PLANBAR 2018

New Features in PLANBAR 2018-0-1
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Welcome

Dear Sir or Madam,

The new PLANBAR 2018 version is complete. This document presents the most important new features we have implemented since PLANBAR 2017.

In developing PLANBAR 2018, we were guided by your ideas, of which we put a great number into practice.

For example, we simplified and adjusted the way the modules handle recesses. Now all wall modules and slab modules handle recesses in the same manner. In addition, you can now create mounting hooks for half floors. When creating walls with the ‘Wall Element Design’ tool, you can define the production sequence of the leaves or the side of the formwork bottom.

We reworked the palettes for entering data. Now you can always see when the program expects you to enter something or when you can open a subordinate palette or dialog box.

PLANBAR 2018 introduces iTriggers for element plans. Thanks to these new iTriggers, you do not have to define so many layouts for element plans.

Python Parts can be used as structural precast elements.

When creating production data, you can send data of attached and loose reinforcement to several PTS servers. You can create an invoice based on floor plan dimensions directly in PLANBAR. In earlier versions, you had to use the BFT menu to do this.

We wish you every success! Have fun exploring PLANBAR 2018!

Precast Software Engineering GmbH
Salzburg, November 2017
Precast Elements

New features across modules

Attributes for precast elements

PLANBAR includes three new attributes you can use for all element types (slab, wall and structural precast elements, iParts):

- **Invoicing item, name** (@1477, text),
- **Invoicing item, mark number** (@1478, text) and
- **Invoicing item, ID** (@1479, text).

These attributes are available for each precast element.

You can also use these three new attributes as variables for element labels after design. The variable names are

- **AbrPosName** for invoicing item, name.
- **AbrPosNr** for invoicing item, mark number.
- **AbrPosID** for invoicing item, ID.

PLANBAR comes with the new **TL** and **BL** attributes (with a special index) for precast elements.

If the attribute index is 0, the program reads the attributes of the element, outputting the TL and BL of the element. If the attribute index is defined, the program can analyze the TL and BL of each layer.

In addition, you can find the new **Page name** attribute. This attribute refers to the name of an element plan. This name is defined on the **Properties** tab of an element plan sheet (in **Catalogs - General - Layout catalog**).

You can use these attributes in label styles, title blocks or file names when exporting element plans.

You can use the new **Leaf 1 / formwork bottom** attribute for walls created with the **Wall Element Design** tool. For example, you can combine this attribute with an **iTrigger** (see further down) to control which sides of views and sections are visible in an element plan.

- **Value 1: Leaf 1 / formwork bottom** is the visible side.
• Value 2: Leaf 1 / formwork bottom is the invisible side.

Handling recesses

We simplified and adjusted the way you enter and modify reinforcement parameters of recesses using the Precast Slab and Precast Wall modules.

Here are some reasons why we did this:

• Recesses in walls created with Wall Element Design had newer and more reinforcement parameters than other precast elements.

• The program did not take the reinforcement parameters of recesses from the same place. Some parameters were read from the recess, others from the fixture catalog and others from the configuration file.

• The input forms looked different. When you created a wall with Wall Element Design tool, you found a separate tab in the Basic reinforcement,... palette - Reinforcement of openings. When you created a wall with the Design tool or a slab with the Design tool, you found the Recess Parameters dialog box with several tabs.

• The check boxes for cutting reinforcement were illogical. When you created a wall with Wall Element Design tool, you found Cut longitudinal bars. When you created a wall with the Design tool or a slab with the Design tool, you found Select reinforcement elements to pass through recess.

• If the recess included smart symbols, the program always assigned the parameters defined on the Reinforcement and Replace reinforcement pages in the fixture catalog.

• If smart symbols were defined, the parameters were not visible in the dialog boxes or the palette.

• The reinforcement did not update (correctly) when you deleted, replaced or inserted smart symbols.

Here are some advantages of the changes:

• The program saves the same reinforcement parameters for all recesses in precast elements.

• Before creating the first reinforcement element, the program saves all the reinforcement parameters of the recess to the recess.
When reinforcing or updating the reinforcement, the program always reads all parameters from the recess.

