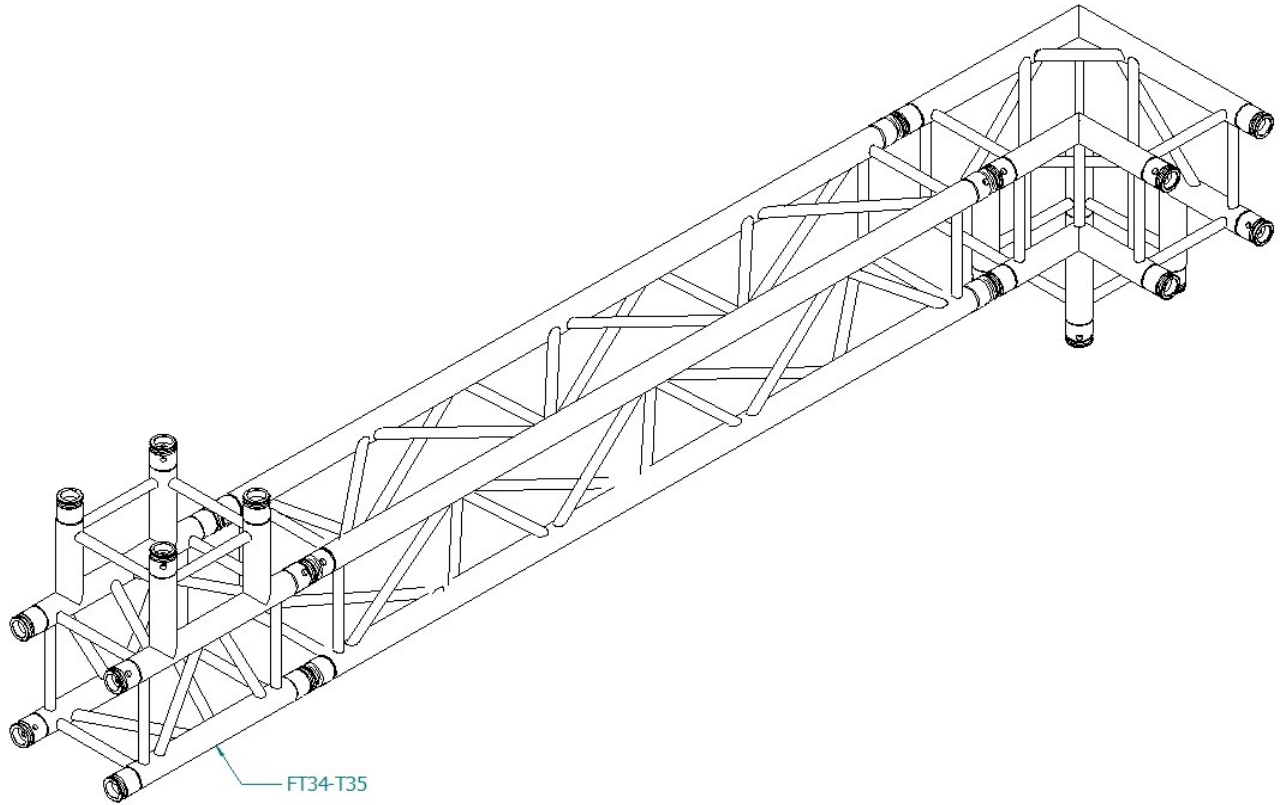


Use an Hammer to insert the pin and block the pin with the split pins



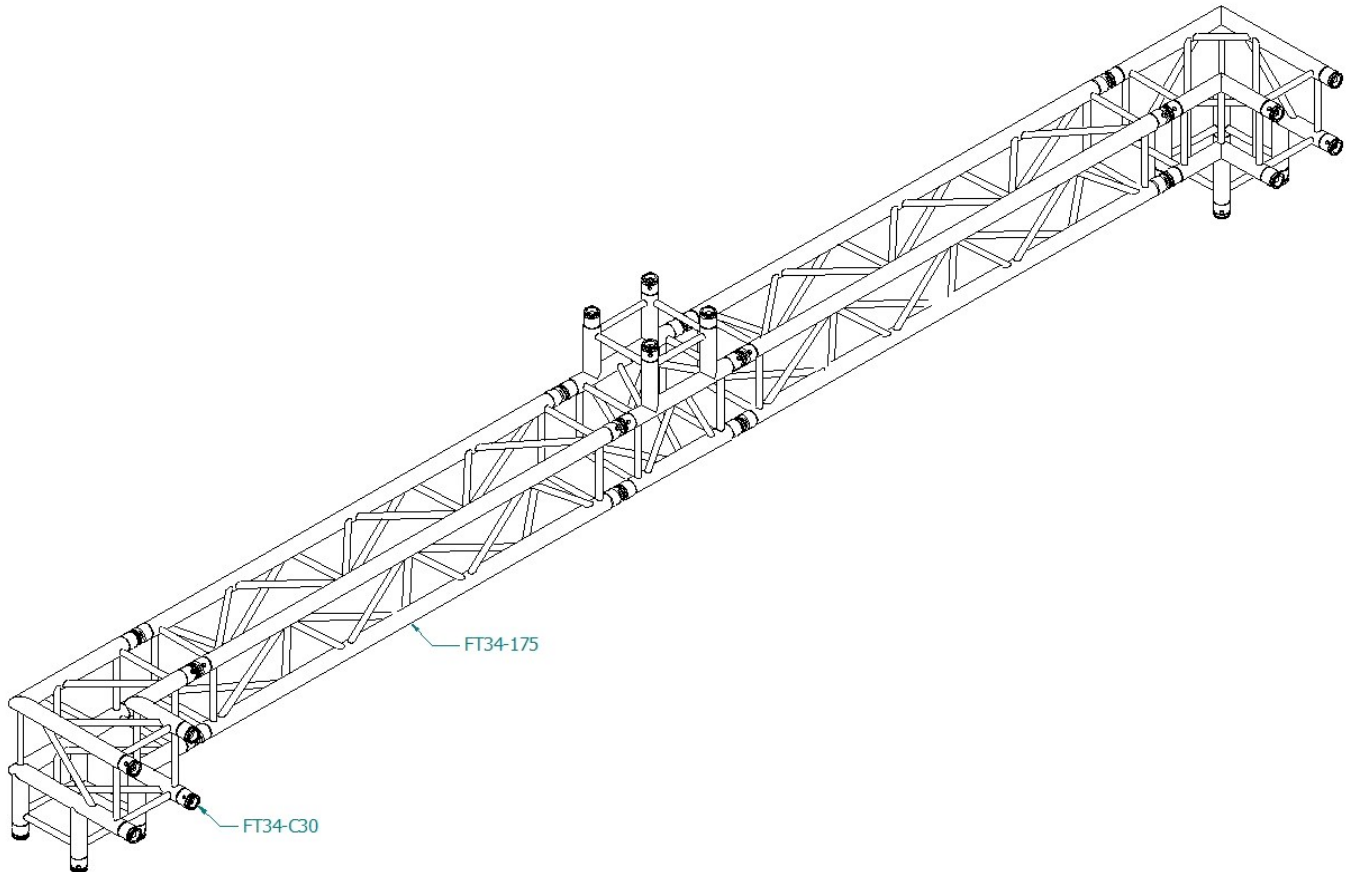
## STEP 2

Assembly the corner FT34-T35



