

# SC CONCRETE DESIGN srl

A BIG SMALL COMPANY

PROIECTARE  
EXPERTIZARE  
CONSULTANTA  
MANAGEMENT DE PROIECT  
ANTREPRENORIAT  
EXECUTIE  
CONSTRUCTII



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“It’s hard to be chosen by the best”



**2004** site management for **MICHELIN – SALAJ** (ca. 35.000 Sq m) co-ordination of the execution, project management.

**2005** various designs for companies:

- structure design for the **MICHELIN** hall - reinforced concrete (1.200 Sq m)
- execution for civil engineering buildings ca. 500 Sq m (2 buildings)
- production hall 1200 Sq m - design, execution (reinforced concrete)
- production hall 5500 Sq m project management, execution,
- bakery 800 Sq m, project management, execution (metal structure)
- warehouse 1200 Sq m , design (metal structure)

**2006** various designs for companies :

- hall for **WK GROUP** srl -3.800 Sq m – Design of structure & on site surveillance(SIBIU)
- hall for **HARTING** SCS – 5.500 Sq m –Design of structure & site management(SIBIU)
- hall for **GUHRING** srl – 3.500 Sq m –Design of structure & site management(SIBIU)
- hall for **CENTRU LOGISTIC** – SC COMAT SA – 5.400 Sq m –Design of structure & on site surveillance(SIBIU)
- **SPAR** CHAINSTORE - 1.100 Sq m –Design of structure (RESITA)
- **SPAR** CHAINSTORE - 800 Sq m – Design of structure (ARAD)
- hall for **HARTMANN** SCS – 4200 Sq m – PAC (SIBIU)
- civil engineering buildings ca. 800 Sq m structure (TIMIS department)

**2007** design for various companies :

- **LAICOM** rehabilitation for cooling warehouse -6.800 Sq m – (ARAD)
- **KAUFLAND** CHAINSTORE - 6.500 Sq m –Design of structure & on site surveillance (PITESTI)
- **KAUFLAND** CHAINSTORE - 6.500 Sq m –Design of structure & on site surveillance(BRAILA)
- **KAUFLAND** CHAINSTORE - 6.500 Sq m –Design of structure & on site surveillance(SLATINA)
- **KAUFLAND** CHAINSTORE - 6.500 Sq m –Design of structure & on site surveillance(FOCSANI)
- CENTRAL WAREHOUSE **KAUFLAND** - 24.500 Sq m –Design of structure & on site surveillance(PLOIESTI)

**2008** design for various companies:

- CENTRAL WAREHOUSE **KAUFLAND** phase 2- 52.000 Sq m –Design of structure & on site surveillance(PLOIESTI)
- CENTRAL COOLING WAREHOUSE **KAUFLAND** -18.000 Sq m –Concept of Design (draft)

**2009** design for various companies:

- **UNIVERSITY OF THE WEST TIMISOARA - Faculty of Arts** - 98.000 Sq m –Concept of Design (Feasibility Study )
- **REHABILITATION PROGRAM OF VILLAGE SCHOOLS** - 5.000 Sq m – Concept of Design (Feasibility Study )
- **CONTINENTAL- TIMISOARA -CONTITECH** - 100.000 Sq m – Concept of Design (draft –OFFER)

EXECUTIVES:

- Drd. Eng. PAUL CUS
- Dipl. Eng. ADRIAN NAGHIU

# MICHELIN PLANT.

co-ordination of the execution, project management.

The main task for the Michelin plant consisted in the complex management of the project as a whole ; it included the necessity to obey to a limited budget, to adapt the project to the local specificities, to co-ordinate the execution companies, to establish a functional link between the German company in charge with the design and the Romanian company in charge with the execution of the structure, to adapt to the new demands imposed by Michelin, while the work was already in progress .

One of these demands meant to re-design the reinforced concrete structures; as a consequence, because of the use of precast slabs, the dead line could be outrun by 3 months.



**Structure:** metal frame type made of European profiles (HEA) and metal girders (IPE).

**Office building:** metal frame type made of European profiles .

**Platforms:** loading – unloading wares.

**Cover:** metal sheets with mineral wool.

**Roofing:** trapeze sheets, mineral wool, diaphragm.

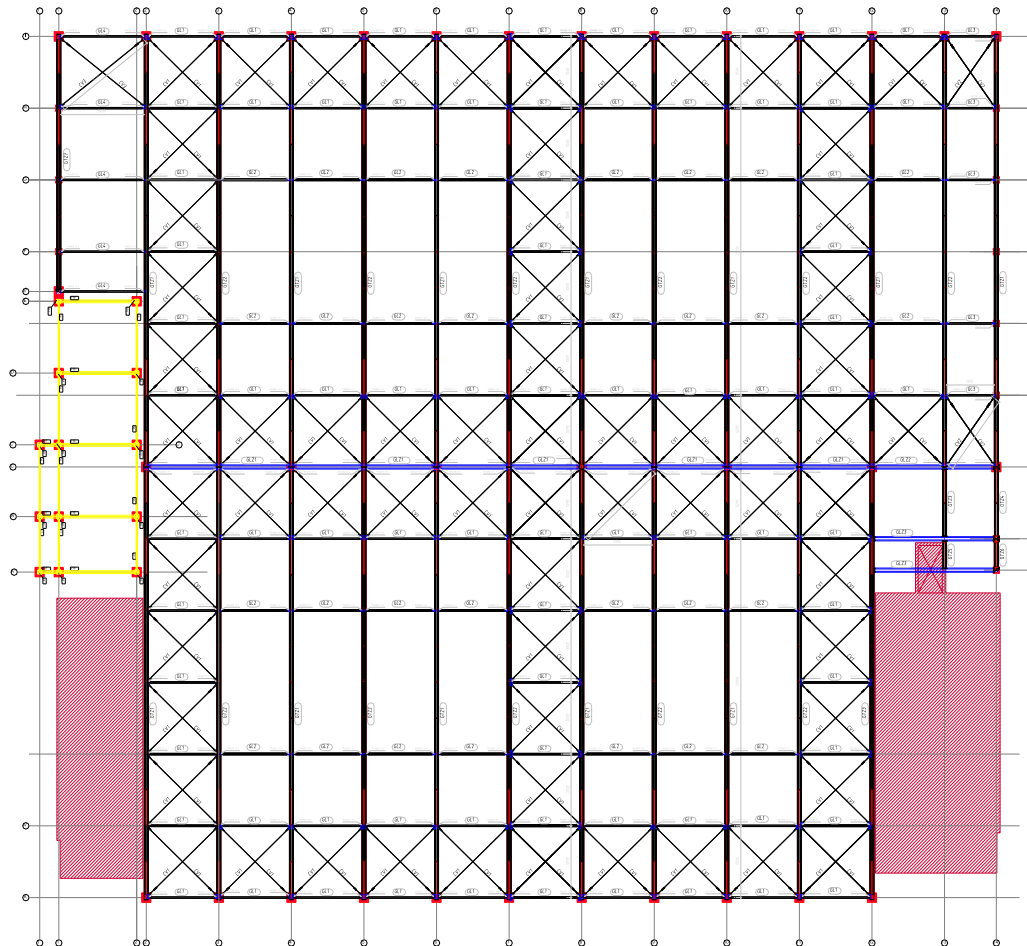
**PREFABRICATED CONCRETE STRUCTURES**



# Hall for Logistic Centre– Sibiu.

DESIGN & on site surveillance

This structure was specifically asked for by the beneficiary, so that the space between two existing buildings can be efficiently used; it is a 4 level buildings (groundfloor + 3 storeys). In order to fulfill all the demands, the building was conceived as a 12m long main beam, with 6 openings (type: lattice beam).



**Structure:** metal frame type made of European profiles (HEA) and metal girders (UPN).

**Office building:** on four levels, COFRASTR floors, elevator.

**Platforms:** loading – unloading wares.

**Cover:** metal sheets with mineral wool.

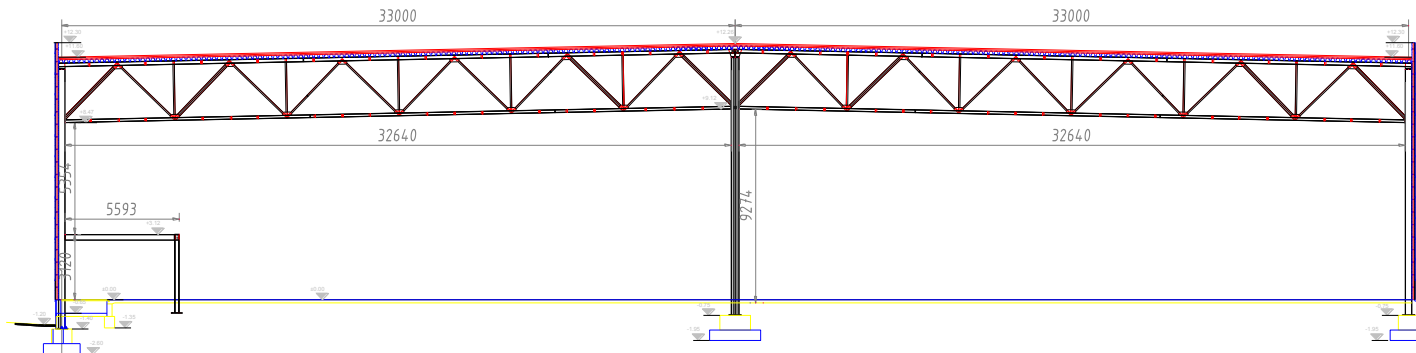
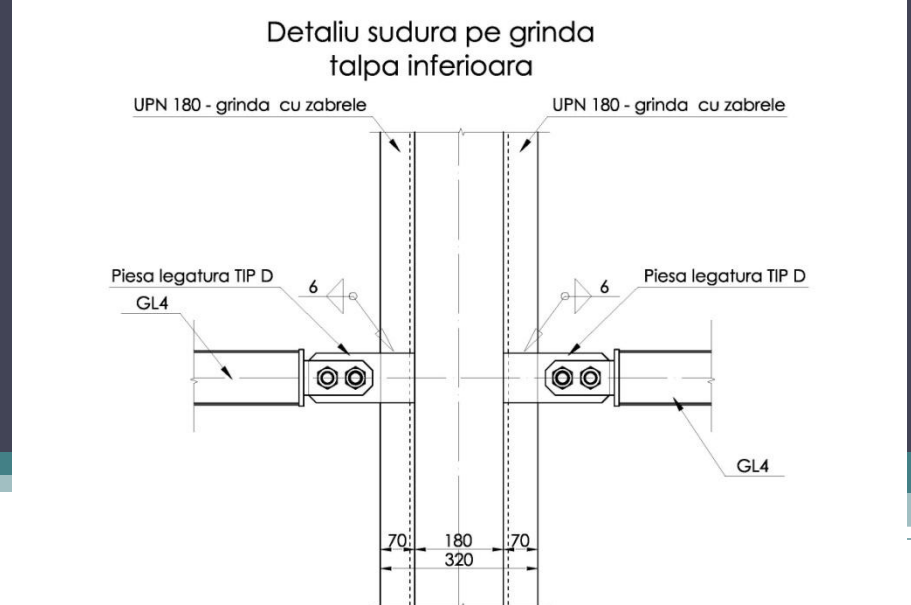
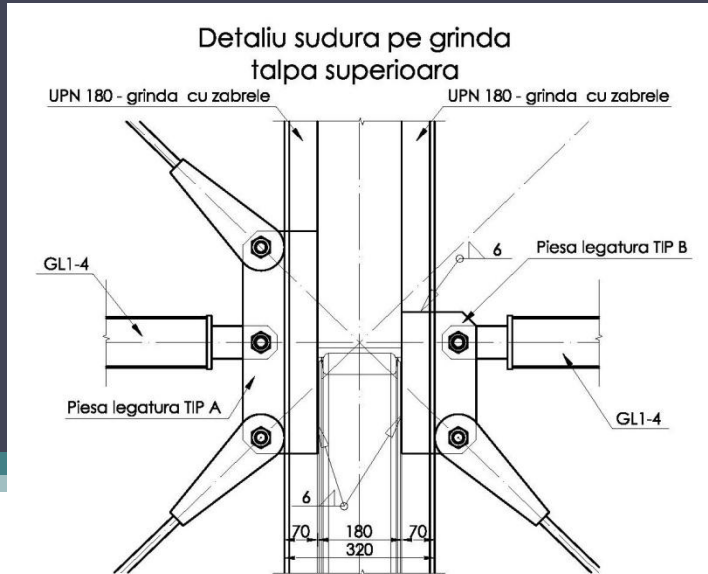
**Roofing:** trapeze sheets, mineral wool, diaphragm.

