SCIA scientific software

eNews

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<printable version>

NEWS

- Resulting from our continuous growth we have new openings for a **Project Engineer** and for a **Regional Head of Sales**. **If interested, please go to our vacancies**

- We kindly invite you to read our White Papers:
  » **AutoDesign and Parametric Structural Optimisation** Breakthrough technology in SCIA•ESA PT 2008
  » The **ODA** philosophy in Practice.
  » **Chapter Maker**

  more …

EVENTS

- » The new version of **Allplan Engineering 2008** will be presented on the 13th of March! Note it down!

- » SCIA participates in the '**Nationale Carrièrebeurs 2008**' on the 14th and 15th March. **more …**

- » On the 10th and 15th April, SCIA organizes a **releaseday "SCIA•ESA PT"** in Belgium. Note it down!

UPDATES

- Customers can download the following **service packs** in our free **download section.**

- » **SCIA•ESA PT 2007.1.170**
- » **ESA-Prima Win 3.100.170**
- » **Allplan 2006.2_3**

- » **SCIA•Steel 2007 SP1** Customers can download it in our **secured download** section.

TRAINING

- » **SCIA•ESA PT** Basis course Finite elements Tips & Tricks Concrete Dynamics

- » **Allplan** Basis course (14th & 15th April 2008)

  Agenda and online registrations …

GALLERY

- **Scaffolding within SCIA•ESA PT**

  Thanks to SGB (NL)

Dear reader,

Also this month there is a lot of news from de construction world.
We will put you in the picture about the globalization of the construction industry, in particular the expansion to the East. We will take you all the way to Bratislava and India … We will also introduce the **'Railing modeller'**, a new functionality within Allplan that has a lot of possibilities.
Furthermore we will show you the figures and results of the consulting agency **Cambashi. They examined the market growth in engineering applications**. In this edition the **'One Colement Street'** project of Decomo is put in the picture. An impressive project, which will definitely appeal to all of you thanks to its magnificent sight.
And finally we have some more tips for you regarding the buckling ratio for steel structures.

We wish you a lot of reading pleasure with this March edition!

- » Corporate News: SCIA moves eastward
- » Product News: Railing modeller in Allplan – parametric modeller for linear elements
- » The Market: Research & analysis consulting agency Cambashi
- » Customer Project: One Coleman Street - Decomo
- » Tips & Tricks: Buckling ratio for steel structures in SCIA•ESA PT

Corporate News: SCIA moves eastward

The construction fever is high if one looks in the eastern direction.
This is the case in Europe if one observes the growth in Eastern Europe; most countries that recently joined or will soon join the European Community see **a rise in investments in infrastructure, energy power stations and general buildings**. SCIA has a major staff in its offices in the Czech & Slovak Republics and is working with competent partners in Romania, Croatia, Greece, Ukraine and Latvia. More than thousand clients are registered in this area, with renowned companies such as Excon a.s., Hutni Projekt, Skanska, Metrostav, Vitkovice, Dalekovod, etc.
The East goes beyond Europe, passing the Middle East to arrive in Asia. **In the United Arab Emirates SCIA is stepping up its activities. A new regional head of sales, Charles Wilby, has been appointed recently (read more …)**. SCIA is servicing well-established companies such as Mammut Group and Kwik Steel Structures.

In India SCIA is stepping up its activities together with its partner CSI, having offices in Chennai, Mumbai, Delhi and Kolkata. There are over 20 companies who started using SCIA software, amongst them important companies such as the Nuclear Power Corporation of India and Holtec Consulting.

The globalization of the construction industry is driving our company towards faster internationalization. At the same time our efforts for localization (codes, languages) are extensive. Being a learning organization, all these experiences are enriching and drive us to become a world leader in Engineering Modeling & Design software.

▲ top

Product News: Railing modeller in Allplan – parametric modeller for linear elements

In modern designing, parametric modelling gains more and more importance.
As everything has to go faster and as the contractor wants to keep his flexibility until the very last moment, it is important that the designer disposes of the best tools, allowing him firstly to quickly create a model and, very important, giving him the possibility to adapt it afterwards without tears.

Since version 2006 of Allplan, users disposed of various parametric components in the Additional Modules, namely **"Parametric 3D-components"** and **"Bridge and Tunnel Modeller"**. Also in the field of reinforcement the user had an extended set of collision free cages of reinforcement at his disposal, this by using the function "Groups of bars with Formfinder". The templates of the module "Steel design" (SCIA•ESA PT templates for use within Allplan) offered additional possibilities for steel structures.

