

IDEA STATICA CONNECTION

01.01. GENERAL INTERFACE AND WORKFLOW OF THE PROGRAM.

As you can see in the following image, the program interface is divided into 4 large modules, of which 2 will be completely static throughout the modeling process and 2 will be variable depending on the tool used. Each of these modules is discussed in detail below.

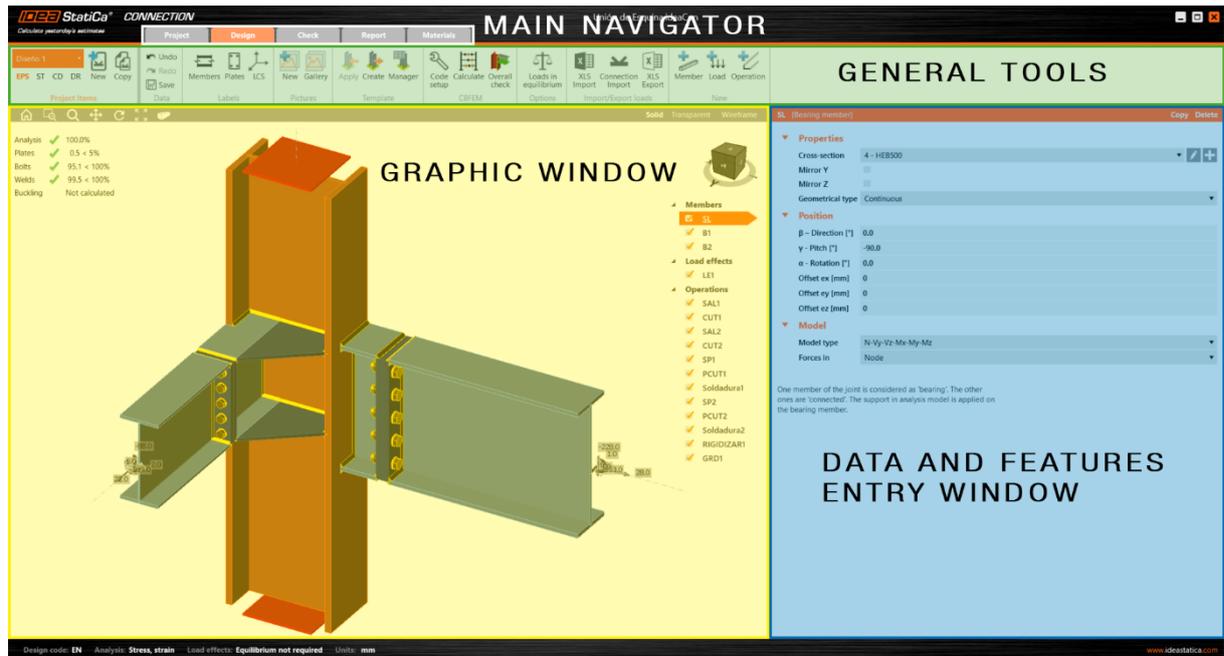


Figure Error! No text of specified style in document..1. Appearance and general layout of the program interface.

MAIN NAVIGATOR

The main navigator module will be the vehicle through which the entire modeling process is managed. It represents the program's structure and mode of operation, as well as showing which work phase, in the analysis of the connection, is being used at any given time.

This navigator has five tabs, as described below. Of these, those corresponding to *Design* and *Check* have special importance, since they will be the most frequently used.



Figure Error! No text of specified style in document..2. Main navigator tabs

PROJECT. In this section you can determine the different general parameters, the display of the program, and that of the project, in terms of the organization of the report.

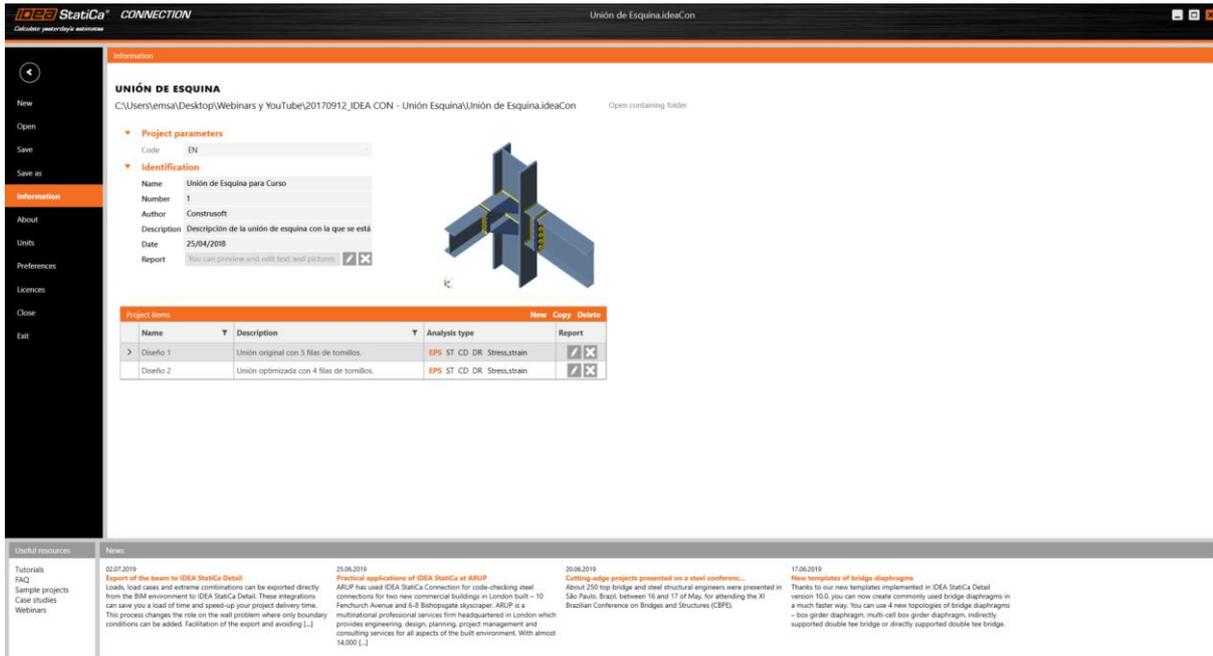


Figure Error! No text of specified style in document..3. General appearance of the *Project* window.

As you can see, it consists of a side navigator (on the left) through which you can access the different options. In the following chapters, the most relevant sections of this navigator will be discussed in more detail.

