SCIA scientific software

eNews

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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.

more ...

EVENTS

» SCIA participates in the fair "**Build-IT, Batibouw**" in Brussels on the 28th, 29th February and 1st March. **more ...**

» The new version of **Allplan Engineering 2008** will be presented on the 4th March! Note it down! More info will be given later on our website.

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

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** EC3, practice and theory Finite elements Non-lineair calculation Tips & Tricks Concrete

» **MSheet** Basis course (29/02/2008)

Agenda and online registrations ...

GALLERY

 Roundtrip Engineering between SCIA•ESA PT and Allplan. **Thanks to our partner Sigma Projekt (HR)**

Dear eNews reader,

We would like to take action about the resolutions we made for this new year.

First of all, we explain how important **interoperability** is for **BIM**. Further on we are happy to inform you that the new release **SCIA●Steel 2007 – service pack 1** is available. You will also become acquainted with the final project of a student of the KaHo Sint-Lieven (B) who has won the **first price** thanks to an impressive project that was calculated with **SCIA●ESA PT**.

Enjoy reading!

» Corporate News: Interoperability, a basic necessity for B.I.M. (Building Information Modelling)
» Product News: SCIA●Steel 2007 service pack 1 is now available
» The Market: Construction in France, towards a more moderate growth in 2008
» Calculating a prestressed concrete bridge in SCIA•ESA PT
» Tips & Tricks: How to draw a 3D polygon with Allplan

Interoperability, a basic necessity for B.I.M. (Building Information Modelling)

In construction there are always many parties involved; architects, engineers, contractors, authorities, suppliers, etc. "Many parties" mean a lot of redundant communication, transfer of data (design, details, bill of material, ...).
An efficient method of gaining efficiency and improving quality is to use digital sharing of data.
There are several levels of interoperability.

- A basic level is to **enable users to export and import data in their application software**; e.g. a CAD application – let us say for reinforcement drawings – should be able to read the design data from a CAE software – the required necessary reinforcement as in structural members.
- A second level is the ability to **use standard exchange formats** in order to enable users to read and write data to a large number of programs. In this level the IFC (industry foundation classes) exchange technology is to be considered.
- The most advanced level is the **direct link between different software applications**: the data, including application logics, is shared between at least two programs. For example 'Roundtrip Engineering', by which a structural model is shared between a CAE and CAD program.

At SCIA we offer all 3 levels of interoperability to our users. Depending the level of sophistication of the third party software, SCIA is offering the best possible exchange of data, with software applications like AutoCAD, Revit, Tekla, Allplan, …

To facilitate the communication flow of data & documents, SCIA is offering with think project! an internet platform for enhancing the workflow beyond the individual company IT systems.
Our advice: interoperability is a central point of interest to start adopting B.I.M.

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Product News: SCIA●Steel 2007 service pack 1 is now available

SCIA●Steel has started the new year with the release of SCIA●Steel 2007 – service pack 1 (version 9.0). This version contains new functionalities for everyday use.

Here is an overview of the extensions and changes:

DSTV import (all modules)
The translation routine of material names in the imported file to SCIA●Steel names has become more flexible.
In certain circumstances the user can now choose the required material. Before, this was always determined by the program.

DSTV NC import (all modules)
Importing plates with contours completed with profile trimmings ('t', 'w' check marks in the DSTV file) is also supported now.

Import- export CAD list of materials
Users of the CAD list of materials will also notice that the import/export of the surface treatments now occurs on the basis of the abbreviation and no longer of the description. When one receives data of the CAD list of materials from third parties, the required attention should be paid to this.

Supply module

Booking the stock: the design of the 'booking window' was changed and extended with more fields that can already be entered during the booking.

Booking elements in and out in the stock is now protected with new user rights.
In the previous versions only the presence of the license was checked when booking in and out, whereas now two conditions have to be met in order to enter/remove something in the stock: the presence of a license and the import/export duty. The upgrade procedure of service pack 1 is designed in such a way that the
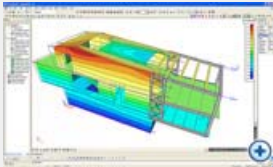
right to book in and out is automatically attributed to all users so that the application will work in the same way after upgrading.

