



Tekla Structures

Release Notes



Product version 18.0
February 2012

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Conventions used in this guide

Typographical conventions

The following typographical conventions are used in this guide:

Font	Usage
Bold	Any text that you see in the user interface appears in bold . This font is used, for example, for window and dialog box titles, box and button names, and list items.
<i>Italic bold</i>	New terms are in <i>italic bold</i> when they appear in the current context for the first time.
Monospace	Extracts of program code, HTML, or other material that you would normally edit in a text editor, appear in <code>monospaced</code> font. This font is also used for file names and folder paths, and for any text that you should type yourself.

Noteboxes

The following types of noteboxes are used in this guide:



A **tip** might introduce a shortcut, or suggest alternative ways of doing things.



A **note** draws attention to details that you might easily overlook. It can also point you to other information in this guide that you might find useful.



You should always read very **important notes and warnings**, like this one. They will help you avoid making serious mistakes, or wasting your time.



This symbol indicates **advanced or highly technical information** that is usually of interest only to advanced or technically-oriented readers.

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1 New web tutorials page

You can now find Tekla Structures support videos and tutorials on the new Web tutorials web site at <http://www.tekla.com/webtutorials>. All available official videos and tutorials are now collected on this web site, and the site is available in nine languages.



You can access the Web tutorials web site also from Tekla Structures by clicking **Help > Web Tutorials**.



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 Share

 9

 Share 143

Learn Tekla Structures with our free web tutorials! We offer you both interactive video tutorials and demo videos for quick learning.

First steps



An interactive video tutorial with three lessons, about 10 minutes each. You will learn the very basics of Tekla Structures.

BIM lessons



An interactive video tutorial with nine lessons, about 5 minutes each. You will learn how to use Tekla Structures for BIM, including Model Organizer, Task Manager and Clash Check Manager.

Precast lessons



A video set consisting of 16 short demo videos with voice, altogether 40 minutes. You will learn the basics of using Tekla Structures for precast concrete.

Feature videos



A set of 17 interactive video tutorials, about five minutes each. When you have learned the first steps of Tekla Structures, deepen your knowledge by going through this video set.

Task videos



A set of very short demo videos, less than a minute each, that quickly show you how to perform certain tasks with Tekla Structures.

Top new features



A set of 1-2 minute demo videos showing the most important new features of every new Tekla Structures version.

Choose language



EN



DE



ES



FI



FR



IT



JA



NL



RU



SV



ZH

2 Tekla Structures 18.0 Release Notes

Tekla Structures version 18.0 is a main version and contains many new features and fixes.

Compatibility You can open and work with existing models using Tekla Structures 18.0.
We suggest that you complete any models you have started using your current version.



When you create or save a model in Tekla Structures 18.0, you cannot open it in older versions of Tekla Structures.

Installing Tekla Structures setup creates a new subfolder for Tekla Structures 18.0.

You need Windows Administrator rights to install Tekla Structures 18.0. This ensures that all Windows system folder * .dll files are updated.



Tekla Structures 18.0 uses .NET Framework 4.0, which is installed as a prerequisite to the computer you are installing Tekla Structures to. In case you already have a beta version of the .NET Framework 4.0 installed on your computer, you need to uninstall it or replace it with the official version of the NET Framework 4.0 available in the Microsoft web site.

Tekla Open API Release Notes To learn about the improvements in Open API development, see the Tekla Open API Release Notes on the Tekla Extranet under **Tekla Structures > Product > Open API**.

Extensions You can use extensions to expand the capabilities of Tekla Structures. These tools are enhanced and developed rapidly and they are available through the Extensions download page on the Tekla extranet. To view and download extensions, go to <https://extranet.tekla.com/BC/tekla-structures-en/product/extensions/Pages/Default.aspx>.

3

New Features and Improvements

3.1 Feature map

This feature map lists all the new features in Tekla Structures 18.0 and the configurations they are available in. To navigate in the release notes, click the link in the **New Feature** column.

New feature	Full	Steel Detailing	Precast Concrete Detailing	Cast in Place	Engineering	Construction Management	Viewer	Drafter
General								
Construction Management module (14)		*	*	*	*			
Changes in the cold rolled component installation (15)	*	*						
Reinforced Concrete Detailing configuration is now called Cast in Place (16)	*			*				
New Russian fonts (17)	*	*	*	*	*			*
Modeling								
New tool for modifying parts (17)	*	*	*	*	*			
New tool for setting the work plane (20)	*	*	*	*	*			
Improvements in creating model templates (20)	*	*	*	*	*	*		

New feature	Full	Steel Detailing	Precast Concrete Detailing	Cast in Place	Engineering	Construction Management	Viewer	Drafter
Improvements in inserting reference models (22)	*	*	*	*	*	*		
Improvements in Model Organizer (22)	*	*	*	*	*	*		
Examining the contents of a reference model	*	*	*	*	*	*	*	*
Longer bolt and bolt assembly names (25)	*	*	*	*	*			
Reinforcement								
Reinforcing Bar Shape Catalog (26)	*	*	*	*	*			
Improvements in reinforcing bar diameter handling (29)	*	*	*	*	*	*	*	*
Displaying reinforcement meshes as outlines (29)	*	*	*	*	*	*	*	*
Improvements in Rebar Shape Manager (30)	*	*	*	*				
Drawings								
Improvements in drawing views (32)	*	*	*	*	*			*
Improvements in drawing colors (36)	*	*	*	*	*			*
More flexible dimensions and dimension marking (37)	*	*	*	*	*			*
New tool for dimensioning reinforcing bar groups (39)	*		*	*	*			*
Improvements in texts, marks and associative notes (40)	*	*	*	*	*			*
Improvements in pullout pictures (41)	*		*	*	*			*

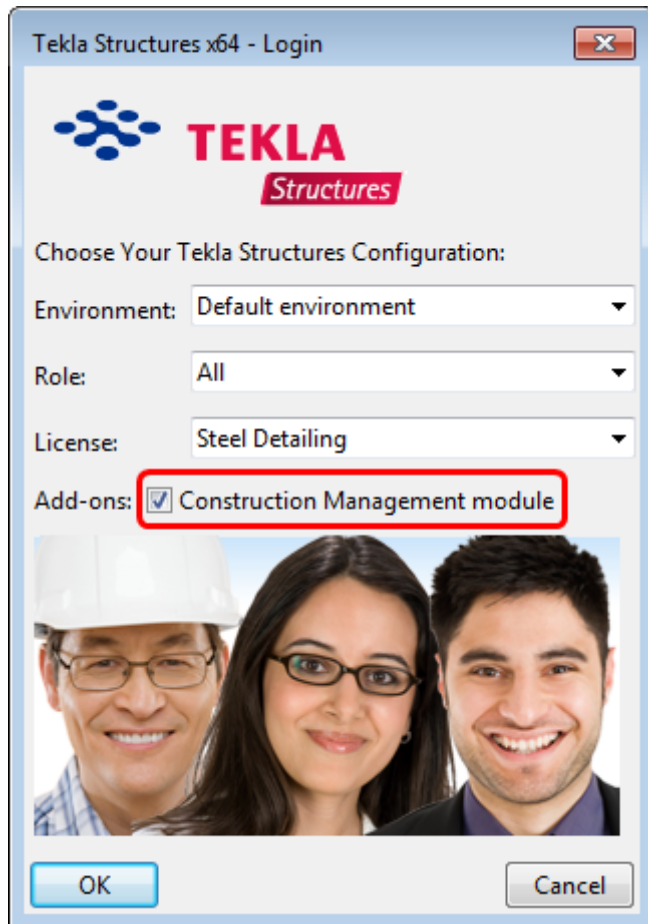
New feature	Full	Steel Detailing	Precast Concrete Detailing	Cast in Place	Engineering	Construction Management	Viewer	Drafter
Improvements in Rebar mesh view creator (43)	*	*	*	*	*			*
Improvements in welds (44)	*	*	*	*	*			*
Import and Export								
New way of defining property sets in IFC export (48)	*	*	*	*	*	*		
Improvements in IFC object conversion (52)	*	*	*	*	*			
Importing from Tekla BIMsight (55)	*	*	*	*	*	*		
Improved reinforcement export in Publish to Tekla BIMsight (51)	*	*	*	*	*	*		
Analysis & Design								
Improvements in changing model creation method (56)	*	*	*	*	*			
Improvements in setting analysis properties for parts (55)	*	*	*	*	*			
Task Manager								
Improvements in Task Manager (56)	*	*	*	*	*	*		
Steel Components								
Tensioner (7) (57)	*	*	*	*	*	*		
Offshore (9) (59)	*	*	*	*	*	*		
Tensioner brace (13) (60)	*	*	*	*	*	*		
Column - 2 beams (14) (62)	*	*	*	*	*	*		
Generation of purlins (50) (63)	*	*	*	*	*	*		

New feature	Full	Steel Detailing	Precast Concrete Detailing	Cast in Place	Engineering	Construction Management	Viewer	Drafter
Squeezed tube bolted (102) (65)	*	*	*	*	*	*		
Concrete Components								
Sandwich And Double Wall (1) (67)	*	*	*	*	*	*		
Sandwich Wall Horizontal Seam (1) (69)	*	*	*	*	*	*		
Sandwich Wall Vertical Seam (1) (70)	*	*	*	*	*	*		
Sandwich Wall Window (1) (71)	*	*	*	*	*	*		
Electric box in wall (84) (73)	*	*	*	*	*	*		
Concrete beam-beam (112) (75)	*	*	*	*	*	*		
Concrete foundation (1030) (77)	*	*	*	*	*	*		

3.2 General

Construction Management module

Construction Management module offers the same functionality as the Construction Management configuration for fabricators, detailers, and engineers. You can acquire the Construction Management module for any modeling configuration. The module allows you to utilize the model information through your fabrication workflow, using the functions of Model Organizer, Task Manager, and Clash Check Manager. Previously, all the functions were available in the Full and Construction Management configurations only.



For more information on how to acquire the Construction Management module, contact your local Tekla reseller.

For more
information

Introduction to Task Manager

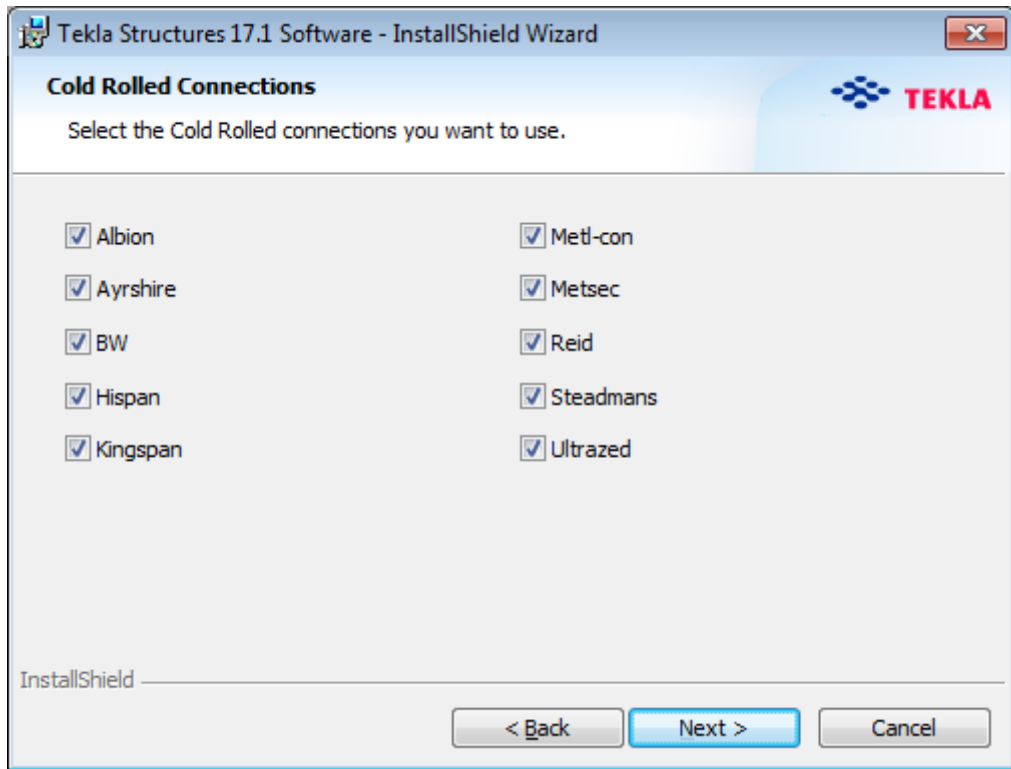
Organizing the model

Clash Check Manager

Changes in the cold rolled component installation

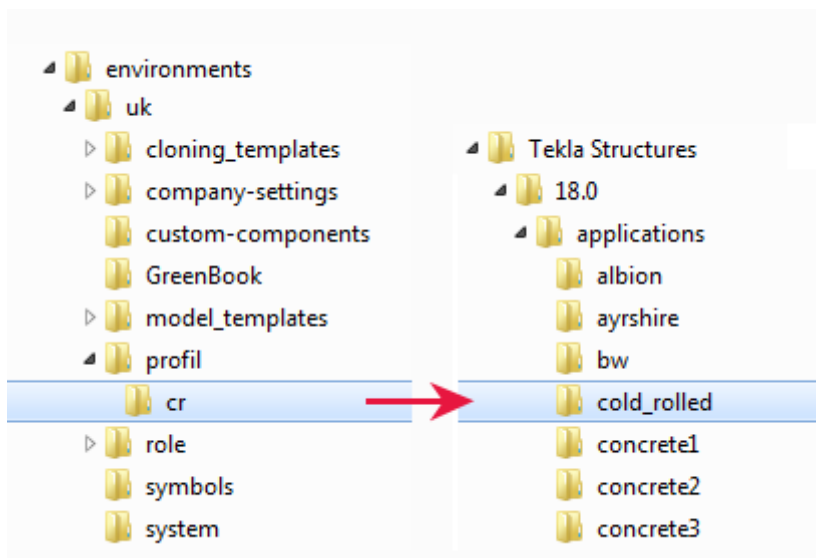
In Tekla Structures 18.0 the installation and the file location of cold rolled components have changed.

- Cold rolled components are now automatically installed to all users. The dialog box for selecting the cold rolled components has been removed from the installation in Tekla Structures 18.0.



- Cold rolled component data files (.dat files) are now located under the Program Files, in the ..\Program Files\Tekla Structures\<version>\applications\cold_rolled folder.

Previously the data files were located under each environment, in the ..\ProgramData\Tekla Structures\<version>\environments\<environment>\profil\cr folder.

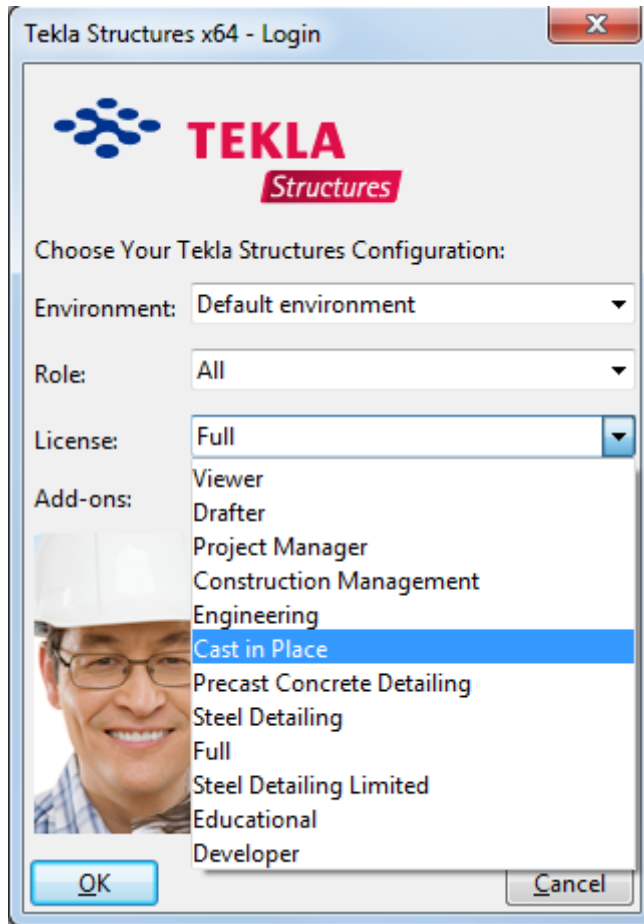


- The cold rolled components now first search the local environment `profil` folder for the files related to cold rolled components. If the files are not found, then cold rolled components search the files from the ..\applications\cold_rolled folder.

Previously cold rolled components only searched the local `profil` folder.

Reinforced Concrete Detailing configuration is now called Cast in Place

The name of the Reinforced Concrete Detailing configuration has been changed to Cast in Place.



New Russian fonts

There are two new Cyrillic Russian GOST standard True Type fonts in Tekla Structures version 18.0:

- GOST 2.304-81 type A.ttf
- GOST 2.304-81 type B.ttf

Both of the fonts are located in the `..\ProgramData\Tekla Structures\ folder.`

These fonts are needed in all those projects where you want to show text both in local and in Cyrillic font types side by side or on top of each other, for example, in part marks or in drawing templates.

To take these fonts into use, copy them from the above mentioned folder to the `Windows\Fonts` folder through Windows Explorer, or open the font file and select **Install**. Also, if you are using other than Russian language Windows, set the current language for non-Unicode programs to Russia in Windows **Control Panel > Region and Language > Administrative**. This requires Windows restart.

3.3 Modeling

New tool for modifying parts

It is now fast and easy to modify the shape of parts and cuts by dragging the part edges and surfaces using the new **Modify** tool. The **Modify** tool makes modeling more efficient as you see the modify result immediately. You can easily make changes without having to enter any part properties.

To start the tool:

1. Select a part.
2. Right-click and select **Modify**.

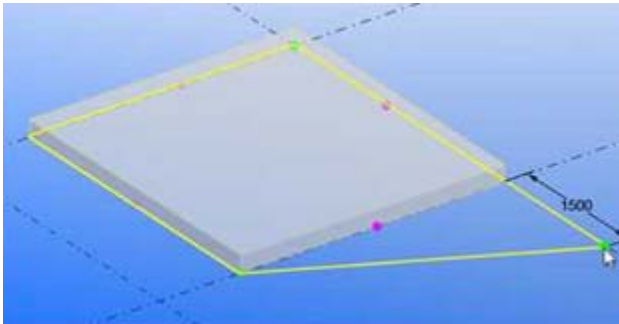
Tekla Structures displays the handles you can use to modify the part. The relevant dimensions are shown when you move the mouse slowly over the part edges. To display a grid that shows the dragging direction hold the mouse on top of a handle.

To modify:

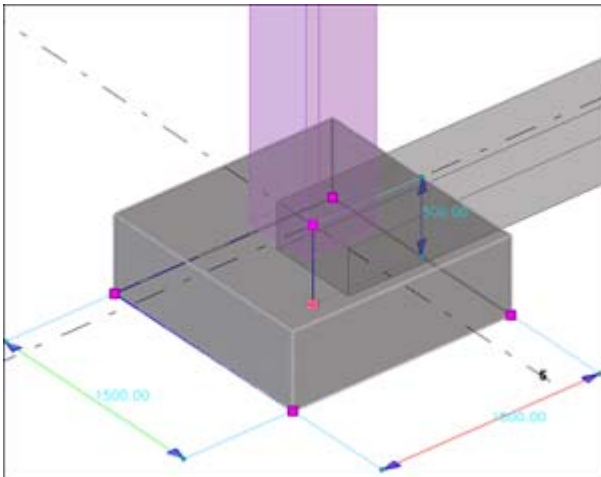
1. Select a handle.
2. Drag the handle to a new location.

Use the **Ctrl** key to disable snapping, and to select and drag multiple points and edges.

For example, drag a corner of a polygon plate as shown in the image.

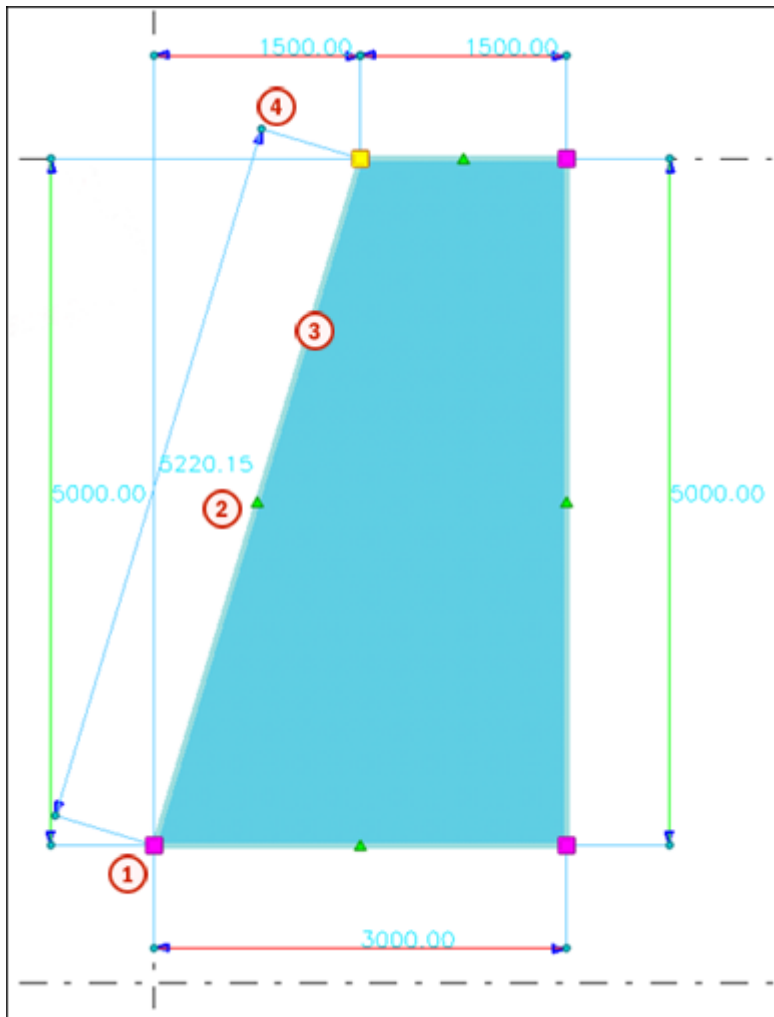


You can modify the shape of beams, polybeams, columns, pad footings, simple panels, simple strip footings, slabs, and contour plates. You can also change the profile of rectangular parts by dragging the part corners or modifying the dimensions.




Note that while you can modify the shape and the profile, there are limitations to what extent the parts can be modified. For example, you cannot change a beam to a polygon plate.

The following image shows the different handle types:



Handle	
①	Point handle Point handles are located where part handles would be.
②	Midpoint handle Use midpoint handles to create new point handles.
③	Line handle
④	Dimension end point You can drag either the round handle or the arrow handle. You can also change dimensions by selecting a dimension end point and entering a dimension value in the dialog box that opens when you start typing.

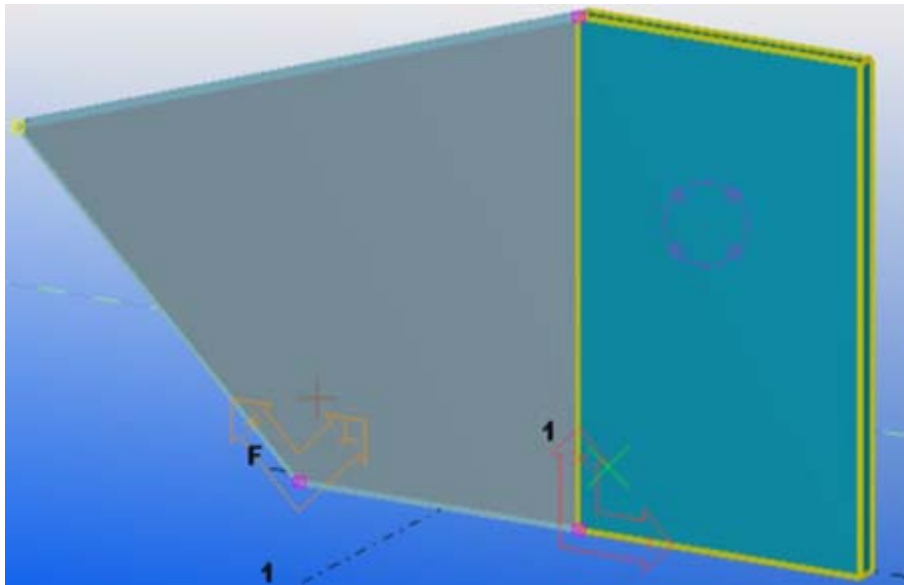
You can control the handles using the toolbar  that opens when you select a handle and right-click. Follow the tooltips to modify the handles. To delete a handle, select it and press the **Delete** key.

For more information

Creating and modifying parts

New tool for setting the work plane

It is now easy to set the work plane using the new work plane tool. Click **View > Set Work Plane > Using the Workplane Tool** to start the tool. Move your mouse over your model. Tekla Structures shows a preview of the work plane direction with the coordinate symbol. You can set the work plane to any part surface.

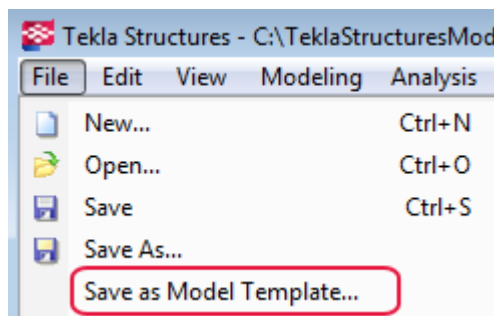


For more
information

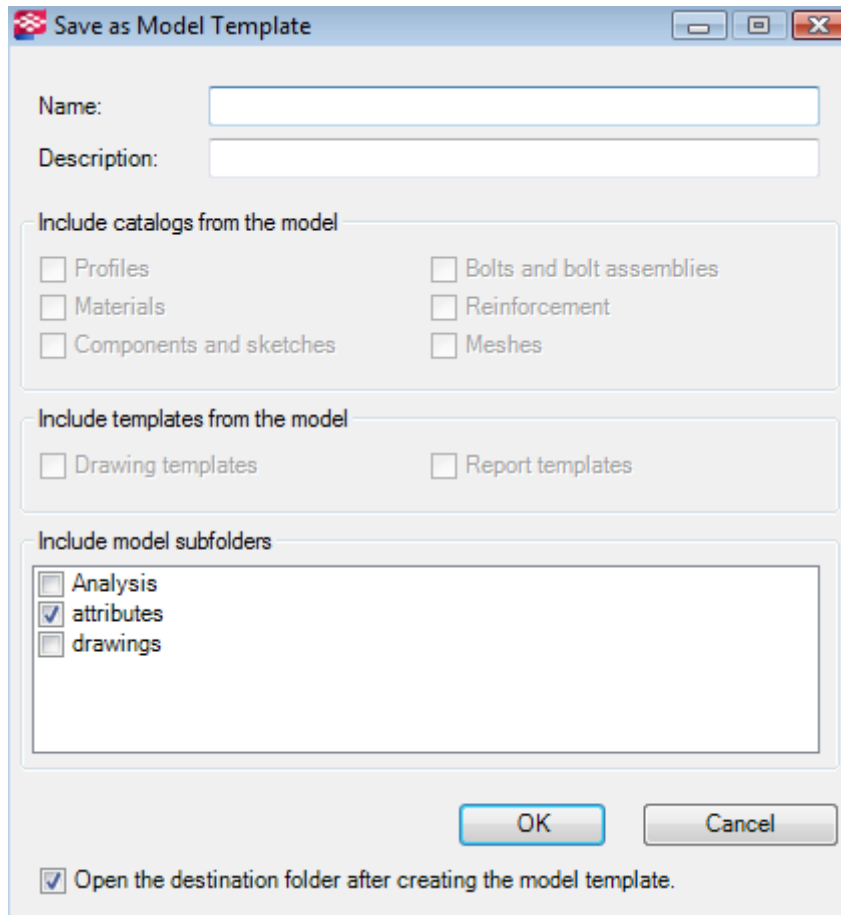
Work plane

Improvements in creating model templates

In Tekla Structures 18.0, you can now easily save your model as a model template using the new **File > Save as Model Template...** command. Previously, model templates were saved by editing the model's `TeklaStructuresModel.xml` file.



