SCiA
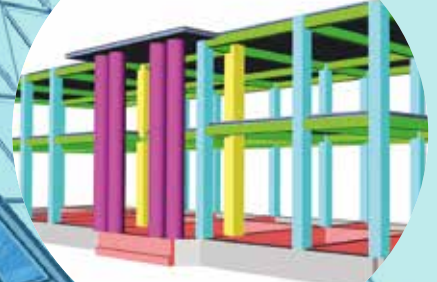## ENGINEER

FAST
ACCURATE
POWERFUL

**STRUCTURAL ANALYSIS & DESIGN SOFTWARE
WITH LOCAL SUPPORT**

WORK MORE EFFECTIVELY WITH SCIA ENGINEER

SCIA Engineer is an integrated, multi-material analysis and design software for all kinds of structures. Its wide range of functionality makes it the perfect solution for any construction type from the simple to the complex. Design office buildings, industrial plants, bridges or any other project, all within the same easy-to-use environment.

It is an efficient and accurate software for structural engineers that includes a powerful modeling environment, a high-performance mesh generator and a very fast finite element solver, as well as integrated tools to check or optimize the structure to a variety of international and national building codes.

SCIA Engineer was designed from the ground up to perfectly plug into BIM workflows, seamlessly converting input from architects or transferring your models to other key software you and your project stakeholders use.

SCIA Engineer is powered by our dedication to R&D and innovation, combined with input and inspiration from our customers.

Establis/Technocon, Barco One Campus (BE)

ALL-IN-ONE, FLEXIBLE, ADVANCED ANALYSIS

Powerful 3D modeling software that allows you to model, visualize and analyze different structures, materials and loads - quickly, easily and accurately.

THE PERFECT PRODUCTIVITY BOOSTER

Logical user interface, intuitive workflow, cutting-edge technologies and powerful tools, such as load generators, one-click report update, make your work in SCIA Engineer faster, smoother and more effective.

UNDERSTAND AND CONTROL YOUR MODEL

Experience full control over all data in small or large models while designing your structure in compliance with implemented international codes. Customize the report to meet the clients' expectations and requirements.

MORE CONNECTED WITH BIM WORKFLOWS

SCIA Engineer interoperates with BIM software used by architects, engineers, government authorities and contractors. This promotes openness that is future-proofed, giving you the possibility to collaborate more easily with industry stakeholders, reuse existing data or rework models at a later date, resulting in saved time and costs.

EXPERT HELP EVERY STEP OF THE WAY

Localized technical support is provided by specialists, with structural engineering backgrounds, who know the software and how to apply their knowledge to help you get up to speed quicker, understand results better, answer model-specific questions and apply your own parameters and formulas.

THE WHOLE DESIGN PROCESS IN ONE MODEL

● Full 3D visualization

● CAD-like with optional table-input and extensive import capabilities

● Fits all BIM workflows (IFC, Revit, Tekla Structures, Allplan, ...)

● Easy handling of changes (during design or construction phase)

● User defined parametric templates for repetitive tasks

● Parameterization for optimization and comparison of variants

● Effective handling of large scale projects, complex geometries, mix of materials

MODELING

CALCULATION

Multiple types of loading (force loads, temperature loads, moving loads, imposed displacements) ●

Dynamic calculations (seismic, time-history, harmonic, ...) ●

Advanced nonlinear analysis, cable analysis, various 2nd & 3rd order methods ●

Background FE mesh generation with automated refinement ●

Verification of results separately per element or for the whole mode ●
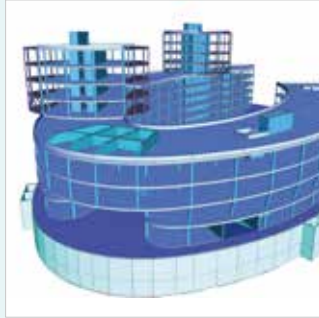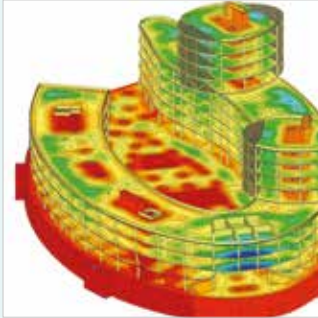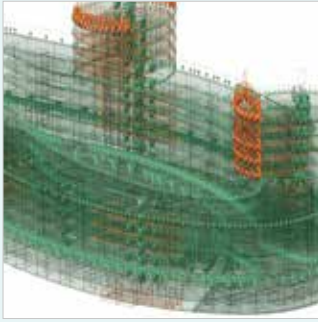
Building, Aviatica Office Building (CZ).