**Opening:** 7x66 m+2x7x33 m.

Fig. 2.1  
Lattice beam 2x33 m – Sibiu  
Design: SC CONCRETE DESIGN srl

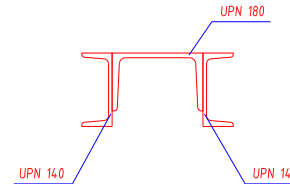
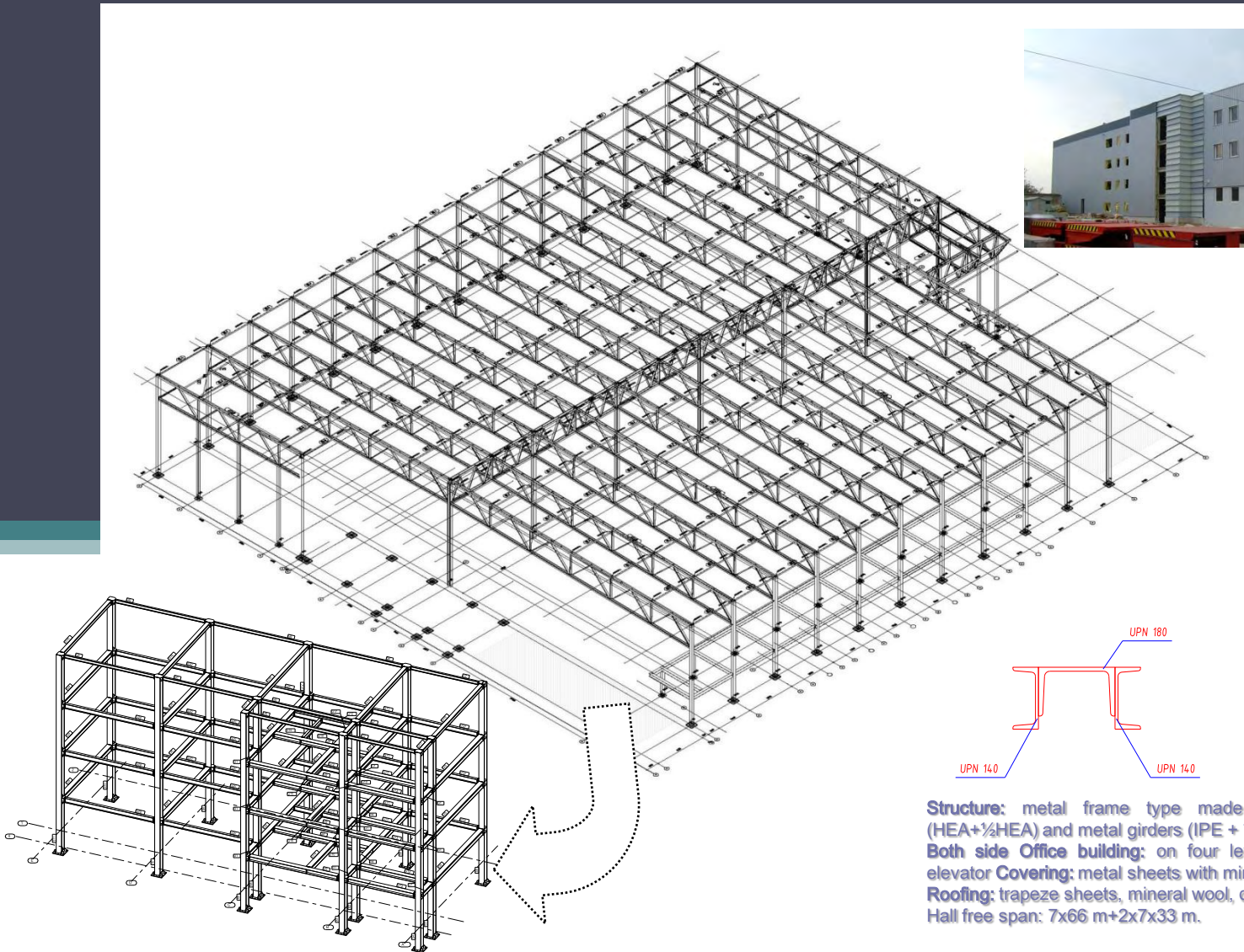
# Hall for Logistic Centre – Sibiu.

Because of the long openings, a special attention had to be paid on limiting the horizontal movements of the lattice beams. In order to obtain acceptable values, rigid bars had to be placed both at the superior and the inferior side of the lattice.





# Hall for Logistic Centre – Sibiu.



**Structure:** metal frame type made of European profiles (HEA+½HEA) and metal girders (IPE + ½IPE).  
**Both side Office building:** on four levels, COFRASTRA floors, elevator  
**Covering:** metal sheets with mineral wool.  
**Roofing:** trapeze sheets, mineral wool, diaphragm.  
**Hall free span:** 7x66 m+2x7x33 m.

From the point of view of its efficiency, the solution chosen corresponds completely to the demands of the beneficiary, with an open space of approximately 2 x 75x33 m. As far as the materials are concerned, we can mention 37,5 kg/Sq m of steel for the resistance structure and 42,5 kg/Sq m of steel for rigid bars, frames of the windows and doors, the loading – unloading area.



## Hall for Logistic Centre – Sibiu.





# Hall for WK GROUP - Sibiu.

Design of structure & on site surveillance

The structure was asked by the beneficiary so that it can be used as a warehouse, office building and space destined for the production of metal pieces for the car industry.

The opening of the hall is 29 m; the first opening includes also the office building, realised at the second floor.

**Structure:** metal frame type made of European profiles (HEA) and metal girders (FILIGRAN).

**Office building:** two levels, COFRASTRA floors.

**Cover:** metal sheets with mineral wool.

**Roofing:** trapeze sheets, mineral wool, diaphragm.

Fig. 2.11  
TRUSS structures WK GROUP Sibiu  
Design SC CONCRETE DESIGN srl

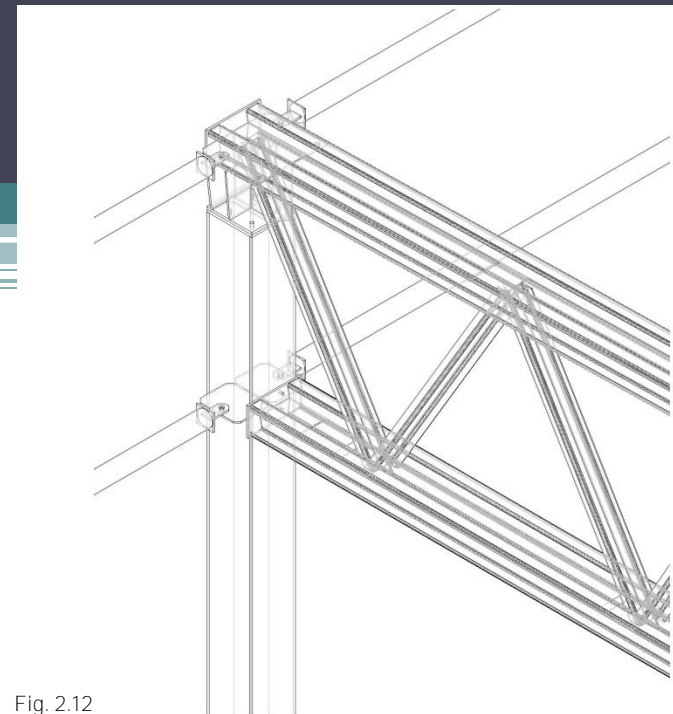
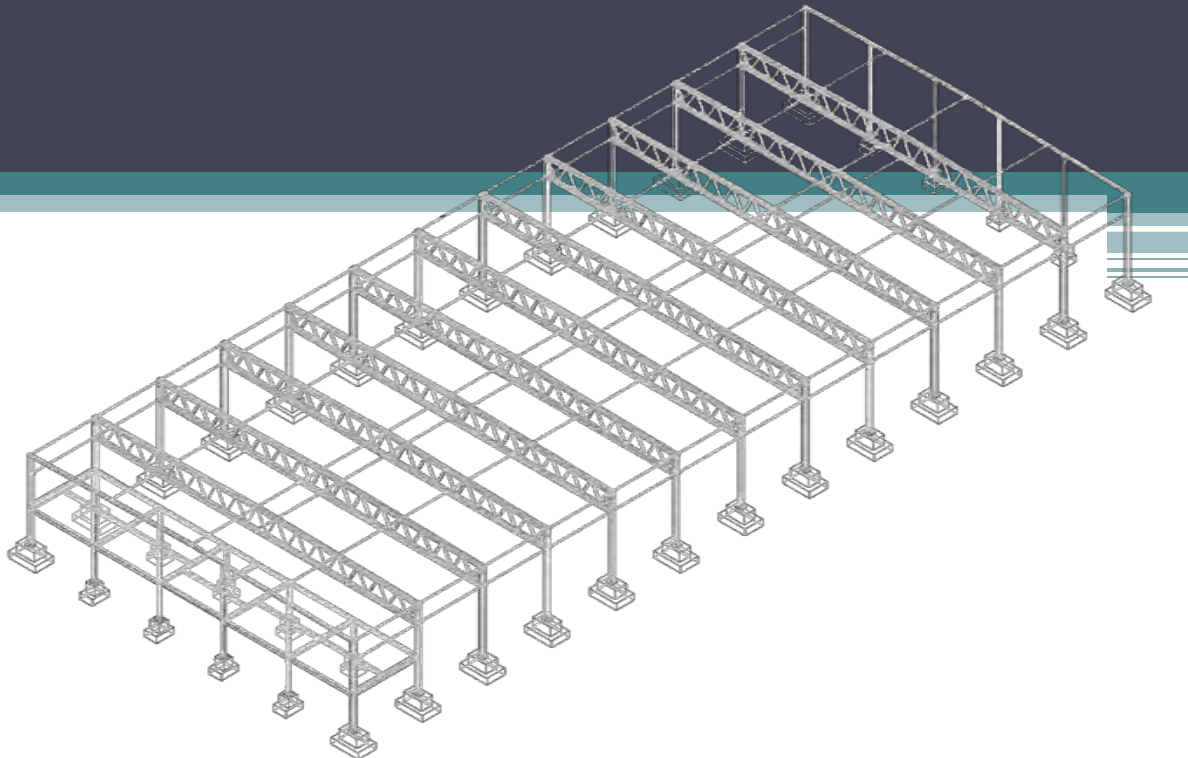