- The reinforcement parameters of recesses look the same for all precast elements. We adjusted texts and selection boxes:
  - Replace reinforcement: No/Automatic/Structural
  - Same reinforcement for opening - transverse as longitudinal
  - Anchorage (options for calculating anchorage length)

- What You See Is What You Get: The palette always includes the parameters applied. If you use smart symbols, you can also see the spacing. This parameters was only displayed in the fixture catalog in earlier versions.

- You can overwrite parameters even though smart symbols are defined (see the description of the new Smart symbol reinf. parameters check box in the section New dialog box for modifying slabs and conventional walls).

- You can work with favorites.

- The reinforcement updates immediately when you delete, replace or insert smart symbols.

- When deleting, replacing or inserting smart symbols, you can decide whether you want to use the parameters of the new smart symbol or keep the parameters of the recess. See the section New messages when smart symbols change.

- We adjusted COM control of recesses in precast elements.

- Shear girders created with Shear Reinforcement consider the Cut lattice girders recess parameter.

- When creating slabs with a top layer of basic reinforcement, you can define the reinforcement parameters of recesses for the top layer independently of the reinforcement parameters of recesses for the bottom layer of basic reinforcement.

- We reworked the Modify Recesses tools for conventional walls and slabs. These tools are now easier to use.

Recesses considered

When creating reinforcement, the program considers recesses created or modified with the following tools:
• **Recess, Opening in Slab** for architectural slabs and **Door, Window, Niche, Recess, Slit, Opening** and **Polygonal Niche, Recess, Slit, Opening** for architectural walls.

• Openings without parameters resulting from penetrating architectural components.

• **Recesses** or **Modify Recesses** in the **Precast Slab** module; **Modify Recesses** and the tab in the **Basic reinforcement, ...** palette - **Reinforcement of openings** in the **Precast Wall** module.

• **Model Precast Elements.**

• Fixtures with selected parameters on the **Reinforcement** tab in the fixture catalog.

Revised palette for multilayer walls

When you create a wall using **Wall Element Design**, you can find the new **Smart symbol reinf. parameters** parameter in the **Basic reinforcement, ...** palette - **Reinforcement of openings**. When you modify such a wall, you can find this new parameter in the **Reinforcement of openings** palette.

You can use the associated check box to control how the program is to apply the reinforcement parameters that are defined for the relevant smart symbol in **Catalogs - General - Fixture catalog**.

If this check box is selected,

• openings with smart symbols get the parameters that are defined on the **Reinforcement** and **Replace Reinforcement** pages of the **Fixture catalog**.

• Openings without smart symbols get the reinforcement defined in the **Reinforcement for trimming** area of the palette.

If this check box is not selected,

• all openings of the current design get the reinforcement defined in the **Reinforcement for trimming** area of the palette.

• In this case, it is irrelevant whether an opening has a smart symbol or not.

The **Reinforcement type** parameter is only available for wall types (**Concrete wall** and **Sandwich wall**), where it makes sense to select a type.
Read the following section to find out how the check box for the **Smart symbol reinf. parameters** parameter behaves when you modify the properties of recesses in precast elements.

**New dialog box for modifying slabs and conventional walls**

You can use the completely new **Recess Parameters** dialog box to modify the parameters of a recess in a slab using ![Modify Recesses](Modify Recesses) or the parameters of a recess in a wall using ![Modify Recesses](Modify Recesses).

This dialog box corresponds to the **Reinforcement of openings** tab of a wall created with ![Wall Element Design](Wall Element Design).

You can use the check box of the **Smart symbol reinf. parameters** parameter to control how the program is to apply the reinforcement parameters defined for the relevant smart symbol in ![Catalogs - General - Fixture catalog](Catalogs - General - Fixture catalog).

The following rules define whether the **Smart symbol reinf. parameters** parameter is displayed and the associated check box is selected or not:

- **Is displayed:** The selected opening is linked with a smart symbol. The name of the smart symbol is displayed in gray in the line below. If you have selected several openings with different smart symbols, the line is empty.

- **Is displayed and selected:** The parameters of the smart symbol come from the **Reinforcement** and **Replace reinforcement** pages in the **Fixture catalog**. Therefore, the parameters are grayed out.

- **Is displayed but not selected:** You can change the parameters as you need. The program proposes the settings defined in the ![Configurations - Wall programs - Wall type - Entry - Opening reinforcement](Configurations - Wall programs - Wall type - Entry - Opening reinforcement) for the **Bar overlap, bending shape** parameters of conventional double walls and concrete walls.

