

Boosting your productivity

Work faster, with more precision and transparency.

WHAT'S
NEW?



Barco One Campus - © Image Jaspers-Eyers Architects – photography by Marc Detiffe

SCIA Engineer 17 brings a large number of new features and improvements dedicated to boosting the productivity of the structural engineer. All of them are supported by **cutting edge technologies** that provide SCIA Engineer users with **higher speed, increased overall efficiency and transparency** to power their day-to-day work as well as challenging and special projects.

The newly developed enhancements are spread over five areas:

- Design of **concrete structures**.
- Design of **steel structures**.
- Interoperability and **BIM**.
- Loads and **load generators**.
- **Overall usability**.

A large part of these new features and functionalities were designed based on our clients' input and for the first time, version 17 also brings usability **enhancements chosen directly by our customers**.

SCIA Engineer 17 - Boosting your productivity!

Concrete Design to EN1992-1-1

A comprehensive and robust solution for the design of concrete columns, beams, slabs, walls and shells featuring an efficient, logical and time-saving workflow.

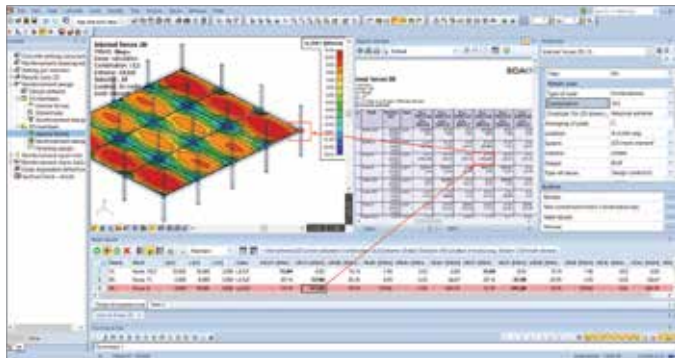
During recent years, SCIA has been focusing on delivering a brand new Eurocode concrete design tool that combines the sophisticated methods from the codes, a user-friendly environment, clarity of presented results, and a logical workflow.

Design of reinforcement in slabs, walls and shells

SCIA Engineer 17 presents a fast and reliable calculation of reinforcement for 2D members according to the Eurocodes (with National annexes). In addition to the design of reinforcement for the ultimate limit state, the width of cracks for the serviceability limit state can also be calculated to prevent excessive cracking that could seriously affect the usability and durability of the structure.

The new features include:

- The “shift rule” according to EN 1992-1-1 to cover additional tensile force due to shear effect.
- Calculation of the statically required longitudinal and shear reinforcement.
- Modification of the required area of reinforcements via detailing provisions.
- Automatic calculation of the concrete cover.
- Automatic calculation of the angle of the compression strut.
- Improved speed thanks to support for multiprocessing

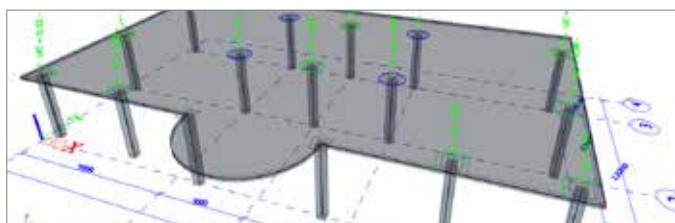


Punching shear design

The punching shear calculation has been redesigned to provide a streamlined workflow through more automation.

The following features have been implemented:

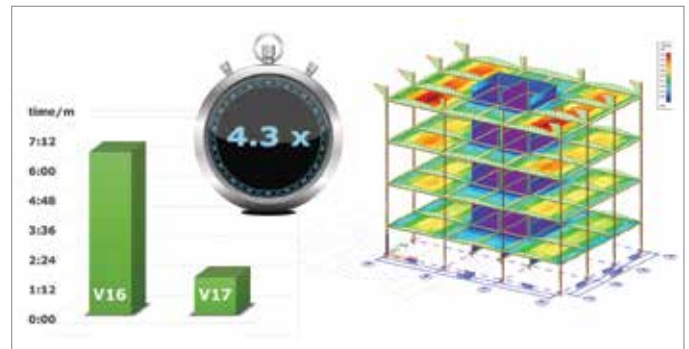
- Design and check of punching shear reinforcement according to EN 1992-1-1.
- Calculation of punching shear for slabs and foundations.
- Automatic recognition of support shape, orientation and position.
- Various possibilities for the calculation of β factor.