In the **Save as Model Template** dialog box you can select which catalogs, model subfolders, drawing templates and report templates from the model are included in the model template.

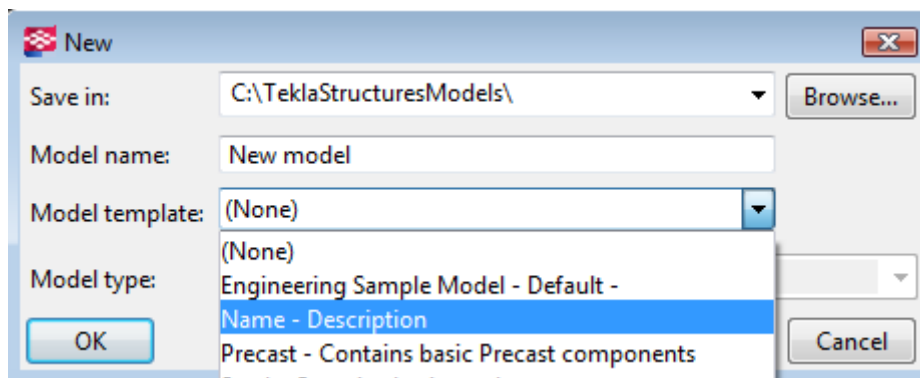


If there are no catalogs and templates in the model folder, the options are not available. Note that only the items located in the model folder can be included in the model template.

By default, the model template folder is saved in your environment folder. For example, if your model environment is in C:\ProgramData, the model template folder for the default environment is in C:\ProgramData\Tekla

Structures\17.1\environments\default\model_templates. You can define a different location using the XS_MODEL_TEMPLATE_DIRECTORY advanced option. For example, you can set this advanced option to point to the same location as XS_FIRM.

When you create a new model, you can select the model template you have created from the **Model template** list in the **New** dialog box.



For more information

Model templates
Creating a model template

Improvements in inserting reference models

In Tekla Structures 18.0 it is now easy to extend the work area when inserting a reference model in a model.

If the inserted reference model lies outside the work area and thus is not fully or at all visible in the model view, Tekla Structures displays the **Objects outside the work area** warning message. You can select **Expand** to extend the work area immediately to see the reference model in the model view.

You can also select not to extend the work area and view the reference model in the model view later by using the **Fit Work Area to Entire Model** command. Ensure that you have selected to display reference objects in the view properties.

The warning message is also displayed when inserting reinforcing bars, grid planes, distances and sketched items that would otherwise be placed outside the current model view.

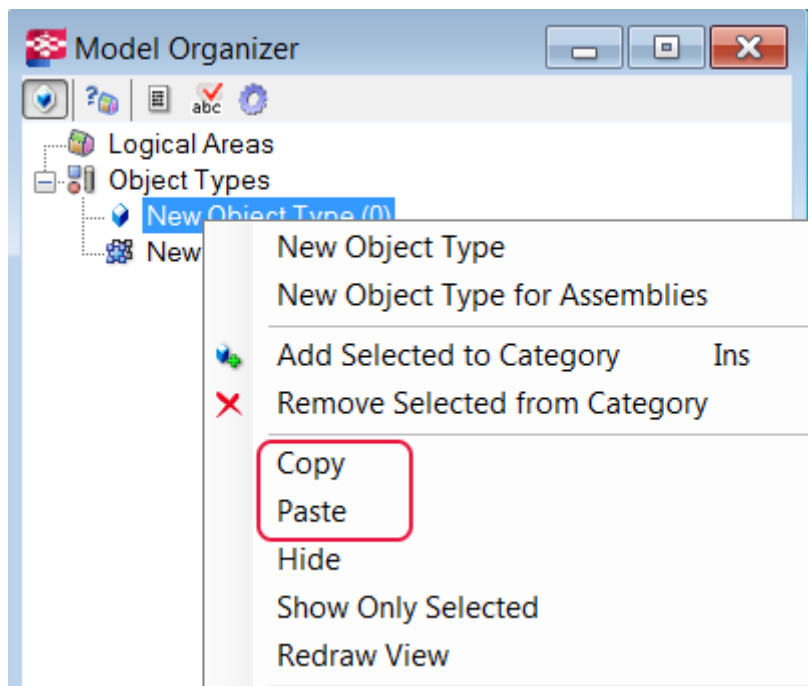
For more information

Inserting a reference model

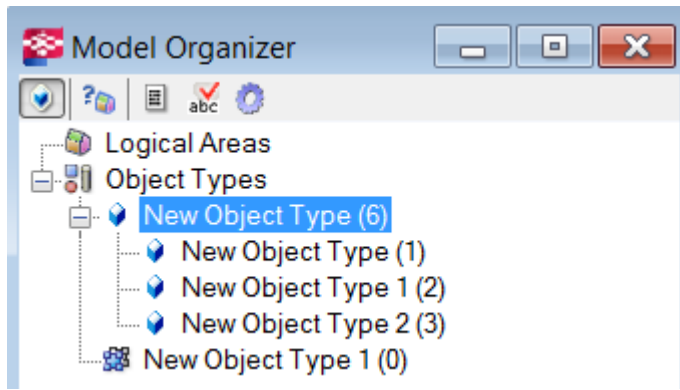
Improvements in Model Organizer

The following fixes and improvements are now available in **Model Organizer**:

- It is now easier to arrange the logical areas and object type categories by dragging and dropping them to a new location in **Model Organizer**. In addition, you can now copy and paste object type categories.

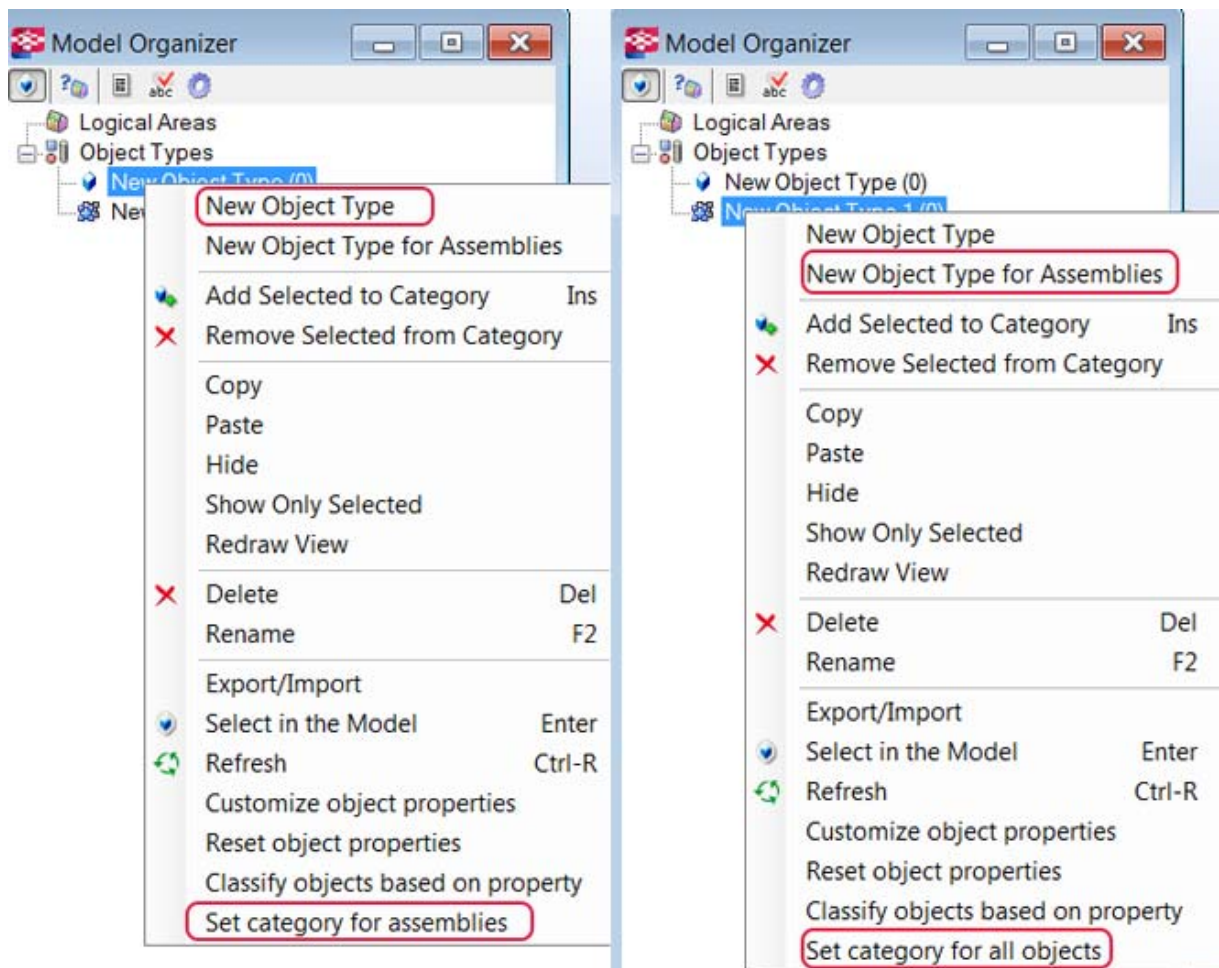


Model Organizer now shows the number of all objects in an object type category, including the objects in the subcategories.



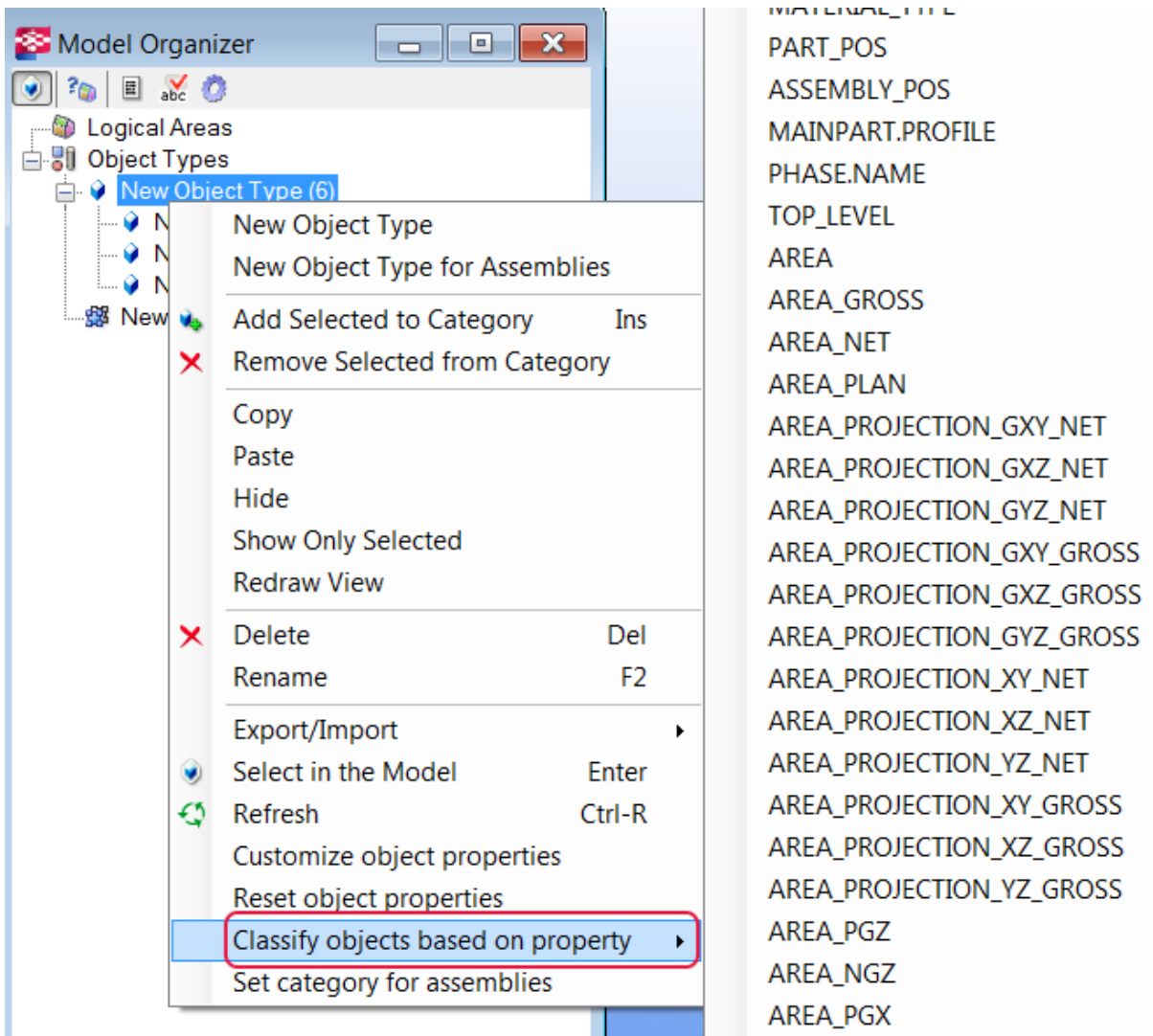
TT65986

- You can now create an object type category for assemblies and cast units. To change a generic object type category to the assembly type, select the **Set category for assemblies** command. To change an assembly object type category to the generic type, select the **Set category for all objects** command.



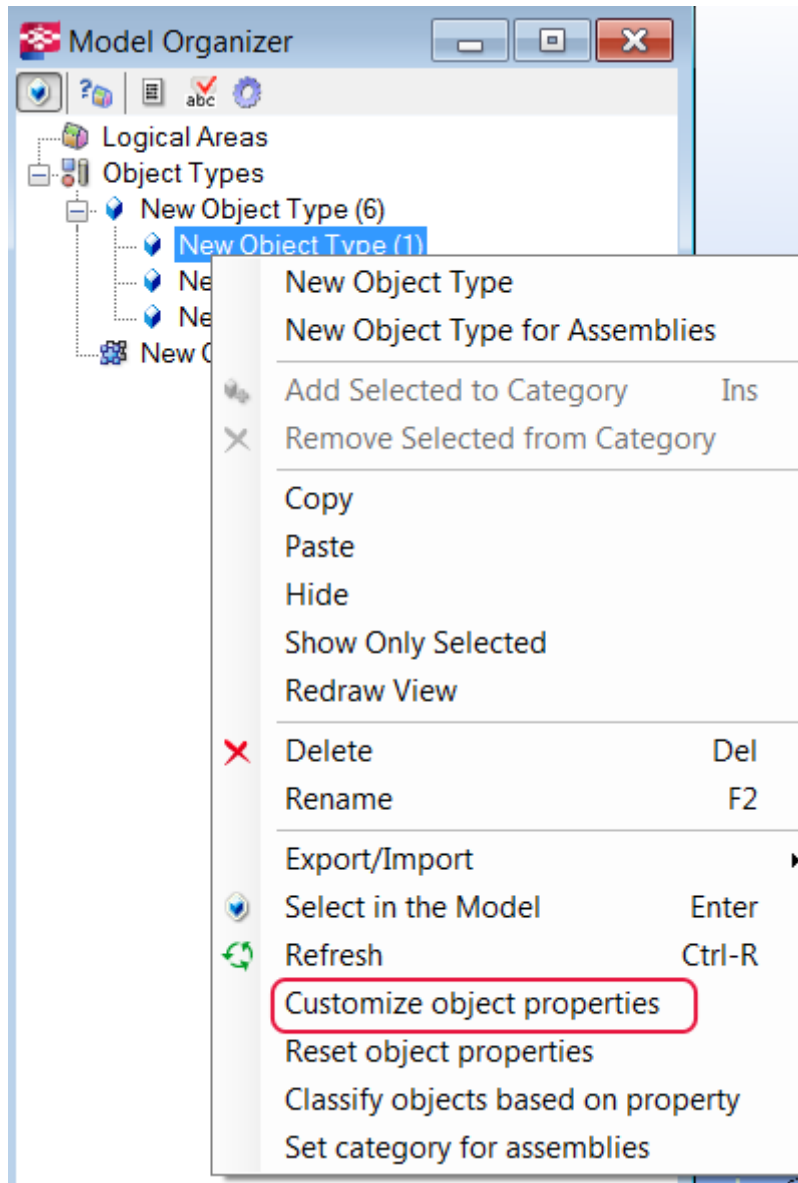
TT66112

- You can now easily classify the model objects that belong to a selected **Object Type** category.



TT66834

- You can now define which properties are shown in the object pane for each object type category. You can select these properties in the **Properties** dialog box. It is possible to map a property to more than one report property, for example, you can map `NAME` to report properties `NAME` and `MAINPART.NAME`. You can write these properties in the **Report property** column using `;` as the separator.



TT66828

- You can sort the columns in the object pane by dragging and dropping the column headings.

TT66664

- When you select an object type category, the objects in the category are now highlighted in the model faster than before.

TT66779

- The **Model Organizer** export `.xml` file now contains the GUID object identifier.

TT67707



When you open a model that has been created with Tekla Structures 17.0 or earlier, **Model Organizer** needs to convert the model to be able to use it in the newer Tekla Structures version. After the conversion, the model cannot be used with an older **Model Organizer** version anymore.

For more
information

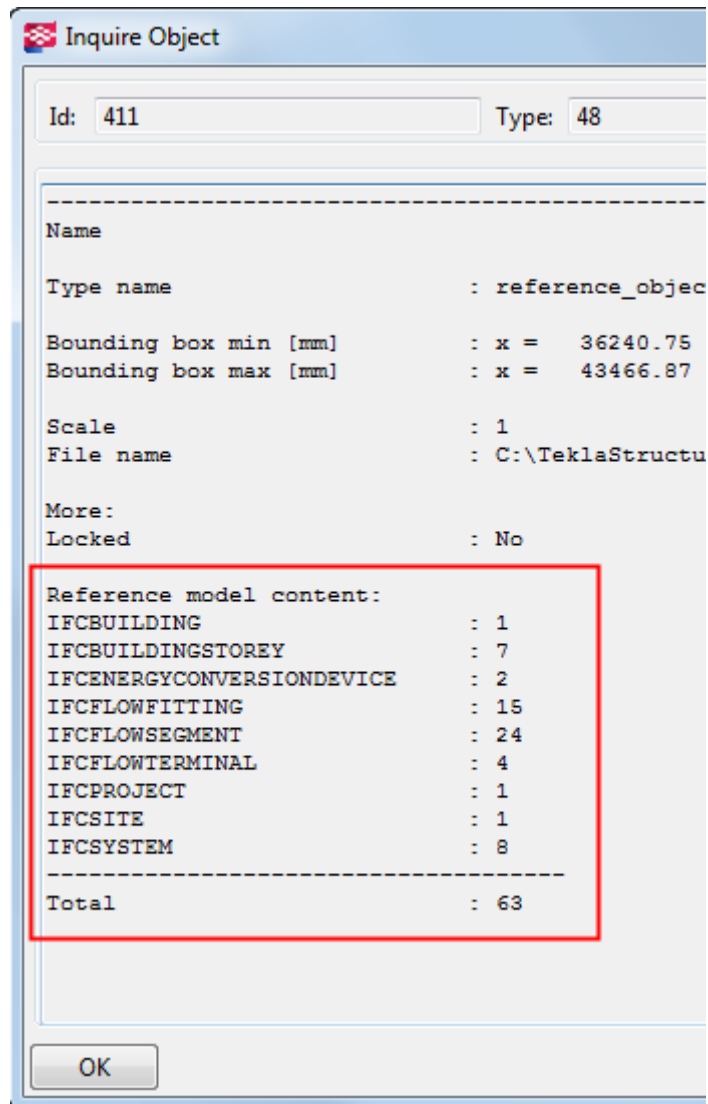
Organizing the model

Modifying the object pane

Classifying objects in object type categories

Examining the contents of a reference model

You can now examine the contents of a reference model by using the **Inquire** command. This is useful to do for example after you have imported a reference model into Tekla Structures.



For more information

Examining the contents of a reference model

Longer bolt and bolt assembly names

It is now possible to have longer bolt and bolt assembly names in the bolt catalog and the bolt assembly catalog.

- Bolt names can now have 40 characters.
- Standard bolt names can have 25 characters.
- Standard bolt assembly names can have 30 characters.
- All bolt assembly properties can have 25 characters.



If you modify the bolt catalog and the bolt assembly catalog in Tekla Structures 18.0, you cannot open the modified catalogs in older Tekla Structures versions.

For more information

[Viewing or modifying the bolt catalog](#)

[Viewing or modifying bolt assemblies](#)

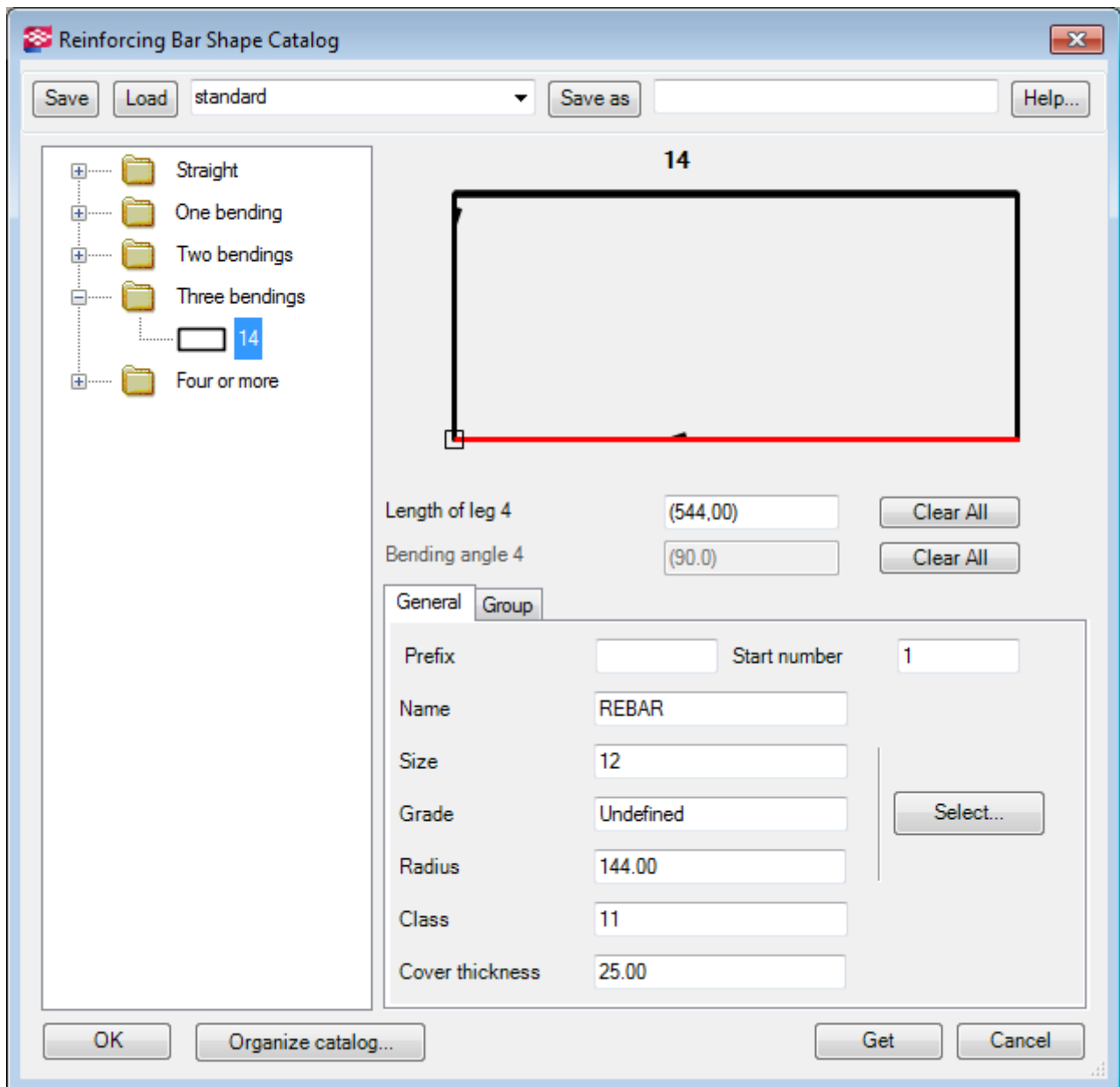
3.4 Reinforcement

Reinforcing Bar Shape Catalog

Tekla Structures 18.0 introduces a new method for creating a reinforcement: **Reinforcing Bar Shape Catalog**.

Compared to the current reinforcement commands, or the reinforcement system and custom components, **Reinforcing Bar Shape Catalog** lets you to create reinforcements in a new, more dynamical way. The reinforcement creation is more productive and intuitive, and can be done with only a couple of mouse-clicks. You do not need to pick several points to create a reinforcement, or to worry about finding a suitable component.

When you open **Reinforcing Bar Shape Catalog**, you will have a list of predefined reinforcement shapes with dimensions in your use. The predefined shapes are based on the shapes that have been defined in **Rebar Shape Manager** and saved in the `RebarShapeRules.xml` file.



When you have selected a shape from the list and are about to place the reinforcement in the model, move your mouse over part faces and edges. Tekla Structures then displays the different placement options for the reinforcement. Based on the preview you can easily select the desired placement.

Reinforcements created with **Reinforcing Bar Shape Catalog** behave in the same way as reinforcements created with the existing reinforcement commands. You can modify, copy, or delete the reinforcements, and the reinforcements adapt to the changes made to the part they are placed in.



Reinforcing Bar Shape Catalog does not work with tapered reinforcing bar groups.

Reinforcing Bar Shape Catalog works mainly with flat, 2D shapes.