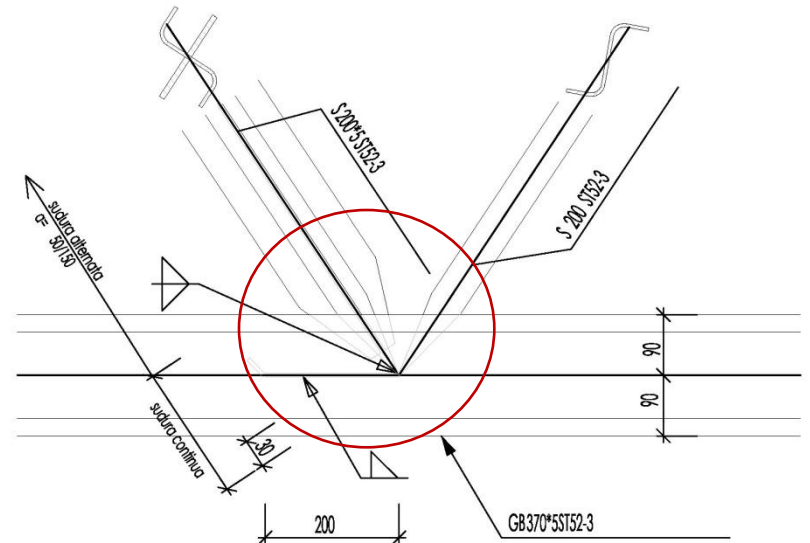
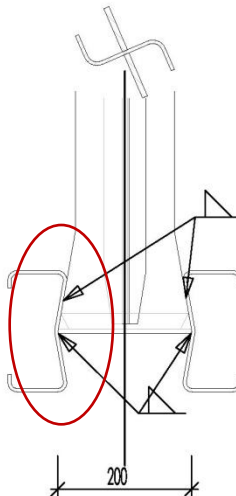
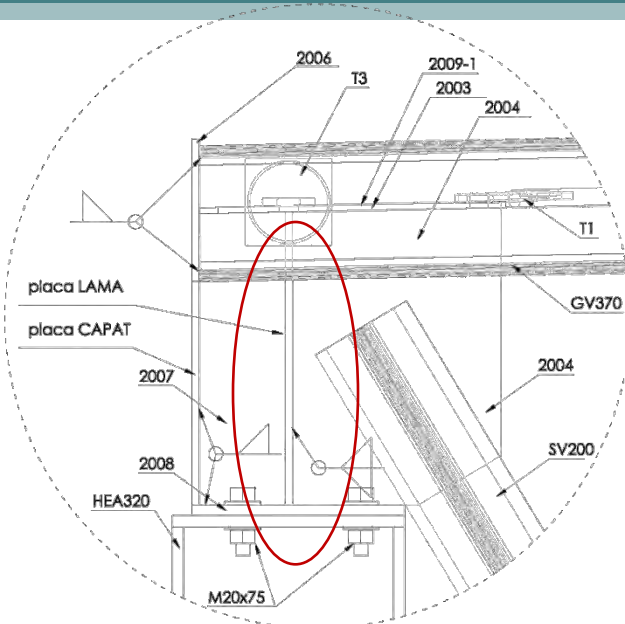
Fig. 2.12  
Alcatuire nod cap stalp

# Hall for WK GROUP – Sibiu.

Design of structure & on site surveillance

Because of the material used, laminated sheet, a special attention had to be paid upon the weldings, their length, and the areas thermally influenced.

A special element was conceived, so that the forces of the suprastructure are distributed to the pillars, respecting the technical and constructive limitations.



# SPAR STORE

Design of structure & on site surveillance



**Structure:** metal frame type made of European profiles (HEA+ $\frac{1}{2}$ HEA) and metal girders (IPE +  $\frac{1}{2}$ IPE).

**Covering:** metal sheets with mineral wool.

**Roofing:** trapeze sheets, mineral wool, diaphragm.

**Free span:** 7x24 m.

- SPAR chain store -1.100 Sq m –structure (RESITA) – prepared repeating models for many as 40 locations
- SPAR chain store - 800 Sq m – structure (ARAD)



SPAR RESITA



SPAR ARAD (Aradul Nou)

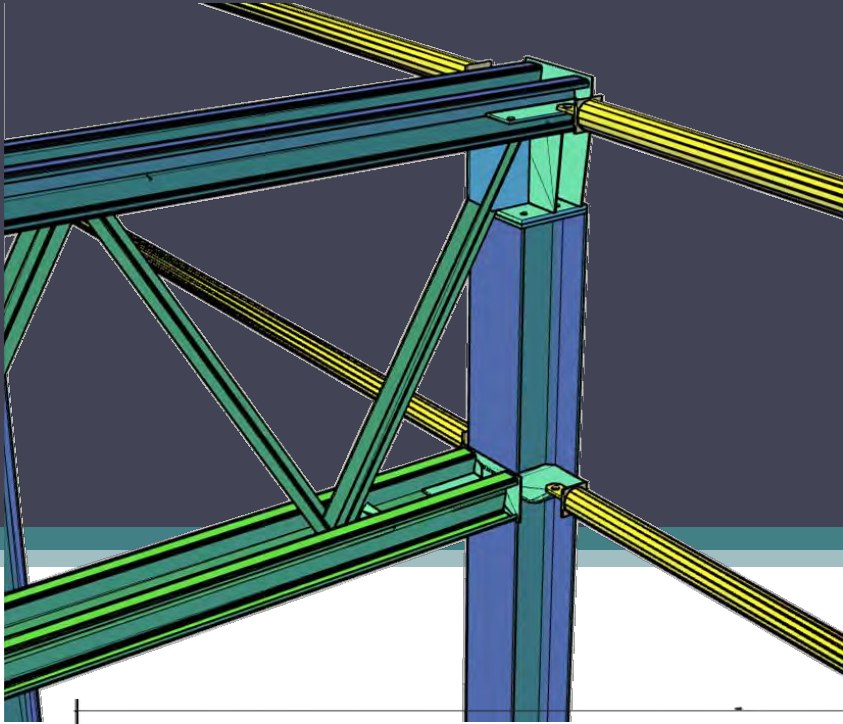




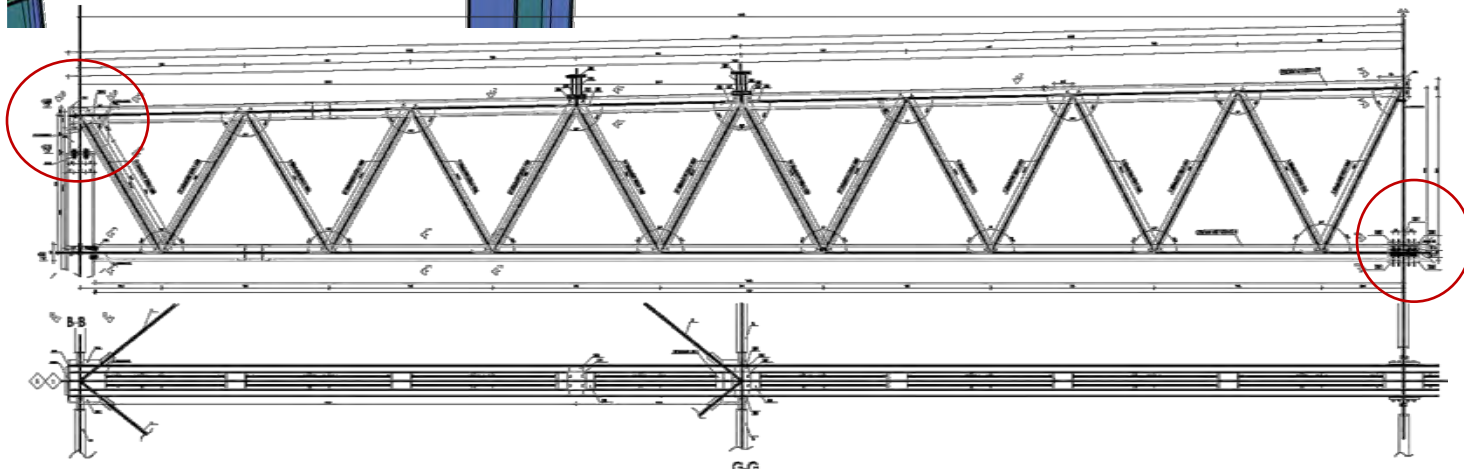
# Hall for WK GROUP – Sibiu.

Design of structure & on site surveillance

Because of the flexibility of the profiles, an articulation had to be created on the head of the pillars, which was taken into consideration when calculating the structure.