If you want to create attached reinforcement, the program proposes the setting defined for the option to **Replace reinforcement** in the ![Configurations - General - Attached reinforcement](Configurations - General - Attached reinforcement) or **Basic slab reinforcement** or **Basic wall reinforcement - Recesses**.
If the **Smart symbol reinf. parameters** check box has been selected, the program keeps the smart symbol proposed for attached reinforcement (as defined in **Catalogs - General - Fixture catalog**). The same applies to the **Reinforcement for trimming** parameters.

For the new recesses, the four check boxes for cutting reinforcement are selected. In the case of conventional walls, however, the **Cut secondary reinforcement** check box is not selected.

If the **Smart symbol reinf. parameters** check box has been selected, the program keeps the smart symbol proposed.

- **Is displayed and selected again**: The program reloads the parameters of the smart symbol from the **Reinforcement** and **Replace reinforcement** pages in the **Fixture catalog** (**Catalogs - General**). Therefore, the parameters are grayed out.

- **Is not displayed**: The selected opening is not linked with a smart symbol.

**Note**: We combined the other recess parameters for slabs of the **Hollow core element** and **Prestressed hollow core element** types in a separate block called **Slab design**.

![Recess parameters](image)

**Note**: We moved the settings for secondary reinforcement. You can now find them above the settings for lattice girders.
'Modify Recesses' tool reworked

We reworked this tool for conventional walls and all slabs, implementing the following enhancements:

- The **Modify Recesses** toolbar is no longer available. Now you define all settings in the new **Recess Parameters** dialog box.
- For slabs, you can decide whether you want to change the parameters or the supports by selecting **Parameters** or **Supports** on a toolbar.
  When selecting **Parameters**, you can change the reinforcement parameters of the recess.
  When you select **Supports**, the program modifies the support parameters of the recess. Right-click to confirm the **Supports** option and to return to the toolbar.
- You can also change the reinforcement parameters by means of COM control.
- We reworked the texts in the dialog line of PLANBAR.
- We enhanced the way the program selects supports at the edges of recesses. When you enter the support width, the program now selects the correct edge and no longer overwrites the wrong values.

**Note:** In the case of walls created with **Design** and slab systems created with **Design**, the **Replace reinforcement** settings only apply to attached reinforcement as usual.

'REinforcement' page in the fixture catalog redesigned

We reworked the **Reinforcement** tab in the **Fixture catalog** (**Catalogs - Genera**).
To make things clearer, we renamed the **Like recess** option for **Replace reinforcement**. Its new name is **According to configuration**.

**Note:** In the case of walls created with Design and slab systems created with Design, the **Replace reinforcement** settings only apply to attached reinforcement as usual.

When you set this option, the program uses the fixture settings defined for **Replace reinforcement** in the **Configurations** - **General** - **Attached reinforcement** - **Basic slab reinforcement** or **Basic wall reinforcement** - **Recesses**.

In addition, you can predefined the **Offset to secondary bar**. In earlier versions, you could only set this value in the dialog boxes.

**Note:** If slabs and walls created with Design included connected recesses with different smart symbol settings, earlier versions did not include a rule defining how to assign bar spacing to the relevant recess edge. Now the program always uses the settings from the catalog for each edge.

The settings of the catalog also apply when you define or modify secondary reinforcement created with the **Anchorage to edge** option.
Modifying secondary reinforcement can change the results of existing drawing files, as the program now always uses the settings for **Offset to secondary bar** to apply secondary reinforcement to openings with smart symbols.

Earlier versions shortened the bars of slabs created with the **Design** tool by the value defined for **Overlap at recesses** in the **Configurations - Slab programs - Element type - Calculation - Secondary bars**. For walls created with the **Design** tool, earlier versions used the **General bar overlap** value defined in the **Configurations - Wall programs - Element type - Calculation - Reinforcement**. For walls created with **Wall Element Design**, earlier versions used the concrete cover you defined when you entered the wall.

The default value of the new **Offset to secondary bar** parameter is the maximum value of **Offset to longitudinal bar** or **Offset to cross bar**. Check these values!

**COM control for recesses in precast elements enhanced**

Using **Insert Smart Symbol, SmartPart in Opening**, you can now insert a smart symbol in slab openings via the shortcut menu.

