

# BUREAU FOR STRUCTURAL ENGINEERING & DESIGN - “KONIN”

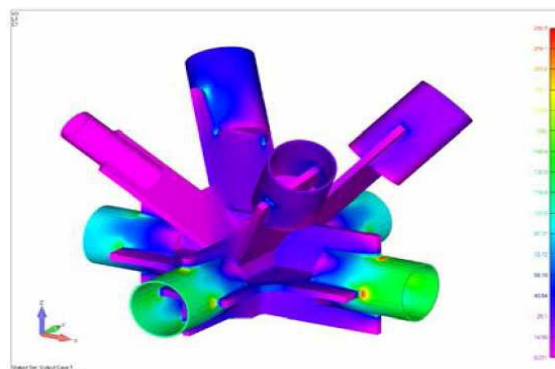
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## **Shortly - overview of our experience:**

**The Exhibition Pavilion in Moscow, 98 x 98 m size (1990)**



The roof structure is the 3D roof trusses with **MERO** type joints.

Modelling and analysis (FEA/FEM) in **NXNastran (FEMAP)**,  
structural design **StaadPr**

**The Exhibition complex in Moscow, eight pavilion, 252,0 x 48,0 m size (2005)**



Steel space structure (3D).

Modelling and analysis (FEA/FEM) in **NXNastran (FEMAP)** ; structural and earthquake design  
**StaadPro**

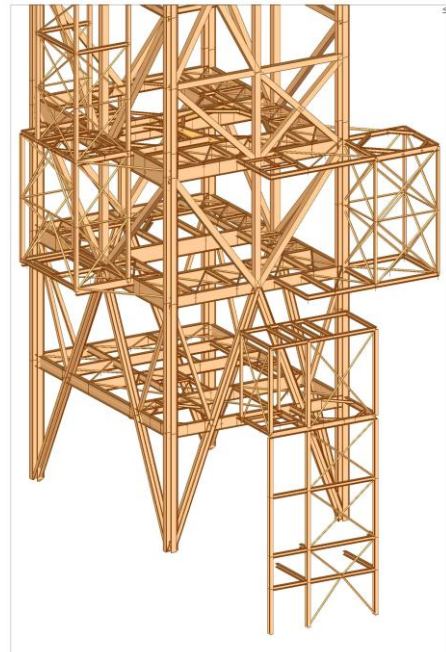
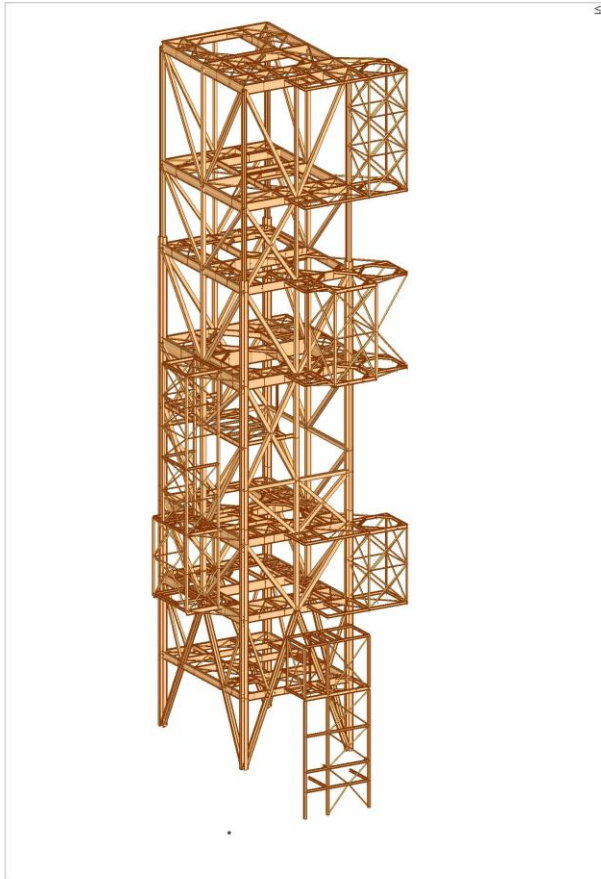
**Steel structure for the industrial production hall Podgorica – Montenegro.**



Modelling and analysis (FEA/FEM) in **NX Nastran (FEMAP)**, structural design **StaadPro**,  
shop drawings **TeklaStructures (X-Steel)**.

Calculations and analysis done by **EUROCODE standards**.

**Platforms for the Serbian Power supply company, Thermal power plants REIK Kolubara.**



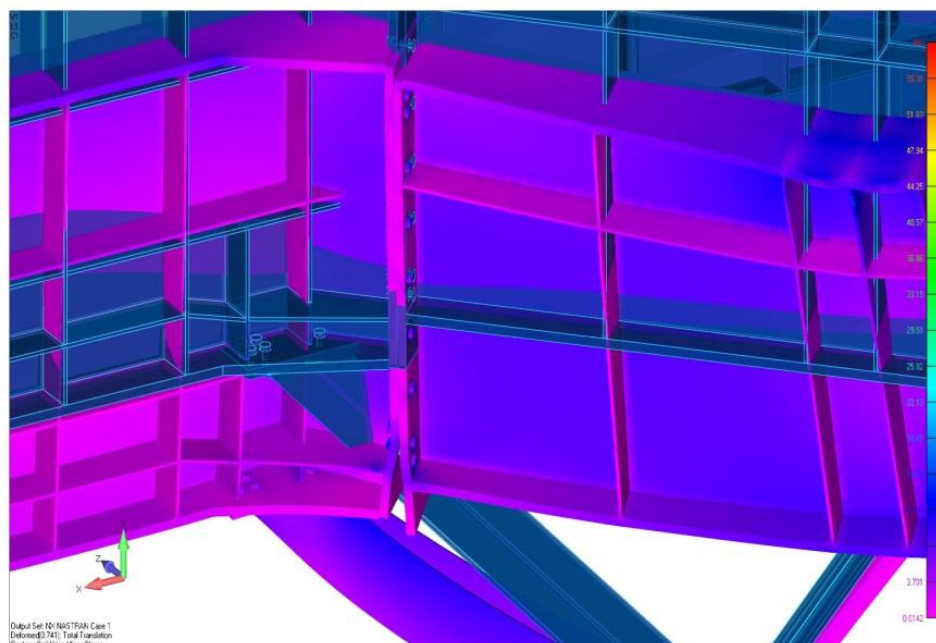
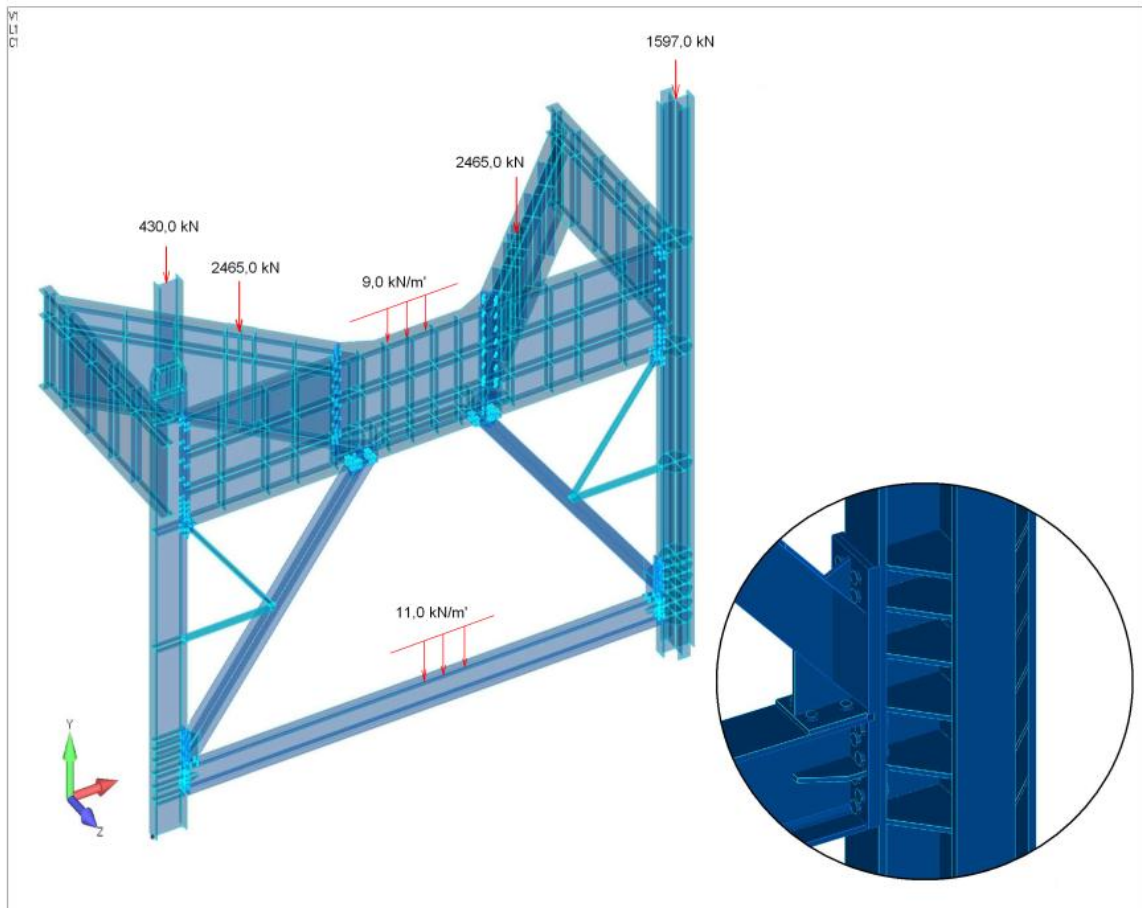
Steel space structure.(3D).