In the central window, all the information related to the file that has been opened is displayed, from the path showing where the file is stored to specific parameters of the project that can you can configure so as to include them in the connection report and documentation.

In addition, you can also find a manager of the different connections, or proposals, that have been made within the file. In other words, IDEA StatiCa allows different connections to be stored within the same file so that a quick comparison can be made between different design proposals, different types of analysis, etc.

Finally, in the bottom section you can find various web links with the latest news published on the official IDEA StatiCa website, as well as other links of interest to digital resources that facilitate the resolution of problems and queries.



Using the icon in the top left corner, you can return to the previous window of the program which, by default, is the *Design* tab.

DESIGN. As its name suggests, all the modeling of the connection to be evaluated will be carried out here. This design process consists, in turn, of 3 subcategories: Member, Load and Operation.

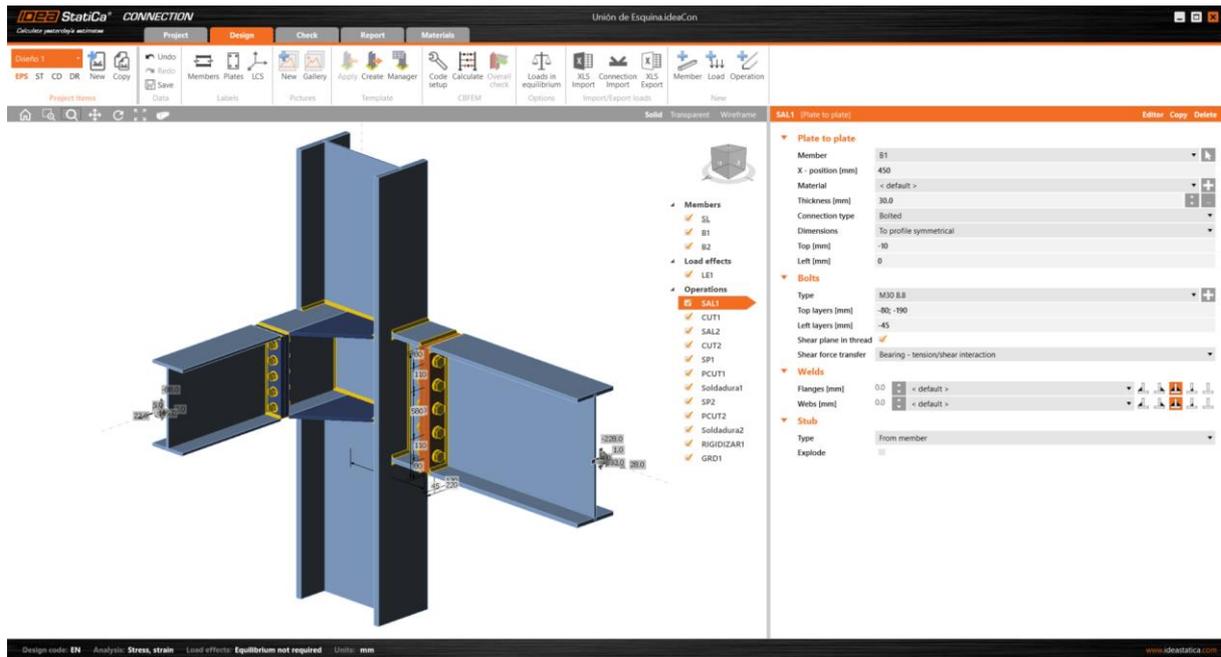


Figure Error! No text of specified style in document..4. General appearance of the *Design window*.

In the *Member* section, the main elements that make up the connection: columns, beams, braces, etc., will be available, i.e. all those elements on which loads will be applied.

In the *Load* section, as might be expected, the different combinations and their corresponding forces, with which the connection will be evaluated, will be introduced.

Finally, in the *Operation* section each of the actions necessary to connect the various elements that have been introduced previously will be defined.

CHECK. In this window, the connection check will be carried out, as well as the visualization of all the possible results that can be obtained.

As can be seen in Figure 01.5, the layout of this window is very similar to the one seen on the Design tab, being composed of the different modules that are explained further on in this same introductory unit.

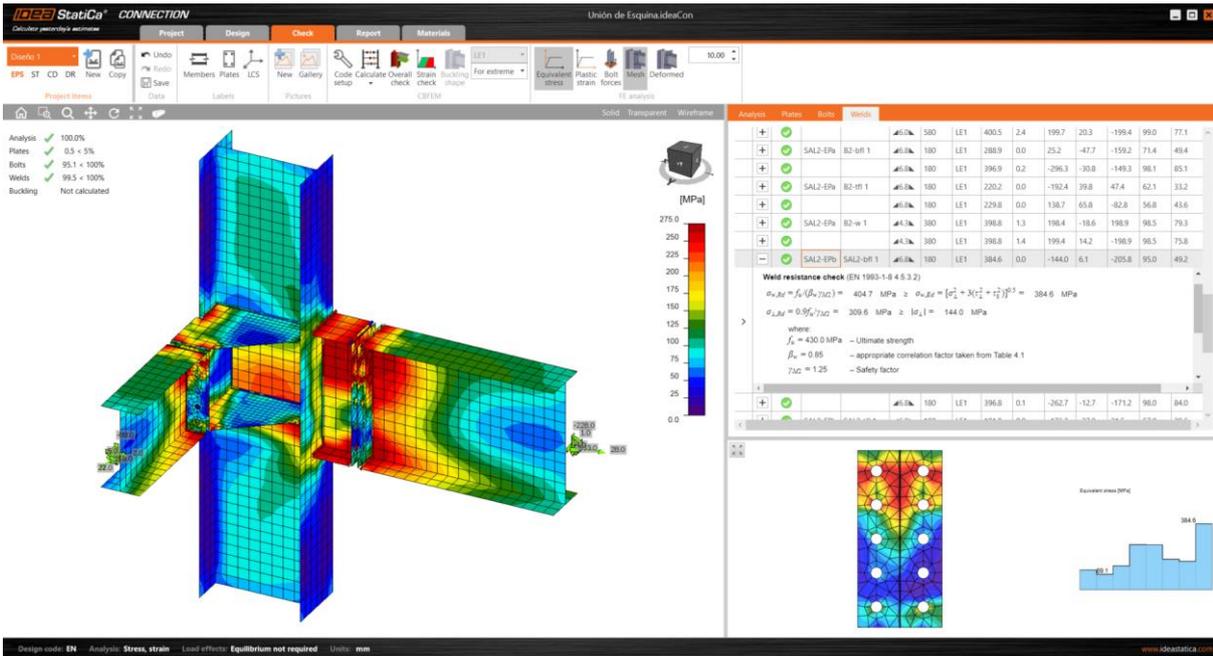


Figure Error! No text of specified style in document..5. General appearance of the *Check* tab.