Code dependent deflections

The code dependent deflections calculation determines long term deflections due to creep and cracking in members subjected to bending. It has been fully rewritten for a more natural workflow that provides greater speed, and is easier to learn and to use.

- Evaluation of deflections for 1D and 2D members at the same time.
- Ability to calculate only a selection of members.
- Automatic calculation of the creep coefficient.
- Automatic generation of the appropriate load combination.
- Increased speed through support for multiprocessing.



National annexes

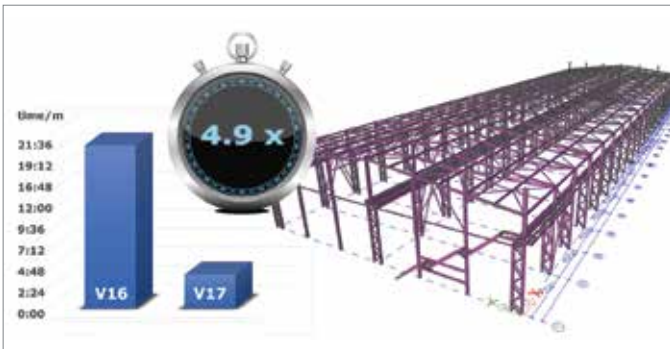
- Newly implemented national annexes for Sweden and Norway.
- Updated material libraries for British BS EN-NA, Austrian ONORM - EN NA, Irish IS-EN NA, German DIN - EN NA.

Steel Design

Economical design, clear and verifiable output, and increased speed in the design of steel structures.

SCIA Engineer 17 offers new and improved technology for the design of steel structures according to Eurocodes. The new solution allows for design of more economical (lighter) profiles thanks to the implementation of recommendations resulting from recent scientific research. The output document is well-structured and clearly understandable to allow for any verification of the calculation and its results.

- Versatile tools for cross-section classification and calculation of effective cross-section properties.
- Extended support for EuroCode 3-related publications (e.g., SEMI-COMP+, ECCS Designers' Guide to EC3).
- Savings in material up to 20% for sections classified as class 3, e.g. haunches.
- Faster calculation due to parallel processing.
- Transparent report with clear indication of applied code clauses.
- Improved graphical representation of the results with intermediate values like section class shown on the 3D model.
- Truss connection of circular hollow sections.
- Implementation of national annexes for Cyprus, Denmark, Italy, Norway, Spain, and Sweden.
- Updated Czech national annexes to EN 1993-1-1/ 2016 and EN 1993-1-(2-3-5-8/ 2012).



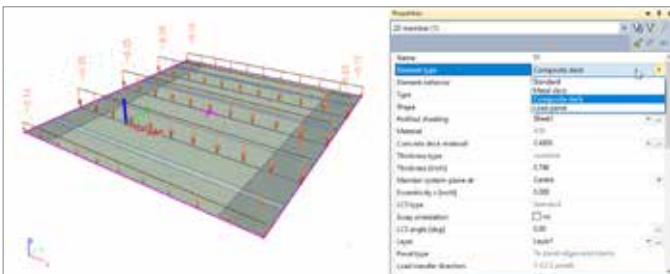
In addition to the Eurocodes, SCIA Engineer 17 brings updates also for the US codes:

- Implementation of new steel codes AISC 360-16 and AISI S100-16, including adapted formulas, coefficients references, notation and terminology.

Design of composite slabs

Extensions for composite design in version 17.0 focus on two main steps in the design process:

- Automatic creation of code-compliant load combinations (ASCE 07 and EN 1990) is managed in the background based on the loads defined in the model.
- Rigid in-plane diaphragms combined with tributary-area method for distribution of gravity loads offer a good approximation of the actual behavior of composite slabs.