FAST ANALYSIS AND DESIGN OF ANY STRUCTURE - FROM SIMPLE TO COMPLEX

The ability to keep pace with the challenges of modern structural design requires both extensive expertise and the right tools. For the latter, SCIA Engineer helps you deal with architects' unconventional ideas, tight time schedules, as well as repetitive day-to-day work. SCIA Engineer is a reliable partner for structural engineers. Its powerful CAD-like modeling, robust finite element engine, advanced types of calculation, easy-to-follow, code-compliant, multi-material design and customizable and clear reports make it the ideal solution for a wide range of engineering projects.

- Verification in every stage of the construction process
- Complete and effective workflow for concrete, steel, aluminium design
- Extensive code coverage of Eurocodes, IBC, and more
- Transparent calculation steps for easy validation
- Full control over assumptions and parameters

- Time savings thanks to built-in reporting and drawing tools
- Customizable report matching the demands of the client
- Automatic regeneration of the reports and images after any and all changes

CODE CHECKS

OPTIMIZATION

PROJECT DOCUMENTATION

- Finding the optimal, most economical solution
- Verification of various configurations
- Assisting architects to find the most attractive design

ALL-IN-ONE, FLEXIBLE, ADVANCED ANALYSIS

1. Zonneveld Ingenieurs - Utrecht City Hall (NL). Static analysis of the structure and entrance façade with irregular geometry.
2. Flemish Government - Arch Bridge over the Albertkanaal (BE). Stability and nonlinear analysis of a 161m long bridge.
3. IG Gölkel - Stuttgart Airport Office Complex (DE). Analysis of partly pre-stressed girders and natural frequencies.
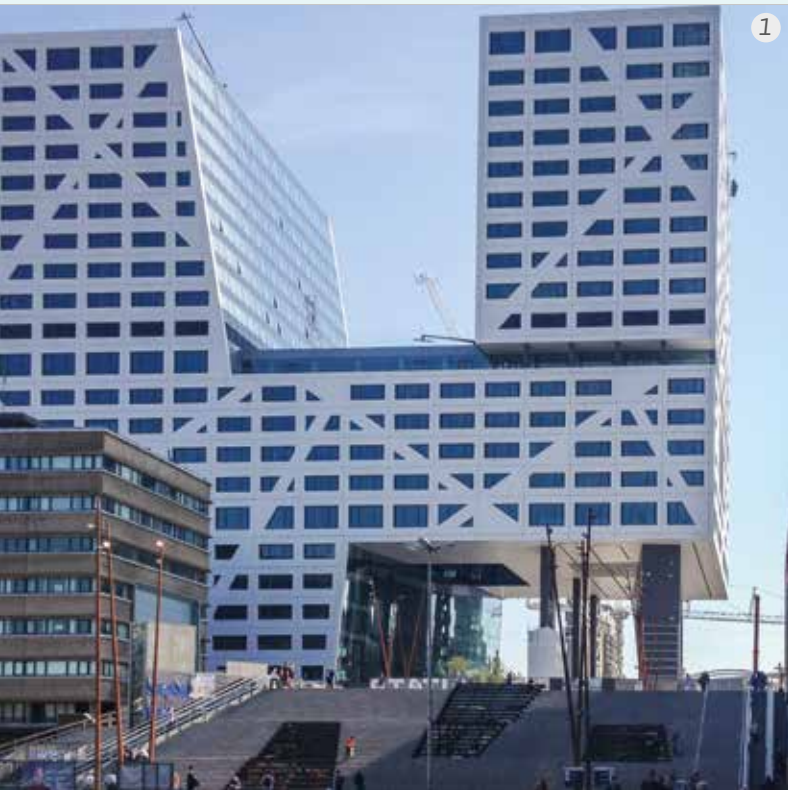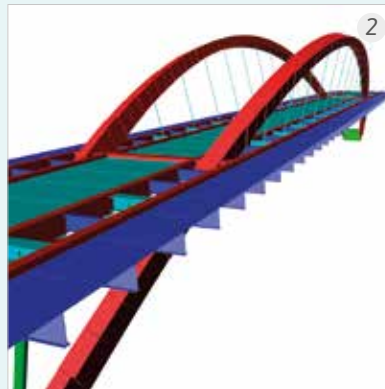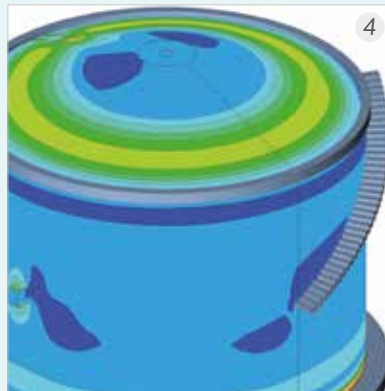
> *We use SCIA Engineer on many projects. Its unique ability to integrate advanced non-linear analysis and multi-material design, with physical structural modeling, and its interoperability with various other software programs make it simply invaluable."*

