
AXISVM 27
NEW FEATURES
download AXISVM27
AXISVM

AXISVM 27 brings faster calculations, new design capabilities and AI tools that help with everyday work.

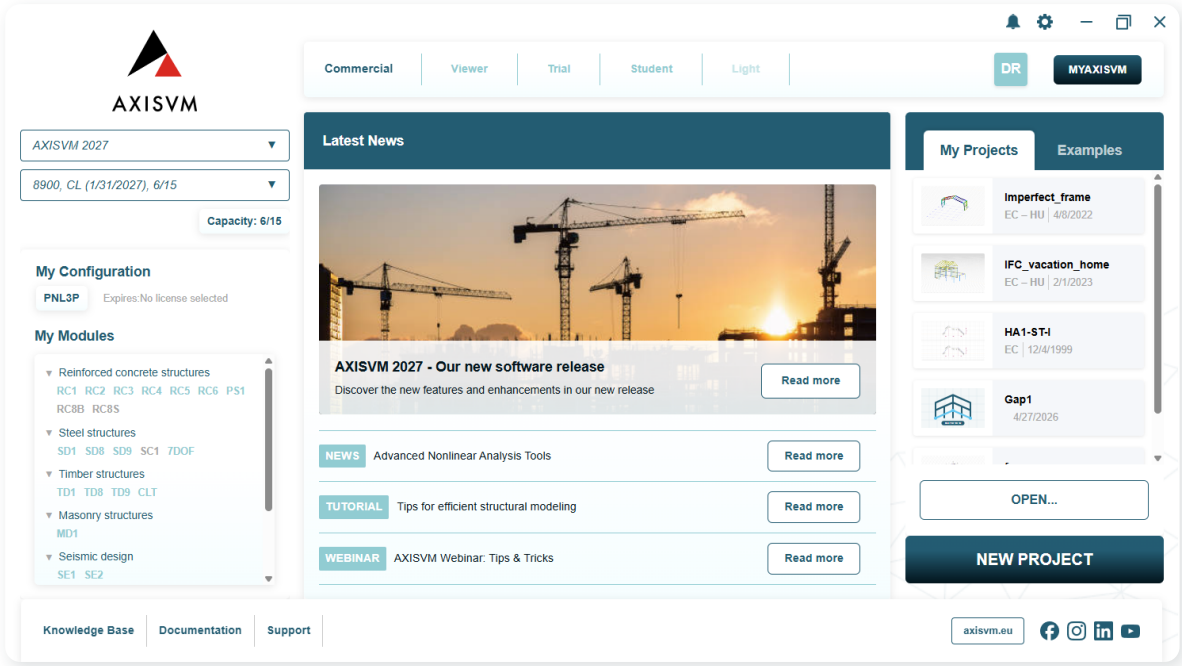
This document collects all the new features, grouped by topic.

The improvements come in five main packages:

1. **ANALYSIS AND MODELLING**
   New result components, a purlin modelling wizard, and improved nonlinear and modal analysis
2. **REINFORCED CONCRETE DESIGN**
   Bulk reinforcement design and punching shear design, crack analysis, and faster calculations
3. **DOCUMENTATION**
   .docx export, summary extracts and live preview
4. **WIND TUNNEL SIMULATION**
   More accurate geometry and flow modelling, and more stable CFD simulation
5. **CONSTRUCTION STAGES**
   More flexible stage management, prestressing loads, and envelopes for construction states

AXISVM Launcher

AXISVM Launcher is a modern, central hub serving as an entry point to the AXISVM product family and related services. Like today's launchers in general, it provides a single interface for quick access to launching the software, managing projects and licenses, and viewing our latest news, upcoming training sessions, and other up-to-date information.

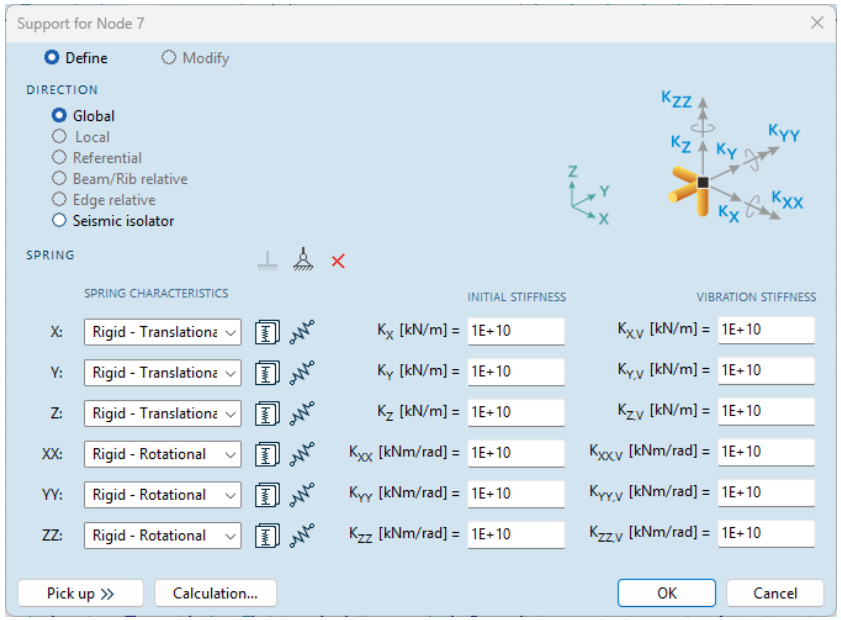


User interface and user experience development package

The latest AXISVM developments focus on improving user experience and the efficiency of everyday workflows. New quick settings, a visual refresh, and smarter behavior support design and evaluation tasks. The updates aim to provide a more modern, transparent, and flexible user interface.

Support definition presets for faster configuration setup

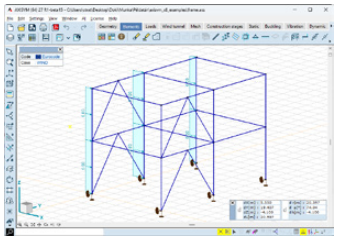
The characteristic-based nodal support, point-to-point spring, and edge hinge definition dialogs have been extended with preset options that allow users to quickly apply typical behaviors — such as fixed, pinned, or free conditions — with a single click, reducing repetitive input and speeding up the modeling process.



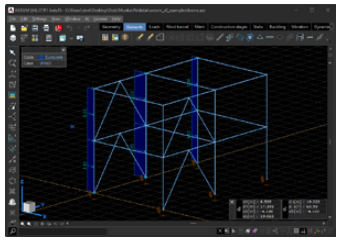
Theme management with predefined schemes, and visual overhaul of UI elements

Introduction of themes, to modernize the application's appearance through a selection of predefined visual themes. Themes affect not only colors but also the look of interface elements — such as buttons, panels, and forms — enabling light, dark, or classic display modes. The new feature provides a more modern user experience while still preserving the familiar appearance for existing users.

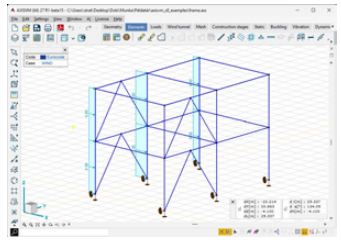
CLASSIC

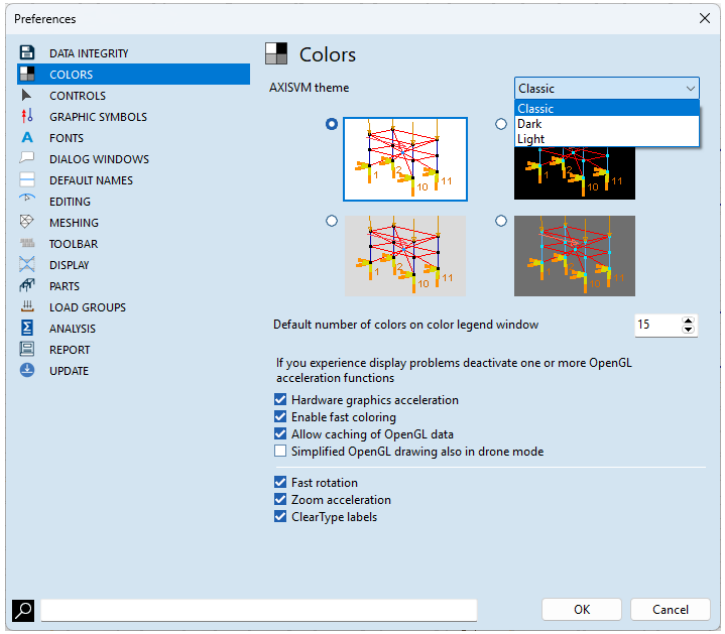


DARK



LIGHT



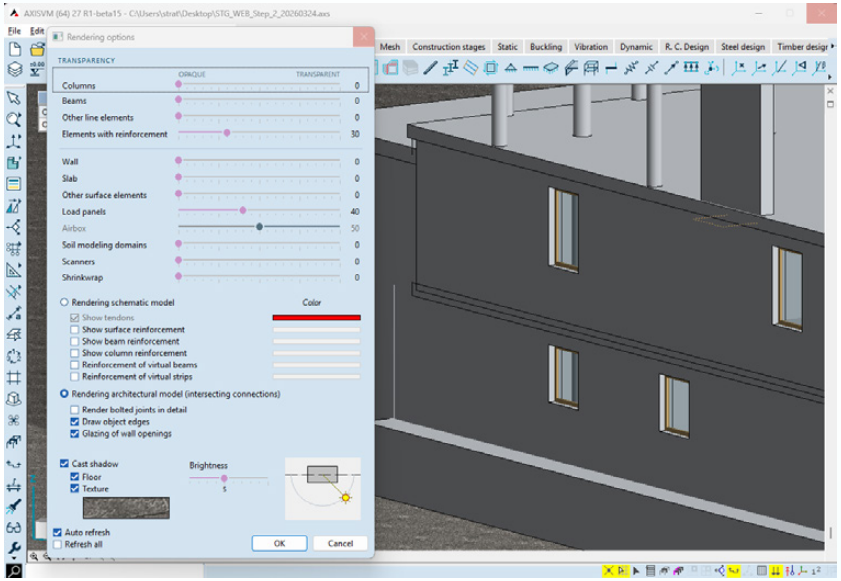


Preserve Selection on Task Cancellation

When interrupting tasks, the current selection is now preserved if the user clicks “Cancel”, preventing the need to recreate selections.