How to use To create a reinforcement using **Reinforcing Bar Shape Catalog**:

1. Click **Detailing > Create Reinforcement > Shape Catalog**.
2. Select one of the predefined shapes from the tree view on the left.
You can add frequently used shapes to the tree view, or delete the shapes that you do not need.
To add more shapes or categories to the tree view:
 - a Click **Organize catalog...**
 - b Create new category folders.
 - c Drag and drop the selected shapes to the folders.
 - d Change the names of the folders, if needed.
 - e Click **OK**.
3. Modify the leg lengths, general reinforcement properties, hook properties, or the group properties, if needed.



To change the reference point of the reinforcement, double-click the different legs or hooks in the preview of the shape.

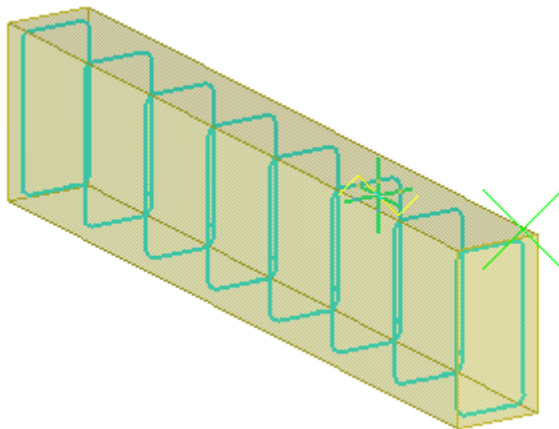


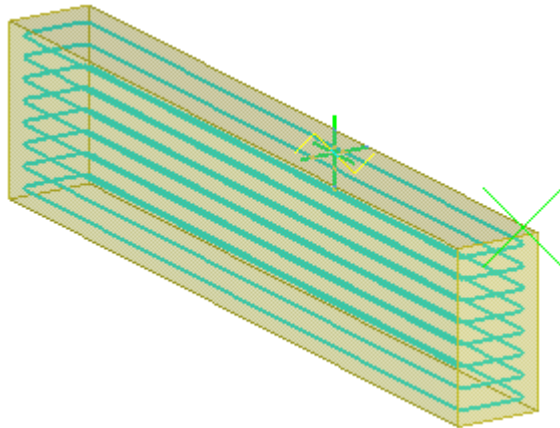
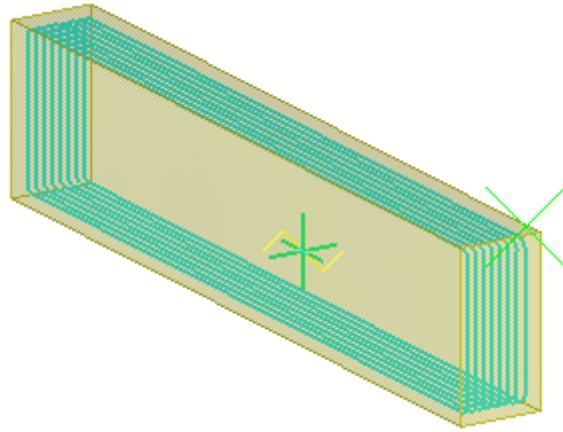
The hook properties are visible only if you have set the advanced option `XS_REBAR_RECOGNITION_HOOKS_CONSIDERATION` to `FALSE`.



If you select an existing reinforcement in the model and click the **Get** button, the properties of that reinforcement are displayed in the **Reinforcing Bar Shape Catalog** dialog box.

4. Click **OK** to close the **Reinforcing Bar Shape Catalog** dialog box.
5. In the model, place the mouse over a part face or edge.
A preview showing the placing and dimensions of the reinforcement is displayed.





6. Based on the preview, select a placing for the reinforcement and click the left mouse button. The reinforcement with handles is created.
7. If you need to adjust the reinforcement:
 - move or drag the start and end handles
 - use **Mini Toolbar** to modify the properties
 - use the **Reinforcing Bar Properties** dialog box to modify the properties.

For more information

Working with reinforcement

Modifying reinforcement

Reinforcing bar bending shapes in Rebar Shape Manager

Improvements in reinforcing bar diameter handling

The actual diameter of reinforcing bars with the ribs is now used by default in all cases. Previously, the nominal diameter was used in most cases. This change improves the accuracy of reinforcing bar dimensions extracted from the models for manufacturing.

You can make reinforcing bars use the nominal diameter by setting the advanced option `XS_USE_ONLY_NOMINAL_REBAR_DIAMETER=TRUE`. However, when reinforcing bars are exported (for example, Unitechnik and BVBS), the nominal diameter is always used in the exported definitions regardless of this option.



Do not change this option during a project.

When previously created models are opened in Tekla Structures 18.0, the center line of the reinforcing bars stays in place and the concrete cover is reduced. All bending dimensions of the reinforcing bar increase. To solve this problem, either set the reinforcing bars back to nominal diameter as explained above or modify the covers of all reinforcing bars to the correct value.



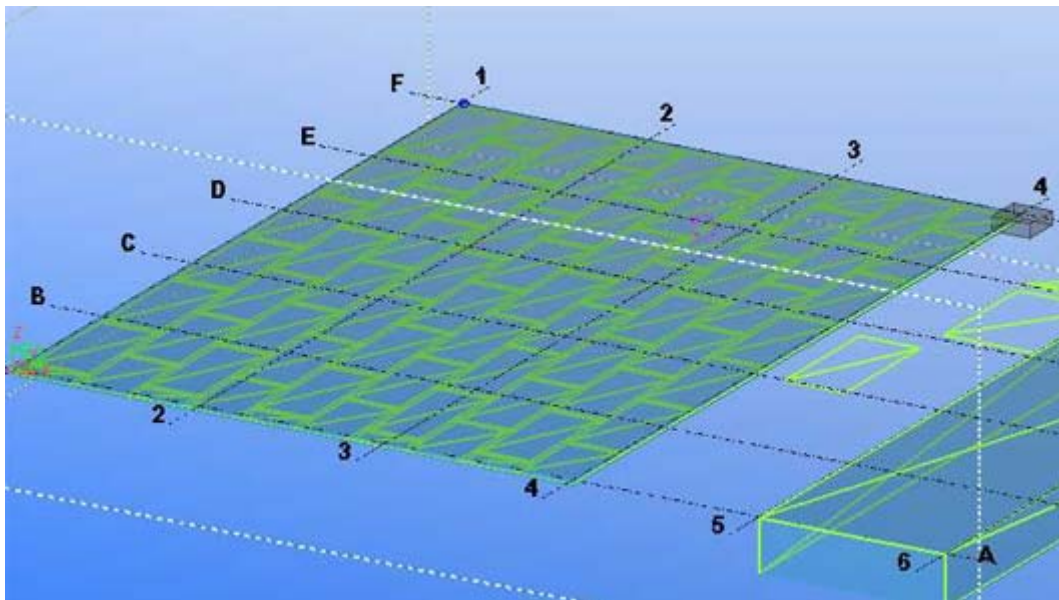
When you open a model created with a previous version and that model contains reinforcing bars, you must update all reinforcing bar components. Otherwise, some of the reinforcement dimensions in reports will be incorrect.

For more
information

Reinforcing bar
Basic reinforcement properties

Displaying reinforcement meshes as outlines

You can now define how reinforcement meshes are displayed in a view. In the **View Properties** dialog box, click **Display...** and select either **Exact** or **Fast** representation for reinforcing bars. Fast representation corresponds to the outline representation used in drawings. Single reinforcing bars and reinforcing bar groups are always displayed in exact representation, even if fast representation is selected.



For more
information

Defining which objects are displayed
Reinforcement mesh

Improvements in Rebar Shape Manager

- Previously, when you edited a new `RebarShapeRules.xml` file with older versions of **Rebar Shape Manager**, some data was lost. **Rebar Shape Manager** now checks the file version used:
 - You can open an old `RebarShapeRules.xml` file with a newer version of **Rebar Shape Manager** but a warning message is displayed. If you save the file, you cannot use it in older **Rebar Shape Manager** versions anymore.
 - You cannot open a new `RebarShapeRules.xml` file with older versions of **Rebar Shape Manager**. Trying to open the new file displays an error message.

TT70463

- **Rebar Shape Manager** shows the standard radius value (RS) which is closest to the actual bending radius. This is in line with the **Select reinforcing bar** option and the **Main / Tie or stirrup** default usage setting.

TT62679

- **Rebar Shape Manager** shows the result of a valid formula in the **Bending schedule fields**. This makes the usage of formulas much easier and faster as it helps to make sure that the formula is correct and gives the expected value.

If the formula is not valid, a question mark is shown and/or an error text about:

- non-matching or missing parenthesis
- unknown variable name
- invalid operator

TT65556

- You can use the following new values when reporting the number of rounds and spiral pitch height for spiral shapes:

- SR - Spiral rounds
- SL - Spiral length
- SP - Spiral pitch

You can use these values when defining custom shape code rules and schedule field values for report templates.

TT64090

- **Rebar Shape Manager** functions correctly when the `XS_REBAR_RECOGNITION_HOOKS_CONSIDERATION` advanced option is set to `FALSE`. When set to `FALSE`, Tekla Structures ignores hooks when it checks the shape of reinforcing bars, and assigns the same bending type to bars with and without hooks. Hook properties are now available as predefined values in a pop-up menu.

TT67044

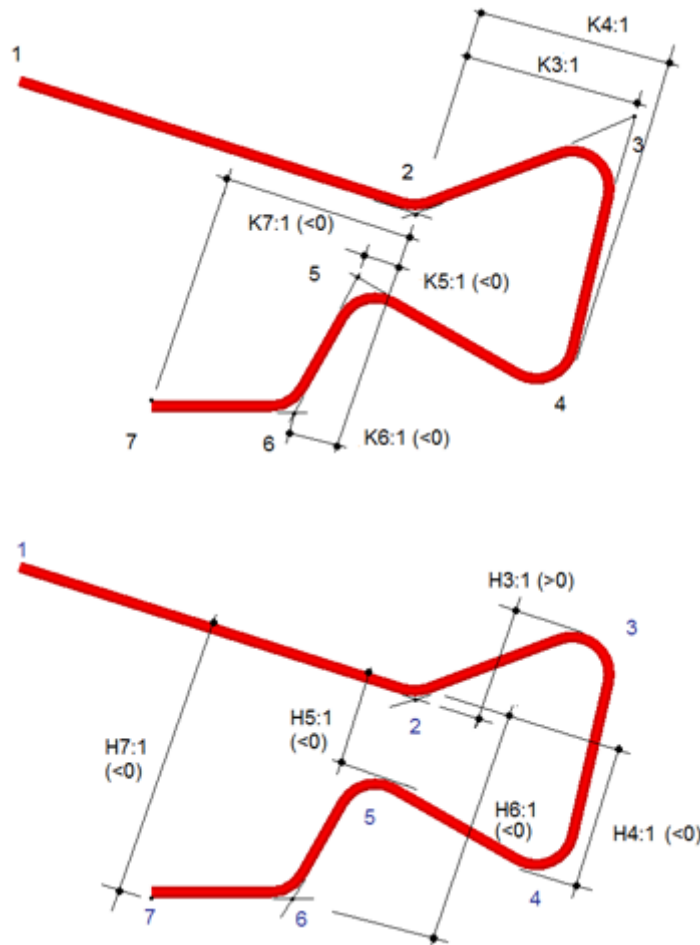
- The **Require hooks** option has been changed to **Check hooks**. When you select the **Check hooks** check box, the different shape codes for reinforcing bars with the same geometry are now better and more precisely recognized than before.

TT67055

- Previously, **Rebar Shape Manager** did not function properly if the advanced option `XS_REBAR_RECOGNITION_HOOKS_CONSIDERATION` was set to `FALSE`. This has now been fixed. With the **Check hooks** option, reinforcing bars that have different hooks can have different shape codes and/or schedule fields regardless of the value of the advanced option. The **Check hooks** option replaces the **Require hooks** option.

TT69271

- There are new bending schedule fields for **Along leg distances (K)** and **Off from leg distances (H)**. You can select a property for the field by right-clicking the cell. The **Leg distances (D)** schedule field also has a list of options available. The distances are measured parallel or perpendicular to a certain leg from outer edge to outer edge or tangential to the bending. The distances are positive or negative depending on the leg direction. The following images show examples of the **K** and **H** dimensions.



TT66883

- **K** and **H** fields are available in the **Bending schedule fields**.

TT65369

- In some environments, both stirrups and main reinforcing bars with a standard radius are recognized as having the same bending type depending on reinforcing bar usage (main or tie/stirrup). There are now four new variables `DIAX2`, `DIAX3`, `DIAX5` and `DIAX10` for defining reinforcing bar bending shape rules. You can create more restrictive rules, such as `RX Less than DIA*3` to make a difference between reinforcing bars with small and large standard radius values.

TT71002

- The **Along leg (K)** and **Off from leg (H)** dimensions in **Rebar Shape Manager** were not saved correctly into the `RebarShapeRules.xml` file when they were used in rules or formulas, or in schedule fields. This has now been fixed. However, all shape definitions that contain **K** or **H** dimensions must be updated by reselecting the schedule field containing any of the **K** or **H** dimensions.

TT72308

- Reinforcing bar minimum and maximum length and weight values `LENGTH_MIN`, `LENGTH_MAX`, `WEIGHT_MIN` and `WEIGHT_MAX` are now read from **Rebar Shape Manager** if advanced options `XS_USE_USER_DEFINED_REBARSHAPERULES` and `XS_USE_USER_DEFINED_REBAR_LENGTH_AND_WEIGHT` are both set to `TRUE`.
TT71906
- Length and weight values of single reinforcing bars are read from the **Rebar Shape Manager** if the advanced options `XS_USE_USER_DEFINED_REBARSHAPERULES` and `XS_USE_USER_DEFINED_REBAR_LENGTH_AND_WEIGHT` are both set to `TRUE`, otherwise hardcoded shape values are used like before.
TT72411

For more information

Reinforcing bar bending shapes in Rebar Shape Manager
Defining reinforcing bar bending shapes in Rebar Shape Manager

3.5 Drawings

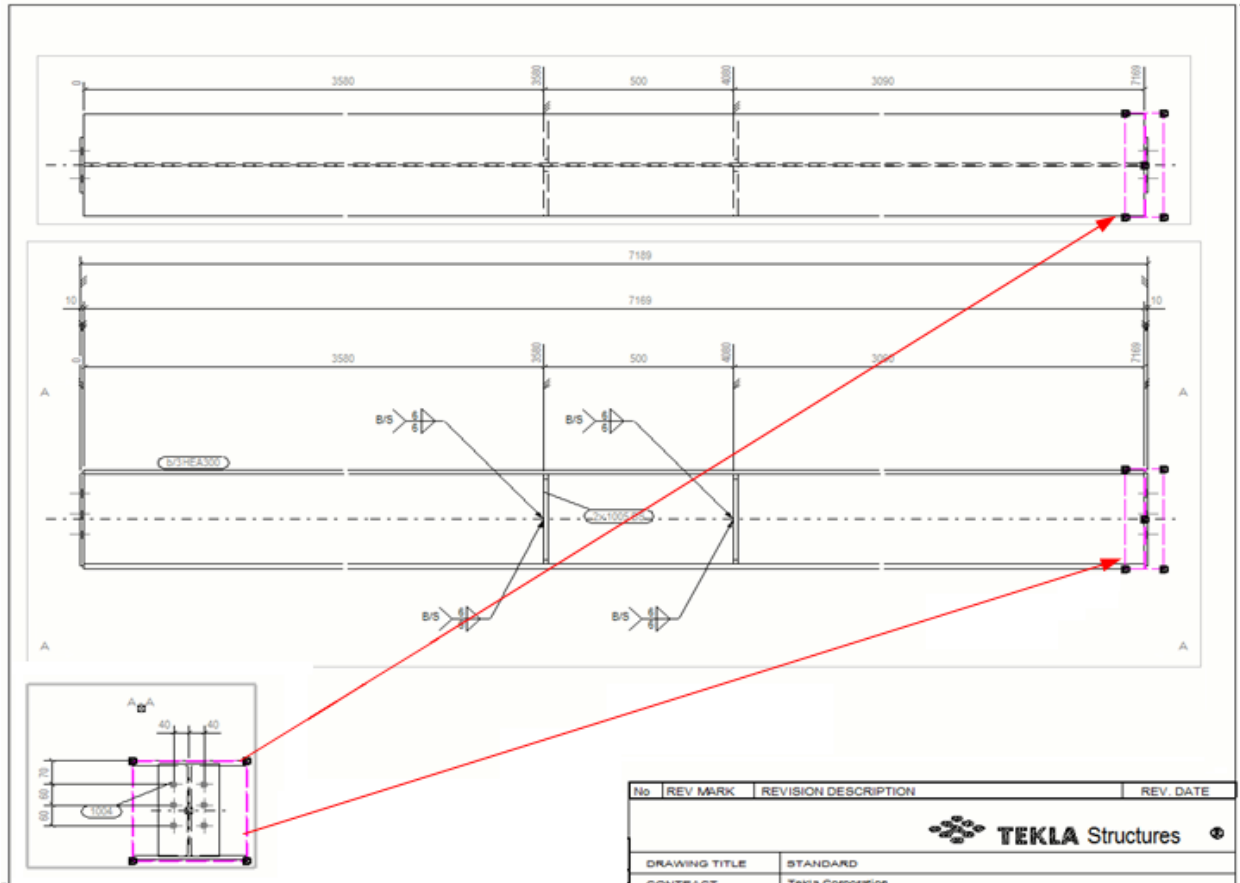
Improvements in drawing views

Drawing views include several improvements and functional changes.

View boundary

- When you select a drawing view by clicking the frame, the view boundary of the selected drawing view is now highlighted in all drawing views, which allows you to easily adjust the view boundary in all of the views. When you change the selected view's boundary in the other views using view boundary handles, the change can be seen in the view boundary of the selected view. This way you can easily adjust the section view plane and view depth, and you do not need to go to the view properties dialog box to do this.

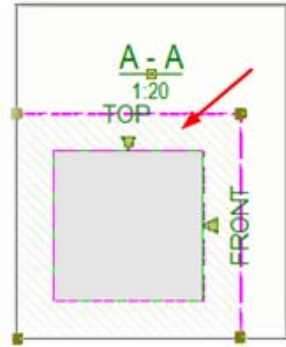
In the example below, the view in the bottom-left corner has been selected, and the view boundary is shown and highlighted in two other views.



TT67725

- There are a couple of new advanced options for visualizing the view boundary in other views, both located in the **Drawing Views** category:
 - `XS_VISUALIZE_VIEW_IN_ANOTHER_VIEWS`: Set this advanced option to `TRUE` if you want to highlight the view boundary box of the selected view in another view. If you do not want to highlight the view boundary box in another view, set this advanced option to `FALSE`. The default value is `TRUE`.
 - `XS_VISUALIZE_VIEW_IN_FATHER_VIEW_ONLY`: Set this advanced option to `TRUE` if you want to visualize the section view and detail view boundary boxes only in the view where the section mark or the detail mark is located. If you set this advanced option to `FALSE`, the view boundary boxes are visualized in all of the views where this is possible and the view boundary box fits inside the view to some extent. The default value is `TRUE`.
 - `XS_VISUALIZE_VIEW_NEIGHBOUR_PART_EXTENSION` is by default set to `TRUE` to show neighbor part extensions in drawing views. If you set this advanced option to `FALSE`, the neighbor part extensions are not shown.

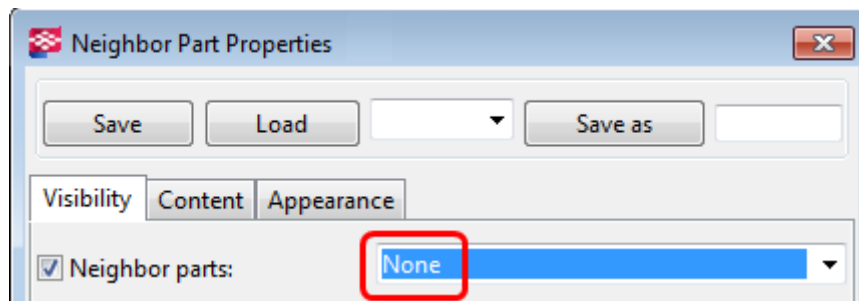
When you have set this advanced option to `TRUE` and select a view, the neighbor part extension is shown in all drawing views where the view boundary of the selected view is displayed.



Enter a value by which to extend the view in the **View extension for neighbor parts** in the **View Properties** dialog box.



If neighbor parts are set to be hidden in the **Neighbor Part Properties** dialog box by setting **Neighbor parts** to **None**, the extensions are not displayed even if you set this advanced option to `TRUE`.

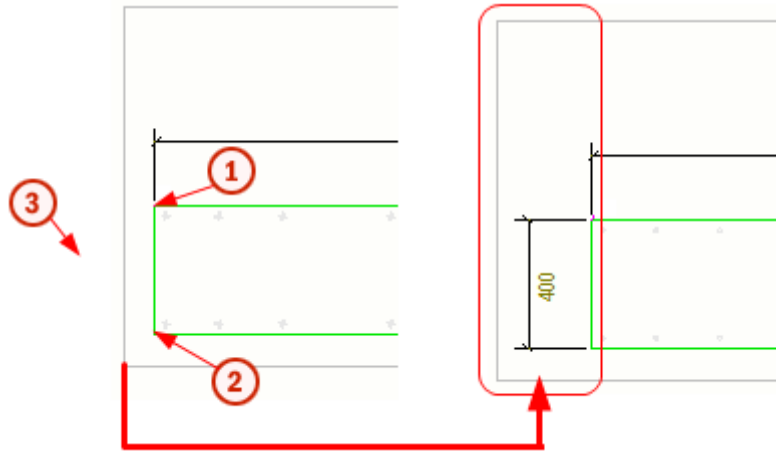


TT71411

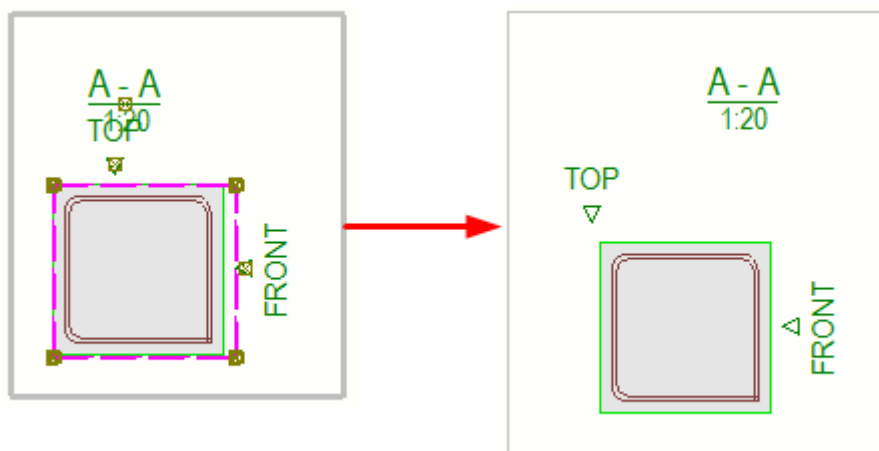
View frames and labels

- The size of the drawing frame follows the view content, and updates automatically when there are changes in the content. You no longer need to adjust the frame size by dragging view frame handles, and this is why the handles have been removed.
- You can still drag a view to a new position by the view frame: click the frame, press and hold the left mouse button, and drag the view.
- Now you can pick outside the view frame, for example, to position dimensions. The view frame is resized automatically.

The image below shows the three points picked for placing the dimension outside the view frame, the resulting dimension, and the moved frame.



- You can drag view labels and view direction marks: click the view frame to activate the label and direction mark handles, press and hold down left mouse button and drag. The view frame is resized automatically, if necessary.



View placing

- If the view boundary of a view changes in both directions, the center point of the view boundary box remains the same.
- If the view boundary is dragged by one corner handle to one direction only, the other corners do not move.
- Both of the above apply to view behavior in cloning, updating and manual changes.
- The functionality of the advanced option `XS_DRAWING_UPDATE_VIEW_PLACING` has also been improved

Associativity, updates and cloning

- All views are now updated more accurately.
- All views are now oriented correctly according to the **Coordinate system** selected in the view properties dialog box.
- Dimensions and marks are associated in the rotated coordinate system.
- When a drawing is created, Tekla Structures adjusts the **Minimum cut part length** in **View Properties** so that the view fills the drawing nicely if you have set **Expand shortened parts to fit** to **Yes** in the **Layout Properties** of the drawing. Now Tekla Structures can adjust the **Minimum cut part length** also during cloning and updates, and is able to keep the view length as close to the original as possible, and the views no longer become unnecessarily short or long.

TT60539

- If you are using old models, you need to refresh the associativity of **all** your drawings in those models to utilize the better associativity of the newer Tekla Structures version. This is especially important for cloning templates. Do the following:
 - a Add the command **Refresh Associativity** to the **User** menu from the **Customize** dialog box (select **Tools > Customize...**)
 - b If you did not have the **User** menu before, restart Tekla Structures to activate it.
 - c Open the drawing.
 - d Click **User > Refresh Associativity**.
 - e Save the drawing.

Section view height and depth

- When you create section views, the section views height and width are defined by the depth of the original view.

TT38850

Removed advanced options

- Because of the improvements in views, the following advanced options are not needed anymore:
 - XS_DETAIL_VIEW_MAX_GROWTH
 - XS_INTELLIGENCE_DO_NOT_ASSOCIATE_VIEWS_TO_GRIDS
 - XS_INTELLIGENCE_DISABLE_DETAIL_VIEW_COORDSYS_UPDATE
 - XS_DRAWING_CHECK_VIEW_FRAME_AFTER_EDIT

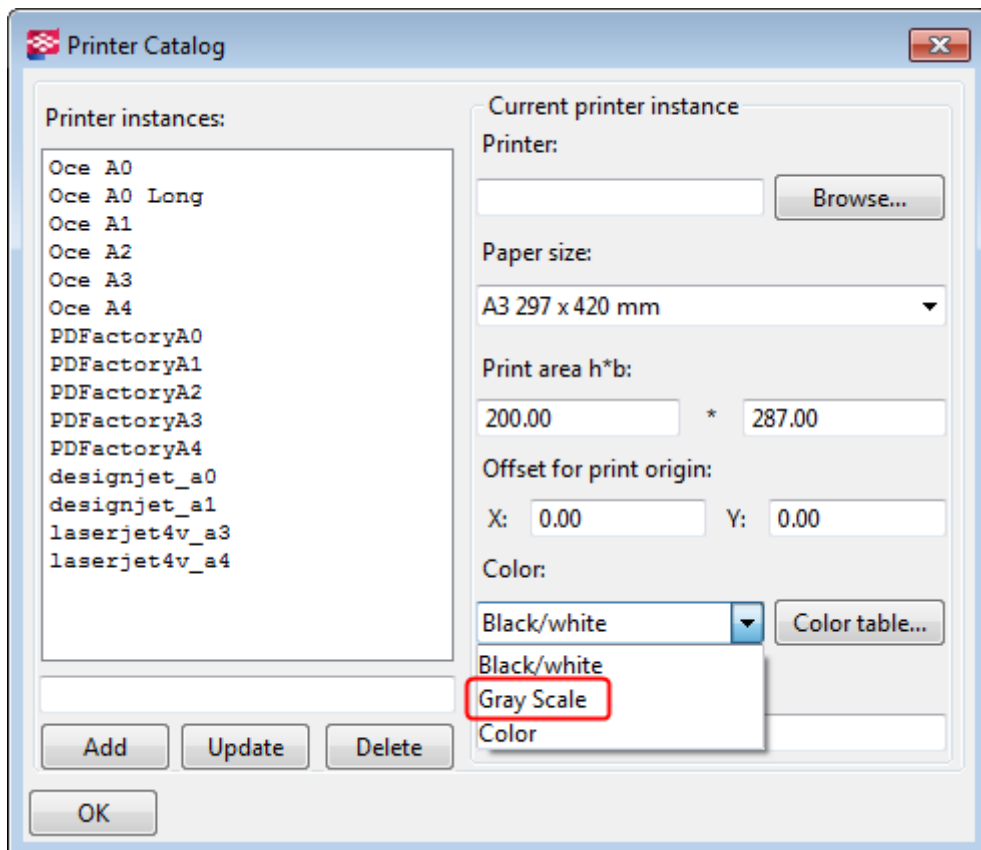
For more information

Modifying drawing views

XS_DRAWING_UPDATE_VIEW_PLACING

Improvements in drawing colors

- You now have one more color option, **Gray Scale**, in the **Printer Catalog** dialog box.