Tom Webster,
Principal Engineer – AECOM

4. Procalc - Sludge Digester (BR). Modeling, analysis and design of concrete shells.
5. Dynamic modal analysis of a bridge.
6. Skála a Vít - Congress Center (CZ). Steel roof with complex geometry.

ANALYZE ALL STRUCTURE TYPES

Invest in just one tool to handle all your projects
SCIA Engineer supports all commonly used construction materials, all types of structures and many different analysis types.

Freedom to model anything
Effectively combine various materials for any geometry – simple or complex. A powerful user interface and CAD-like modeling provide flexibility to address any project type.

Advanced analysis and accurate results
With SCIA Engineer, you can perform the type of analysis that corresponds to the complexity of the project: linear, nonlinear, stability, dynamic, seismic, etc. Automated mesh refinement guarantees quality results every time.

WORK THE WAY YOU LIKE

SCIA Engineer allows you to organize your work in a way that best suits your practice and needs.

Freedom to organize your model
Tools like layers, stories, entity types, among others, help you to create, organize and maintain the model of the designed structure.

Flexibility in visualization
Both during model definition and results evaluation, you have various options at hand to visualize what matters the most. Numerous display options (e.g. clipping box, parameters of visual style) together with filtering tools (selections, activity, etc.) give you the required flexibility when creating or evaluating the model.

Customizable level of detail for your reports
Adjust the project report for any content and level of detail. Define templates which follow your company standards and use your engineering reports to showcase the quality of your work.

THE PERFECT PRODUCTIVITY BOOSTER

● **CUTTING-EDGE TECHNOLOGIES AND TOOLS FOR EFFECTIVE WORK**

Boost your productivity with a structural analysis tool that integrates cutting-edge technologies and innovative automation tools to speed up time-consuming tasks.

64-bit support and parallel processing
SCIA Engineer can utilize all available computing power, enabling you to analyze and design even large structures in no time.

Advanced generators
Typical situations can be largely automated thanks to the built-in or user-defined parametric templates for various geometries, powerful load generation tools (wind, load panels, mobile loads) or even fully customizable calculation report templates.

Intuitive workflows for code design
Whatever the material, the structural elements are checked or even optimized in a natural workflow that fits typical engineering practice, effectively delivering the most economical reinforcement, steel section size, composite beam details, etc.

SUPPORTING YOU IN HANDLING PROJECT CHANGES

Structural engineers are always confronted with changes in the project. SCIA Engineer's elegant approach to modeling and finite elements empower you to quickly react to any modification of the project.

Object-oriented user interface
Every structural element and boundary condition is visualized graphically in 3D and can be selected to reveal and modify all its properties in a dedicated dialogue. Utilize powerful tools to select objects or apply the properties from one element to another one.

Let the software worry about the mesh
All loads, supports etc., are applied directly on the geometry (even on curved shells), independently of the underlying finite element mesh. When changes occur, simply modify the project accordingly. The loads and supports remain valid and the mesh is updated automatically.