Modelling ,pre / postprocessing (FEA/FEM) in **NX Nastran (FEMAP)**, structural design **StaadPro** .

Statical and dynamical (earthquake) analysis in **StaadPro** .  
Calculations and analysis done by **EUROCODE standards**.  
Shop drawings in **Prosteel 3D**.



## Analysis for steel connection in industrial building



US client (**US Steel-Serbia**)

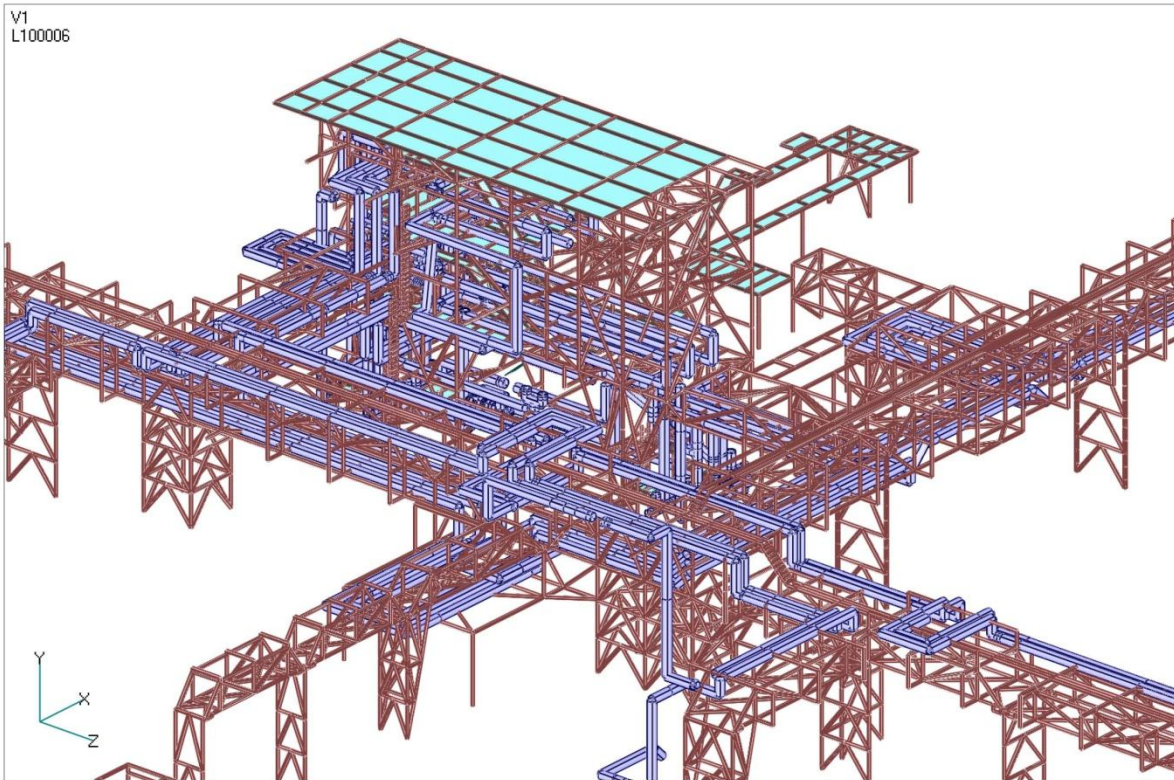
Regarding enormous loading from coal ash (9860 kN), the connection between beam and column is very important. It can be clearly from next picture.

Analysis results was acceptable for our technical control and by that for our client. The object is 55.75 m height, and there is much more connections to be checked.

***Connection is modeled as contact problem (iterative solution).***

Modelling ,pre / postprocessing in **NX Nastran (FEMAP)**, structural design **StaadPro** .

### **Pipe racks for the Energy Plants in Turkey (2001)**



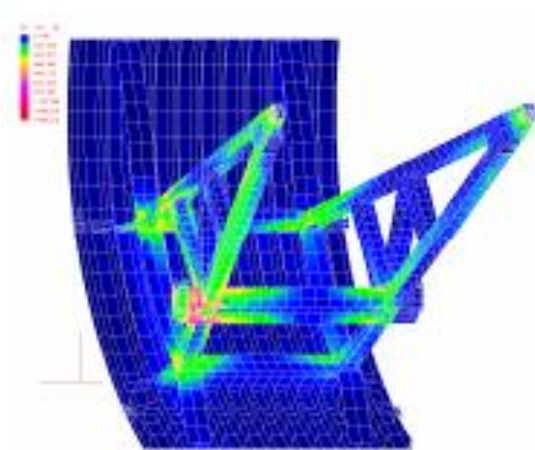
Modeling and Analysis for the pipe racks for the Energy Plants in Turkey (2001).

Joining the modeling for the piping and for the racks was done using the translator we have created for the specific purpose.

All the results are compatible with and were used in **Auto PIPE**.


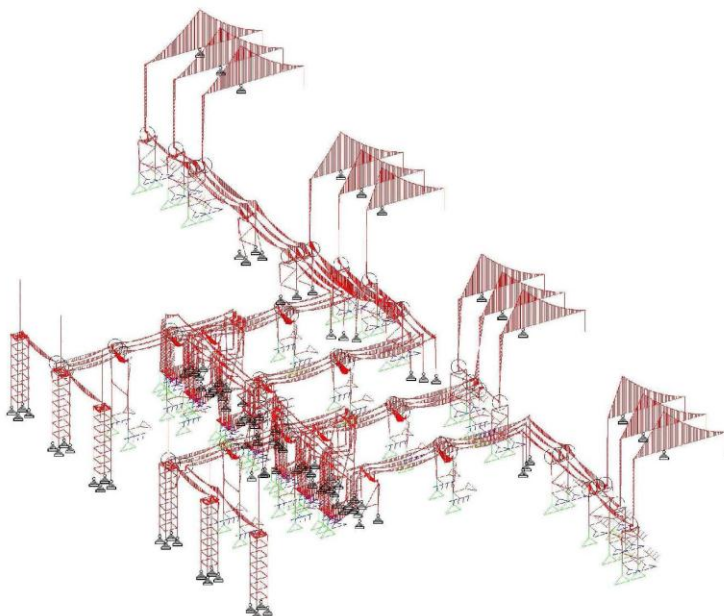
### **The dams in Peru and Ethiopia (1995 and 1998).**

Design for segmented shutters for the hydro equipment for the dams in Peru and Ethiopia (1995 and 1998).



## Bearing frame (pipe rack) for the highvoltage station (2008. - UAE)

Client : **ABB Ltd. Swiss..**

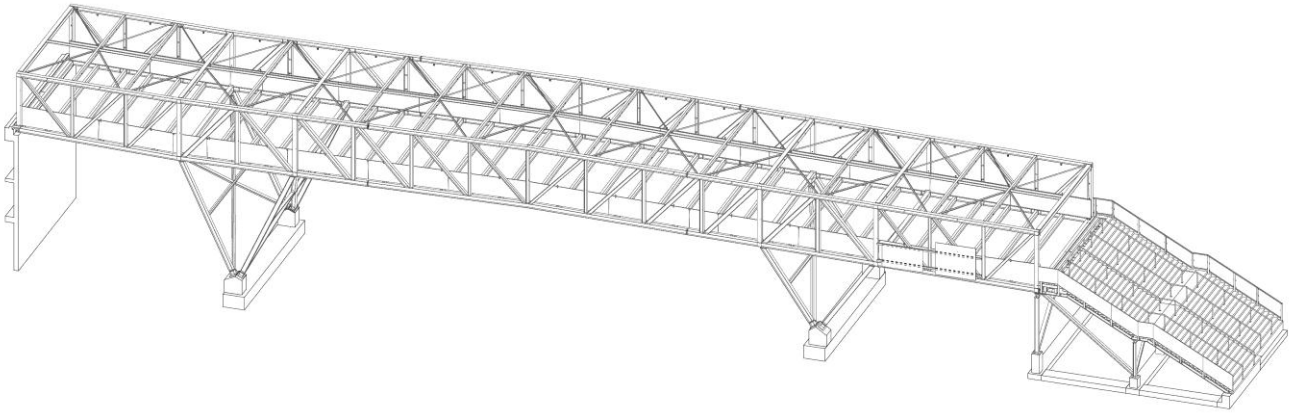
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Load 1 : Bending Z

Structural design of the bearing frame for the highvoltage station (Project 13049421, 230 kV PMD CRACKER GIS Substation) – UAE.  
Modelling ,pre / postprocessing in **NX Nastran (FEMAP)**, structural design **StaadPro** .