In addition, you can now use the **Modify Recesses** tools for slabs and walls created with **Design**.

**New messages when smart symbols change**

When you change, replace or insert a smart symbol in a recess, the program issues a message if the changes result in different reinforcement parameters of the recesses.

You can then decide whether you want to keep the reinforcement parameters of the openings or load the reinforcement parameters of the new smart symbol.

When deleting smart symbols, you can now decide whether you want to keep the reinforcement parameters of the smart symbols or reset the reinforcement parameters to the default without smart symbols.
New messages for modifying recesses

We revised the error messages. For example, the program now issues an error message when you select a recess in a slab or wall without precast element parameters.

The program also issues an error message when you try to use the Modify Recesses tool to modify a recess in a wall created with Wall Element Design.
Locking admin

The Status Admin tool comes with a wide range of new features. Using this tool, you can also lock precast elements (= define the locking states of precast elements).

Earlier versions only provided three locking states: All changes locked, Geometric changes locked and Automatic updates of reinforcement locked.

The All changes locked and Geometric changes locked locking states are still available; they have not changed.

The program still issues an error message when you try to change a wall created with Wall Element Design or a slab created with Design.

Like earlier versions, PLANBAR 2018 only provides the All changes locked and Geometric changes locked locking states for walls created with Design and structural precast elements, iParts created with Structural Precast Elements. Here, too, the program issues an error message.
The advanced **Automatic updates of reinforcement locked** locking state, which is described below, is still not available for walls created with Design and structural precast elements, iParts created with Structural Precast Elements. The program issues the following message as usual.

![Error messages]

We reworked the **Automatic updates of reinforcement locked** locking state for the other element types, defining new locking states for some components created automatically:

- We divided the locking state for basic reinforcement into **'Update basic reinforcement automatically' locked** (for loose and attached reinforcement, meshes) and **'Update basic girders automatically' locked** (for basic girders).
- In addition, we implemented locking states for multilayer wall systems created with Wall Element Design: **'Update..."
New Features in PLANBAR 2018-0-1  Precast Elements

**New Features in PLANBAR 2018**

- **Precast Elements**
  - *(Design)*

  - **Connecting elements automatically' locked** (for locking updates of connecting elements) and *(Update cast-in nuts automatically' locked* (for locking updates of cast-in nuts).

  - You can use the new *(Update lifting bolts automatically' locked* locking state to lock updates of lifting bolts in slab systems *(Design)* and multilayer wall systems (see above).

  - When it comes to slab systems (see above), you can also lock updates of supports. To do this, use the new *(Update supports automatically' locked* locking state.

  ![Status and Locking Admin](image)

  **Note:** We rearranged the locking states. The **All changes locked** locking state is now always at the top, followed by the other locking states in descending order.

  To indicate locking states of precast elements, you can define a color for each locking state on the **Element locking** tab in **Configurations - General - Program sequence - Identifiers**. As usual, the program highlights the mark number in the color defined.

  If you have selected several locking states, the mark number gets the color of the state of the highest level. **All changes locked** is the highest level; **Geometric changes locked** comes next and so on.
By applying a locking state to basic reinforcement, basic girders or supports, you lock the dimensions of the precast element in question. In other words, it is no longer possible to change the overall dimensions of this precast element.

Consequently, the program issues an error message if you try to change the dimensions of the precast element.

When you apply a locking state to connecting elements, lifting bolts or cast-in nuts, you can still change the dimensions of the precast element in question.

But if you change the dimensions of a precast element and this moves one of these fixtures created automatically outside the precast element or inside an opening, the program will issue a message and delete this fixture.
**New Features in PLANBAR 2018-0-1  Precast Elements**

**Note:** The program will not recreate this fixture automatically when you remove the locking state. To recreate the fixture and adjust the mark, you must update the precast element!

If you change the dimensions of a precast element and this moves one of these fixtures created automatically inside another precast element, the program will link this fixture with the new precast element. If the new precast element does not have the same locking state as the original precast element, the program will remove the fixture as soon as you change the geometry again.

**Note:** When it comes to hollow core elements, the situation is different: By using lifting bolts, you create a concrete area from a defined area within the hollow blocks. Earlier versions did not recalculate this concrete area when you changed the lifting bolts. If the 'Update lifting bolts automatically' locked locking state is selected, PLANBAR 2018 recalculates the concrete area whenever you change the lifting bolts (move, copy, delete, ...).