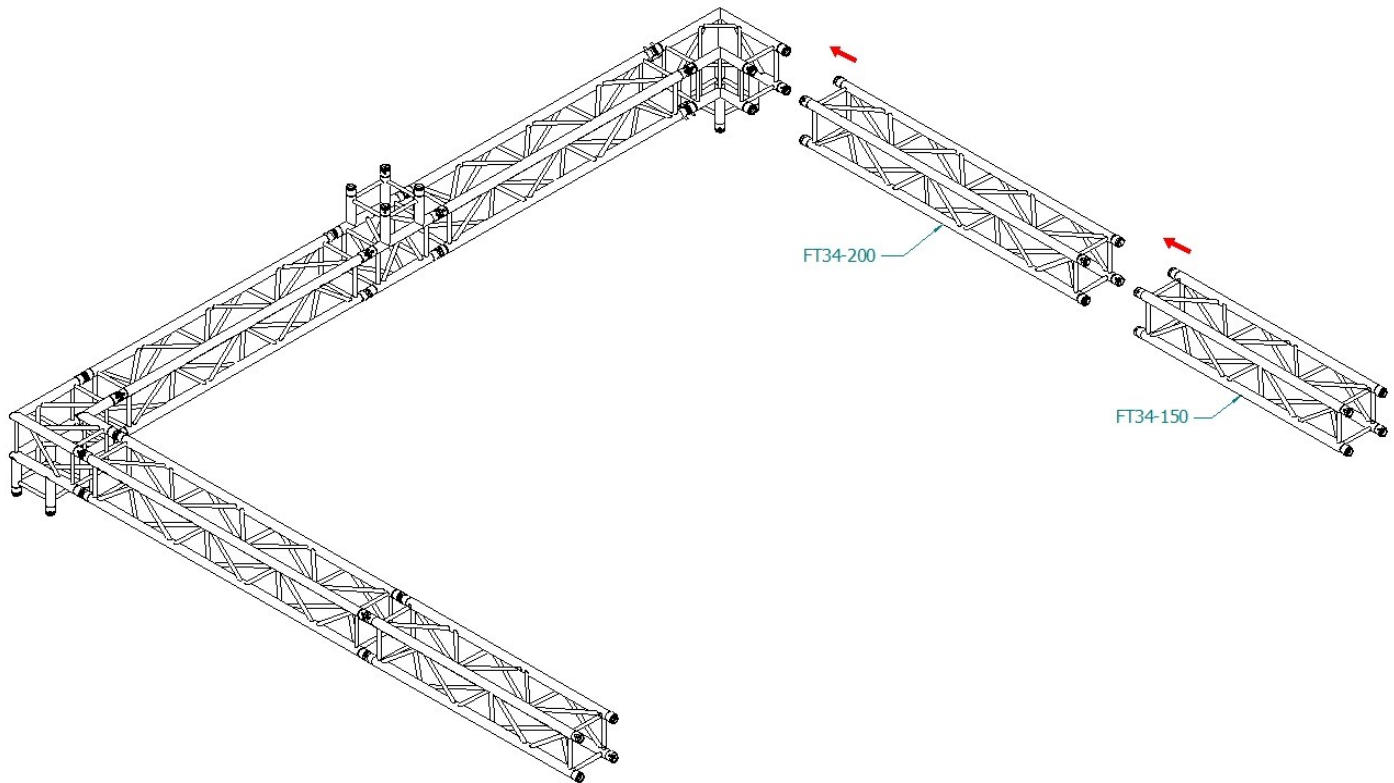
## STEP 3

Complete the front with truss FT34-175 and the corner FT34-C30.



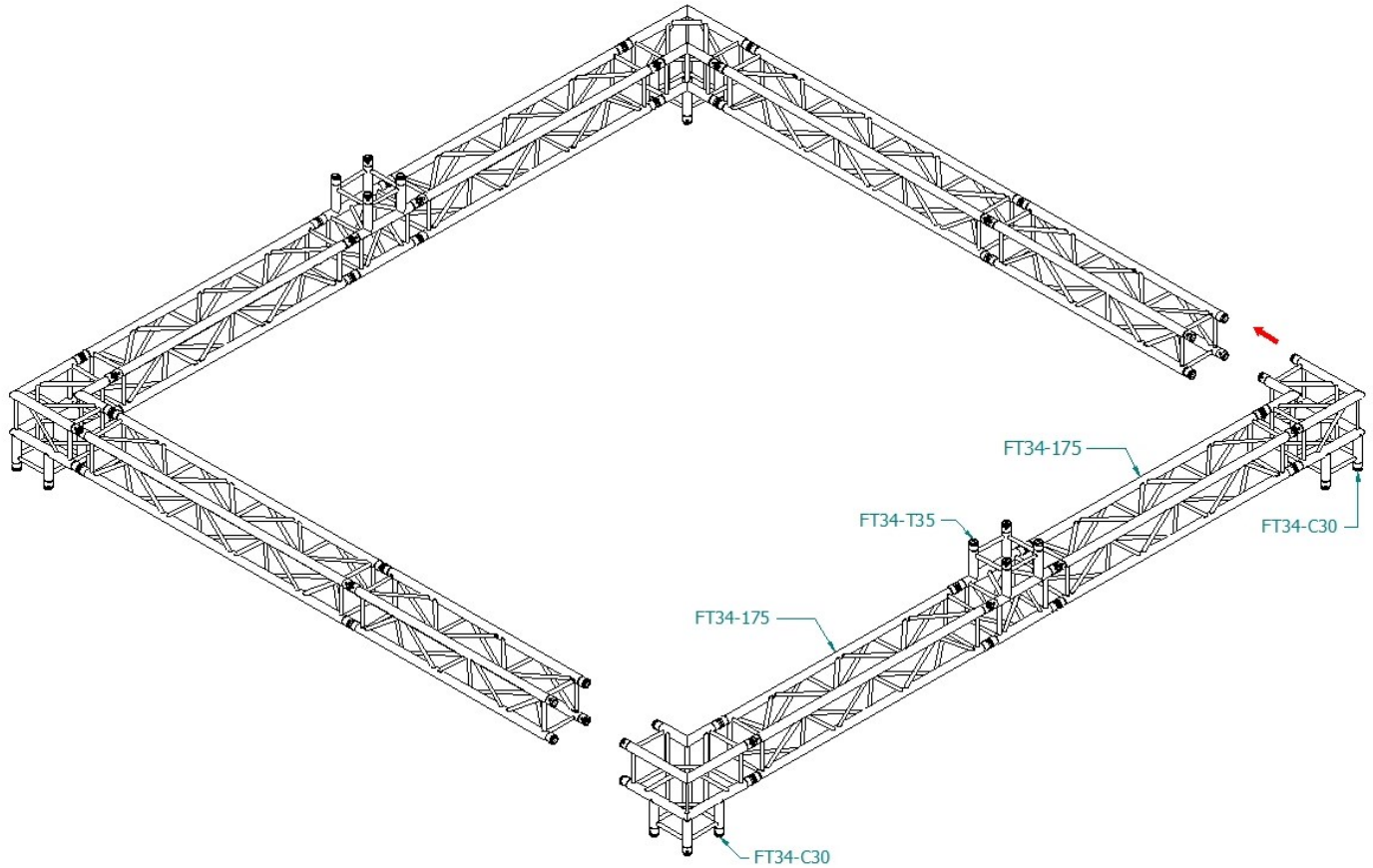
## STEP 4

Assembly the two side truss with FT34-200 + FT34-150 Truss.