User	User name	Code	Libraries	Database tools	Preferences	Delete Project	Report Edit	Material library	Positions Edit	Stock (Book in/Book out)
SCIA	SCIA	B	✓	✓	✓	✓	✓	✓	✓	✓

You can **download service Pack 1 for SCIA●Steel 2007** (version 9.0) from our Website.
If you have a maintenance contract, but you don't have a user name and password you can apply for it **here**.

> **Note:** service pack 1 for SCIA●Steel 2007 (version 9.0) can only be installed when SCIA●Steel 2007 (version 9.0 or higher) is already installed. For further questions you can always contact CIM support: +32 13 35 03 20.

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The Market: Construction in France, towards a more moderate growth in 2008

According to figures of the Ministry of Ecology, Development and Durable Planning, **the construction sector knew a big rise in activities in 2007 with 171 billion Euros of sales turnover**, a rise of 4,3% compared to 2006. For 2008, the growth should be more moderate.

Last Thursday, the Minister concerned greeted the continuation in 2007 of the growth of the activity of the construction sector.

"These results show **a growth rate of 4,3 %**, that is the double of the whole economy as well as the **creation of 60.000 new jobs in the sector** according to the minister in an official statement. Hospitals, offices and the order of the local communities represent the most dynamic sectors". The whole of the construction sector accounts for 10% of the national production.

The sector is headed by the public works section, where the growth reached so much as 7,3 % in 2007 compared to 2006, with a sales turnover of 35,9 billion Euros, while the building sector knew a growth of 3,5 % and up to 127,8 billion Euros. This growth "profits particularly from the vitality of the investments of the local communities (+8%) of the private companies (+7%) and of the motorway building companies (+19,5 %)".

A less favorable 2008
This increase could continue in 2008 but in more moderated way, with a growth ranging between 2,1 and 3,2% and from 22.000 to 41.000 created jobs (+1,4 to +2,5%). "**The year 2008 will know a more moderate scenario with a deceleration of the growth**", as explained by the director of Economic and international affairs of the Ministry for Ecology, Development and Durable Planning.

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Calculating a prestressed concrete bridge in SCIA•ESA PT

Yearly, on 'Concrete Day', the **'Belgische Betongroepering'**, the Belgian Concrete Organization, awards two thesis prizes. **The prize in the category "Academies" was awarded to Ms. Kim van Tittelboom (KaHo Sint–Lieven, Belgium) for her work 'Calculating a prestressed concrete bridge'.**

Kim chose the SCIA software "SCIA•ESA PT" to perform the calculations.

Summary of the study
In this final project the recalculation of a non-approved design of the **Tweede Scheldebrug in Temse (Belgium)** is performed. **This hyperstatic structure consists of six linked up prestressed concrete tubes**.

In the first stage the loads on the road bridge were determined by applying the codes NBN B 03-101 (loads of constructions - road bridges) and NBN B 03-002 (wind load on constructions). Then the most loaded tube was determined. By means of the finite elements method (SCIA•ESA PT) as well as the Bares-Massonet method a comparison of the results was made.

Afterwards the most adverse position of the convoy was determined with the help of influence lines.
SCIA•ESA PT was used to determine the influence lines.
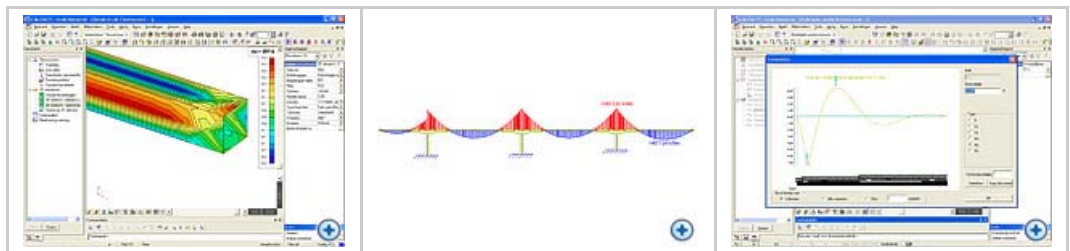
After determining the loads on the most loaded tube, the load combinations were written out and the envelope moment line was formed. Prestressed structures are dimensioned in the service limit state. A rare load combination was used.

