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March 2012

Latest News & Events



- **Allplan Engineering 2012 Shows:**
 - 6/03/2012 in Arnhem (NL)
 - 8/03/2012 in Lokeren (BE)
- **Nemetschek Scia participates at the Seminar German Precast Building Systems for Quick Housing Projects** (Precast and Fast), Saudi Arabia - 12/03/2012
- **Scia invites you** to participate in a 4-days "Eurocodes in Practice Training" (Dutch and French).
- **Nemetschek** will be present at **ICC Latin America** in Florianopolis, 20 - 23 March 2012
- **Nemetschek** will be present at **BRAZIL ROAD EXPO**, 2 - 4 April 2012
- Visit our **Webshop** and take advantage of our **special offers!**
- All you need to know on the Eurocodes... Visit www.eurocodes-online.com
- Are you a **student or professor?** Download **Scia Engineer** for free...

Software Updates

- Customers can download the **latest service packs** from our **secured download section**.
 - Scia Engineer 2011.0.1172
 - Scia Steel 2011 SP2
 - Allplan 2011.1 HF6
 - Allplan Precast 2010.1-3
- Get an **automatic notify** through RSS when a **new Scia Engineer Service Pack** is available. 

Training & Support

- **Free interactive eLearning.**


- **Group trainings for Scia Engineer, M Series, Allplan...** Consult our **training agenda** and register online...
- **Nemetschek Scia Training Centre** 
- Interested in a customized training organised in your company? Please **contact Ms. Inge Wauters**.
- Any questions? Put it on the **Scia Forum!** Register...

Software Gallery

- Kamppi Chapel of Silence - Helsinki, Finland. Thanks to Vahanen Oy

Welcome to the **March 2012** issue of the Nemetschek Scia eNews. We present you the following topics:

- [Are computers better for optimizing structures than design engineers?](#)
- [User Contest 2011 - Winner Special Jury BIM Prize: Inginerie Structurala srl - Orchidea Tower - Bucharest, Romania](#)
- [Tips & Tricks Scia Engineer: Interval for results](#)

Are computers better for optimizing structures than design engineers?

The construction industry is cost driven, yet at the same time it searches for better quality, more esthetics and higher functionality. Combining these apparently contradictory goals is well-known in the world of economics. The discipline **Operations Research** deals with the application of advanced analytical methods to help making better decisions. Operations Research is often concerned with determining the maximum (of profit, performance, or yield) or minimum (of loss, risk, or cost) of some real-world objectives. Originating in military efforts before World War II, its techniques have grown to concern problems in a variety of industries.

So did Scia when starting a research project together with the University of Prague in 2006. From this research project a new algorithm could be developed which is now available in Scia Engineer, as a module named "Optimizer". A Scia Engineer user specifies "what to optimize" (e.g. weight, shape, ...) and chooses the strategy (with constraints). The Optimizer iterates automatically towards the optimum and stores all steps in a table with the best solution highlighted.

Several algorithms from Operations Research were implemented, to name a few: gradient method, Nelder-Mead heuristic method, differential evolution method and others.

And yes, it works. Practical design examples have been worked out (e.g. choice of best post-tensioned cable tendons in a bridge) with amazing cost reductions (> 15%) compared with the designer's proposal.

For those interested in more details, please download our [white paper](#) or [contact Scia](#) for a technical discussion.



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User Contest 2011 - Winner Special Jury BIM Prize: Inginerie Structurala srl - Orchidea Tower - Bucharest, Romania

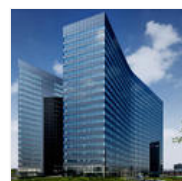
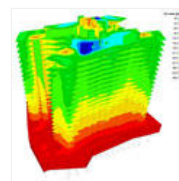
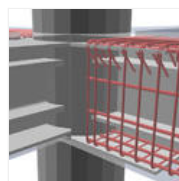
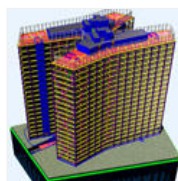
About Inginerie Structurala srl

Inginerie Structurala is a young company specializing in the computer assisted design of complex structures in the structural engineering and industrial field. The main activity of our company is design, consultations and construction expertise. It was founded in 2002 in Bucharest. Through professionalism and seriousness, Inginerie Structurala has gradually become a well-known company on the market. The team consists of 15 experienced engineers who are using software for design (drafting) and for computing the structures against seismic forces, which are predominant in our country.