## STEP 5

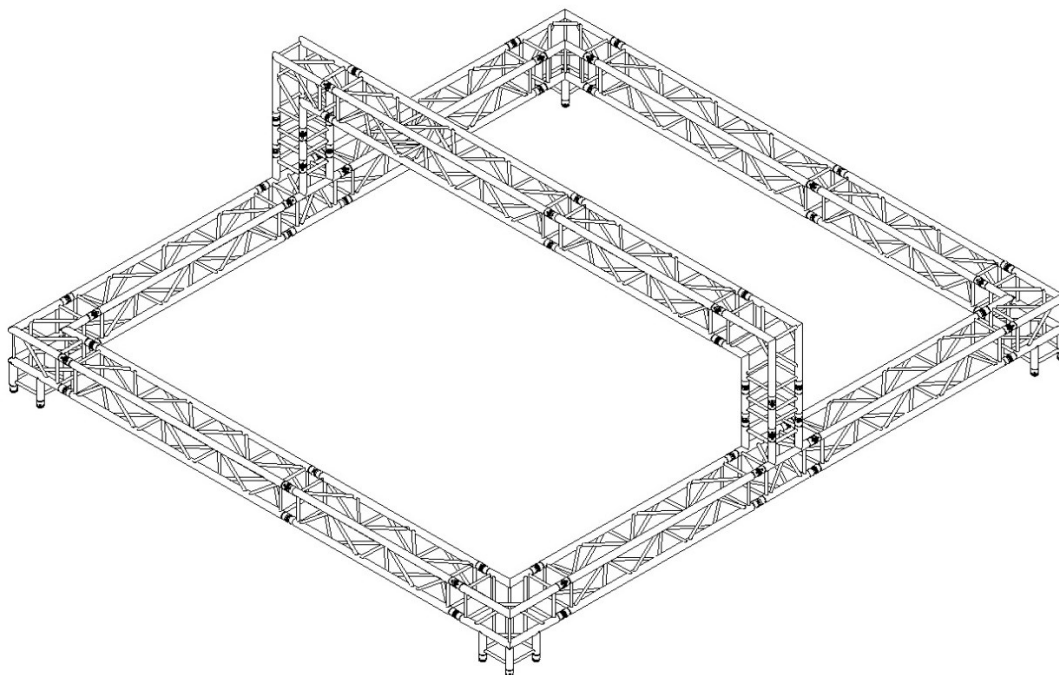
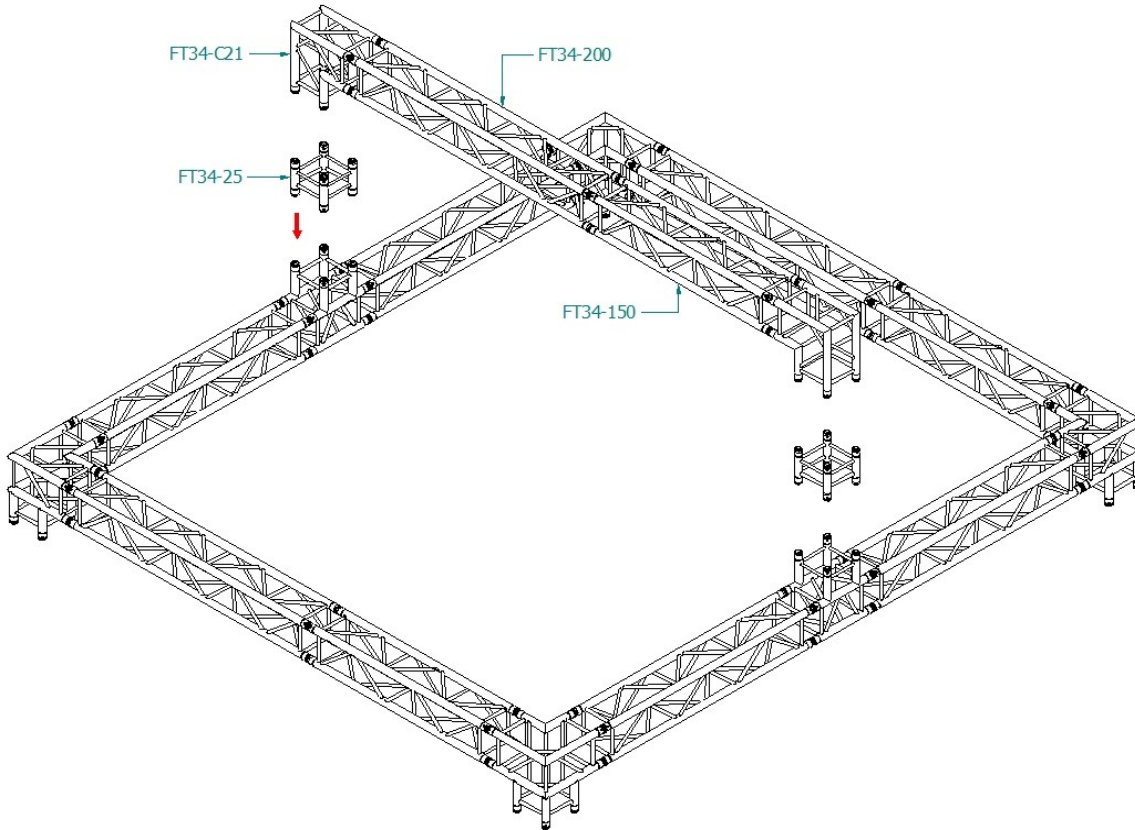
Complete the grid with two truss FT34-175 , two corner FT34-C30 and the central corner FT34-T35.





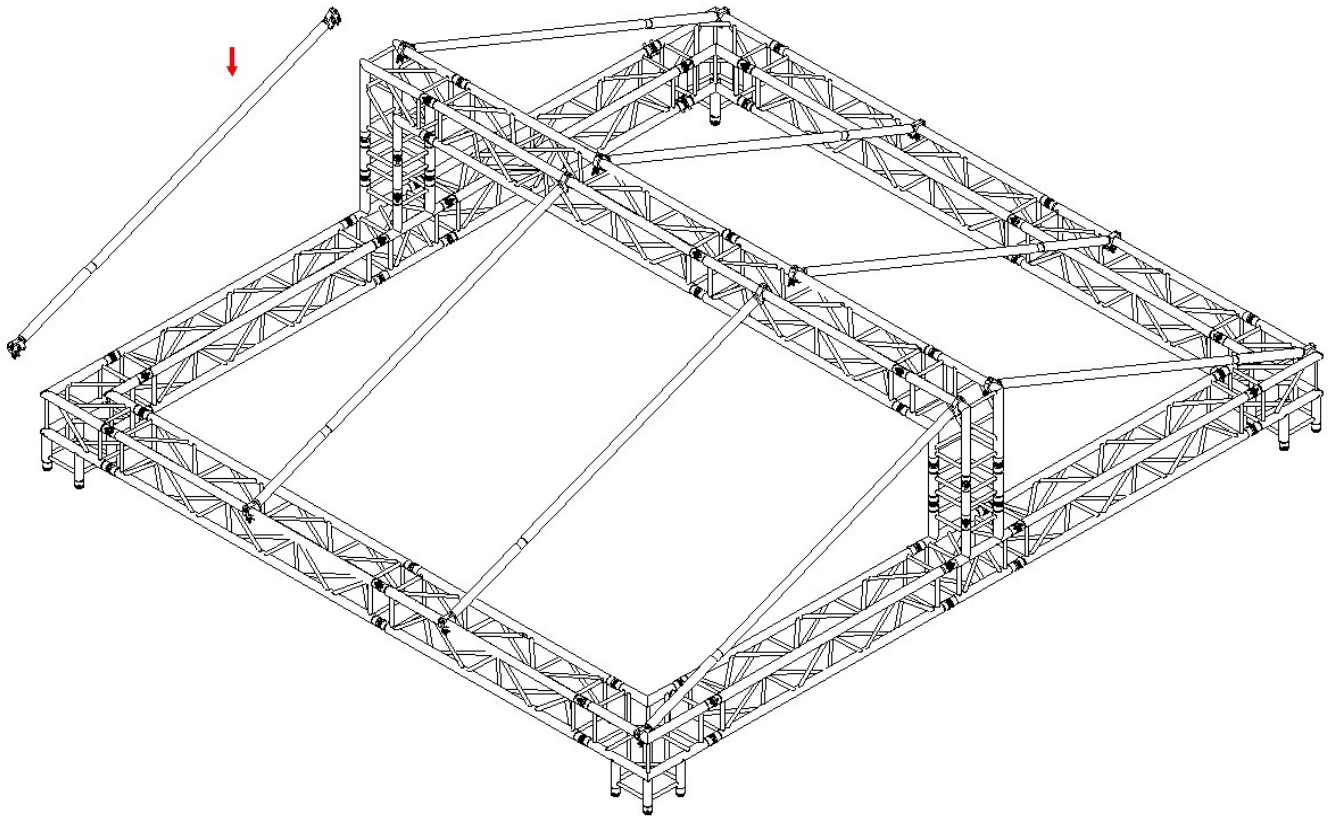
## STEP 6

Assembly the inclined part of the pitch with truss FT34-25 / FT34-200/ FT34-150 and the corner FT34-C21