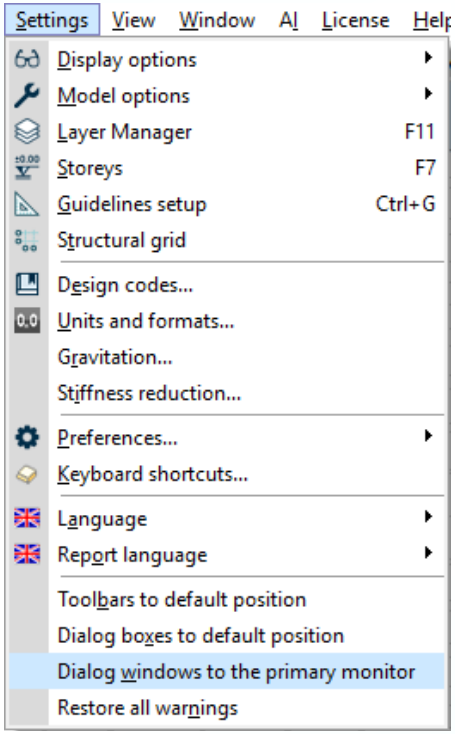
Glazed openings in architectural visualizations

Openings in wall domains are now – optionally – displayed with glazed surfaces in architectural renderings.



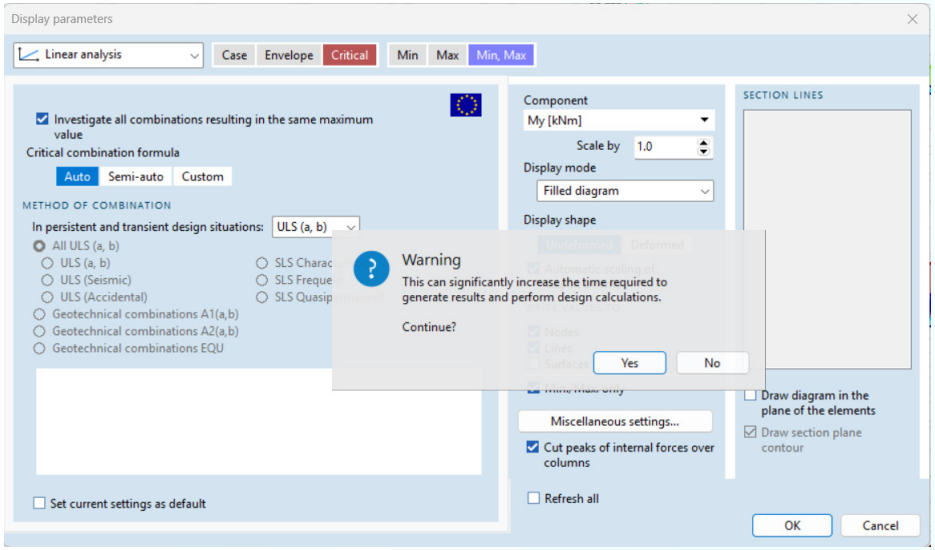
Dialogs open on main screen

A new option allows control over dialog window placement. When disabled, the application no longer remembers previous dialog positions, and all new dialogs open at center of the main AXISVM screen. The setting is available under the Settings menu.



Warning for full combination evaluation

When enabling the “Investigate all combinations resulting in the same maximum value” option in the Display Parameters dialog, the system now shows a warning. It highlights the increased computational effort and longer calculation time associated with this setting.



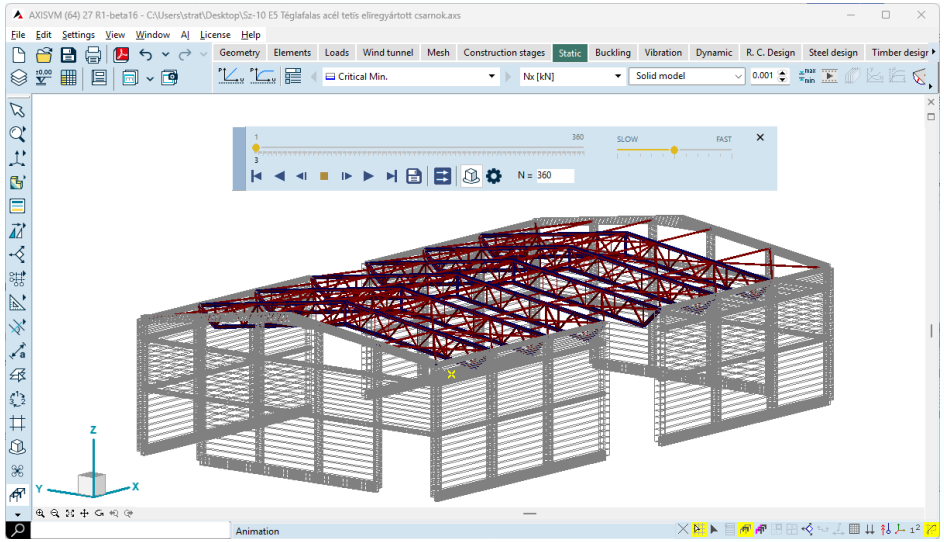
Improved table cell tooltip display

For text cells in tables, when the content does not fit within the available space, the tooltip will now display the full cell content, improving the readability and interpretation of data.

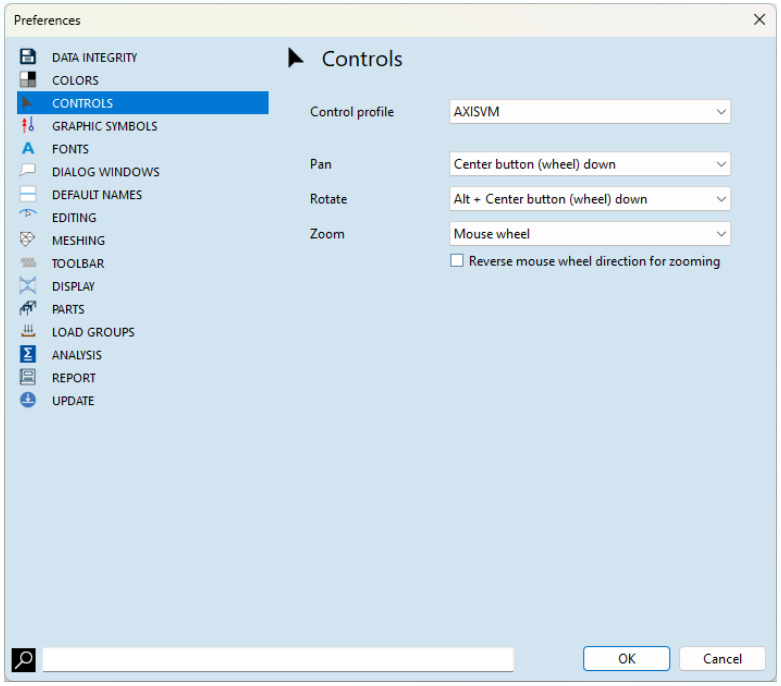
Turntable Mode for Animations

Turntable mode can now be enabled when animating results and streamlines. The model can be continuously rotated during animation, making the results more visually engaging and easier to interpret.

The feature is available for result animations, scanners, and wind tunnel simulation animations.



Mouse control profiles



AI Chatbot & Technical Answer Database

An AI Chatbot is introduced in AXISVM to replace the traditional Help functionality. Based on natural-language issue descriptions, the chatbot can recommend relevant technical answers and related solutions, supporting faster troubleshooting and more efficient user assistance.

In addition, MYAXISVM will provide access to one of the core components of the chatbot's knowledge base, the Technical Answer Database. The database contains articles created from processed support cases and structured according to a "problem description – root cause – solution" logic. The content can be filtered, searched, and browsed, enabling fast access to technical information.

Performance and stability improvements

Multiple optimizations have been implemented to improve the speed and stability of envelope, critical value calculations, and overall program operation. The benefits are most noticeable for larger models and more complex projects.

Modernized Numerical Solver Algorithms and Performance Optimization

In recent years, computer hardware used for engineering calculations has undergone significant development. Modern processors provide substantially higher computational performance, larger and faster memory caches, advanced vector instructions, and improved support for parallel execution.

To take advantage of these capabilities, AXISVM 27 introduces a new numerical solver approach based on the Intel® Math Kernel Library (Intel® MKL).

The previous proprietary solver has been replaced by the AxMKL solver, which uses Intel MKL to perform the core numerical calculations. The AxMKL implementation has been specifically integrated into AXISVM to make efficient use of the capabilities provided by modern processors.

An important advantage of this approach is that Intel MKL does not require the separate equation-system optimization phase used by the previous solver. AxMKL therefore eliminates this phase, reducing unnecessary data processing before the actual solution of the equations.

The new approach makes more efficient use of modern processor capabilities, including optimized numerical operations and parallel execution. As a result, the time required for numerical calculations has been significantly reduced, with particularly substantial improvements observed in larger models.

