PLANBAR 2019

New Features in PLANBAR 2019-0-1
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Welcome

Dear Sir or Madam,

The new PLANBAR 2019 version has been completed. This document presents the most important new features we have implemented since PLANBAR 2018.

In developing PLANBAR 2019, we were guided by your ideas, of which we put a great number into practice.

For example, we enhanced data setup in PLANBAR for import via the IFC interface.

You can now create catalogs with favorites for the MEP assistant. This speeds up your work considerably.

In addition, we reworked the dialog box for defining fixtures.

When creating a new element plan, you can choose to keep the labels for reinforcement, fixtures and section objects.

Walls come with a new wall type: composite sheeting.

We reworked the algorithm for creating insulating boards and lattice girders for thermal walls with the ‘from insulating board width’ option.

In addition, we reworked and enhanced the ‘precast elements’ option for designing structural precast elements.

You can now upload the data of precast elements with reinforcement and fixtures from PLANBAR to the openBIM platform Bimplus.

When creating production data or export data, you can check specific properties using Quality Manager.

We wish you every success! Have fun exploring PLANBAR 2019!

Precast Software Engineering GmbH
Salzburg, December 2018
Precast Elements

New features across modules

Attributes for precast elements

You can use the new Catalog list text attribute (@1350, text) for all element types (slab, wall, structural precast elements, iParts, precast elements).

This attribute selects the resolved List text of fixtures you define on the Logging tab in the Fixture catalog (Catalogs - General).

You can use this list text for analyses in PLANBAR (for example, legends).

Note: Resolving list text variables takes some time. Therefore, this attribute might slow down some automatic features (for example, element plan in batch run).

You can use the X-dimension (@18066, double), Y-dimension (@18067, double) and Z-dimension (@18068, double) variables for structural precast elements, iParts and the new precast elements.

When you enter structural precast elements, iParts using the Input option = 3D solid, architectural component or PythonPart, you can use these three variables to output the dimensions you want to override using the Dimensions area on the Dimensions tab (see below).

In the case of the new precast elements, you can use these variables to output the values defined in the Dimensions area on the Element type, layers tab.

In addition, you can use the new Number of precast elements attribute (@18065, integer) to analyze the number of precast elements including the factor defined.

For example, three identical precast elements with the factor 2 ➔ number of precast elements = 6
Labels of mark numbers in associative views and sections

When creating or modifying an associative view or section, you can switch on and off precast element labels you defined in the Configurations - Slab programs, Wall programs or Structural precast elements - Entry - Labeling – Views tab.

To show or hide the labels, click Toggle. Use Text preview to switch the labels *On* or *Off*.

When set to *On*, PLANBAR places the labels for the precast elements and formwork elements as defined in the options.

When set to *Off*, PLANBAR does not create labels or deletes the labels during modifications.

Positions of labels in associative views and sections

You can find the new As entered option for defining the Position of label on the Views tab in the Configurations for all element types (slab, wall, structural precast elements, iParts, precast elements).

When you select this option and create a new associative view or section, PLANBAR places the labels of the mark numbers in the position defined on the toolbar using Toggle - Text's anchor point.

When you update the precast elements and thus the associative view or section later, PLANBAR places the labels of the mark numbers again in the position currently defined on the toolbar (provided the As entered option is still selected for the position of the label).

Note: PLANBAR does not save the position of the mark number label when you create an associative view or section.

IFC assistant

The IFC Assistant tool helps you prepare heterogeneous 3D data of different types so that you can then use these data to design new precast elements with Wall Element Design or Precast Element.

This new tool is intended for data you import into PLANBAR via the IFC interface.
However, you can also use this tool to process any 3D elements modeled in PLANBAR, such as user-defined architectural elements, multilayer architectural walls, instances of smart symbols and PythonParts.

Round components cannot be processed yet. But you can convert these components in advance. For example, you can convert a round column using the Convert Elements - General 3D element to 3D solid, 3D surface.

The data must be numerically correct and must not include anomalies or errors.

The solid must form a closed volume; all edges of a vertical surface must be in the same plane.

The way the data look on screen does not provide any information on the quality of the data!

You can combine these components into topological groups and assign identifiers to individual parts of these components (for example, openings, modeled parts). When designing the walls later, PLANBAR will automatically include these components and parts in accordance with the settings defined.

Using the geometry of the initial data, PLANBAR does not change the geometry during design.

**Drawing files**

We recommend that you save the data created by the IFC Assistant tool in a separate drawing file: Open the drawing file with the initial data in edit mode and select an empty drawing file for the data you want to create.

Otherwise, it is difficult to tell the elements apart.

If the input data are in the current drawing file, PLANBAR will issue a warning.
Importing data

Note: After having selected the IFC Assistant tool, you can see a dialog box in which you can select a mapping file. A mapping file helps you automate the process. You can find detailed information in the section ‘Attribute mapping’.

Regardless of whether or not you select a mapping file, the next step is to select 3D components in the drawing file.

Select the components component by component. In other words, only select components that can be combined into a single precast wall, for example.

Do not select several walls or a complete floor plan at once.

All selected components are displayed and sorted in an interactive dialog box.

Select a row in the dialog box to display the component in the drawing file in the preview color set.

This also works the other way round: Select a component in the drawing file to select the corresponding row in the dialog box.

The selected components are sorted by geometry and layer number in the dialog box.

Note: Whether PLANBAR detects and numbers the layers correctly depends on the component type and component structure.
You can use the first four (green) columns of the dialog box to set basic parameters:

- **Use**: Use this check box to ignore specific components (for example, selected components that are not relevant).
- **Layer no.**: Enter the required layer number for multilayer components.
- **Component**: Specify the component type. You can find more details below.
- **Material/fixture**: Depending on the component type, you can specify the material or enter a reference to a fixture.

These four fixed columns can be followed by some gray columns. These gray columns include attributes saved with the components. These attributes are for information only.

If the layer numbers are not correct, the first thing you must do is define the required sequence.

The reason for this is that each layer number must have at least one component type that defines the layer type (concrete layer, insulating layer, tile layer or in-situ concrete layer).

In addition, you can assign the following properties: modeled object +, modeled object - or opening.

After you have finished defining the layer numbers, specify the component type and the material.

When the layer type is set and you select a component of the same layer number, the selection list includes more component types that are appropriate to the material (for example, concrete area or concrete strip for a concrete layer).

As you can see, you can only select a concrete area when you have already defined a concrete layer.
As described above, PLANBAR sorts the components and numbers the layers in the dialog box. If you want, you can invert the sequence of the layer numbers by clicking **Invert layer numbers**.

Tip: If you have forgotten to select some components, you can click **Add components** to add the missing components to the selection.
So, you do not need to select all components from scratch. Click **Apply** after you have finished entering the layer numbers and layer types. PLANBAR checks whether the entries are logical and consistent.

If this is not so, PLANBAR cannot create elements from these entries. Consequently, it will issue an error message, marking the corresponding elements in the dialog box.

Correct the entries.

The following requirements must be met:

- Layer numbers must be in ascending order.
- Layers must touch.
- Concrete areas, insulation areas and tiling areas must be assigned correctly. In addition, they must be in respective layers.
- Insulating strips and concrete strips must be assigned correctly. In addition, they must be in respective layers.
- Modeled parts and openings must be in one and the same layer.

If everything is okay, PLANBAR creates a group of user-defined architectural elements in the current drawing file. You can then design walls based on these data using Wall Element Design or Precast Element.
Modification mode

You can modify the group of user-defined architectural elements at any time. To do this, select the IFC Assistant tool and select the group of user-defined architectural elements.

The dialog box automatically opens in modification mode. This is indicated by the Modify user-defined architectural element text.

Note: You can only modify one group of user-defined architectural elements at any one time. If you select several groups, PLANBAR will display a note telling you that modification is not possible.

Component types

The possible component types result from the data structure of wall element design. The following table lists all component types that are possible, including information on how these types behave.
<table>
<thead>
<tr>
<th>Component type</th>
<th>Behavior</th>
<th>Material/fixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete layer</td>
<td>The component stands for a concrete layer. You can also combine several components into one layer.</td>
<td>The material stands for an entry in the concrete grade catalog.</td>
</tr>
<tr>
<td>Concrete area</td>
<td>The component is part of a concrete layer; however, the concrete grade differs. A concrete area must be completely within the nominal layer thickness. The ‘concrete area’ type is not available for selection until the same layer number includes at least one concrete layer. Concrete areas can be output as fixtures in production data and invoicing data.</td>
<td>The material stands for an entry in the concrete grade catalog.</td>
</tr>
<tr>
<td>Insulating layer</td>
<td>Like concrete, but as an insulating layer</td>
<td>The material stands for an entry in the insulation material catalog.</td>
</tr>
<tr>
<td>Insulation area</td>
<td>Like concrete, but as insulation</td>
<td>As above</td>
</tr>
<tr>
<td>Tile layer</td>
<td>Like concrete, but as a layer of tiles or a facing layer</td>
<td>The material stands for an entry in the placement pattern catalog.</td>
</tr>
<tr>
<td>Tiling area</td>
<td>Like concrete area, but as a layer of tiles or a facing layer</td>
<td>As above</td>
</tr>
<tr>
<td>Layer of in-situ concrete</td>
<td>The component stands for a layer of in-situ concrete.</td>
<td>The material stands for an entry in the concrete grade catalog.</td>
</tr>
<tr>
<td>Modeled part +</td>
<td>The component will be attached to a layer and internally saved as a fixture. Modeled parts cannot be used across layers.</td>
<td>Includes a reference to a surface fixture in the fixture catalog.</td>
</tr>
<tr>
<td>Modeled part -</td>
<td>The component will be cut out of a layer and internally saved as a fixture.</td>
<td>Includes a reference to a surface fixture in the fixture catalog.</td>
</tr>
<tr>
<td>Concrete strip</td>
<td>Concrete strips will be attached to a layer; they can also be used across layers.</td>
<td>Includes a reference to a linear fixture in the fixture catalog.</td>
</tr>
<tr>
<td>Insulating strip</td>
<td>Insulating strips are strips of a different material within a layer.</td>
<td>Includes a reference to an entry in the insulation material catalog.</td>
</tr>
<tr>
<td>Opening</td>
<td>The component will be saved as an opening in a user-defined architectural element. You can insert a smart architectural symbol in the opening later. If you do this, the reference to the fixture catalog becomes invalid.</td>
<td>Includes a reference to a surface fixture with the Use as a smart architectural symbol parameter in the fixture catalog.</td>
</tr>
</tbody>
</table>
Displaying attributes in the dialog box

The gray columns of the dialog box include attributes of the components. This is for information only.