TT53848

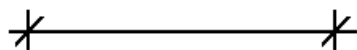
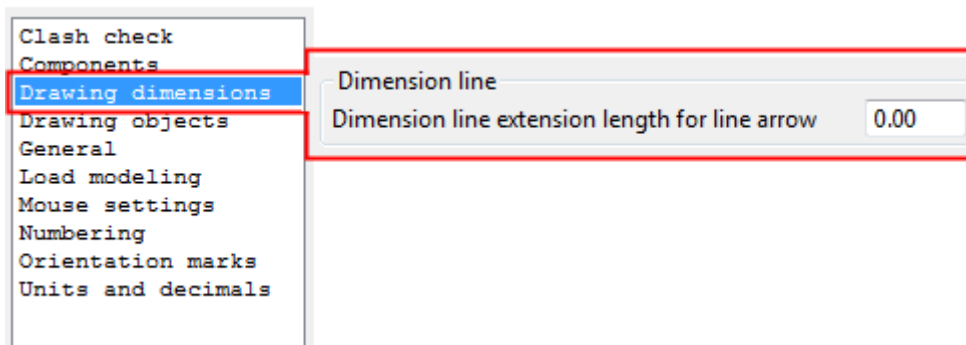
- The advanced option `XS_USE_COLOR_DRAWINGS` that changes the default color mode in drawings when the Tekla Structures is started also has one more option `GRAY`.
 - If you set this advanced option to `FALSE` or leave the value out, drawings are black and white.
 - Set it to `GRAY` to have gray scale drawings.
 - Set it to any other value, for example, `COLOR`, `TRUE` or `1`, to use colors in drawings.

TT53848

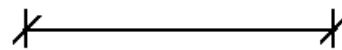
More flexible dimensions and dimension marking

Creating dimension line extensions

- You can now create line extensions for dimensions that have line arrows. To create line extensions, enter a value in the **Dimension line extension length for line arrow** box under **Drawing dimensions** in the **Options** dialog box (**Tools > Options > Options...**).

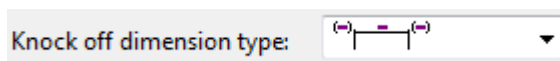


Line extension defined



No line extension

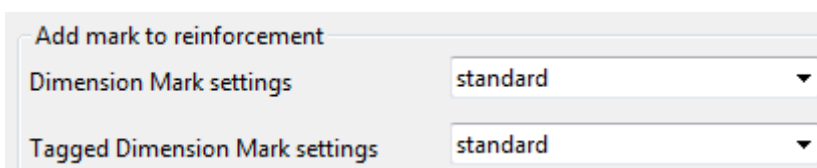
- The change does not affect existing dimensions.
- Line extensions are not applied to dimensions that have different arrows from line arrows, and knock-off dimensions of the following type:



TT63984

Selecting dimension mark property file

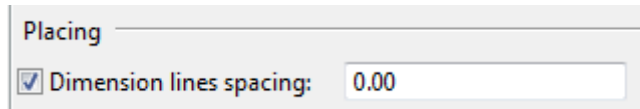
- You can now select the desired reinforcement dimension mark property file through **Tools > Options > Options... > Drawing dimensions** instead of loading the dimension property files `dimension_mark.dim` or `tagged_dimension_mark.dim`. In some cases the reinforcement dimension marks were not created, this has now been fixed.



TT60512

Dimension line spacing

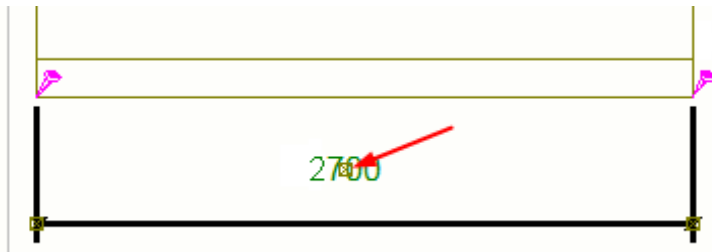
- **Dimension lines spacing** is now available in the **Dimension Properties** dialog box also for manually created dimensions. It allows you to place dimensions at given distances, and works only if dimension placing is set to free.



TT58411

Dragging dimension marks

- Dimension marks can now be freely dragged to avoid overlapping dimensions and marks.



TT63981

Changing unit and format for length in dimension marks and tags

- You can now change the unit and format of length in dimension marks and tags. The unit and format settings become available when you select a length element in the **Elements in mark** list in the dimension prefix, postfix or tag mark properties dialog box.



TT65791

For more information

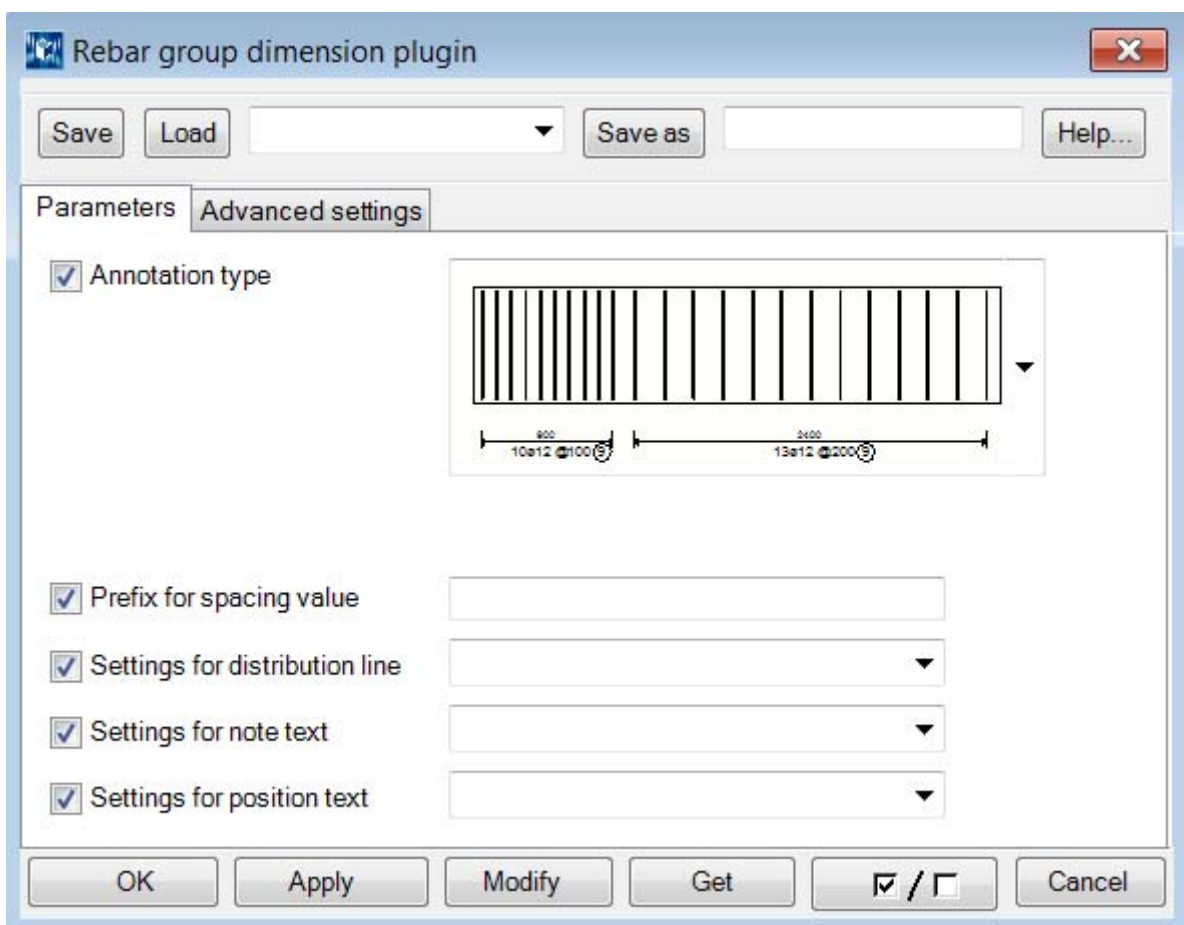
- **Creating dimension line extensions**
- **Adding predefined reinforcement dimensions**
- **Dragging dimension marks**
- **Setting the appearance of mark text, frames and leader line**

New tool for dimensioning reinforcing bar groups

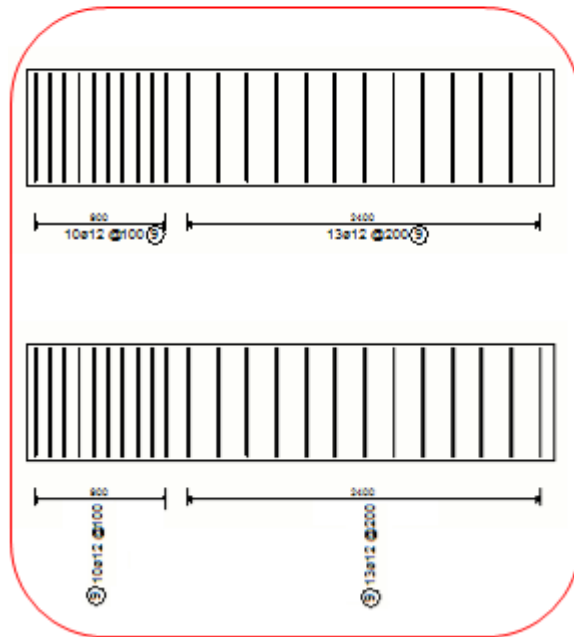
The new **RebarGroupDimensionPlugin** application replaces the earlier **StirrupDimPlugin** application. This new application offers you altogether three dimensioning representations instead of one. It also allows you to adjust the placing of the various elements in the dimension annotation more flexibly.

- Before you can use this feature in a drawing, add the **Create RebarGroupDimensionPlugin** command to a toolbar in the modeling mode.
- To add the dimension in an open drawing, select the reinforcing bar group and click the command **Create RebarGroupDimensionPlugin** that you added on the toolbar, and then pick a location where you want to place the dimension.
- If you want to modify the dimension properties, for example, how the dimensions and the dimension annotations look like, or the spacing between dimension lines and dimension text lines, double-click the created dimension.

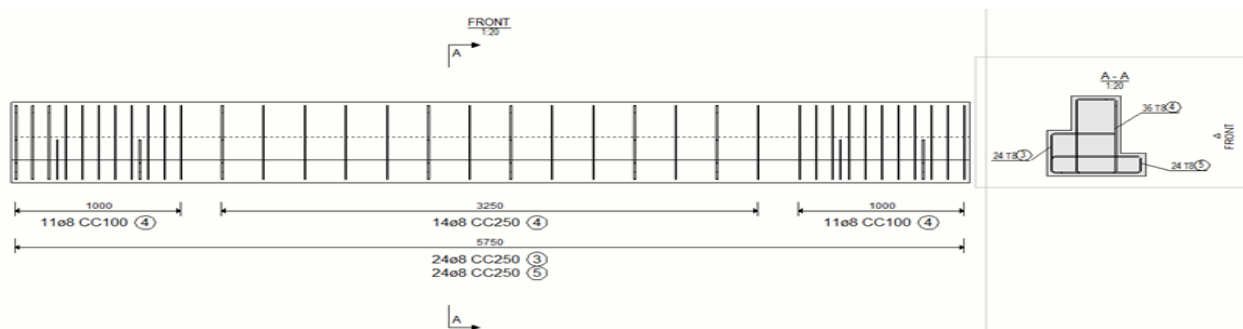
The new dialog box:



Two new dimensioning representations:



Example of a representation type:



For more information

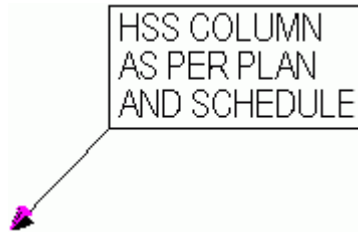
Dimensioning reinforcing bar groups

Improvements in texts, marks and associative notes

Leader lines

- Associative notes and texts added with **Add Text** tools now have a handle in the leader line base point, which enables dragging:
 - Text leader line base point can be dragged freely.
 - Associative note leader line base point can be dragged in the same way as the leader line base point for marks: The leader line base point can be dragged along a line if the base point is originally on a line, or inside a part, if the base point is originally inside a part.

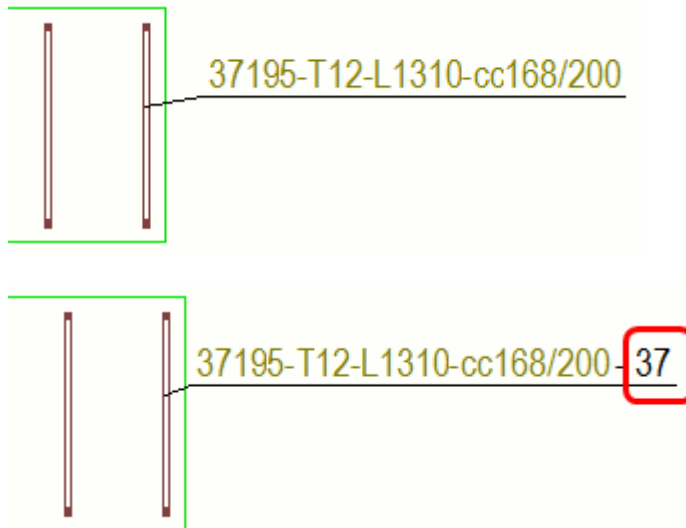
- Previously, the mark or associative note leader line was always pointing to the outer frame of the whole mark or note. Now it is possible to set the advanced option `XS_MARK_LEADER_LINE_POSITION_TYPE_FOR_NO_FRAME` to the new value 4 to connect the leader line to the mark element frame defined in the mark content. This same functionality is available for all frame shapes.



TT66099

Number of reinforcing bars

- You can now show in the reinforcement marks the number of all reinforcing bars that have the same position number by adding a **User-defined attribute** element and entering `NUMBER_IN_DRAWING` as the attribute name. Also the associative notes have the same functionality.



TT63994

For more information

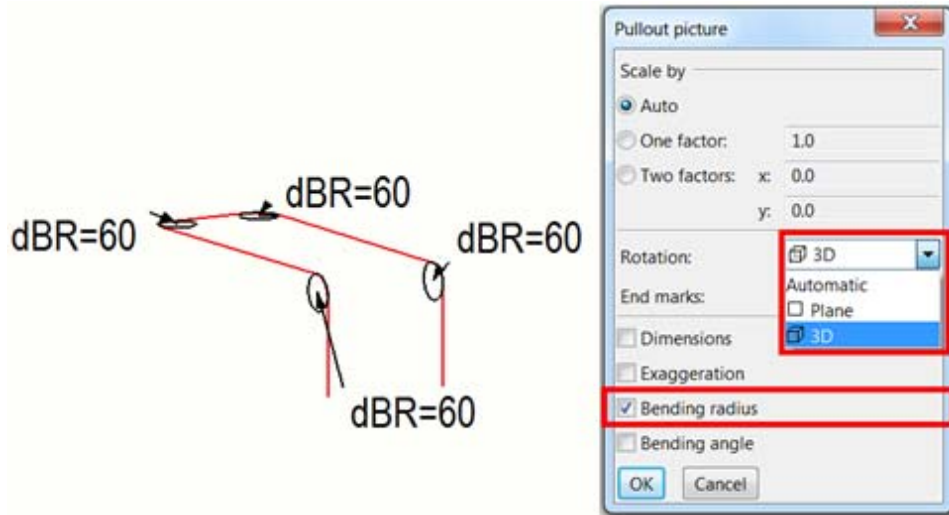
Dragging the mark and associative note leader line base point

`XS_MARK_LEADER_LINE_POSITION_TYPE_FOR_NO_FRAME`

Adding user-defined attributes and template attributes in marks

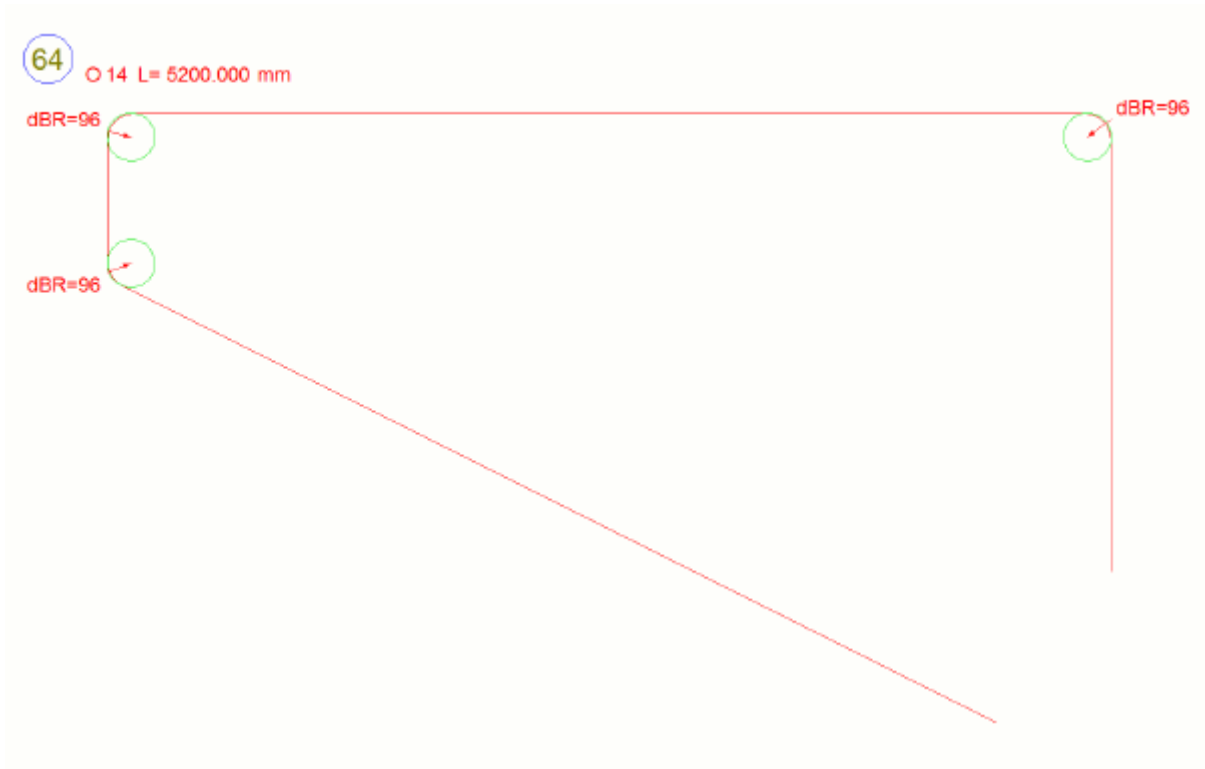
Improvements in pullout pictures

- The **Pullout picture** dialog box contains new options for showing the pullout picture in 3D and showing the bending radius. If a single reinforcing bar is a 3D reinforcing bar (meaning that the points do not lie on the same plane), it is represented with global orientation. 3D pullout picture uses global coordinate system. If there are two cast units with different direction in the same drawing with similar 3D reinforcement, the pullouts may appear to be different.

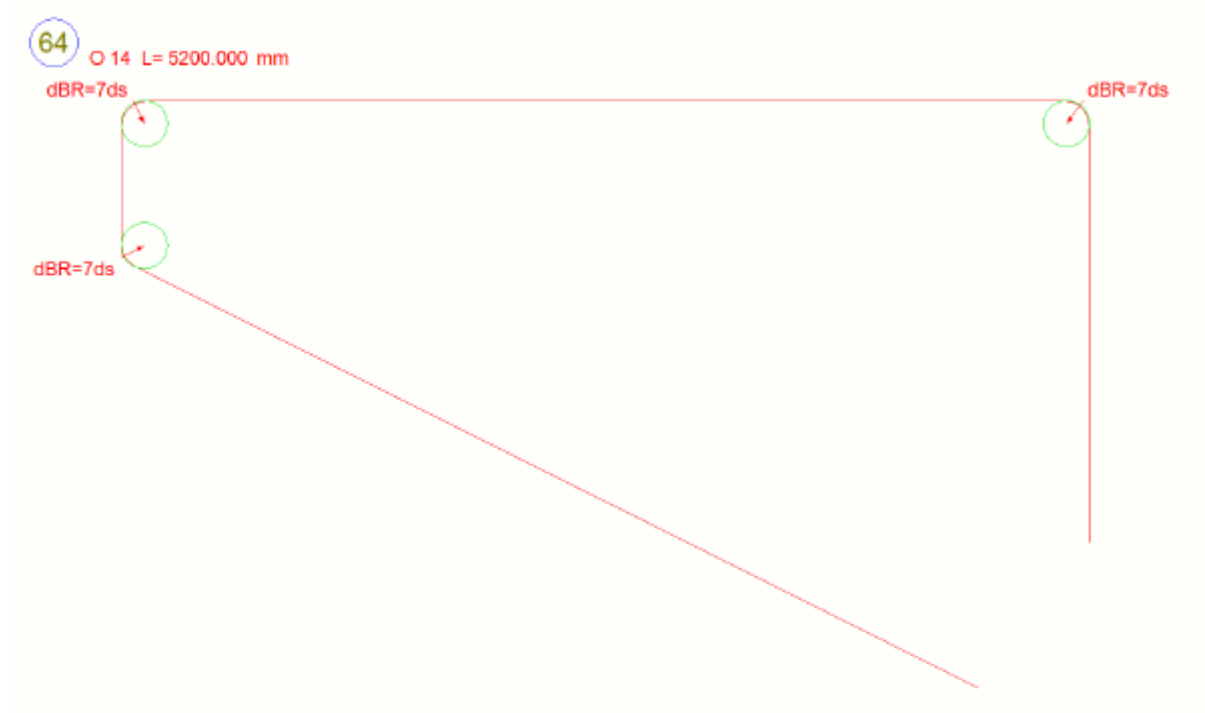


TTT63990, TT63995

- Now there is one more way to show bending radius information in pullout pictures: You can make pullout bending radii to use multiplier instead of mm by including `PullOutBendingRadiusAsMultiplier=1` in the `rebar_config.inp` file from the needed environment.
In the example below, millimeters are shown:



In the following example, multiplier is used:



TT66106

- Pullout orientation is now correct. The mark angle does not affect pullout orientation.

TT63992

- Pullout pictures have small leaderlines that point to the dimension text. You can now set a minimum length for the leader line to appear in `rebar_config.inp` with the option `PullOutLeaderLineMinLength`. The default value is 10 mm. To switch the leader lines off completely, use a large value.