## Bridge- pasarela – Belgrade (2005.) & Industrial building



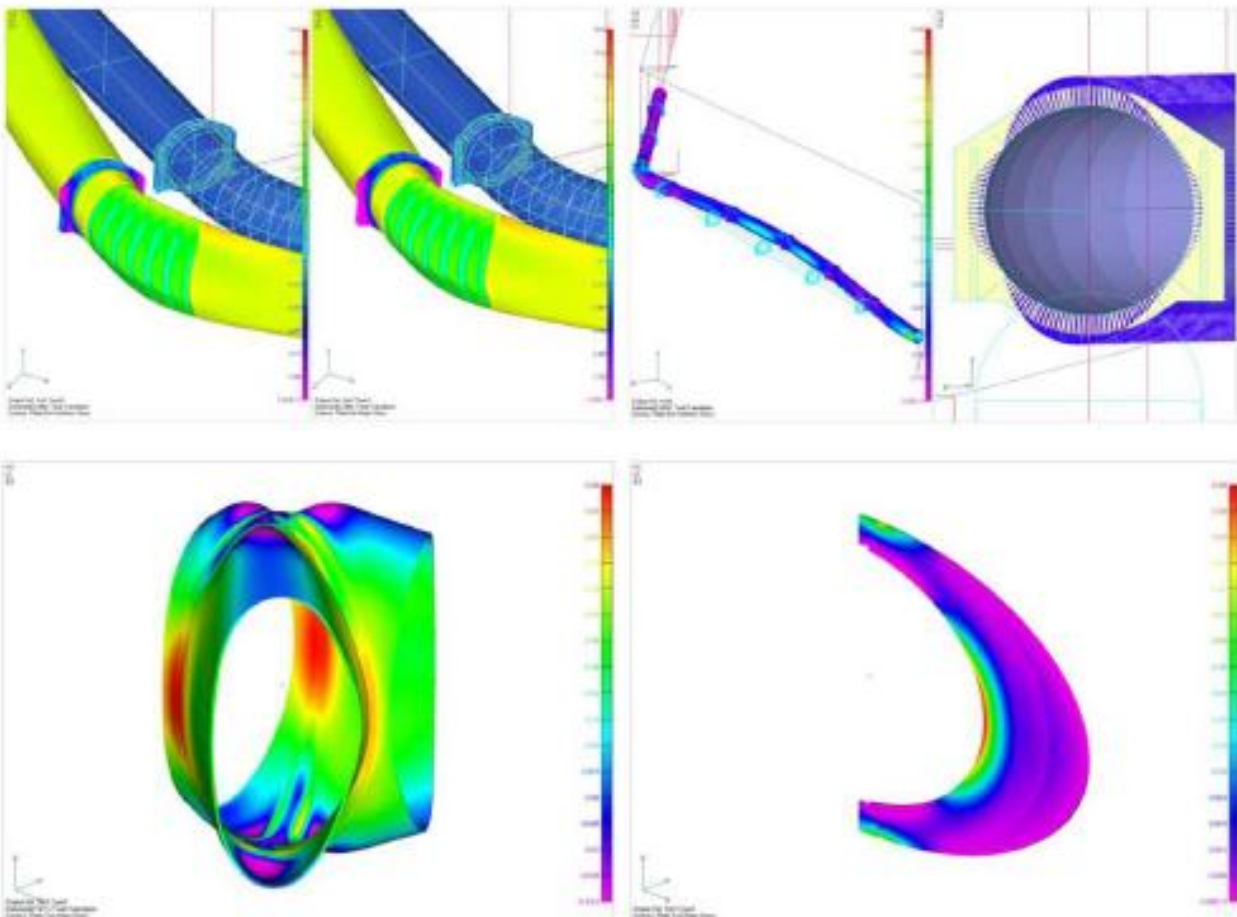
## Chuzachen Dam in India (2008)

### **Colenco AF –Swiss**

Pipeline for the Chuzachen Dam in India (2008)

For the Chuzachen Dam Pipeline, apart from linear modeling, the control of certain sections was performed using shell modeling.

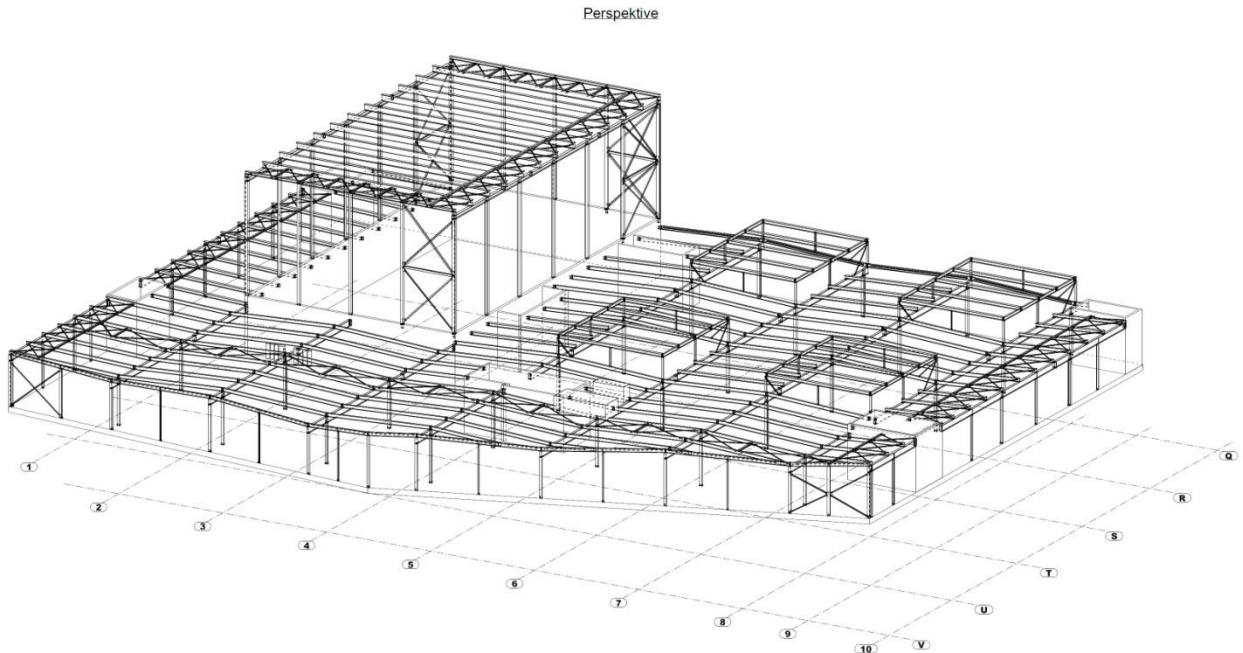
Bifurcation was also checked using detailed shell modeling



### Steel space structure.(3D).

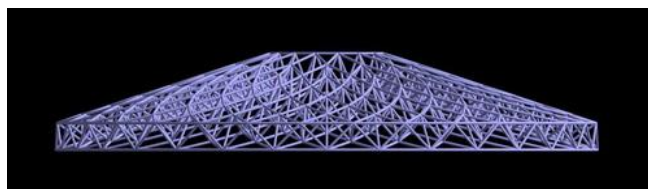
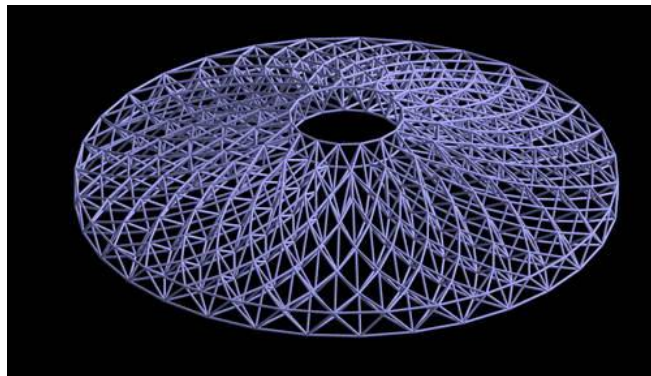
Modelling ,pre / postprocessing (FEA/FEM) in **NX Nastran (FEMAP)**, structural design **StaadPro** .

Statical and dynamical (earthquake) analysis in **StaadPro** .  
Calculations and analysis done by **EUROCODE** standards.  
Shop drawings in **Tekla Structure (X-Steel)**.