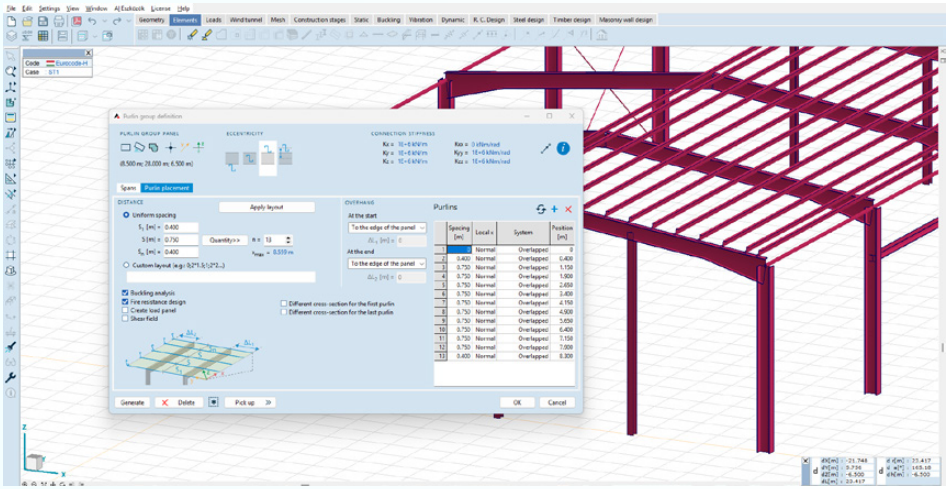
Analysis and Modeling development package

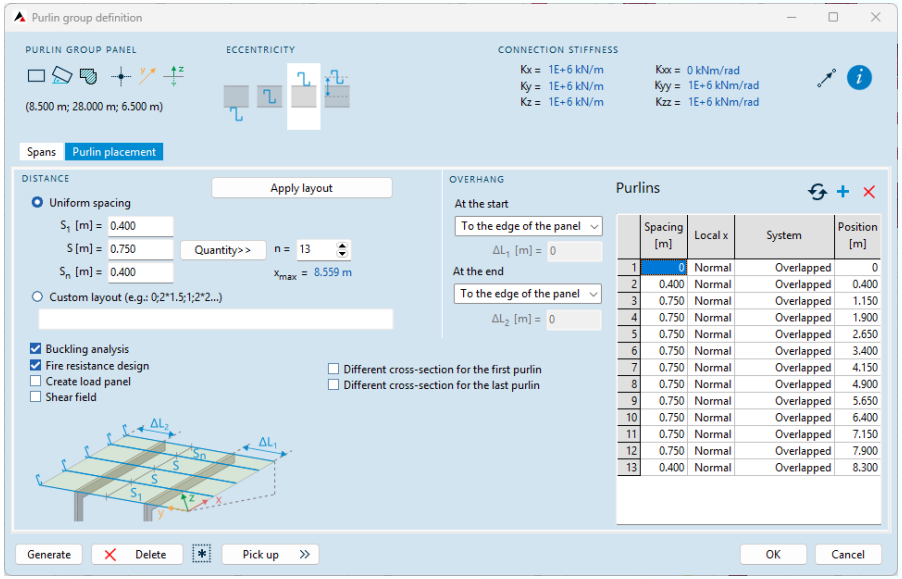
This development package extends the modeling, analysis, and evaluation capabilities of AXISVM across several areas, including nonlinear analysis, stability assessment, pushover analysis, load combination generation, and SLS verification. The improvements aim to provide more accurate structural behavior modeling, more efficient handling of specialized engineering scenarios, and more detailed and transparent result evaluation.

The package also introduces new result components, advanced modeling capabilities, and enhanced documentation features.

Purlin modeling wizard

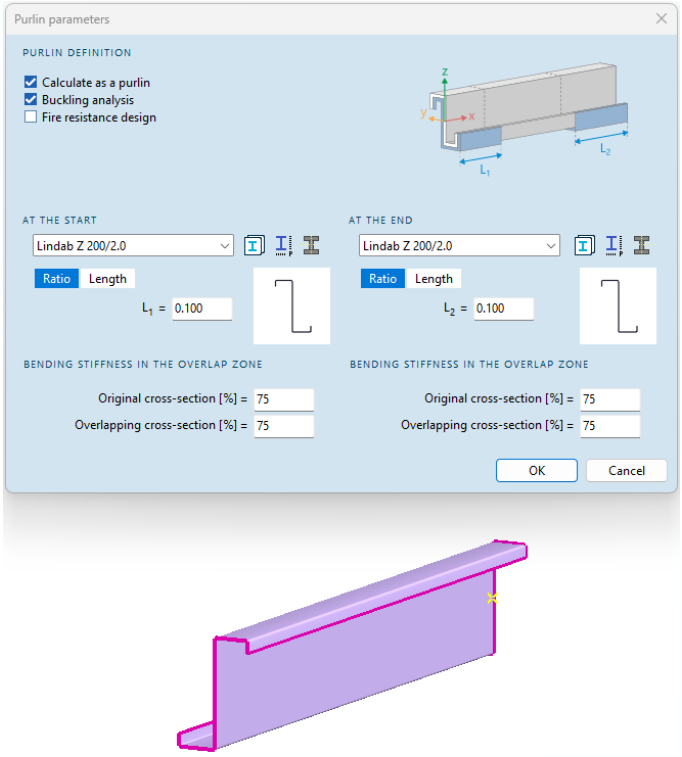
With the new purlin modelling wizard, it is enough to define a rectangular roof surface in space, and the software will automatically place the purlins based on the specified parameters (section types, spacing, overlaps, connections, etc.). This allows the purlin system model to be created or later modified quickly, consistently, and with only a few settings.





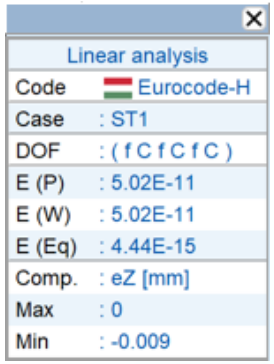
Assigning purlin parameters to beams and ribs

The development introduces the ability to assign purlin parameters to beams and ribs. The software takes the modified inertia of overlapping sections into account, and load panels can be configured to distribute loads only to the purlins located beneath them. The feature is available for cold-formed thin-walled steel sections.



Display of nodal degrees of freedom in the info panel

In the case if the automatic setting of nodal degrees of freedom were selected, without saving it into the model, the analysis results info panel has been extended with information about automatically applied nodal degree-of-freedom settings used during calculation. The feature provides additional transparency for nonlinear, dynamic, vibration, and buckling analyses.



Extension of pushover hinges with translation components

Pushover hinge handling has been extended so that all translation and rotation components except the Tx (4th) degree of freedom can now be used in pushover analyses.

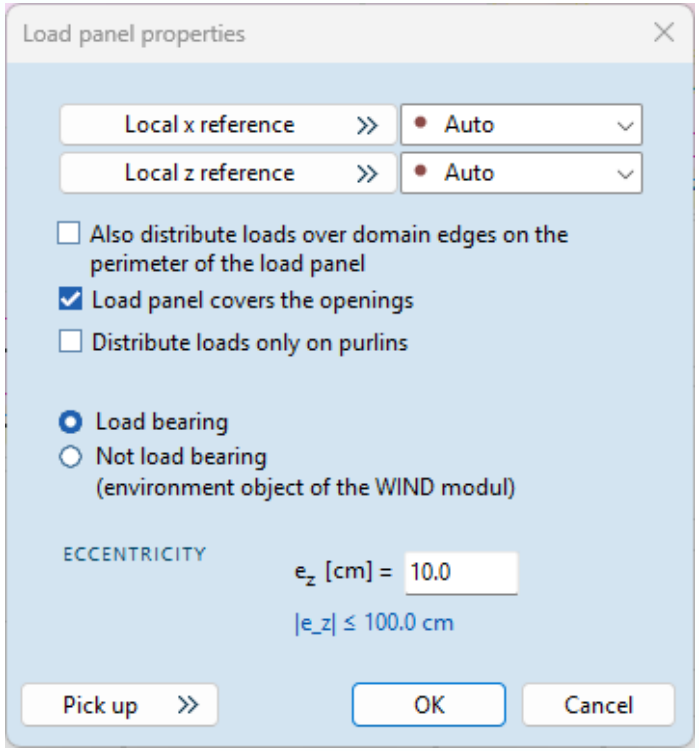
Handling gaps between load panels

The load panel handling functionality is extended with a new feature capable of merging smaller gaps between adjacent load panels. The development provides particular benefits for wind load generation (WIND/SWG) workflows, where gaps between panels could previously prevent the proper generation of wind pressure loads, for example on pitched roof structures.



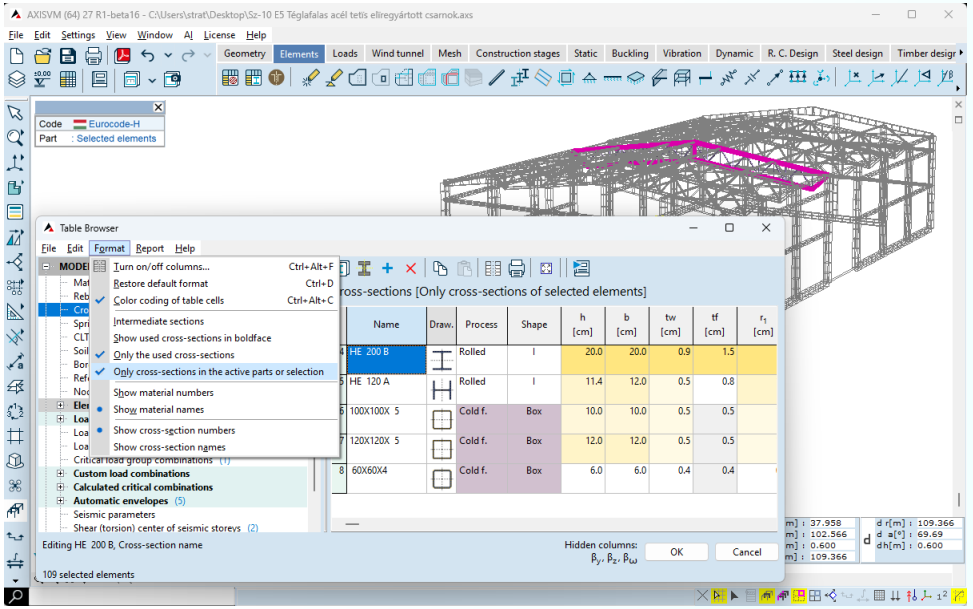
Support for eccentric load panel modeling

Eccentricity can be specified when modeling load panels. This is particularly important when using 7DOF elements during the calculation of buckling modes. Through the eccentricity of the load panels, the second-order effect of the load they transfer can be taken into account.