In the 2008 version, these Steel-templates are extended with some Concrete-templates; in this way also the concrete engineer has the means to apply the strength of parametric ESA models in his projects.
Last but not least, the module 'Architecture' obtained its own parametric modeller for linear elements:
the Railing Modeller.

One could imagine that this functionality is only meant for the modelling of rails, fencings and balustrades, but this functionality also offers a lot of possibilities for the engineer. The linear character of the modeller relates to the composing elements and not to the entire track; in this way curved projects with circles, bows and splines do not pose a problem what so ever. Even 3D polygons can be used as a path.
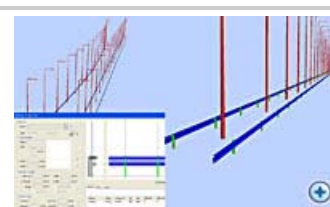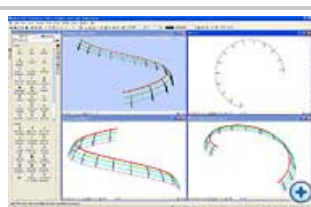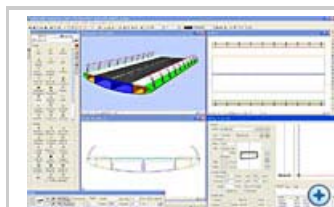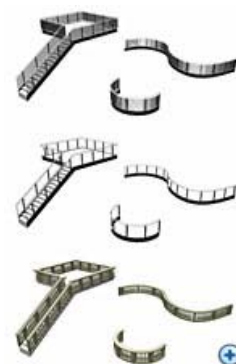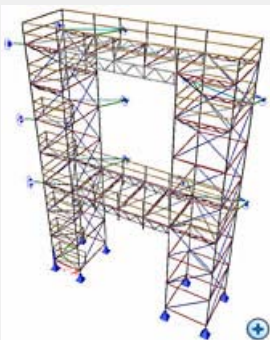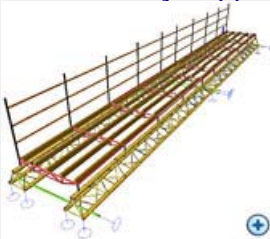
Beside the above mentioned possibilities, it is possible to model each structure that can be divided in linear elements, with this function. Further in this article is added **an example from the road construction sector** (the placement of crash barriers or lighting systems along a track) **and one from civil engineering**.

It is clear to see that it is possible to create a very advanced design of a bridge with this parametric modeller, all composing parts are treated as separate elements within the design and their position is parametrically fixed. This way it is possible to intervene at any time in the design as well as on the track; this strongly enhances the flexibility of the user.

▲ top

The Market: Research & analysis consulting agency Cambashi

The research and analysis consultants Cambashi released their latest figures about the engineering and enterprise IT applications market. The company estimates that in 2007 the revenues of all disciplines, engineering applications software providers in the European, Middle East and African (EMEA) region grew 7% to nearly Euro 3.0 Bn. In 2008, Cambashi forecasts a similar growth, to over Euro 3.2 Bn.

The engineering applications software market includes tools to assist mechanical, architectural and infrastructure design. Architecture, engineering and construction (AEC) is the fastest growing and second biggest segment of the market. In 2007, it grew 16% to nearly €460m. Cambashi forecasts that, in 2008, it will increase by 11% to around €510m.

Focus on Architecture, Engineering and Construction

Cambashi believes that the market is growing quickly because of two related factors. First, users are beginning to transition from the 2D "electronic drawing board" technology to the 3D building information modeling (BIM) technology. Secondly, users in the AEC industry are demanding that the different software tools used by different design disciplines integrate better.

**Acquisitions to integrate engineering disciplines**
Recently, the biggest software developers in the AEC space have acquired niche applications software developers that develop tools for complementary engineering disciplines. They understand the need for seamless data integration to help users obtain benefits from BIM.

Cambashi's research suggests that many users already have multiple design tools available on their desktops. The challenge for users in the next few years will be to decide the balance between a best of breed and a single integrated supplier strategy.

Nemetschek – Central European Champion
Nemetschek, with AEC revenues of over €121m for 2007, is the largest European based AEC competitor to Autodesk and Bentley.