### Catholic Church building for the Catholic Mission in Ulan Bator – Mongolia (2000)

The roof structure is the 3D roof trusses 30,0 m in diameter, with **MERO type joints**.  
Modelling and analysis in **NX Nastran (FEMAP)**, structural design **StaadPro**,





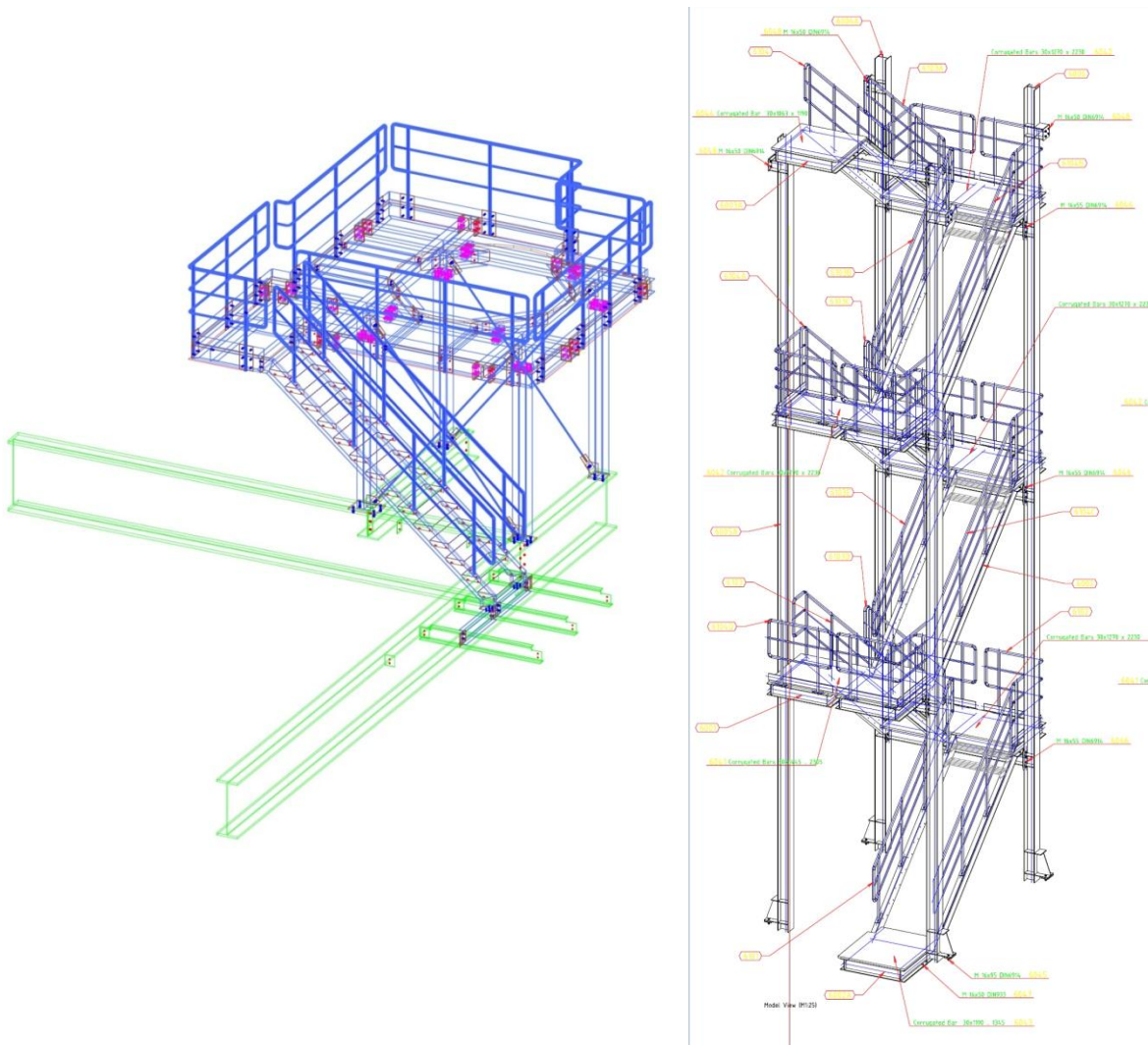
### Steel space structure 3D Stairs and platforms Novi Popovac - Serbia(2005)

Client : **Holcim..**

### Steel space structure.(3D). \_ Stairs and platforms.

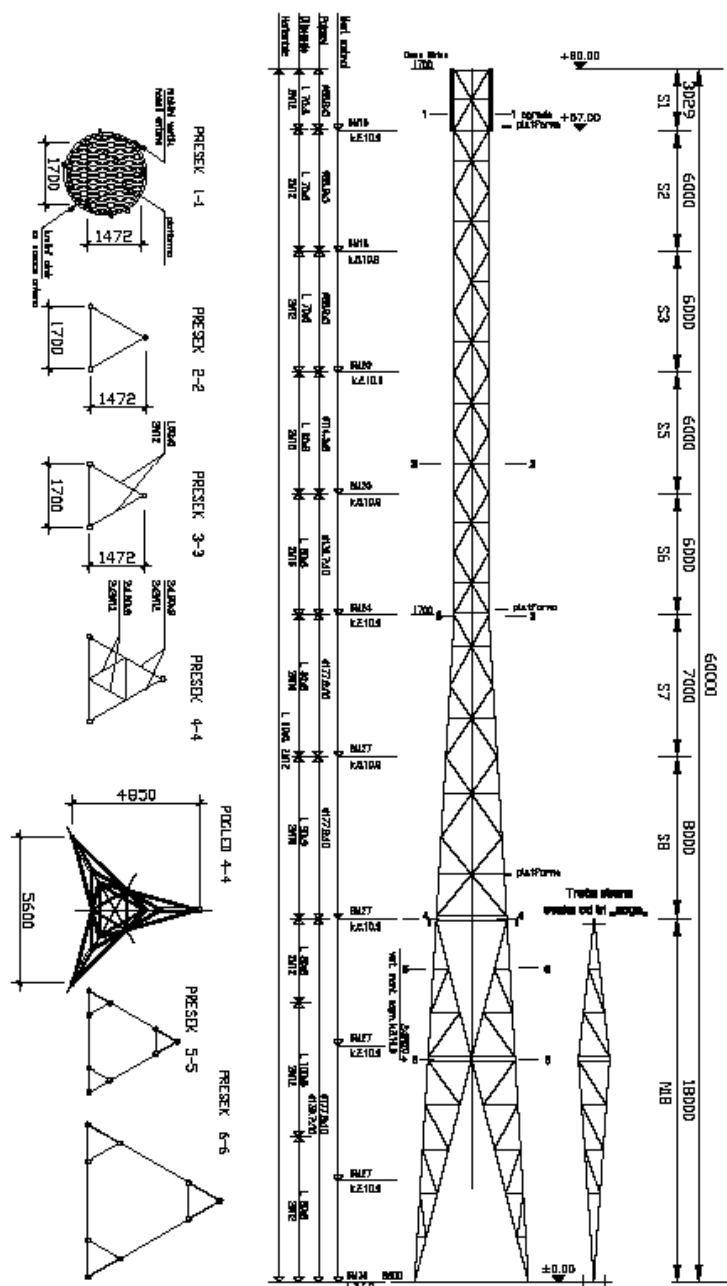
Modelling ,pre / postprocessing (FEA/FEM) in **NX Nastran (FEMAP)**, structural design **StaadPro** .

Statical and dynamical (earthquake) analysis in **StaadPro** .  
Calculations and analysis done by **EUROCODE** standards.  
Shop drawings in **Prosteel 3D**.



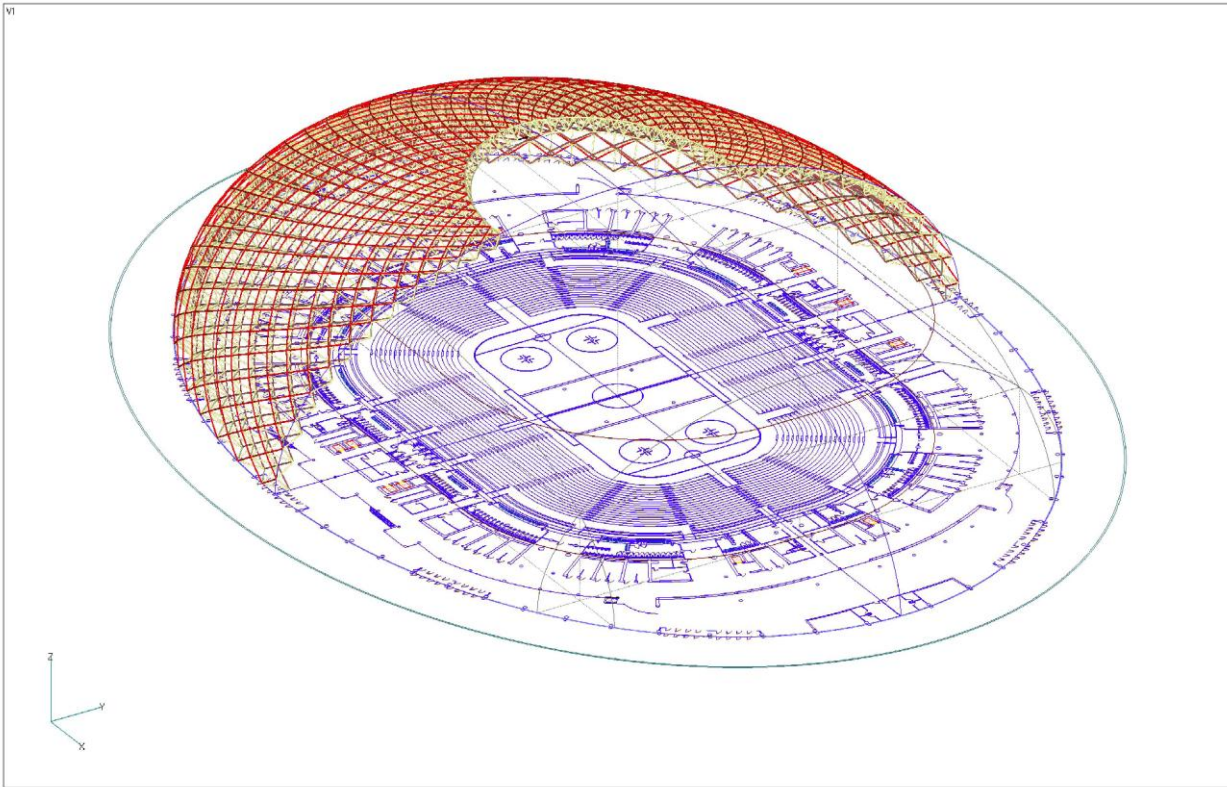
### Steel antena tower pole 60m hight, Jastrebac mountain - Serbia.