Filtering of cross-section and material tables by model part and selection

Cross-section and material tables can now be filtered based on the current model part or selection, ensuring that only relevant items appear in the documentation. It is also possible to list only the sections and materials actually used in the model.

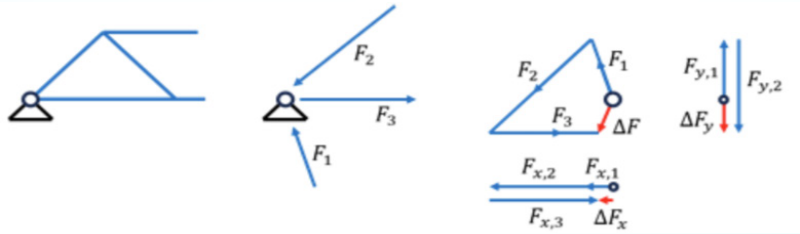


Tabular display of averaged line support forces

A new tabular result display has been introduced for averaged line support forces. The development enables direct querying and documentation of averaged support results.

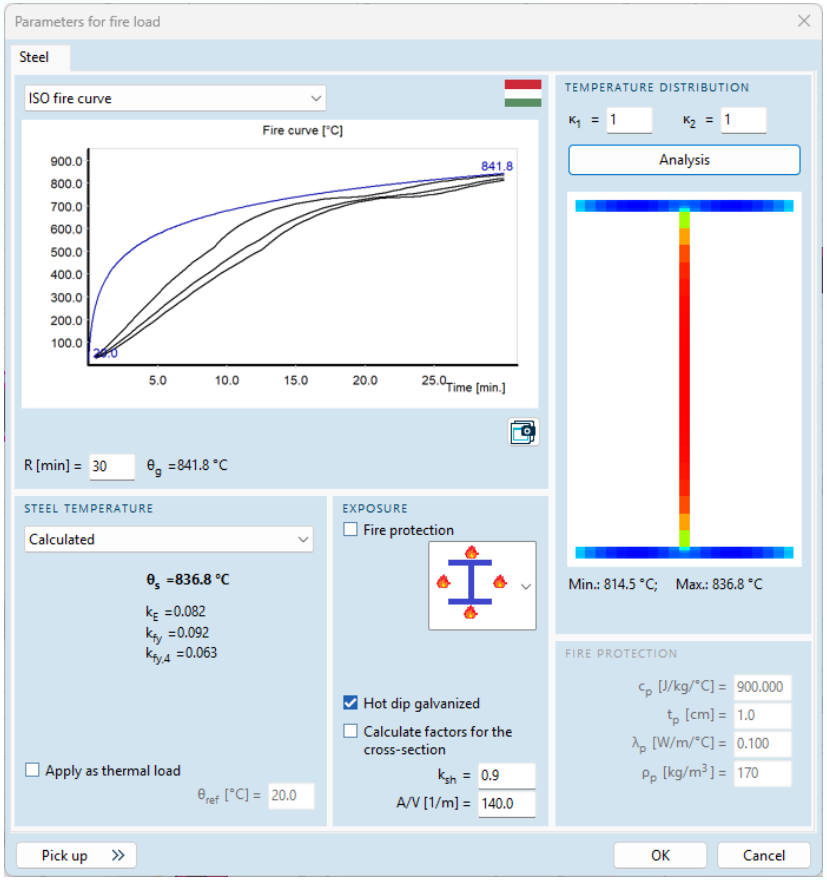
Force convergence error result components for nonlinear analysis

New result components, unequilibrated nodal forces and moments, are available for displaying and evaluating force convergence errors in nonlinear analyses.



Galvanized coating effect in temperature calculation

Steel temperature calculation has been extended to account for the effect of the galvanized coating layer.



Nonlinear analysis considering the sequence of permanent and variable loads

Nonlinear analysis is extended to account for the order-dependent application of permanent and variable loads using static load combinations, without pushover assumptions. This new option enables more accurate structural behavior evaluation for prestressed structures and time-dependent effects such as temperature loads or prestressing.

Signed combination method for Modal Response Spectrum Analysis

The new method takes into account the signs originating from the results of the dominant mode when combining the results of mode shapes. The dominant mode can be selected manually or determined automatically by the software. Its use is not recommended if no dominant mode shape is present.

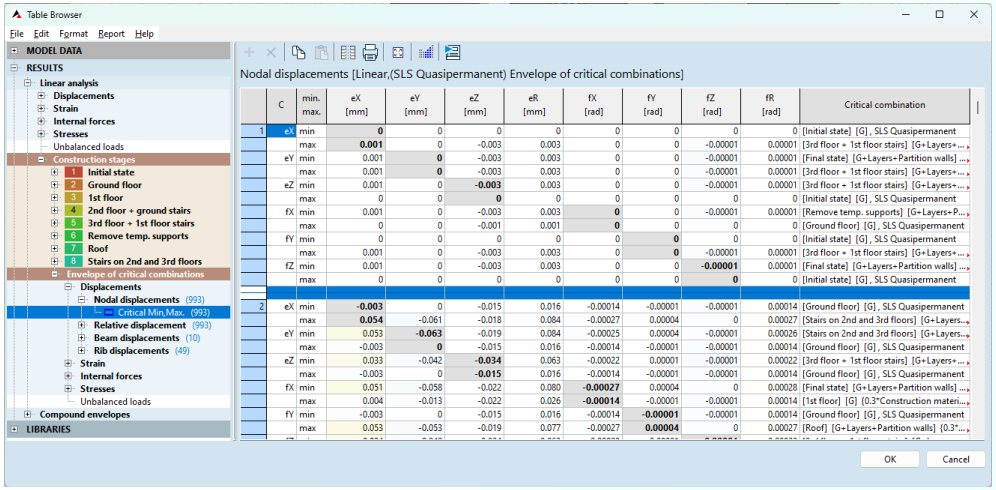
This method enables users to obtain specific, signed result sets, in contrast to the traditionally strictly positive results (which are inherent to the nature of the SRSS or CQC methods).

The development was implemented based on requests from multiple international users and brings the software in line with solutions already available in other competing applications.

Construction Stages (STG) development package

Envelopes of critical results of construction stages STG

New option to display envelope diagrams and query tables from the critical results of construction stages. This enables a unified handling of extreme values arising both during construction phases and in the final in-operational state.



Extended family of connection elements in construction stages

The construction stage analysis capabilities have been extended with support for edge hinges, line-to-line connections, surface supports, and elastic embedding of bars and ribs. This enables unified handling of their properties, activation, and inclusion in construction stage analysis.

Consideration of prestressing loads in construction stages

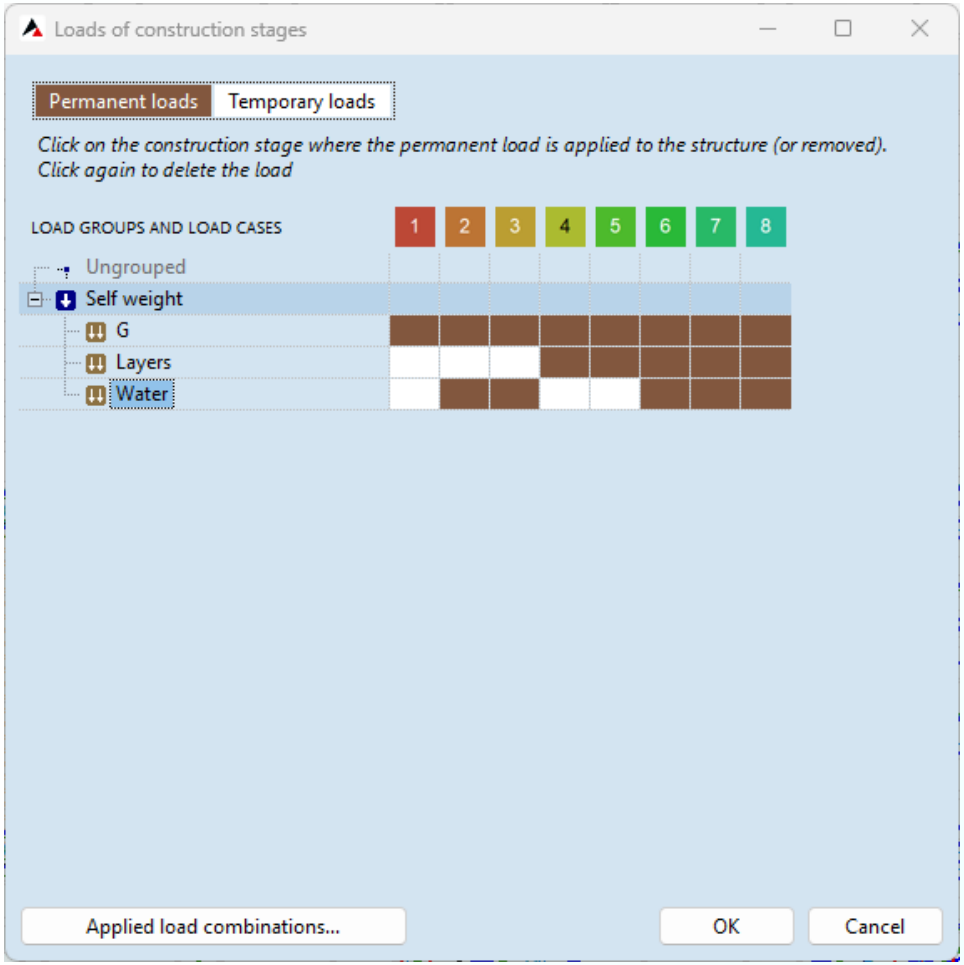
During construction stage analysis, prestressing effects are handled in a separated manner: load case T0 is applied to construction stages, while TI is used for the final state. Active prestressing loads are always taken into account, ensuring a consistent and simplified analysis approach.



Stage-based activation and deactivation of permanent loads

In the STG module, permanent load cases can now be activated or deactivated starting from a selected construction stage and propagating to all subsequent stages. Once activated, permanent loads appear from the first activation stage onward, while user actions toggle their presence for that stage and all later ones. Variable load cases remain restricted to the stages where they are explicitly active.