BIM

Effective collaboration with partners, real-time task management.

As BIM (Building Information Modelling) is being increasingly adopted as a solution for effective creation and sharing of project information among stakeholders in the construction industry, SCIA further enhances the integration of SCIA Engineer into the BIM workflow, including seamless task management.

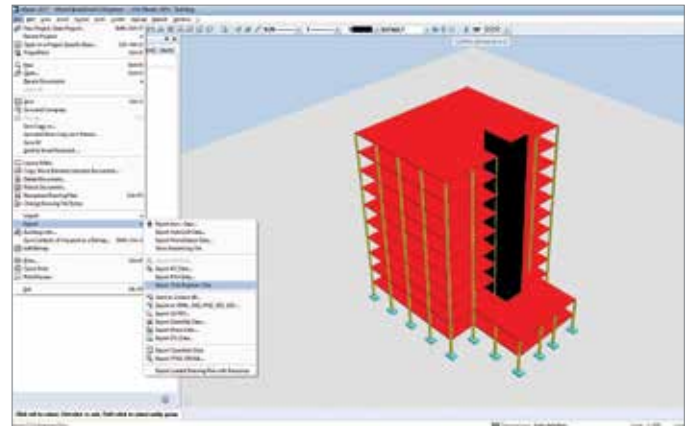
Revit

SCIA Engineer 17 links with Revit 2018 and offers extended capabilities:

- Improvements to automatic material mapping.
- Automatic cross section mapping for standard steel sections and for standard concrete section shapes.
- Support of high stress concrete.

Allplan

Close collaboration between two Nemetschek companies – SCIA and Allplan – has resulted in another improvement presented in version 17. Engineers can now launch SCIA Engineer directly from Allplan with their model automatically loaded.



Next generation task management - bim+

To enable a more effective BIM collaboration, SCIA Engineer users can now take advantage of Allplan's bim+ portal.

The main advantages include:

- Real-time collaboration and easy sharing of models.
- Tracking of issues, online task management and revision system.

Load Generators

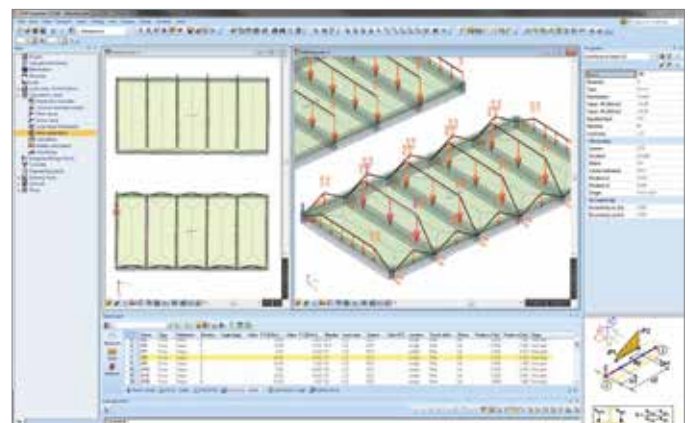
Easily verifiable and more versatile automated load definition

One of the critical and time consuming steps in the design phase is the definition and application of loads. SCIA Engineer 17 includes several enhancements that help in this design phase.

Tributary areas for load distribution

Load panels in SCIA Engineer simplify and significantly speed up the load definition. The new load distribution method - tributary areas – in SCIA Engineer 17 brings several benefits:

- Easy verification of the generated loads.
- Reduction in the number of loads.
- Faster load generation.
- Robust algorithm for precise load distribution.

