

Conserela UAB

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Nomination

Conserela



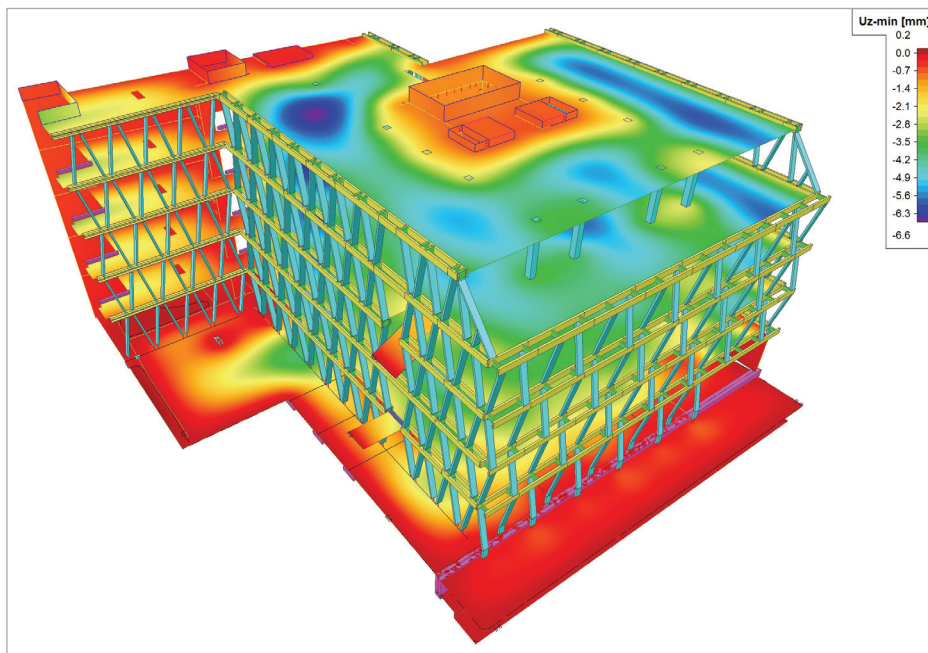
Conserela Ltd - the company name stands for "construction related services".

Conserela Ltd was founded in 2007 in Lithuania.

The company employs skilled project-management and design professionals and provides services as a "Design and Build" Company, project management, general contractor, technical supervisor, financial controller, investor adviser and or design firm.

The CEO and the key persons of Conserela Ltd come from one the biggest Lithuanian

construction companies. They contributed to the company by their experience and ability to manage effectively "design and build" contracts, which they gained during the 12 years of practice as key members in an international project team.



Software: Allplan Engineering, Scia Engineer

Office Blocks Gedimino 35 - Vilnius, Lithuania

Project description

The project is located near the old town of Vilnius. The site consists of three office buildings. Two old buildings are under reconstruction and one is new. The total area of the 3 buildings is 9.860 m². The new part is about 6.450 m² and eight storeys high. Three storeys are underground and five above the ground.

Structural system and geometry

Due to tight dimensions and difficult geological conditions on the site, the architectural solution is geometrically complex: for example sloping slabs in the parking area eliminating the need of deep digging and a challenging external facade.

It was decided to add a load bearing function to the facade, because the introduction of internal concrete columns at the edge of the office area would lead to compromises in the parking space below, which was already very scarce.

The upper part of the structure consists of:

- Reinforced concrete columns 400 x 400 mm
- Reinforced concrete walls 250 - 300 mm
- Flat slabs 250 mm
- External steel facade made of RHS and welded sections connected through special details eliminating cold bridges.

The underground part of the structure consists of:

- Retaining walls made of drilled concrete piles d450 - 600 mm, with a concrete facing wall
- Oval columns 1200 x 500 mm
- Reinforced concrete walls 250 - 350 mm
- Sloping flat slabs and ramps 300 mm.

Vertical elements of upper and lower parts of the structure are connected by a transfer slab at the ground level. There are 1 meter high transfer beams supporting 5-storey-high columns and a shifted reinforced concrete core. The transfer composite beam system is placed to support the inner steel facade part, which itself acts as a huge truss and which supports the edges of the office slabs.

Software used for this project

- Scia Engineer - structural analysis and design according to Eurocodes

- Bentley Structural - 3D modelling, general arrangement drawings, reinforced concrete detailing
- Allplan - reinforced concrete detailing
- Tekla Structures- façade and atria steel detailing (by FMC Probal, Lithuanian branch of FinMapConsulting)

Use of Nemetschek products

The analytical scheme was created in MicroStation and the Scia Engineer ability was used to import 3D DWG files and use them to quickly create structural schemes, detect and fix mistakes made by modelling. Scia Engineer proved its efficiency. Also the possibility to handle such a difficult geometry and the ability to use layers to separate structural elements were perfect in the FEM program.

The main structural scheme enabled our team to assess forces for steel and transfer structures design. The steel structure was checked according to EC3 with Scia Engineer and also by the Steel Detailing Engineer with Excel spreadsheet calculations. Forces for member and connection design with Excel were exported from a Scia Engineer file to a 3D DWG and 3D PDF files which proved to be very easy to use and more preferred by engineers than tabulated data. In this project "Conserela" prepared and checked more than 20 analytical schemes at different design phases and analysis levels including main structural schemes, several detailed parts like transfer structures with part of façade, each floor slab, transfer beams, stairs, walls, the atrium structure etc.

Allplan was also used in this project. The reinforcement of RC structural walls involving complex geometries has been designed with the aid of the Allplan reinforcement module. It helped to reduce the amount of errors and track changes in the wall geometry. Some details were provided to the construction site as 3D pdf files for better understanding of critical places. It was extremely helpful to automatically produce the part lists of the reinforcement elements instead of performing manual calculations.

Project information

Owner	Somenera
Architect	Hackel-Kaape, Trimonis & Co
General Contractor	Lakaja
Engineering Office	Conserela
Construction Period	From July 2009 to May 2011
Location	Vilnius, Lithuania



Short project description

The office complex Gedimino 35 consists of three building structures. Two old reconstructed buildings and one new building. "Conserela" is responsible for the structural design of the new part. The new part has three underground storeys and 5 levels above. The main structural system is a cast in situ concrete frame with flat slabs, reinforced concrete columns, walls and an external load bearing steel facade designed of RHS and welded sections. The facade is connected to the slab through special details to eliminate cold bridges. The foundation of the structure consists of drilled cast in situ piles, pile caps, mats and retaining walls.