The feature is primarily intended for modeling permanent loads that are present intermittently during the construction process. For example, a water load may be present on the structure for a certain period, then removed by draining the water, and later applied again when the structure is refilled. The feature is not intended for managing self-weight between construction stages.



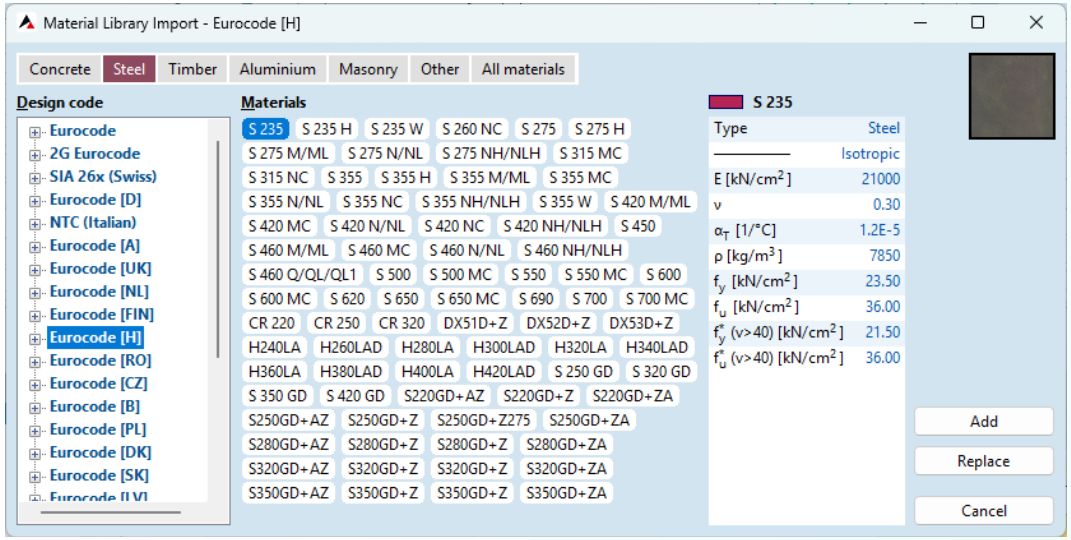
New SD3 Module

Cold-formed section design

The new SD3 module supports fast and code-compliant design of thin-walled cold-formed steel sections – primarily purlins – according to EN 1993-1-3. From modelling groups of purlins and considering the effect of shear fields through reviewing relevant result components and performing code checks and documentation, all the way to generating material take-off tables, engineers can complete the entire workflow in an integrated way within AXISVM.

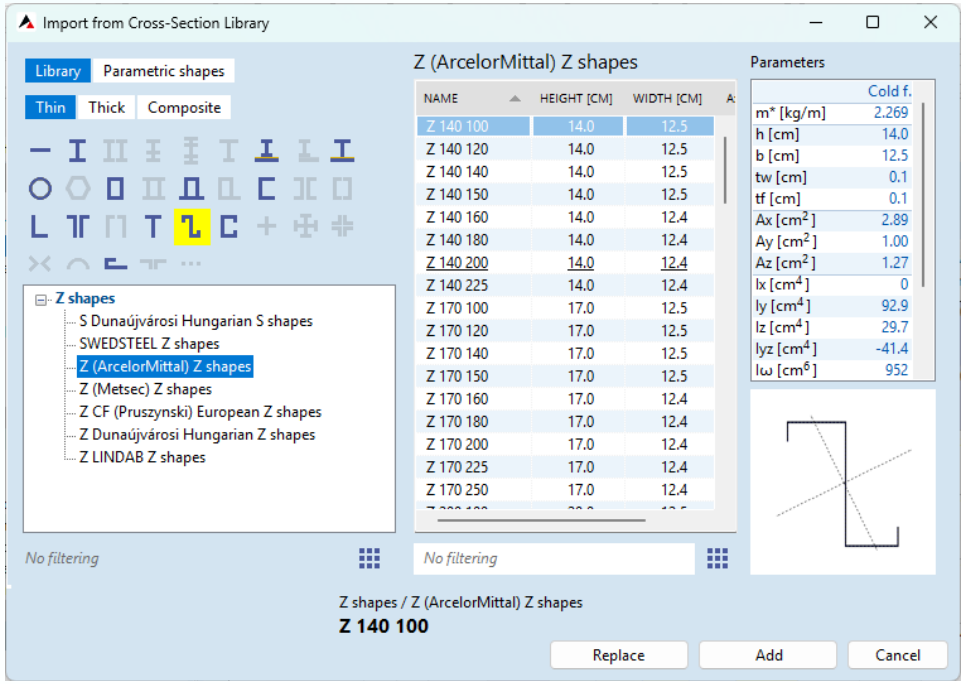
Extension of steel material library

The steel material library has been extended with steel grades used for the production of cold-formed sections, based on Tables 3.1a and 3.1b of the EN 1993-1-3 standard and related technical literature.

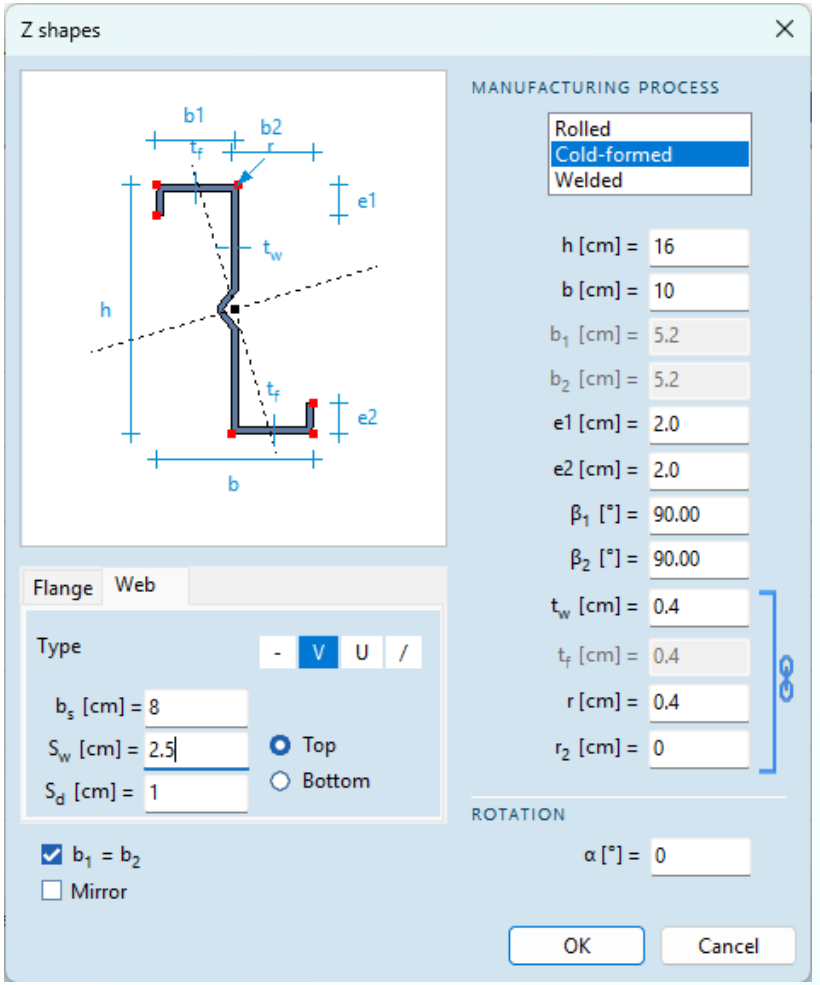


Extension of the cold-formed section database, with optional stiffener definition

The section database has been extended with new cold-formed sections, and the section editor now supports the definition of stiffeners (C,Z). As part of the development, section libraries from several European manufacturers — including Pruszyński, Lindab, and Metsec — have been added, covering C, Z, Sigma, Sigma+, and S section types.



For C and Z sections, stiffeners can now be defined in both the flanges and the web. The geometric properties of the stiffeners — such as position, width, height, and angle — can be freely specified.



Eurocode 2G – Second generation of Eurocodes

The new second-generation Eurocode standards have been published by CEN. These standards must be adopted as national standards by autumn 2027, while the previous first-generation standards must be withdrawn by spring 2028. The amount of work associated with the introduction of the new standards, together with the transition process itself, makes this development particularly important. In addition, compliance with the 2G standards may become mandatory earlier in some European countries.

The release of AXISVM 2027 is planned for October 2026, followed by another major release approximately one year later. Since these milestones overlap with the Eurocode transition period, it is essential that support for the 2G EC standards starts within this timeframe and is completed by the required deadline. As part of this process, the already implemented features will be released incrementally, allowing users to familiarize themselves with the new standards.

The planned scope of the AXISVM 27 release includes:

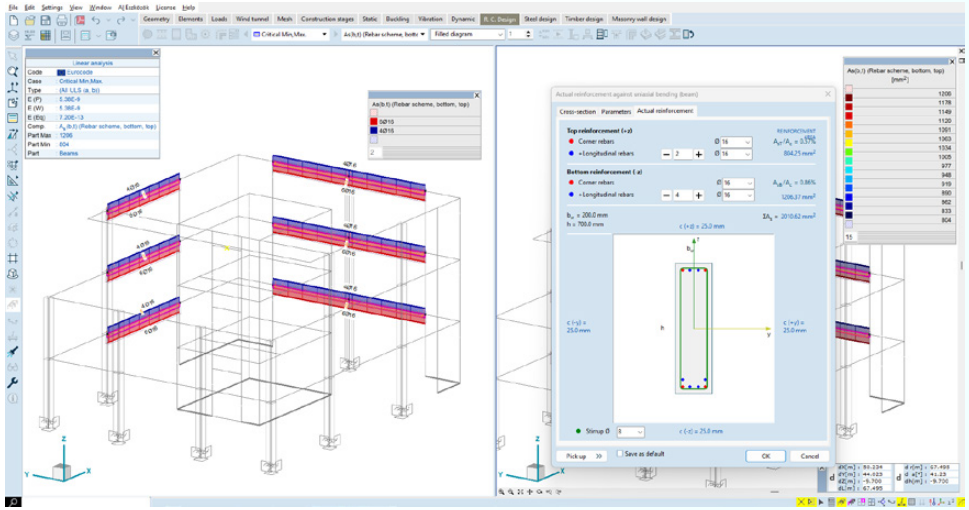
- EN 1990 (2nd generation)
- EN 1993-1-1 (2nd generation)
- EN 1996-1-1 (2nd generation)
- EN 1992-1-1 (2nd generation, limited scope: columns and beams only)

The final scope will naturally also depend on the publication schedule and availability of the relevant standards.

