FEM-Design

FEM-Design is an advanced modelling software for finite element analysis and design of load-bearing concrete, steel and timber structures. The quick and easy nature of FEM-Design makes it ideal for all types of construction tasks from single element design to global stability analysis of large structures.

The structural model is created easily in 3D with intuitive CAD-tools or imported from popular BIM-software.

Loads can be applied using the wind and snow load generator and load cases for the most unfavourable combinations of loads are created automatically.

The finite element mesh is generated and optimised automatically.

Design checks are carried out according to desired code. The Auto Design feature helps users choose the most efficient cross-section and reinforcement.

Results are shown in a variety of 3D-graphs, contour lines, colour palettes or sections. Quality reports can be created from within the built-in FEM-Design documentation editor.
For even faster modelling, the built-in structure wizard automates the input geometry and results. Automatic loading combiners combine permanent, variable and accidental loads to the most unavourable situation. The finite element mesh is automatically generated with optimal element sizes. Steel design includes automatic utilisation checks for stresses, flexural buckling, lateral torsional buckling and web and flange buckling. Steel bars can be converted to shell elements, allowing varying cross-sections, cut-outs and stiffeners, and checked for buckling shapes and utilisation for flexural-, torsional-, lateral torsional- and local buckling.

For concrete, required reinforcement is automatically applied to areas from a list of available diameters and spacings. Reinforcement can be checked against deflection and crack-width criteria. Applied reinforcement in the concrete elements is checked according to code, and accurate crack-width with deflection calculations. Timber design includes automatic utilisation checks for stresses, flexural building and lateral torsional building for wood and glulam sections.

The Autodesign function automatically chooses the most optimal section according to a predefined set of desired section types. The active model views and tables are easily set up to display desired result, display mode, scales and text size and are automatically refreshed when changes have been made to the model or calculation.