Modelling and analysis in **NX Nastran(FEMAP)**, structural design **StaadPro**, shop drawings **TeklaStructures (X-Steel)**.



### Winter sports stadium – Sochi (Russia)

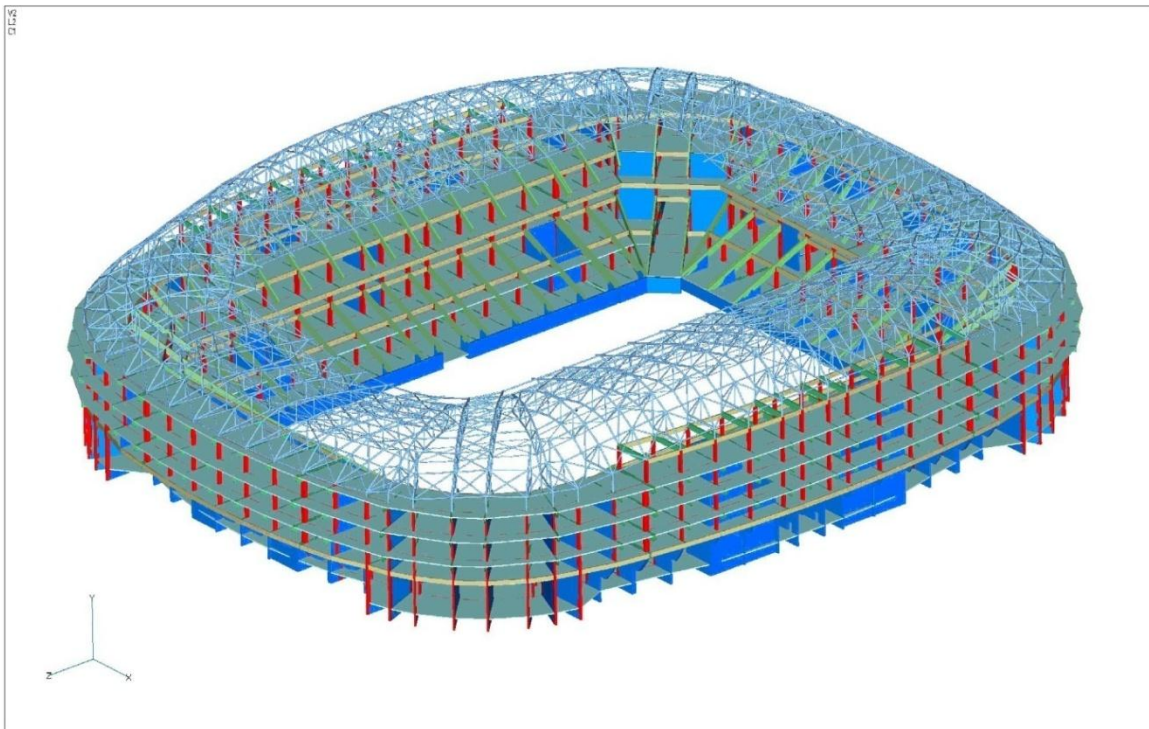
- Roof structure is 3D steel roof trusses.  
Structural analysis and design in SNIP and EUROCODE



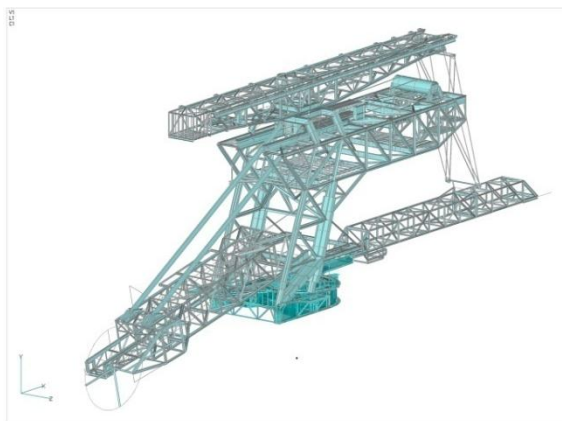
### Football stadium with utility structures Banja Luka, Republika Srpska

Structural system is reinforced concrete and steel frames.  
Model analysis done in **NX Nastran(FEMAP)**, structural analysis and design in **Staad Pro**.

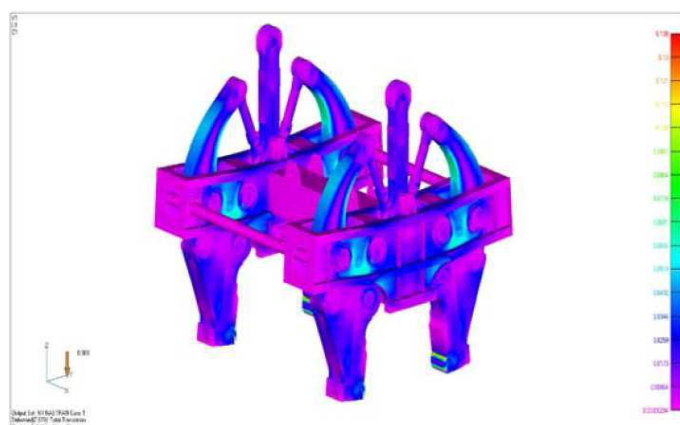




### Design, Structural Analysis and Technical supervision for building of heavy equipment for open mines.



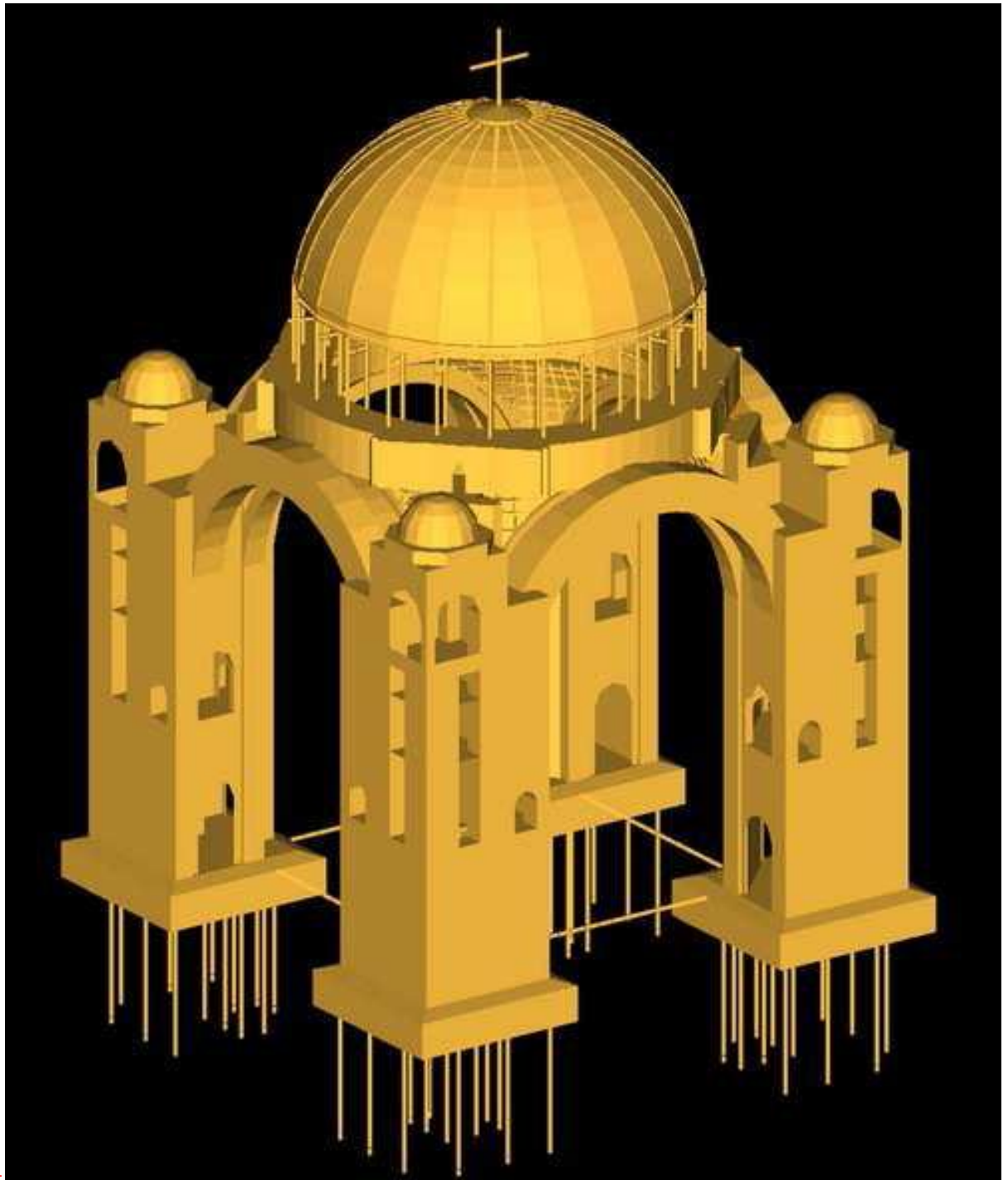
### Load hook mechanism analysis for the 120t bearing capacity crane