REPORT. Once the modeling and analysis of the connection is complete, the last step of the workflow is the generation of the Report that will be included in the project's analysis documentation. On the *Report* tab, the sections to include in the documentation can be specified.

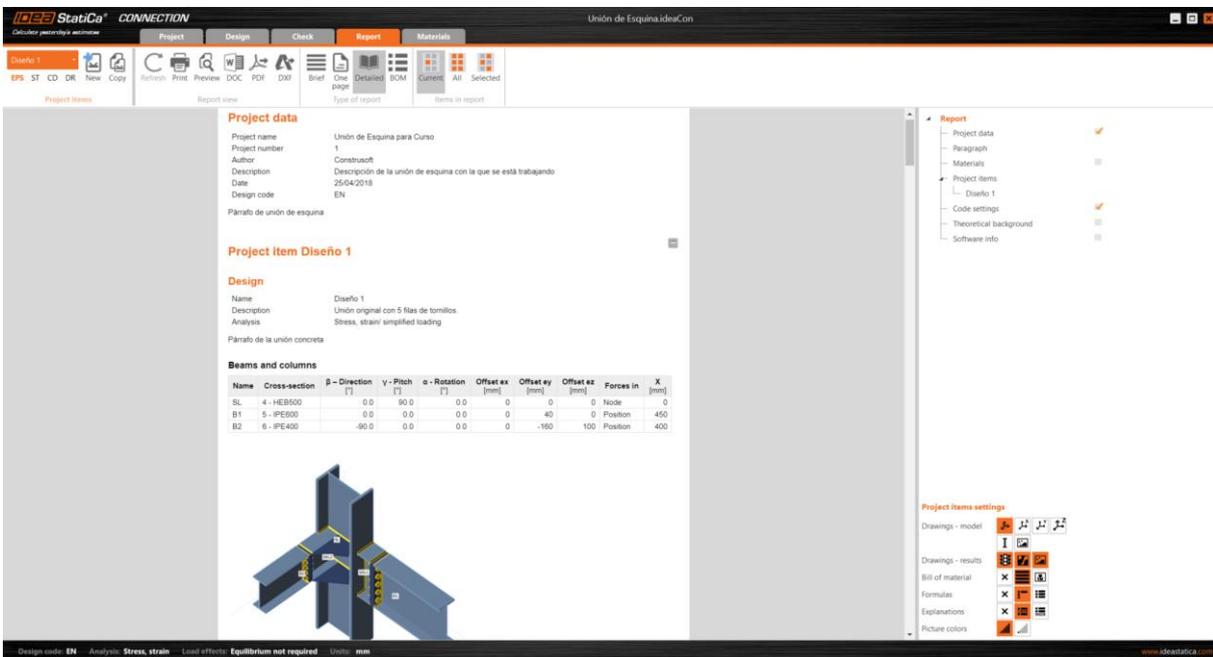


Figure Error! No text of specified style in document..6. General appearance of the *Report* tab.

In addition, from this tab you will be able to access specific, detailed information about the different elements that make up the connection, as well as manufacturing drawings, with dimension lines, that can be printed and exported to a .dxf format.

MATERIALS. In this section you can view and edit all the sectional and material parameters that are used in the project, as will be explained in chapter 01.03.

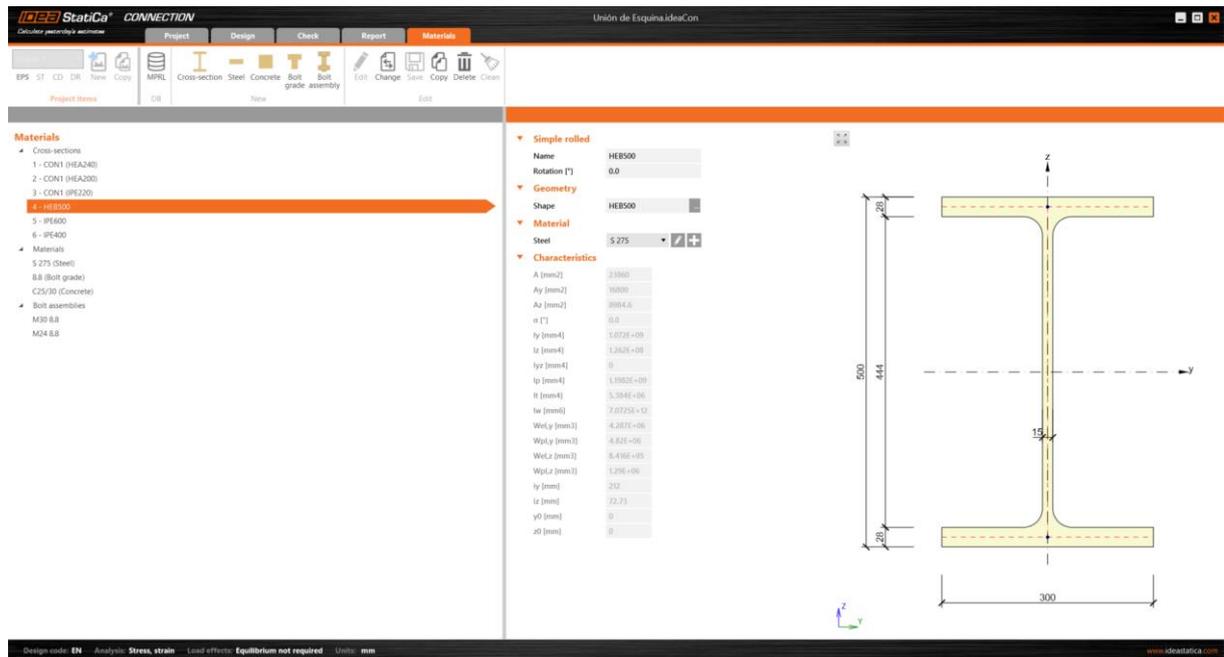


Figure Error! No text of specified style in document..7. General appearance of the *Materials* tab.

GENERAL TOOLS

In this module, there are various sets of tools related to visual and working aspects of the model. Depending on the Navigator tab that is being used, different sets of tools will be available, as shown in Figure 01.8.

