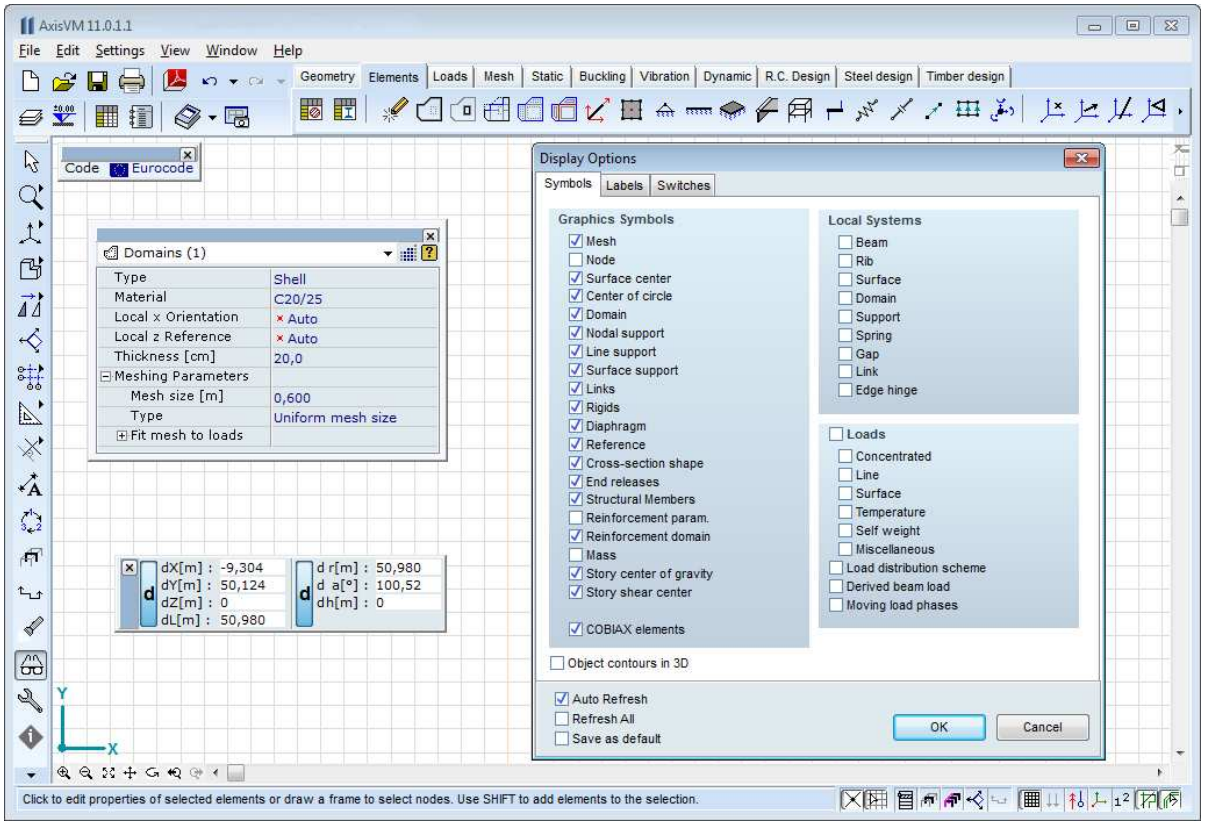
AXISVM 11 new features

1. Full Unicode support

Unicode is an international standard for universal encoding of various coding systems.
It also supports character's presentation and classification. Using Unicode wide range of character collections is available in text documentation and naming.

2. Windows 7 style appearance (menu, dialogs, icons, etc.)



3. IFC 2x4 support (IFC module)

AxisVM 11 can open and import objects from latest version of IFC files.

4. Import materials from IFC files (*IFC module*)

Materials in IFC can be imported to AxisVM.

