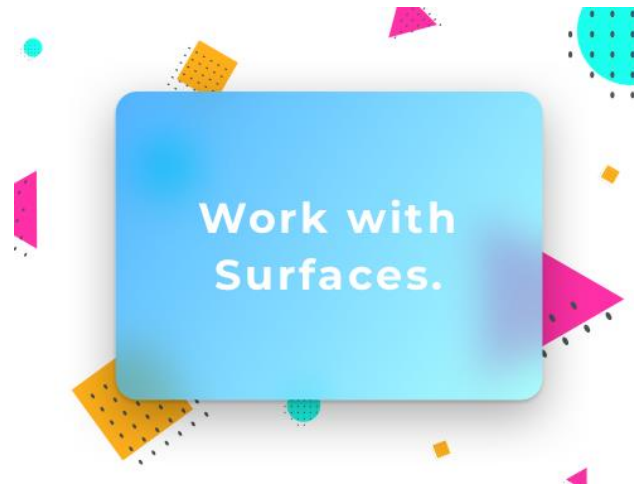


Tartalom

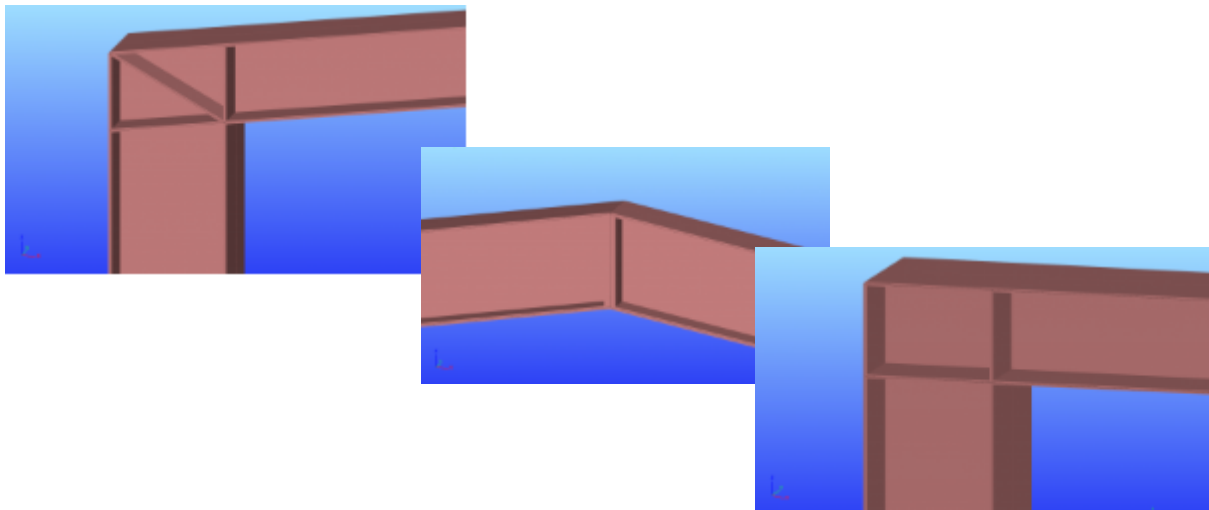
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1. IMPROVED PLATE CAD FUNCTIONS

Thanks to the extended CAD functions, working with plates will be easier with ConSteel 13. The developments are intended to make the detailing of more complex plate operations more efficient. The improved CAD functions are available for steel and concrete plates, as well as for diaphragms and load transfer surfaces.