As there are so many attributes, you can select the attributes you want to display in this dialog box. To do this, you must enter the attribute numbers in an XML file.

Should you have any questions, please contact Technical Support.

Attribute mapping

Components imported as IFC data usually include various user-defined attributes that are more or less informative. When you look at the attributes, you generally get an idea of what the components are like.

For example, a layer with the name “concrete_SW-1.666” can be nothing else than a concrete layer. Using attribute mapping, you can “teach” the program to detect the components, sorting them correctly.

Attribute mapping is based on mapping files which include rules (directives) triggering specific actions.

You can select a mapping file during component selection. The program applies the selected mapping file to the selection of components. If the conditions are met, the program will automatically set the corresponding parameters.

Start by selecting the Use attribute mapping option.
If you want, you can now create a new file by clicking **New definition**.

**Note:** If you have already created files, you can change the entries in these files by pointing to the line of the file you want to change and clicking **Define component mapping**.

You can see the **Attribute rules** dialog box, in which you can define rules.

<table>
<thead>
<tr>
<th>Rule</th>
<th>Condition</th>
<th>Component</th>
<th>Material/fixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set component type</td>
<td>@508@eq.&quot;Steel/Concrete&quot;</td>
<td>Concrete layer</td>
<td>C30/37</td>
</tr>
<tr>
<td>Set component type</td>
<td>@508@eq.&quot;Concrete/in-Situ Concrete&quot;</td>
<td>In-situ concrete layer</td>
<td>C25/30</td>
</tr>
<tr>
<td>Set component type</td>
<td>@508@eq.&quot;Miscellaneous/EPS&quot;</td>
<td>Insulation layer</td>
<td>EPS</td>
</tr>
<tr>
<td>Assign material</td>
<td>@508@eq.&quot;Miscellaneous/none&quot;</td>
<td>Not defined</td>
<td></td>
</tr>
<tr>
<td>Assign material</td>
<td>@508@eq.&quot;PU-foam&quot;</td>
<td>Insulation layer</td>
<td>PU</td>
</tr>
<tr>
<td>Set component type</td>
<td>@508@eq.&quot;Fibre cement&quot;</td>
<td>Modeled object +</td>
<td>Fibre cement</td>
</tr>
</tbody>
</table>
Using the Rule column, you can tell the program what to do. There are two directives:

- The Set component type directive sets the material automatically (provided the Material column includes a value).
- The Set material directive uses the component type as an additional condition.

If the component type is not defined, the program always sets the material. If the component type is defined, the program only sets the material if it matches the component type (for example, concrete layer).

Using the Condition column, you can analyze PLANBAR attributes or enter them manually by means of the formula editor.

To select the formula editor in PLANBAR, double-click in the cell or click the Open formula editor icon, which appears as soon as you select the cell.

A formula expression applied to a component results in true or false. If the result of the formula expression is true, the program applies the corresponding directive to the component. Otherwise, PLANBAR ignores the directive.

Component type presents the different types of components for selection. Select the appropriate entry.

The dialog box includes more icons:

- Copy selected lines
- Delete selected lines
- Move selected lines up
- Move selected lines down
- Save file: Saves the entries or changes made. When you enter a new name for the file, PLANBAR saves the entries to this new file.
- Open file: Opens a file in the Favorites - office folder.

The File name line is highlighted in yellow. When you point to this line, you can see the text Data has changed, which indicates that you have changed entries.
**Tip:** Regardless of the project size, it is definitely worth spending some time and effort creating a mapping file based on the attributes set. This saves you a lot of clicks.

**Note:** Make sure all assignments are unique. If PLANBAR finds ambiguous entries, it always uses the first entry!

### MEP assistant

We added some features to the [MEP Assistant](#) tool so that it is easier for you to select and position the required fixtures.

Now you can do the following:

- When you take a fixture from the fixture catalog (Creation type = Library), you can set the orientation and reference point (rotate the fixture about the x-axis, y-axis and z-axis; move the fixture in the x-direction, y-direction and z-direction) in relation to the smart symbol.
- You can display a preview of the smart symbol and the coordinate axes in the dialog box.
- You can create one or more catalogs with favorites. Based on smart symbol attributes, PLANBAR selects the fixtures or openings automatically from these catalogs and loads the settings of the fixtures or openings automatically from the favorites.

### Definitions of terms

The following terms are used:

- **Favorite:** This is a favorite for a fixture or opening. You can create or edit favorites as usual in the dialog boxes you can access from the Fixt. parameters or Opn. parameters column in the MEP assistant.
  
  A favorite file ends in *.mepfix or *.mepopng.

- **Favorite catalog:** This is a list with references to favorites. You can find details below.
  
  A favorite catalog ends in *.MEPFavoritesMap.xml.
Favorite catalog

Click Edit favorite catalog to create a new favorite catalog or edit an existing favorite catalog.

- You get a new favorite catalog when you select the Not selected entry in the Select favorite catalog list box.
- When you select an existing favorite (for example, MEP-FAV_TEST) in the Select favorite catalog list box, you can load and edit this favorite.

You can edit the favorite in the Favorites for smart symbols dialog box, in which you define the required rules.

![Favorites for smart symbols](image)

Note: The dialog boxes for defining catalogs are similar to the Attribute rules dialog boxes of the IFC Assistant tool. Using the Condition column, you can analyze PLANBAR attributes or enter them manually by means of the formula editor.

To select the formula editor in PLANBAR, double-click in the cell or click the Open formula editor icon, which appears as soon as you select the cell.

A formula expression applied to a component results in true or false. If the result of the formula expression is true, the program analyzes the corresponding condition. Otherwise, PLANBAR ignores the condition.
Use Fixt. or Opn. to specify whether the selected condition applies to a fixture or an opening. You can only select either the Fixt. check box or the Opn. check box.

Use the Favorite column to define the path to a favorite file including the reference to a fixture, the rotation and move of the fixture or the reference to a smart symbol.

You can enter the path to a favorite file (*.mepfix) or (*.mepopng) manually or you can click Select favorite file to select a favorite.

Note: You can create or edit favorites (*.mepfix) or (*.mepopng) as usual in the dialog boxes you can access from the Fixt. parameters or Opn. parameters column in the MEP assistant.

The dialog box includes more icons:

- Copy selected lines
- Delete selected lines
- Move selected lines up
- Move selected lines down
- Save file: Saves the entries or changes made. When you enter a new name for the file, PLANBAR saves the entries to this new file.
- Open file: Opens a file in the Favorites - office folder.

The File name line is highlighted in yellow. When you point to this line, you can see the text Data has changed, which indicates that you have changed entries.

Note: Make sure all assignments are unique in the favorite catalog. If PLANBAR finds ambiguous entries (that is to say, if several lines meet the condition defined for a smart symbol), PLANBAR always uses the first entry!

Tip: Regardless of the project size, it is definitely worth spending some time and effort defining favorites for fixtures and openings and creating one or more favorite catalogs based on the smart symbol attributes. This saves you a lot of clicks.
Loading favorites automatically

When you have already selected a favorite catalog, you can click the new **Load favorites** button to load favorites automatically for the rows (= collisions between components and smart symbols) selected in the dialog box of the MEP assistant.

PLANBAR scans the favorite catalog currently selected in the Select favorite catalog list box for each smart symbol. As soon as an entry in the favorite catalog meets the corresponding condition, PLANBAR reads and loads the settings of the favorite referenced.

The Fixt. parameters or Opn. parameters column of the Create openings and fixtures from smart symbols dialog box show the name of the selected fixture or smart symbol.

It makes no difference whether you select the favorites manually as usual or automatically using the new Load favorites tool.

New features in the dialog box for fixtures

We added various new features to the dialog box for defining fixtures.

You can now see a Preview showing the selected fixture in relation to the smart symbol. This preview updates immediately to reflect any changes (rotation and move) in the dialog box. So, you can see at once whether the fixture is placed correctly.
We changed the settings for rotation as follows:

- We replaced rotate walls about x-axis by 90° with rotate walls about x-axis by -90°, which is correct.
- When you clear the rotate walls about x-axis by -90° check box, you can manually define the rotation about the x-axis, y-axis and z-axis.

We added a new group for moving the fixture in relation to the smart symbol:

- Using reference point of smart symbol, you can specify whether you want to calculate or match this reference point.

When you select the calculate option, PLANBAR calculates the reference point of the smart symbol. This point is used as a reference for the reference point of the fixture. PLANBAR will place these two points so that they are congruent.

In calculating the reference point, PLANBAR checks the following 27 points of the smart symbol and fixture.

Calculation is based on the following rules:

- Finding the position of the reference point of the smart symbol based on its circumscribed box ➔ position number of the reference point of the smart symbol
- Finding the position of the reference point of the fixture based on its circumscribed box ➔ position number of the reference point of the fixture

- If the two position numbers do not match, PLANBAR corrects the reference point of the smart symbol by moving this reference point to the point of the smart symbol which has the same position number as the reference point of the fixture.

- Positioning the fixture so that the reference point of the fixture and the point calculated for the smart symbol are congruent.

There are some special cases:

- None of the 27 points is the reference point of the smart symbol or the reference point of the fixture ➔ PLANBAR uses the unchanged reference point of the smart symbol for positioning the fixture.

- Rotate walls about x-axis by -90° is selected. In this case, PLANBAR calculates the reference point using the points rotated about the x-axis by -90°.

When you select the match option, PLANBAR uses the reference point of the smart symbol as the basis.

- Using the x-axis, y-axis and z-axis options, you can move the new reference point of the fixture (calculated or matched) in relation to the reference point of the smart symbol.
Locking admin

When you deactivate locking states of the ‘update ... automatically’ locked type in the Status Admin tool, PLANBAR now displays a prompt.