5. Import-export support of curved elements and elements with variable cross-section from IFC files (*IFC module*)

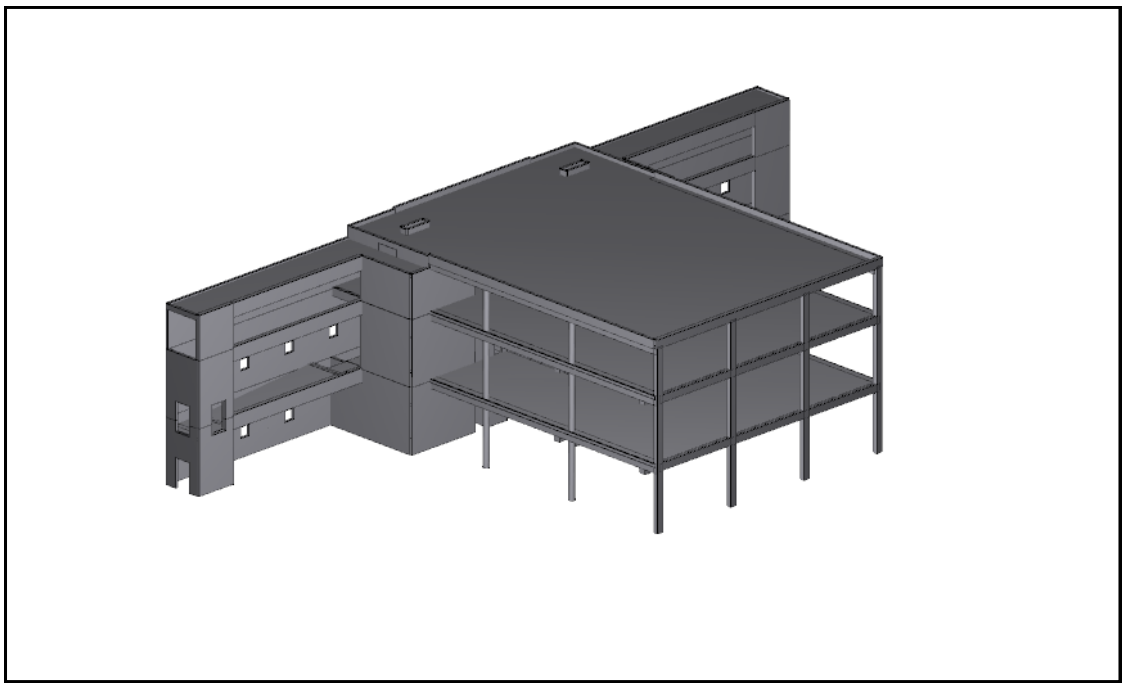
6. Import-export support of loads, load cases, load groups from IFC files (*IFC module*)

7. 3D PDF file export („active view” and drawings library)

Graphical content of the exported PDF file can be rotated and zoomed in and out.

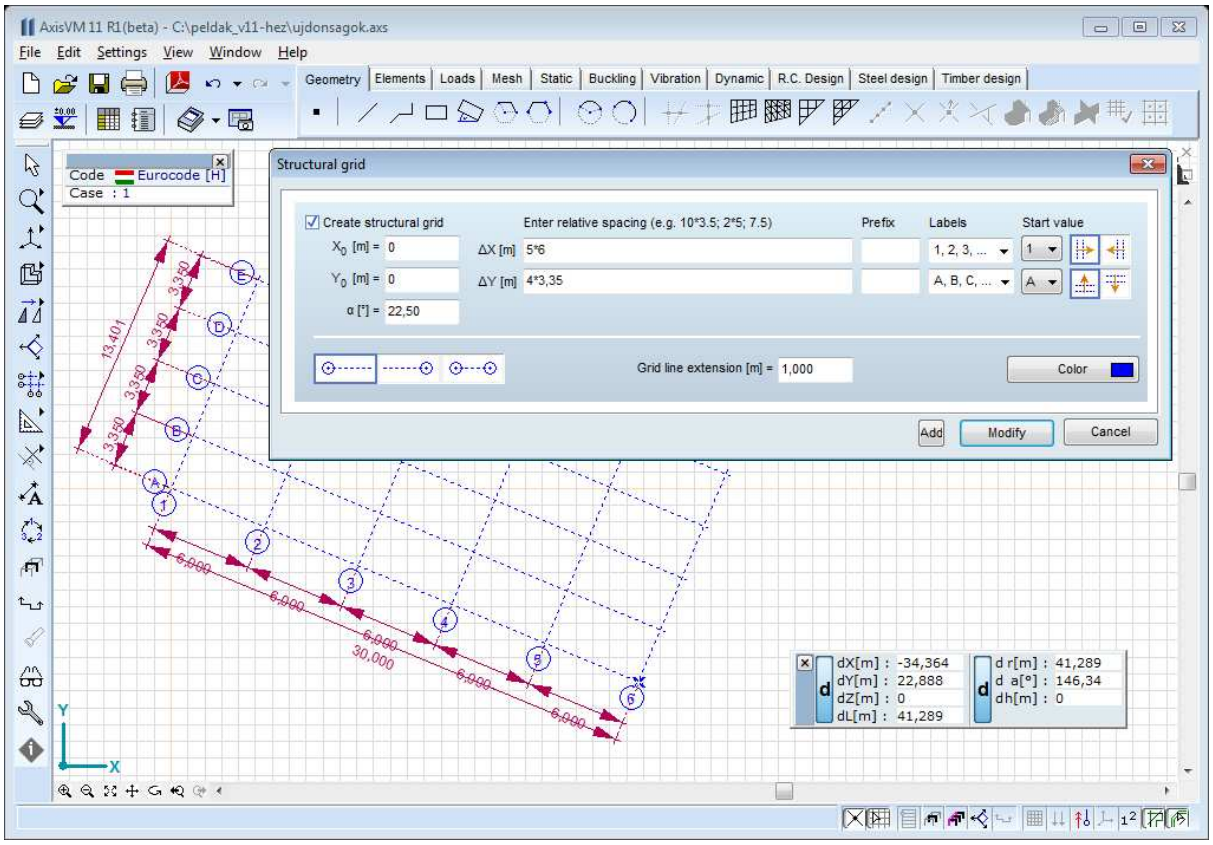
3D content can be turned by following:

- left mouse button down: rotate
- both mouse buttons down: panning
- mouse wheel: zoom in / zoom out



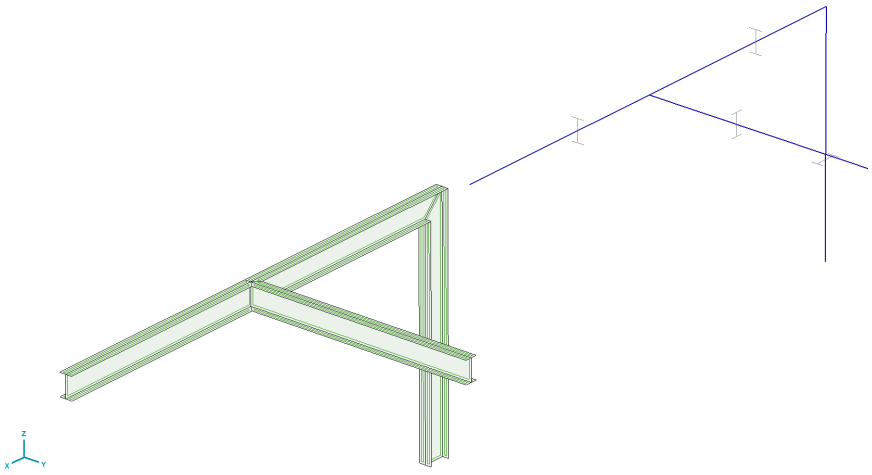
8. Structural grid lines support

New function which aids modelling. This helps precise positioning of structural elements (for example: adding columns, walls, beams directly to grid lines and intersections).



9. Convert beam (rib) elements to shell

Selected elements (beams, ribs) with steel cross sections can be converted to shell elements. This way user can analyse beams as shells.



10. Conversion of beam connections to shell elements

Beam elements connected in one node converted to shell elements.

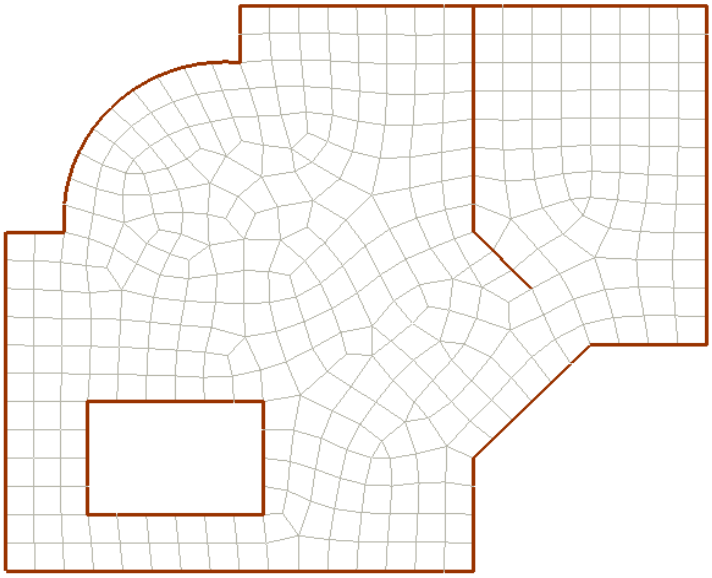
11. Line load can be applied to beam or rib structural member

Structural members assembled from several beam or rib elements can also have line load applied.

12. Composition of load combinations can be copied from results window to clipboard and then paste in load combinations table.