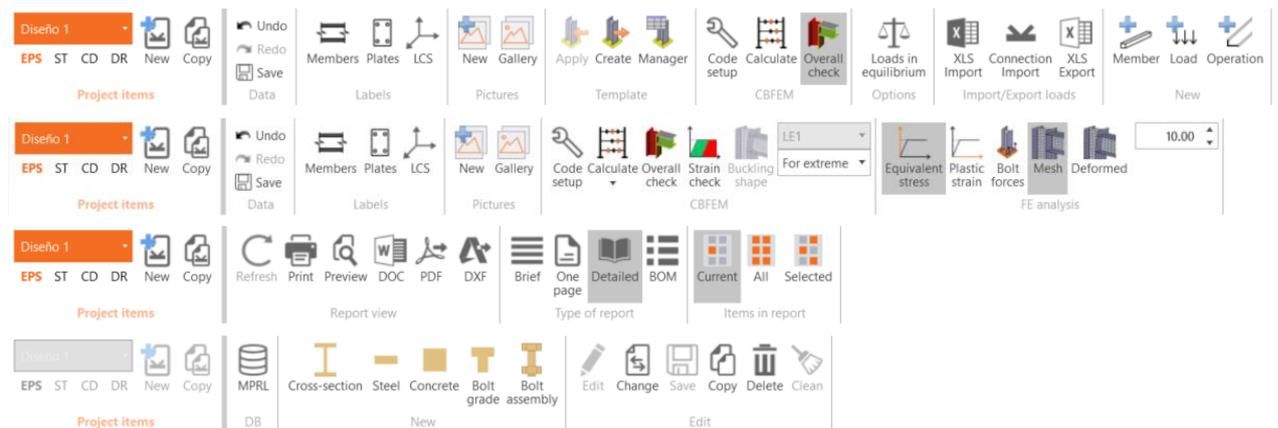


Figure Error! No text of specified style in document..8. Configurations of the General Tools module according to the modeling phase.

From top to bottom: Design, Check, Report and Materials.

The specific tools of each tab will be explained in the teaching units related to each phase. In this section those tools that remain constant throughout the process will be described.



Figure **Error! No text of specified style in document..9.** Basic work tools.

Project items. First, an item (connections) selector appears. As previously mentioned, it is possible to have several connection models within the same file. In this area you can quickly switch between models, modify the type of analysis performed, as well as create new models and duplicate existing ones. In this way, carrying out comparisons is much more direct.

Data. Classic *Undo/Redo* tools, as well as *Save*.

Labels. As its name suggests, with these tools you can activate or deactivate the display of labels or reference objects on the model in the graphic window.

Through the LCS icon you can activate the visualization of the local axes of the elements, which will serve as a reference to position the elements, as well as for the introduction of loads on them.

Pictures. In addition to the multiple options offered by the program for configuring the report, you can also create a set of images of the connection, determined by the user and stored in the Gallery, to be attached to the report. The possibilities and operation of this tool are explored in greater depth in the Reports and Documentation teaching unit.

GRAPHIC WINDOW (3D SCENE)

The primary advantage of this window is that it provides additional information (graphics) during the modeling, enabling easier and more intuitive modeling. In addition, it's a way of verifying that the features of the connection components are being defined correctly.

Furthermore, it has a field that provides specific information about the selected element, which will be useful frequently during modeling.

In version 9 of the program, this window takes on a much larger role, becoming the center of reference around which the whole process revolves.

Much more information has been added, while other menus have been simplified. A new, more graphic and intuitive work system, using the right mouse button, has been implemented. Then, other graphic tools have been added, as shown in the image below:

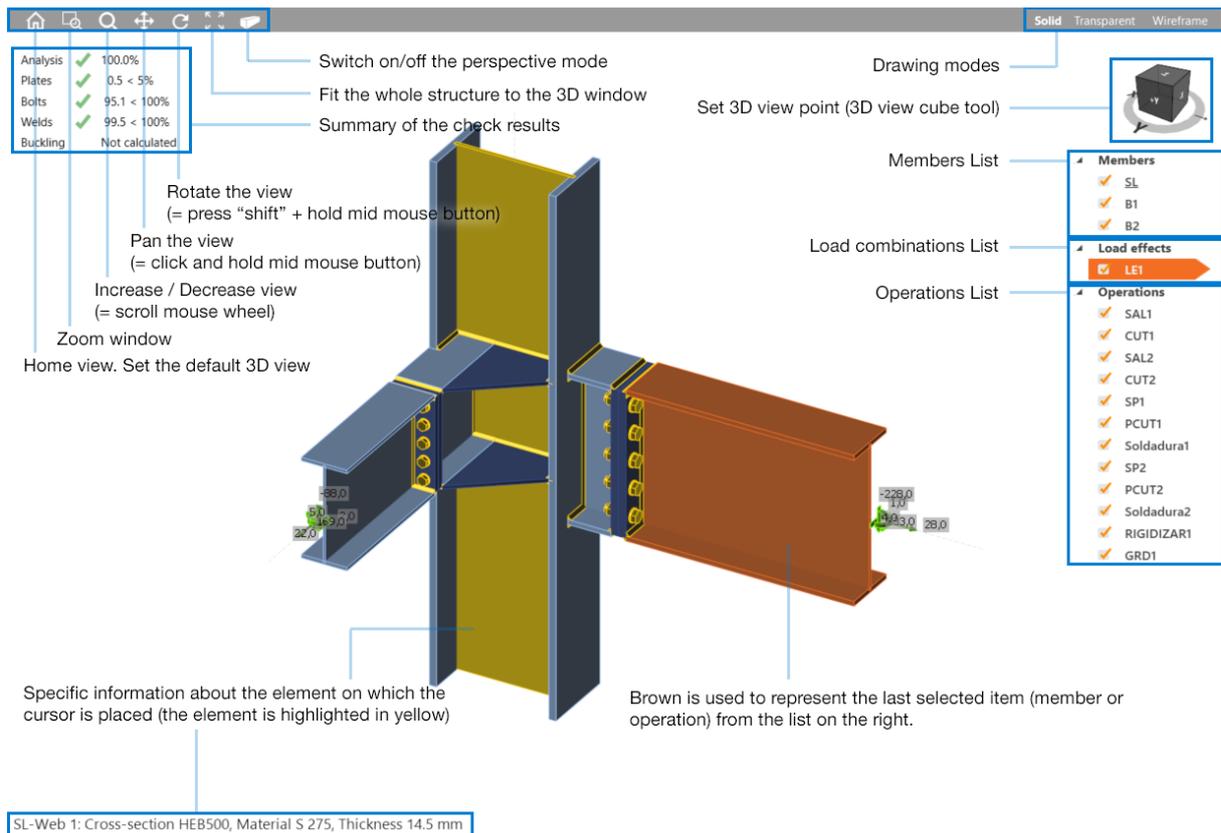


Figure Error! No text of specified style in document..10. Appearance and description of the graphic window.