You have the following options:

- When you select No, PLANBAR reacts as usual, removing the locking states only. PLANBAR will not update the respective elements until you change them.
- When you select Yes, PLANBAR removes the locking states and updates the respective elements immediately.

In addition, we slightly changed the way the 'Update connecting elements automatically' locked locking state behaves.

You can no longer change the dimensions of the precast element. This locking state now works just like the 'Update basic girders automatically' locked locking state.

Bending shape definition

You can use a check box in the Bending Shape Definition dialog box of the Stirrup cages and Bent-up meshes tools to specify whether you want to calculate segments automatically as usual or use the last dimensions set. This applies to the Secondary Reinforcement tool in Element Plan and Edit Element for slabs, walls and precast elements and to the Secondary Reinforcement tool for slabs.

The default setting is calculate segments automatically = on.

The new setting is useful if you want to enter several cages of the same stirrup geometry but of different length.
Catalogs, Configurations

Fixture catalog

Attributes for text boxes and formula boxes

Text boxes and formula boxes in the Fixture catalog (Catalogs - General) can now include Allplan attributes or formula expressions that will be analyzed by PLANBAR during output.

You can now find the Variables for formulas or Variables for formulas and smart symbols icon to the right of each box that can contain variables.

Click the icon to open a dialog box as usual.

Note: The icon replaces the former icon for opening the dialog boxes.
You have various options to enter the required variables or formulas:

- Click ✂ (formerly Transfer variable to text box) to copy a variable from the list above into the text box. The variable will be placed at the current position of the cursor.

To do this, select the required line in the list [1]. The icon [2] is now available and you can see the variable next to it.

Note: When you select the P1...P9 variables, you can enter the required number in an additional text box.

Click the icon [2] to insert the selected variable at the current position of the cursor.

Note: Most of the predefined fixed variables are also available as attributes. Consequently, they are redundant, as you can also enter them by clicking Formula editor (insert CAD attribute or formula). However, PLANBAR keeps them to maintain compatibility.

- Click the new ✂ Formula editor (insert CAD attribute or formula) icon to use the formula editor to insert an attribute or a formula at the current position of the cursor.

You can use the formula editor as usual.

A single attribute is represented by @@number@@ in the list text. A formula expression requires escape characters, that is to say, the formula is enclosed by <![formula]!>, for example <!PRECAST(@1461@)>.

Note: If you want to change the formula or attribute, we recommend selecting the formula or attribute (including the angle brackets) beforehand.

When you click OK to exit the editor, the text will be inserted at the current position of the cursor.
PLANBAR resolves the attributes or formulas during output (lists, element plan table and so on).

Attributes for prefix

You can now use attributes for the prefix on the Element plan tab of the Fixture catalog (Catalogs - General).

Click the new ... icon next to Prefix to open the formula editor, where you can define an attribute or a formula, which you want to use for the prefix.

For the MrkNo, you can now select the new Only prefix option in addition to None, Automatically, Fixed and By priority.

When you select this new option, PLANBAR omits the mark number, labeling the fixtures using a fixed text or the attributes.

Considering the weight

We changed the algorithm for considering the weight of fixtures on the General tab in the Fixture catalog (Catalogs - General) so that PLANBAR no longer adds the dimensions of linear fixtures (in [m]) or surface fixtures (in [m²]) to the weight formula entered. Now you must always enter the weight in [kg] in the fixture catalog.

Consequently, you can define a fixed weight for linear fixtures and surface fixtures. If you want to calculate the weight of a fixture based on its length or area, you must include this information in the weight formula.

For example: If you enter 300 [kg] for a surface fixture (for example, a door), the fixed weight of this door is 300 [kg]. But if you enter 100*F [kg], the weight of this door is 100 kg/m².

Classification

Using the new Classification tab in the Fixture catalog (Catalogs - General), you can assign a category and a type to a fixture.

The categories and types are predefined, making sure the fixtures are consistent.

Note: The categories listed correspond to the IFC4 classes currently defined for fixtures by buildingSMART.

Select a category for the fixture and click the icon. The selected category is displayed in the line.

Note: You cannot click the icon until you have selected a category. Otherwise, the icon is inactive.
To change an entry, select the new entry and click \(\text{click}^\text{again}\). Click the \(\text{icon}\) to delete the whole entry.

When it comes to the types, you can select the user-defined type in addition to the predefined types and the not defined type.

After selecting the user-defined type, you can see an additional text box, where you can enter any text for the type.

![Fixtures catalog](image)

These settings apply when you export the precast elements using the new IFC export tool in the Report & Production Data Manager module in TIIM.

The category of the fixture will be used to define the IFC class (for example, IfcCableCarrierSegment).

The type of the fixture will be exported as the MountingPartType attribute in the separate IFC4precast_MountingPartCommon PropertySet.

The user defined type will be exported as the additional MountingPartUserType attribute.

Fixtures without a category will be exported as usual using the IfcDiscreteAccessory IFC class.
Change in article catalog for wall measurement sheet and ADS interfaces

To ensure correct analyses of the wall measurement sheet or the ADS interfaces in the List generator, the Article catalog (Catalogs - General) must include the PasFla* and PasFlH* articles (see illustration below).

Note: This change only applies to the lists in the default folder, having no effect on customer-specific lists.

Note: Delete the old PasFl1 (or PasFla5 [depending on the name]) and PasFl2 (or PasFla10 [depending on the name]) articles (unless you insert the two new articles before the old ones).
Catalogs and configurations for iWall

We moved the Reinforcement type catalog and the Connecting element catalog from the General group into the new iWall group (Catalogs - Wall). These two catalogs only apply to walls implemented based on multilayer walls.

Note: We have not yet adapted the Wall Element Design tool to the new names for iWall. We will do this in the next version.

The General group now includes the Joint section catalog only, which applies both to walls designed using iWall and to conventional wall panels (sandwich wall, concrete wall, ...).

In addition, we changed the names (new) to (iWall) in the Configurations - Wall programs. This applies to wall types implemented based on multilayer walls.
Element Plan

Layout catalog

Openings in structural precast elements, iParts

Recesses entered with Model Precast Elements can be marked with a separate symbol in structural precast elements, iParts.

To mark the recesses in a view, select the Recesses option in the Symbols in drawing area on the Symbols tab in the Layout catalog (Catalogs - General).

Select this option if you want to mark recesses separately in the corresponding view.

Marking is based on the following rules:

- Recess passes completely through the precast element ➞ two continuous lines (cross)
- Recess intersects the precast element only so that this intersection is visible ➞ one continuous line
- Recess intersects the precast element only so that this intersection is hidden ➞ one dashed line

To dimension the recesses of a view or section using separate dimension lines, select the Recesses option in the Geometry area on the Dimensioning tab in the Layout catalog (Catalogs - General).

When you select the Recesses option, you can choose between Dimension together and Dimension separately, thus defining whether you want to dimension the recesses using a common dimension line or separate dimension lines.

When you choose to create recess dimension lines, PLANBAR does not include the dimensions of the recesses when dimensioning the panel edge.

Opening numbers for smart symbols in table

To make it easier to assign the smart symbols to the openings, you can now list the smart symbol together with the number of the opening in the element plan.
To do this, select the new **Include opening number** option in the **Smart opening symbols** area on the Table II tab in the properties of the Table in the element plan (Catalogs - General - Layout catalog).

In addition, you can use the new **Number openings** option in the **Other settings** area in the properties of an element plan (Catalogs - General - Layout catalog) to specify whether you want to number the openings in **ascending** order or **combine** identical openings.

**Dimensioning the panel edge for visible and hidden points**

You can select the new **Dimension hidden edges separately** option for **Dimension panel edge, recesses** in the **Geometry** area on the **Dimensioning** tab in the properties of a View or Section (Catalogs - General - Layout catalog).

When you select this new option, PLANBAR creates two dimension lines for the relevant side of the view or section (provided there are visible and hidden points).

**Listing volume and weight separately in table**

You can now switch the weight of an element on and off (Include weight check box) independently of the panel volume (Include panel volume check box) in the General area on the Table I tab in the properties of a Table (Catalogs - General - Layout catalog).

Earlier versions only provided the common **Include panel volume** check box, which also included the weight.

Note: The two separate Include panel volume and Include weight check boxes are now also available for Editing elements in the Configurations - General - Edit element - Table tab.

**Additional offset for clipping path**

You can set an **Additional offset for clipping path** in the Horizontal dim. lines, Vertical dim. lines and Inclined dim. lines at outer edges areas on the Dim. lines tab in the Properties of a view or section (Catalogs - General - Layout catalog).

The additional offset used to be a fixed value of 10 mm, which is now proposed as the default value.

By changing this value, you can change the distance between the section object and the dimension line.
For example: Distance between view and dimension line = 10 mm and Additional offset for clipping path = 25 mm and scale of element plan = 1:25 \( \Rightarrow (10 \text{ mm} + 25 \text{ mm}) \times 25 = 875 \text{ mm} \).

The program only applies this new parameter when you have selected the Display option for the current view or section in the Clipping path area on the Clipping path tab. The same applied to the former, fixed offset of 10 mm.

If the reinforcement displayed is within the min-max box defined by the Distance between view and dimension line and Additional offset for clipping path parameters, the program does not place anything in the area enlarged by the Additional offset for clipping path parameter.

If the reinforcement projects beyond the min-max box defined by the Distance between view and dimension line and Additional offset for clipping path parameters, the program ignores the Additional offset for clipping path parameter.

**Maximum number of columns for element plan table**

In earlier versions, the element plan table always had up to two columns. This was the maximum, which was defined by the Table width parameter in the Options area on the Table tab (Catalogs - General - Layout catalog).

If the table included many bars, these bars were very small, as the program output all schemas in two columns.

This limit of two columns no longer exists. Now the program uses the entire width of the table.

If two columns are not sufficient, the program will create a third column (provided there is enough space). If three columns are not sufficient, the program will create a fourth column and so on.

The program does not reduce the contents of the columns until the entire table width is filled with columns but there are still elements to be listed.

**Table for visible side and invisible side**

The element table usually lists the types of reinforcement (General basic reinforcement, Standard girders, Secondary bars, Girders and so on) in separate sections. In doing so, the program generates a separate section with the heading (Wall –) Visible or (Wall –) Invisible for each type of reinforcement.
You can also combine some or all sections in the table by defining the same **Sequence in table** for types of reinforcement. But the heading (Wall -) Visible or (Wall -) Invisible repeats in each section.