13. Quadrilateral Mesh

New options available for mesh generation. Additionally to triangular mesh, mixed triangle-quadrilateral mesh or quadrilateral mesh is now available.



14. Considerable faster analysis module *(MT module)*

New incredible fast solver of equations with parallel processing support for multi-core CPUs. Processing time decreases to 1/3rd~1/10th of the time!

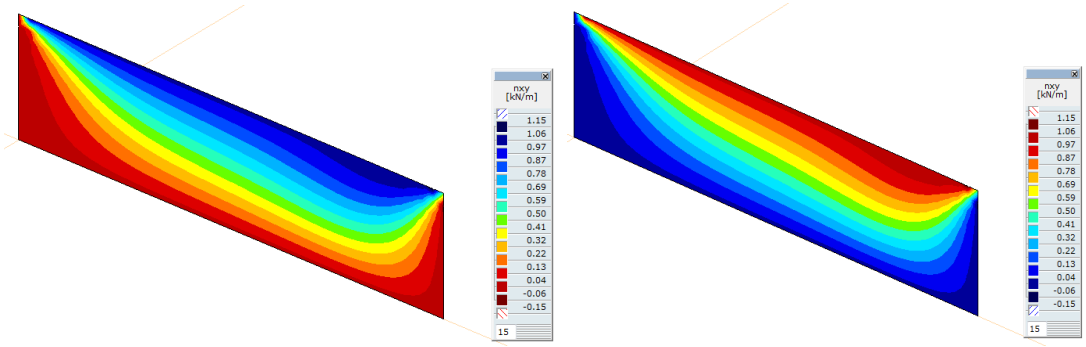
New solver requires 75% less memory, therefore less virtual memory is needed, therefore larger models fill fit to physical memory then in previous versions. The new solver is also faster on single core CPUs.

15. More load cases/ load combinations can be analysed in a row for buckling and vibration analysis

Similarly to non-linear analysis, users can select load cases or load combinations which will be analysed in a row.

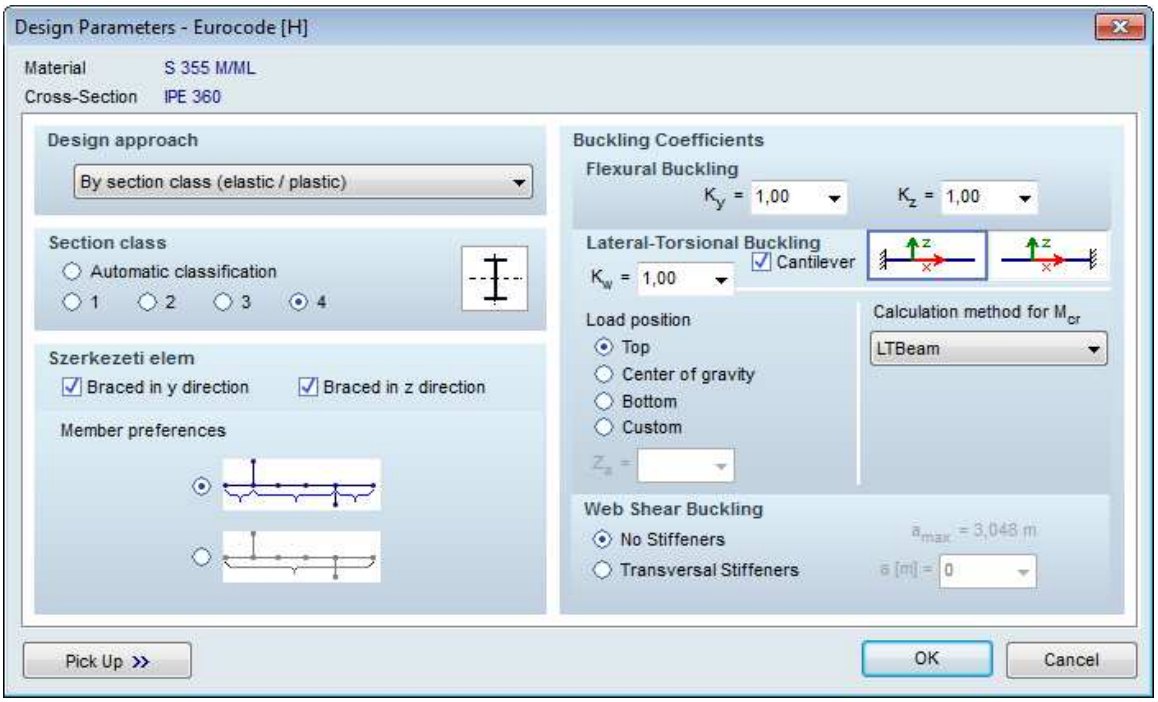
16. **„Section segments results” also in tabulated view**