Drawing modes. With these tools we control the basic appearance of the image displayed in the program's graphic window.

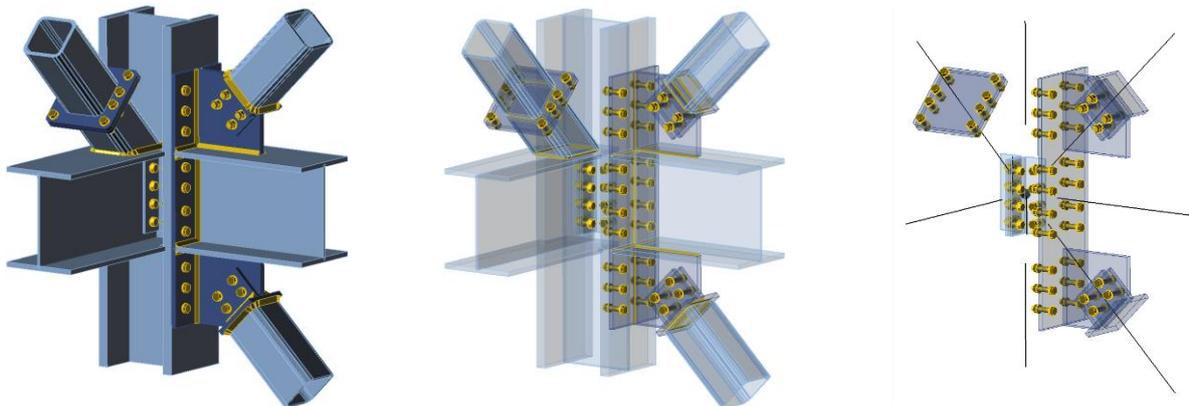


Figure Error! No text of specified style in document..11. Configurations of the view of the connection. Solid, transparent and wireframe.

You can choose how to visualize the model, from the solid view to the wireframe diagram. The transparent display can be useful for the positioning of elements in complex joints, in which the visualization of certain parts can be difficult. As for the wireframe diagram, it has special importance in the introduction of loads on the node, as will be seen later.

DATA AND FEATURES ENTRY WINDOW

This is one of the variable modules of the program, the appearance and features of which will depend on the item that has been selected in the Graphic Window list.

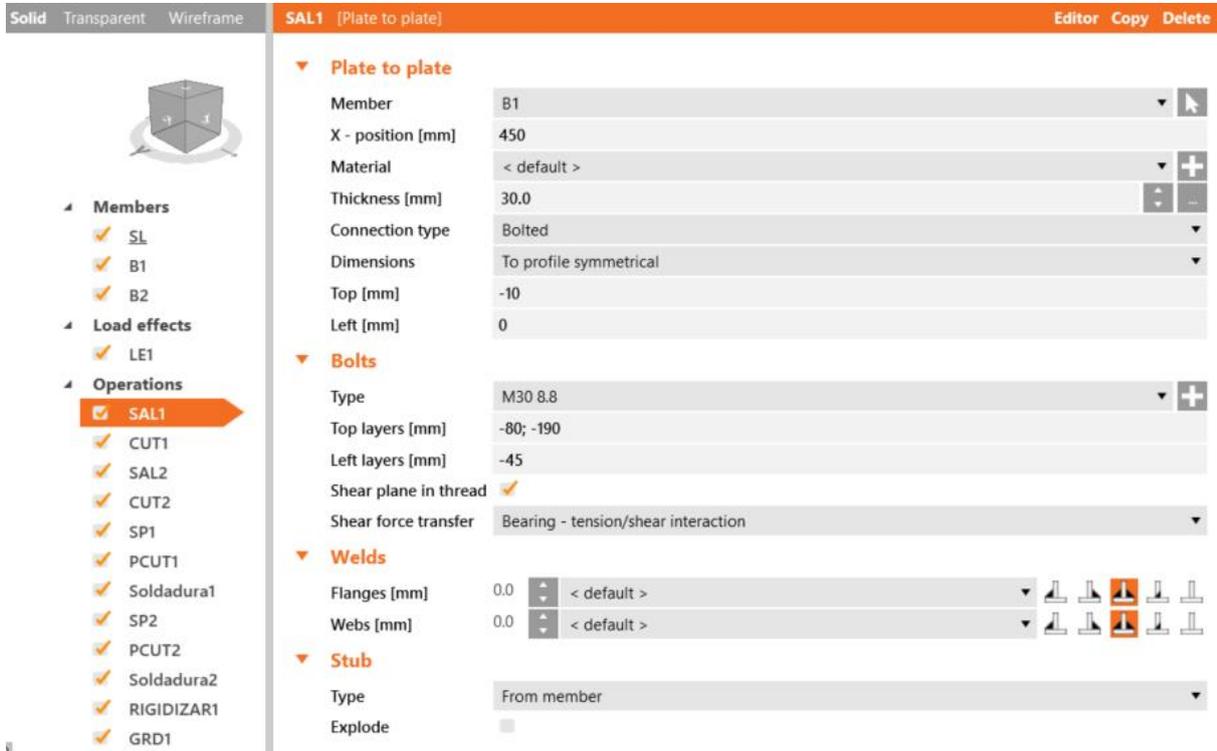


Figure Error! No text of specified style in document..12. General appearance of the Data and Features Entry tab.

Although this module will depend on the selected item, it will usually present a similar structure, grouping the different property fields according to typology (geometric properties, components of the operation, position definition, etc.).

In the header of this module are the quick tools to duplicate operations and access the advanced geometry editor, as will be seen in the Teaching Unit 04.