<table>
<thead>
<tr>
<th>CoG: C30/37</th>
</tr>
</thead>
<tbody>
<tr>
<td>d = 36.0 cm</td>
</tr>
<tr>
<td>Ar = 13.30 m²</td>
</tr>
<tr>
<td>Vol = 47.9 m³</td>
</tr>
<tr>
<td>Wei = 11.97 t</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wall - Visible:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rei : TW-8/20</td>
</tr>
<tr>
<td>c : 2.0 cm</td>
</tr>
<tr>
<td>as L+: 2.53 cm²/m</td>
</tr>
<tr>
<td>as T+: 2.53 cm²/m</td>
</tr>
<tr>
<td>L+ : 27 d 8/20-246</td>
</tr>
<tr>
<td>T+ : 13 d 8/20-528</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wall - Invisible:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rei : TW-8/20</td>
</tr>
<tr>
<td>c : 2.0 cm</td>
</tr>
<tr>
<td>as L+: 2.53 cm²/m</td>
</tr>
<tr>
<td>as T+: 2.53 cm²/m</td>
</tr>
<tr>
<td>L+ : 27 d 8/20-246</td>
</tr>
<tr>
<td>T+ : 13 d 8/20-528</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Visible:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x 1 W30 8/5/5-136</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Invisible:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x 1 W16 8/5/5-250</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Visible:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x 2 d 12/5-245</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Invisible:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x 3 d 12/5-245</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SC2 1x</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 d 10/10-100</td>
</tr>
<tr>
<td>8 d 12-251</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Visible:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x 188A:100x100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Invisible:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x 188A:100x100</td>
</tr>
</tbody>
</table>

In addition to the table structure, you can now combine the sections of the visible and invisible sides without headings.

To do this, select the new **Sort by layer** option in the Contents of “page” area on the Table tab (**Catalogs - General - Layout catalog**).

After this, open the Table I and Table II tabs and enter the same **Sequence in table** for all sections you want to combine.
Consequently, you can find the heading (Wall -) Visible or (Wall -) Invisible just once in each section.

You can output the shortest table by assigning the same Sequence in table to all sections. This reduces the heading to Visible or Invisible, which is followed by the reinforcement.

```
<table>
<thead>
<tr>
<th>CoG: C30/37</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>d : 36.0 cm</td>
<td></td>
</tr>
<tr>
<td>Ar : 13.30 m^2</td>
<td></td>
</tr>
<tr>
<td>Vol : 4.79 m^3</td>
<td></td>
</tr>
<tr>
<td>Wei: 11.97 to</td>
<td></td>
</tr>
</tbody>
</table>

Wall - Visible:
Rei : TW-B/20
| c : 2.0 cm |
| as L+ : 2.53 cm^2/m |
| as T+ : 2.53 cm^2/m |
| L+ : 27 d 8/20-246 |
| T+ : 13 d 8/20-528 |
4 1x 2 d 12/5-527

Wall - Invisible:
Rei : TW-B/20
| c : 2.0 cm |
| as L+ : 2.53 cm^2/m |
| as T+ : 2.53 cm^2/m |
| L+ : 27 d 8/20-246 |
| T+ : 13 d 8/20-528 |
3 1x 3 d 12/5-245

Visible:
2 1x 1 W30 8/5/5-136

Invisible:
1 1x 1 W16 B/5/5-250
```

```
<table>
<thead>
<tr>
<th>CoG: C30/37</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>d : 36.0 cm</td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>Vol : 4.79 m^3</td>
<td></td>
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<tr>
<td>Wei: 11.97 to</td>
<td></td>
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</tbody>
</table>

Wall - Visible:
Rei : TW-B/20
| c : 2.0 cm |
| as L+ : 2.53 cm^2/m |
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Wall - Invisible:
Rei : TW-B/20
| c : 2.0 cm |
| as L+ : 2.53 cm^2/m |
| as T+ : 2.53 cm^2/m |
| L+ : 27 d 8/20-246 |
| T+ : 13 d 8/20-528 |
3 1x 3 d 12/5-245

Visible:
1 1x Q188A:100x100

Invisible:
1 1x Q188A:100x100
```

Name of element plan

You can now find the name of the open element plan on the context toolbar of the Element Plan tool.
Auto-reorganizing local mark numbers

You can find the new Auto-reorganize local mark numbers option for Element plans in the Configurations - General - Program sequence.

When you select this option and the Manually option is selected for the Local mark number parameter of the precast element in the configuration of the Element type (Entry - Element plan), PLANBAR reorganizes the local mark numbers for the elements. This has an effect on the Element Plan in Batch Run and the Export TIM Data tools.

Note: This is the same as if you selected the Reorganize local mark numbers option for Update Element Plan before printing the element plan or transferring the elements to TIM.

Creating new element plan while keeping the labels for reinforcement, fixtures and section objects

Using Create New Element Plan, you can now keep changes made manually (for example, labels, mark numbers, partial schemas, fixture labels and so on) to an element plan created automatically.

PLANBAR copies the views of the original element plan to the new element plan, arranging everything appropriately.

Creating a new element plan can be useful when modifications have caused the views and sections in the original element plan to be too close together. When creating a new element plan, PLANBAR places the views and sections so that there is enough space between them.

PLANBAR transfers any manual additions, such as labels, to the new element plan.

You can find three new options for creating a new element plan:

- Delete reinforcement label
- Delete fixture label
- Delete section object
If you do not select these options, PLANBAR keeps the manual labels of reinforcement and fixtures and the manual modifications of section objects, transferring everything to the new element plan.

**Including reinforcement for multilayer wall in table**

If an opening, niche, ... divides the leaf of a wall created with ![Wall Element Design](image) into several parts, the element plan table now lists the reinforcement separately for each part.

**Additional prompt**

When you switch on Selection with Mark Number on/off for selecting the element plan for structural precast elements, iParts or precast elements, PLANBAR issues an additional prompt when you enter a mark number that is used by different element types (for example, column mark 1, slab mark 1).

In this case, you can select the element type in a new dialog box.
Sorting elements in the printout for element plan in batch run

Element Plan in Batch Run has always sorted the elements by type (that is to say, all concrete walls come first, then all double walls and so on).

You can now use the new Sorting setting in the new Other settings area to define whether you want to sort the elements in the printout as usual by element type (for example, double wall mark 1, double wall mark 3, concrete wall mark 2, concrete wall mark 4, ...) or whether you want to use the new by mark number option (for example, double wall mark 1, concrete wall mark 2, double wall mark 3, concrete wall mark 4, ...).

Collision check for connecting elements

We renamed the Collision Check tool you can find in Element Plan and in Edit Element. Its new name is Collision check for connecting elements.

Earlier versions only checked collisions between connecting elements and reinforcing bars and collisions between connecting elements and connecting elements. Now PLANBAR also checks collisions between connecting elements and other symbol fixtures, issuing appropriate messages.

Note: You can also use this tool with the new Composite sheeting wall design type.

Secondary meshes of any shape

Element Plan and Edit Element include the Secondary Reinforcement tool, which includes the Secondary meshes of any shape tool with the two Create bent-up meshes and Place bent-up meshes tools. These tools now work just like the corresponding tools in Engineering.
Bar projection for niches in double walls

This applies to niches in walls of the double wall or concrete wall type created with the Design tool. PLANBAR now includes the bar projection for niches that do not pass through the entire leaf thickness. You can define the bar projection using Modify Recesses or Configurations - Wall programs - Double wall or Concrete wall - Entry - Opening reinforcement - Various tab.

Attached Reinforcement

Labels of secondary reinforcement in placing drawings

PLANBAR keeps the labels of secondary reinforcement in placing drawings. In particular, this applies to secondary reinforcement you create using the Mesh Welding System Editor or Reinforcement in MWS Grid tool.

Moving secondary bars automatically

The program tries to move all secondary bars that are in transverse direction in the first layer and below lattice girders to free grid positions so that they can be welded there. Bars for which the program cannot find free positions become loose bars, remaining in transverse direction in the first layer.

Using the new version, you can still weld these secondary bars (that is, bars that are in transverse direction in the first layer and below lattice girders) in a free grid position of the MWS mesh. However, this is only possible when the diameter of these bars is smaller than or equal to the diameter of the basic reinforcing bars.

If the diameter of these secondary bars is greater than the diameter of the basic reinforcing bars, the secondary bars remain loose bars and the program will place them above the longitudinal bars of the second layer.
Note: If you have selected the Two bar diameters for basic mesh option on the 0° bars 3 tab in the Configurations - General - Attached reinforcement - Grid - Bars, the two diameters of basic reinforcing bars are also valid for secondary bars in the direction of cross bars.

To use this new variant, you can find the new Non-weldable bars transverse to lattice girders - Include in lattice girders option on the General tab of Basic slab reinforcement and on the General tab of Basic wall reinforcement.

When you select this option, the program places the cross bars on the longitudinal bars if the diameter of the cross bars is greater than the diameter of the basic cross reinforcing bars.

New features for the MWS editor

Moving lattice girders manually in the editor

You can now move lattice girders manually in the Mesh Welding System Editor.

By doing so, you can avoid collisions with bars in grid positions, thus preventing loose bars.

Select one ore more lattice girders in the editor and move the lattice girders manually or open the shortcut menu, select Move and enter the required value for the move.

The program now displays the axes of lattice girders, making it easier for you to select the lattice girders. You can show and hide these axes using View - Lattice girder axes.

When you exit the MWS editor, PLANBAR also moves the relevant girders to their new positions.

So that the program does not move these lattice girders back to their original positions when you update the element geometry or the reinforcement, you can use the Status Admin tool to set the 'Update basic girders automatically’ locked locking state.

After having set this locking state, you will see the following warning when you update data:
When you open the relevant element in the MWS editor again, make changes and then close the editor, you will see the following message:

![Image of message]

Decide what to do.

**Moving reinforcement in the MWS grid in the editor**

The Mesh Welding System Editor now includes the Reinforcement in MWS Grid tool.

You can use this tool to move bars, which you added to or moved in the editor, into the MWS grid.

Using Edit - Customize, you can assign a shortcut key to the Reinforcement in MWS Grid tool.