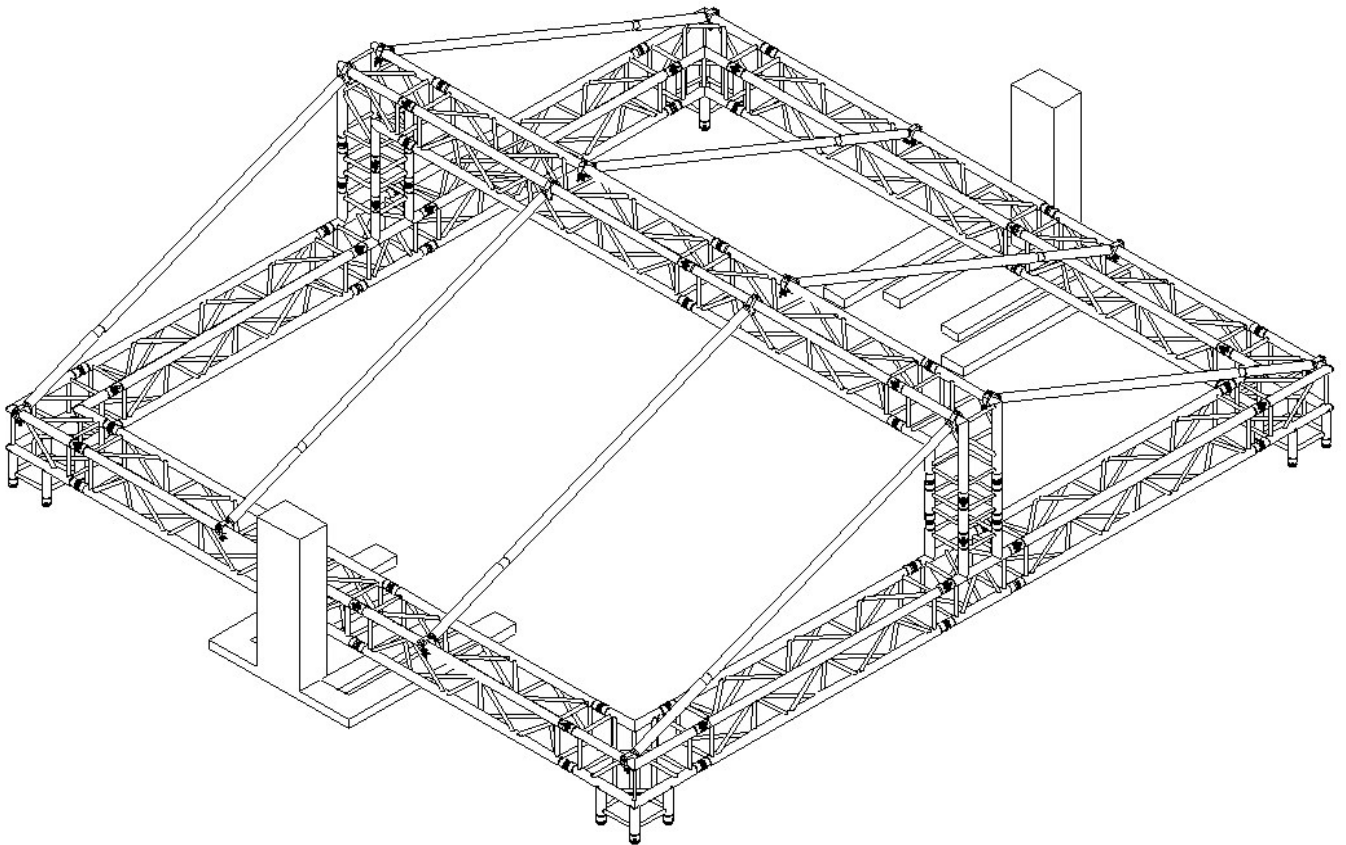
## STEP 7

Mount on the inclined part of the pitch, to help support the canopy so that it does not create pockets of water, the 4 Ø50x2 mm tubes per side hooked up with clamps spaced 1,45 m apart.



## STEP 8

Erect the assembled trusses by a lifting device or by a crane.



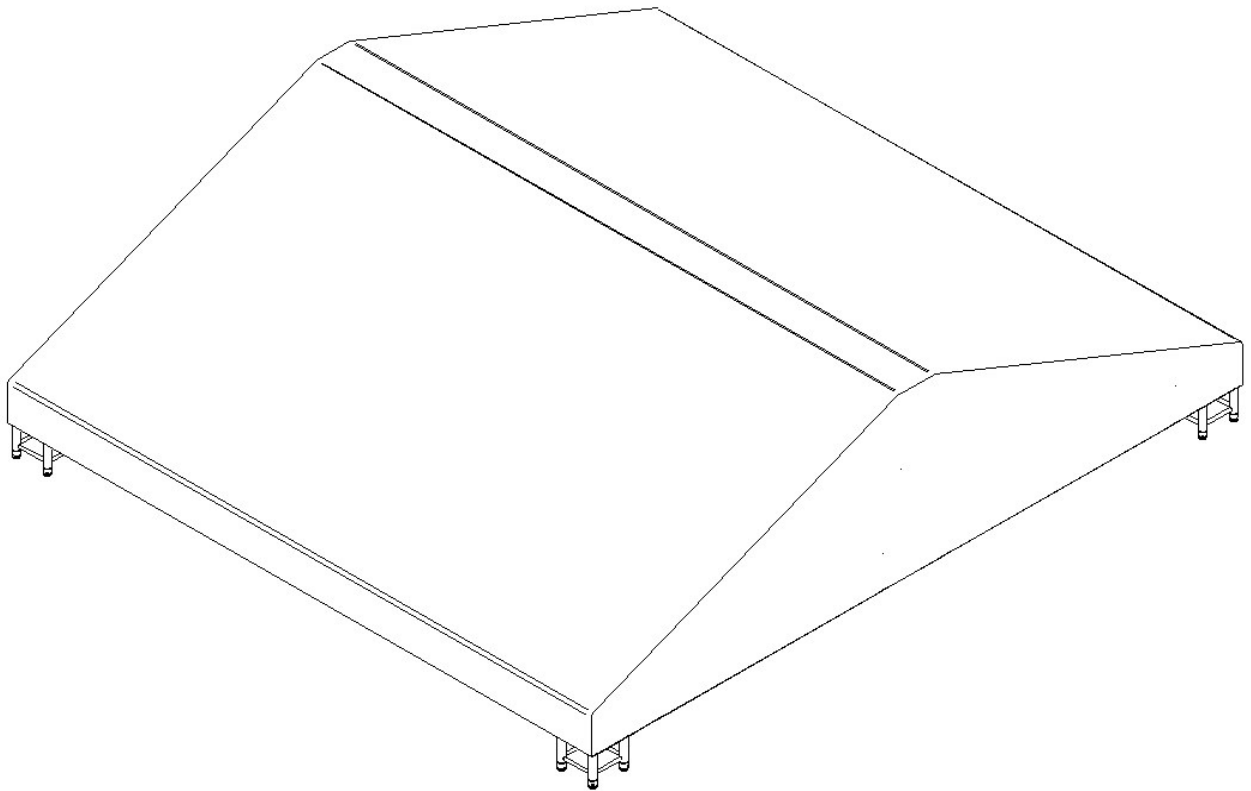
**WARNING. Attention:** Nobody must be present in the working area during the lifting operations. Use a spirit-level to control the truss verticality and horizontality.

## STEP 9

Roof canopy setup.

Bring the canopy on the top of the structure.

