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April 2010

Latest News & Events

- Read our **2 new Solution Sheets** on "Design of concrete structures according to the Eurocodes" and "Design of prestressed concrete".



- Nemetschek Scia organises a four-day seminar "Eurocode in practice" in the Benelux.
- 2010 is the year to switch to the Eurocodes. Read Scia's explanatory note on the Eurocodes.
- Scia invites you to participate in the survey: "Users of Software for Design and Engineering".
- Are you a student or professor? Download Scia Engineer for free today.
- Scia Engineer, certified conform to the Eurocode 3 (EN1993-1-1) by the French CTICM.

New Software Updates

- Customers can download the latest service packs in our [secured download section](#).
 - Scia Engineer 2010.0.236
 - Scia Steel 2009 SP6
 - Allplan 2009-1-2
 - Allplan Precast 2008.2a2
- Get an automatic notify through RSS when a new Scia Engineer Service Pack is available.



Training

- Free interactive eLearning.



- We offer group trainings for Scia Engineer, Scia Geotechnics, Allplan... Please consult our [training agenda](#) and [register online](#)...
- Interested in an individual customized training at your offices? Please contact Mrs. K. Verhille.
- Online training calendar 2010. Subscribe online...



- Any questions? Put it on the Scia Forum! [Register](#)...

Dear eNews reader, this month we present a special on "Scaffolding", but first Scia invites you to read the latest news on the Eurocodes...

- Eurocodes become the Euro Standard
- Solutions for maintenance and construction with scaffolding
- Shopping Centre Sint-Janspoort in Kortrijk - Kaefer (BE)
- Scia Engineer Tips & Tricks: Scaffolding - Coupler check



Eurocodes become the Euro Standard

The official start date for implementing the Eurocodes in most European countries is 1st of April 2010; Europe would not be Europe if the real implementation wasn't more complex than that. In fact each country has prepared the national annexes, some of them are still being prepared; some countries have a different interpretation of what the legal effects are by introducing the Eurocodes.

But overall the converging to the Eurocodes is a fact. Scia has prepared this historical moment carefully and will launch in the coming weeks several initiatives on "Eurocodes become the Euro Standard".

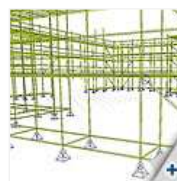
Watch your emails for more information and details!



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Solutions for maintenance and construction with scaffolding

A major shift is ongoing in the construction industry towards maintenance of existing infrastructure and industrial equipment. Be it civil structures (bridges, tunnels, towers), plant equipment (tanks e.g.), ships, aircrafts or buildings, renovation and repair work is a must. In many cases the contractor needs access to structural parts, usually not within easy reach, and uses therefore scaffolds. In principle there are two main types: 'tube-and-fit' and 'system' scaffolds. Scia gives an answer to the following questions: **what are the required materials to set up a full scaffolding, how does it look visually** (and in drawings) **and what is the structural safety, taking into account the latest building codes?** Indeed, scaffolding structures are quite flexible and unstable; too many deadly accidents have been reported due to complex and often unsafe assemblies.



Scia is helping the industry to improve safety and precision. At first a very straightforward modeller for scaffolds has been worked out, together with our development partner CADS UK. The modeller is ready to be used by non-technical staff, i.e. contractors, builders, planners..., and generates quickly a scaffolding structure, a free-standing one or built around an existing structure. The required material list and drawings are generated from the 3D model. And for more complex scaffolds a dedicated Scia Engineer package is worked out.

This is able to calculate precisely the deformations, the internal forces and stresses and the safety of all members under a variety of loadings and support conditions. The technical complex behaviour of fittings is closely simulated and the latest design codes are incorporated as well. It is evident that the modeller is linked with Scia Engineer, covering the whole spectrum from simple to complicated scaffolding structures.

Designers, contractors, scaffold suppliers and scaffold producers are offered an economical yet technological advanced design tool.

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Shopping Centre Sint-Janspoort in Kortrijk - Kaefer (BE)

About the KAEFER group

The KAEFER group is established worldwide in more than 40 countries with a workforce of over 15,000 employees. They are active in the following sectors: heat- and cold insulation, scaffolding, noise reduction and fire protection, offshore, shipbuilding and construction. KAEFER N.V. Belgium and KAEFER B.V. Netherlands are mainly active in the field of scaffolding, insulation, heating pipes and asbestos removal, both in the construction sector and the industry.