One click to update your final report
After you've created the perfect final report, significant changes may still occur. With SCIA Engineer, you can simply hit the "Refresh" button to have everything updated and ready to print!

Left top image: Parallel processing.
Left bottom image: Object-oriented UI
Below: One-click report update
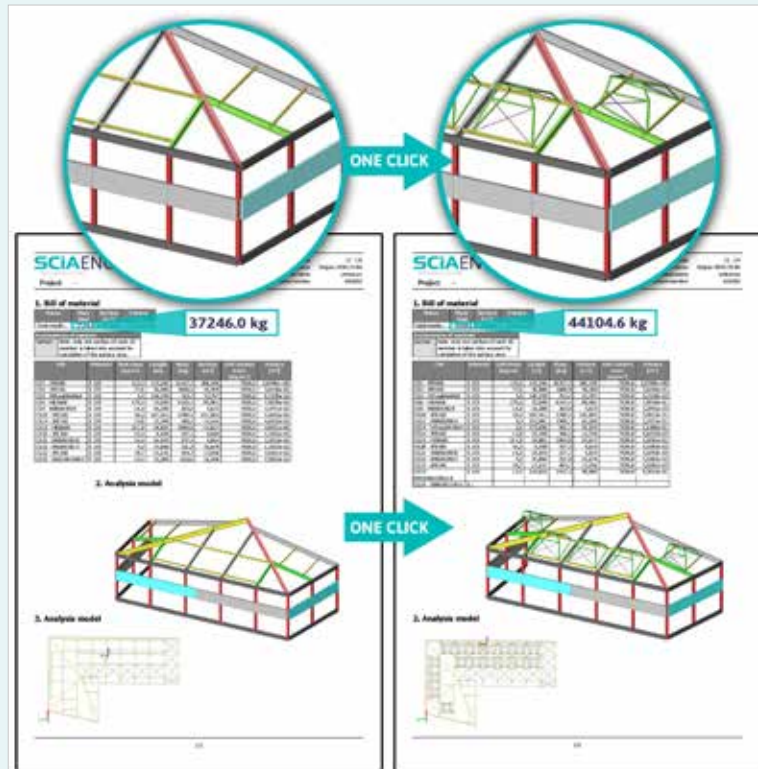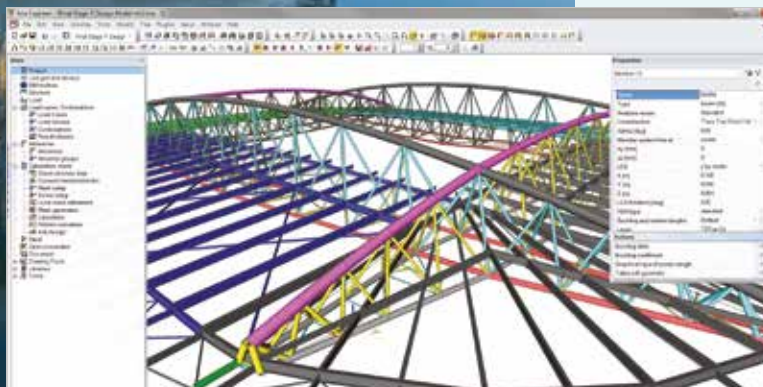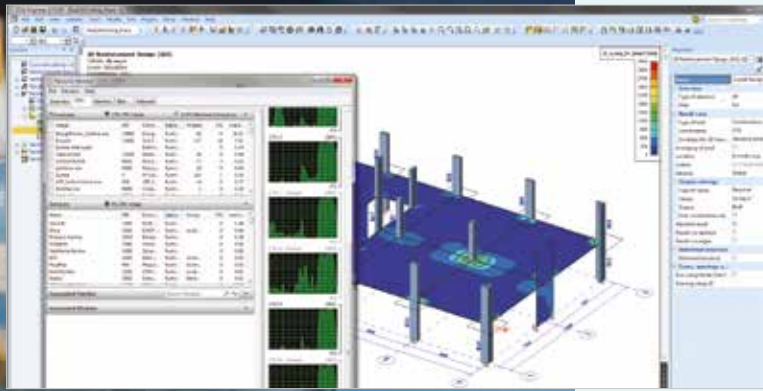
UNDERSTAND AND CONTROL YOUR MODEL

● **ORGANIZE AND REVIEW EVERY ASPECT OF THE STRUCTURE**

Numerous display options and navigation tools allow you to focus on a specific part of the structure. Full control over every operation and a deep understanding of the calculation builds up a complete trust in the precision and safety of the design.