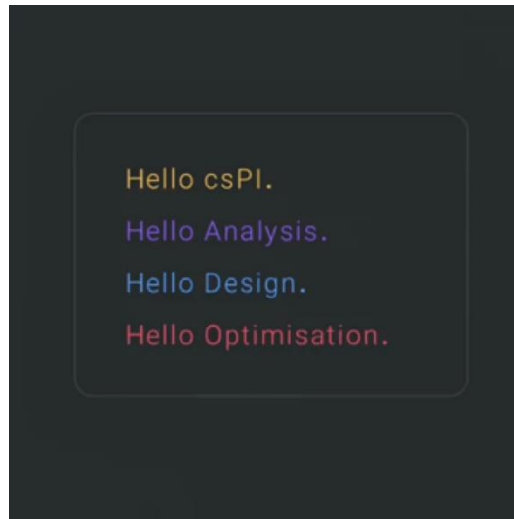


Two dimensional figures can be adjusted to a fitting plane, plates can work as cutting planes for other two dimensional figures, and points of figures can be added/deleted freely.



2. CSPI IMPROVEMENTS

When csPI was first released it brought the possibility of parametric modeling into ConSteel, it was shipped with a powerful debug and automatic code check system and dynamic dialogues for a better user experience. Now, with ConSteel 13 with the newly implemented commands the analysis and design functions will be available through commands, opening the door for a range of new possibilities such as for example automatic model optimization.



Besides the analysis and design commands, the Create command has been extended with point mass, mass case, mass combination and load combination options too. Load combinations can also be generated through the code.

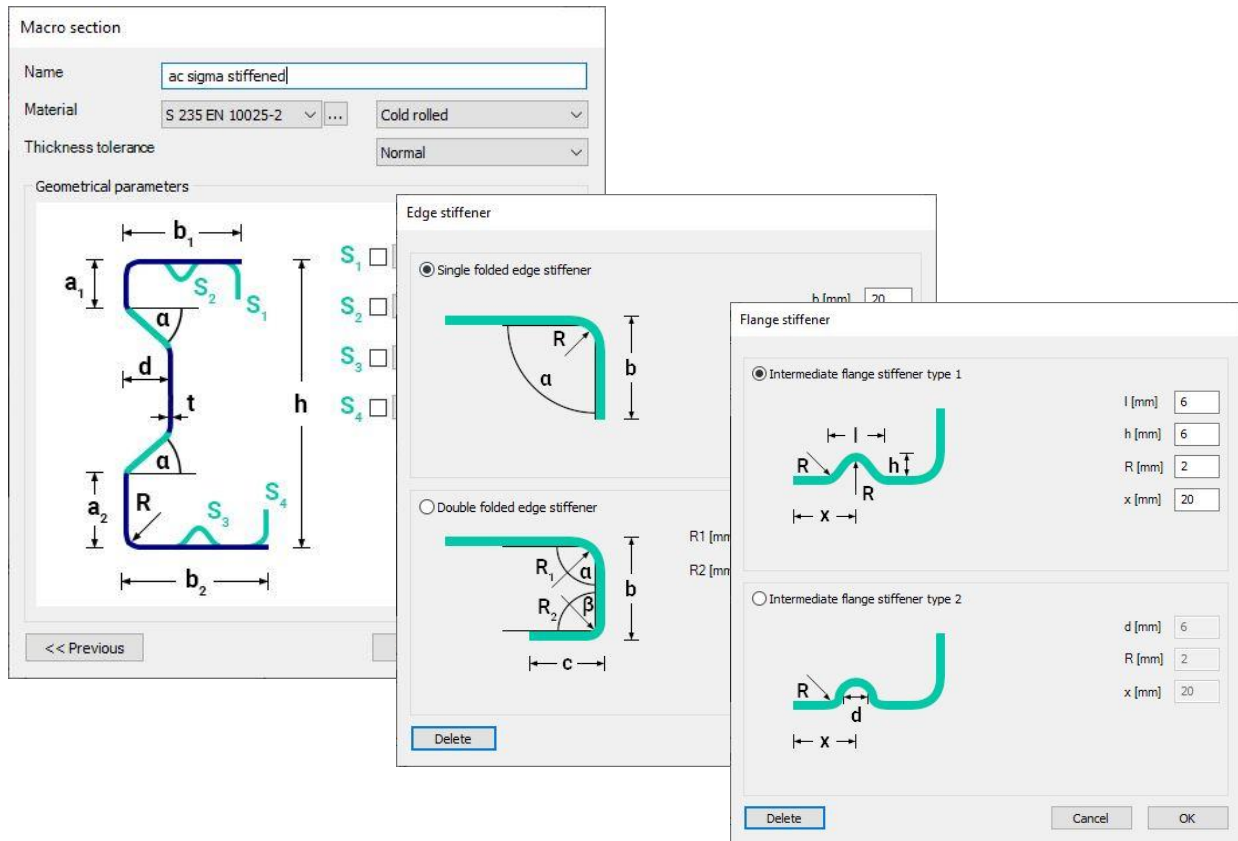
Using the Analysis run command, first, second order, buckling analysis with or without sensitivity option and dynamic analysis can be executed, while with the design run command cross section checks and global stability design can be performed.