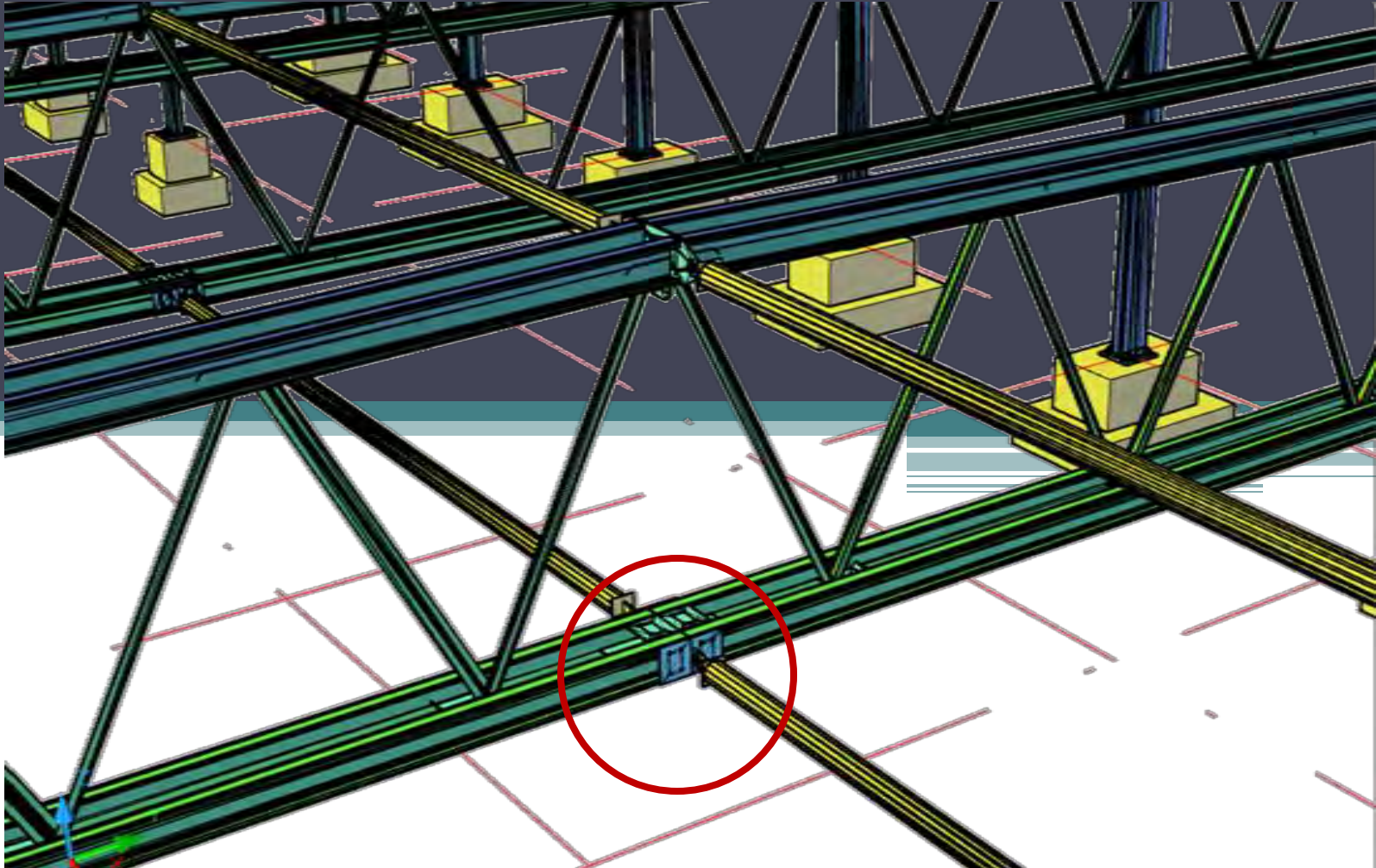


For being properly transported, the lattice beams were divided into two equal parts.



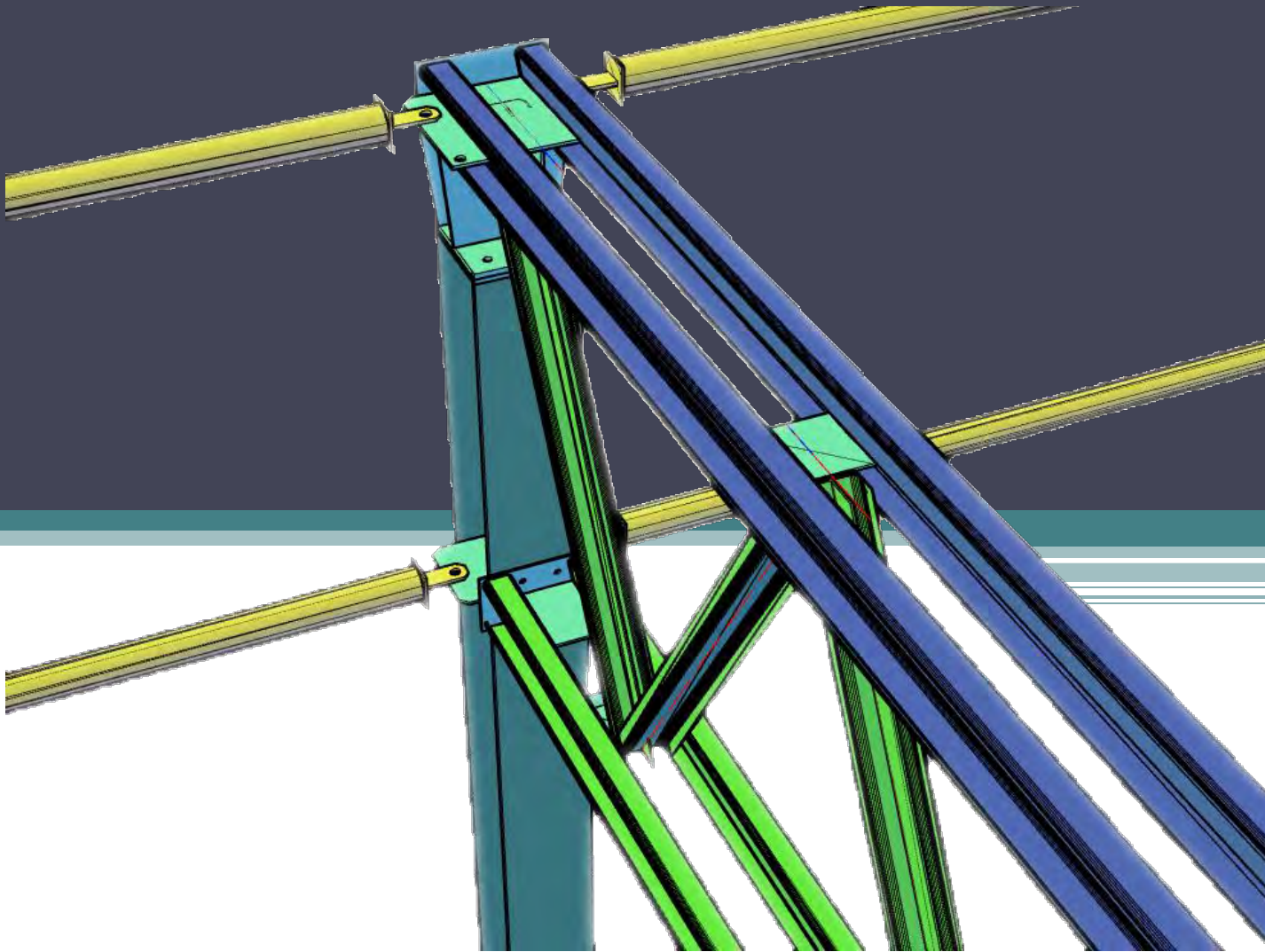
# Hall for WK GROUP – Sibiu.

Design of structure & on site surveillance



# Hall for WK GROUP – Sibiu.

Design of structure & on site surveillance





# Hall for WK GROUP – Sibiu.

In order to determine the efforts to dimension and optimize the weldings, we made an analysis with finite elements in order to check the length and shape of the welding.



Fig. 2.19  
Sigma xy

As far as the efficiency is concerned, this solution was completely agreed upon by the beneficiary; the open space has a dimension of 70x29 m.

From the point of view of the materials used, we can mention 25kg/Sq m of steel for the resistance structure and of 29,39kg/Sq m of steel for the rigid bars, frames of the windows and doors, different metal parts.

Fig. 2.20  
Sigma xy

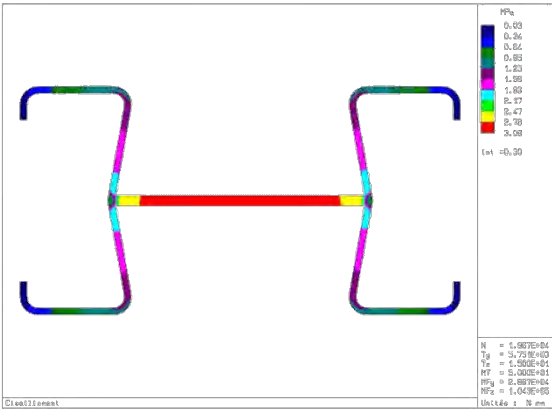
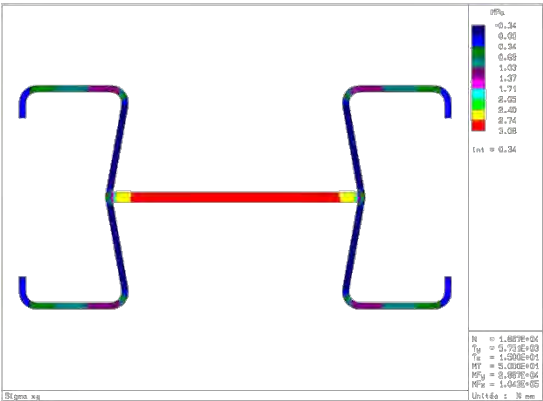
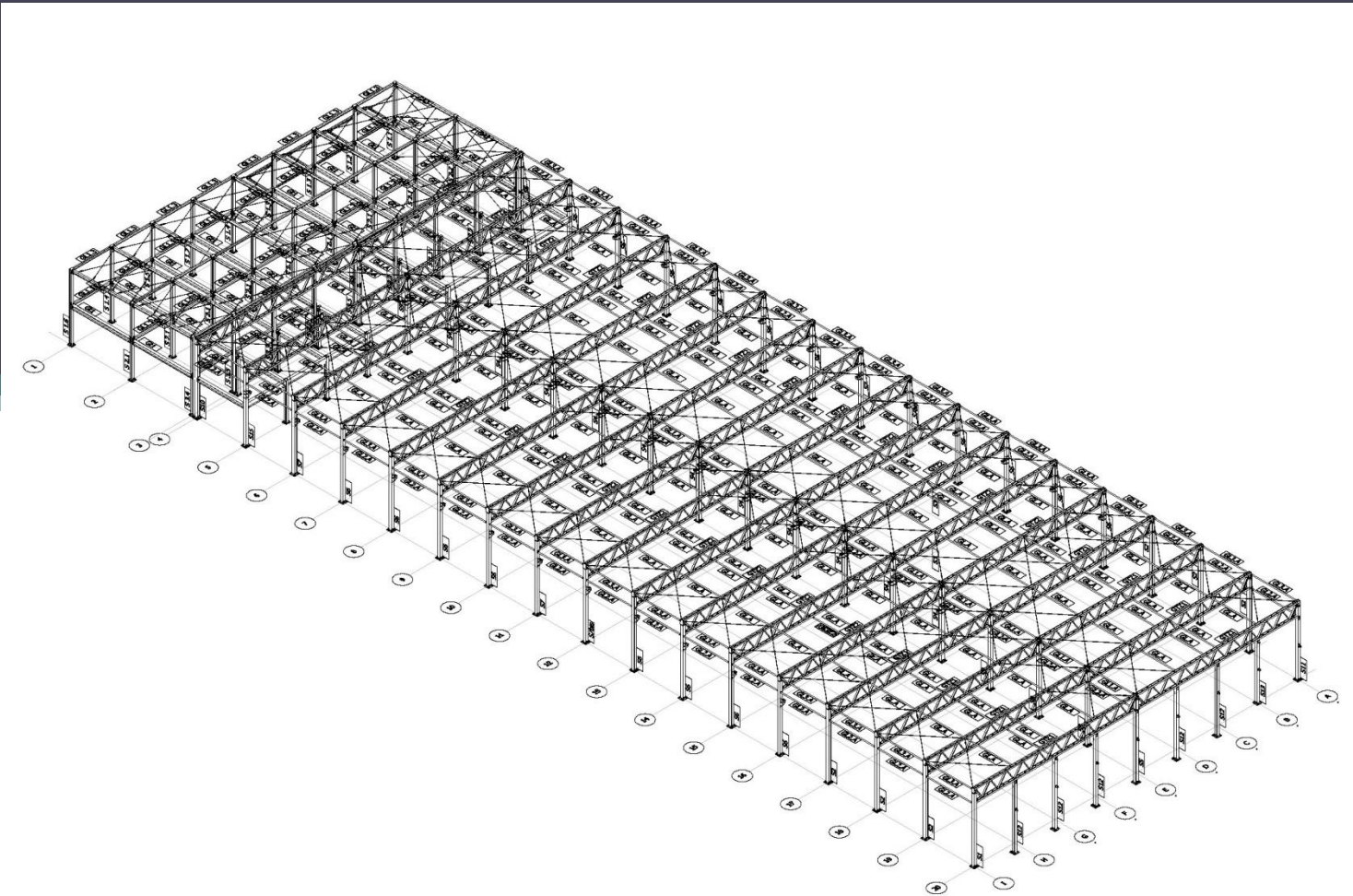