Complete model data at a glance
The geometrical model, boundary conditions, loads as well as other properties are visually represented on the screen. This allows you to immediately review the input data, giving you confidence in your model.

**Easy control over large models**
Navigation and filtering tools like layers, activity, clipping box, selections and table input enable you to visualize and review every element individually as well as in the context of a group.

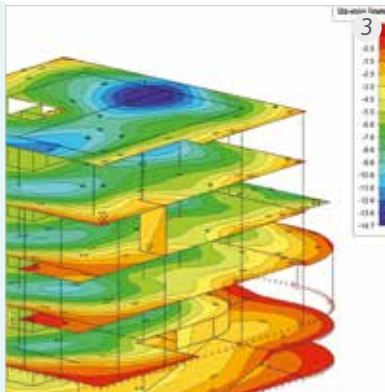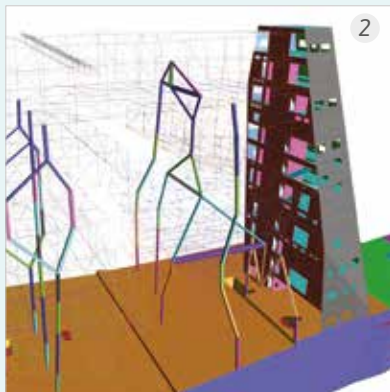**Customizable and always up-to-date documentation**
Integrated tools like picture gallery, paperspace and the customizable Engineering Report, help you to present the project to other stakeholders. These tools are invaluable when the project needs to be inspected closely throughout the various revisions.
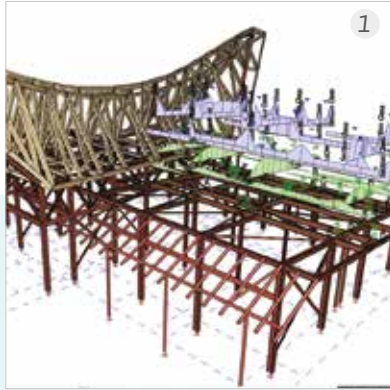
*1. AECOM - Tongkonan Restaurant (UK).
Individual result components of the 3D model.
2. ABT - Groninger Forum (NL). Filtering and
navigation in large models.
3. Buxton Associates - Mixed-Use Building (UK).
Vertical deflections plotted as contours
(isobands).
4. Graphical output and calculation report of
concrete design.*

TRUSTED, SAFE AND ECONOMICAL DESIGN

Design your structure with full confidence in
the results. With an expansive code support,
SCIA Engineer helps you prepare a design compliant
with European, American and other international
building codes.

Clear, detailed output of code checks
All intermediate steps, including formulas used and
applied code clauses are listed in the report and
enable anyone to review and understand the check.
The final report can be customized to the required
level of detail: from a single-table summary, to a brief
overview or the complete in-depth report.

Comprehensive code coverage
SCIA Engineer provides the most comprehensive
implementation of the Eurocodes, including National
Annexes. In addition, the program includes input
from the latest research publications. This quality-
driven approach is applied to all supported materials:
reinforced concrete (including steel-fibre reinforced
concrete), steel, timber, aluminium, cold-formed steel,
steel-concrete composite floors, etc.

Intuitive review of assumptions and parameters
All code-related parameters and other settings can
be easily reviewed and adapted in well-structured
dialogues that include explanatory text and images.

„

*We have decided on SCIA Engineer
because it is the best solution in the
market today for complex, multi-
material projects. SCIA Engineer
allows for quicker modeling of
structures, even the most challenging
geometries, making our processes
much more productive!"*

Thiago Mazzuti Guerra, Director – Steng Projetos
Estruturai

MORE CONNECTED WITH BIM WORKFLOWS

DRAFTSMAN

ARCHITECT

INTERACTIVE DESIGN PROCESS

BIM INTERFACE

BIM TOOLBOX

SCiA ENGINEER

STRUCTURAL MODEL → ANALYSIS MODEL

IFC, REVIT, TEKLA STRUCTURES, ALLPLAN, DWG, XML, ...