**Usability**

When it comes to palettes, you can see immediately what is behind an input line of a parameter: The ... icon indicates another dialog box or table. The ⟷ ⟶ icons take you through the columns of a table. The ▼ icon opens a selection list or a dialog box for defining the dimensions of a structural precast element, for example (✱, ✷, ✸, ✹ and so on).
Round fixtures

When you use the Define Fixture tool to define new fixtures including round objects, the program no longer issues a warning telling you that the fixture includes general 3D elements that cannot be processed correctly.

However, the program still polygonizes round objects when you output NC data or export data to TIM.
NDW files

Custom NDW files can be processed by most tools in PLANBAR. However, you cannot use custom NDW files with Export TIM Data, Production Data Transfer, Element Plan, Element Plan in Batch Run, Edit Element or the tools in the BIM Booster module. Therefore, you will see the following message:

Filter assistant for precast elements

Filter assistant reworked

We reworked the Filter Assistant for precast elements. Before you select elements by clicking them or opening a selection rectangle, you can set one or more filters. The program only selects the elements that match the filter criteria you defined.

All the familiar filters are available: Precast element, Precast element - mark number and Connection. We changed the Reinforcement, fixtures, filter slightly: You can now select the elements you want to filter in a separate dialog box. In addition, you can find two new filter options: Precast element – element type and Design – element type.

Like Precast element and Precast element - mark number, Precast element – element type filters the selected precast element type (slab elements, wall elements and structural precast elements, iParts). This filter selects the precast elements directly so that you can change some parameters of one or more precast elements within a placement.

Design – element type, on the other hand, selects an entire placement so that you can change the parameters of the entire design.
Number of characters

In earlier versions, you could not enter more than 7 characters for Precast element - mark number in the Filter Assistant.
Now you can enter up to 20 characters.

Messages for reinforcement

If the reinforcement quantities in the printouts differ from those calculated by program, the Edit Element, Element Plan and Element Plan in Batch Run tools and the Design list in List Generator no longer issue messages. You could suppress these messages in earlier versions. Read the information in the help for PLANBAR.

Message when modifying legends

When you select the Modify Legends tool while the Element Plan or Edit Element tool is open, the program issues a message telling you that you must close the window for editing element plans or elements before you can modify legends.

MEP Assistant

The 'MEP Assistant' tool

The MEP Assistant tool is no longer included in the BIM Booster module.

You can now find this tool in the Precast Slab, Precast Wall and Structural Precast Elements modules. You can only see this tool when you have an appropriate license.

Importing TBM elements

If IFC import creates TBM elements as macros, the geometric definition now includes a “path” and a “profile”.

So that you can create linear fixtures, the MEP Assistant can then read the path and calculate the line of the fixture.
Precast elements in the 'Objects' palette

Using the Objects palette, you can now list all precast elements (objects and elements) in open drawing files (current or open in edit mode or open in reference mode). You can sort these objects and elements according to certain criteria.

Like other objects and elements, selected precast elements can be shown or hidden. You can also select precast elements or cancel the selection of precast elements in the Objects palette.

The Precast elements area lists all available precast elements. The Objects palette always displays the mark number with the associated slab element, wall element or structural precast element, iPart. The same applies to objects and elements of Bar reinforcement.
Reinforcement and fixtures behave like architectural walls and their openings. By hiding a precast element, you automatically hide the reinforcement and fixtures in this precast element. Of course, you can show the reinforcement and the fixtures independently of the precast element.

When you switch off a layer, the precast elements - like the architectural elements - are grayed out in the palette.

The same applies to precast elements you hide in Plan Display. If an element plan is open, the palette only shows the elements selected in the element plan. You can only hide the precast element, reinforcement and fixtures together with the associated view or section.

**IFC export**

PLANBAR 2017 includes the Export IFC Data tool (= exports data of version 2x3) and the Export IFC4 Data tool.

To export precast elements, you can use the Export IFC Data tool.

We changed the names of these tools in PLANBAR 2018. Export IFC Data is now Export IFC 2x3 Data.