17. **Colour scale can modified from red-blue to blue-red**

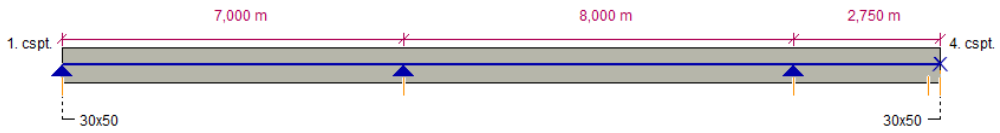


18. **Determination of Mcr (Elastic critical moment for LTB) on beams (or cantilevers) with constant or variable cross section in steel design module (using LTBeam software)** *(SD1 module)*

Application LTBeam, which calculates the Mcr, is installed together with AxisVM. Mcr is needed for buckling analysis in various load conditions. This application calculates Mcr for each load combination. Setting C_1, C_2, C_3 parameters is not required anymore.



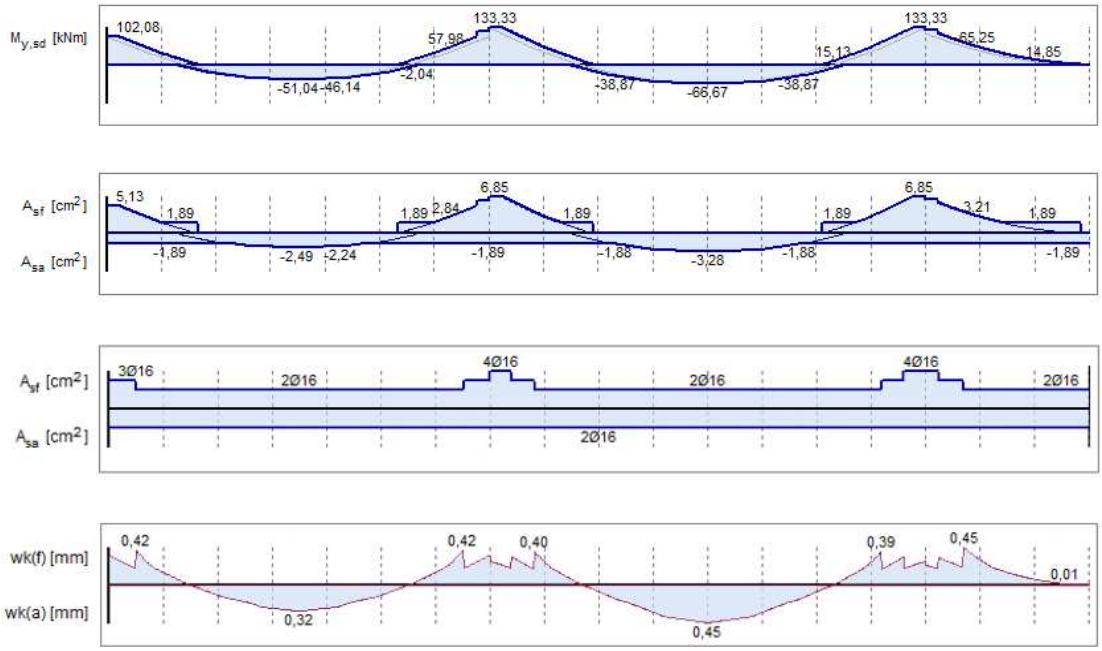
19. **Automatically defined supports of RC beams can be switched on/off in RC design module.**
(RC2 module)



20. Initial rebar diameter of top and bottom longitudal reinforcement can be assigned during RC design.

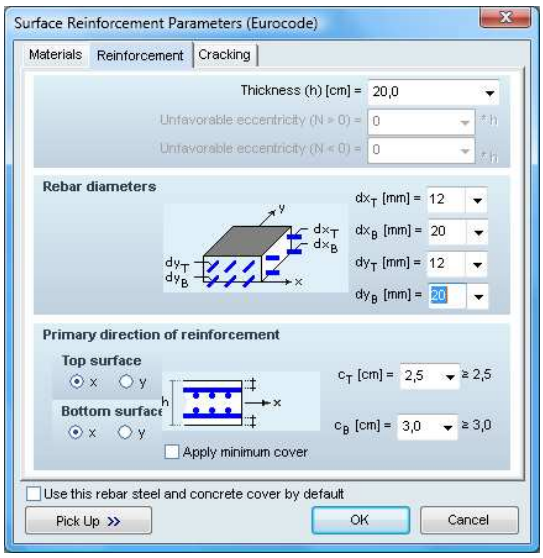
(RC2 module)

Based on provided information AxisVM determines number of rebars. AxisVM calculates crack widths based on calculated number of rebar and internal forces for SLS load combinations. AxisVM can determine additional required reinforcement to control crack width based on max. allowed crack width at top and bottom of the beam.