BUILDING OWNER

FABRICATOR, CONTRACTER

MEP ENGINEER

Porr Design & Engineering - MySky Residential Building (AT). Model transfer between Revit, SCIA Engineer and Allplan.

SCIA ENGINEER PLUGS YOU INTO ANY WORKFLOW

SCIA Engineer easily plugs into any workflow, reducing manual tasks and adaptations, while making working on a project more efficient. The architect, engineer and other project stakeholders can work collaboratively on the project with their specific data and digital models.

Open file formats
SCIA Engineer supports IFC, BCF and other file formats, plugging seamlessly into an Open BIM workflow. Therefore, exchanging models with Allplan Engineering, ArchiCAD, Vectorworks, Solibri and other applications is a breeze.

Proprietary bi-directional links to Revit and Tekla Structures
Optimize the workflow, utilize the strongest points of individual software and maximize your efficiency. The links are designed to support all types of structures, materials and geometries. And you can see revisions made by the other parties for easy tracking and transparency.

Data exchange with Rhino and Grasshopper
Using the XML format or third-party plug-ins, SCIA Engineer enables you to work effectively with designers creating organic geometries.

MAKING OPEN BIM WORK

By using standards and workflows, Open BIM promotes openness that is future-proof, giving you the option to collaborate more easily with project partners, reuse existing data and rework models at a later date, resulting in saved time and costs.

Certified IFC 2x3 import/export
Open BIM is based on the IFC file format. SCIA Engineer was the first structural analysis application certified for both import and export.

SCIA Engineer BIM toolbox
The BIM toolbox is a leading solution that makes Open BIM work for structural analysis. Convert the structural model to analysis members, and also clean up and align the members to get a structure that is ready for meshing and calculation.

Next-generation task management tool
SCIA Engineer smoothly connects to the Allplan Bimplus application, streamlining the real-time task management among project stakeholders. Changes to a model are tracked and instantly visible, giving you the control and the information you need.

> "
> *We use SCIA Engineer for both small and large projects. The modeling tools enable us to build analysis models from 3D geometry very quickly. The IFC, DWG and XML file formats allow for a fast and efficient communication with the other project parties."*

Gabriel Daum, Project Director Infrastructures & Special Works – Tractebel Engineering S.A.

EXPERT HELP EVERY STEP OF THE WAY

"

SCIA Engineer is a powerful tool for our applications, combining sophisticated methods of structural analysis with a very friendly graphical interface – and with a technical support team that we count on."

Carlos Menegazzo, Structural Engineer – BPM

● EXPERT LOCAL TECHNICAL SUPPORT TEAMS

Have you come across unexpected results, needed more explanation on how to use certain tools or have you run into a problem that can cause delays in your project? Our technical support team is available to guide and help you, so that you can concentrate on getting on with your work. At SCIA, we always put our customers first with the aim of helping you to achieve great results, every time, in the most efficient way possible.

Highly educated technical support specialists
Our expert team has all the knowledge to get you up to speed faster, so that you can utilize the full power of the software to get the best results.

Local support team
Our teams are based in many countries. This means, you can not only tap into their local country knowledge but also work with them in your language.

Email, call, remote access – whatever you need
We work with you in the way you prefer. Whichever type of communication is easiest and most efficient for you, is the one that we can use.

● ALL THE TRAINING YOU NEED TO GET YOU UP AND RUNNING

Get the most out of the software by improving your knowledge, and the quality and speed of your work with the training that fits your needs.

The right training that fits your needs
Whatever level of knowledge you have, we provide a wide range of training options – from basic to advanced, personalized to group, in every area our software covers.

Educational resources that fit your learning style
Our continuously expanding online resources are information rich. They include learning videos, tutorials, webinars, a user forum, and more.