Leading AEC providers. 2007 Revenues Turnover in Millions Euro (Cambashi sources)
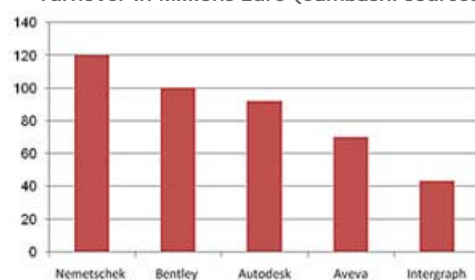
Following the early 2006 acquisition of Graphisoft, based in Hungary, revenue in EMEA grew 38% in 2007. In 2008, Cambashi predicts a growth of around 8%.

Nemetschek has also made a series of niche developer acquisitions over the past few years to add structural steel and civil engineering applications to its portfolio. SCIA International (Belgium) is an example of this.

About Cambashi
Cambashi, based in Cambridge, provides independent research and analysis of the business reasons to use IT in industry worldwide. Its specialist fields include Engineering and Enterprise applications and the infrastructure to enable industrial firms to use IT effectively. Cambashi publishes market size estimates in the Engineering Applications Market Observatory.

▲ top

Customer Project: One Coleman Street - Decomo

SCIA Customer: Decomo Ltd
Owner: Stanhope plc
Architects: David Walker Architects Ltd / Swanke Hayden Connell Architects
Contractor: Bovis Lend Lease
Mounting: PCE Ltd

About Decomo
Located in Mouscron (Belgium), **S.A. DECOMO** is a member of the RVM-Group and specializes in the **design and production of pre-cast architectural concrete**. The company has established an extended business network in six European countries: Belgium, the Netherlands, Luxemburg, France, Germany and the United Kingdom.

About the project: One Coleman Street
The Decomo UK Ltd's project at One Coleman Street, London, in the heart of the city's financial centre, is both unusual and striking in appearance. Decomo had been awarded with this project as they provided all the technical expertise and manufacturing quality. At the core of this feeling of confidence were the demonstrable capabilities of their in-house design office and the use of the **Allplan** drawing software. Due to **Allplan** they could 'crack the geometrical code' and produce a 3-Dimensional simulation of a typical bay on the building.
The 17,000m², nine-storey office building is ovoid in shape with views out on all sides. With just two internal concrete columns and a steel frame, it has a remarkably efficient net-to-gross space ratio of 89%. But most striking of all is the exterior of the building.

This appearance is achieved by irregular and highly polished pre-cast concrete

sections. Decomo had to design and produce all **425 pre-cast segments**, comprising columns and spandrels. Amazingly, no single shape was repeated more than six times across the whole structure of the building. The pre-cast units are impressive. The biggest columns weigh 7.5t. These sit from ground level to just below the second-floor slab. Above this, the columns are single-storey high and weigh 4t. The spandrels weigh about 3.8t and are about 4.6m long.

Decomo's works were completed ahead of schedule, without the occurrence of any unforeseen fabrication, installation or other problems. This was due, in no small part, to the benefits of using **Allplan software** in the interpretation, design and detailing of Decomo's works package.

▲ top

## Tips & Tricks: Buckling ratio for steel structures in SCIA•ESA PT

The user who performs a first order calculation, has to take care that a correct input of the buckling ratio ky and kz is ensured. These values can be calculated by SCIA•ESA PT if certain conditions are satisfied.
In the other cases, it's possible to input them manually.

This manual input can be done by choosing **'Steel > Beams > setup'** or via the property menu of the concerned beam by clicking the option 'Buckling and relative lengths'.

A third – more recent- method is via the **Member buckling data** in the steel menu.

If the buckling ratio do not satisfy the conditions for the automatic calculation by SCIA•ESA PT (see Steel code check – Theory), then these **can be calculated through the critical load coefficients**.
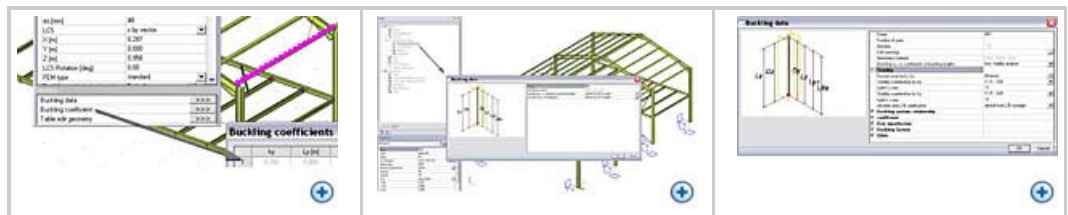
Here a trick can be used in the buckling data. After a stability analysis is performed, it can be applied in the buckling data.

Next, the calculated/inputted coefficient can be claimed.

Archive Tips & Tricks

▲ top

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▲ top