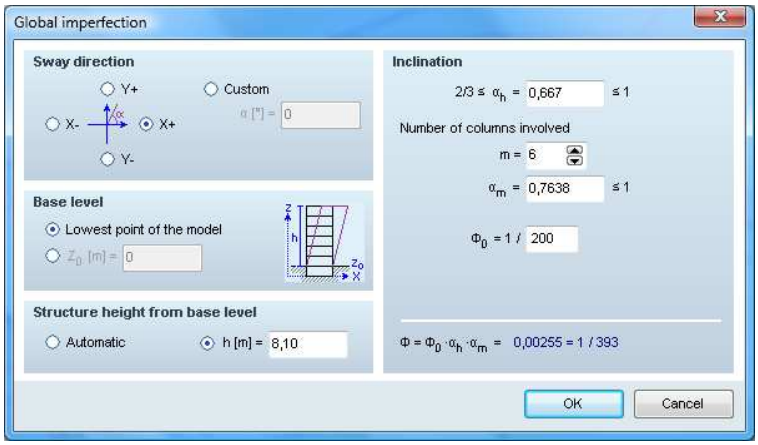
21. Initial rebar diameter for top and bottom reinforcement in x and y direction can be specified in surface reinforcement parameters for RC design. Users can also specify if outer surface reinforcement on top and bottom is in x or y direction. *(RC1 module)*

22. Based on environment class at top and bottom surface in the surface reinforcement parameters, AxisVM calculates min. required concrete cover *(RC1 module)*