About the project

The project comprises two adjoining office buildings in the shape of a butterfly. The site is located on the left side of the Dambovitza River where three underground aquifers had to be dealt with. The composite structure will be made out of steel and reinforced concrete. As Romania is lying in a seismic zone, the most important and decisive step was the check of the structure against earthquake. The basements were analyzed together with the superstructure. In this way the entire behaviour of the building was taken into consideration. The soil-structure interaction was taken into account by modelling the soil as a Winkler elastic support area.



Some technical details:

- Gross built area: 77,000 m²
- Total height above the ground: 82.80 m
- Ground floor + 19 floors + 1 technical floor
- Three underground basements
- Typical story height: 3.70 m
- Technical floor height: 4.00 m
- All three basements have a height of 3.00 m

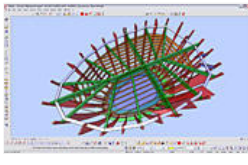
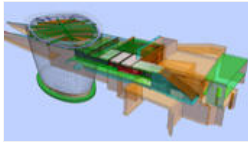
Quote of the Jury: "The spatial tall Orchidea tower structure (butterfly plan) was a nice demonstration of integrated design and dynamic earthquake computation of a composite steel and reinforced concrete structure. Good use of 3D modelling and 3D structural analysis software. The entire behaviour of the structure, also soil-structure interaction, could be taken into account."

- [Play YouTube Movie](#)
- [Download pdf: "Inginerie Structurala srl - Orchidea Tower - Bucharest, Romania"](#)

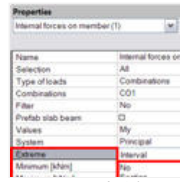
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Tips & Tricks Scia Engineer: Interval for results

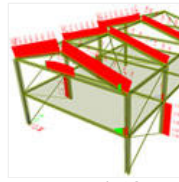
In Scia Engineer 2011 a new option has been added for the representation of results on 1D members. The user is now able to select a



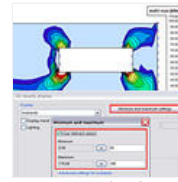
certain range of results. The property 'Extreme' has been extended with a new item 'Interval' in the Properties menu of several result types: Internal forces, Deformations, Stresses, Unity checks. The user can then define an upper and lower limit for the results interval that should be displayed graphically on the screen as well as in the print preview. See [screenshot 1](#).



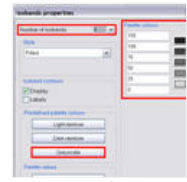
screenshot 1



screenshot 2



screenshot 3



screenshot 4

An example for the Steel code check is shown in [screenshot 2](#), where the interval is chosen between the unity check value 1 and 10.

An analogous option for results on 2D members has been available for a long time. For the result types Internal forces, Deformations, Stresses, the item 'Drawing setup 2D' is available in the Properties menu. Click on the [...] button to open the setup window. Via [Minimum and maximum settings] the user can select an interval to be displayed on the screen, with or without the extreme zones in a uniform colour. Don't forget to select the option 'User defined values'. See [screenshot 3](#).

A second option is to choose 'User-adjustable palette values'. Via [Advanced settings] the user can then modify the number of isobands and their limit values, as well as their colours. Some predefined palette colours are also available. See [screenshot 4](#).

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Free Tryouts

► Via our webshop we offer the following **Free Tryouts**...

- **Scia Desk**
- **Friolo Statics**

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