Then the course of the prestress tendons was established. This course had to approach the form of the envelope moment line as good as possible and had to be chosen in such a way that the allowable stresses in the bridge were not exceeded. When the stresses in the structure were determined, the immediate and time-dependent prestress losses were taken into account.

When determining the effect of the prestressing in the hyperstatic structure, two different methods were used. On the one hand exterior actions were put on to the structure, on the other hand the module 'prestressing' in SCIA•ESA PT was used. The results of both methods were compared to each other.

In a next stage, the structure was checked on failure due to bending and shear force.

After these general calculations two structural parts were examined in detail. A design of an end block was made. When studying the anchorage zone, the "short-beam"- analogy and the equivalent symmetrical prisms method was used.

SCIA Quick Poll

What should we add more to this website?

○ References
○ Software files
○ Tutorials
○ Movies

Vote

View Results

As a second design detail, the joint between the cantilevers and the central parts were examined. Both the reinforcement necessary to include the tensile forces in the anchorage zone was determined as well as the reinforcement needed to enable the console action between both elements. When dimensioning the console, a frame model with traction/pressure members was used. After determining the required amount of reinforcement near the joint, a reinforcement scheme was drawn up.

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Tips & Tricks: How to draw a 3D polygon with Allplan

This tip shows you how simple it is to draw a 3D polygon with Allplan. With a 3D polygon, you can model complex 3D volumes such as double curved roofs or railings of a spiral staircase.

Step 1. Start drawing the top view of the 3D polygon in 2D, for this the default 2D functions are available: line, circle, polygon, clothoid, …

Step 2. Divide this 2D polygon in different elements with the function Divide element, which you can find in the module Site plan.

Step 3. With the function Measure (Ctrl+Alt+M) you ask the length of the element of the 2D polygon.

Step 4. With the help of this length, you can draw the slope profile.

Step 5. With the function Change height of the symbol point from the module Site plan you have the possibility to change the height of the points according to the slope profile.
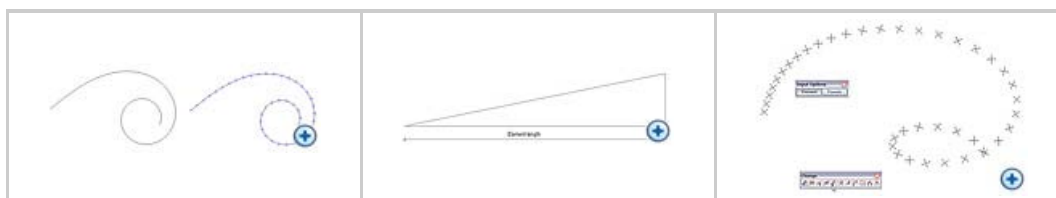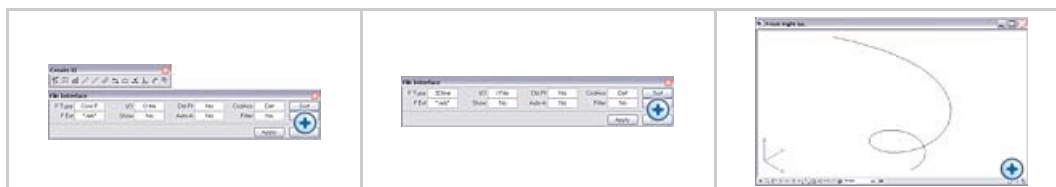

| Step2 | Step 4 | Step 5 |

Step 6. To put these 3D points into a 3D polygon, you first have to export the 3D points with the function File interface from the module Overview.

Step 7. To read these 3D coordinates as a 3D polygon, you use the function File interface from the module Digital terrain model, with the settings shown on the picture.

| Step 6 | Step 7 | Result |

The result is a 3D polygon. It is possible to use this 3D polygon as a course for a polyline sweep solid.

Archive Tips & Tricks

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