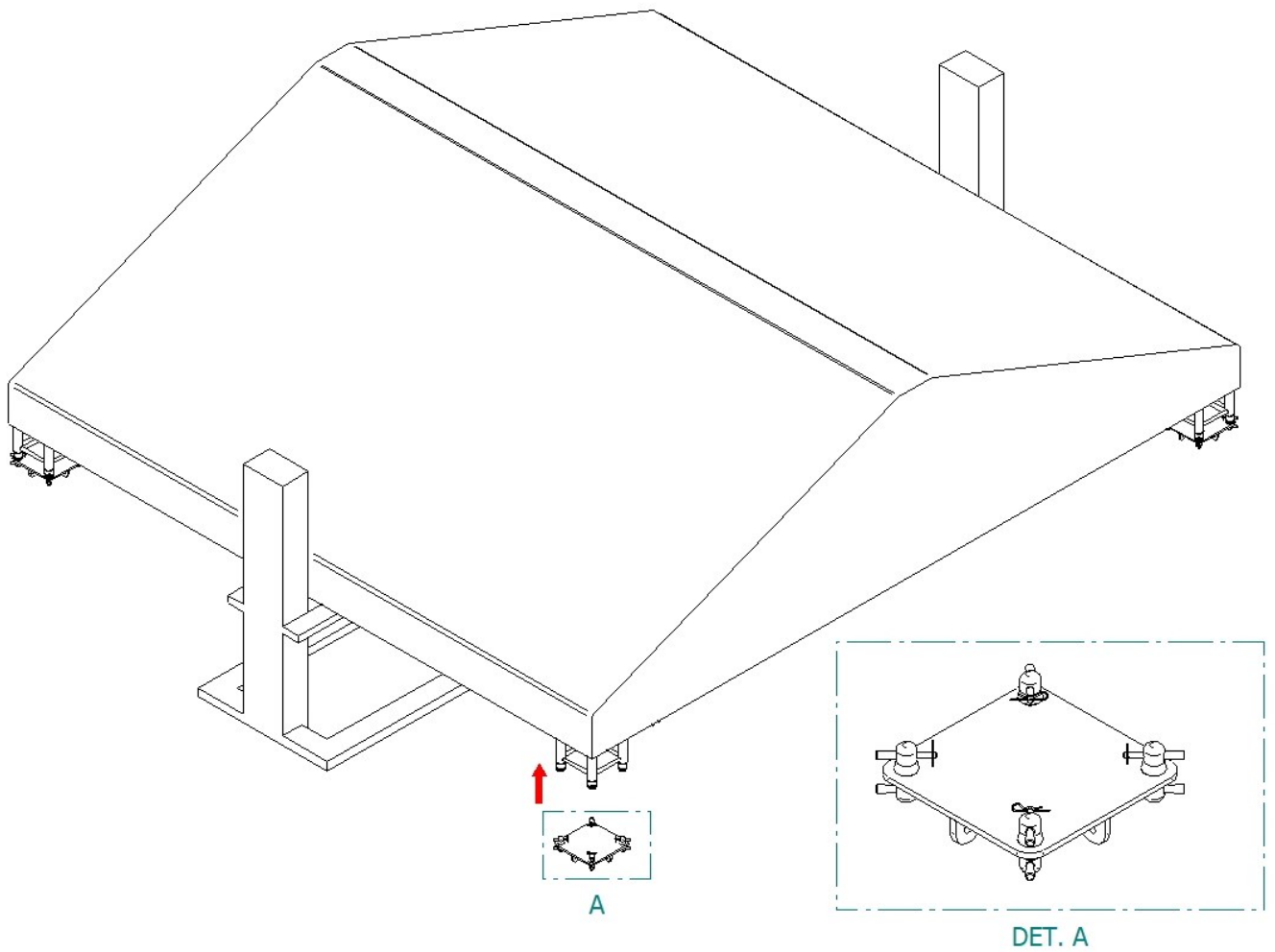
Spread out the canopy on the structure , and fix the canopy to it.



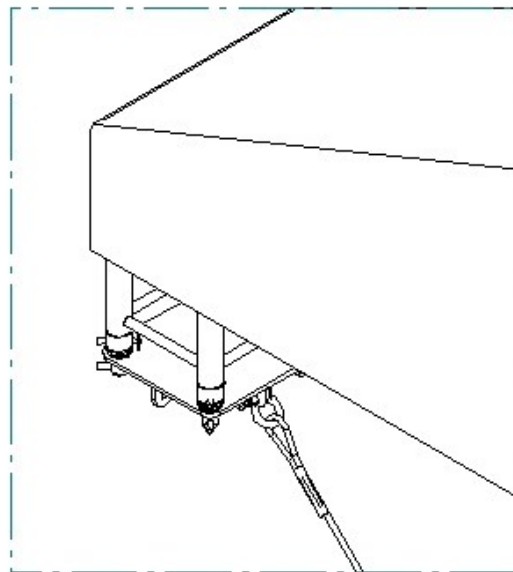
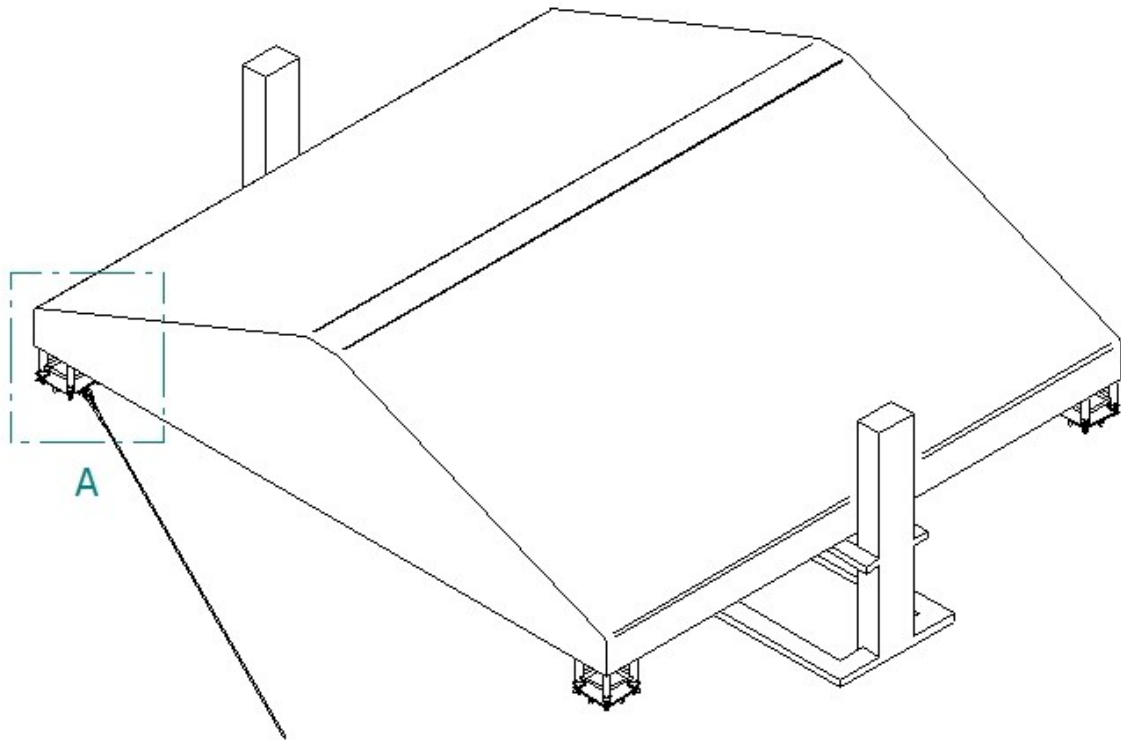
## STEP 10

Mount a plate for the upper fixing of the bracing.

Pay attention during the assembly (see Det.A) at the position of the 4 plates with hole for fixing the bracing.