The Export IFC Data tool now exports IFC4 data without precast elements. Pay attention to these changes when you export IFC data.
Labeling associative views and sections

Text attributes

When you create an associative view or section from another associative view or section, the program takes the text attributes (height, width, angle, font, position of label, ...) from the associative view or section clicked.

**Note:** When it comes to mark numbers of precast elements, the program always uses the text attributes and label positions defined on the **Views** and **Text attributes** tabs of the relevant precast element in the **Configurations - Slab programs** or **Wall programs - Entry - Labeling**. The text attributes you define on the toolbar when you create the associative view or section have no effect.

Labeling precast elements

When you apply **Label Precast Element** to an associative view, the program removes the existing mark number and you must place the new label manually.

The next steps vary depending on the setting for **Position of label** in the configuration of the element (**Views** tab in the **Configurations - Slab programs** or **Wall programs - Entry - Labeling**).

- If a **Position of label** is defined (for example, **Bottom left**), the program looks for the label in the associative view, placing this label in accordance with the **Position of label** setting whenever you update the precast element. If you move the label beforehand, the program moves it back to its defined position.

- If the **Position of label** is set to **None**, the program does not place a mark number when you create a new associative view. The same applies when you update the precast element; the program does not place a mark number.

If you use **Label Precast Element** to label the associative view manually, the label stays where it is whenever you update the precast element (even if the dimensions of the precast element change)! You must check the position yourself.
BIM Booster

**Enhanced features for creating and assigning detailed drawing files**

We enhanced the error messages and warnings issued by the Detailed Drawing File(s) and Assign Detailed Drawing File tools.

The program now issues a warning when you try to assign a single detailed drawing file to several different models with the same mark number in different drawing files. The program then creates a single detailed drawing file showing the element in the current drawing file.

![Image of BIM Booster with a warning]

The program also issues a warning when you assign a detailed drawing file to a model precast element and the detail and the model are not identical.

![Image of BIM Booster with another warning]

**Synchronizing weight**

The model now includes the weight of the associated detail. The program saves the weight with the model precast element when you create the detailed precast element using Detailed Drawing File(s) or when you assign a detailed precast element to a normal precast element using Assign Detailed Drawing File.

Whenever you synchronize the data, the program updates the weight saved with the model based on the current weight of the detail.

**Note:** The program synchronizes the data not only when you synchronize attributes but also when you synchronize fixtures, modeled objects and so on.
As a result, the model precast element shows the weight of the detail of the last synchronization.

If you delete the detail using **Delete Detailed Drawing File(s)** or disconnect the detail from the model using **Clear Detailed Drawing File Assigned**, the model precast element becomes a normal precast element and the weight displayed is the normal weight of this precast element.

When checking plausibility, the program issues a warning if the weight of the detail saved with the model is not the actual weight of the detail.
Catalogs, Configurations

Cutting reinforcement with symbol fixtures

The Cut symbol fixtures setting on the Reinforcement tab in the Fixture catalog (Catalogs - General) controls how reinforcement is cut. The following rules apply:

- **With circumscribed rectangle**: The program encloses the whole fixture in a box and cuts this box with the reinforcement. As a result, each recess is the same size.
- **With exact 3D object**: The program cuts out the reinforcement exactly. As a result, each recess is different.

This rule applies to loose reinforcement and attached reinforcement in slabs and to walls created with Design and Wall Element Design.

Angle for Allplan font in italics

Now the rules for general text input also apply to the angle of precast element text in italics in PLANBAR (for example, Attributes of mark number line - W = on the Text attributes tab in Configurations - Element type - Entry - Labeling).

You can no longer use text angles that are smaller than 20° in Allplan fonts.

TrueType/OpenType fonts cannot process text angles. Therefore, the angle is always set to 90°, regardless of the definition in the configuration.

Catalogs and configurations adapted for use in the USA

Catalogs

We adapted some Catalogs for use in the USA.

You can now define the cross-section of the Custom type in the unit set for the length. You can define this cross-section for the Joint section type in the Joint section catalog and for the Hollow block type in the Hollow block catalog. Both catalogs are in Catalogs - Slab - General.
In the Diameter catalog in Catalogs - General, you can define all settings in the unit set for the length. However, this does not apply to the Bending pin diameter with the Depends on machine setting on the Welding 2 tab and to the entries for the Locked zones and the Width of the locked area on the Welding 5 tab.