TT64307

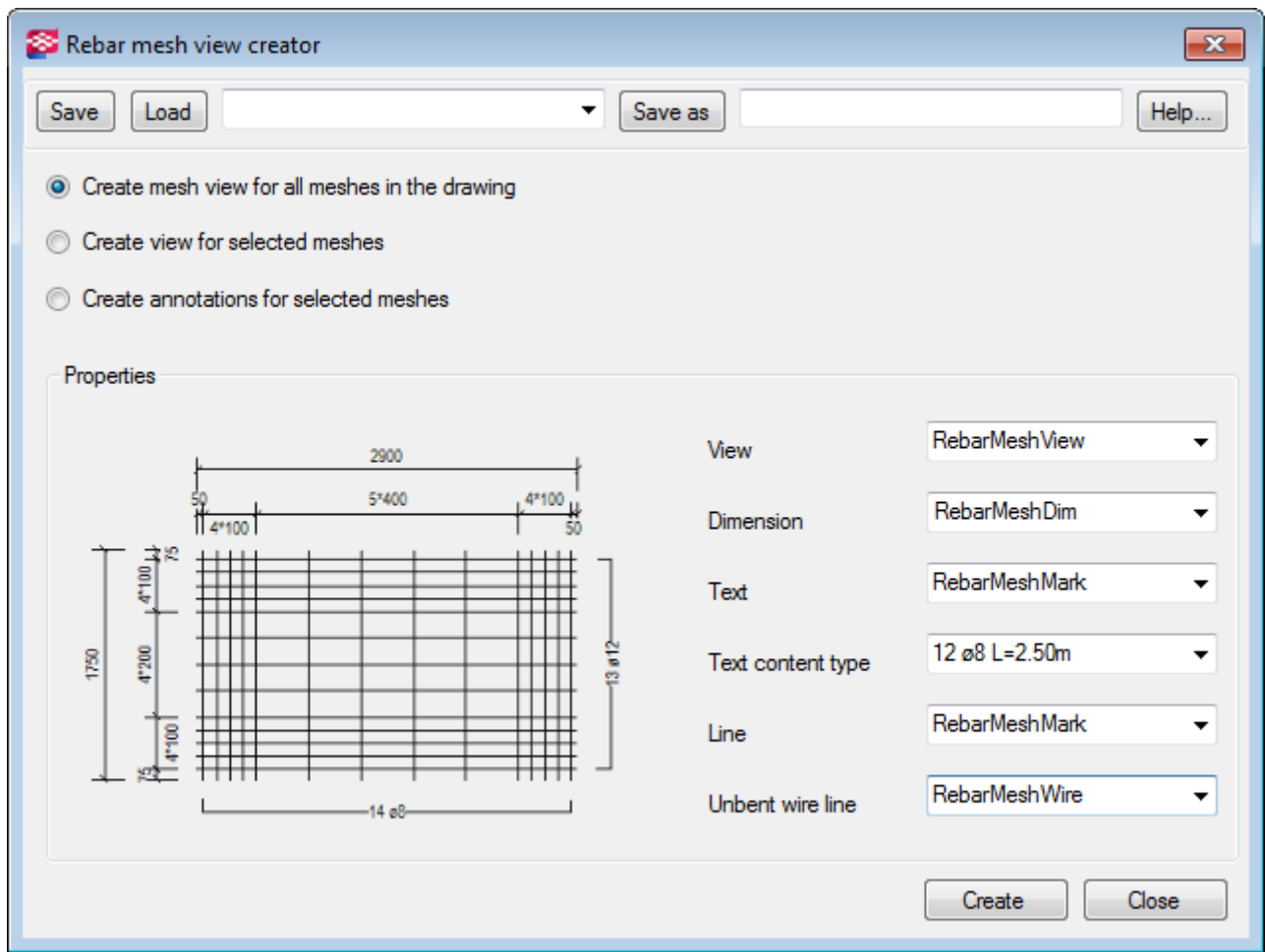
For more
information

Adding pullout pictures in reinforcement marks

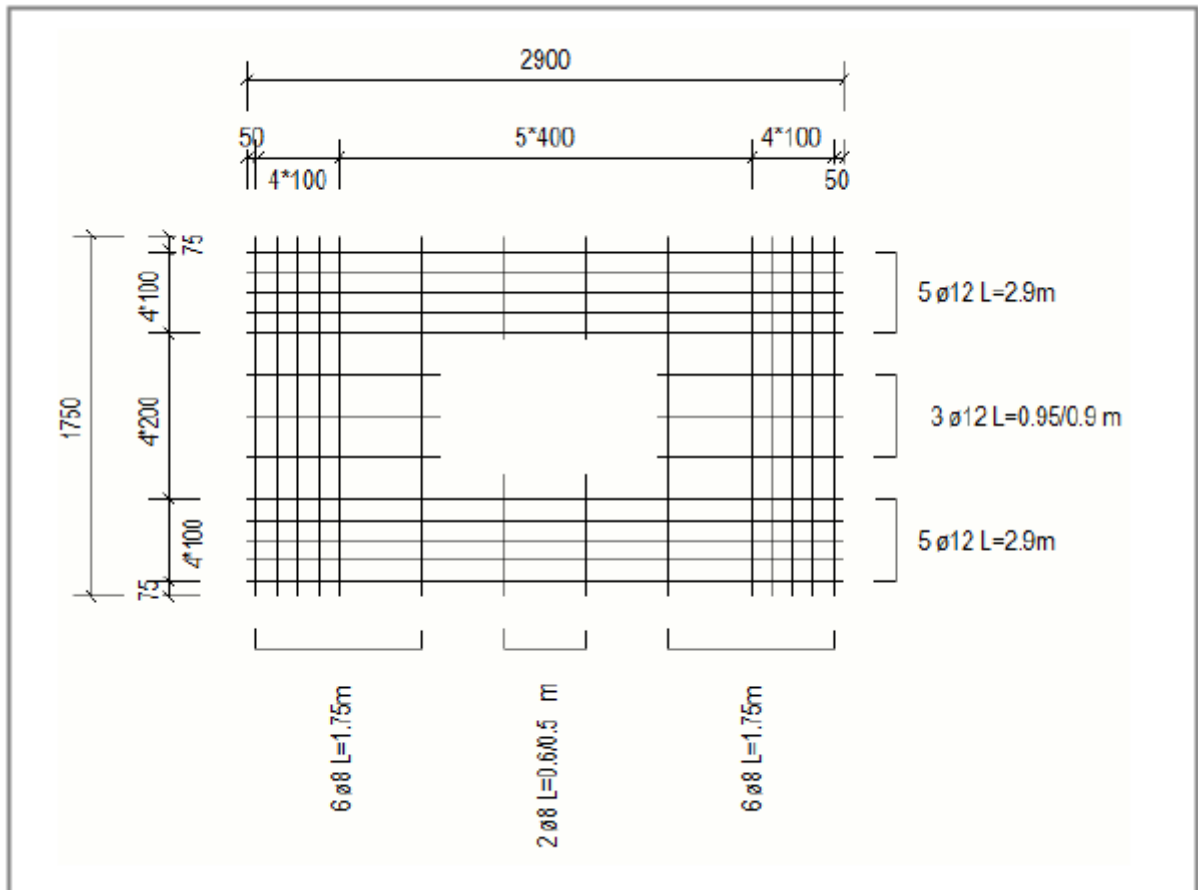
Improvements in Rebar mesh view creator

More options

The **Rebar mesh view creator** dialog box has been improved. It now contains more options that make it easier for you to create the mesh views just the way you want in one single dialog box.



- A new option **Text content type** has been added. Use this to select the wire annotation type.



- You can now select the property files to be used for various parts of the view in this dialog box.
- The dialog box now contains the standard **Save**, **Load** and **Save as** buttons.

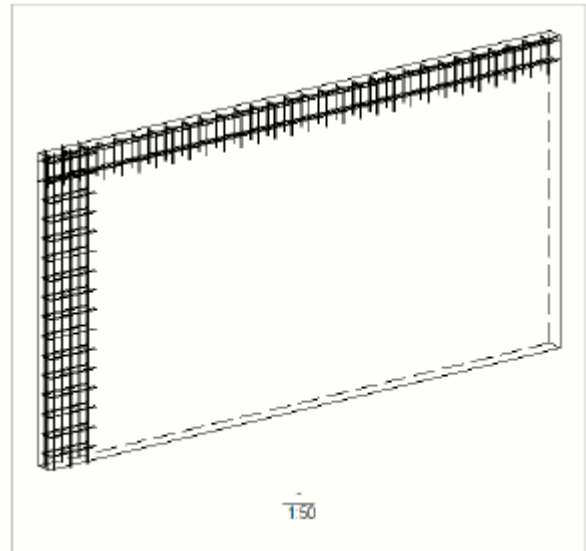
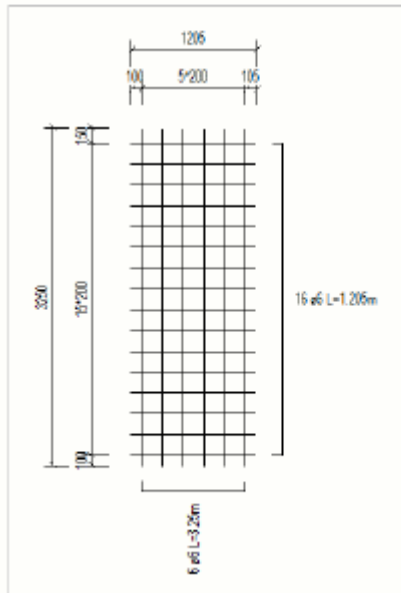
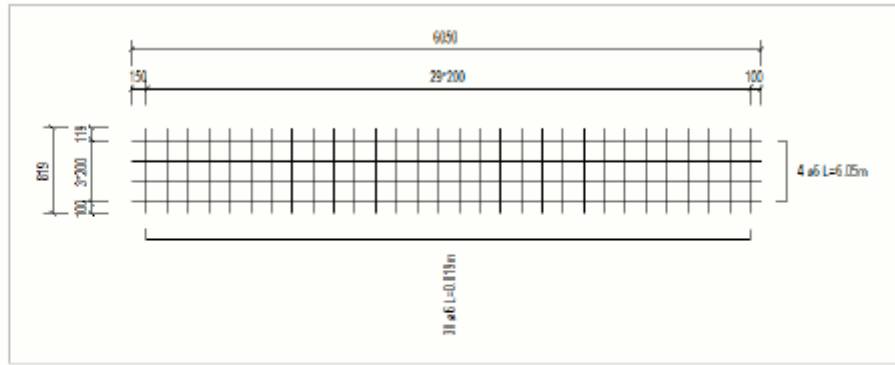
TT72390

Unbending bent meshes

RebarMeshViewCreator macro is now able to unbend a bent mesh in the view. The macro draws a bent mesh using lines showing the actual unbent mesh. The line properties of mesh wires, for example, line type and color, can be controlled through the property file that you select from the **Unbent wire line**.

Note that it is not possible to create an annotation for the bent mesh afterwards similar to rectangular or polygon meshes because you cannot select the unbent mesh as a mesh object. If you need to update the annotations, please recreate the mesh view.

The drawing below contains a 3D view of a wall with two bent meshes, and a separate unbent mesh view of both of the meshes.



TT72341

For more information

Creating a view for a reinforcement mesh

Improvements in welds

Dragging model welds by leader line base point

You can now drag the model welds by the base point of the weld mark leader line along the weld seam. This allows you to position the weld marks more optimally for increased clarity in the drawings.

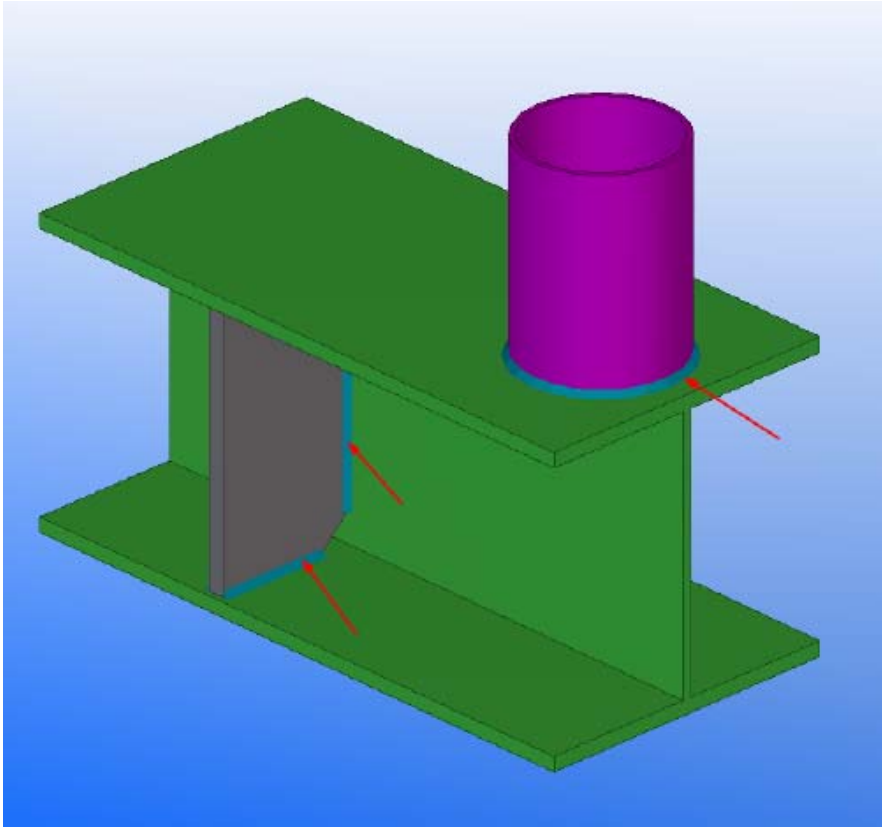


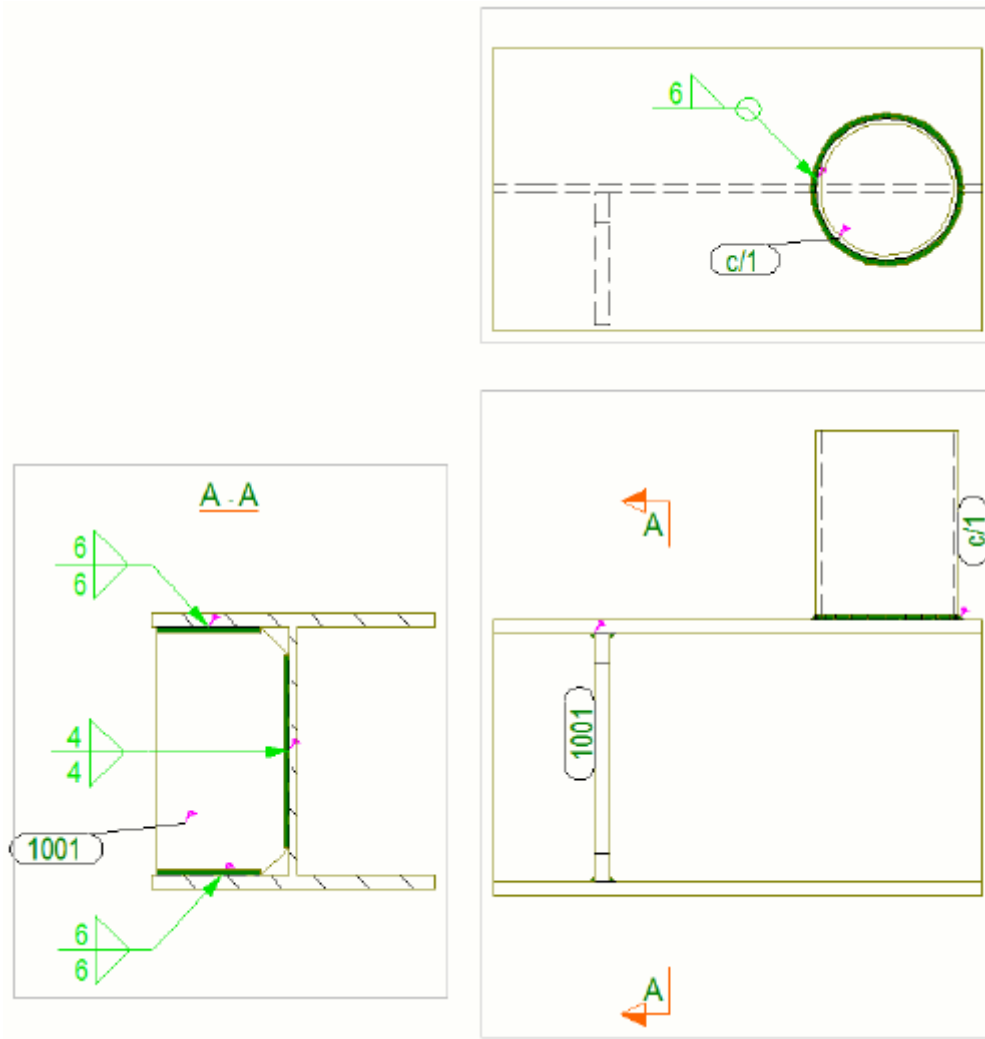
Turn on **Smart Select (Tools > Options > Smart Select)**, this makes selecting the leader line base point much easier.



You cannot drag the leader base point to the back-side of a double-sided weld.

The first image below shows the welds in the model, and the second image shows the weld marks in a drawing created in the same model. In the second image, the area within which the weld mark leader line base point can be dragged is indicated with dark green.



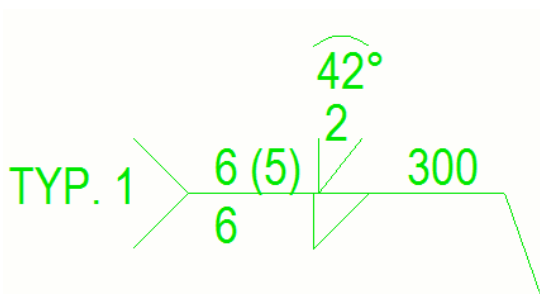


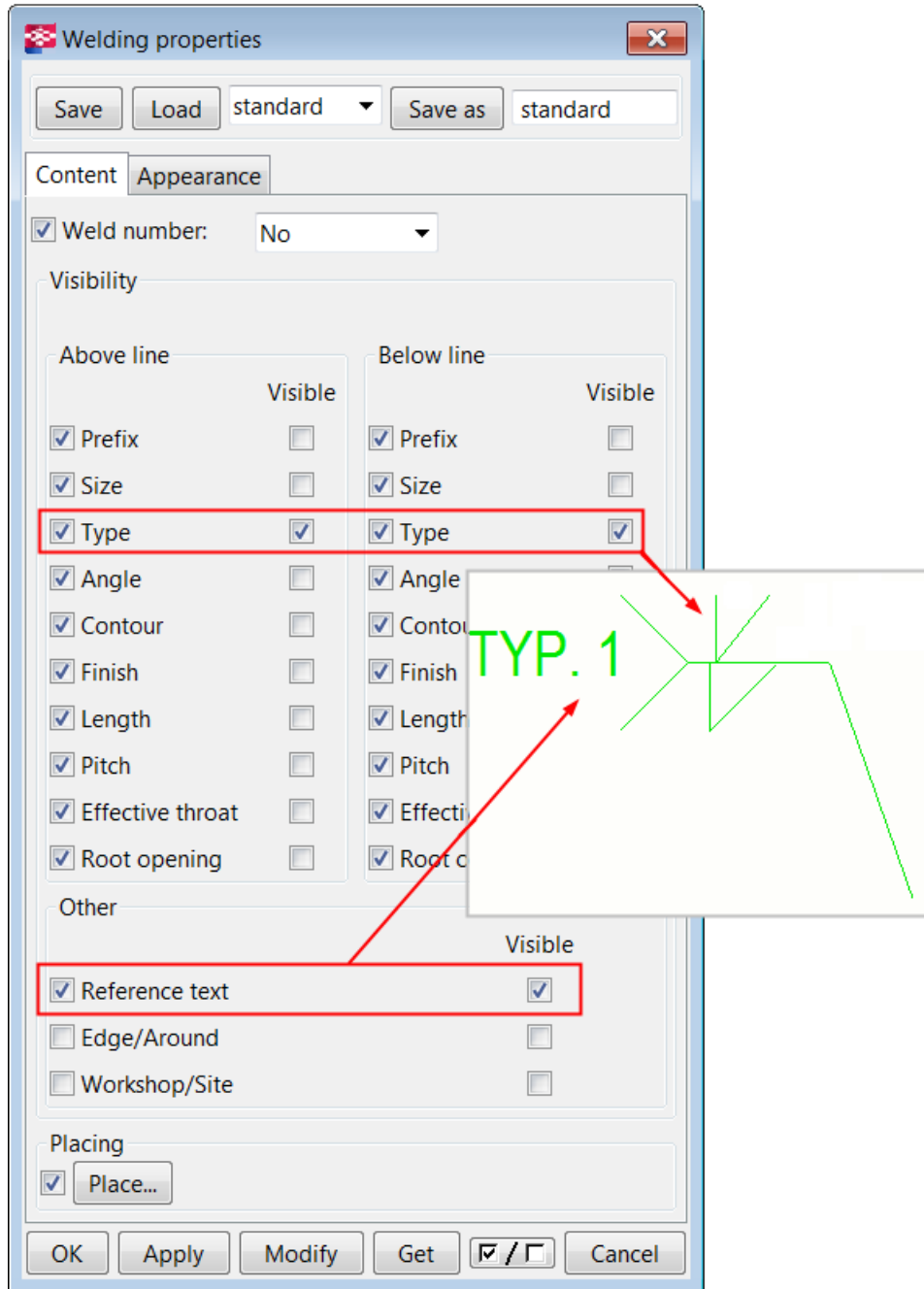
Setting the visibility of model welds

Now you can select the content that is displayed in weld marks of model welds in drawings. Previously, you could only adjust the text and line settings. The content adjustments can be done in the **Welding Properties** dialog box on drawing, view and object level.

With this improvement, you can present the weld marks of model welds with exactly the content required for each drawing. For example, drawings used in quality assurance might need only a tracking number or reference text for welds. Similarly, in fabrication drawings, typical welds show only the reference text and the weld type. Furthermore, you get the necessary weld information directly from the model, which eliminates the need to create manual drawing weld marks.

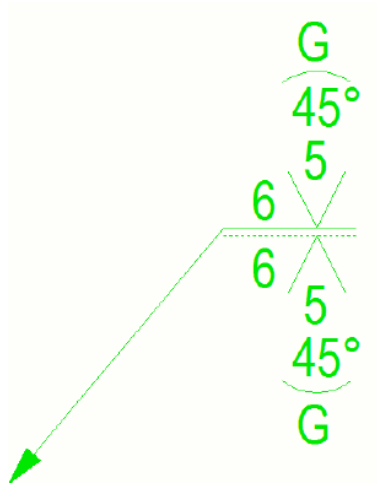
The first image below shows the original weld mark of a model weld in a drawing. The second image shows the weld content that has been set visible, and the resulting weld mark.





Weld mark text size

- The weld mark texts are now all of equal size.



TT50009

For more
information

Welds in drawings

Modifying model weld visibility and appearance in a drawing

Model weld visibility and appearance properties

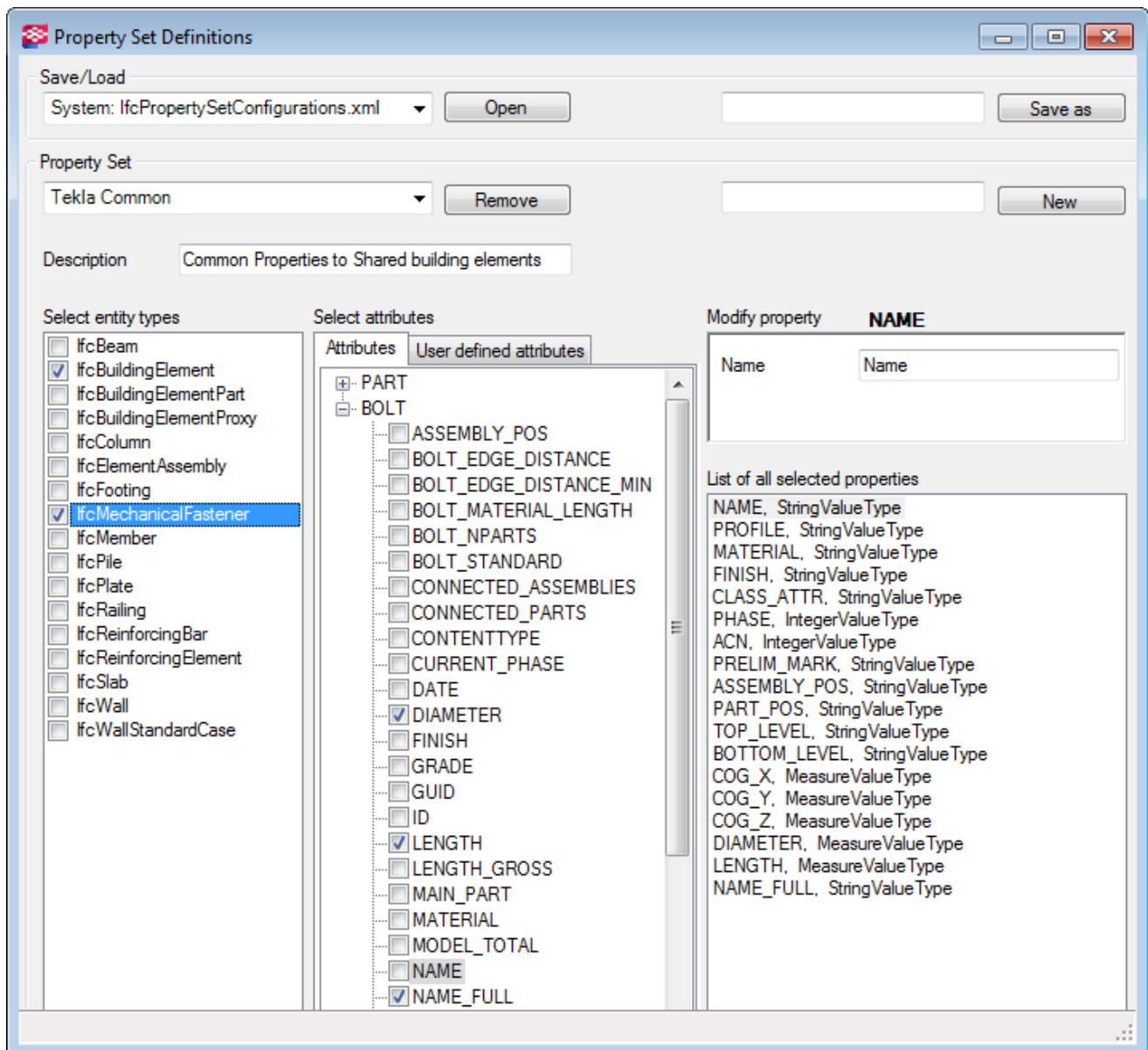
3.6 Import and Export

New way of defining property sets in IFC export

You can now configure property sets for IFC export in XML format in the new **Property Set Definitions** dialog box. To open the dialog box, go to **File > Export > IFC...** and click the **Definitions** button.

First select the XML configuration file from the desired location and the **Property set** you want to work with from the list of property sets included in the configuration file, or create a new one. Then you can, separately for each property set, add template attributes and user-defined attributes to the property set, and bind the property sets to IFC entities.

Below is an example view of the **Property Set Definitions** dialog box.



To configure property sets for IFC export in XML format, you need two files: the schema file `IfcPropertySetConfigurations.xsd` and the actual property set configuration file `IfcPropertySetConfigurations.xml`. The property sets are defined in the **Property Set Definitions** configuration tool.

You can still use the `IFC_properties_sets.inp` in addition to the XML file, but the `.inp` based way of configuring property sets is going to be removed at some point.

Each environment comes with an XML configuration file that configures the default property sets. You can also define additional property sets of your own. If the model folder contains an XML configuration file, XML-based configuration is always used instead of `.inp` configuration.

IfcPropertySetConfigurations.xsd:

`IfcPropertySetConfigurations.xsd` is a schema file that describes the structure of the XML file and is used for validation of the XML file. You do not need to touch this file, the system reads it at startup.

IfcPropertySetConfigurations.xml:

- Contains data definitions for properties in the property set:
 - Template attribute or UDA name. Template attributes are read from `content_attributes_global.lst` and the user-defined attributes from the environment database.
 - Data type, such as String, Integer, Float, Timestamp, Boolean, or Logical
 - Unit type, such as length, area, volume, or mass
 - Unit value scaling of unitless UDA values
 - Possibility to use default values
 - Possibility to ignore the set to export if template attribute or UDA does not have a value
- Includes property set binding rules to IFC entities:
 - Binding to IFC entity type hierarchy including support for not only building elements but also for bolts, reinforcing bars, and assemblies
 - Possibility to use limiting rules, such as Equal, NotEqual, LessThan, MoreThan, LessOrEqual, and MoreOrEqual
 - There can be any number of binding rules for any property set, but only one property set definition for each `ReferenceId`.
 - You can bind different property sets to different IFC entity types. For example, a plate may have a different property set than a beam.
- The system reads the `IfcPropertySetConfigurations.xml` file from several directories in the below order. If duplicate definitions (same property set `ReferenceId`) exist, the one read first will apply.
 - `XS_INP`
 - `XS_SYSTEM`
 - `XS_FIRM`
 - `XS_PROJECT`
 - Model folder



In **Property Set Definitions** dialog box, you can create the actual bindings in the `IfcPropertySetConfigurations.xml` file on the model folder level, even though the data definitions are made in another `IfcPropertySetConfigurations.xml` file in the system folder in your environment, for example. When the configuration files are read, the XML file containing the data definitions is read first and the XML file containing the bindings is read the last. This gives you full control over the result from the model folder.