Fig. 2.21  
Torsione

# Hall for HARTING - Sibiu.

Design of structure & on site surveillance

The structure was asked for by the beneficiary so that it can serve as production space, office building and warehouse.



# Hall for HARTING - Sibiu.

Design of structure & on site surveillance

The solution was carefully analyzed, designed, and executed because of the existence of the two independent bridges.

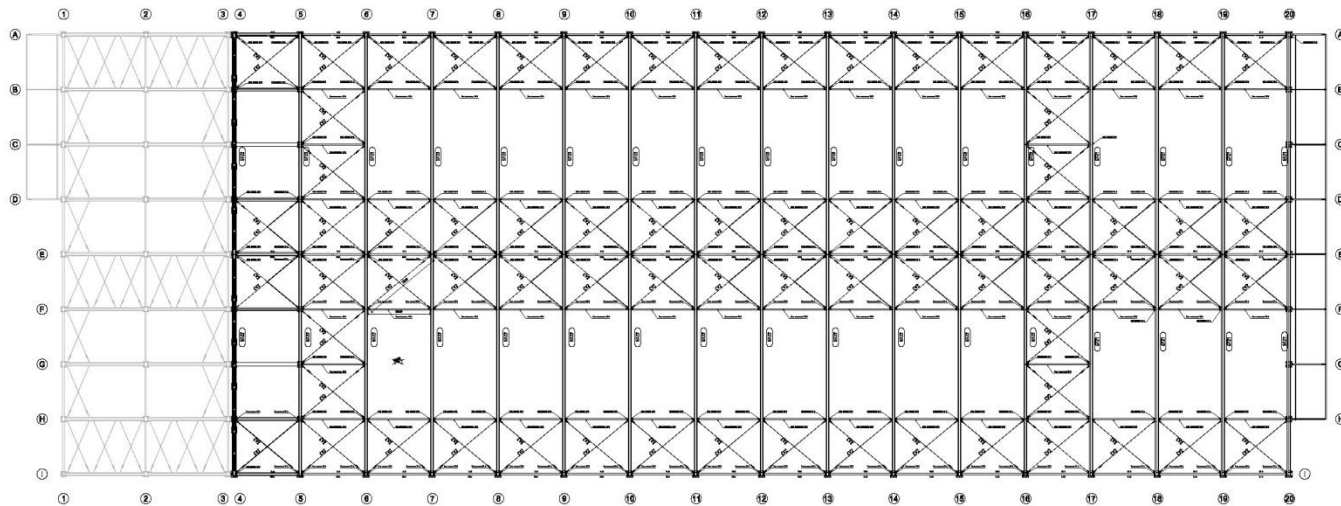
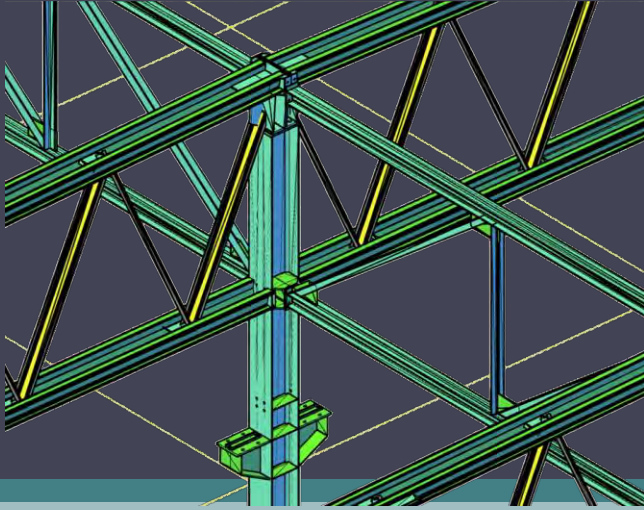
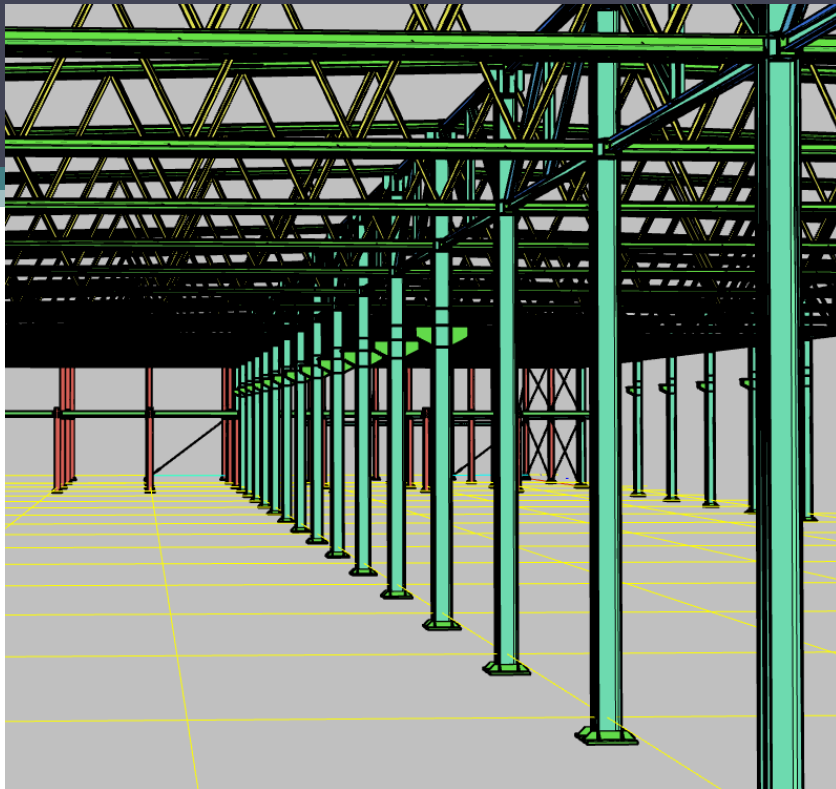
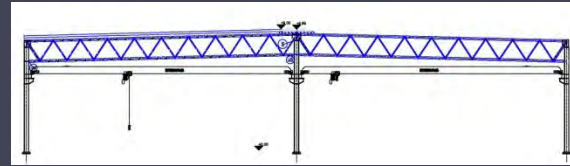
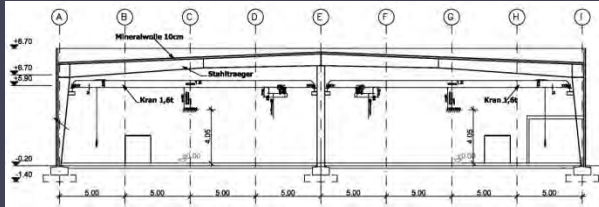


Fig. 2.23  
Roofbraces



# Hall for HARTING - Sibiu.

By using the system we proposed, we realized a diminution of the final costs and the quantity of the materials used, reaching to 47kg/Sq m of steel, including also the non-structural elements, frames for windows and doors.



# Brief presentation of designed concrete prefab structures – with large openings

A series of horizontal lines in teal and light blue colors, of varying lengths, extending from the left edge of the slide towards the right, positioned below the title.

# Hall for KAUF LAND STORE

Design of structure & on site surveillance

The structure was proposed by the general entrepreneur, but, in order to be built, a series of changes were to be taken into consideration. Because the structure was conceived in order to be used for more locations, a series of identical details were established.

Opening of 2 x 27,5 m .

Crossbeams of 27,5 m and pre-tensed keys.