Configurations

Using the Configurations for Labeling walls, slabs and structural precast elements, iParts, you can now configure the program to output dimensions of precast elements in US (imperial) units. The following units are available:

- **IDx** (Inches Decimal), value in decimal inches,
  \[ ID0 \rightarrow 20", ID1 \rightarrow 19,7", ID2 \rightarrow 19.69", \ldots \]

- **IFx** (Inches Fractional), value in fractional inches,
  \[ IF1 \rightarrow 20", IF2 \rightarrow 19 \frac{1}{2}", IF4 \rightarrow 19 \frac{3}{4}", IF8 \rightarrow 19 \frac{5}{8}", \]
  \[ IF16, IF32, IF64, IF128 \rightarrow 19 \frac{11}{16}", IF256 \rightarrow 19 \frac{175}{256}" \]

- **IE** (Inches Exact), exact value in inches,
  \[ IE \rightarrow 19.685" \]

- **FDx** (Feet Decimal), value in decimal feet,
  \[ FD0 \rightarrow 2', FD1 \rightarrow 1.6', FD2 \rightarrow 1.64', FD3 \rightarrow 1.640', \]
  \[ FD4 \rightarrow 1.6404', FD5 \rightarrow 1.64042', FD6 \rightarrow 1.640420', \]
  \[ D7 \rightarrow 1.6404199', FD8 \rightarrow 1.64041995', FD9 \rightarrow 1.640419948', \ldots \]

- **FIDx** (Feet and Inches Decimal), value in decimal feet and inches,
  \[ FID0 \rightarrow 1'-8", FID1 \rightarrow 1'7.7", FID2 \rightarrow 1'7.69", \]
  \[ FID3 \rightarrow 1'7,685", FID4 \rightarrow 1'7,6850", FID5 \rightarrow 1'7,68504", \]
  \[ FID6 \rightarrow 1'7,685039", FID7 \rightarrow 1'7,6850394", \]
  \[ FID8 \rightarrow 1'7,68503937", FID9 \rightarrow 1'7,685039370", \ldots \]

- **FIFx** (Feet and Inches Fractional), value in fractional feet and inches,
  \[ FIF1 \rightarrow 1'-8", FIF2 \rightarrow 1'-7 \frac{1}{2}"", FIF4 \rightarrow 1'-7 \frac{3}{4}"", \]
  \[ FIF8 \rightarrow 1'-7 \frac{5}{8}"", FIF16, FIF32, FIF64, FIF128 \rightarrow 1'-7 \frac{11}{16}"", \]
  \[ FIF256 \rightarrow 1'-7 \frac{175}{256}" \]

- **FIE** (Feet and Inches Exact), exact value in feet and inches, FIE \[ \rightarrow 1'-7,685" \]

Note: The examples above convert a length of 50 cm to different units. The resulting values are rounded.

In the configurations, the unit in brackets must always follow the keyword `%IMP`. 
Some examples: \%IMP(ID2) \rightarrow 19.69\"; \%IMP(IF4) \rightarrow 19 \frac{3}{4}\"; \\
\%IMP(E) \rightarrow 19.685\".

You can label the mark number line and the following lines of slabs, walls and structural precast elements, iParts in this way.

Some units of the values in the lines below the mark number line are always given in [cm] or [mm] (for example, \textbf{Height [cm]}, \textbf{Width [cm]} or \textbf{LDia1d [mm]}). If you want to output one of these values in US (imperial) units, you must first divide this value by 100 (if the unit is [cm]) or by 1000 (if the unit is [mm])!

For example: The \textbf{Height} is given in \textbf{cm} \rightarrow To output the \textbf{Height} variable in US (imperial) units, you must divide this variable by 100:

\begin{center}
\begin{tabular}{|l|}
\hline
Line 3 after design \\
Pattern : \%IMP() \\
Variable : Hoehe/100 \\
\hline
\end{tabular}
\end{center}

\textbf{Note}: Areas (for example, \textbf{AsExist} in [cm^2]) and volumes (for example, \textbf{Vol} in [m^3]) cannot be output in US (imperial) units!
Element Plan

Layout catalog

Sections
To enhance sections in the element plan, we changed some settings on the Section tab in the Layout catalog in Catalogs - General.