EDITIONS

EDITIONS TO MATCH YOUR NEEDS

EDITIONS TO MATCH YOUR NEEDS

SCIA Engineer, as a versatile modular structural engineering system, provides users with enormous functionality. To help you find the right configuration for your business, you may choose from several Editions: Concept, Professional, Expert and Ultimate. Should you need a custom solution, you can extend your license with additional modules at any time. Moreover, any Edition can be upgraded to a higher one at a later date.

We are committed to providing you with the freedom to purchase SCIA Engineer the way that best suits your needs: buy a permanent license or rent it for a specific project. We also offer a maintenance contract that guarantees you always enjoy the benefits of the latest version of the software and gives you access to our technical support team.
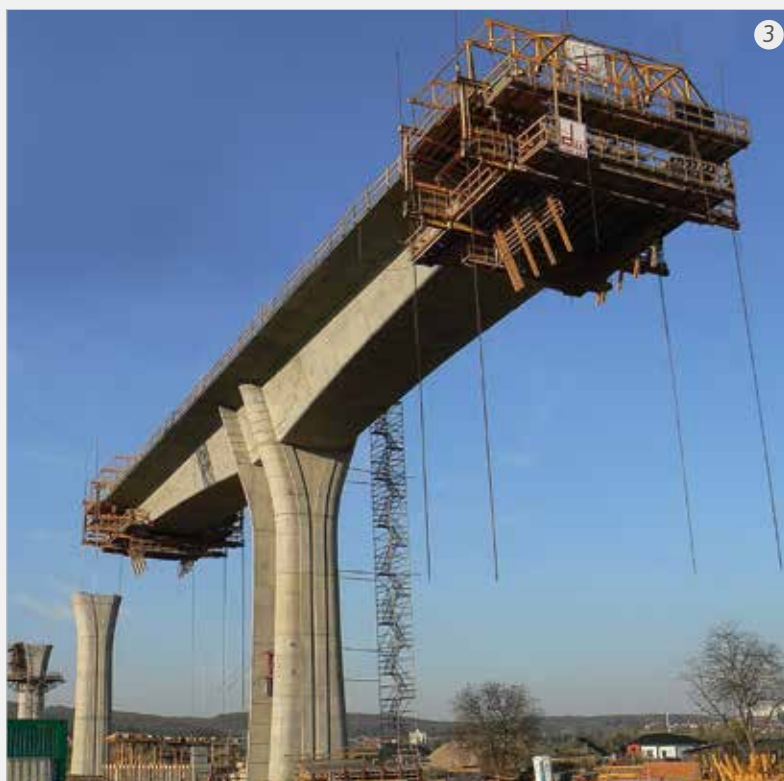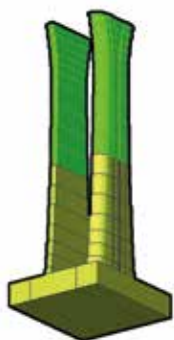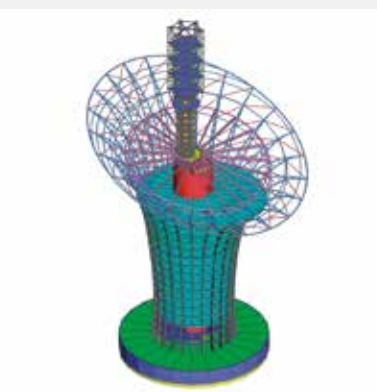
1. Arch & Teco Group - De Zaat Apartment Building (BE).
2. Grontmij Nederland - New Energy Institute (CN).
3. Novák & Partner - Bridge over the Berounka River Valley (CZ).
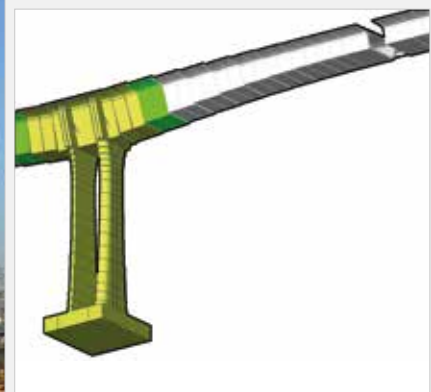
MODELLER	CONCEPT	PROFESSIONAL	EXPERT	ULTIMATE	STEEL
Geometry modelling in 3D	■	■	■	■	■
Productivity toolbox: table input, storeys, project templates, etc.	■	■	■	■	■
Engineering Report	■	■	■	■	■
General cross-section editor		■	■	■	■
Parametric modelling		■	■	■	
INTEROPERABILITY					
BIM Toolbox	■	■	■	■	■
Revit link	■	■	■	■	
Tekla link	■	■	■	■	■
Etabs link		■	■	■	
LOADS					
Load panels	■	■	■	■	■
Climatic loads: generator of wind and snow loads	■	■	■	■	■
Mobile loads: influence lines, critical position, code-defined load groups. Train loads: generation: of load positions along a track		■	■	■	
ANALYSIS					
Linear analysis	■	■	■	■	■
Material non-linear analysis: ties, soil supports, non-linear springs, gaps	■	■	■	■	■
Geometrical non-linear analysis: 2nd order, large displacements	■	■	■	■	■
Stability analysis	■	■	■	■	■
Advanced non-linear analysis: surface elements resisting only pressure, friction springs, general plasticity		■	■	■	■
Analysis of cables, membranes			■	■	
Non-linear stability analysis			■	■	
Soil interaction, nonlinear soil supports in frames			■	■	
Material nonlinearity in concrete frames			■	■	
Dynamics: eigenmodes analysis	■	■	■	■	■
Dynamics: earthquake, harmonic load, time-history, non-uniform damping, equivalent lateral forces		■	■	■	
Construction Stages			■	■	
Sequential analysis			■	■	
Modelling and analysis of prestressing			■	■	
DESIGN					
Design of reinforced concrete members; Calculation of long-term deflections	■	■	■	■	
Fire resistance design of concrete members		■	■	■	
Design of prestressed concrete			■	■	
Hollow core slabs				■	
Steel fibre reinforced concrete	■	■	■	■	
Design of steel members	■	■	■	■	■
Fire resistance design of steel members		■	■	■	■
Cold-formed steel design		■	■	■	■
Analysis of plastic hinges in steel frames		■	■	■	■
Steel connections design		■	■	■	■
Design of steel members - lateral torsional buckling (2nd order)				■	
Design of composite floors		■	■	■	
Composite column design				■	
Design of timber members	■	■	■	■	
Design of aluminium members				■	
Design of scaffolding				■	
Foundation pad design	■	■	■	■	■
Open Design		■	■	■	
Load combinations and special checks for bridges		■	■	■	
DRAWINGS					
Picture gallery, paperspace, import & export of DXF/DWG	■	■	■	■	■
General arrangement drawings		■	■	■	■
Steel connection drawings		■	■	■	■

