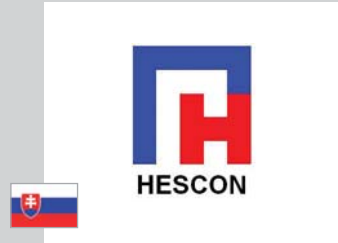


HESCON s.r.o.

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HESCON, Ltd., the design and static office, was established in 2008 by the authorized civil engineer Ing. Erik Hrnčiar.

After his long-term experience in the field of design managing, designing and building of load-bearing structures, the idea was born to gather a strong team of designers and structural engineers, all of whom you can meet in HESCON, Ltd today.

HESCON, Ltd. offers its clients services in consulting, design, engineering from initial study up to the workshop drawing.

The main field of the company is their specialization in the statics of structures.

For designing in 3D, our engineers use the most advanced software:

- Allplan 2011
- Advance Steel 2011
- Scia Engineering 2010.1
- GEO 5.11, RIB, etc.

University Campus - Trnava, Slovak Republic

Description

The extension of building SO 002 and the new building TF STU are part of a large project including the finalisation of building processes and the reconstruction of the university campus in Trnava. The five-storey reinforced concrete structure is 18 m high, 20 m wide and 119 m long and is divided into two dilatation units.

Geological conditions

The geological exploration discovered very leaky loess in the upper part of the soil and at the depth of 10.5 m there is a thick layer of gravel with neogene underneath. The foundation process was on piles leant against the gravel layer.

Foundation structures

The reinforced concrete columns are founded on piles $\varnothing = 0.9$ and $\varnothing = 1.2$ m of the length of 10.5 m with circular chapters 1.500 mm high made of reinforced concrete C25/30. The columns are wedged into the cups of the chapters. Reinforced concrete cores are founded on a foundation slab with a thickness of 300 mm which is supported on its edges by

piles of $\varnothing = 1.2$ m with the length of 9.5 m. In the laboratories on the 1st floor there are separately diluted foundation slabs with the thickness of 400 mm used under machinery equipment which are on the edges supported by piles of $\varnothing = 0.9$ m with the length of 9.5 m.

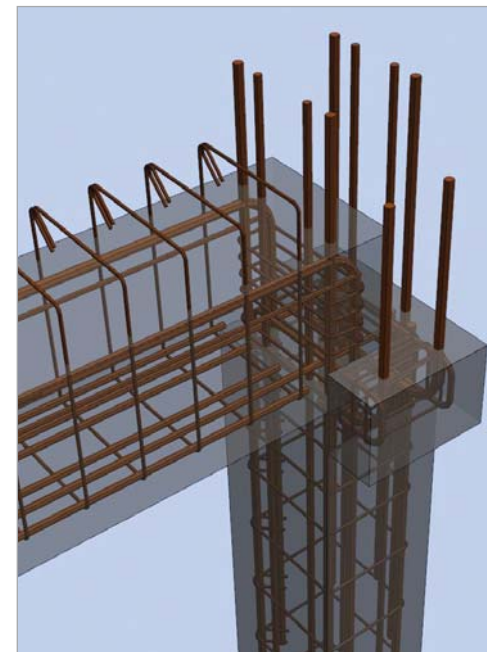
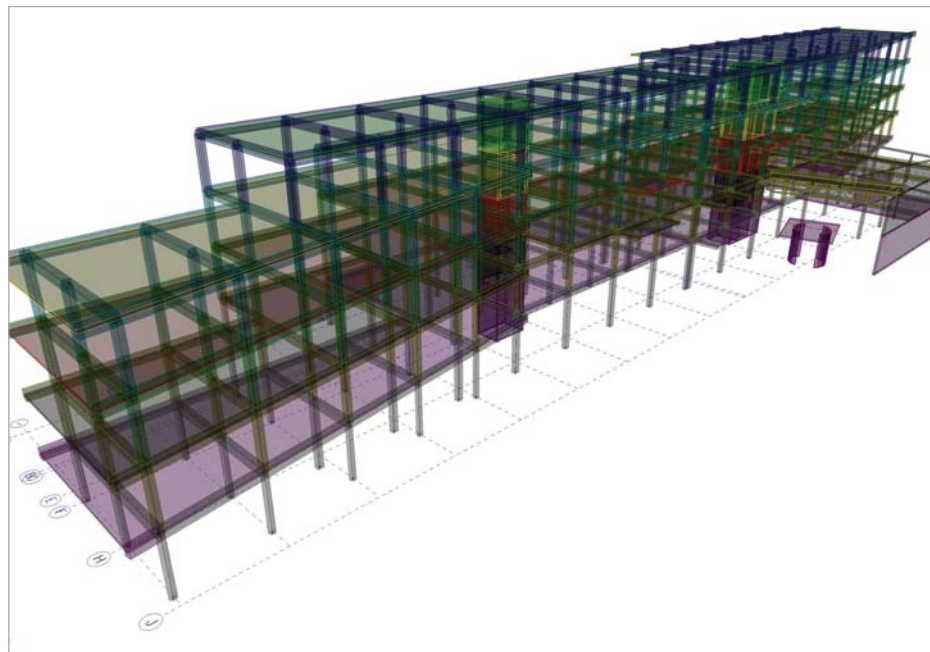
Load bearing concrete structure

The building forms a transverse load-bearing system. The columns of rectangular and circular cross-section have the following dimensions: 380 x 450; 380 x 500; $D = 420$ and $D = 450$ mm support semi-prefabricated beams 450 x 400; 450 x 500; the beams of cross-section I 1100 and 1250 mm high. The stability in the longitudinal direction is provided by perimeter stiffeners 380 x 630 and 420 x 630 mm and monolithic reinforced concrete cores of concrete C30/37 with walls 250 mm thick. The beams and stiffeners are put on the brackets of the columns. The ceiling boards are formed by filigreed boards with the thickness of 60 mm and additional concreting of 120 mm in thickness which, after becoming monolithic, will create one unit with the board. The ceiling board is of concrete C30/37. The distance between load-bearing frames is 6.0 m.

Load bearing steel structure

For the light glassed façade there is a steel truss purlin that serves as a support. The upper and lower chords of this purlin are made from closed square cross-sections.

The connecting hall to the existing object has columns made out of circular profiles and the ceiling is composed of IPE profiles. The load bearing part of the light roof is formed by trapezoidal elements.



Project information

Owner The Faculty of Materials Science and Technology in Trnava
Architect PROMA s.r.o.
General Contractor PROMA s.r.o.
Engineering Office HESCON s.r.o.
Construction Period From June 2010 to August 2012
Location Trnava, Slovak Republic



Short project description

This project represents an extension of existing university premises as well as a new building on the campus 'Material-technological Faculty' of STU (Slovak Technical University) in Trnava, Slovak Republic. The building has five storeys, a height of about 18 m, a length of 119 m and is founded on piles. The load-bearing structure is formed by a semi-prefabricated reinforced concrete structure which is stiffened by a stiffening core. The main problem with designing was to design an optimal disposition and sections regarding the big loads of the load-bearing structure.