The results from analysis and design can be gathered and stored in variables.

Also, starting from ConSteel 13, values stored in variables can be written into Excel spreadsheets for further processing.

3. COLD FORMED MACRO SECTIONS

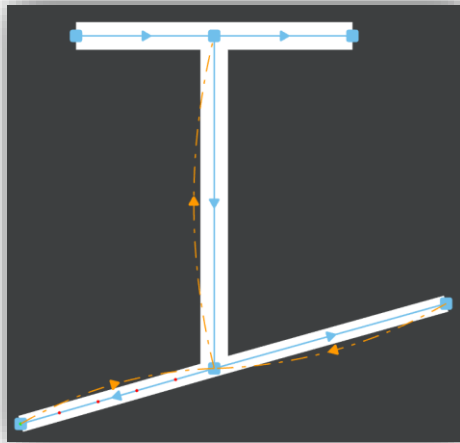
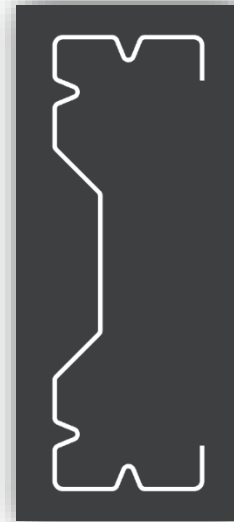
Macros for cold-formed Sigma, C, Z and Omega sections have been completely reworked to be compatible with the requirements of design according to EN 1993-1-3. Additionally a new macro for Zeta section has been added. All macros have been extended with further customizations options like the possibility to add edge or intermediate stiffeners of different kinds, as well as choose new predefined materials for coated sections.



4. SECTION DRAWING

An important realized user request is the new section drawing function. Now, with the new function, users can create custom shaped sections (cold-formed and general thin-walled open sections) through easy and straightforward graphical creation steps, while the complex operations of building the EPS model is handled automatically in the background. The new function is available from the section administrator.