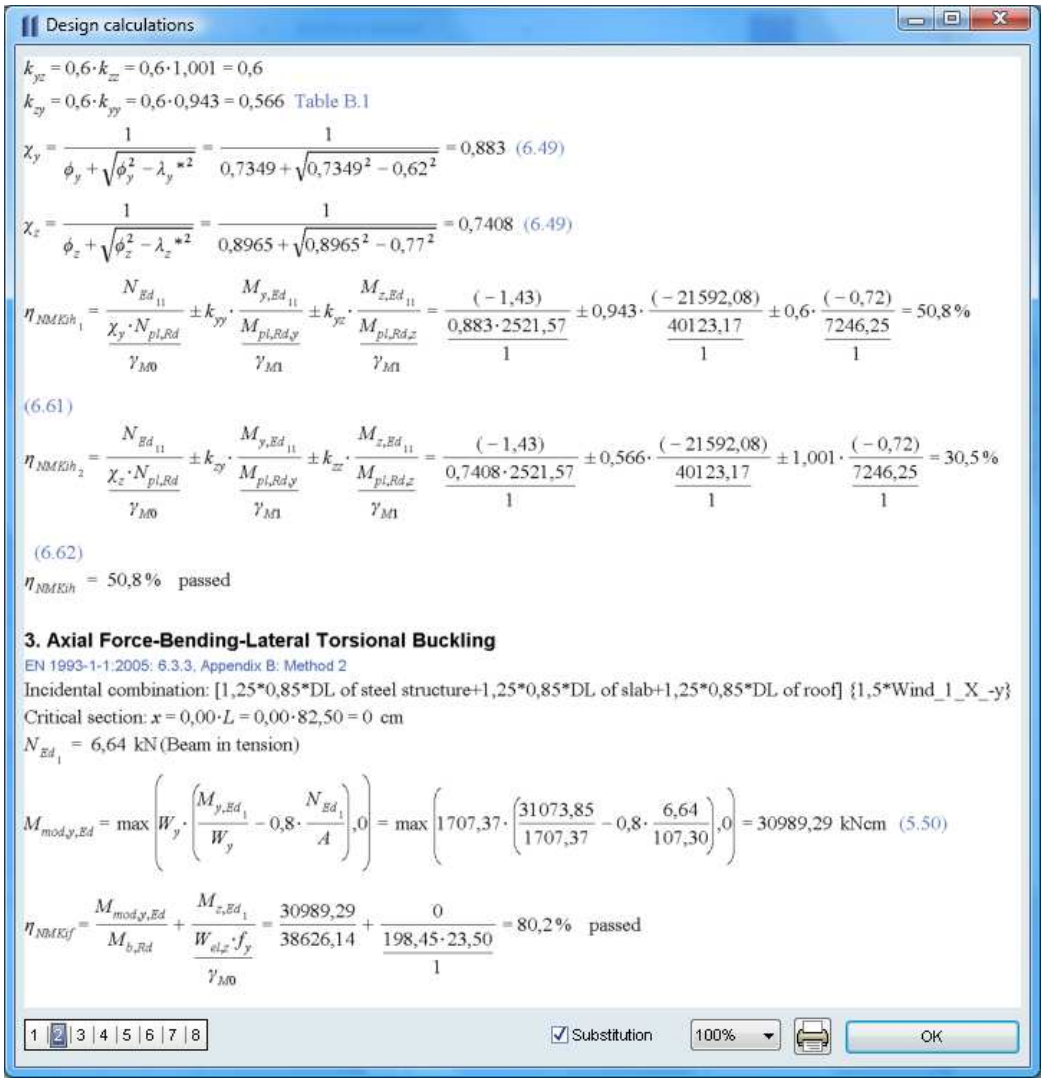
23. Defining global imperfections

Global imperfections can be generated using AxisVM in accordance with the requirements of the Eurocode.



24. Detailed documentation of the steel design in the steel design module (*SD1 module*)

AxisVM shows all design calculation details of strength and stability checks using formulas and substituted values.



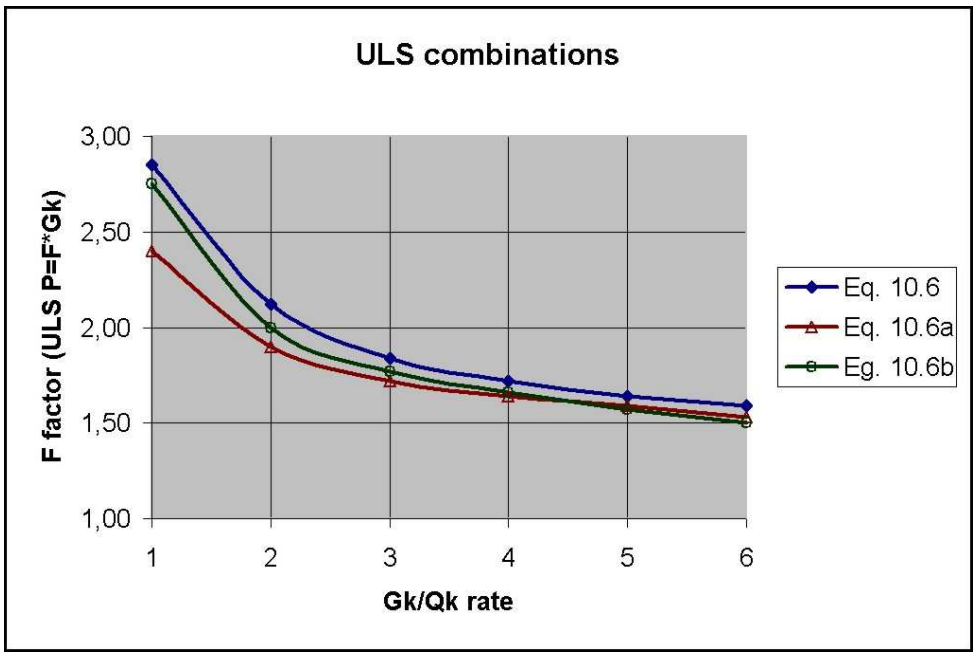
25. Generate and apply ULS a,b load combinations

In accordance with EN 1990:2005, instead of ULS combination in section (6.10.) AxisVM uses load combinations (6.10.a) and (6.10.b), what results in lower internal forces therefore more economical design.

$$\sum_{j\geq 1} \gamma_{G,j} G_{k,j} \text{ "+" } \gamma_P P \text{ "+" } \gamma_{Q,1} Q_{k,1} \text{ "+" } \sum_{i>1} \gamma_{Q,i} \psi_{0,i} Q_{k,i} \qquad (6.10)$$

$$\sum_{j\geq 1} \gamma_{G,j} G_{k,j} \text{ "+" } \gamma_P P \text{ "+" } \gamma_{Q,1} \psi_{0,1} Q_{k,1} \text{ "+" } \sum_{i>1} \gamma_{Q,i} \psi_{0,i} Q_{k,i} \qquad (6.10.a)$$

$$\sum_{j\geq 1} \xi_j \gamma_{G,j} G_{k,j} \text{ "+" } \gamma_P P \text{ "+" } \gamma_{Q,1} Q_{k,1} \text{ "+" } \sum_{i>1} \gamma_{Q,i} \psi_{0,i} Q_{k,i} \qquad (6.10.b)$$