Below is an example of the contents of the `IfcPropertySetConfigurations.xml` file.

```

<?xml version="1.0" encoding="utf-8"?>
<PropertySetConfiguration version="1.0"
  xsi:schemaLocation="http://www.tekla.com/IfcProperties
  IfcPropertySetConfigurations.xsd"
  xmlns="http://www.tekla.com/IfcProperties"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" >
<PropertySetBindings>
  </PropertySetBind>
  <PropertySetBind referenceId="Common">
    <Rules>
      <Include entityType="IfcBuildingElement" subtypes="true" />
    </Rules>
  </PropertySetBind>
</PropertySetBindings>
<PropertySetDefinitions>
  <PropertySet referenceId="Common">
    <Name>Common Properties </Name>
    <Description>Properties to Shared building elements </Description>
    <Properties>
      <Property xsi:type="PropertySingleValueType" optional="true">
        <Name>USER_FIELD_1</Name>
        <PropertyValue xsi:type="StringValue" stringType="IfcLabel">
          <GetValue xsi:type="TemplateVariableType">
            <TemplateName>USER_FIELD_1</TemplateName>
          </GetValue>
        </PropertyValue>
      </Property>
    </Properties>
  </PropertySet>
</PropertySetDefinitions>
</PropertySetConfiguration>

```

For more
information

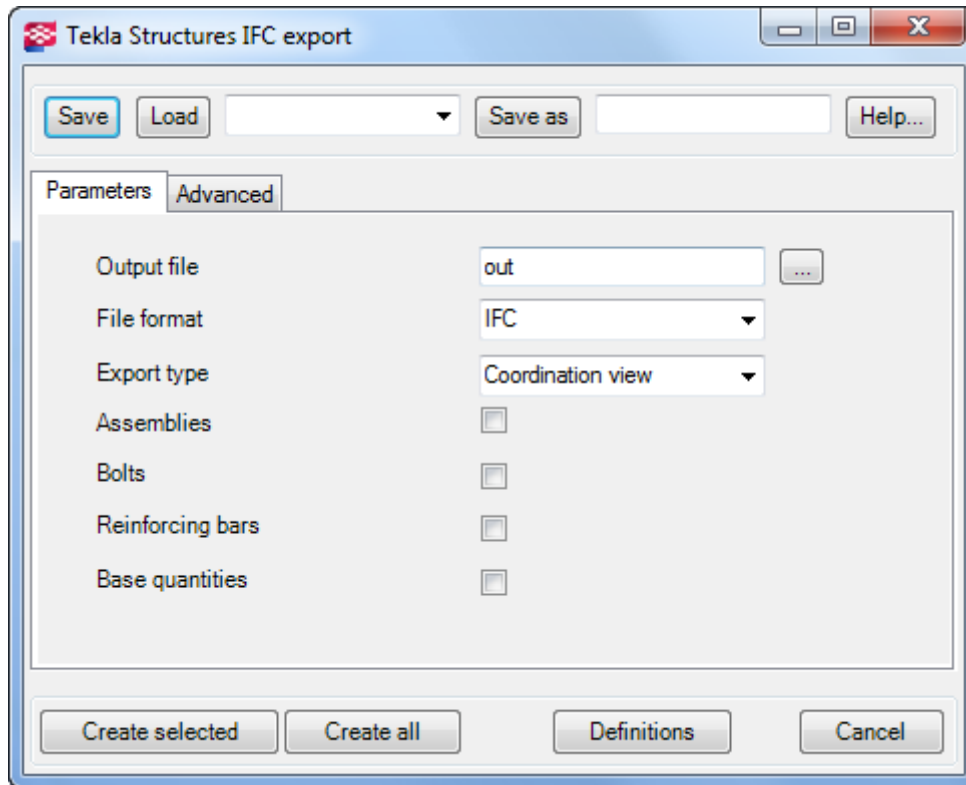
Defining property sets using the Property Set Definitions tool

Improvements in IFC export

- The new version of IFC export has been published. Fixes have been made in IfcMechanicalFastener (bolts), IfcReinforcement (reinforcing bars), and wallStandardCase (panels). Curved beams now have a restricted support for IfcRevolvedAreaSolid. The IFC export no longer supports the IFC2x2 schema, only IFC2x3 is supported.

[TT65554](#), [TT67452](#)

- The **IFC Export** dialog box has been improved.



The following changes have been made:

- The schema file selection has been removed, because IFC2x3 is used by default.
- The file format is selected in the **File format** list. The formats are **IFC**, **IFC XML**, **zipped IFC**, and **zipped IFC XML**.
- You can now select many of the options by selecting check boxes instead of **Yes** or **No**.
- The dialog box contains a new option **Base quantities**. If you select this option, additional **Quantity takeoff add-on** view is included to the exported IFC model.
- The dialog box contains a new button **Definitions**, which takes you to the **Property Set Definitions** dialog box.
- The data format (as **extrusion elements** or as **boundary representation (BREP)**) for reinforcing bars can now be selected on the **Advanced** tab.
- If you want to export grids, select the new **Grid** check box on the **Advanced** tab. Grids are exported in a separate file called `grid.ifc`. The IFC grid export is run after the IFC export.
- You can now select whether to export the selected objects (**Create selected**) or all objects (**Create all**).

TT71711, TT71762, TT71712, TT69800

For more
information

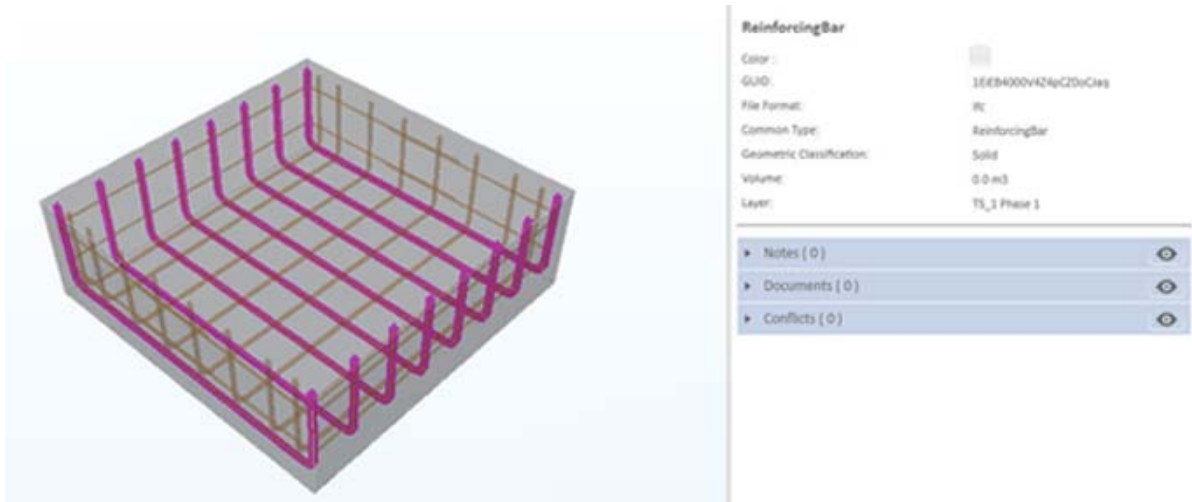
Exporting IFC

Improved reinforcement export in Publish to Tekla BIMsight

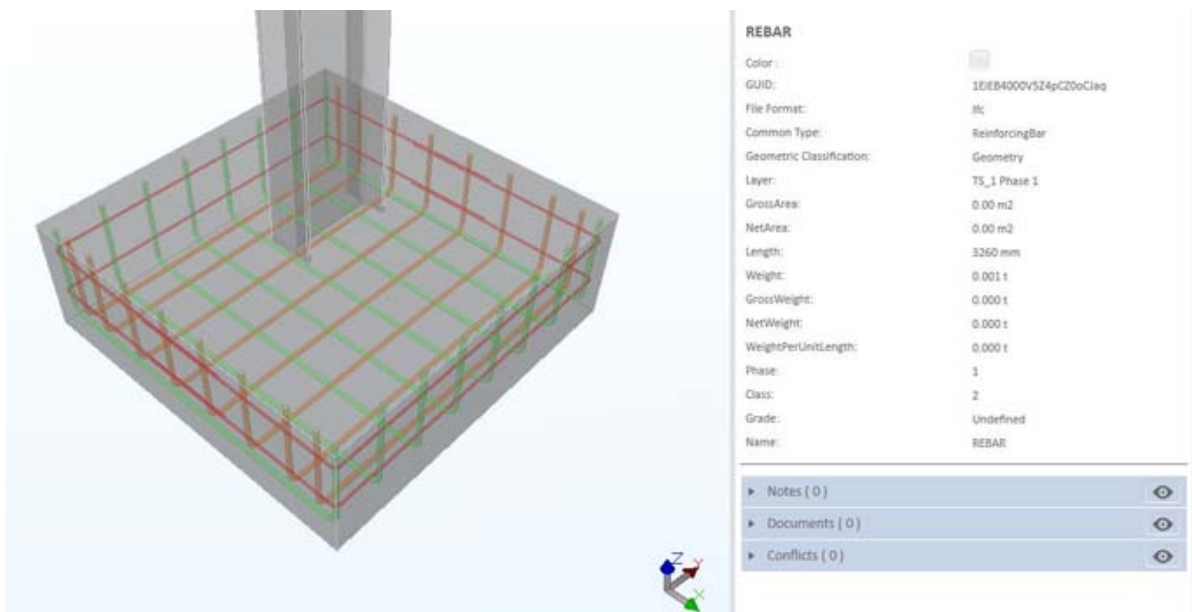
- Reinforcement data requires less space in the IFC files than previously.
- Reinforcement data is now in parametric format which results in smoother navigation in Tekla BIMsight.
- In order to export reinforcement data to Tekla BIMsight in an optimized way, select the option **Include Reinforcements**. This option exports the reinforcement as extrusion elements.

- You can now define properties for exported reinforcements by using the options in the **Property Set Definitions** dialog box. To open the dialog box, click **File > Export > IFC...** and then **Definitions** in the **Tekla Structures IFC export** dialog box.
- The improvements made in IFC export offer a more accurate export result. As an example, you can now export more detailed reinforcement properties to Tekla BIMsight.

Before improvements:



After improvements:



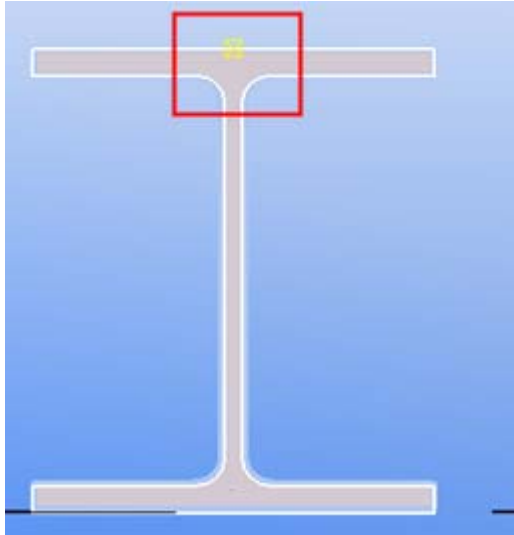
TT69931, TT69800

For more information

Defining property sets using the Property Set Definitions tool
Publishing to Tekla BIMsight

Improvements in IFC object conversion

- When custom-shaped profiles are converted, horizontally oriented profiles are rotated 90 degrees to vertical position before profile is created. This only applies to the profile shapes that are recognized. Handles are set to top flange if the vertical slope of the object is below 37 degrees.



- You can now search profiles by name or dimensions. If you select the **Profile name** option, IFC object converter searches profiles by name. If a profile is not found, IFC object converter searches profiles by dimensions.

Primary profile mapping

Profile name

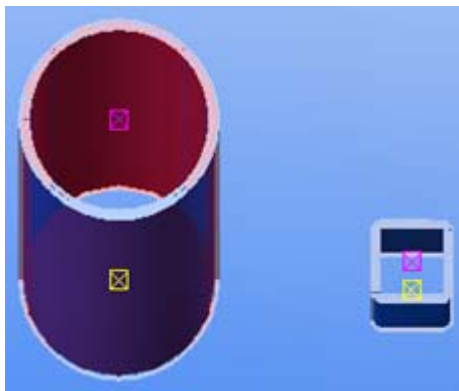
Dimensions

- You can now set tolerance values. The **r** value affects only rectangular hollow profiles and it is used to distinguish hot rolled profiles from cold rolled profiles.

Tolerance

h	<input type="text" value="1.00"/>	
b	<input type="text" value="1.00"/>	
t	<input type="text" value="1.00"/>	
s	<input type="text" value="1.00"/>	
r	<input type="text" value="5.00"/>	

- IFC object converter now recognizes circular and rectangular hollow core profiles.



TT68260

For more information

Converting IFC objects into native Tekla Structures objects

IFC Certification 2.0

Description

Tekla Structures is taking part in IFC Certification 2.0, which is an improved implementation of the former IFC2x, aiming at improving the quality and robustness of IFC implementations. The most important achievement of the IFC Certification 2.0 process is a detailed quality control approach for the IFC interfaces on top of the self check performed by the software developer. The following improvements have been made:

- Coordination view 2.0 (import/ export) is supported
- Constructive Solid Geometry (CSG) import/ export is supported
- Entity count of selected IFC reference model is viewable by inquire command
- Improved visualization of graphical entities that have accuracy problems

For more information

IFC import

Exporting IFC

Improvements in BVBS export

Reinforcing bar length and weight values

- BVBS export has been changed so that when you set the `XS_USE_USER_DEFINED_REBAR_LENGTH_AND_WEIGHT` advanced option to `TRUE`, this user-defined length value is exported as the overall length for the reinforcement bar in the BVBS file.

Note that the BVBS format specifications define that the overall length of the bar is ignored if the data contains actual geometry data. Some other software applications may still use the overall length values in the BVBS file for calculating quantities. The exported overall length in Tekla Structures is now the same length as that shown in reports.

In addition, the weight for individual tapered reinforcing bars is now correctly written. Earlier, the same weight was written for each bar in the group.

TT72775

New dialog box options

- The options on the **Advanced** tab are now reorganized into three groups. The options in group **Private data** are new, and you can use these options to define an additional set of extra information allowing the transfer of any project or company-specific data related to each data row in the BVBS file.

With **Private data block** you can control whether the private data block is exported and select the data items for this additional block. Data fields can be any report properties, user-defined attributes, or object properties. Click the **New** button to add new predefined items into the list by giving following necessary information about the data item.

- `Name in list` - This is the text shown in the BVBS export dialog box selection list.
- `Field identifier` - This is the field code which separates the individual data fields in the private data block. It can be any lower case letter. Normally, it is good practice to use a different value for each data item but this is not required. The receiving system may also be able to read only certain data fields.
- `Property or UDA name` - This value defines which data will be inquired from the reinforcement object. Note that a non-existing property will be not exported.
- `Property data type` - This value has to match the actual selected property.

The added private data field items are automatically saved under the attributes folder in the model.

For more
information

Exporting BVBS

Importing from Tekla BIMsight

You can import reference models from Tekla BIMsight projects.

This supports the workflow where project participants will be combining, clash checking, and communicating with models from many disciplines and BIM applications in Tekla BIMsight but want to take advantage of the benefits of doing project estimation, scheduling, field layout management, facilities management and deployment, among many other benefits, with Construction Management module in Tekla Structures.

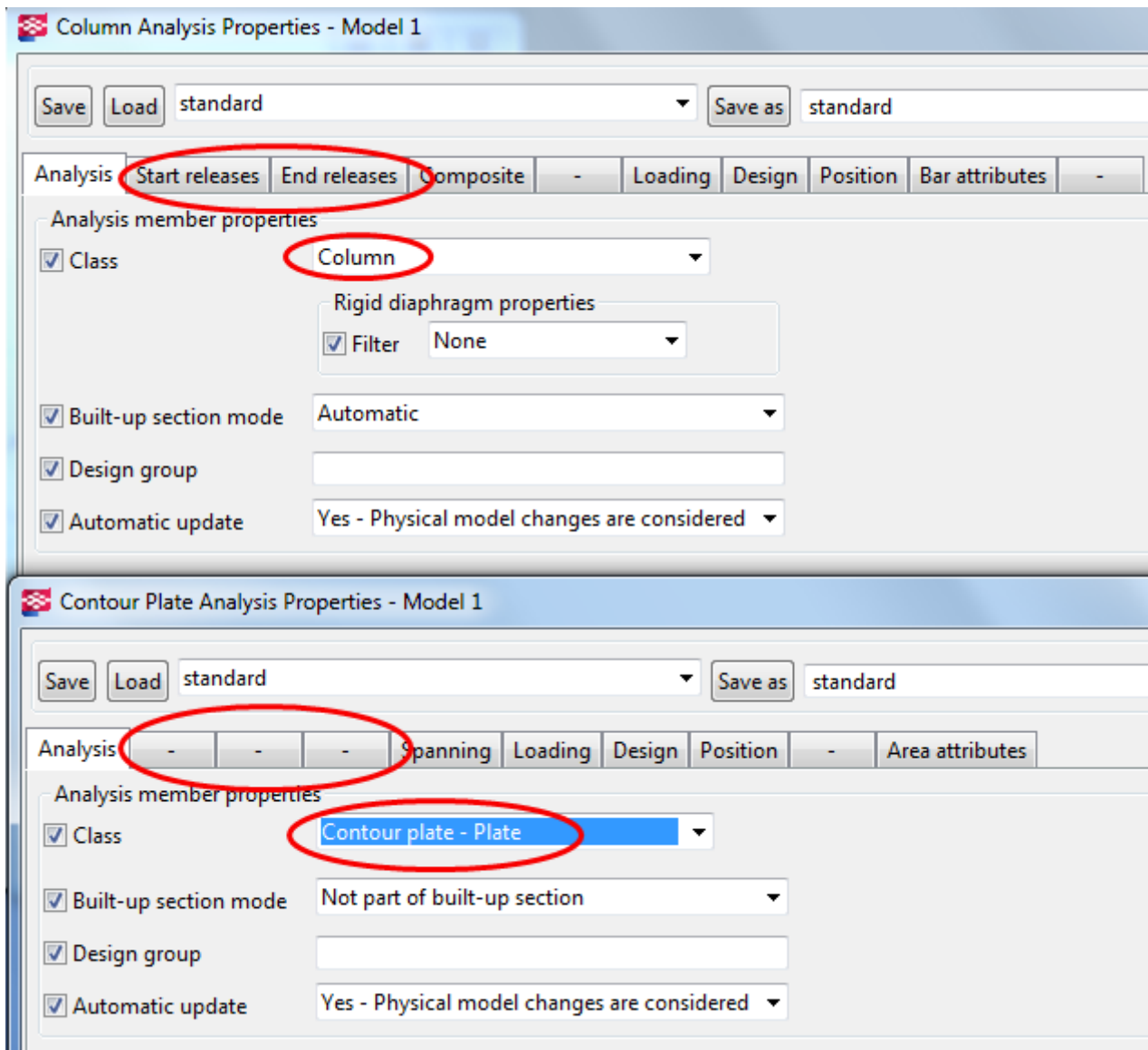
For more
information

Importing reference models from Tekla BIMsight

3.7 Analysis and Design

Improvements in setting analysis properties for parts

- You can now set analysis properties for parts before creating an analysis model. The analysis properties are applied when the parts are added in an analysis model.
- It is now easier to define analysis properties for parts. When you select a class, only the available analysis properties based on the selection are available. For example, plates have different properties from columns.



For more information

Analysis part properties

Improvements in changing model creation method

Now you can change the model creation method of existing analysis models.

For example, you can copy an analysis model that has been created using the **Full model** creation method. Change the creation method for the copied analysis model to **By selected parts** and then remove unwanted objects from the analysis model.

For more information

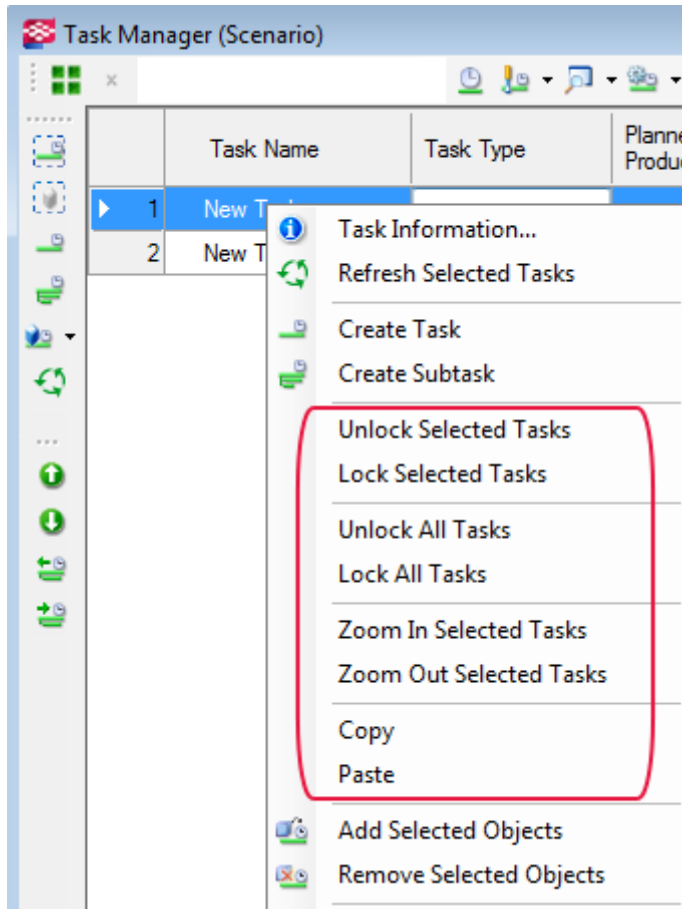
Changing model creation method

3.8 Task Manager

Improvements in Task Manager

The following fixes and improvements are now available in Task Manager:

- Updating and refreshing information in the task list has been improved to be faster than before.
TT61965
- You can now zoom in and out, lock and unlock all or selected tasks, and copy tasks in the task list by right-clicking and selecting the appropriate command on the menu.



TT55798, TT45990, TT45989

- You can now move and indent more than one task at a time using the **Move task up** and **Move task down**, and **Decrease indent** and **Increase indent** buttons.



TT46782

- Section and floor columns are now available on the **Objects** tab in the **Task Information** dialog box.
TT67702
- Importing and exporting tasks between Task Manager and MS Project 2010 now works correctly.
TT66798

For more
information

Introduction to Task Manager
Viewing tasks

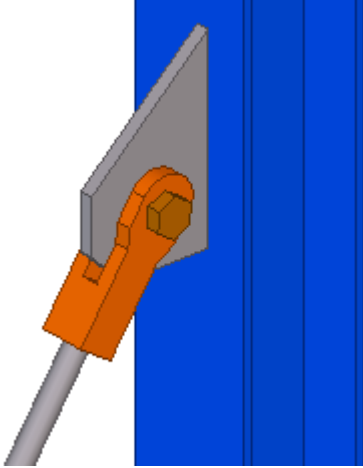
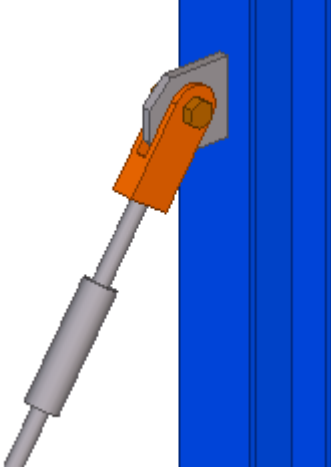
3.9 Steel Components

Tensioner (7)

Tensioner (7) connects a column or a beam to a brace with a forked plate or a flat plate. Optionally, a gusset plate can be created.

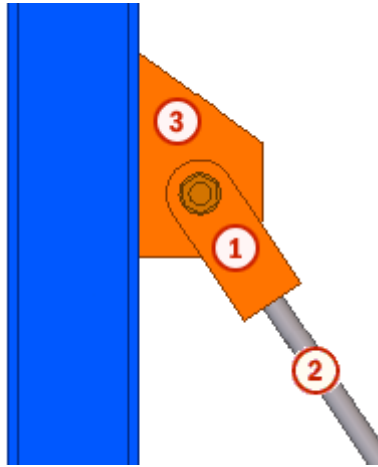
- Objects created**
- Gusset plate (optional)
 - Forked or flat plate
 - Tensioner (optional)
 - End plate (optional)
 - Bolts
 - Welds

Use for

Situation	Description
	Forked plate is welded to a bracing rod and bolted to a gusset plate. The gusset plate is welded to the main part.
	Simplified tensioner in the bracing rod.

- Selection order**
1. Select the main part (column or beam).
 2. Select the secondary part(s) (brace).
- Click the middle mouse button to create the component.

Part
identification key



	Part
①	Connection plate (forked plate)
②	Bracing rod
③	Gusset plate

See also

Picture

Fork

Parameters

General tab

Bolts

[Tensioner \(7\) \(57\)](#)

Extra tensioners

Design and Design type tabs

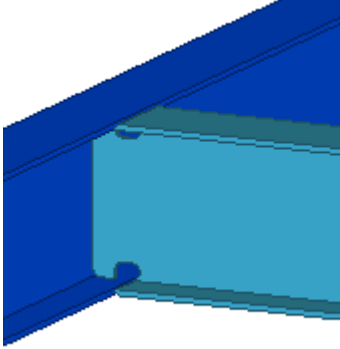
Offshore (9)

Offshore (9) connects a beam to another beam with welds. The component is designed to be used in offshore industry for creating notches and complex weld access holes, and to control the notch properties.

Objects created

- Notches
- Welds

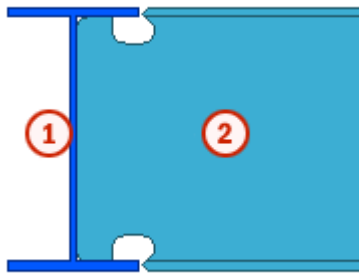
Use for

Situation	Description
	<p>Connection between two beams.</p>

Selection order

1. Select the main part (beam).
 2. Select the secondary part (beam).
- The connection is created automatically when the secondary part is selected.

Part identification key



	Part
①	Beam
②	Beam

See also

Picture 1

Picture 2

General tab

Weld description

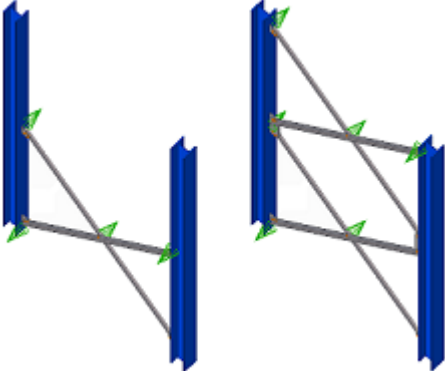
Tensioner brace (13)

Tensioner brace (13) creates one or two bracing crosses between two columns or beams. It is also possible to add connections between columns or beams and the bracings. You can define which connections are used.

Objects created

- Bracing cross (1 or 2)
- Connections between columns or beams and bracings
- Connections in bracing cross

Use for

Situation	Description
	<p>One or two bracing crosses between two columns.</p>



To use **Tensioner brace (13)** you need to set the **Up direction** on the **General** tab to a fixed direction: $-x,+x,-y,+y,-z$, or $+z$.