Therefore, the workflow with IDEA Connection will have the same hierarchical scheme as that shown, as an example, in the images below:

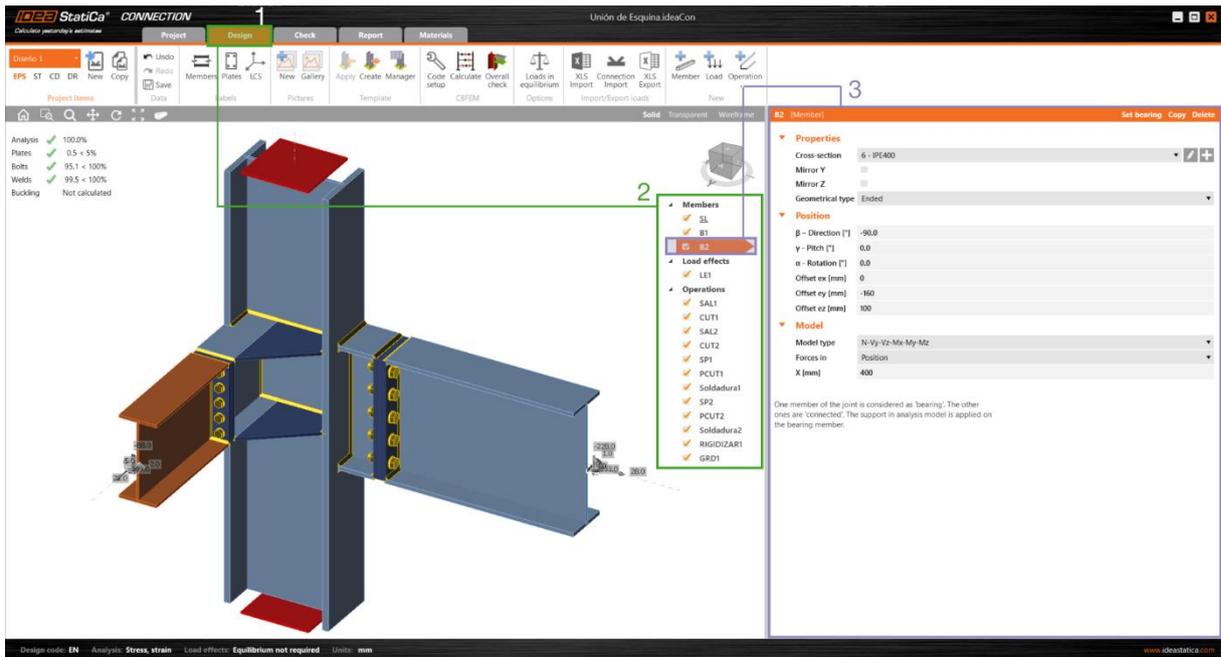


Figure Error! No text of specified style in document..13. Workflow example with the *Member* item.

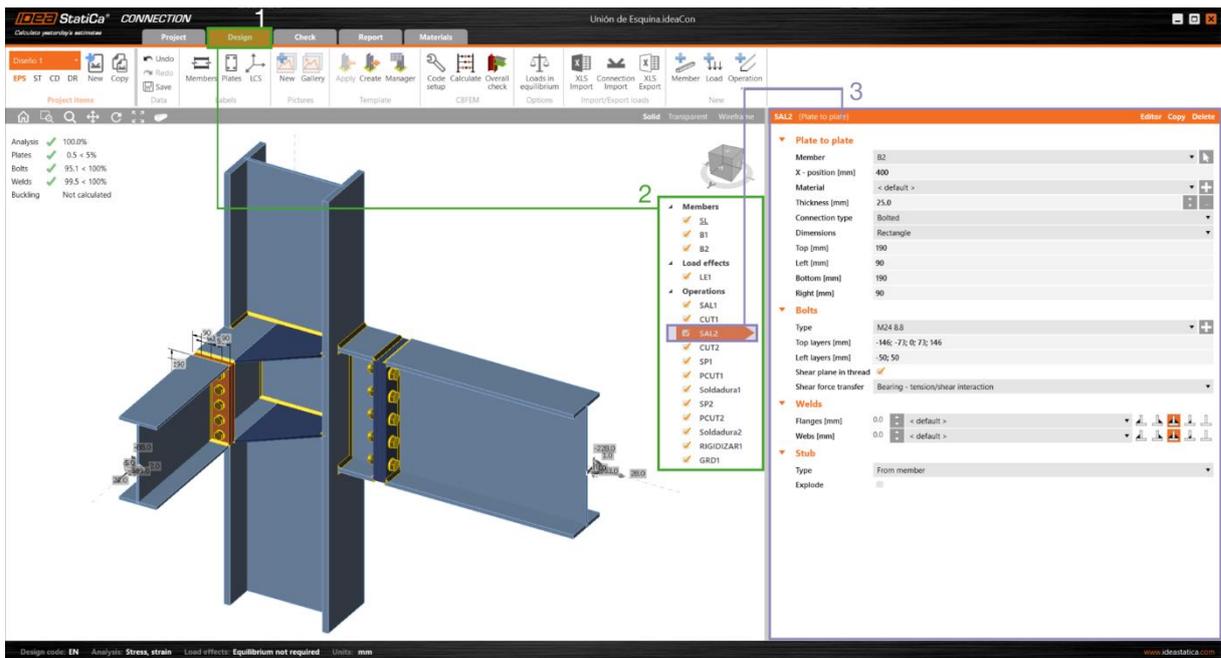


Figure Error! No text of specified style in document..14. Workflow example with the *Operation* item.

01.02. GENERAL SETTINGS OF THE WORK ENVIRONMENT

IDEA StatiCa Connection offers the user a lot of versatility in its configuration, in order to eliminate any possible difficulties or constraints. In this section we explain the different possibilities, and corresponding tools, for achieving this customization.

UNITS, LANGUAGE, AND COLOR PALETTE CONFIGURATION

From the *Project* tab, located in the *Main Navigator* module, you have access to various, global, personalization features of the program.

Units. In addition to specifying if the system of units to be used will be *metric* or *imperial*, different systems of units can be used according to the category to which it applies. Furthermore, it is possible to modify the number of decimals that will be displayed for these units, as well as the format (decimal or scientific).