**Favorites for colors in the editor**

You can save the colors you want to use to display the element geometry, bars, ... in the Mesh Welding System Editor tool as favorites. To do this, select Edit - Colors... and save the required colors as favorites (Save as a favorite) or load favorites you have already saved (Load favorite).

**Assembly bars for smart symbols**

You can now create assembly bars for smart architectural symbols, regardless of the settings in Configurations - General - Attached reinforcement - Assembly bars - General.

Consequently, you can now create assembly bars for smart symbols (for example, smart symbols for recesses) even though assembly bars are switched off in the Configurations.

To do this, you can find the new option for creating assembly bars on the Reinforcement tab in the Fixture catalog (Catalogs - General).
Note: You can only select this new option when the Use as a smart architectural symbol option is selected on the General tab in the Fixture catalog. Otherwise, this option is grayed out and set to Assembly bars = Acc. to configuration.

The new Assembly bars option includes the No, 0° and 90° and Acc. to configuration settings.

- The default setting is Assembly bars = Acc. to configuration.
- When you select No, the program never creates assembly bars, regardless of the setting in the configurations or dialog boxes.
- When you select 0° and 90°, the program always creates assembly bars (provided they are required).

So that you are aware of this new option, we added the following note to the configurations and dialog boxes: Attention: This can be overridden by smart symbols in the fixture catalog!
Precast Slab

Designing roof elements

We added a note to the Design of roof elements.

- When you click Properties in the Design Placing Region dialog box and set the Type to Roof elements, the program prompts you to Click a plane. If you do not click within a roof frame, you will see the following note:

```
Slab element design

You have created roof elements without clicking in a valid plane!
So the slope could not be calculated!

OK  Cancel

Suppress message until program exit
```

We enhanced the Modify Design tool for roof elements:

- You can change Roof elements to Slab elements if the slope of the roof frame is 0°.
- You can only change roof elements to slab elements when the elements are not sloping. Therefore, we added the following message:

```
Slab element design

Sloping roof elements cannot be converted to slab elements or balcony elements!

OK
```
Additional component 3 for supports

When defining the support conditions, you can now specify the additional Component 3 for all slab types except half floor and suspended brick slab.

Bear in mind that you cannot make any default settings for Component 3 in the Panel type catalog of the relevant slab type!

Like the two other components, the new Component 3 is taken into account by the Match parameters tool and the Load favorite and Save as a favorite tools.

Placing parameters for components at the support

When you selected the In specific hollow blocks or Below specific webs input option for components at the support, the program always placed the components from the first hollow block or web of the relevant panel edge.

Now the program places the components from the first hollow block or web of the entire panel.
New wall type – composite sheeting wall

The Wall Element Design tool provides the new composite sheeting wall type in addition to concrete wall, double wall, sandwich wall and thermal wall.

The composite sheeting wall is an alternative to double wall systems and cavity wall systems in reinforced concrete construction. A composite sheeting wall consists of in-situ concrete with ready-made, permanent shuttering. The shuttering (cement low-density fiber boards) remains in the wall after concreting (permanent shuttering).

The composite panel results from the wall shuttering elements. The wall shuttering elements are joined by connectors in the production plant. These connectors are placed so that you cannot see any fastening elements for the connectors on the visible side of the shuttering.

If required, the composite panel gets reinforcement of one or two layers directly in the production plant. In addition, all fixtures (sockets and so on) will be installed in the production plant.

When everything is ready, the wall elements will be transported to the building site and erected there. Some reinforcement work (for example, starter bars) may still be necessary.

Finally, the composite panel will be concreted using self-compacting concrete. This ensures the final load-bearing capacity of the structure. The walls and the slab form a solid structure without joints.
The dialog boxes and configurations are almost exactly the same as those of the other design modes. However, we removed some parameters that are not useful for this new wall type.

**Catalogs and configurations for composite sheeting wall**

You can enter the material of the visible leaf and invisible leaf in the Insulation material catalog ([Catalogs - General](#)).

**Note:** As it is currently not possible to place panels individually in the two leaves, you can ignore the parameters for defining the Length and Width of an insulating board in the Insulation material catalog ([Catalogs - General](#)).

You can enter the reinforcement of the composite sheeting wall in the Reinforcement type catalog ([Catalogs - Wall - iWall](#)).

The [Configurations - Wall programs](#) include entries for the new composite sheeting wall (iWall) design mode you can create with the Wall Element Design tool.
Except for the following changes, the contents of this new configuration match those of the other wall types:

- As you cannot create surfaces for composite sheeting walls, the Parameters tab does not include the Create surface(s) as definition (Composite sheeting wall (iWall) - Entry - Design).
  The Weight calculation tab is not available either. PLANBAR always calculates the weight for the new composite sheeting wall (iWall) design mode from the weight of the two leaves and reinforcement in in-situ concrete. If you want, you can include the weight of the fixtures (connectors).

- The settings for BIM Booster are not available in Composite sheeting wall (iWall) - Entry.

- The Cutting waste for lattice girders setting is not available on the General tab for Invoicing in Composite sheeting wall (iWall) - Entry.

- The Lattice girders settings are not available in Composite sheeting wall (iWall) - Calculation.

- The settings on the Secondary girders tab are not available in Composite sheeting wall (iWall) - Calculation - Secondary reinforcement.

Note: We recommend that you use favorites instead of configurations!

**Changes in the dialog boxes for composite sheeting wall**

We adapted the dialog boxes to include the new composite sheeting wall design mode:

- When defining the Design Type, you cannot enter Concrete strips on the Layer adjustments, concrete strips, openings tab. You cannot enter Surfaces or Formwork attributes on the Attributes tab. The other tabs have not changed.

- When defining Connections, you can find special connections for the composite sheeting wall design mode on the General tab. The connections include the new Shutters area, where you can create one or more additional shutters depending on the connection selected.
  For each shutter, you can define the Offset at bottom and Offset at top. This is useful for recesses in the area of the shutter.
In addition, you can select a linear Fixture for the shutter (provided you want to analyze the shutter in lists or transfer the shutter to production).

- When defining Divisions, you can find the same parameters as for the other wall types on the Division parameters tab.
- We changed the tabs of Basic reinforcement,... as follows:
  - When you open the Basic reinforcement tab, you can enter reinforcement in In-situ concrete only. The names of the two reinforcement units are Visible (on the side of the design identifier) and Invisible.
  - When you open the Reinforcement of openings tab, you find the same parameters as for the other design modes.
  - When you open the Lattice girders, connection elements tab and define the Connection type, you can only choose between None and Wall connector.

To connect the leaves with fixtures, PLANBAR 2019 comes with an algorithm that analyzes the outlines of the leaves, the outlines of the openings, the edge offsets and the axis offsets. PLANBAR places the fixtures based on the result of this calculation.

Select the fixture you need. Specify whether you want to take the fixture from the Allplan office path, the Allplan project path, the Allplan private path, a Manufacturer catalog or an Article catalog. For the first three options, specify the File and Entry, and for the other two options, the Manufacturer, Class, Subclass and the Article.

Finally, define the Edge offset and Grid spacing values for the Vertical axes and Horizontal axes and the parameters for the Openings in a dialog box.

Tip: When designing a composite sheathing wall, you will find that the weight of the wall connectors (= fixtures) is considerably high in relation to the precast wall layers (cement low-density fiber boards). Therefore, the weight of the wall connectors has an effect on the centers of gravity of the precast wall layers. To take this into account, you can configure PLANBAR to include the connectors when calculating the total weight of the wall or when finding the center of gravity of the overall wall or of the individual wall layers.
To do this, create an entry for the wall connectors in the Fixture catalog (Catalogs - General). After you have created this entry, select the Consider weight check box for the fixture on the General tab and enter the total weight of the connectors.

- Other tabs are not available for the composite sheeting wall.

**Modifying the composite sheeting wall**

To modify the composite sheeting wall type, you can use the Modify Wall in View tool, which provides the two Split wall element and Join wall element tools (in Modify wall element geometry).

The other tools of Modify Wall in View are not available for this wall type.

**Production data for composite sheeting wall**

The identifier for Leaf 1 on side is positioned on the Visible side (= side of design identifier). You can also place this identifier on the opposite side or leaf of the wall.

You can output a separate list for the panels created together with the connections.

**Wall element design in general**

**Thermal wall**

We reworked the from insulating board width algorithm for the axis offset option on the Lattice girders, connecting elements tab in Wall Element Design - Basic reinforcement ,...

Changes on the 'Lattice girders, connecting elements' tab

Note: To use this option for calculations, select the Define dimensions option for the insulation material and define the parameters on the Placement tab in the Insulation material catalog (Catalogs - General).

This algorithm calculates the distance between the axes of the lattice girders based on the insulating boards placed. Therefore, you do not need to enter this distance.
After having selected the from insulating board width option, you can use edge offset differs to specify whether the edge offset to the two element sides is the same or not.

- If you do not select the edge offset differs option, enter the edge offset to be applied to both sides.
- If you select the edge offset differs option, enter the edge offset at start and edge offset at end separately.

Note: The actual edge offset can differ from the values defined here if the settings in the Edge offset area in the More lattice girders parameters dialog box result in different values.

The edge offset to openings, girder projection at top, girder projection at bottom, include in design and rotate lattice girders parameters are identical to the algorithm for the axis offset option = input value.

The More lattice girders parameters dialog box now includes the new cut lattice girders for small openings option.
You can use this option to specify whether you want PLANBAR to cut the lattice girders for small openings too, that is to say, openings that do not get reinforcement for trimming. You define the dimensions using lattice girders from height and lattice girders from width. This new option is off by default.

In addition, you can find the new option for fitted panels. Using this new option, you can specify whether you want PLANBAR to create the fitted panels at the start or at the end, that is to say, as the second panel or as the next to last panel respectively.

This new algorithm does not expect you to enter intermediate girders.

Note: The three new options (edge offset differs, fitted panels and cut lattice girders for small openings) are also available for the axis offset option = input value.

Changes on the ‘Insulation’ tab

You must define the following parameters when you select the from insulating board width option on the Lattice girders, connecting elements tab and the Create insulating boards option on the Insulation tab.

