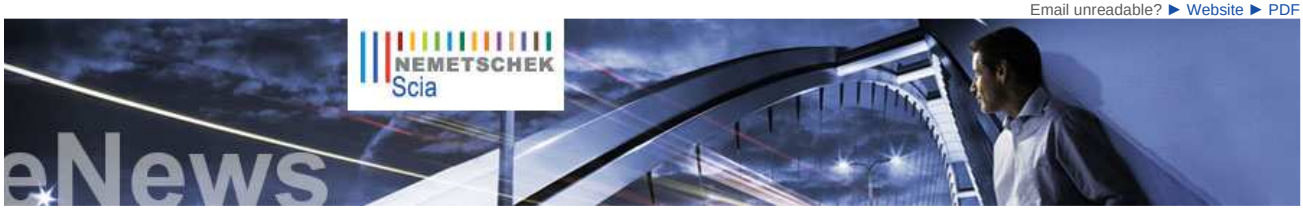

March 2010

Latest News & Events

- ► **Release days** Scia Engineer 2010 Greece.
- ► **Nemetschek Scia** will be present at the BIMCaseweek 2010 in Utrecht (NL) from **15 till 18 march 2010.**
- ► **Nemetschek Scia** organises a four-day seminar "Eurocode in practice" in the Benelux.
- ► **2010** is the year to switch to the **Eurocodes**. The BS will be redrawn in March 2010. Read Scia's explanatory note on the Eurocodes...
- ► Nemetschek Scia welcomes **new Scia Engineer sales** partner for Brazil: RCTASK
- ► 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 2010.0.078**
  - **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, here are the topics for this month...

Scia Engineer Release 2010 tour all over Europe

During the previous three months Nemetschek Scia has organized a series of seminars in Austria (Salzburg), Germany (Dortmund), Belgium (Brussels, Namur), The Netherlands (Arnhem), France (Paris, Nancy) and Switzerland (Lausanne).
More than 500 attendants have welcomed the new version of Scia Engineer and were introduced in the secrets of modelling, analysis and design of structures.

Special attention was given to the introduction of the **Eurocodes**, the latest evolutions in BIM (Building Information Modelling) and many innovations (e.g. 3D wind load generation, foundation design).

The seminars were enriched by testimonials of clients and presentations of experts from universities. The tour is continued in other regions of Europe.

Read our what's new in Scia Engineer 2010 brochure or read more on our website.

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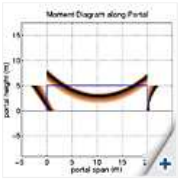
Research Project on Fuzzy Finite Element Analysis

In a consortium with research institutes of the University of Leuven (K.U.L. Department of Mechanical Engineering, Department of Structural Engineering and the Department Computer Science) and partner companies, Scia is involved in the "Fuzzy" element analysis. The term "**Fuzzy**" stands for "**uncertain design parameters**".
Most engineers know that design parameters such as soil characteristics, loading conditions (e.g. wind) or construction material strength qualities have a probabilistic nature, with a median value and a statistical distribution. Engineers are used to work with median values and safety factors applied on the formulae and design methods to check serviceability or ultimate load conditions. The aim is always to estimate the effect of the statistical uncertainties, implicitly or explicitly, on the final design.

Objective probabilistic information about the uncertain parameters is often absent, especially in the early design stages. This problem is circumvented by interpret the probability as a measure of faith. An uncertainty model is constructed by combining personal experience with available data. As he has more information available, the designer changes his faith and the influence of personal experience becomes smaller.



A fuzzy set of data differs from a classical set of data, because they are not strictly divided into membership and non-membership. Instead, a fuzzy set is characterized by a membership function that indicates to what extent a parameter value belongs to the collection. A parameter with a membership value equal to zero is not part of the set, a parameter with a value equal to one is fully part of the set.

For **more information** we invite you to look at our publication on the website.

Diagram: Attached figure shows a typical result of a Fuzzy calculation, the distribution of bending moments along a portal, taking into account a "fuzzy" distribution of assumed rigidities for the beam-column joints and column-foundation.

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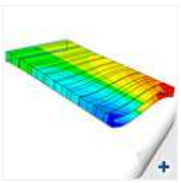
Bridge over the Vltava River in Prague - Troja (CZ) by Mott MacDonald s.r.o. (CZ)

About Mott MacDonald s.r.o.