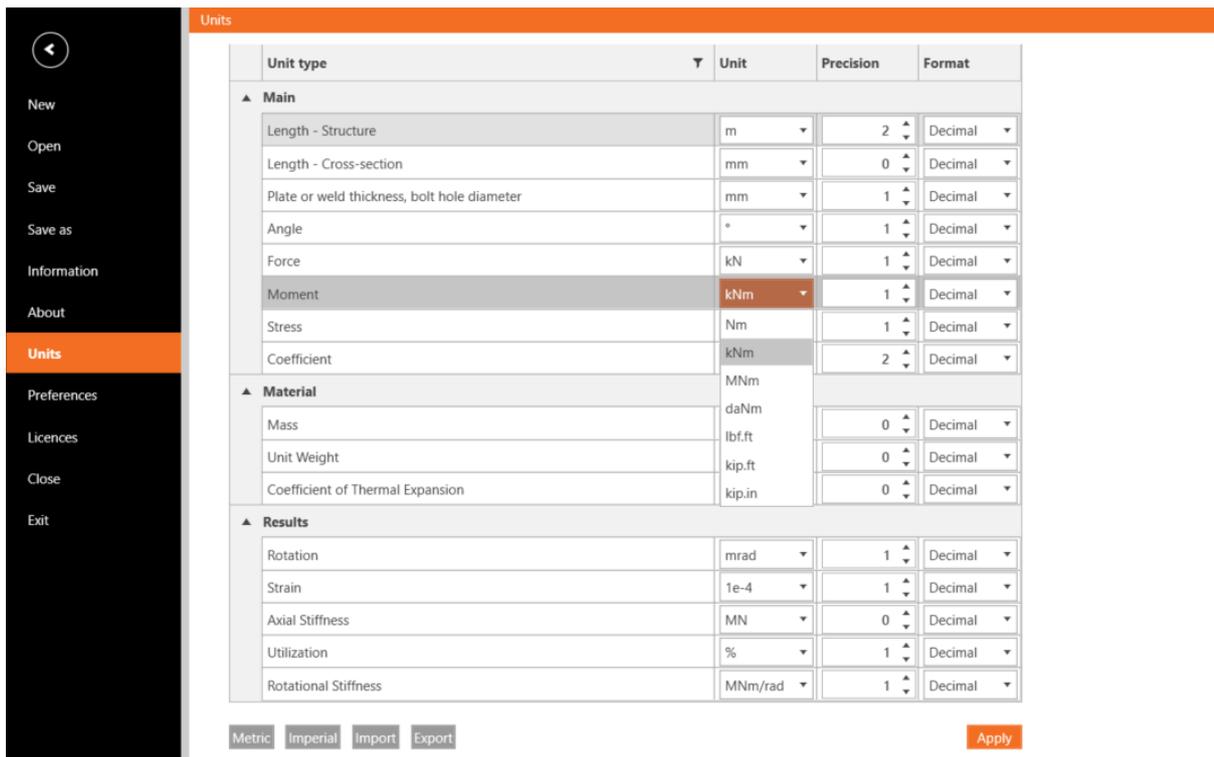


Figure Error! No text of specified style in document..15. Units configuration window.

Language and color palette. Similarly, in the preferences section, you can modify the display language of the program (you'll need to restart IDEA), as well as the color scheme that will be used to represent the different elements of the Graphic Window.

From here, it's also possible to upload the company logo that you want to include in the analysis and check documentation.

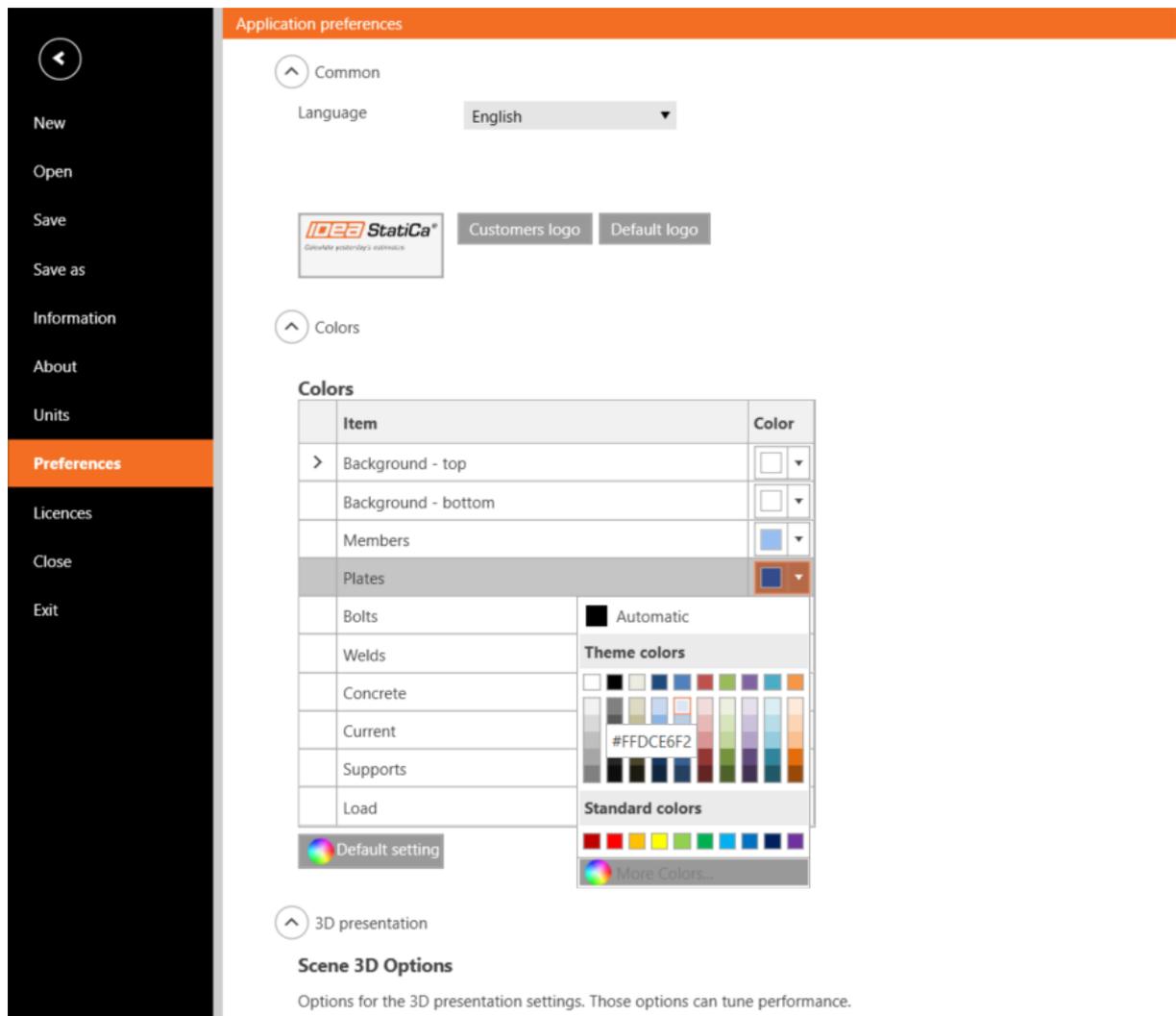


Figure Error! No text of specified style in document..16. Color palette configuration window.