Note: The settings for the placing angle and the parameters for count number of rows are not available. In this case, the placing angle is always 90° and count number of rows is always set to 1. Therefore, you do not need to enter anything.
To specify the number of panels, you can select the half panel rule or panels of minimum length option as usual.

The familiar recesses in panel ok option is also available.

After this, you can find the new do not place in area with lattice girders option. When you select this check box, you can enter the width of this area.

Creating insulating boards

PLANBAR starts to create the insulating boards for the girders at the edges. When you select the do not place in area with lattice girders option, the width of the insulating board is edge offset - half the width of the area. When this option is not selected, PLANBAR uses the edge offset set.

If the width of the insulating board is smaller or greater than the width specified in the insulation material catalog, PLANBAR will issue a warning.

Next, PLANBAR creates the insulating boards for the lattice girders adjacent to the openings. Here, too, PLANBAR takes the do not place in area with lattice girders option into account.

Openings that are smaller than or equal to the values set for lattice girders from height, width in the More lattice girders parameters dialog box will be ignored.

Do not forget that the lattice girders will be cut at these small openings (provided you have selected the cut lattice girders for small openings option).

Finally, PLANBAR creates the insulating boards and lattice girders in the other areas, taking the do not place in area with lattice girders option into account.

Insulation areas

Like the Input value axis offset option, the Insulation areas option in Surfaces, concrete areas, insulation areas and areas for facing layers of the Modify Wall in View tool allows you to create areas with different insulation, modify or delete insulation areas or change the starting point for placements.

Designing PythonParts and 3D solids

Like the new Precast Element design mode (see below), the Wall Element Design tool now handles PythonParts and 3D solids in addition to architectural walls and user-defined architectural elements.
Automatic openings in user-defined architectural elements, PythonParts and 3D solids

Like the new Precast Element design mode (see below), the Wall Element Design tool now provides the additional Automatic openings in user-defined architectural elements area with the Create option for user-defined architectural elements, PythonParts and 3D solids.

When you select this option, PLANBAR automatically creates openings in user-defined architectural elements. These openings replace the architectural openings (windows, doors and so on). Like architectural openings, openings in user-defined architectural elements can be analyzed or included in automatic features.

Reference points and design identifiers for user-defined architectural elements, PythonParts and 3D solids

The reference point and design identifier of a user-defined architectural element, PythonPart or 3D solid are always in the same place in Wall Element Design.

Basic reinforcement in table

When you changed the basic reinforcement of multilayer wall systems created with Wall Element Design manually or using the Mesh Welding System Editor tool, these changes had no effect on the reinforcement listed in the element plan table or on the Design list - wall (iWall) created by List Generator.

Now PLANBAR updates the reinforcement data of these walls systems as described below.

Note: Activate the basic reinforcement by selecting Activate, passivate basic reinforcement in view or plan.

Some examples:

- You move one or more longitudinal bars or cross bars without changing the total number of bars this has no effect on the list or the actual as-value
• You delete a longitudinal bar without changing the spacing ➔ this has an effect on the number of bars, the spacing and the actual as-value.
  First:  \( L^*: 13 \, d \, 8/20-246, \) 
  \( \text{as } L^*: 2.53 \, \text{cm}^2/\text{m} \) 
  Then:  \( L^*: 12 \, d \, 8/22-246, \) 
  \( \text{as } L^*: 2.46 \, \text{cm}^2/\text{m} \)

• You change the longitudinal bars from d8 to d12 ➔ this has an effect on the list and the actual as-value.
  First:  \( L^*: 13 \, d \, 8/20-246, \) 
  \( \text{as } L^*: 2.53 \, \text{cm}^2/\text{m} \) 
  Then:  \( L^*: 13 \, d \, 12/20-246 \) 
  \( \text{as } L^*: 5.65 \, \text{cm}^2/\text{m} \)

If the bars cannot be spaced evenly due to manual changes, the reinforcement list in the element plan table and the design list include the text \( ^*\text{var}^* \) instead of the spacing value.
In addition, the actual as-value gets the text \( ^*\text{var}^* \).

Normally, PLANBAR calculates the as-value of a placement by dividing as-diameter by spacing. If the spacing is not specified or if the spacing is indicated by \( ^*\text{var}^* \), PLANBAR calculates the as-value of a placement as follows: as-diameter multiplied by number of bars divided by placement width. The placement width is always the leaf width of the placement.

• You add two longitudinal bars of d10 ➔ this has an effect on the list and the actual as-value.
  First:  \( L^*: 12 \, d \, 8/32-246, \) 
  \( L^*: 13 \, d \, 10/32-246, \) 
  \( \text{as } L^*: 4.03 \, \text{cm}^2/\text{m} \) 
  Then:  \( L^*: 12 \, d \, 8/32-246 \) 
  \( L^*: 15 \, d \, 10/^*\text{var}^*-246 \) 
  \( \text{as } L^*: 4.52 \, \text{cm}^2/\text{m} \, ^*\text{var}^* \)

• You delete four longitudinal bars of d6 ➔ this has an effect on the list and the actual as-value
  First:  \( L^*: 29 \, d \, 6/14-246, \) 
  \( \text{as } L^*: 2.02 \, \text{cm}^2/\text{m} \) 
  Then:  \( L^*: 25 \, d \, 6/^*\text{var}^*-246, \) 
  \( \text{as } L^*: 1.77 \, \text{cm}^2/\text{m} \, ^*\text{var}^* \)

Note: PLANBAR does not issue a message if the actual as-value falls below the required as-value.
A placement also gets the text \texttt{*var*} if its edge offsets are greater than two times the spacing. For example, think of a placement that covers a part of the precast element only.

**Steel grade for reinforcement**

When you define \texttt{Basic reinforcement,...} for multilayer wall systems and select the Automatic or Locked option for Calculation of reinforcement, the program proposes the Like default setting entry for the Steel grade in the Override automation and Lock reinforcement dialog boxes.

The program analyzes the entries in the Steel grades area as usual. In earlier versions, these fields were empty so that you could not see at a glance what was assigned.

**GStk variable for text below the mark number**

You can now use the GStk (= number of lattice girders) variable in text below the mark number for multilayer wall systems too.

**Position of lattice girders in loose reinforcement**

You can now define the position of lattice girders for multilayer wall systems created with \texttt{Wall Element Design}. To do this, select \texttt{Basic reinforcement,...}, open the Basic reinforcement tab and select the Loose option for the Reinforcement type parameter.

\textbf{Note}: This new option is only available for the loose reinforcement type. You cannot use this option with the attached reinforcement type. In this case, PLANBAR always places the lattice girders above the cross bars.

To set this new option, switch to the Lattice girders, connecting elements tab and open the More lattice girder parameters dialog box. Go to Position of lattice girders and select above 1st cross bar layer (as usual) or with 1st longitudinal bar layer.

If you want to use this new option for creating production data, you must change the settings accordingly. Should you have any questions, please contact Technical Support.
Creating cast-in nuts

When you define Basic reinforcement, for multilayer wall systems created with Wall Element Design, you can now select more than two entries on the Cast-in nuts tab, which is now in line with the Lifting bolts tab.

Consequently, you can use different fixtures for different wall heights without having to select the appropriate fixtures again and again.

This reduces the risk of selecting the wrong fixture or setting the wrong parameters.

We adapted the settings as follows:

- We removed the line for Number of definitions. Instead, we turned the Parameters for cast-in nuts area into a collection editor with any number of columns, which now works just like the Definition of lifting bolts area for defining lifting bolts.

- The new collection editor provides two additional parameters - Use from height and Use to height - for each column so that you can define the parameters in relation to the height.

- In addition, we removed the Wall height ≤ limit height and Wall height > Limit height entries and the Limit height parameter from the More parameters for cast-in nuts dialog box. Instead, there is just one parameter - Calculate height - you can use to define how to calculate the cast-in nuts.

Note: When converting data, the program divides one column of the old entries automatically into two columns, entering the corresponding values for the Use from height and Use to height parameters. The first column is valid from 0 (>) up to the Limit height (≤), which used to be defined in the More parameters for cast-in nuts dialog box. The second column is valid from this height (>) up to 999 m (≤).

As usual, the program always creates all cast-in nuts that fulfill a criterion set. Make sure the limits are entered correctly.

Depending on how you enter the heights, the program returns the following results:
For example, enter heights as follows:

<table>
<thead>
<tr>
<th>'From height'</th>
<th>'To height'</th>
<th>'Height' (for installation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>999</td>
</tr>
</tbody>
</table>

The cast-in nuts will be used for a specific range only. From 0 m to 3 m → entry 1; from 3.01 m to 5 m → entry 2 and so on. Bear in mind that the program will not install a cast-in nut if the wall height ranges from 3 m to 4 m. So, check that the entries in the table are consistent.

For example, define a sequence:

<table>
<thead>
<tr>
<th>'From height'</th>
<th>'To height'</th>
<th>'Height' (for installation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>999</td>
</tr>
</tbody>
</table>

When you enter an element that is 4.1 m high, the program will create all cast-in nuts within the defined ranges from 2 m to 5 m and 4 m to 7 m. The cast-in nut of the height ranging from 4 m to 7 m is beyond the element height at 4.2 m and cannot be created.

But if the element is 8 m high, the program will create all cast-in nuts within the defined range from 7 m to 999 m.

For example, you can configure the program to create cast-in nuts up to a height of 12 m as follows:

<table>
<thead>
<tr>
<th>'From height'</th>
<th>'To height'</th>
<th>'Height' (for installation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>12</td>
</tr>
</tbody>
</table>

If the element is 3.8 m high, the program will create the cast-in nuts at 2 m only. If the element is 4.20 m high, the program will create the cast-in nuts at 2 m and 4 m. If the element is 6.5 m high, the program will create the cast-in nuts at 2 m, 4 m, 6 m and 6.2 m and so on.
Furthermore, the Calculate height parameter provides a new option. In addition to the familiar Based on fixed height and As a % of wall height options, you can select the new As a % of layer height options.

When you select this new option, the program calculates the height of the cast-in nuts using the layer height or leaf height. When you select the As a % of wall height option, the program uses the height of the entire wall to calculate the height of the cast-in nuts.