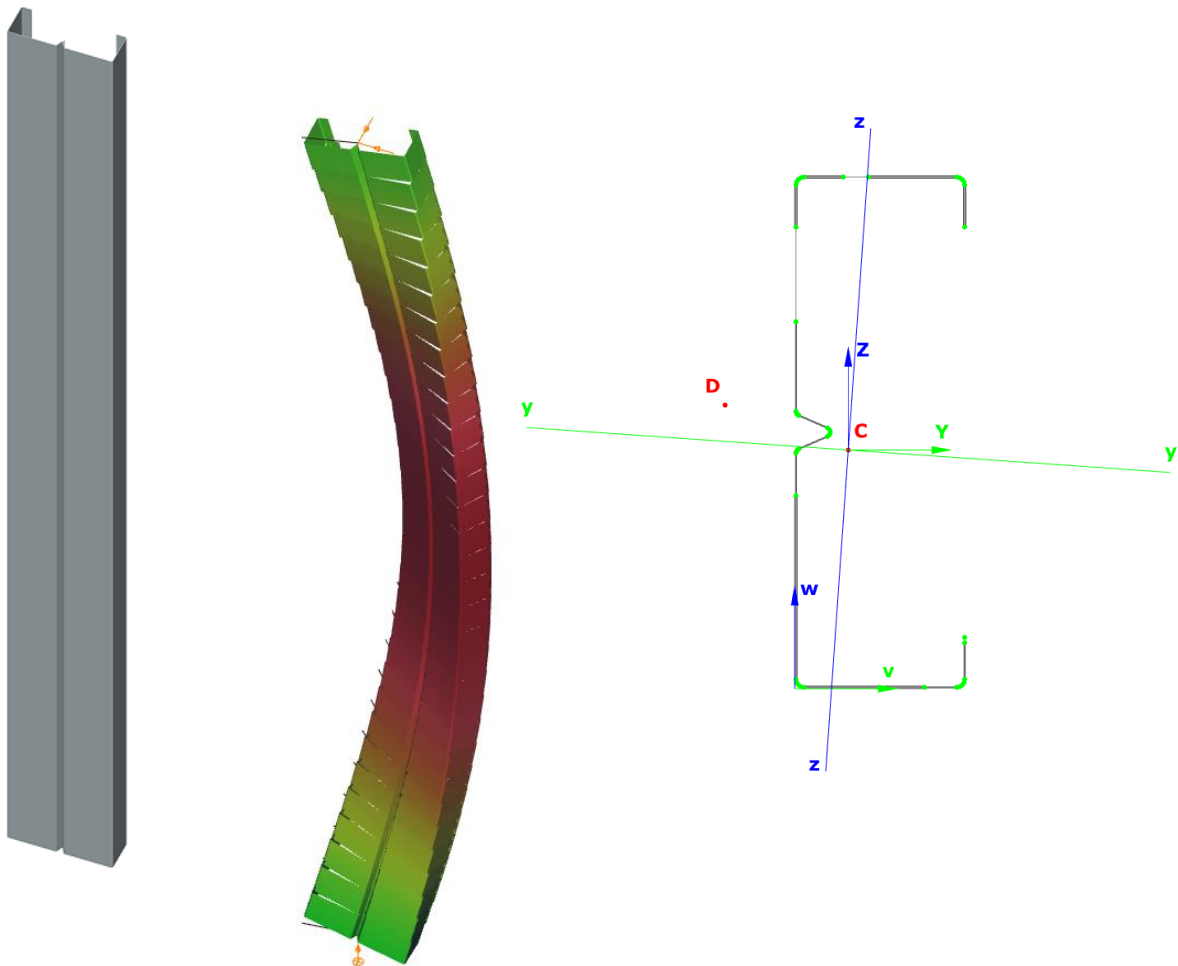
When drawing a cold-formed section, first the geometry must be defined. Cold-formed sections are built up from a polyline made of straight line and circular segments. There are also built-in macros for the placement of typical shapes of edge and intermediate stiffeners, or they can be drawn like other parts of the section. Existing cold-formed sections can also be reused and modified in the section drawing editor. When defining cold-formed sections, on top of the geometry, additional parameters have to be defined such as cross section design, global stability, local buckling, shear and distortional buckling parameters. The input of these parameters are organized into a 4 step process, for which the software gives a transparent progress indication.



In case of general thin-walled open sections line segments of different thicknesses can be used to define the geometry. The so-called “dummy” elements required for the proper description of the section are handled and created automatically. The progress indicator is also available here to guide through the definition of all necessary parameters for section design.