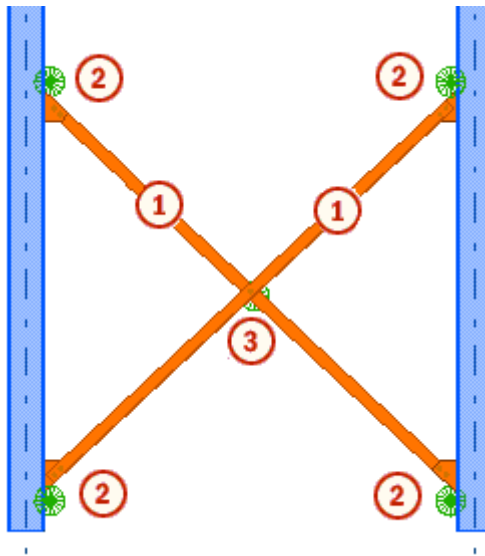
The **Auto** option does not work.

Selection order

1. Select the first main part (column or beam).
2. Select the second main part (column or beam).

The connection is created automatically when the secondary part is selected.

Part identification key



	Part
①	Diagonal bracing
②	Connection between the main part and the bracing
③	Connection in the bracing cross

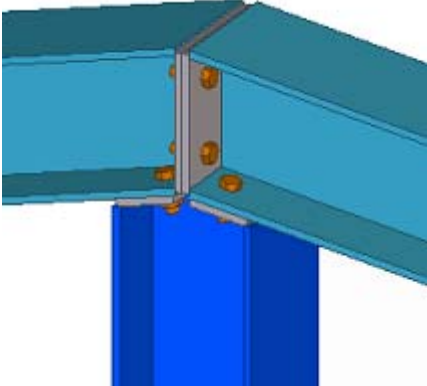
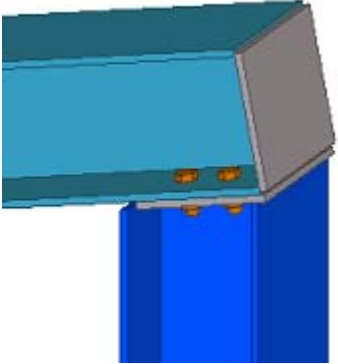
See also [Picture](#)
[Parts](#)
[Joints](#)
[General tab](#)
[Joints direction](#)
[Design and Design type tabs](#)

Column – 2 beams (14)

Column – 2 beams (14) connects two beams to a column. The beam ends rest on the column. The secondary beams can be horizontal or sloped. The component can also be used with only one secondary beam but then the settings are more difficult to define, and there are fewer situations where the component can be used.

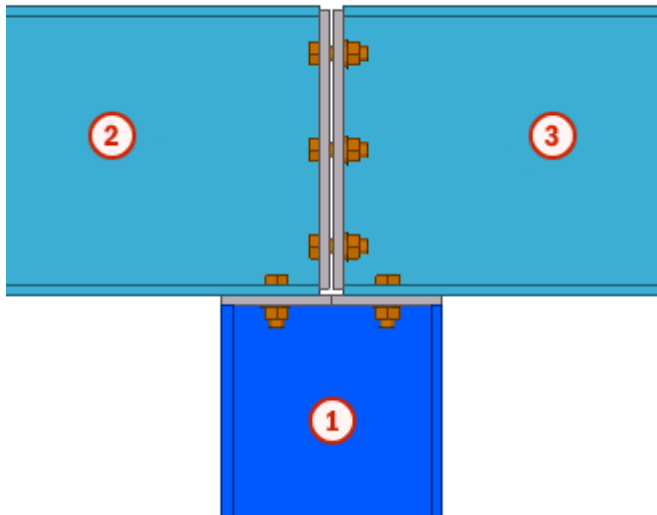
- Objects created**
- End plates
 - Cap plates
 - Bolts
 - Welds

Use for

Situation	Description
	<p>Connection between a column and two beams.</p>
	<p>Connection between a column and a beam.</p>

- Selection order**
1. Select the main part (column).
 2. Select the first secondary part (beam).
 3. Select the second secondary part (beam).
 4. Click the middle mouse button to create the connection.

Part
identification key



	Part
①	Column
②	Beam
③	Beam

See also [Picture](#)

[General tab](#)

[Bolts 1 - 2](#)

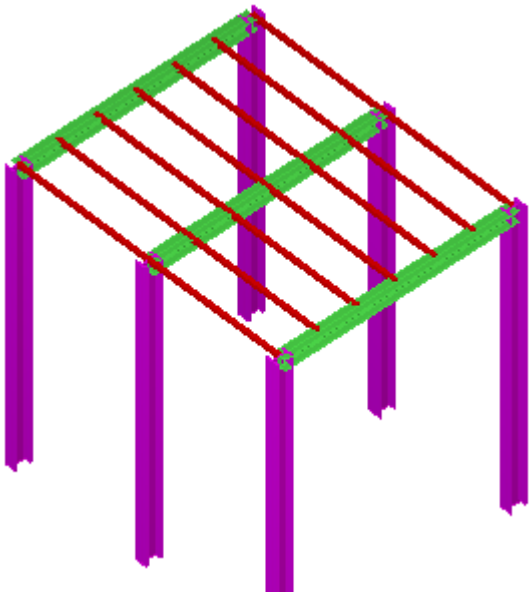

[Bolts 3/Bolts 4](#)

Generation of purlins (50)

Generation of purlins (50) creates multiple profiles that can be used as wall or roof purlins, panels, or timber or concrete parts.

Objects created • [Purlins](#)

Use for

Situation	Description
	Purlins
	Wall panel

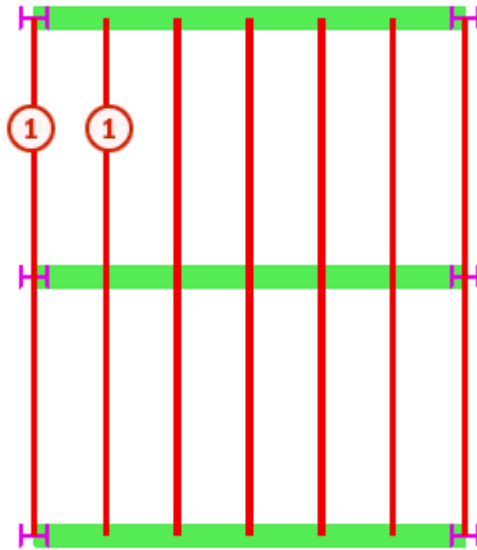
Selection order

1. Pick the start point of the purlins.
2. Select the parts that divide up the purlins.
3. Click the middle mouse button to create the purlins.



The placement of the purlins is defined by the work plane.

Part
identification key



	Part
①	Purlin

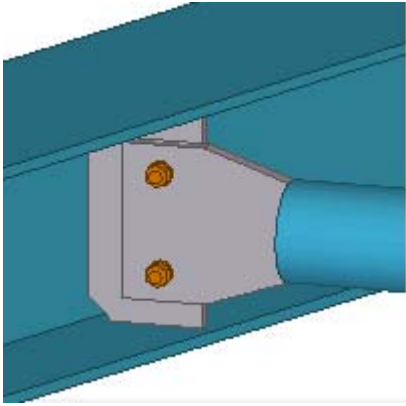
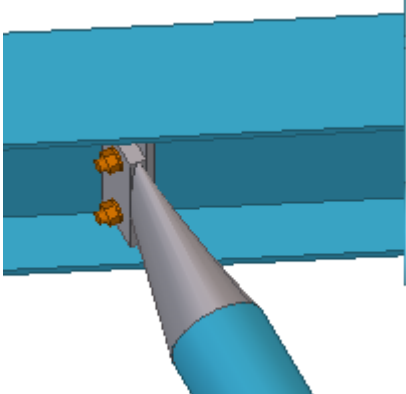
See also [Picture](#)
[Parts](#)
[UDA](#)

Squeezed tube bolted (102)

Squeezed tube bolted (102) creates a squeezed part between the main part and a tubular profile. The main part must be an I or H profile. The squeezed part can either be a tube that is squeezed at one end and then welded to a plate, or a contour plate.

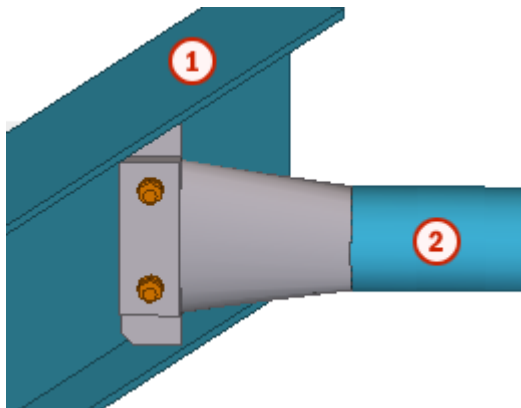
- Objects created**
- Squeezed tube, or reducing contour plate
 - Stiffeners
 - Bolts
 - Welds

Use for

Situation	Description
	<p>A tubular profile is welded to a bracing which is bolted to a gusset plate. The gusset plate is welded to the main part.</p>
	<p>A simplified tensioner profile.</p>

- Selection order**
1. Select the main part (I or H profile).
 2. Select the secondary part (tubular profile).
- The squeezed part is created automatically.

Part identification key



	Part
①	Main part (I profile)
②	Tubular profile

- See also
- Picture
 - Parts
 - Stiffeners
 - General tab
 - Bolts

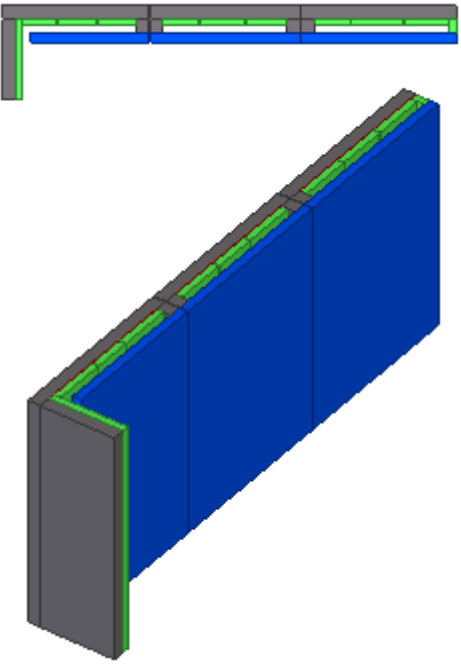
3.10 Concrete Components

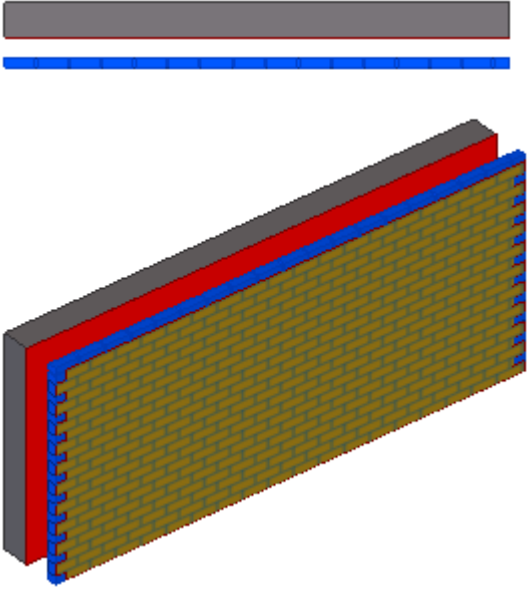
Sandwich And Double Wall (1)

Sandwich And Double Wall (1) creates a precast concrete wall. The wall consists of an inner shell, foil, insulation, and outer shell.

- Objects created**
- Inner shell
 - Foil (optional)
 - Insulation (optional)
 - Outer shell (optional)

Use for

Situation	Description
	<p>Sandwich wall, split shells.</p>

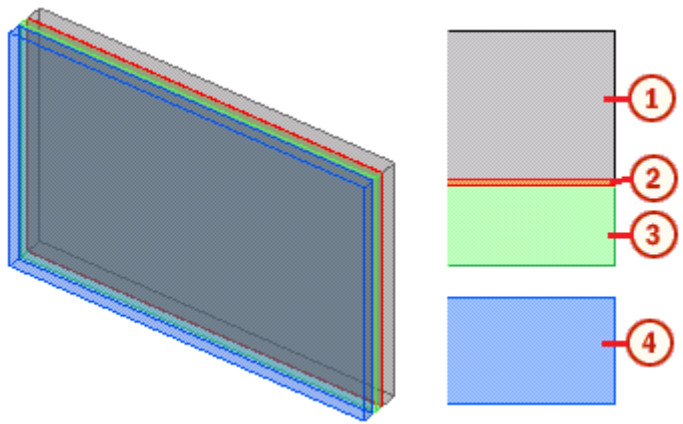
Situation	Description
	<p>Sandwich wall, brick wall on outer shell as surface treatment.</p>

Selection order

1. Pick the first point.
2. Pick the second point.

The wall is created automatically when the second point is picked.

Part identification key



	Part
①	Inner shell
②	Foil
③	Insulation
④	Outer shell

See also

Parts
Vertical section

Horizontal section

Insulation

Outside Shell

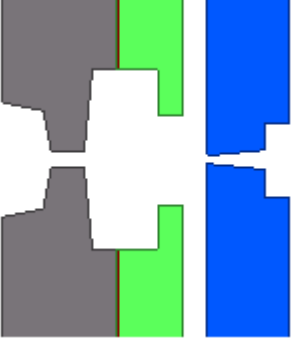
UDA

Sandwich Wall Horizontal Seam (1)


Sandwich Wall Horizontal Seam (1) creates a horizontal seam between two sandwich walls. Seam dimensions and rabbets can be defined for all layers: inner shell, foil, insulation, and outer shell. In addition, you can define an extra foil layer.

- Objects created**
- Seams
 - Rabbets
 - Foil
 - Insulation
 - Extra foil layer

Use for

Situation	Description
	Seams between sandwich wall shells.
	Seams with additional rabbets.

Before you start

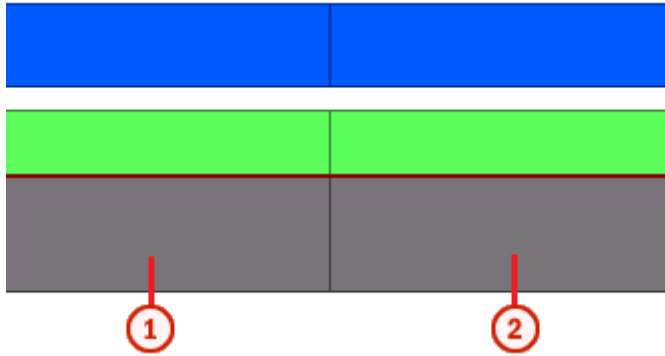
To be able to select the needed parts, activate the **Select objects in components**  switch.

Selection order

1. Select the inner shell of the first sandwich wall.
2. Select the inner shell of the second sandwich wall.

The seam is created automatically when the secondary part is selected.

Part identification key



	Part
①	Concrete part (wall, column, beam, slab)
②	Point Multiple points can be picked.

See also [Picture](#)
[Rabbets](#)
[Extra foils](#)
[General tab](#)


Sandwich Wall Vertical Seam (1)

Sandwich Wall Vertical Seam (1) creates a vertical seam between two sandwich walls. Seam dimensions and rabbets can be defined for all layers: inner shell, foil, insulation, and outer shell.

- Objects created
- Seam
 - Rabbets
 - Foil
 - Insulation


Use for

Situation	Description
	Seams between sandwich wall shells.

Situation	Description
	Seams with additional rabbets.

Limitations The component works only if the sandwich walls are parallel.

Before you start

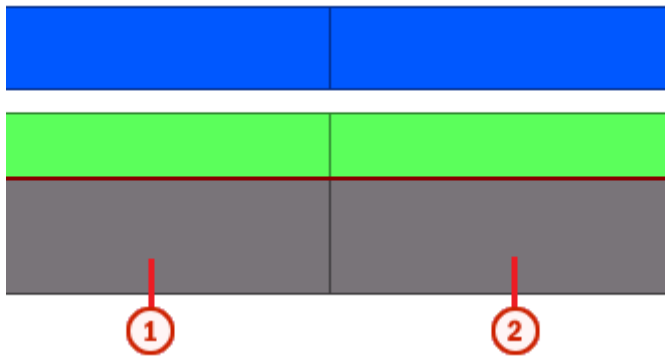
To be able to select the needed parts, activate the **Select objects in components**  switch.

Selection order

1. Select the inner shell of the first sandwich wall.
2. Select the inner shell of the second sandwich wall.

The seam is created automatically when the secondary part is selected.

Part identification key



	Part
①	Inner shell of the first sandwich wall
②	Inner shell of the second sandwich wall

See also

Picture

Rabbets

General tab

Sandwich Wall Window (1)

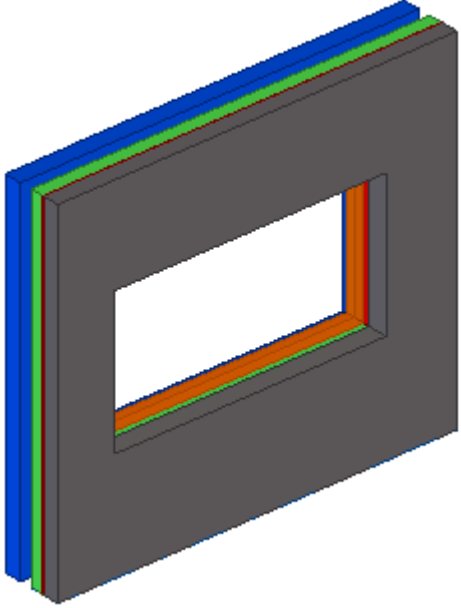
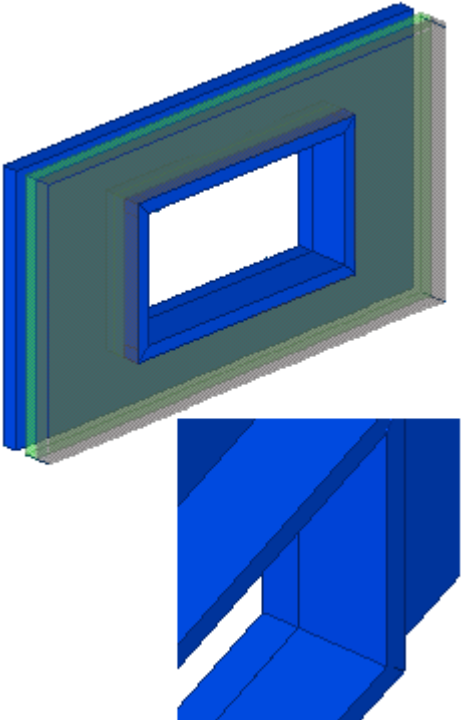
Sandwich Wall Window (1) creates a rectangular opening in a sandwich wall. The opening is created through up to four parts (inner shell, foil, insulation, and outer shell). A wooden frame can be created, as well as extra foils and connection screws. Instead of a wooden frame, a concrete border can be added to the inner shell.

Objects created

- Rectangular opening
- Wooden frame or concrete border

- Extra foils
- Connection screws

Use for

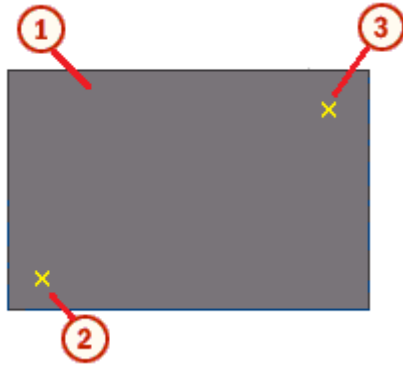
Situation	Description
 <p>A 3D perspective view of a rectangular opening in a sandwich wall. The wall consists of multiple layers: a grey outer shell, a white insulation core, and a blue foil layer. A wooden frame, shown in orange and red, is embedded in the wall around the opening. The frame has a channel on its inner side to hold the insulation and foil.</p>	<p>Opening in a sandwich wall, with a wooden frame and foil layers.</p>
 <p>A 3D perspective view of a rectangular opening in a sandwich wall. The wall consists of multiple layers: a grey outer shell, a white insulation core, and a blue foil layer. A concrete border, shown in blue, is embedded in the wall around the opening. The border has a channel on its inner side to hold the insulation and foil. Below the main view is a close-up inset of the concrete border, showing its L-shaped profile and how it fits into the wall structure.</p>	<p>Opening in a sandwich wall, with a concrete border in the inner shell.</p>

Selection order

1. Pick the first position.
2. Pick the second position.

The opening is created automatically when the second position is picked.

Part
identification key



	Part
①	Sandwich wall element
②	First picked position
③	Optional: second picked position

See also

Picture

Bottom detail

Top detail

Side detail

Extra Foils

Screws

Connections

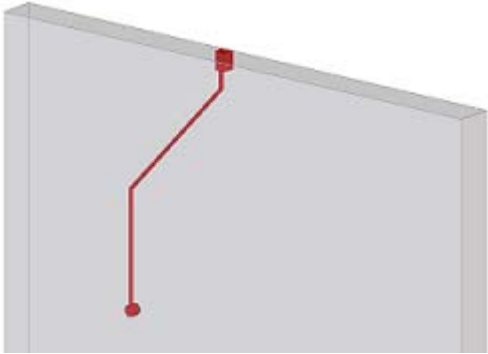
Electric box in wall (84)

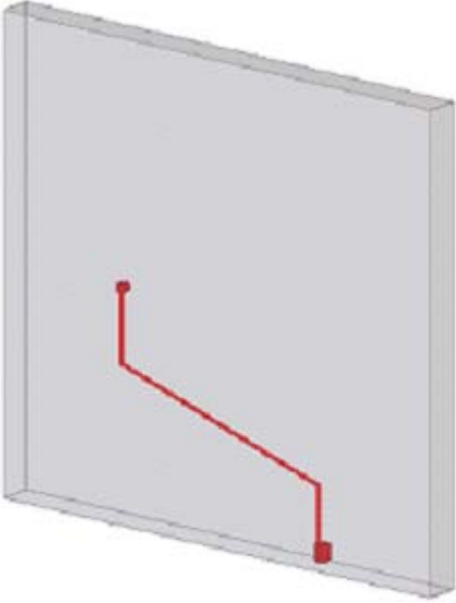
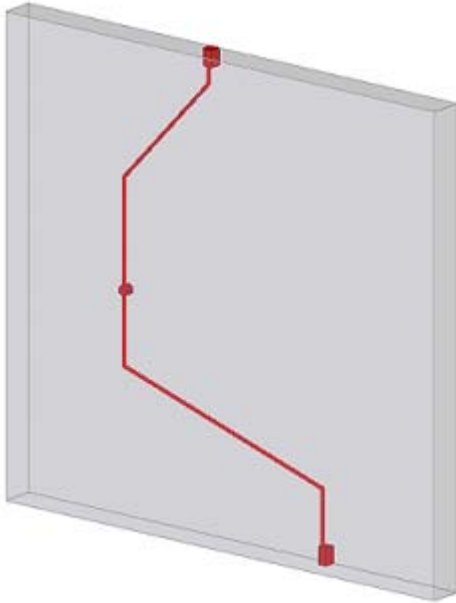
Electric box in wall (84) creates electric boxes in walls.

Objects created

- Electric boxes
- Tubes

Use for

Situation	Description
	Electric box in a wall with top connection.

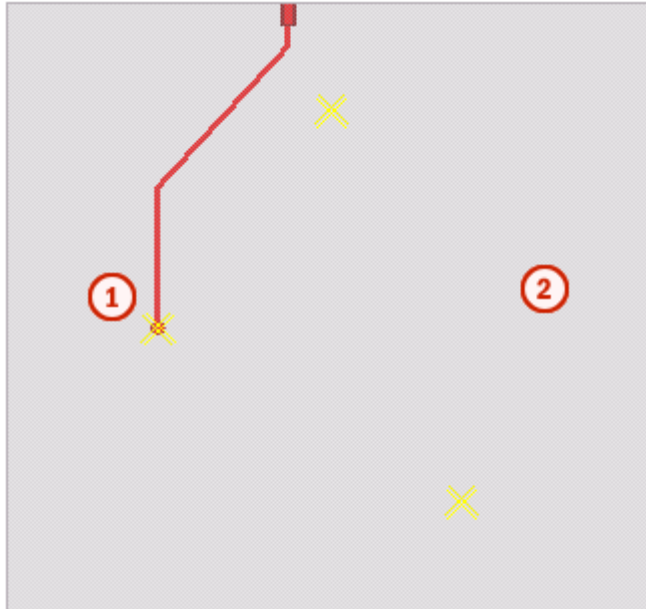
Situation	Description
	<p>Electric box in a wall with bottom connection.</p>
	<p>Electric box in a wall with top and bottom connections.</p>

Selection order

1. Select a concrete panel.
2. Pick a position for the electric box.
3. Pick a position for the top connection.
4. Pick a position for the bottom connection.

The electric box and connections are created automatically.

Part
identification key



	Part
①	Electric box
②	Panel

See also [Picture](#)

[Parts](#)

[Electric box](#)

[Top conn / Bottom conn](#)

[UDA](#)

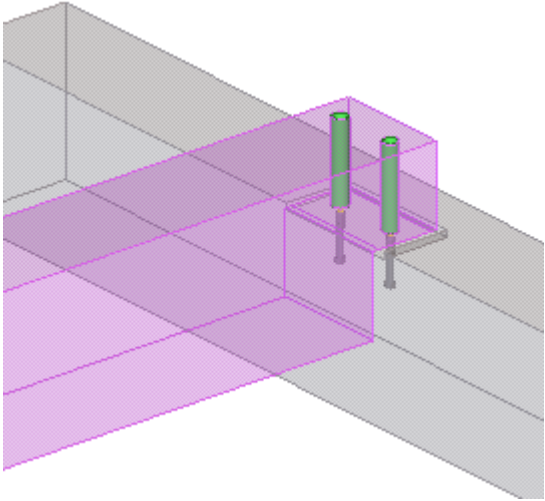
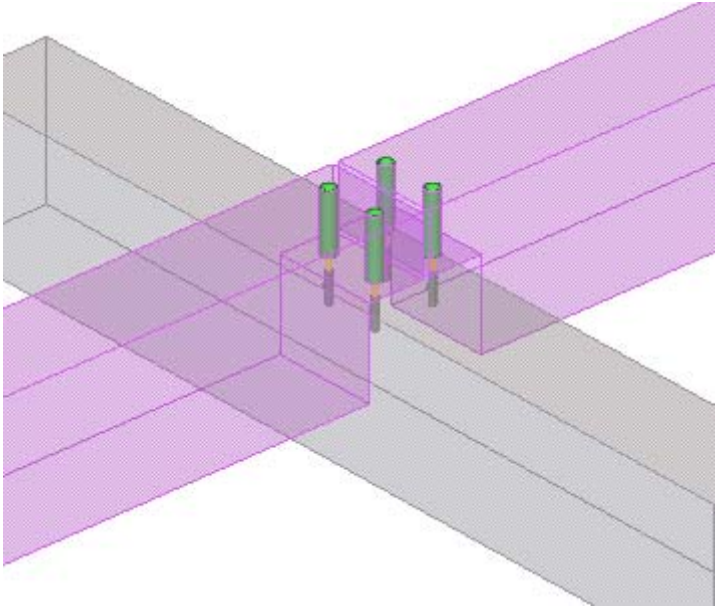
Concrete beam-beam (112)

Concrete beam - beam (112) creates a connection between a concrete beam and one or two secondary concrete beams.