This new option is useful if the leaf heights differ only slightly due to an upstand, for example. Unlike the As a % of wall height option, this new option still produces valid results. However, we recommend that you do not use this new option if the layer heights differ greatly. The results will not be checked by the program.
Structural Precast Elements, iParts, Precast Element

New design mode - precast element

Using the new 📚 Precast Element tool, you can create freely definable precast elements.

Compared with the old 📚 Structural Precast Element tool, the new tool provides the following additional options:

- You can define element types with one or more layers in a catalog and design these element types afterwards.
- You can define slab elements, wall elements and structural precast elements as element types.
- Like 🏦 Wall Element Design, this new tool can use an architectural wall, a user-defined architectural element, a PythonPart or a 3D solid as the basis for design.

Using the 📚 IFC Assistant tool, you can prepare heterogeneous 3D data of different types (for example, a multilayer wall) so that you can use 📚 Precast Element for the design afterwards.

You can model the precast elements using 🇬 📚 Model Precast Elements or create shaped fixtures.

You can place fixtures, reinforcement from the engineering modules and secondary reinforcement.

In addition, you can use various other tools like 🏦 Element Plan, 📚 Rearrange Marks or 📚 MEP Assistant or the tools of BIM Booster.

Catalogs, configurations

Before you can use the different precast elements, you must define them in the new Element type catalog (📚 Catalogs - Precast elements).

On the General tab, enter a unique Name and a short Description of the precast element.
Use **Basic type** to specify whether the precast element you are defining is a slab, wall or **structural precast element**. This defines the parameters for invoicing and the invoicing list to be used for the precast element.

Depending on the **Basic type** set, the program processes the precast elements in the lists, sorting and listing them in accordance with their names in the catalog.

In addition, you define the **Product code for ERP system and production**. PLANBAR always proposes 08 = structural precast element.

To open the configuration for the element, click **Configuration for element creation** on the **General** tab. The configuration includes general defaults for Design, Labeling, Additional attributes, Element plan and BIM Booster.

The parameters are similar to those in **Wall Element Design**. However, we removed some parameters that are not useful for this new design mode.

You can select a **Symbol** for the **Element type** on the **Symbols** tab of Labeling. PLANBAR uses the 2D or 3D symbol from the library as the element identifier, displaying it with the element.

Define the structure of the precast element on the **Layers** tab. PLANBAR proposes an element with one layer (layer name = concrete layer and layer type = concrete layer).

You can use the following icons to edit the entries on this tab, to add or delete lines or to change the sequence of the lines (layers):

- ![Edit line](image)
- ![Insert new line](image)
- ![Delete selected line](image)
- ![Bring selected line to front](image)
- ![Send selected line to back](image)

To make changes, click ![Edit line](image). You can enter any name for the **layer name** and define the **layer type**. The following materials are available: concrete layer, insulating layer and in-situ concrete layer.

Depending on the material selected, PLANBAR opens the Concrete grade catalog or Insulation material catalog so that you can select the material during design.

Using the **Dimensions** tab, you define which values you want to assign to the attributes for the dimensions. You can set them freely.
However, each attribute or local dimension can be selected just once. Start by defining the Dimension in viewing direction, Dimension in span direction and Dimension transverse to span direction. To do this, you can use the Length, Width, Thickness and Height attributes.

In addition, you must set the Local dimensions of the element. To do this, you can use the X-dimension, Y-dimension and Z-dimension attributes.

**Precast Elements module**

We renamed the Structural Precast Elements module. Its new name is Precast Elements. In addition, we added the Precast Element tool.

To create an element, select the Precast Element tool and click the required architectural wall, user-defined architectural element, PythonPart or 3D solid.

You can enter the parameters in a palette with three tabs: Element type, layers, Attributes and Invoicing.

In addition, the palette includes the following tools: Match parameters (attributes), Reset input parameters, Load favorite and Save as a favorite.

Favorites of precast elements end in *.precastEL_xxx.

You set the Factory on the Element type, layers tab. Use Element type to select one of the types defined in the catalog.

Go to the Alignment area and define the Span direction, Viewing direction and Reference point of the precast element.

When creating the precast element, PLANBAR proposes the Reference point and Viewing direction, but you can change these settings. The viewing direction proposed depends on the largest area; the reference point is set to bottom left.

The buttons (Enter angle in plan, Enter based on two points, ...) work just like the buttons for structural precast elements.

Using the entries in the Dimensions area, you can manually override the dimensions of the precast element (not of a single layer!) calculated automatically by the program.

When the Manual check box is not selected, the dimensions calculated by the program are grayed out. In this case, the program uses these dimensions for the attributes set on the Dimensions tab in the catalog too.
When you select the **Manual** check box, you can manually change the values displayed. When creating element labels and lists, the program uses the values you enter here for the attributes set on the **Dimensions** tab in the catalog.

**Note:** As soon as you clear this check box again, the values calculated by the program will be displayed and used.

The **Layers** area includes the layers defined in the **Element type** catalog.

Use the **Calculate layer thickness** parameter to define whether PLANBAR is to calculate the thickness from the component clicked or use a fixed value for the thickness.

Check the values you enter, in particular if the total thickness is smaller than the thickness of the component clicked. If the thickness of a single layer is greater than the thickness of the component clicked, PLANBAR will issue an error message, highlighting the corresponding entry in the palette in red.

The other values in this area vary depending on the material selected. Therefore, you can select values in the **Concrete grade** catalog or in the **Insulation material** catalog.

In addition, you can find the **Automatic openings in user-defined architectural elements** area with the **Create** option for precast elements that are based on **user-defined architectural elements**, **PythonParts** or **3D solids**.

When you select this option, PLANBAR automatically creates openings in user-defined architectural elements. These openings replace the architectural openings (windows, doors and so on). This option is the same as that provided by the **Wall Element Design** tool. Like architectural openings, openings in user-defined architectural elements can be analyzed or included in automatic features.

You can use the **Labeling** option on the **Attributes** tab to specify whether PLANBAR is to label the precast element. When you select the **Labeling** option, use the **Text anchor point** to define the position of the label.

You can enter the **Mark number** and **Additional text for mark number** even if you do not want to label the precast element.

Furthermore, you can enter the **Additional attributes** (provided they are defined in the catalog).

The contents of the **Invoicing** tab are the same as for the other design modes (slab, wall or structural precast element).
The parameters and contents of the Invoice for customer and Invoice for factory areas vary depending on the Basic type defined in the Element type catalog.

**Mark number**

Each entry in the Element type catalog has its own range of mark numbers used in rearranging marks.

PLANBAR creates the mark number using the option defined for Assignment of marks (Zero, Ascending or Identical). You can change the mark number using Modify Mark Number.

**Element plan**

You can find the new Select layout for precast element area in the Properties of an element plan in the Layout catalog (Catalogs - General) and in the dialog box of the Element Plan in Batch Run tool.

This area includes the precast elements defined in the Element type catalog. Select a layout that was defined for the corresponding precast element in the Layout catalog.

The entries in the Layout catalog match those of the other design modes.

**Note:** Do not forget to define the corresponding layouts in the dialog box of the Element Plan in Batch Run tool. Otherwise, PLANBAR will issue warnings when creating the element plans.

**Reinforcement**

Like the Structural Precast Element tool, Precast Element tool requires you to apply reinforcement manually. PLANBAR does not provide any automatic features.

With the exception of Reinforcement for Trimming and Joint Reinforcement, you can use all the reinforcement types of the Secondary Reinforcement tool in Element Plan.

As the precast elements do not include basic reinforcement, you always need to enter the Layer depth (concrete cover) manually.
Production data

You can also create production data for the precast elements. Make sure the Element type catalog includes the correct product code (Product code for ERP system and production).

Note: You cannot transfer precast elements that require two production processes - like double walls or thermal walls - to production!

Defining dimensions manually for structural precast elements, iParts

When you enter structural precast elements, iParts using the Input option = 3D solid, architectural component or PythonPart, you can override the dimensions calculated automatically on the Dimensions tab.

To do this, select the Manual option in the new Dimensions area and enter the x dimension, y dimension and z dimension. PLANBAR uses the dimensions entered instead of the dimensions calculated to define the dimensions in the direction of the local x-axis, y-axis and z-axis in label styles, for example.
BIM Booster

Reinforcement and fixtures outside the precast element in detailed drawing files

When you use Transfer Detailed Drawing File to transfer reinforcement and fixtures from a precast element to another precast element and the reinforcement and fixtures to be transferred are outside the target precast element, the program links the reinforcement and the fixtures with the target precast element so that they will not be lost when you modify the data later.

Earlier versions deleted the reinforcement and fixtures when you edited the data.

The program issues appropriate warnings when you select the Check Plausibility tool in the detailed drawing file and after synchronization in the model drawing file too.

The same applies when you select the Synchronize Model and Detail tool.
Formwork

Moving formwork elements in exploded view

You can move formwork elements in a view created with Create Exploded View.

To do this, click the new Move formwork elements from exploded view tool. Select the required shuttering board(s) and move the board(s) to a new position.

Note: This does not move the formwork elements in the model.

Interaction between PLANBAR and Bimplus

Transferring data to Bimplus

You can now upload the data of precast elements with reinforcement and fixtures from PLANBAR to the openBIM platform Bimplus.

To do this, click Upload Model to Bimplus and log in to Bimplus.

Go to the Team area and select the Bimplus team working on the required Bimplus project.

If the PLANBAR project has not yet been linked with a Bimplus project, select a Bimplus project and model in the Project area or create a new project or model using Create new Bimplus project or Create new Bimplus model respectively.

If the PLANBAR project is already linked with a Bimplus project, go to the Setting area and decide whether you want to update the existing model, overwrite it or create a new revision.

- Update the current model updates the current model based on the selected design elements (see step 1) that have changed since the last upload.
- Upload the current model again replaces the current model with the design elements selected.
- Create a new revision creates a new revision of the model, keeping the original version. You can still display and edit the old version using Bimplus.

You can enter text in the Description of revision field.
Click Upload to upload the model to Bimplus.
As soon as the process has finished, you can see a message. Click OK to confirm this message.
Tip: You can find more information on Bimplus in the online help for PLANBAR.

The precast elements are structured in Bimplus in a way that is similar to PLANBAR.