Since 1993, Mott MacDonald Praha, the Czech branch of the international multi-disciplinary company Mott MacDonald Ltd, is one of the leading engineering companies on the Czech market.
The company provides consulting services to the public as well as the private sector, particularly in the field of transport, power, EU funds, bridges, PPP projects, special services, tunnels, geotechnics, water and environment.

About the project

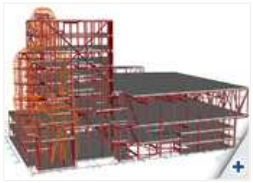
Mott MacDonald Praha is the winner in category 3, CAE Civil Works, of the 'Nemetschek Engineering User Contest 2009'.

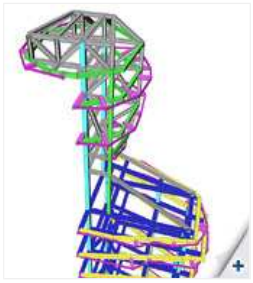


This impressive project is about a new bridge across the river Vltava in the Troja district and is part of the new City Ring Road in Prague. The presented structural design is based on the winning architectural and constructional competition design worked out by Mott MacDonald in the Czech Republic and the architecture office Roman Koucky. Because of the innovative structure, the low arch rise, the structural slenderness and the geometrical non-linearity of the hangers, it was necessary to make a detailed static and dynamic analysis, taking into account the difficult 3D behaviour. The structure was analyzed by complicated slab-deck element models but also by simplified mathematical models based on analytical solutions. The bridge was also tested for flutter stability, buffeting, galloping and vortex shedding.

Software Gallery

Health Education Museum CORPUS - Thanks to our client **IMD Raadgevende Ingenieurs (NL)**





Three 3D models of the bridge were created using the software ‘Scia Engineer’ (NEXIS). A 2D model served for the time dependant analysis of the creep and shrinkage influence, using TDA. The global static and dynamic analysis of the 3D shell model of the bridge was performed and the same model was used as a base for the aerodynamic stability checks. The second order analysis including the cables with the tension stiffening effect brought the appropriate results describing the behaviour of the cables.

The bridge suspensions were modelled as tension-only bearing cables; for each cable the influence lines for the impact of the mobile loads was calculated. Also a pretension matrix -expressing the interaction of all of the suspension cables - was assembled. The assembling stages were part of the complete solution: assembly bracing, bridge structure extension, connection of the precast cross bars, etc...

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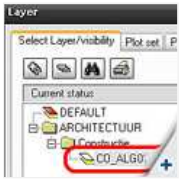
Allplan Tips & Tricks: How to create an associative section with ‘representation depth 0’?

Associative views and sections are directly linked to your 3D model. The selected 3D objects are always represented in full when selecting **view**, when choosing for **section** the representation is limited to a **specific region**: the **section object**.

The representation of the cut elements strongly depends on the thickness or view depth of your section. Also note that only objects which are falling within the section object are shown. As associative sections are based on 3D data, it is not possible to create a **section with a view depth 0**, since this section would not contain any data. As a result of the fact that your section object will always have a certain thickness, your section will often show ‘**double Lines’**: firstly the lines representing the cut parts and secondly the edges of the visible parts. In order to lower the effect of these ‘double lines’ we recommend to reduce the view depth. When doing this, there is no visible difference when printing.



Other than the above possibility we offer an interesting alternative: make sure that the **edges** are **invisible** in the section.
For this purpose it is necessary to configure the section:

1. Function ‘Change view and section properties’
2. Set the status to ‘Hidden’ and click ‘Def…’ afterwards. Now the window ‘Set-up of the hidden-line calculation’ opens
3. Check the option ‘Display edges uniformly’, click subsequently ‘Layer’ and choose a layer on which the edges will be placed
4. Close the windows with ‘OK’ and then click on ‘Apply’ in order to make the changes in the section
5. The view lines are still visible but if you set the chosen layer to status ‘hidden’, the lines will disappear.

The result is an associative section with a normal view depth but where only the lines of the cut elements are represented without any visible ‘double lines’.

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Scia Group nv - Industrieweg 1007 B-3540 Herk-de-Stad - Tel: +32 13 55 17 75 - Fax: +32 13 55 41 75