Reinforced concrete development package

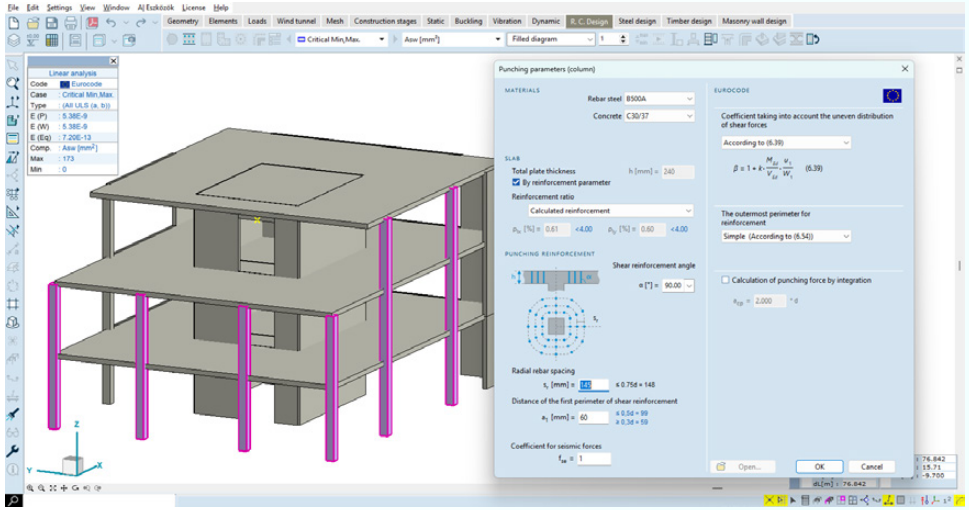
Group design of selected reinforced concrete beams

Group-based definition of reinforcement parameters for selected beams, unified design handling through new result components, and tabular documentation of the results. The new feature provides significant efficiency improvements for large models where many beams need to be checked simultaneously.



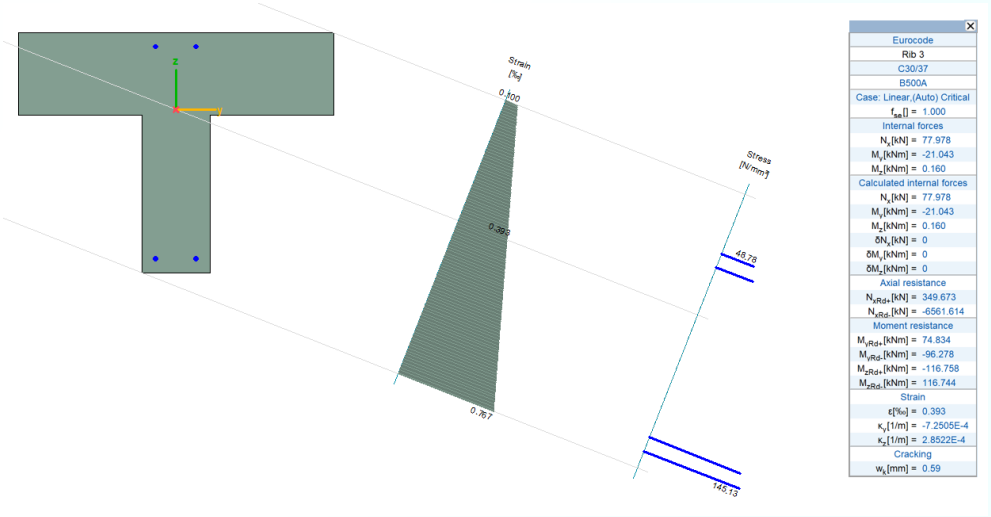
Group punching and shear design

The RC3 module now allows punching shear design to be performed for multiple selected nodes at once, making it easier to carry out punching shear checks for larger models.



Crack analysis in RC6 module

The RC6 module is extended with crack analysis capabilities, enabling the determination of crack width in biaxially bent elements.



Consideration of axial force in beam reinforcement design

Beam bending reinforcement design has been extended to take axial force effects into account. The development provides more accurate reinforcement results in cases non-negligible axial forces act in addition to bending.

For ribs connected to slabs, beam internal forces can also be integrated over a virtual strip for reinforcement design.

Beam reinforcement calculation speed improvement

The beam reinforcement calculation process has been optimized by reducing the number of considered cross-sections, resulting in faster reinforcement design.

Faster punching shear calculations

Punching shear calculations have become more efficient, so results are generated and queried faster, especially for critical and envelope results.

Updating Support Parameters from Foundations design

Following the design of pad and strip foundations, the parameters of nodal and line supports can now be automatically updated based on the actual loads considered during the foundation design.

The update support parameters according to the actual foundations function transfers the support forces used by the foundation design module to determine settlements and, based on these values, updates the support stiffnesses individually for each support.

The function can be used with pad foundations for nodal supports and with strip foundations for line supports.

Displaying the Critical Punching Shear Perimeter in the Model Space

Using the RC3 module, the critical punching shear perimeter can now be displayed directly in the model space, making it easier to review and interpret the punching shear verification.

Basic control perimeter

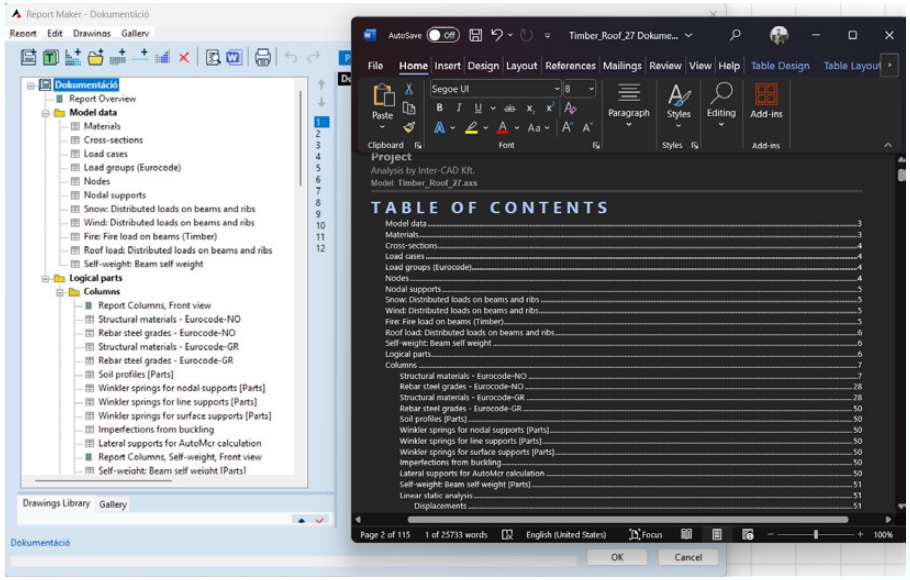
Significant Speed Improvement in Punching Shear Calculation

Punching shear calculations in the RC3 module are now significantly faster. The punching shear design now handles different load situations together and directly selects the load situation resulting in the maximum utilization, avoiding the previous approach of running the complete design separately for each load situation.

Documentation related development package

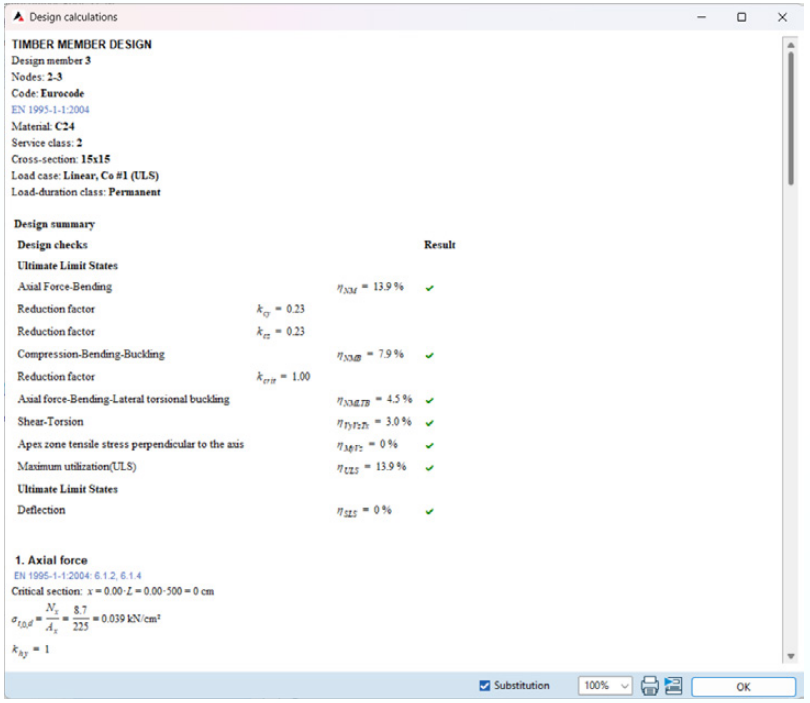
Report export to *.docx* format

AXISVM reports can now be exported to .docx format in addition to the existing PDF and RTF options, enabling easier editing and customization.