The structure of a precast element looks like this:

- Element (PrecastElement)
- Layer (PrecastLayer)
- [Sub-element (PrecastLayerSubArea), for example concrete areas]

Bimplus keeps the link between the precast element and architecture in PLANBAR (for example, a designed wall element).

Unlike the reinforcement in PLANBAR, the reinforcement (ReinforcementSet) in Bimplus is linked directly with the element and not with individual layers.

You can find the following reinforcement types:

- Bars of the ReinforcingBar type
- Meshes of the ReinforcingMesh type
- Lattice girders of the LatticeGirder type
- MWS meshes and reinforcement cages of the ReinforcementGroup type including bars of the ReinforcingBar type

Fixtures (SmartSymbolSet) are also linked directly with the element.

- All normal fixtures are of the SmartSymbol type.
- Group fixtures are of the SmartSymbolGroup type including fixtures of the SmartSymbol type.

When it comes to exporting attributes, PLANBAR only transfers the Concrete grade and Precast element type in the Object properties of PrecastElement.
Production Planning

Production planning, catalogs

Settings on the ‘Producible' and 'Filter' tabs

Due to additional requirements (for example, configuring bars leaf by leaf for production), we reworked the entries on the Producible and Filter tabs in the NC generator, driver catalog (Catalogs - Process planning).

Earlier versions included a list of fixed bar types marked as ‘producible’. To include the bars in the production file, you had to make additional settings.

Now all bar types are basically producible. Using filters, you can exclude bars from production. You can combine these filters to suit your needs.

While updating, PLANBAR converts existing catalogs. Check the new settings, in particular when you changed settings in the old catalog. Should you have any questions, please contact Technical Support.
Settings on the ‘Producible’ tab
Using the **Producible** tab, you can define the **Producible diameters** and make settings for the **Non-producible diameters**. These two settings used to be on the **Filter** tab.

The meanings of these parameters have not changed.
Settings on the ‘Filter’ tab

The ‘Filter’ tab now includes a list of user-definable filter settings. As the default settings are predefined, you only need to define the settings that differ from the default settings.

This tab has three areas:

- The list of free filters

  You can use the icons below this list to do the following:
  - Insert new filter
  - Delete selected filter
  - Bring selected filter to front
  - Send selected filter to back

Note: The filters that are available after the update are based on the old settings. This ensures that the data are identical.

- Filter conditions: You can define the criteria for filtering.

- Filter / Change / Parameters: You can tell the NC generator what to do with the bars in question.
In addition, you can enter any name for the filter in Name of filter. This name helps you identify the filter.

The Filter conditions in detail:

- **Reinforcement type**: Define the reinforcement type to which the filter is to apply.
  
  When it comes to choosing the Reinforcement type, you have the following options:
  
  - **Not defined** (the filter applies to all bars)
  - Longitudinal bars
  - Cross bars
  - Secondary bars of standard shape
  - Secondary bars of any shape
  - Secondary bars of any 3D shape
  - Secondary bars of round shape
  - Stirrups
  - Stirrup – longitudinal bars
  - Reinforcement groups
  - Loose MWS bars
  - Lifting bolts

  Core reinforcement is now included in a special filter.

  Note: To avoid confusion, we renamed the Secondary reinforcement, Loose reinforcement, Secondary bars, freeform, 3D reinforcement, Circular reinforcement and Secondary stirrups reinforcement types. Their new names are Secondary bars of standard shape, Loose MWS bars, Secondary bars of any shape, Secondary bars of any 3D shape, Secondary bars of round shape and Stirrup – longitudinal bars respectively.

- **Position of reinforcement**: When it comes to defining the position of reinforcement, you have the following three options:
  
  - Bottom+top
  - Bottom
  - Top

  This option is only available for the following three reinforcement types: Longitudinal bars, Cross bars and Secondary bars of standard shape. In previous versions, you could only choose between Bottom and Top.
Note: The NC generator does not calculate the **Position of reinforcement**. Instead, this position is based on the settings you define when you create the reinforcement.

- **In leaf**: You can define the leaf for producing the bars.
  For example, you can configure the program to process the leaves separately or to write the bars to a different leaf.
  Core reinforcement has a special status. As these bars do not belong to any leaf, you can define a filter for writing these bars to a producible leaf.

- **Number or Layer**: You can define the layer number (Number) or Layer to which the entry is to apply.
  - **Number** defines the diameter and replaces the old settings (1, 2 and 3) for the Longitudinal bars, Cross bars and Secondary bars of standard shape.
  - **Layer** sorts all basic reinforcement bars in ascending order based on the z-coordinate. After this, the program groups the bars of each reinforcement unit (reinforcement at bottom, in-situ concrete, reinforcement at top) and numbers the groups, starting at 1.

  This option is only available for Longitudinal bars, Cross bars and Secondary bars of standard shape. The setting you can make in the box to the right of the Number replaces the old settings (1, 2 and 3).

- **Bar length(s)**: You can set bar lengths that are not to be producible (see the predefined Filter-Len filter for producible bars).

- **Wire diameter**: You can exclude diameters from the production file.

  The parameters for defining what to do with the bars have not changed. You can find them in the Filter / Change / Parameters area.

- **Write**: You can decide whether you want to write the bar to the production file.
  The settings have not changed: No, Yes and Yes, produce manually.

- **Bending definition**: You can select the variant of bending definition. You can only select this option when at least two variants are available.
The following variants are possible:
- **Standard** (as usual)
- **Bent** (used to be Custom bending shape)
- **Length before bending** (as usual)
- **Unfolded** (used to be Folded/Progress)

Note: The **Progress bending shape** variant is now the discrete Correct angle option (see below).
Note: The former **Default bending shape** variant is no longer available.

- **Produce in leaf**: You can make the settings that used to be available in Produce with leaf 1. The settings of core reinforcement differ from those of the other reinforcement types.

- **Lock bar type**: You can force the program to use a specific reinforcement type.

So, you can always transfer specific bars with the same reinforcement type even if this type is not appropriate.

Note: As opposed to the Unitechnik or PXML interface, 0 does not stand for ‘without definition’. Instead, 0 transfers the bars with the reinforcement type that is based on the settings you define when you create the reinforcement.

- **Warning**: as usual
- **Write to BVBS file**: as usual
- **Place in bundles**: as usual
- **Correct angle** works just like the old variant for Bending definition = Progress bending shape.

This means that bending definition in accordance with the Unitechnik interface includes a pseudo-segment of zero length and a specific angle for rotating the bending plane.

Note: This option is only available for Reinforcement groups as usual.
Production planning, creating production data

Projecting reinforcement or insulation (Unitechnik/PXML)

When transferring Unitechnik data or PXML data, you can now apply specific fixtures to the formwork edges, thus forcing the formwork robot to place the shutters at a specific distance to the panel edges.

A fixture you want to use in this way must meet the following requirements:

- The fixture and the panel edge must be congruent.
- You must enter an appropriate Type and code for the fixture in the Additional information area on the Prod. Internal tab in the Fixture catalog (Catalogs - General).
- Enter the required distance for Bar projection (see definitions for UniCAM interface or PXML interface).
- You can place the fixtures manually. The program places the fixtures automatically for projecting stirrup cages or thermal wall connections (insulation applied around corner).

Pattern for name of Unitechnik file

PLANBAR no longer includes the tool that automatically added underscores to contract titles with less than eight characters. This requirement only applied to the old Unitechnik interfaces (before Unitechnik 6.0).

If you use an old Unitechnik interface and contract numbers with less than eight characters, you must adjust the file name manually when you create Unitechnik data. For example, you can add spaces to the drawing file name.

Should you have any questions, please contact Technical Support.

List generator

Lists for different element types

When you select different element types (slabs, walls, ...) in List Generator, the dialog box no longer displays any precast-specific lists (for example, single slab panel schedule 1, slab measurement sheet, wall measurement sheet and so on).
Instead, you can only see general lists, for example, the Cutting list, Stack list and so on.

If you want to print a precast-specific list such as the Wall measurement sheet, make sure you select wall elements only.

**Round recesses in slabs**

Earlier versions analyzed round recesses in slabs using the same parameters as for all the other recesses.

Now you can define separate default settings for round recesses. To do this, open the List Generator – Schedule defaults – Slab recesses.

We adapted the dialog box as follows:

- We added the new Calculate shutter lengths of round recesses parameter with the No, All and Greater than limit options.
  
  The No and All settings work just like the old Calculate shutter lengths of round recesses check box.
  
  Using the new Greater than limit setting, you can exclude specific round openings from the list. Consequently, the list only includes the shutter lengths of recesses whose diameter is greater than the limit set.

- We changed the List round recesses check box to a list box with the No, All and As far as limit options.
  
  Here, too, the No and All settings work just like the old check box.
  
  The new As far as limit setting lists all round recesses that are smaller than or equal to the limit set.

- We added the new Limit for round recesses (diameter) parameter.
  
  When you have selected one of the two limit options, you can use this parameter to define the limit for round recesses.

This applies to the standard measurement sheet, the ADS-KSTP file and the PMXL-Delegate file.
Many customers want to check the properties of precast elements before creating production data or export data. Therefore, we integrated Quality Manager.

Using Quality Manager, you can check specific criteria of the precast elements before you create production data using Production Data, NC Generator, create lists using List Generator or transfer data to TIM using Export TIM Data.

The criteria for checking the precast elements are based on formulas (attributes). While checking the precast elements, Quality Manager processes a set of freely definable rules for each element (selected). In doing so, Quality Manager checks whether the element meets the predefined conditions.

If a condition is not met, a dialog box opens, displaying a note, warning or an error.
Note: You can define a condition so that failure to meet this condition prevents the data from being transferred.

These freely definable rules are based on formulas entered in the formula editor of PLANBAR. Using attributes, you can define any conditions.

The rules are saved in a freely definable XML file that can be tailored to suit your needs.

The catalog path ( ..\STD\fact) includes the PrecastQualityValidatorRules.xml sample file you can edit using an appropriate text editor (for example, Notepad++).

Using this file, you can check...

- Whether walls include lifting bolts or cast-in nuts.
- Whether the element is stacked for creating production data using Production Data, NC Generator. This is necessary, because Unitechnik requires a stack number.

Should you have any questions, please contact Technical Support.

Note: The Data Backup tool for backing up catalogs does not take this XML file into account.
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