Please note that the content and selection of the editions and individual modules within are subject to change at any time. Please contact SCIA for the latest information.

40 YEARS IN THE MAKING

40+
YEARS OF EXPERIENCE

13
LANGUAGES

30%
INVESTED IN R&D

8000
LICENSES

100+
ENGINEERING SCHOOLS

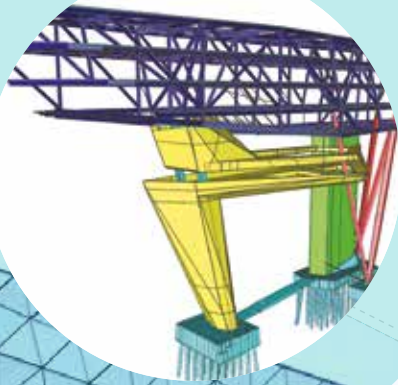**4000**
CUSTOMERS

50+
COUNTRIES
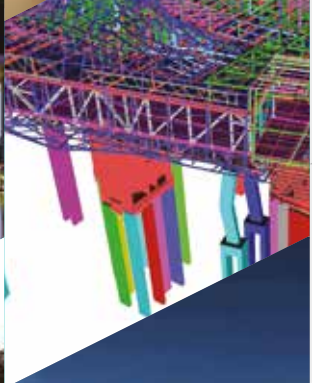
INTERESTED?

Contact us today for a free trial version or to arrange a personal meeting with a SCIA representative, so that you can experience the power of the software first hand.

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www.scia.net

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