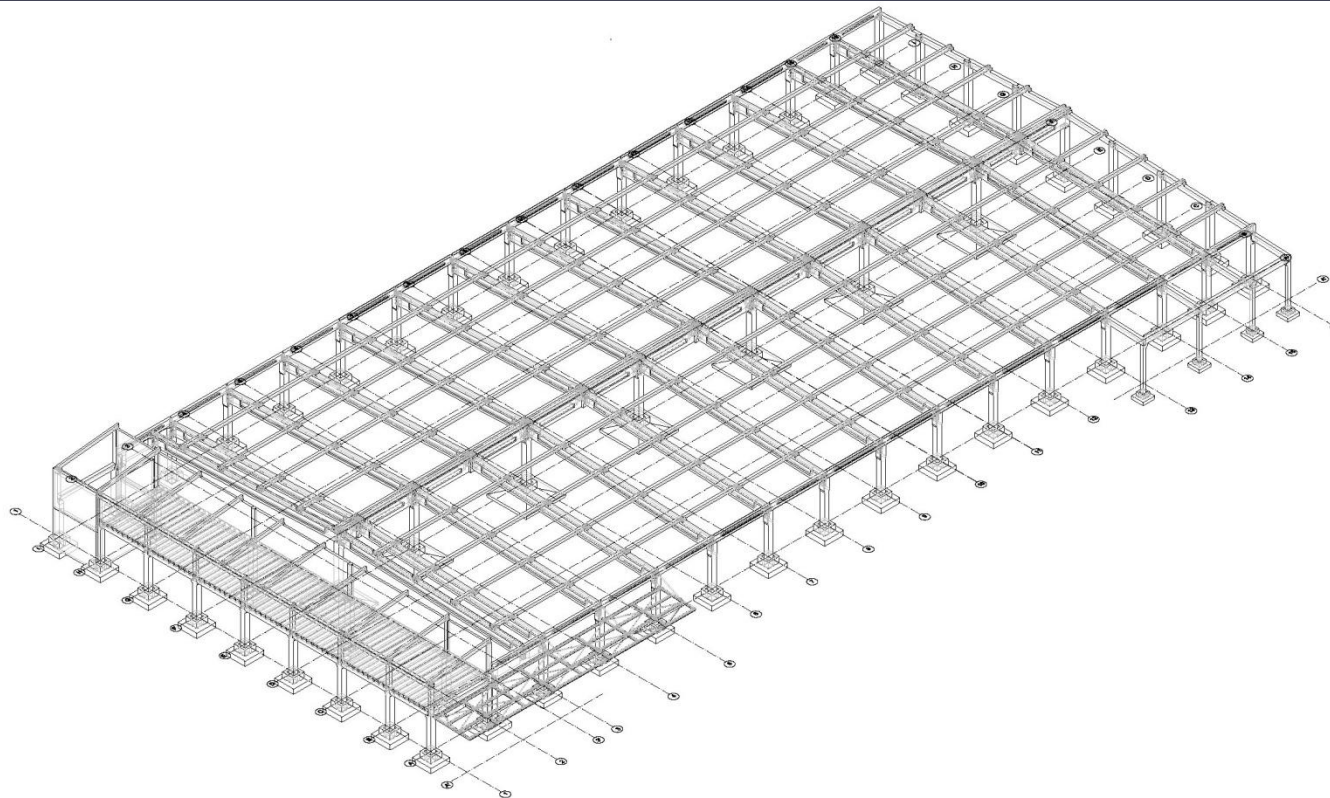
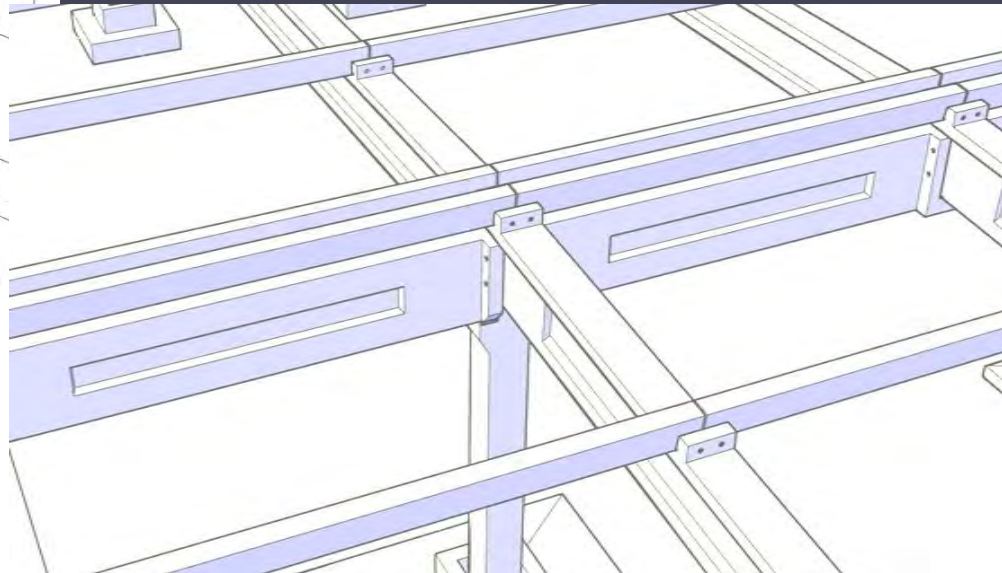
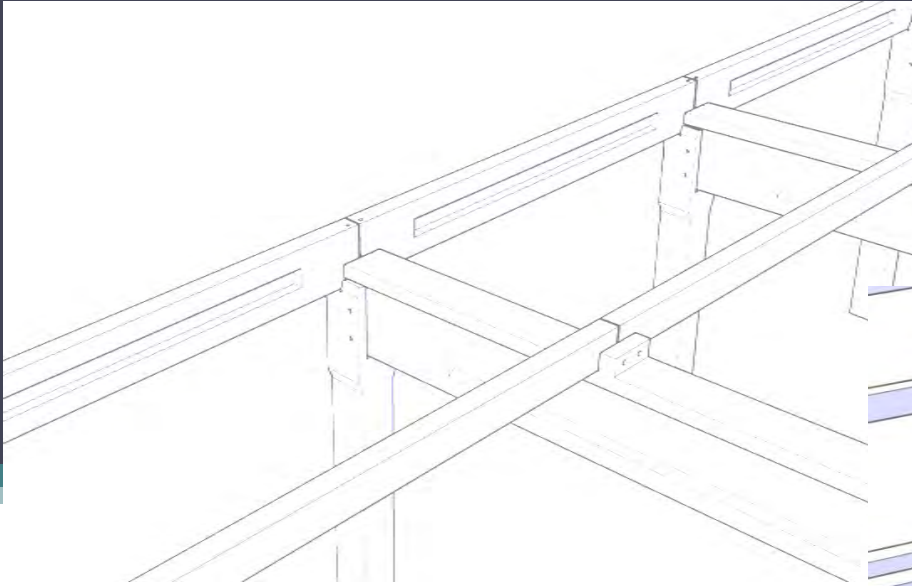


Fig. 2.28  
Prefabricated concrete structure  
DESIGN: SC CONCRETE DESIGN srl



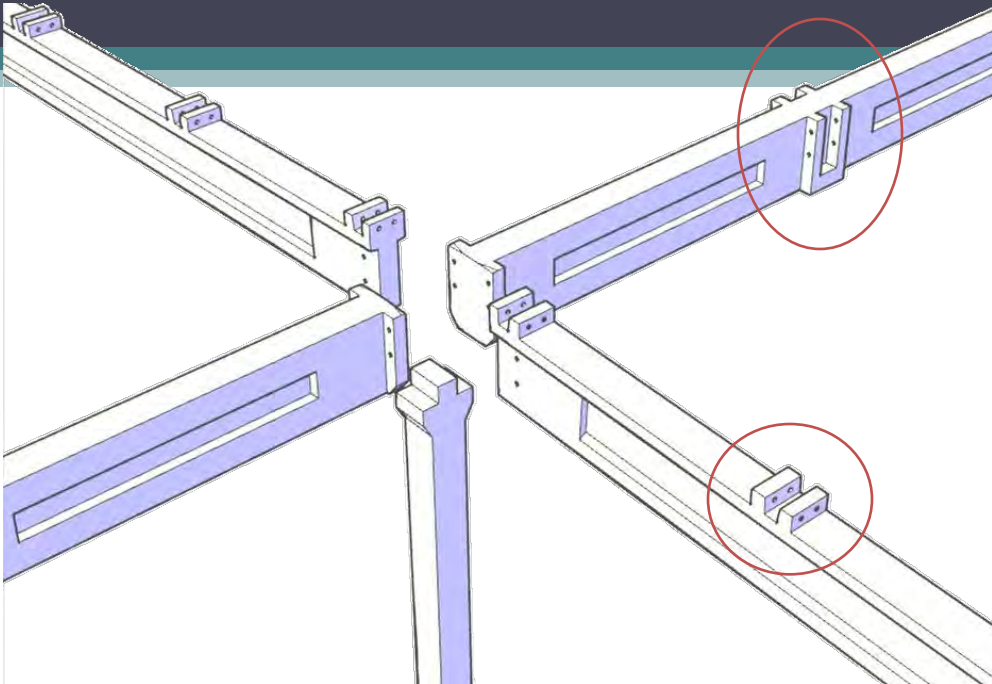
# Hall for KAUF LAND STORE

The connection between the main beam and the pillar is made with bolts, the 27.5 m main beam has a space at the bottom of the pillar so that it can be gravitationally placed on the pillar.



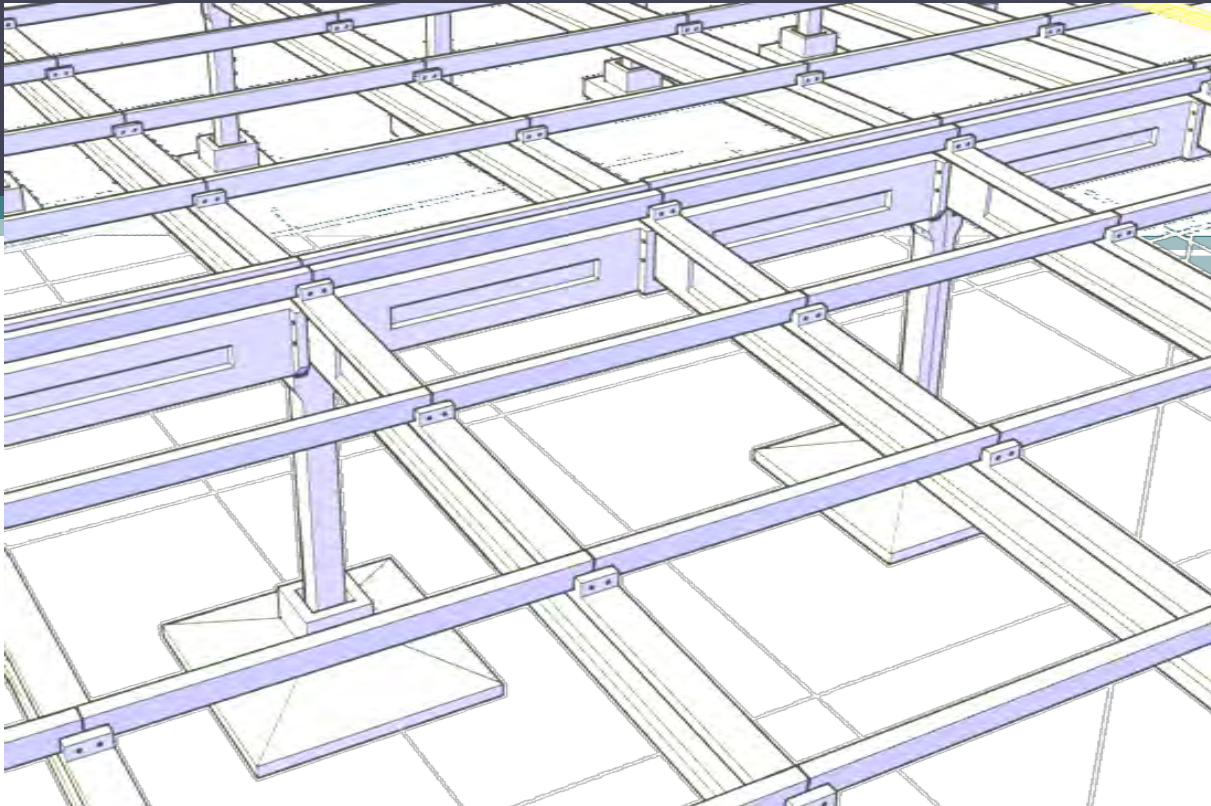
# Hall for KAUF LAND

The main pillars are disposed at a distance of 16.5 m; between them there is a rigid frame through the longitudinal beams.