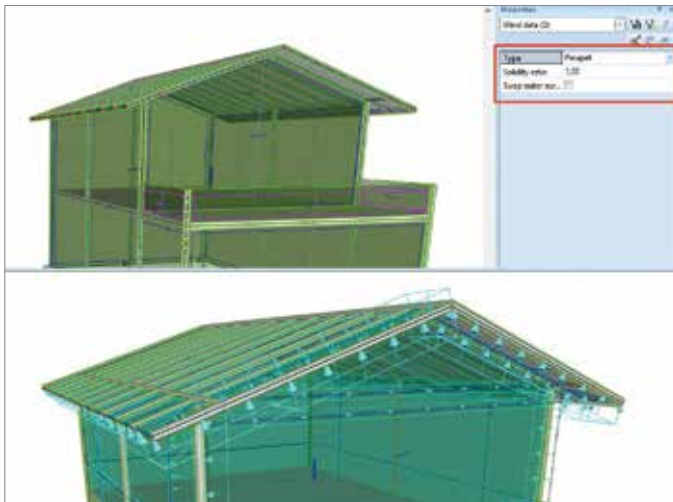


SCIA Engineer 17 - Boosting your productivity!

3D wind-load supporting parapets and protruding roofs

The 3D wind-load generator is a powerful tool for generation of wind load acting against buildings. This generator's application range has been extended to support more cases, and now properly accounts for:

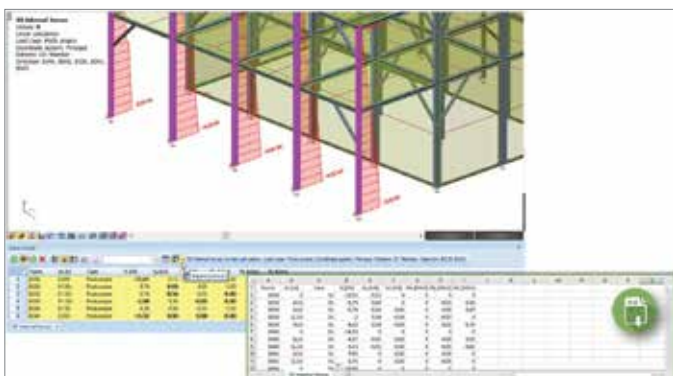
- Protruding roofs.
- Parapets.
- Free standing walls.



Overall usability

Increased efficiency in day-to-day tasks and new, powerful results visualization options.

SCIA Engineer has always been committed to significant investments in R&D and to incorporating advanced technology innovations. Moreover, for the first time ever, SCIA Engineer 17 is also bringing specific features and improvements collectively chosen by our customers in a survey conducted at the end of 2016.



User-chosen usability enhancements

- Better readability of labels and result values in the 3D window, through the new "Hardware multisampling" antialiasing option.
- Ability to run the analysis for only selected load case(s) and/or combination(s).
- Ability to export the Table Input and Table Results to MS Excel with a single click.

Beyond these 3 top-voted items, additional usability enhancements have been implemented:

- Match properties (also known as a format painter) for quick copying of properties from one member to another.
- Single-click behavior in the main tree menu.
- Extended set of keyboard shortcuts for faster and more effective work.
- And much more...

Engineering Report

To help with documenting & reporting the designed structure to the contractor, investor, local authority, etc. the integrated reporting tool has been optimized and offers:

- Faster and more memory-efficient handling of large pictures.
- An easy way to insert content from Microsoft Excel.



Presentation of results

To easily scrutinize the results, SCIA Engineer 17 offers several new display options:

- A legend that accompanies pictures with results both on screen and in the Engineering Report.
- New color-styles for result diagrams on 1D member (rainbow-palette).
- Display of the real minimum-to-maximum envelope for combinations.
- Display of critical linear combination within envelopes for results.
- Extended display options for results in sections across 2D members: display all sections or just one, draw results in section plane, element plane and upright to 2D element, adjustable color scheme and graph type.
- Display of results for nodal and linear reactions in one view.
- And much more...

Interested in SCIA Engineer 17? Contact us today.

SCIA nv - Industrieweg 1007 - B-3540 Herk-de-Stad (BE) - +32 13 55 17 75 - info@scia.net
SCIA Inc. - 7150 Riverwood Drive - Columbia, MD (USA) - +1 443-671-1431 - usa@scia.net
For a complete list of all our international agencies and partners, please visit our website

www.scia.net