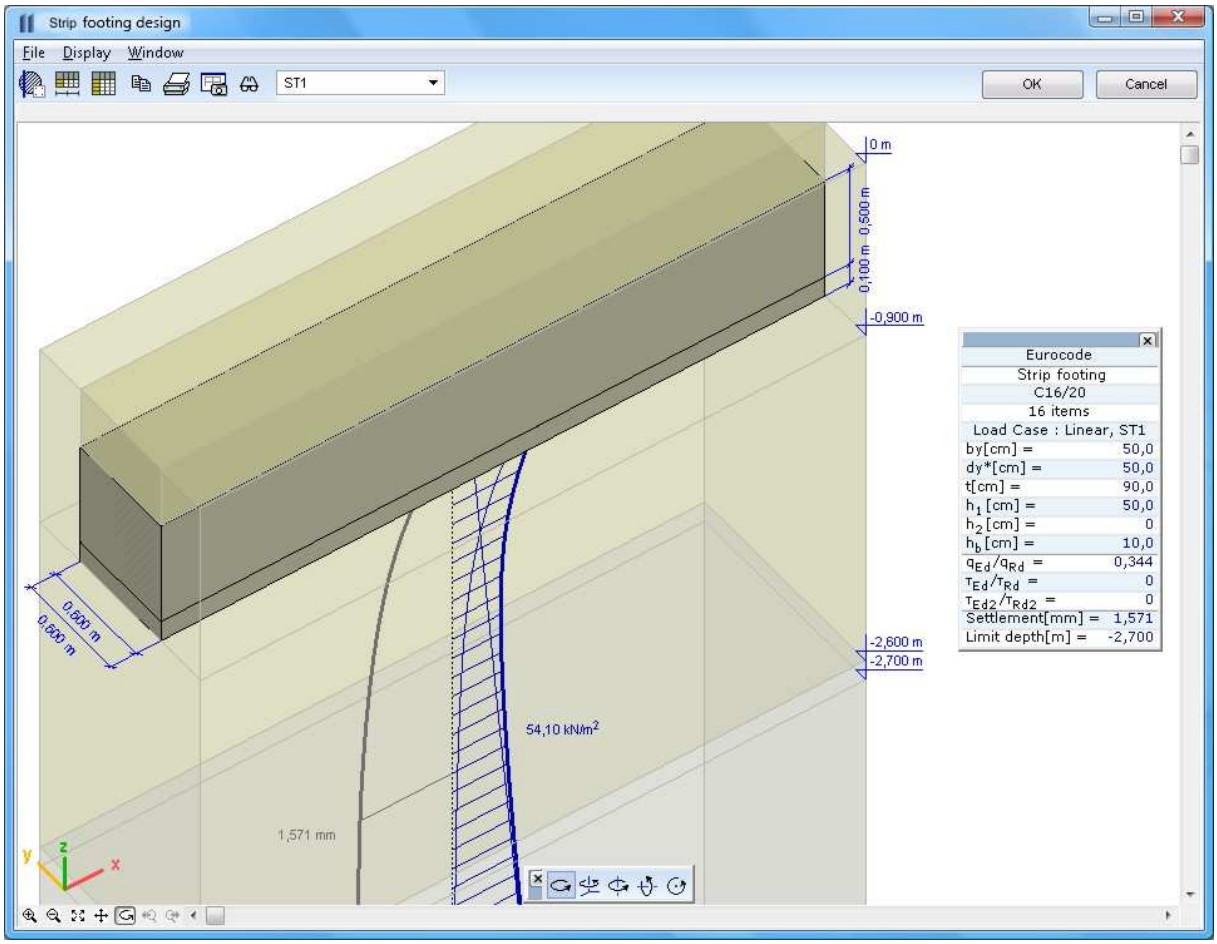


26. Results of ULS1, ULS2, ULS3 load combinations can be displayed separately; they can be also generated separately into load combination table.

- ULS1: permanent and temporary load combination
- ULS2: seismic combination
- ULS3: accidental combination

27. Strip footing design (*RC4 module*)

Similarly to AxisVM 10 pad footing design AxisVM 11 is also capable of strip footing design.



28. Foundations shown in visualizations (*RC4 module*)