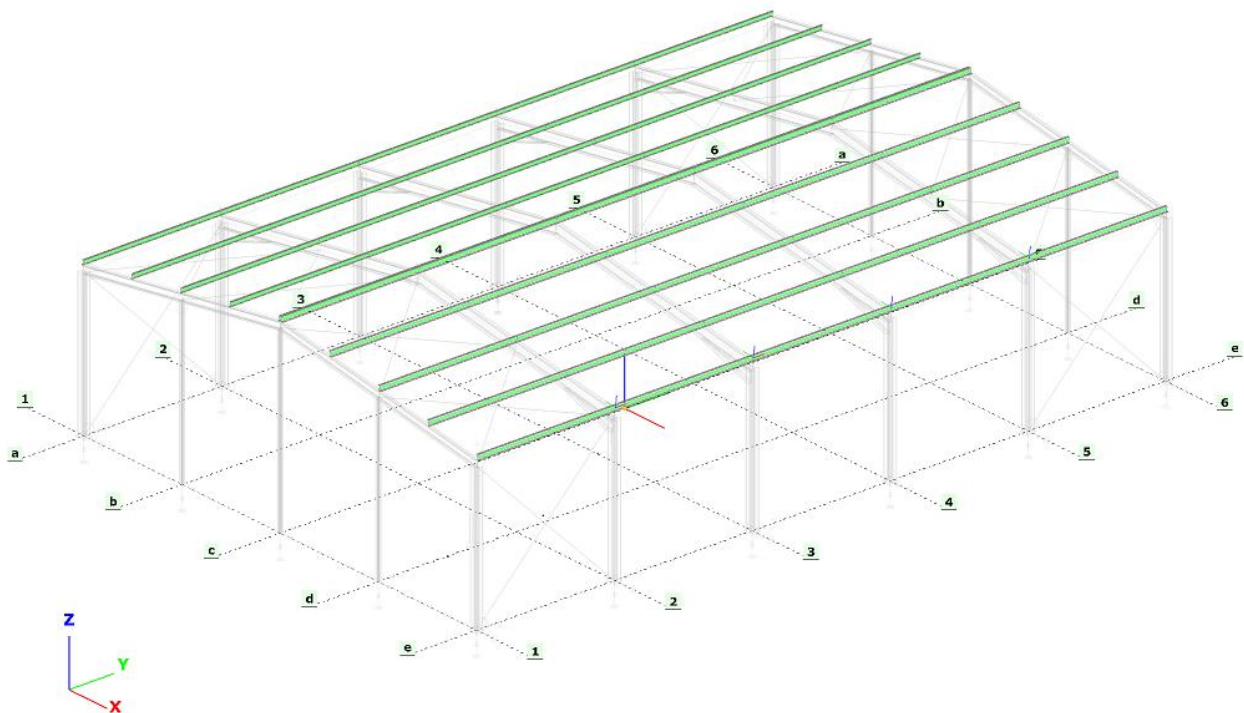
5. DESIGN OF COLD-FORMED SECTIONS

Torsion, warping and biaxial bending are all important effects, becoming dominant especially in case of open, single-, point- or asymmetric sections. Cold-formed sections in most cases belong to these type of cross sections. ConSteel can make proper analysis for all these sections and evaluate the complex stress state thanks to its 7DOF beam finite element. ConSteel can also calculate the effective cross section for cold-formed members for the complex stresses, taking into consideration the effect of distortional buckling which is a unique feature on the market. Performed checks are done in accordance with EN 1993-1-3 considering parameters of National Annexes.



6. PURLIN DESIGN

Purlins placed on a 3D model can now be checked using the new purlin line design option. Thanks to this, primary and secondary load bearing systems can be designed (for cross section and stability checks) based on one single model. Design can be performed in case of purlins with Sigma, Zeta, C and Z sections (or similar user defined sections). The purlin line object itself can take into account the restraining effects of connected sheeting, rotation of the section in accordance with the roof slope. The rotational restraints are applied automatically in accordance with the direction and eccentricity of the applied load and the rotational direction of the purlin. Overlap regions and support zones can also be defined and added to the model.



7. BIM

Tekla model import, export and update functions are now compatible with Tekla Structures 2018, 2018i and 2019 versions.