Summary extract at the beginning of detailed design calculations

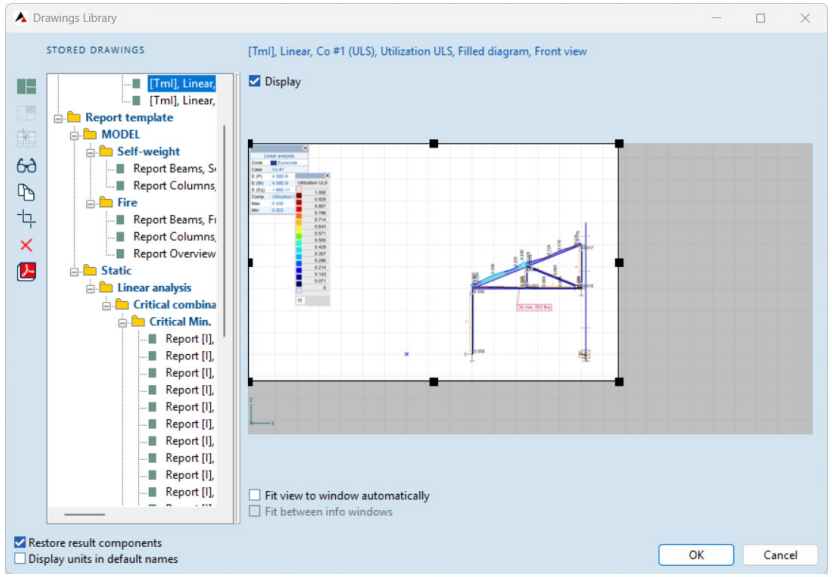
Design calculation documents are extended with a compact summary extract presenting the results and utilization ratios of individual checks. The summary can also be included in the main report. Report may be generated with summary only.



Copying Drawing Items and Changing the Aspect Ratio

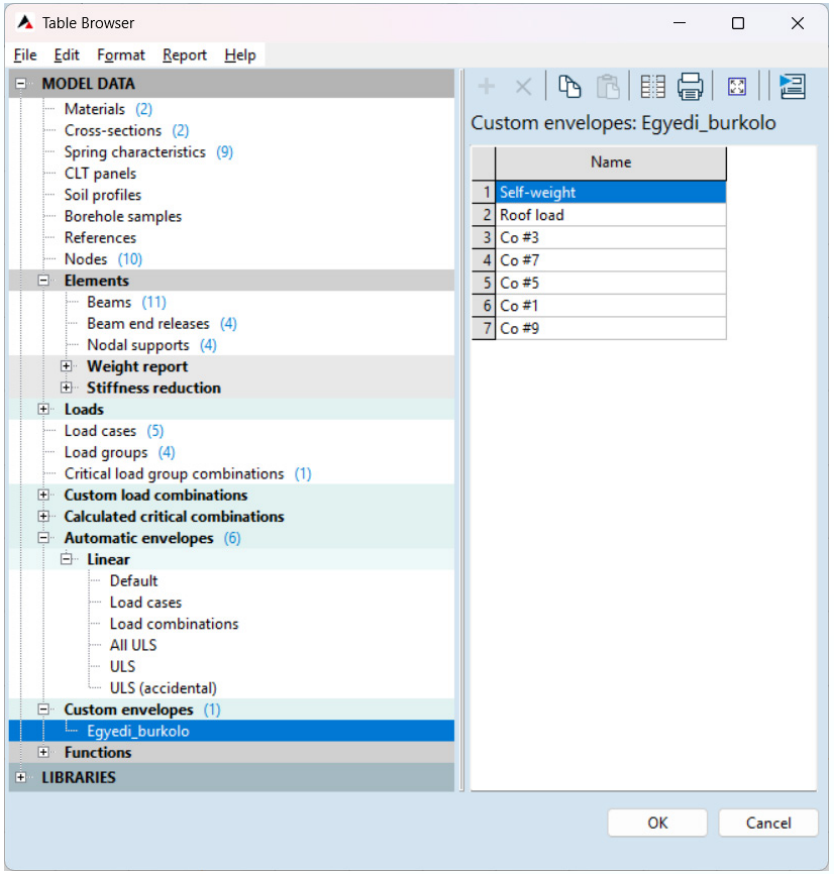
Drawing items in the Drawing Library can now be copied and resized. By cropping a selected area of an existing drawing, a new image with a different aspect ratio can be created and saved.

The new functions are available in the left toolbar of the Drawing Library.



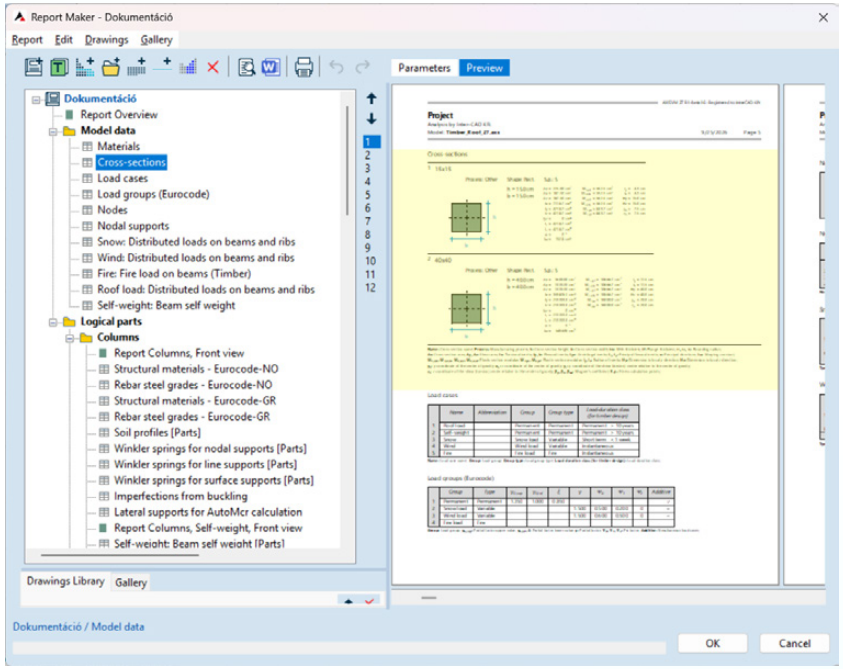
Documentation of Load Cases and Combinations in Envelopes

For improved clarity and transparency of the documentation, the load cases and load combinations used to generate envelope results can be displayed in tabular form.



Live documentation preview

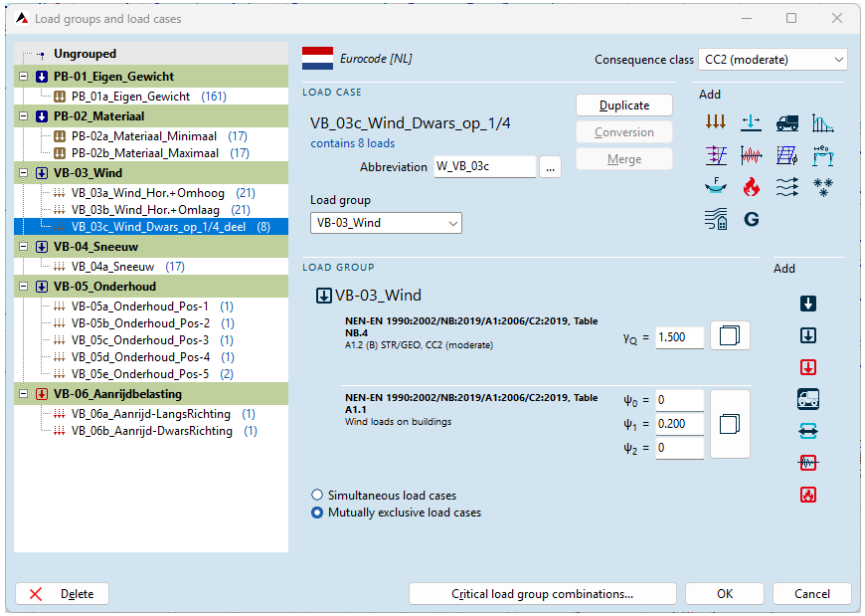
A new type of documentation preview can be displayed directly next to the selected item in the tree. The preview window can be freely resized, while the document can be panned and scrolled using the mouse. Selections are synchronized between the documentation tree and the preview, so selecting an element in either view automatically selects the corresponding element in the other.



Load Case Abbreviations

Abbreviations can now be assigned to load cases and used in the descriptions of critical load combinations. This allows load cases to retain descriptive, meaningful names without making the critical combination descriptions unnecessarily long.

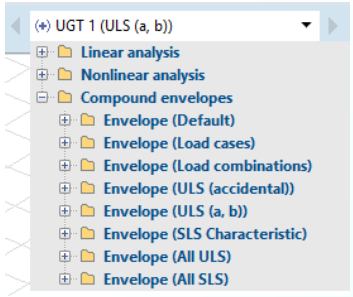
The use of abbreviations can be enabled or disabled, and missing abbreviations can be generated automatically.



General result handling development package

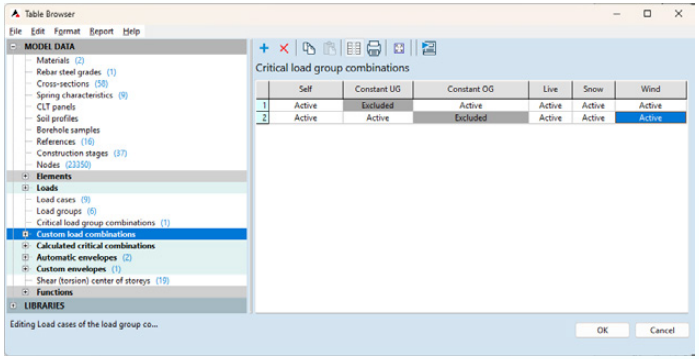
General envelope for different analysis types

The new general envelope allows results from different analysis types – such as linear, nonlinear, dynamic, or construction stage analyses – to be combined into a single envelope evaluation.