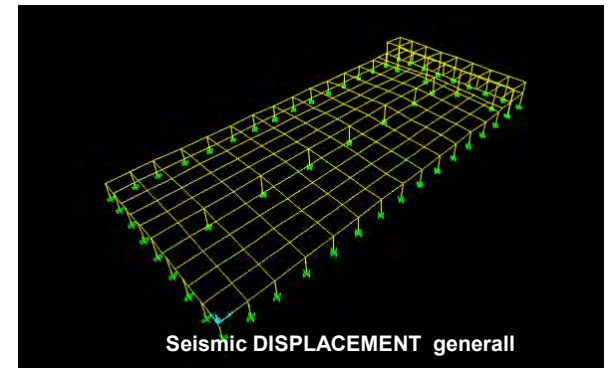
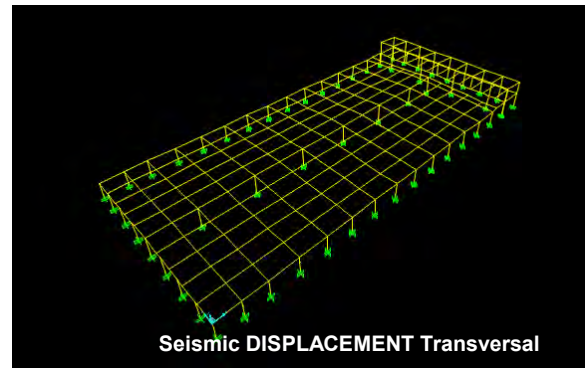
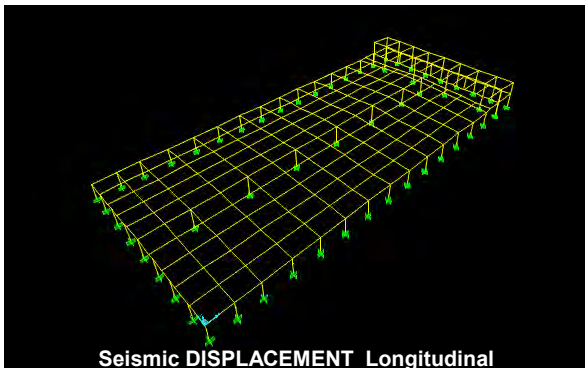
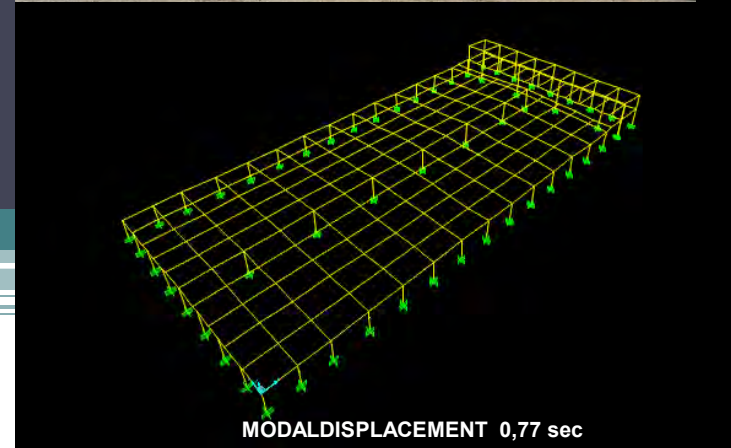
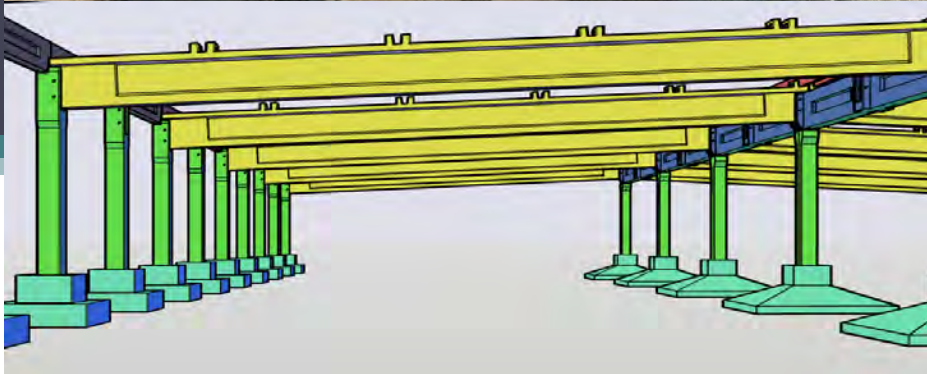
# Hall for KAUF LAND

At each 8.25 m a 27.5 m beam is placed. Each second beam has a space fit on the longitudinal beam. The keys are ensured on the beams with a space in concrete that fixes the key on the beam.





# Hall for KAUF LAND





# Hall KAUF LAND

Because of the positioning of the structure in areas with serious earthquakes, we considered it necessary to re-think the initial structure in order to answer to the new demands.

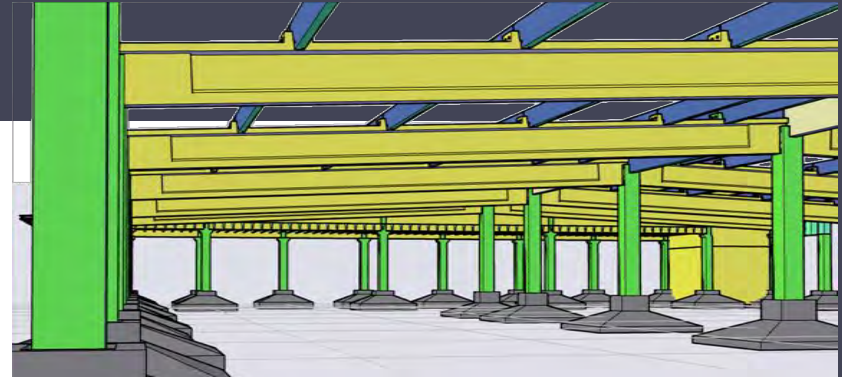
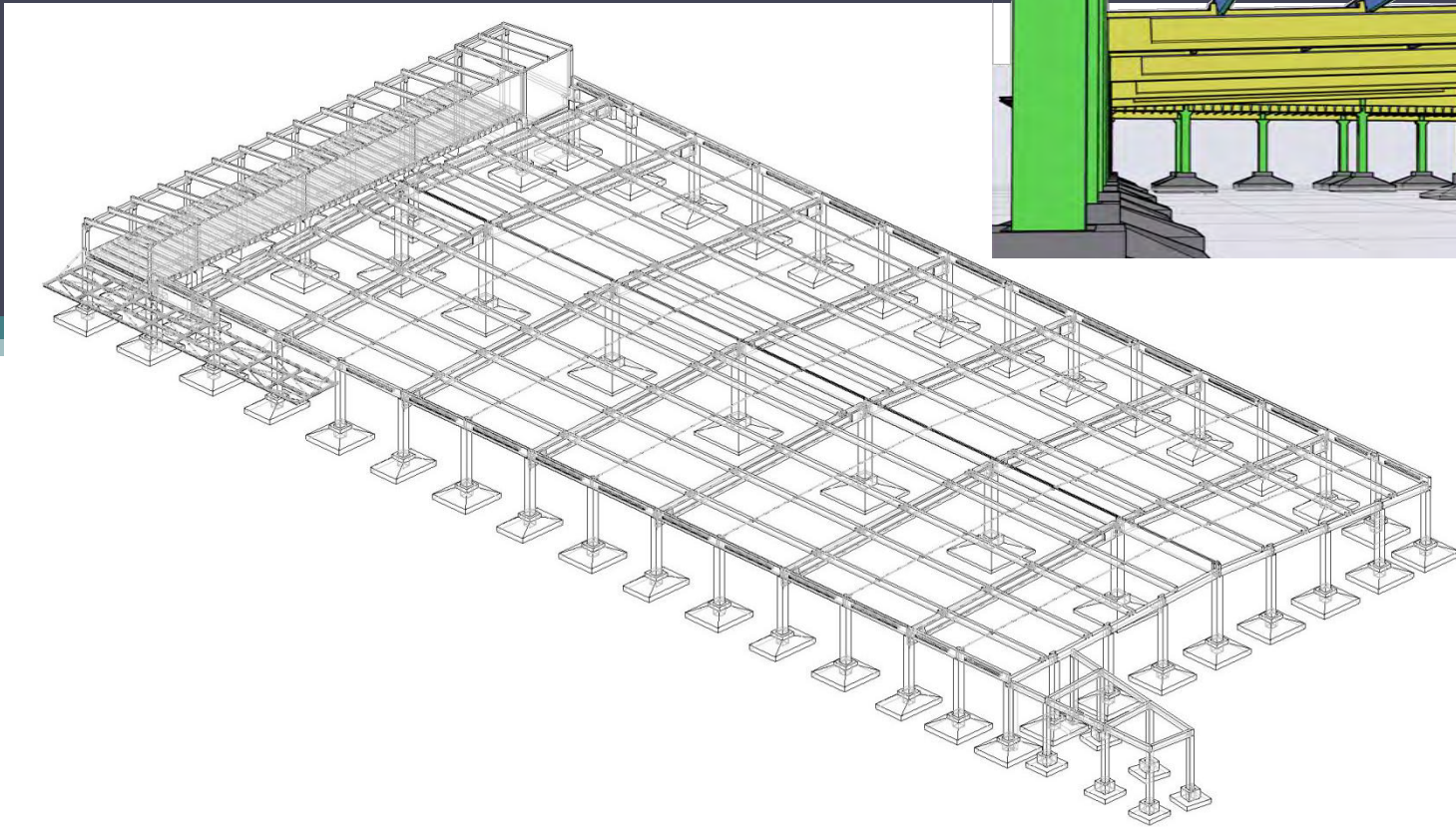
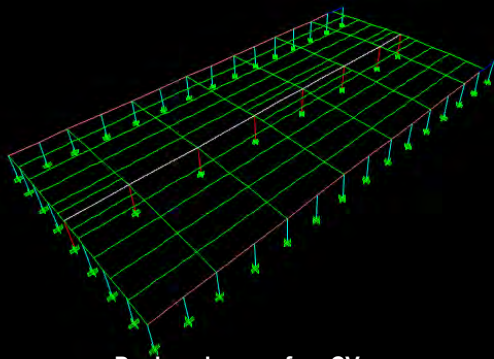


Fig. 2.28  
Prefabricated concrete structure  
DESIGN: SC CONCRETE DESIGN srl

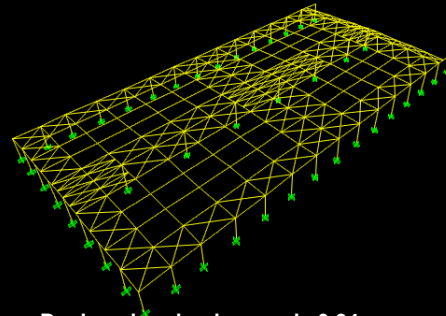
# Hall for KAUF LAND

Practically, by reducing the number of the elements, we reduced the weight of the entire structure; the longitudinal beam was reduced from the point of view of its role and the dimension of the section.