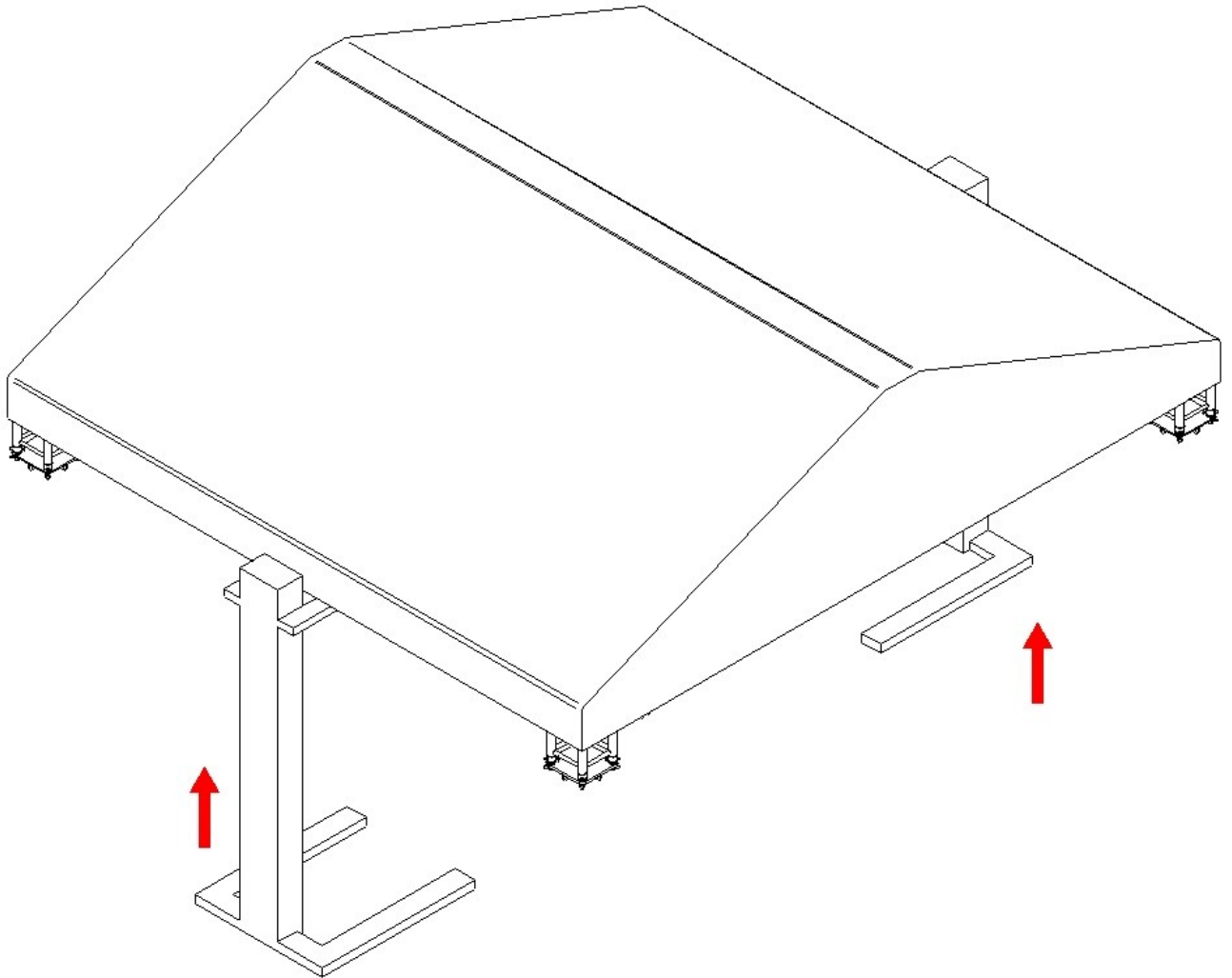
Before starting to lift the structure, fix the bracing cables on the plates where required (see solution 1-2 of the calculation report).



DET. A

## STEP 11

Start to lift the structure by the lifting device in order to connect the supporting legs to the bottom face of the assembled corner.



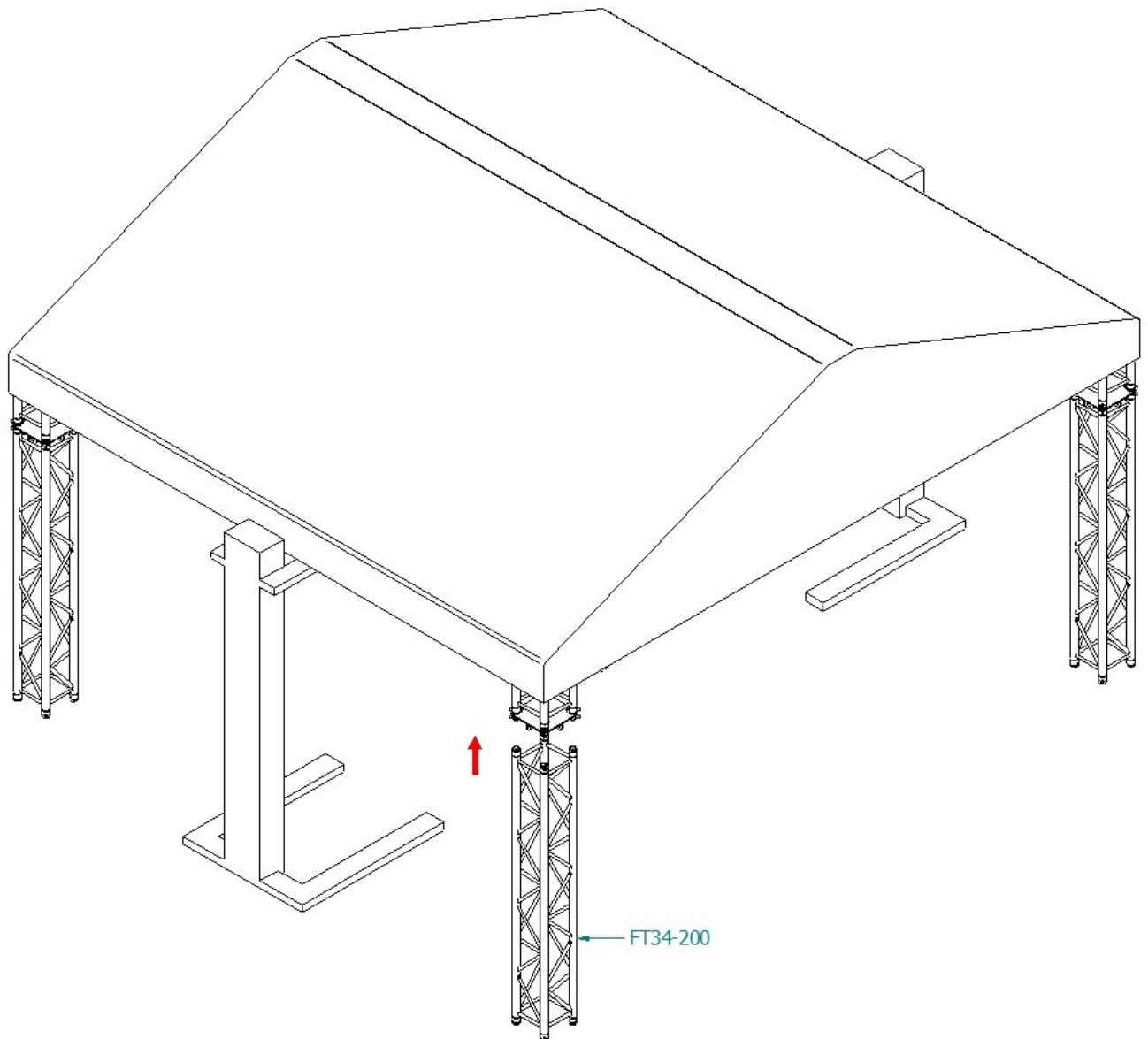


## STEP 12

Mount in the 4 corners the legs with a steel base plate with a dimension of 50 x 50 cm. On this base there are 4 plates in the middle on the sides to allow the fixing of the bracing.