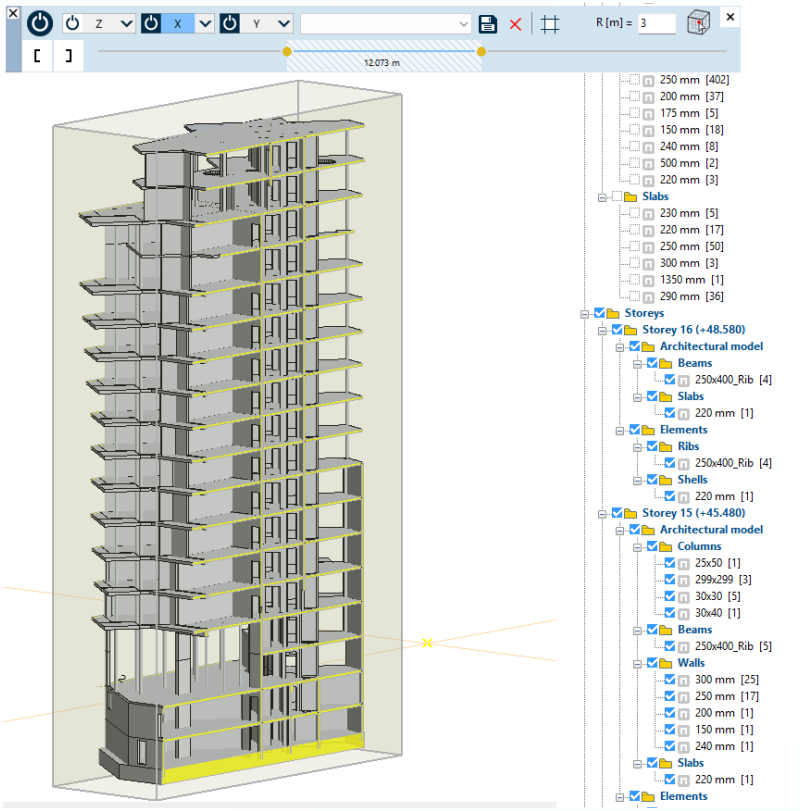
Permanent load handling in critical load group combinations

Critical load group combinations are extended with more flexible handling of permanent loads, allowing them to be excluded from selected combination evaluations.



Section planes and detail handling

Section plane handling is extended with dynamic updating of model and detail boundaries. Section plane limits are automatically refreshed when changing details, modifying model extents, or switching result display modes, ensuring seamless navigation between local details and the full structural model.

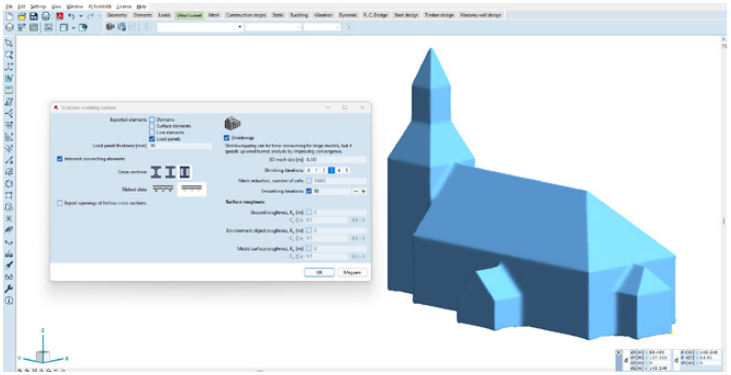


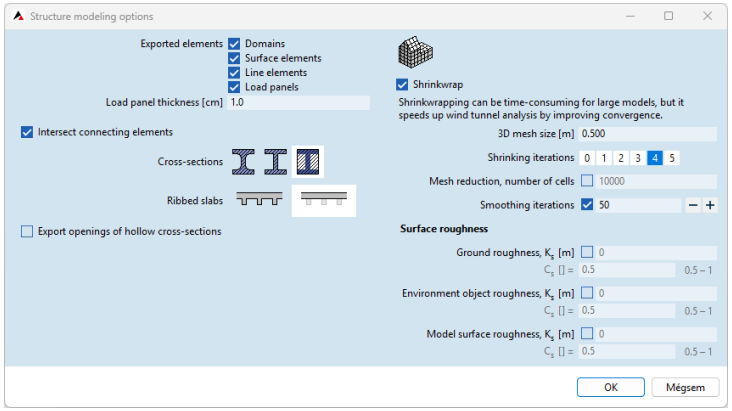
Digital wind tunnel simulation (WIND) development package

The WIND module development package enhances wind tunnel simulation preparation, modeling, and result handling in several areas. To improve CFD stability and performance, a shrinkwrap-based geometry smoothing approach is introduced. Surface roughness and wind friction effects can now be modeled, and visualization as well as computational domain handling are refined, including finite element-based display and the definition of a numerical wind tunnel ground for high-rise buildings.

Shrinkwrap geometry generation for wind tunnel model preparation

The WIND module is extended with a shrinkwrap-based geometry preparation method that generates a continuous, smoothed outer envelope of the structural geometry for wind tunnel simulations. The approach reduces sharp edges, gaps, and local geometric discontinuities in the mesh, thereby improving numerical stability and enabling more robust and faster CFD simulations.





Surface roughness and wind friction effects

The WIND module is extended with support for surface roughness effects. Users can define surface roughness parameters on input surfaces, which are incorporated into the boundary layer behavior and pressure distribution calculations during the wind tunnel simulation.

Numerical wind tunnel base

For high-rise buildings, when modeling the full height is not required, a numerical ground plane can be defined with a frictionless boundary condition applied to its surface. This simplification can significantly reduce computation time.

Display of CFD geometry in AXISVM prior to simulation

The STL geometry exported for CFD analysis can be displayed in the model space before the simulation is started, allowing the user to directly view the actual solid geometry that will be used as input for the wind tunnel simulation.

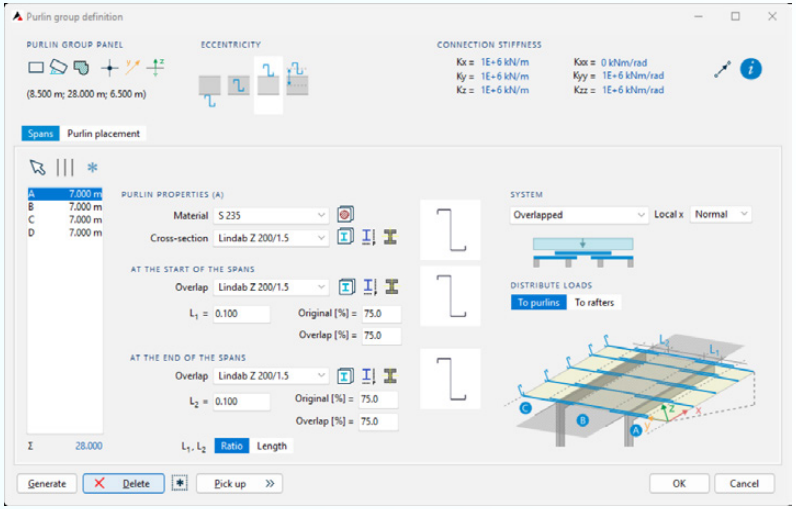
CFD model surface mesh display

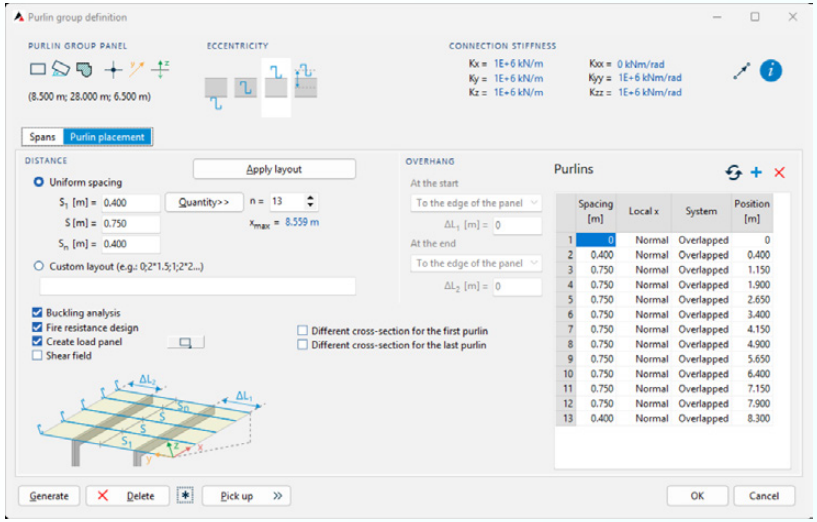
The surface mesh display of the CFD model can now be independently turned on and off in the model view.

Shear field

Consideration of shear diaphragm effect

The Shear Field development package enables the direct consideration of the stiffening effect of trapezoidal sheets and sandwich panels in the global structural model, as well as in the steel design modules. As part of the development, shear field stiffness can be assigned parallel to beam or rib elements, including support for eccentric connections, resulting in more accurate stability and stiffness behavior. The package also introduces new definition interfaces, manufacturer-based libraries, and visualization features.





BIM development package

Support of Revit 2027

Bidirectional data exchange add-on between Revit and AXISVM supports Revit 2027.

Enhanced SAF file format support

Support for the SAF 2.1 and SAF 2.2 file formats has been added, further improving data exchange between BIM and structural design applications.

With SAF 2.1, internal forces of truss members, members and ribs can be exported. Results from linear and nonlinear static analyses, as well as dynamic analyses, can be selected for export, including results from multiple analyses. With SAF 2.2 support, the export has been extended primarily with surface internal forces along domain contours. The design code specified in the SAF file can be imported and displayed.

GrasshopperToAXISVM V9.0 add-on for parametric design

The new version of the GrasshopperToAXISVM add-on further extends the integration possibilities between parametric modeling workflows and AXISVM. One of the key new features is the support for reinforced concrete design parameters, enabling the direct transfer and import of design data for reinforced concrete beams and columns.

The development also expands the capabilities of the Importeur component with support for restraints, load cases, load combinations, and load panels, while also introducing the handling of AXISVM logical model parts directly from Grasshopper.

As part of the update, existing components are further refined to become more flexible, compact, and efficient to use, alongside simplified load definition workflows.


AXISVM
download AXISVM27