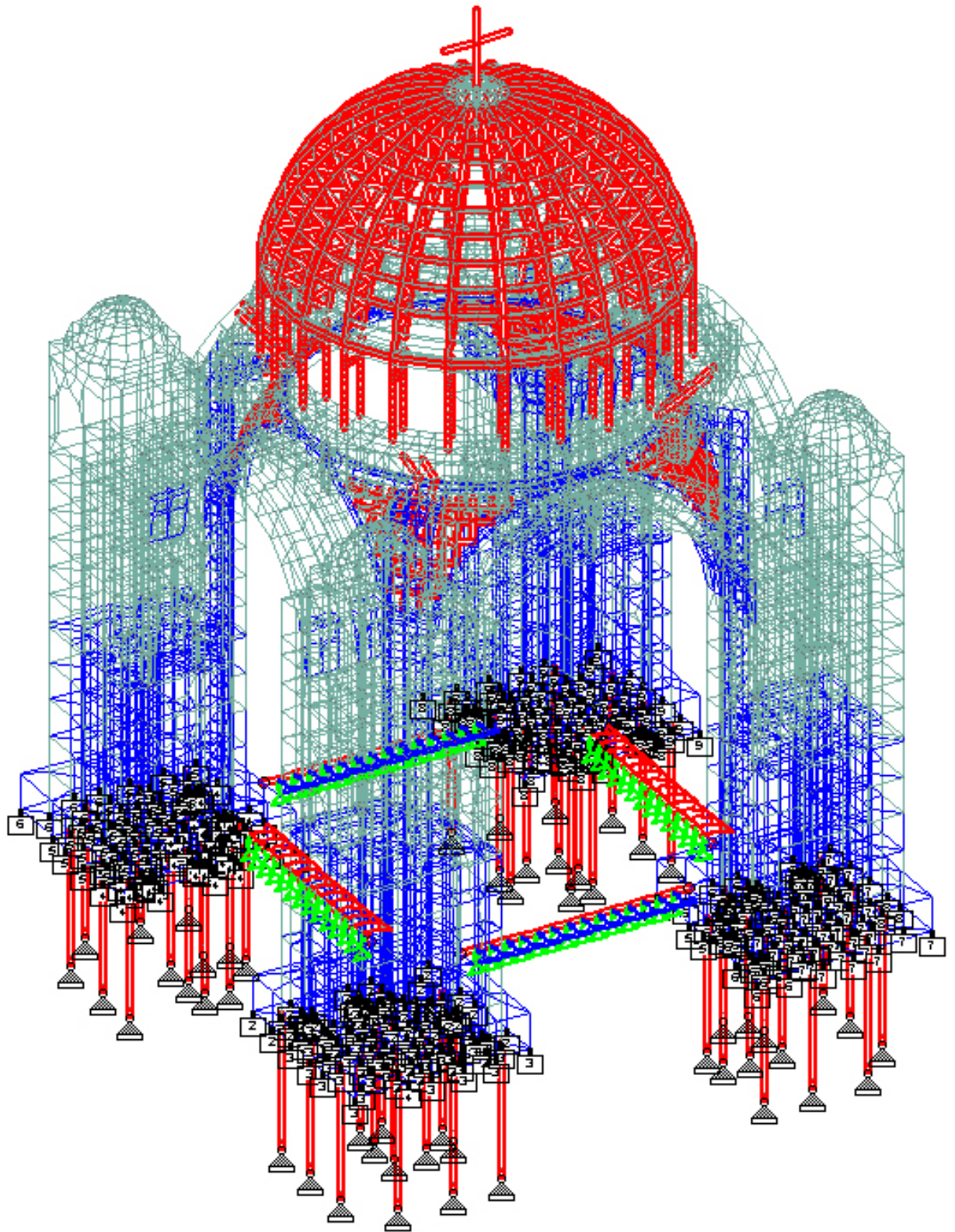
Load hook mechanism analysis for the 120t bearing capacity crane. The load hook weight is 42t. The structure was made for the Russian market. Abilities of contact coupling are used.

### **Saint Sava Church's Dome – Vracar, Belgrade (1999).**

Expert's Analysis of the Saint Sava Church's Dome – Vracar, Belgrade (1999). The Analysis refers to all phases in design and building of the dome, the galleries and the pandantif







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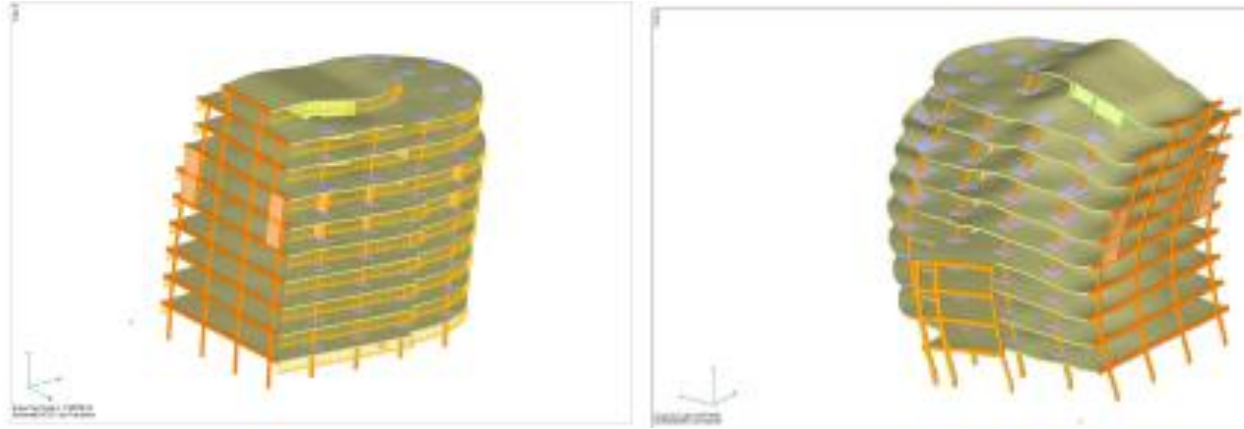
Mesh of the Finite Elements Model for static, dynamic and stress analysis.

Mesh is carried out using a software package, **FEMAP**, and calculation using software **SAAD PRO**.

## Design for Residential Buildings

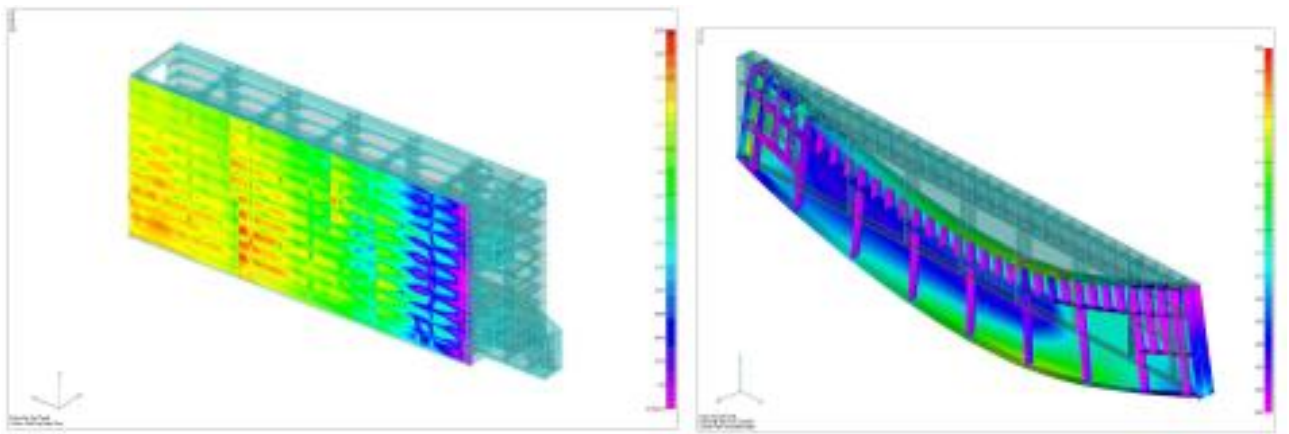
Dynamic (earthquake) analysis for the multistory reinforcement residential/ commercial building in Ljubljana – Slovenia.

Structural and modelling analysis (finite elements method) in **NXNastran(FEMAP)** and **Staad Pro**.