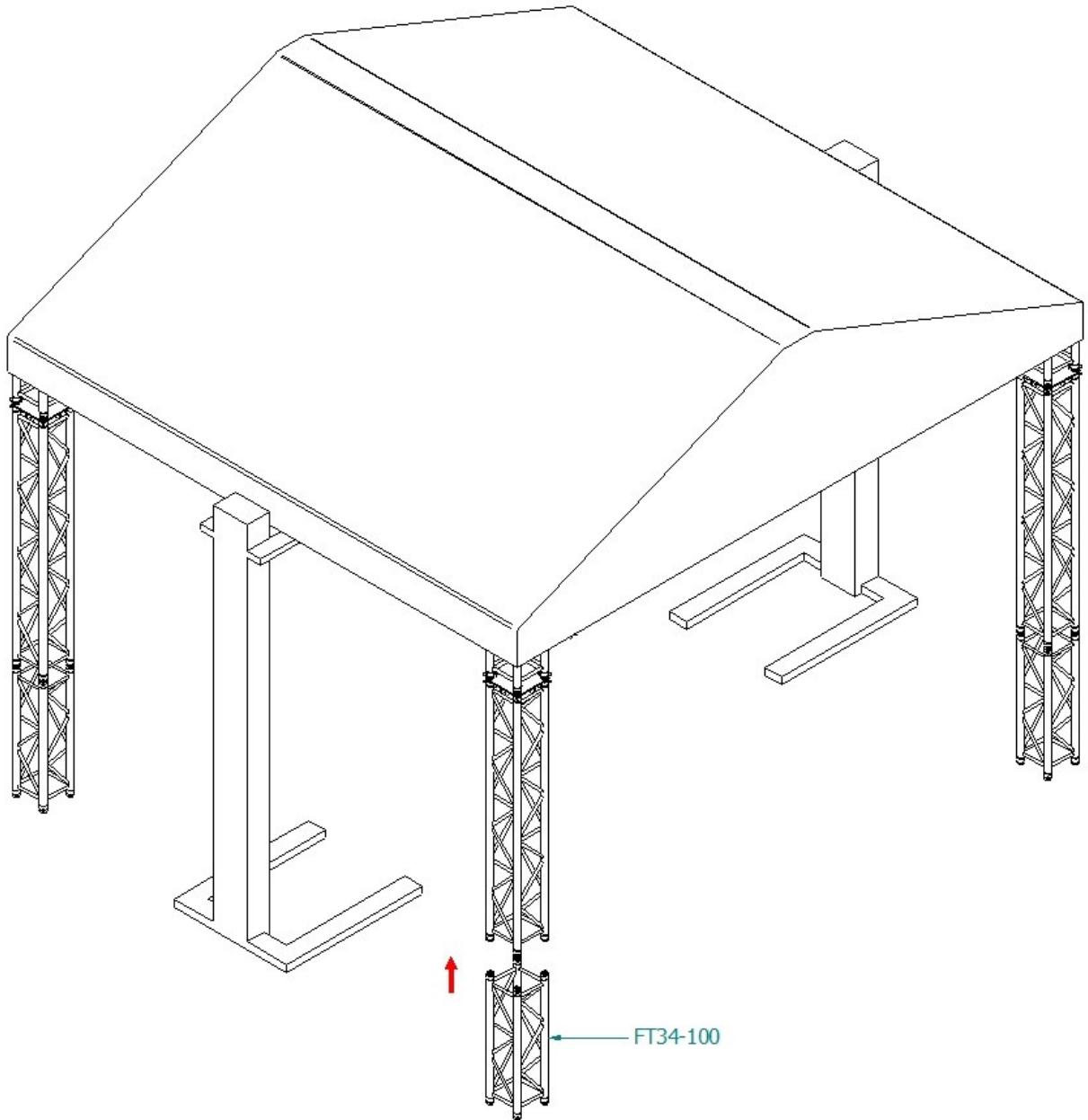
Two FT34-100 and one FT34-200 truss are positioned above this plate to create the column.