Objects created

- Neoprene
- Steel plates
- Anchor rods
- Tubes
- Sockets

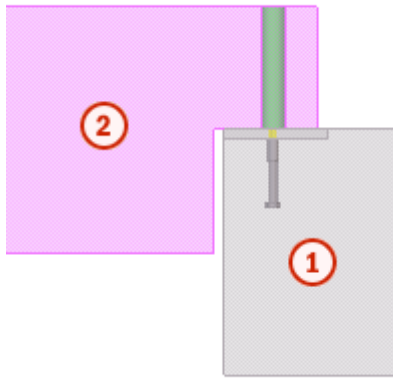
Use for

Situation	Description
	Connection between two concrete beams.
	Connection between three concrete beams.

Selection order

1. Select the main part (beam).
2. Select one or two secondary parts (beam).
3. Click the middle mouse button to create the connection.

**Part
identification key**



	Part
①	Beam
②	Beam

See also [Picture](#)

[Parts](#)

[Anchors](#)

[Parameters](#)

[Anchor rods](#)

[Socket](#)

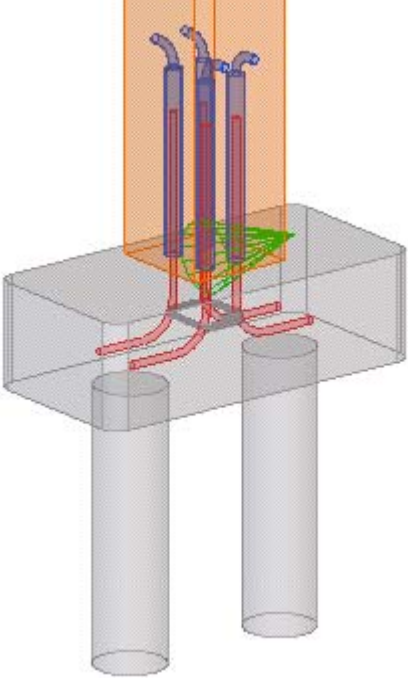
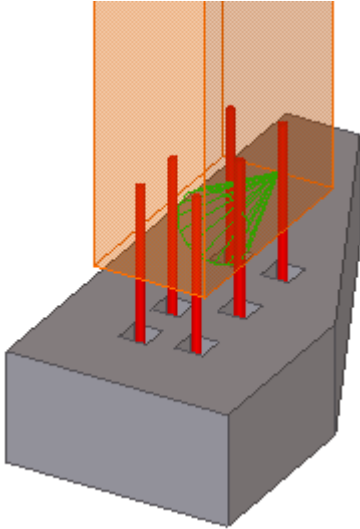
Concrete foundation (1030)

Concrete foundation (1030) creates a concrete foundation plate at the bottom of a selected concrete column.

Objects created

- Concrete foundation plate
- Injection tubes and injection hoses in concrete column
- Up to 4 concrete piles under the foundation plate (optional)
- Stirrups for the reinforcing bars

Use for

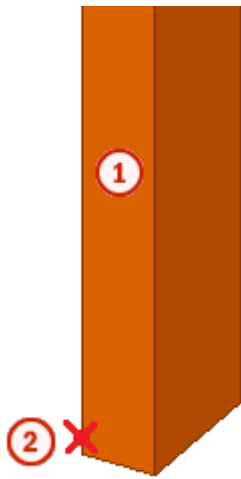
Situation	Description
	Concrete foundation plate with chamfers, piles, injection tubes with curved injection hoses, reinforcing bars and stirrups.
	Concrete foundation plate with more than 4 edges, recesses in the foundation plate, and multiple reinforcing bars.

Selection order

1. Select a concrete column.
2. Pick a point.

The concrete foundation plate is created automatically when the point is picked.

Part
identification key



	Part
①	Concrete column
②	Point The point defines the new bottom level of the column.

- See also
- Picture
 - Parts
 - Massive
 - Piles
 - Inj. tube and rebar
 - Column
 - Stirrups

4

Fixes

4.1 Introduction

This section contains descriptions on the numerous fixes and improvements that have been included in Tekla Structures 18.0. Also fixes made for upgrade packages since Tekla Structures 17.0 are included.

The number after the description of the fix (for example TT12345) is the development item number of that particular fix. Your local Tekla office may have referred to this number when you have for example submitted a maintenance request.

4.2 General

Fix list

- | | |
|---|--|
| Mini Toolbar | <ul style="list-style-type: none">• Mini Toolbar now suggests correct profiles for specific types of model objects, for example, for plates.
TT62537• Mini Toolbar now works with curved beams.
TT59202• If the numbering settings are changed in the assembly dialog box, the assembly numbering boxes are now dimmed in the numbering series dialog box in Mini Toolbar.
TT56031• The green rotation angle knob is highlighted when you move a cursor over it.
Beams are rotated in the same direction as the green rotation angle knob is turned to.
TT50144• Material name now works correctly.
If you change the material in Mini Toolbar and inquire the part, the correct material is shown in the inquiry.
TT47630 |
| Removing drawing files in single-user mode | <ul style="list-style-type: none">• The single-user mode now has a 7-day safety period for drawing files, after which all unnecessary drawing files are removed from the model. Previously, unnecessary drawing files were immediately removed in the single-user mode.
TT72169 |

Model paths in multi-byte languages

- Using multi-byte characters in model paths caused problems in opening drawings if you had English Tekla Structures and multi-byte locale Windows operating system. To fix this, you can now use the advanced option `XS_STD_LOCALE`, and set it to one of the following values in the `teklastructures.ini` file, depending on the locale of your operating system:
 - `set XS_STD_LOCALE=japanese`
 - `set XS_STD_LOCALE=chinese-traditional`
 - `set XS_STD_LOCALE=chinese-simplified`
 - `set XS_STD_LOCALE=russian_us.1251`If you set `XS_STD_LOCALE` to any other value, or leave the value out, English locale is used by default.
Restart Tekla Structures after changing the value to activate the new setting.



This advanced option is system-specific. Generally, there is no need to modify system-specific settings. Do not modify them if you are not an administrator.

TT72317

4.3 Modeling

Fix list

Expanding work area

- The work area is now expanded correctly for rotated views.

TT71648

Part profiles

- The web thickness of the HD360x196 profile is now correct, 16.4 mm, in the default environment.

TT70870

Copying and moving objects

- You can now copy cuts and fittings even if the source and target object are not similar. For example, it is possible to copy a cut from a beam to a column as it is.
- Previously, if you tried to move part edge chamfers for parts at a location with either the x or y coordinate as 0, the chamfers still belonged to the original part. This has now been fixed.

TT51544

TT66756

Snapping

- Snapping to exact geometry now works for bolts and bolt holes.

TT72914

Area calculations

- Area calculations are now more precise for hollow core slabs having cuts and cast units containing sandwich elements.

TT59433

4.4 Reinforcement

Fix list

- Polygonal mesh**
- Polygonal meshes with **Multiple varying distances** spacing method now display the correct mesh size when the display representation is set to **Fast**.
Also the outline representation in drawings now displays the correct mesh size.
[TT66707](#)
- Cover thickness**
- You can now enter two values for **From plane** cover thickness in reinforcing bar groups and bent meshes. If you enter only one value, the value is applied to two sides in the same way as before.
[TT50510](#)

4.5 Drawings

Fix list

- Grids in drawings**
- Grids now work more consistently than before. For example, grid labels are always at the wanted end, and label offsets are always at same ends. Improvements were also made in grid cloning.
- Views**
- View scale could not be modified from drawing level. This has now been fixed.
[TT70332](#)
 - When you created a drawing view from the model using the command **View > Create Drawing View > Of Entire Model View**, the new view was sometimes placed far away outside the sheet and was not visible. This has now been fixed.
[TT74041](#)
 - View depth of a main view (front, top, back, bottom) of an assembly drawing was extremely large: it contained the whole neighboring part if bolts were dimensioned to working points. This has now been fixed.
[TT74177](#)
 - The setting **Center by view restriction box** in cast unit drawing section view properties did not stay on when you adjusted it on drawing level. This has now been fixed.
[TT70833](#)
 - Now the **Fit by parts** option includes visible reinforcing bars inside the view boundary. This happens also in intelligent update.
[TT71300](#)
 - Setting **Align section views with main view** to **Yes** to place the section views next to the main view was not working if the main view was vertical. This has now been fixed.
[TT73355](#)
 - Key plan views occasionally caused application errors. This has now been fixed.
[TT69835](#)

- Drawing size**
 - If you had set **Include single parts** to **Yes** but you did not have any single-part views in the assembly drawing, then the drawing size in the **Drawing List** was the preferred size, not the actual size of the drawing.
TT73291

- Dimensions**
 - Reinforcement dimensions did not always show the selected contents. This has now been fixed.
TT70882
 - Tekla Structures sometimes tried to update a grouping of manually created dimensions. This is not done anymore, because it would break the dimensions.
TT71755

- Snapping**
 - Snapping in drawings did not work for perpendicular lines, for example straight reinforcing bars or reference lines. This has now been fixed.
TT70534, TT71301
 - Orthogonal snapping was not working in drawings. This has now been fixed.
TT68648
 - Now it is possible to snap to reference object geometry in drawings.
TT66136
 - Snapping now shows better which lines you are snapping in drawings.
TT71131

- Dragging**
 - Dragging by handles is now more accurate. Before, when you dragged by handles, Tekla Structures snapped to the point in the handle that was grabbed. Now Tekla Structures snaps to the middle point of the handle.
TT67906

- Undo**
 - Selecting **Undo** after layout modification did not update the view properly Now **Undo** works correctly.
TT70965

- Selecting and highlighting**
 - Drawing objects with text fields are now highlighted correctly when selected. Also objects with solid fill are more clearly highlighted when selected.
TT64844

- Updates and cloning**
 - General arrangement drawing views were sometimes moving during drawing update. This has now been fixed.
TT70449
 - The cloned drawing did not contain all parts in some rare cases where the source drawing contained some detail or section views in addition to the main view.
TT71999

- Reinforcing bars**
 - The reinforcing bar line width was sometimes incorrect. This has now been fixed.
TT71959
 - Bending symbols (O, X) are no longer drawn in section views for reinforcing bars that are only slightly bent (the bending angle is less than 5 degrees). These kind of reinforcing bars are typical, for example, in bridge constructions.
TT69729

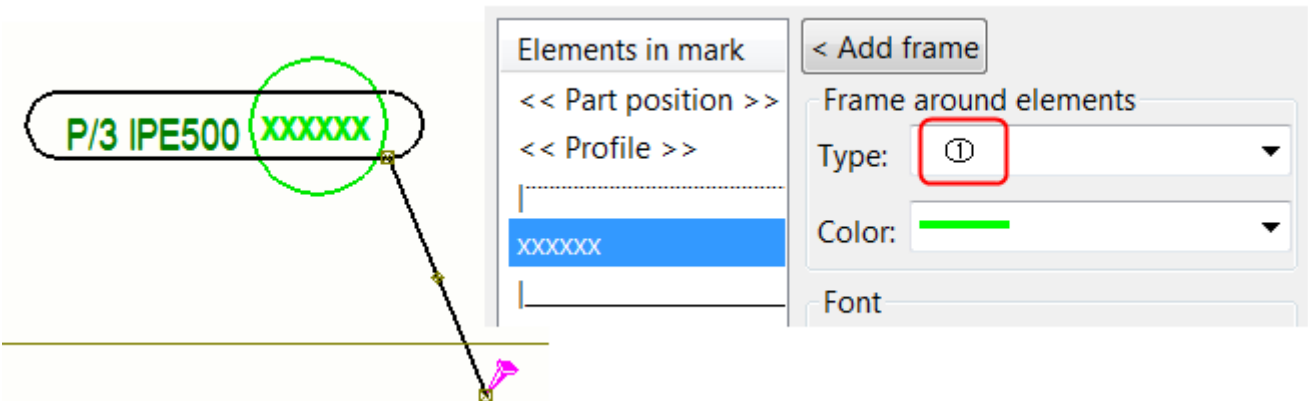
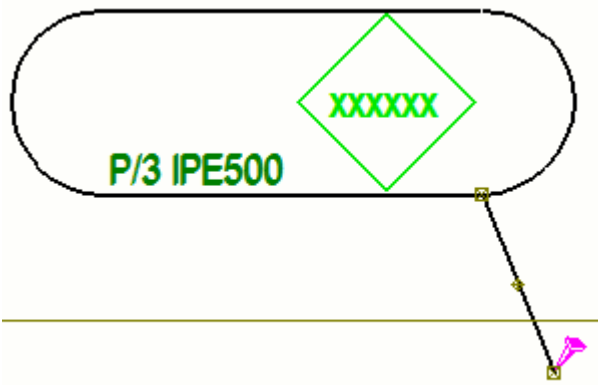
- When reinforcing bars were hidden in a drawing, selecting **Tools > Options > Deactivate Ghost Outline** caused an application error.
TT72035
- Representation of reinforcing bars that point away from the drawing is now changeable. You can customize reinforcing bar end symbols (cross, circle, filled circle) in a symbol file by editing the symbol file `rebar_end.sym`, which in the default environment is located in `..\ProgramData\Tekla Structures\<version>\environments\common\symbols`. Or, you can create a new symbol file in the same folder, for example, `my_new_symbols.sym`, and take it into use in the `rebar_config.inp` by entering the following string: `EndSymbolFile=my_new_symbols.sym`
TT67680
- Circular reinforcing bar group hooks were not created correctly in drawings. This has now been fixed.
TT73244

Reinforcement meshes

- You can now select the line type for the crossing line of the reinforcement mesh outline on the **Appearance** tab of the reinforcement mesh properties dialog box. Before, a solid line was always used.
TT70346

Marks and associative notes

- In general arrangement drawings, part marks of cast units now correctly indicate the orientation of part. They now behave in the same way as part marks of steel assemblies.
TT69939
- In bolt marks and associative notes, using `BOLT_FULL_NAME` inside the **Size** element in mark resulted in an incorrect name if there were several different lengths of bolts with the same standard. This has now been fixed.
TT70598
- When you added a round frame around an element in a mark, the outer frame did not adjust accordingly, see example below. With other element frame types the outer frame adjusted. This has now been fixed.



TT70545

- Reinforcing bar mark base point was incorrect if one of the reinforcing bars in a group was visible, and the mark was created far away from the view. Now the mark is freeplaced in a correct position when it is created even if its placing is set to fixed.

TT70988

- When you added elements in connection marks in the **Connection Mark Properties** dialog box and saved the drawing properties, and the loaded the same property file again, the added connection mark elements were not kept. This has been fixed, and now the connection mark elements and properties are loaded correctly again.

TT58941

- If you use a template as the content of a mark in a drawing, the dimension fields for tapered reinforcing bars now show the correct values for different segment lengths. Previously, **Rebar Shape Manager** always showed the same length for the fields.

TT68101

Multidrawings

- If an assembly drawing included linked single-part drawings, and the assembly drawing was linked in a multidrawing, updating the assembly drawing deleted the link between the assembly drawing and the multidrawing. This has now been fixed.

TT70393

Confirming re-creation of drawings

- When you were changing the object level settings, you could not confirm or skip the re-creation of drawings using **Y** and **N** on the keyboard. Now the keyboard commands are working again.

TT59401

Hatches

- Hatches with background color no longer cover the underlying objects.

TT68973

- Toggle button**
- In the **Weld Mark Properties** dialog box, the check box next to **Stitch weld** was not cleared when you pressed the toggle button. This has now been fixed.

TT72263, TT71303

- Pullout pictures**
- The protection area of the pullout pictures was not working correctly. This has now been fixed.

TT71936

XS_ENABLE_PRE_TS16_CLASSIFIERS

- The advanced option `XS_ENABLE_PRE_TS16_CLASSIFIERS` is no longer supported.

XS_DISPLAY_ZERO_INCHES

- If you do not give any value to the advanced option `XS_DISPLAY_ZERO_INCHES`, Tekla Structures does not show zero inches even if there are feet and fractions in the dimension value.

TT73164

4.6 Templates and Reports

Fix list

- Template rows**
- Template rows for which some values cannot be resolved are now sorted correctly.

TT70522

Reinforcing bar bending shapes in templates

- In some cases using the new reinforcing bar shape recognition from the `RebarShapeRules.xml` file by setting `XS_USE_USER_DEFINED_REBARSHAPERULES` to `TRUE` made opening drawings very slow as accessing templates was slow. This has now been fixed.

TT65554

Reinforcing bar bending shapes in html lists

- The pullout pictures of the bending shapes are now shown correctly. They were broken in version 17.0.5.

TT72659

Multi-sketch profiles in reports

- It is now possible to create a report using properties of multi-sketch profiles. The correct values are returned for all cross section numbers. Previously the properties were fetched from the first cross section only.

TT70557

XS_USE_NEW_PLATE_DESIGNATION

- Now the advanced option `XS_USE_NEW_PLATE_DESIGNATION` has three options available:

- Not used at all (value is blank or `FALSE`).
- Used only for steel parts (value is `FOR_STEEL_PARTS_ONLY`).
- Used for all parts (any value except `FALSE` or `FOR_STEEL_PARTS_ONLY`. `TRUE` is recommended).

Now users using role **All** with both steel and concrete elements have the possibility to use the option only for steel parts.

TT71701

4.7 Import and Export

Fix list

- BVBS export**
- Previously, the BVBS group identifier was not correct (BF2D) for single reinforcing bars with a 3D shape. This has now been fixed. The correct 3D group identifier (BF3D) is exported. The error only affected single reinforcing bars. Normal and tapered reinforcing bar groups with 3D shapes were exported correctly.
TT72459
- IFC export**
- Reinforcements with invalid coordinate systems are now corrected in IFC export. The user is notified by an error message in the export application output.
TT68414
- Converting IFC objects**
- The maximum number of characters in the profile section name is 19. If the limit is exceeded, the section name is cut to the limit and a warning message is displayed on the status bar.
TT65385
- NC files**
- CNC hard stamps (SI block) is now printed in the NC file when using the **Project number** or **Lot number** elements in NC file settings. The NC definition files already using **Project number** or **Lot number** elements in hard stamps should be deleted and redefined.
TT70726
 - The top diam value is now used for the top diameter of countersunk bolts instead of the span size value.
TT70325
 - According to the DSTV standards the description of the CSK (countersunk) hole in the BO block should be reverse. The description has now been changed to be in the following order recommended by the DSTV standards:
- | BO | | | | | | | | |
|----|--------|---------|-------|-------|------|------|-------|--|
| v | 50.00u | 250.00 | 18.00 | 0.00 | | | | |
| v | 50.00u | 250.00s | 30.00 | 10.56 | 0.00 | 0.00 | 90.00 | |
| v | 50.00u | 250.00 | 18.00 | 0.00 | | | | |
- TT57750
- Concrete objects were listed in MIS list and NC files. This has now been fixed, and concrete objects are no longer listed in MIS list and NC files.
TT73029
 - Tekla Structures kept asking to execute numbering, when you tried to create NC Files. The cause was that you were exporting selected parts whose similar parts belonged to assemblies that were not up-to-date. This has now been fixed.
TT70842
- HMS export**
- If the .sot file name is too long, HMS export now requests the user to change the name so that it is within the limitation of 24 characters.
TT70986
 - The correct slab width co is now exported for panels with complex shapes.
TT71451
 - The option to export cores has been renamed to **Export inner cores**. Previously, the option was **Export Open Cores VS/VT**.

TT71448

- You can now select whether to save the export file as a .sot file or all files (*.*) .

TT71325

Reference models

- Now the XS_REFERENCE_CACHE advanced option setting correctly relates relative paths to the current model folder.

TT66766

4.8 Analysis and Design

Fix list

Connections between analysis members

- In some cases, connections between primary and secondary analysis members were not created correctly. Part height was also calculated incorrectly. This has now been fixed.

TT67246

- Sometimes, a secondary member which was connected to a connection node had an unnecessary extra rigid link to a primary member. This has now been fixed.

TT71207

Builtup sections in the analysis model

- If part is a builtup section in the analysis model, the name of the builtup section can be entered as **Replacement profile name** on the **Bar attributes** tab of the **Analysis Part Properties** dialog box. Any name can be entered, but if the name matches an existing catalog profile name, the physical properties of the section will be the same as the catalog profile properties.

TT66341

New warning message

- Warning added for the situation where a rigid link cannot be created because the nodes are too close to each other. This can happen if beam axis movement (of both connecting beams) has been restricted so that it is not possible to create the connection without rigid link. The new warning message: "WARNING: The nodes are too close to create a rigid link, please check part axis restrictions, part Id: 1, nodes Id: 2 Id: 3."

TT69700

Removal of AISC connection design

- The AISC connection design has been removed from Tekla Structures. The options related to the AISC design have been removed from the **Design** and **Design type** tabs of the component dialog boxes.

TT71346

4.9 Construction Management

Fix list

Model Organizer

- Previously, when you tried to drag and drop objects from one category to another in a logical area, the objects disappeared from the categories if you clicked **No** in the **Classify objects** dialog box. Now the objects do not disappear anymore but remain in their original category.

TT69246

- Previously, if you selected an object type category and its subcategories and deleted them, the subcategory was deleted twice causing an error dialog box to be displayed. This has now been fixed.
TT72148
- Dates are now shown correctly in the object pane when their type is date.
TT69401
- The values of calculated properties are now rounded correctly. The rounding precision is defined in the **Properties** dialog box.
TT71887
- When customizing object properties in the **Properties** dialog box, you can now save the customized properties to a file and load new properties from a file.
TT72492
- **Model Organizer** now automatically resolves conflicting classifications that might occur in the **Logical Areas** in multi-user mode. The conflicts are checked when you open **Model Organizer**. If any object is classified in more than one section or story, or if an assembly containing the object is not classified in the same section or story than the object, the object is moved to resolve the conflict.
TT60665
- If the **Model Organizer** dialog box was moved to a secondary screen, **Model Organizer** could not be accessed anymore after the secondary screen was disconnected from the computer. This has now been fixed.
TT74439

Task Manager

- Sometimes, when you saved and reopened a model, task types had been removed from tasks. This has now been fixed.
TT71287
- When you tried to create a selection filter for tasks and used the **Select from model** option, there was an application error. This has now been fixed.
TT65406
- Task Manager now functions faster than before when task dependencies are imported from MS Project.
TT68759
- When importing tasks to Task Manager, existing tasks are now overwritten correctly if the **Override existing tasks** option is selected.
TT72506
- Previously, when you tried to print a Task Manager scenario in an adjusted size, there was an application error. This has now been fixed. Printing from Task Manager functions correctly.
TT70117

4.10 Custom Components

Fix list

Custom component editor

- You can now get the actual diameter of reinforcing bars in the custom component editor using the formula `=fRebarCatalogValue(BarGrade, BarSize, Usage, 1)`.
TT72743

Reinforcing bar group properties

- The **Creation method** property is now available for reinforcing bar groups in the custom component editor.

TT72460

4.11 System Components

Fix list – steel connections

Tensioner (7)

- The forked plate is now cut as defined with the **Cut part B in fork** option on the **Tensioner** tab and **Extra tensioners** tab.

TT68091

Pipe Column and Beam Panel Zone (21)

- In some cases, defining haunches as **Specified** caused errors in the model. This has now been fixed.

TT67692

End plate (29)

- The end plate is now positioned correctly.

TT70500

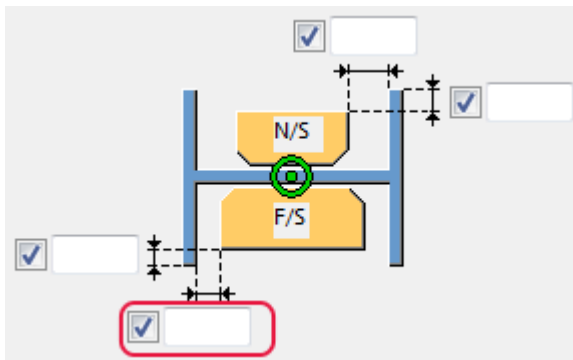
Two sided clip angle (33), Two sided end plate (34)

- The **Copes 2** tab now controls the notches in the first secondary part and the **Copes 3** tab controls the notches in the second secondary part.

TT71637

Bolted moment connection (134)

- The gap between the column and the stiffener plate is now created correctly. Previously, defining the gap on the **Stiffeners** tab caused the shear plate to clash with the lower flange plate by the distance you entered as the gap size.



TT62373

- Stiffeners are now positioned correctly when you define the stiffener offset from the edge of the beam.

TT73835

Two sided end plate (142)

- You can now control how many bolts there are on each side of the safety connection.

TT67732

Two sided clip angle (143)

- You can now define a finish for the angles on the **Parts** tab and the **Angle box** tab.

TT69395

Fix list – steel details


- Handrailing (1024)**
- Previously, handrailings were not aligned correctly with U-profile stairs (**Stairs S71**). This has now been fixed.
[TT71351](#)
- U.S. Base plate (1047)**
- Shim plates are now correctly offset with the bolts and the base plate.
[TT70376](#)

Fix list – steel modeling tools

- Rectangle to circle (17)**
- Corner triangular plates between two parts are now created correctly. Previously, when the distance between the parts was long, the plates were sometimes created too short.
[TT68610](#)
- Trigangles generation (19)**
- When you selected to create triangles using points read from a file and the file did not exist, there was an application error requiring you to restart Tekla Structures. This has now been fixed.
[TT70432](#)
- Generation of purlins (50)**
- Purlin distances are now created correctly for sloped beams with the **Exact number of purlins** and **Fill to the end** options.
[TT68079](#)
 - Purlin distances are now created correctly with the **Divide equally** option.
[TT68081](#)
 - Purlin overhangs are now created correctly when you have defined on the **Parts** tab that the local direction of the purlin is inverted.
[TT68082](#)
 - The purlin position in the horizontal plane now works correctly for purlin overhangs when defined with the **Position in plane** option on the **Parts** tab.
[TT68083](#), [TT68085](#)
- Kickplate (S75)**
- The weld between the kickplate and the stanchion was not created without extensions of the left or right side. This has now been fixed.
[TT71246](#)
 - Previously, the material you defined for the kickplate on the **Parameters** tab was not applied. This has now been fixed.
[TT71241](#)

Fix list – concrete components

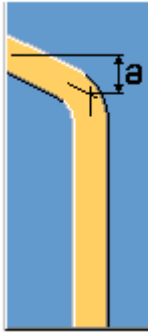
- Floor Tool**
- Slabs are now cut correctly in all directions.
[TT68760](#)
- Sandwich Wall Window**
- Previously, when you selected not to create a wooden frame, there was an error message. This has now been fixed.
[TT71489](#)

- Previously, creating a window in a concrete wall placed some of the window parts outside the wall. This happened when the  mirroring option was used in a wall created with the **Sandwich and Double Wall** modeling tool. This has now been fixed.

TT71104

**Concrete
foundation
(1030)**

- Injection tubes are now cut along the part edge. Previously, when you used the tube option to define the slope of the tube, the cut was not made correctly.



TT71819