About the project

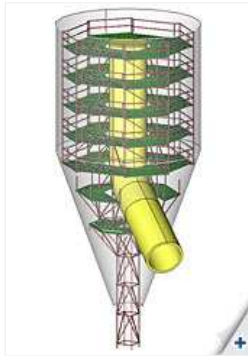
At the end of 2008, KAEFER Belgium received a contract to build a complex assembly of scaffolds in the atrium of the mall 'Sint-Janspoort' in Kortrijk (B) from its client THV Wijngaard, a temporary business association between the companies Van Roey NV and Van Laere NV. Besides the hiring out, the assembly and disassembly of the scaffolds, the assignment consisted in the design of:

- a gigantic floored scaffold for works on the enormous glass dome, this combined with lateral scaffolds, each of 2m of height, for the masonry work at the sidewalls;
- the support structures for the heavy steel frames of the glass dome.

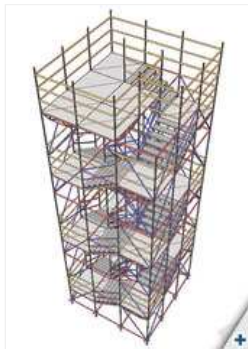
The engineering department chose the Scia Engineer software for this project, e.g. for the determination of the reaction forces acting at the bottom of the spindles. Also a few constraints had to be taken into account.

Software Gallery

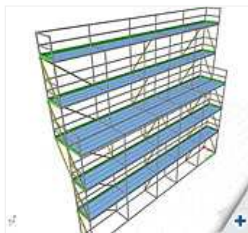
Scaffolding in Scia Engineer



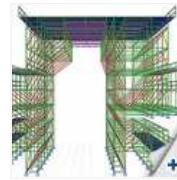
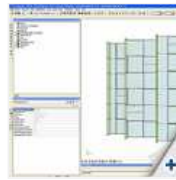
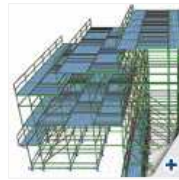
Thanks to BIS Industrial Services



Thanks to Travhydro



Eccentric diagonals



On the one hand, the ground surface (a concrete slab), acting as the base level for the scaffold, could only carry a limited load (a maximum concentrated load of 4 tons) and on the other hand the client insisted on placing the least possible supporting points. An initial investigation already pointed out that the combination of the two constraints was not easily feasible. Only after an intensive period of 'trial and error', KAEFER was able to design the ideal structure for the client. In order to come to an optimal spreading over the ground surface of the most heavily loaded points of support, KAEFER chose for a special scaffolding technique which conducted the forces to the underlying concrete slab.

The dimensions of this scaffolding: length: 112m, width: 27.5 m, height: 17m; floor surface of the scaffold: 5.000m². The 27 support towers with a height of 23m for supporting the huge steel trusses were built in combination with the scaffold, they were however independently charged. The applied vertical force per point of support of these frames was 19 tons. Given the limited size of the support towers (1.57m x 1.57m), special scaffolding constructions were developed to achieve this.

Some figures about this project:

54.000m³ of scaffolding; 450.000 kg of material = 450 tonnes; 88.000 running meter of tubes/floorboards = 88km.

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Scia Engineer Tips & Tricks: Scaffolding - Coupler check

When doing the calculation and design of a scaffolding, Scia Engineer is the perfect tool. The programme allows performing **Scaffolding checks** on the beams and executing **checks of the couplers**. For those options you need the module esasd.13.01 and you have to activate the **Scaffolding functionality**. The **Scaffolding Check** is executed according to the Eurocode EN 12811 and can be accessed from the menu **Steel** under **Check**, next to the Section check and the Stability check. The **Coupler Check** is discussed below.



First, input the properties of your coupler by navigating to "Libraries -> Structure, Analysis -> **Hinge type**" (see Figure 1)

In this menu you can insert a coupler – you have the possibility to input the **real stiffness** for each translation and rotation component and the **maximum allowable forces** according to the values given by your supplier. In Scia Engineer some default property values are already inputted for base jacks, right angle couplers, friction sleeves, swivel coupler, etc.

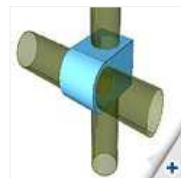


Figure 1



Figure 2



Figure 3

After inputting the correct stiffnesses you can place the couplers to the ledgers and guardrails on the construction by adding hinges on the beam ends and changing the **Hinge type** to **Library** in the Properties window.

It is necessary to perform a calculation before the coupler check is available. In this calculation (see Figure 2) the inputted stiffnesses are taken into account.

In the **Steel** menu a check for the couplers can be performed by choosing **Scaffolding – Coupler Check**.

In this check (see Figure 3) the internal forces on the beams will be compared to the maximum allowable forces resulting in a unity check. This check will inform you if the coupler is sufficient or not.

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