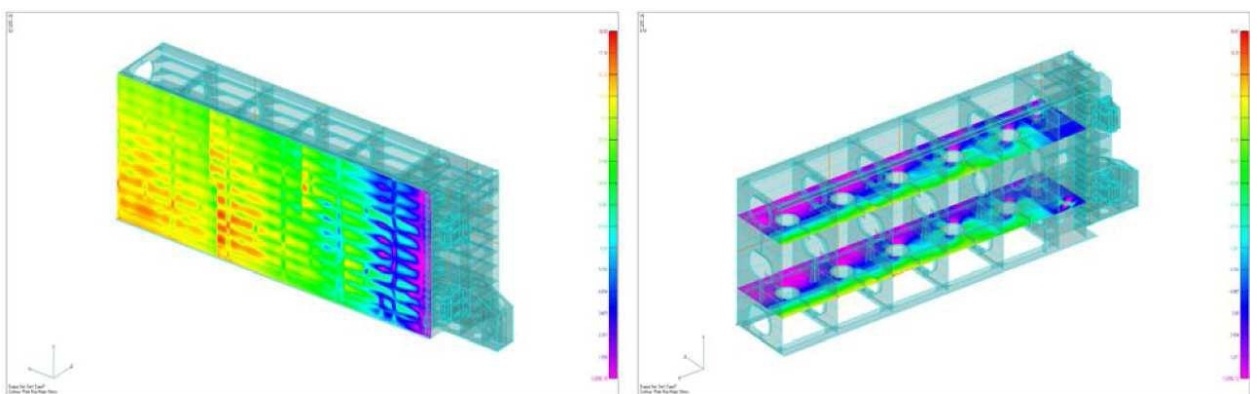


## Control of stress – deformation state in structural elements, slide-shutters and canal locks on hydroelectric plant Djerdap Serbia.

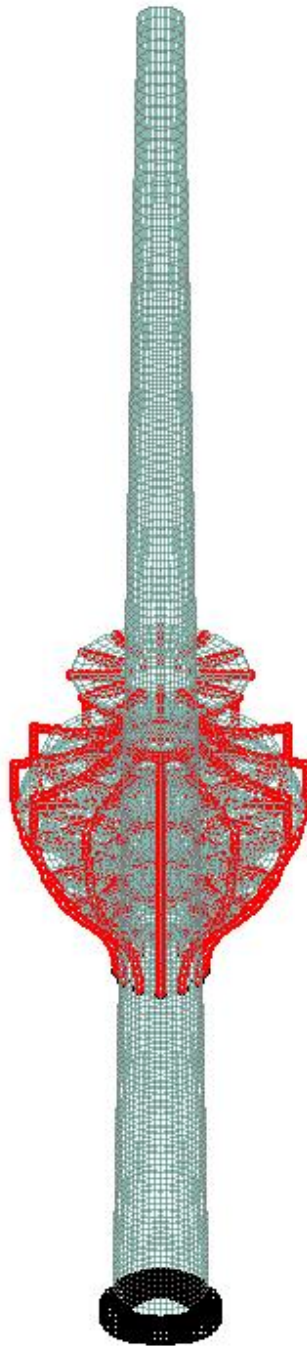
Structural and modelling analysis (finite elements method) in **NXNastran(FEMAP)** and **Staad Pro**.



## Design for the Replacement of the Ship lock for Djerdap Dam (2008)



## Designing Model (FEM/FEA) of Water Tower - Iriski Venac - SERBIA

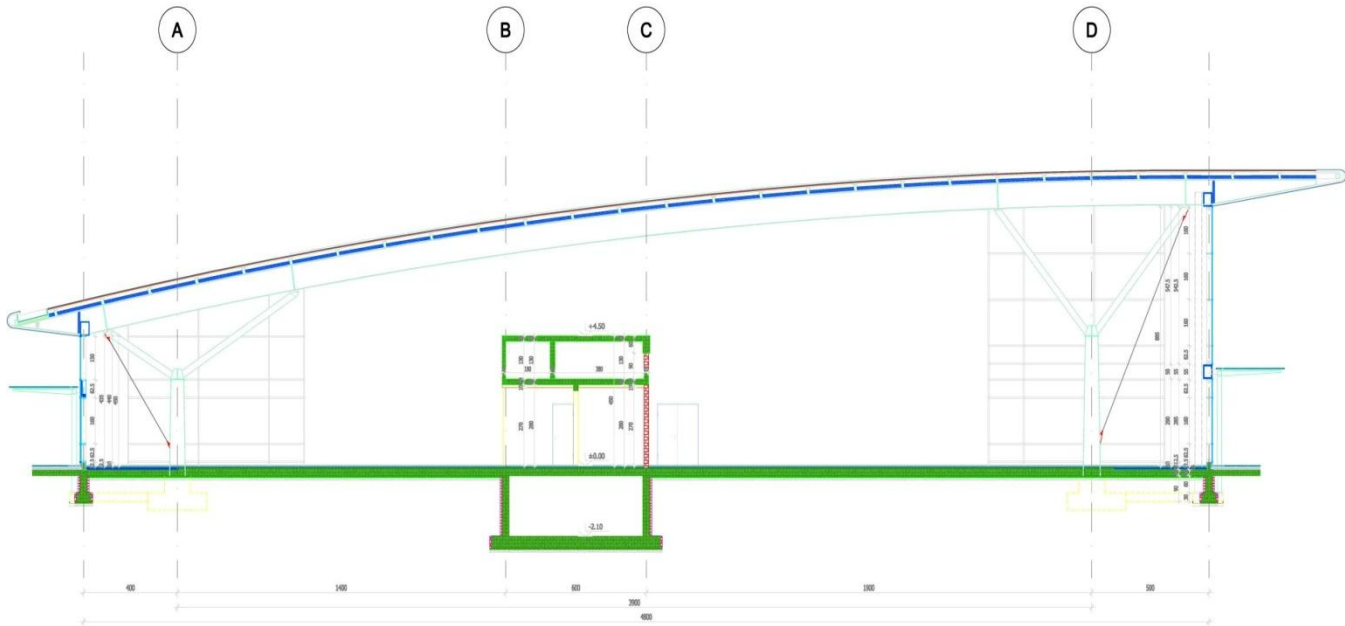
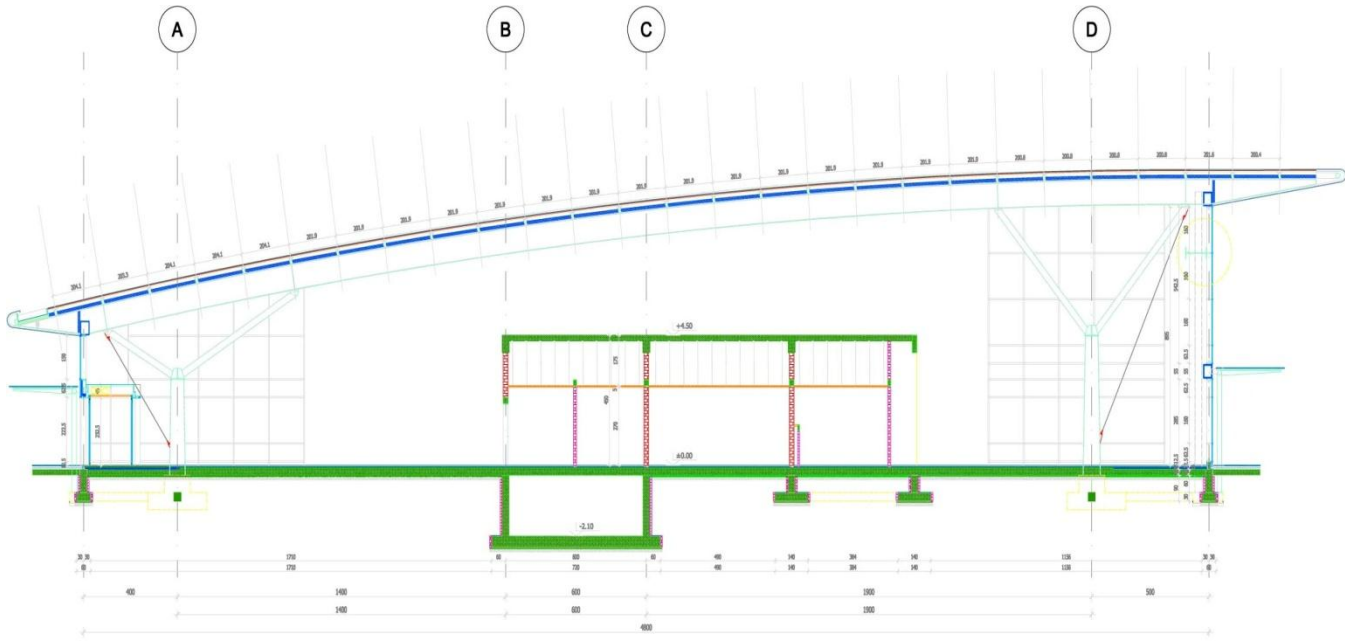


Mesh of the Finite Elements Model for static, dynamic and stress analysis.

Mesh is carried out using a software package, **FEMAP**, and calculation using software **SAAD PRO**.