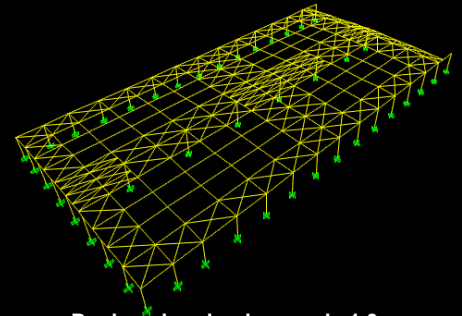
All these changes reduced the horizontal movements of the structure by reducing the inertial weight of the structure.



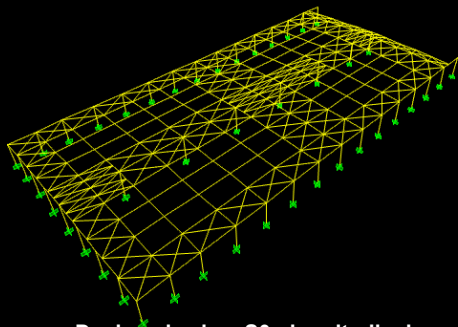
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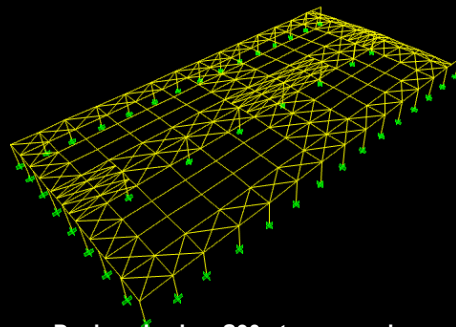
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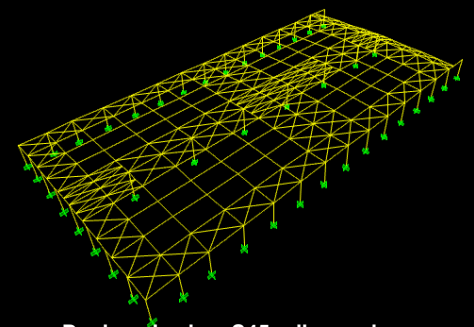
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Deplasari seism S0 - longitudinal



Deplasari seism S90 - transversal

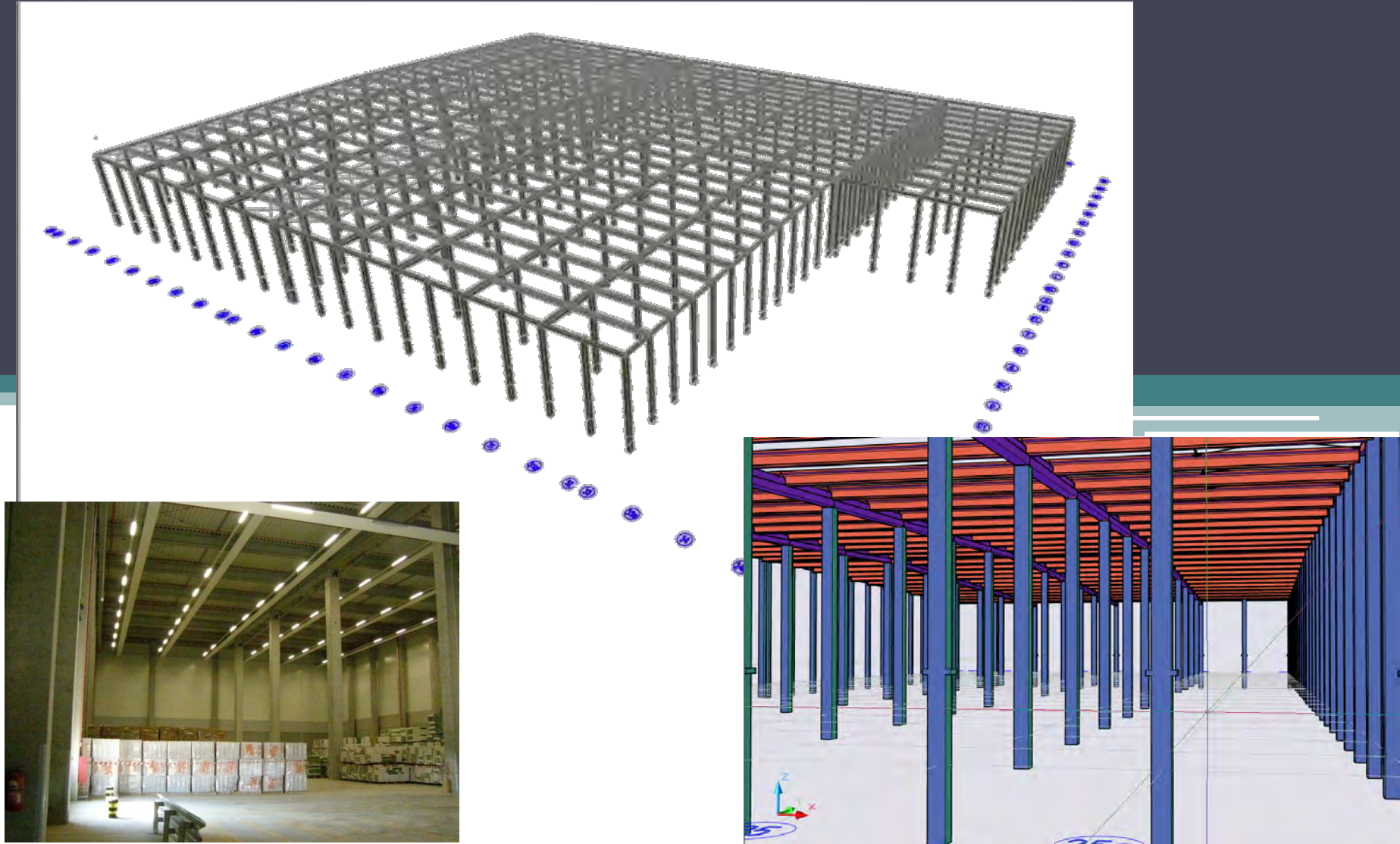


Deplasari seism S45 - diagonala

# Hall for Logistic Centre for KAUFLAND – phase 1

Design of structure & on site surveillance

The structure was proposed by the designer and accepted by the general entrepreneur as a warehouse for the logistic centre of Kaufland.

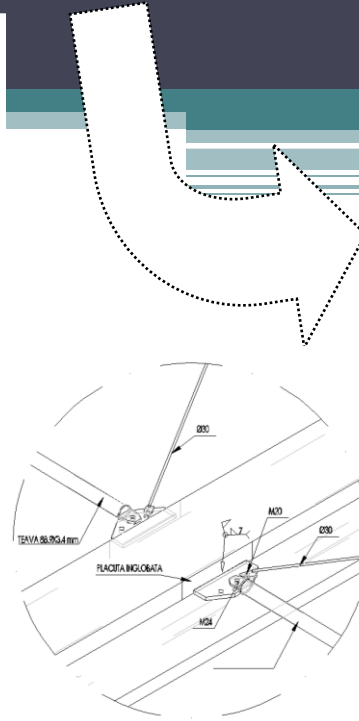
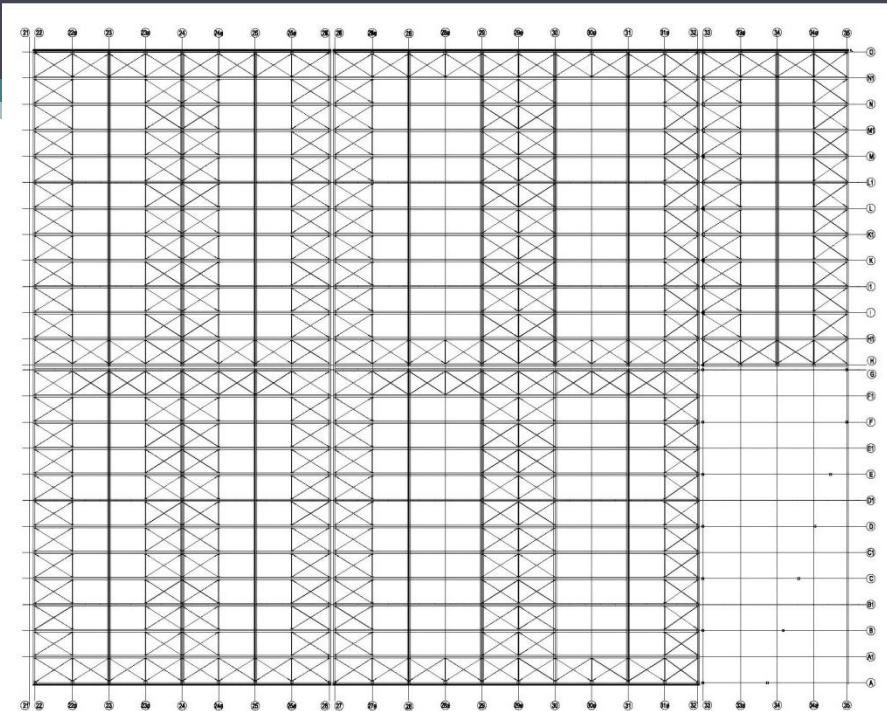




# Hall for Logistic Centre for KAUFLAND



In order to reduce the movements at the roof level, we introduced a system with rigid bars, that distribute the individual movements on the entire structure.





... when we can proudly write here about your company ?? ? ...

**SC CONCRETE DESIGN srl**

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Our CONCRETE DESIGN Team....