Mount the truss FT34-200

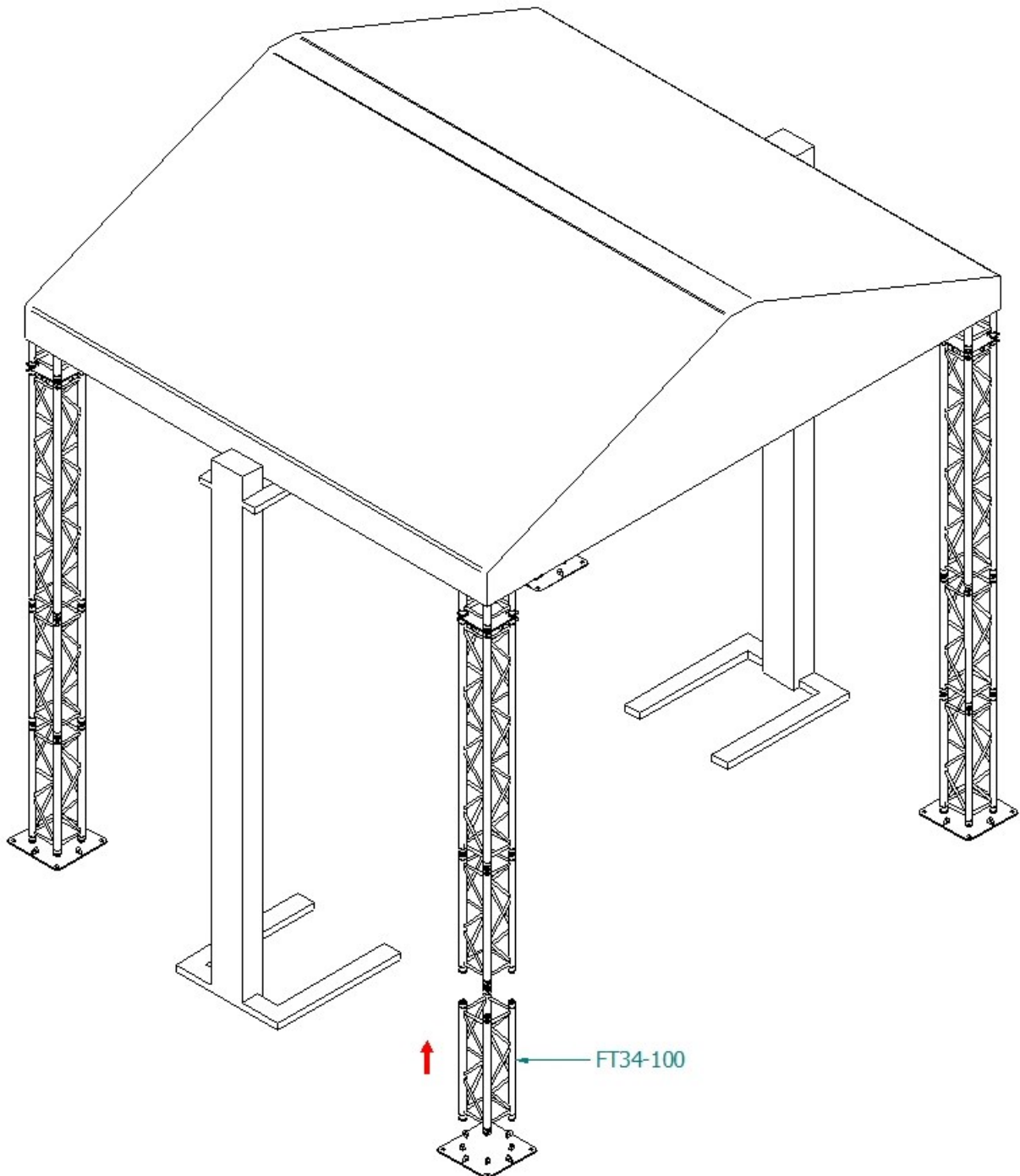




Lift the structure then mount the truss FT34-100

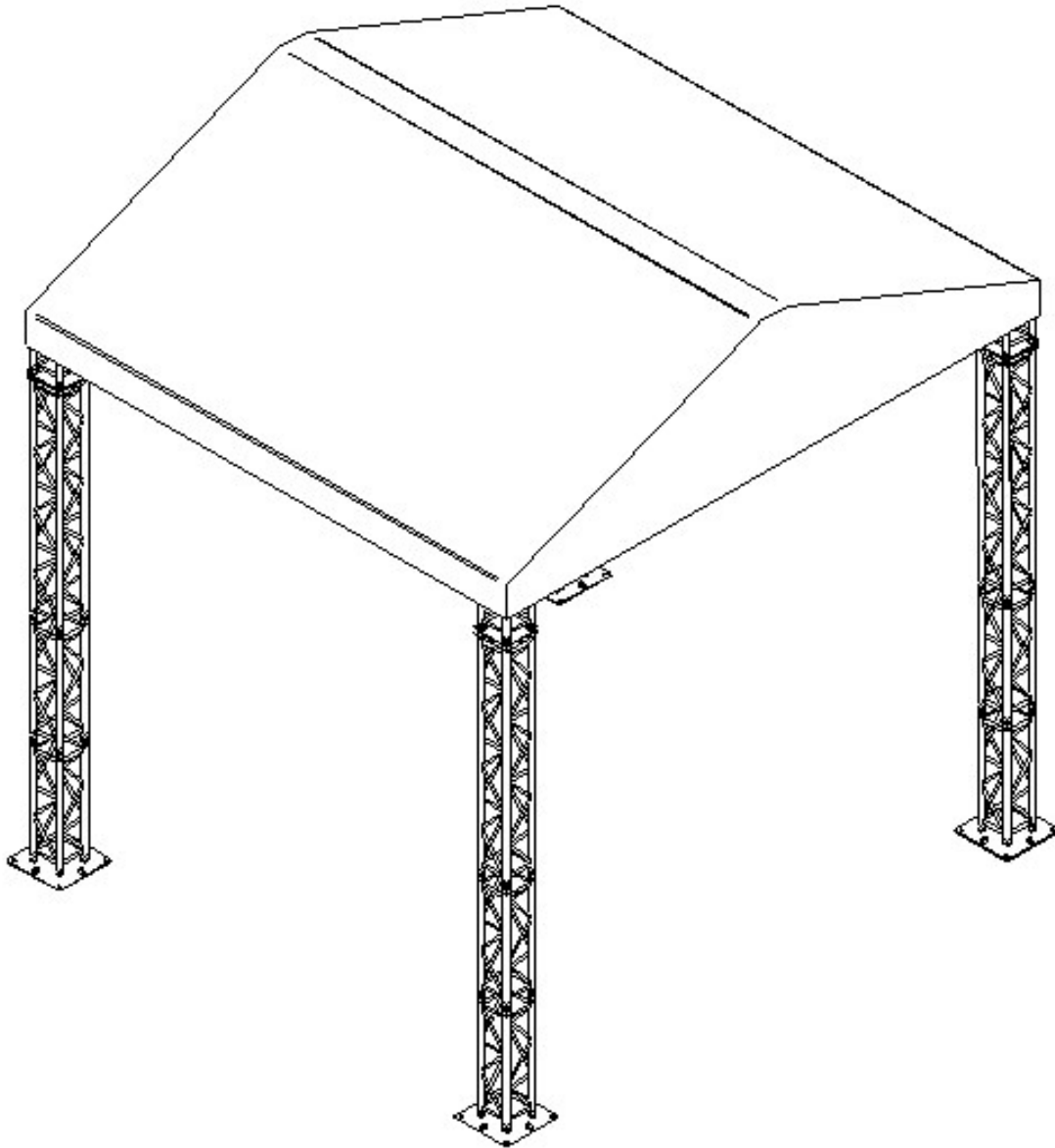


Lift the structure then mount the truss FT34-100 and the base plate.



## STEP 13

Lowered the structure and remove the lift or a crane.

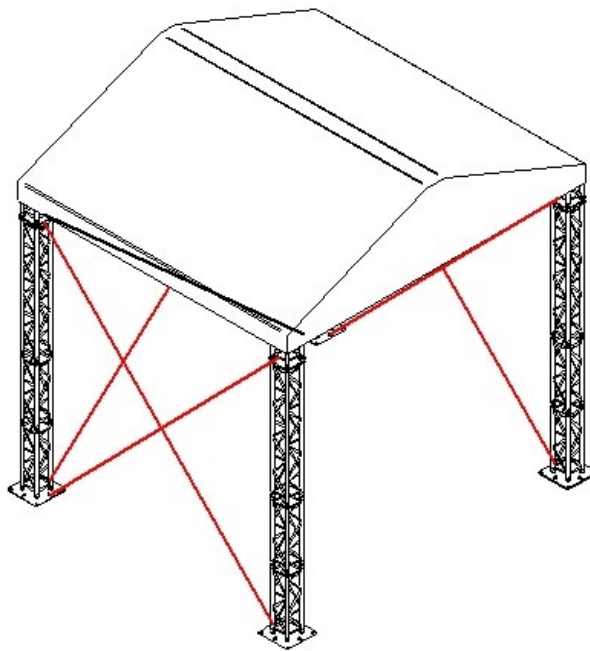
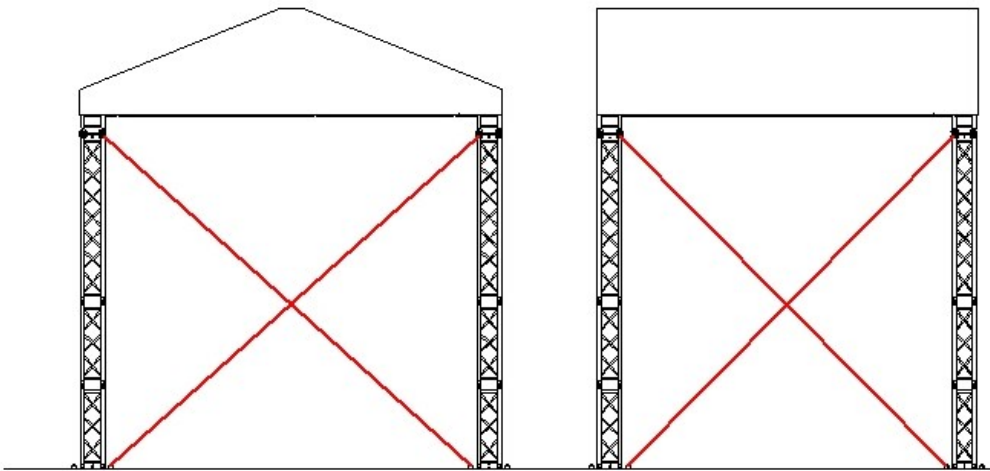


## STEP 14

Cross bracing on the three side.

Use a soft steel sling and connect it to the top and bottom steel plate like as the following pictures.

The side and back canopies can be installed now.





## **- USE OF THE PRODUCT**

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### **ELECTRICAL POTENTIAL EQUALISATION USEFUL FOR TRUSS SYSTEMS**

Truss systems that might develop dangerous touch voltages in the event of an electrical fault, should be incorporated into a common potential equalisation system. This applies to all elements made of electro-conductive material which have an equipment placed on or attached to them that, in the event of damage, could make electrical contact with metal parts.

The connections can be made with clips, pipe clamps, screw joints or special single-pole locking connectors.

The common potential equalisation system must be connected to the earth wire of the electrical power supply system.

In order to guarantee the electrical safety of the users of the product, a qualified person should realize the electrical potential equalization following the laws and regulations of the country where the product is used.

TAF declines any responsibility in case of accidents to people or things caused by an incorrect electrical potential equalization of the product.

### **DISASSEMBLING PROCEDURE**

In order to disassemble the product, follow the steps described, in a vice versa order.

### **TRANSPORT OF THE EQUIPMENT**

It is important to dismount all the components as it is described in the dismantling procedure before any operation of transport and handling of the product. Should be handled very carefully the components to avoid any damages because of shocks and falls.

Trusses should not be dragged.

Trusses should be carried or moved on dollies or trolleys, and laid down carefully.

Trusses should be secured properly and supported during their transportation, and they should be stacked with spacers between successive heights to limit any abrasions.

End connections should be protected from any damages.

Corrosion must be avoided using adequate storage conditions.



## **- MAINTENANCE**

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In order to guarantee a good working of the product for a long time, the user must subject the product to the maintenance. It is important to underline that the maintenance must be done by specialized technicians.

The parts which are found in bad conditions at the end of the inspection, should be substituted with original spare parts.

### **YOU SHOULD ALWAYS DO**

The correct use of the product allows to reach the maximum performance level in the lifting operations.

The following instructions must be respected to ensure the safety of the product:

#### **ALWAYS DO**

- Follow the instructions given in the installation, use and maintenance manual and check the good state of the components of the device.
- Check the integrity of the guy ropes.
- Check directly the integrity of all the pins.
- Use the individual protection devices.

### **WHAT YOU MUST AVOID**

The use of the product for not allowed movements and the lack of maintenance could cause dangerous situations for the health of the workers.

Obviously, the upper mentioned conditions cause the lack of the performance and safety of the device.

#### **NEVER DO**

- Use the lifting device for lifting or transporting people.
- Climb the tower without PPE.
- Lift loads when people run in the lifting area.
- Use the lifting device without the necessary protective devices.
- Operate without paying attention to the movements of tower.
- Lift loads with a weight greater than the allowable pay load.
- Use the lifting device for different services from their specific ones.
- Repair the damaged part of the lifting device in a temporary way.
- Use non-original spare parts or not suggested by the manufacturer.
- Use unskilled personnel for the operations of maintenance of the product.



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