Version 9 of IDEA StatiCa has added the possibility of using hardware acceleration to take full advantage of the computer's graphic card, through the option provided at the bottom of this configuration window.

PERSONALIZED LIBRARY OF BOLT MATERIALS AND DIMENSIONS.

As previously mentioned, there is a section in the navigator called Materials. From this location you can view the cross-sections, materials and bolts assemblies uploaded to the project. In addition, you can also define custom elements from this location.

To do this, in the case of a new material, from the New tab, the option of adding a new steel (or concrete or bolt, as appropriate) will be used. You must choose an existing material from the library (no matter what it is, its properties will be completely modified).

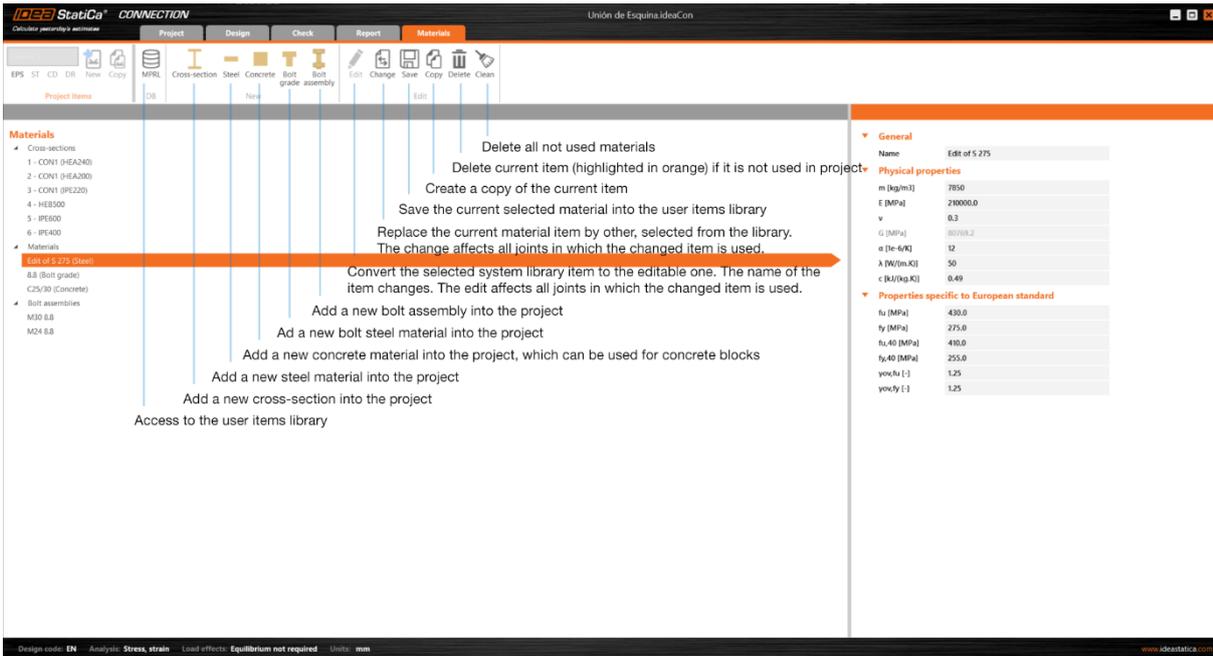


Figure Error! No text of specified style in document..17. Specification of customized materials

In the case of the specification of new dimensions, you would proceed in the same way, in the section Bolt assemblies. In this case, the features that can be edited are the ones shown below:

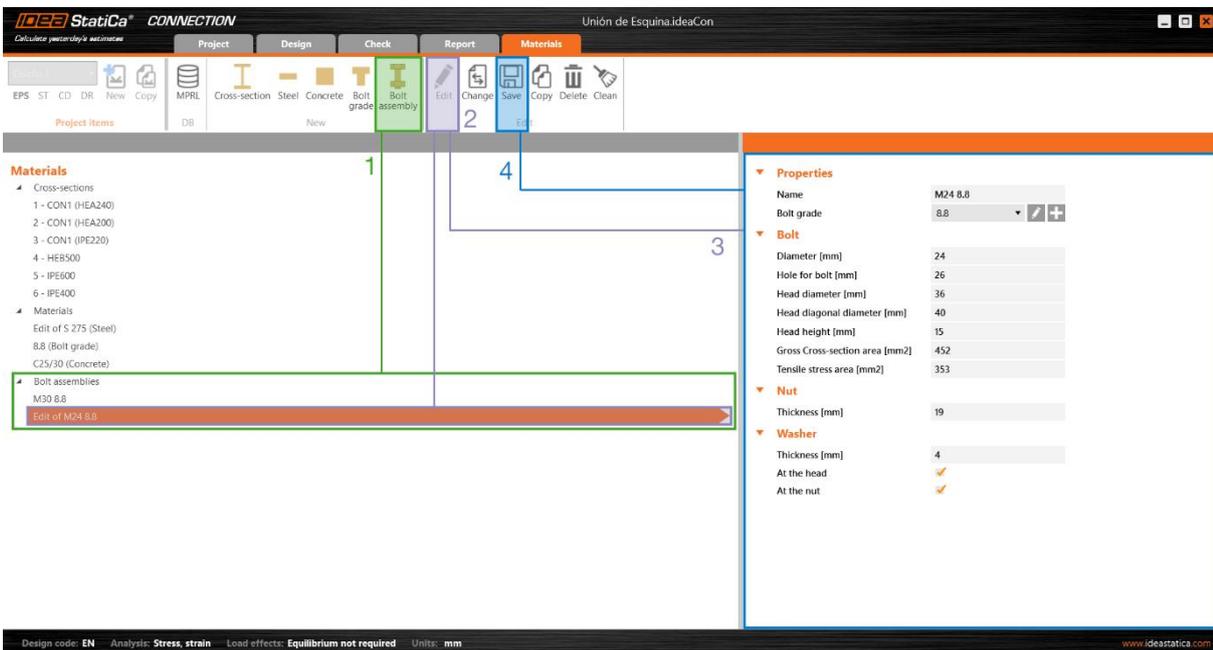


Figure Error! No text of specified style in document..18. Specification of the features of customized bolts.