## Airport Terminal – Podgorica - MONTENEGRO



### Prestressed concrete space structure.(3D).

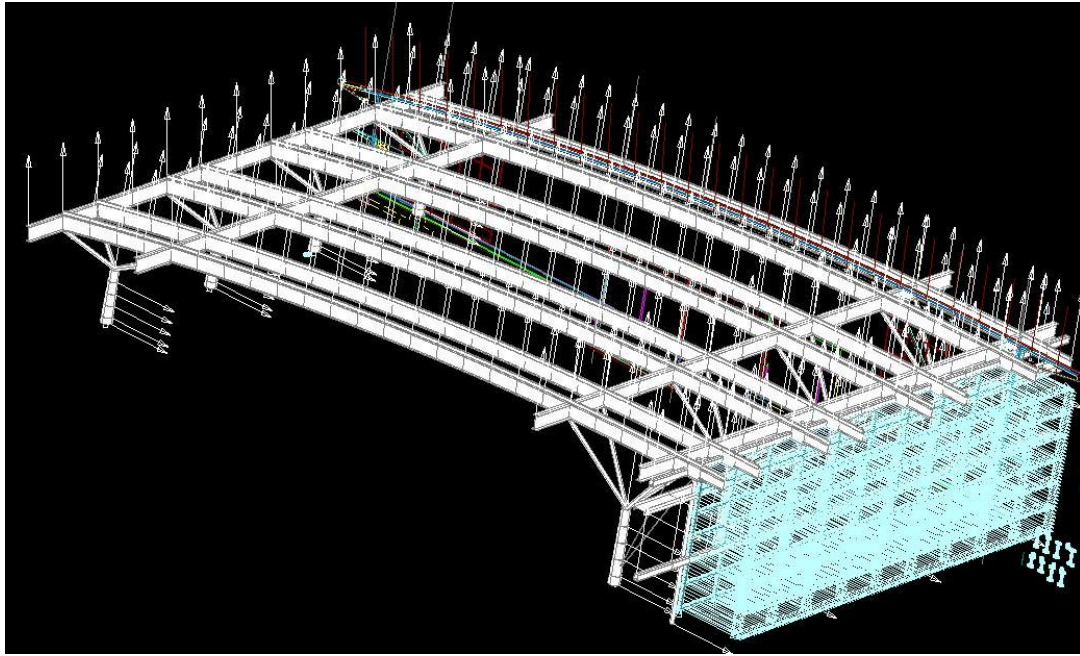
Modelling ,pre / postprocessing (FEA/FEM) in **NX Nastran (FEMAP)**, structural design **StaadPro** .

Statical and dynamical (earthquake) analysis in **StaadPro** .  
Calculations and analysis done by **EUROCODE** standards.  
Shop drawings and details in **ArmCad (Radimpex)**.

Mesh of the Finite Elements with the their orientation.

Mesh of the Finite Elements Model for static, dynamic and stress analysis.

Mesh is carried out using software package, **FEMAP**, and calculation using software **SAAD PRO**.

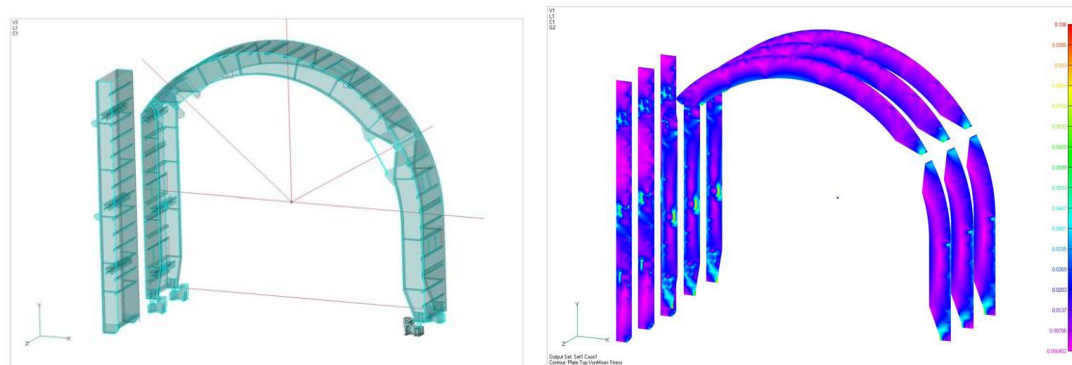


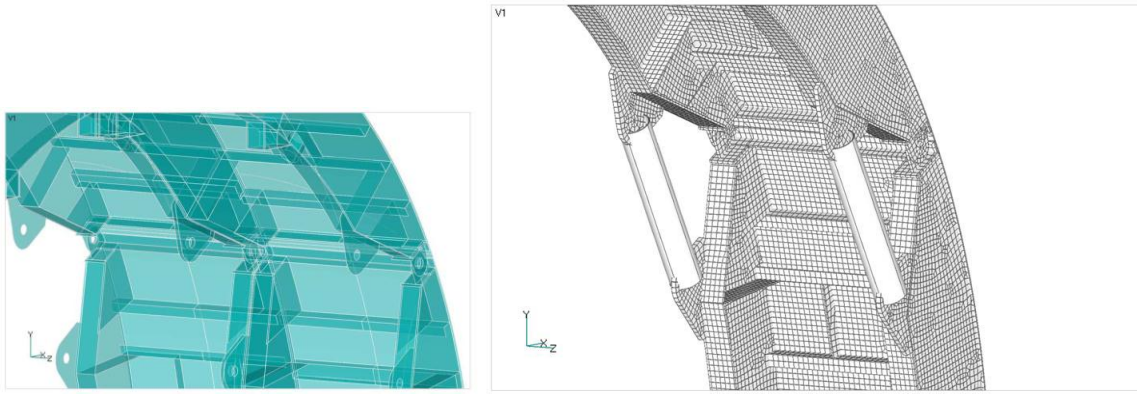
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### Static analysis of tunnel shell –Metrostation KAZAHSTAN II (May 2008)

Calculation model of the tunnel shell segment with stress diagram

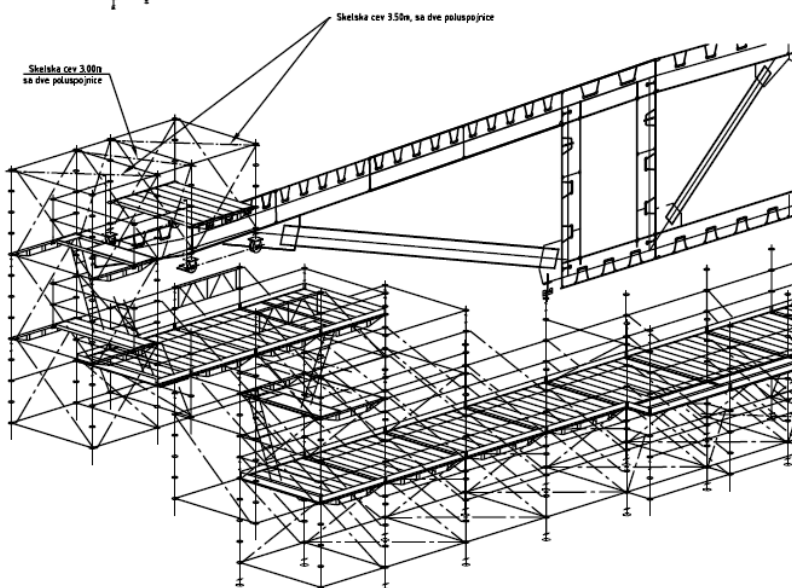
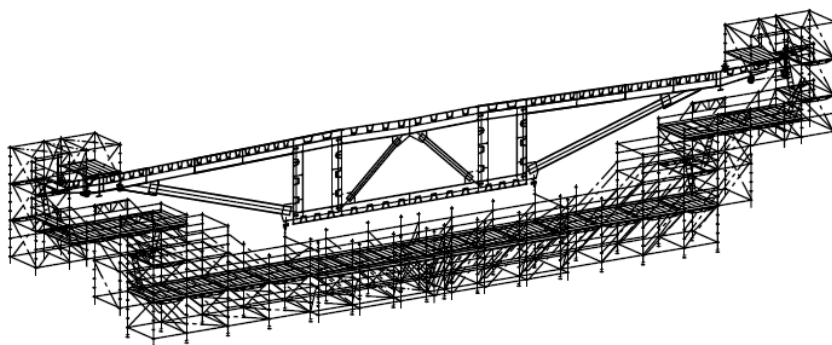
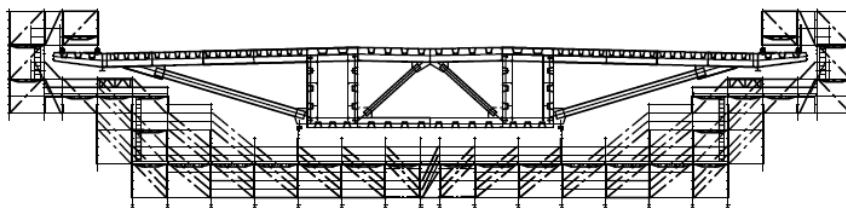
Finite element model and meshing map with FEMAPwith stress image





Mesh of finite elements with the materialization of the cross. sectional members.  
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**Bridge over the River Sava Belgrade.(2010) - Shoring system of the bridge structure.**



Modeling and analysing of structure (FEM/FEA) was done with software software package, **FEMAP**, and calculation using software **SAAD PRO**.