• Using the new Position parameter, you can choose to place the heading above the section (top) or below the section (bottom). This heading is created automatically. The Distance parameter defines the vertical distance from the section.

• You can now underline the Section identifier, which is created automatically. To do this, select the new Underline check box in the Text attributes.

• Using the Properties of a section, you can now decide whether you want to create the Section identifier or not. This Section identifier was predefined in earlier versions. Now you can also use a label style for the heading. To do this, select the Display check box in the Section identifier area.

• Now the program always places the section identifier in the center of the section. To define the center, the program no longer uses the min-max box of the section including the dimension lines. Instead, the program only uses the section object itself. In addition, you can define whether the clipping path of a section is displayed in another view or section. To do this, select the check box on the Clipping path tab of a View or Section in the Layout catalog in Catalogs - General.

When you select a section, you can only hide the other sections. When you select a view, you can hide all sections.

New option added to direction definition B for structural precast elements, iParts
When you define a layout for structural precast elements, iParts in the Layout catalog in Catalogs - General, you can now select the
new Top side -z- option for the Direction definition B when defining the Principal directions for a view or section.

Using this new option, you can define a section through a flight of stairs or a sloping roof beam.

To do this, set the Span direction of the stair or beam so that it is parallel to the bottom level of the stair or beam.

When defining the section through the stair or beam, set the Direction definition B to Span direction. This section displays the actual height. For all other views and sections, set the Direction definition B to Top side -z-. 

Note: To make things clearer, we renamed the Top side option for Direction definition B when you define a layout for a wall. Its new name is Top side -z-. 

New groups for geometry, fixtures and reinforcement in the layout catalog

We regrouped and combined the settings for dimension lines on the Dimensioning tab in the Properties of a view or section in the Layout catalog (in Catalogs - General).
Earlier versions only provided a single setting for all Dimension lines and some special settings in Other settings. In PLANBAR 2018, you can now find four areas: Geometry, Fixtures, Reinforcement and Special components.

New and changed features for dimensions in the layout catalog

You can find some new and changed features in the Layout catalog in Catalogs - General:

- We renamed the Additional dimension line text for single-layer components option in General - Dimension lines - Dimension groups, ... - Text for fixtures area. Its new name is Position of fixture for 1-tier components. In addition, we moved this option to the new Fixtures group and removed the check box for selecting this option. The two options for entering text for the Visible side and Invisible side are always available.

- You can find the new Write position of fixture for 1-tier components option in the Special dimensioning for fixtures area - Fixtures group on the Dimensioning tab in the Properties of a View generated for slab element plans or wall element plans. You can set this new option to No, Only these or Not these. When you select Only these or Not these, you must define the dimension line indexes of the corresponding fixtures.

- You can find the new Special dimensioning for hammer heads setting in the Geometry group on the Dimensioning tab in the Properties of a view or section. You can select No, Dimension together or Dimension separately for this new setting. When you select Dimension together, the program creates one dimension line for each side of the element, including all hammer heads on the relevant side in this dimension line. When you select Dimension separately, the program creates a separate dimension line for each hammer head.

- The settings for Special dimensioning of secondary bars (slabs and walls) or Special dimensioning of reinforcing bars (structural precast elements, iParts) on the Dimensioning tab in the Properties of a view are only visible if the Viewing direction for view is set to 1 or 6.
Defining visibility settings for each page of the element plan

You have always been able to define general visibility settings for all sheets of an element plan (on the Visibility tab in the Properties of an element plan in Catalogs - General - Layout catalog). In addition, you can now define visibility settings for each sheet of a multi-page element plan.

To do this, you can use the new Visibility tab you can find in the Properties of a sheet. Select the Separate visibility settings check box and define the elements you want to display.

Circular border for mark numbers of bars, meshes and fixtures

You have always been able to choose an oval or rectangular border for the mark number. In addition, you can now select a circular border, thus enclosing the mark number in a circle.

To do this, you can find the two new Number, circular and Letter, circular options for Bars, Meshes and Fixtures in the Mark numbers area on the Element plan tab in the Properties of an element plan in Catalogs - General - Layout catalog.

As soon as you select Number, circular or Letter, circular, the program adds another line for defining the Size of the circle. You can enter a value between 0 and 9. If you enter 0, the program defines the size in accordance with the mark number. A value between 1 and 9 defines a fixed size for all mark numbers.

Note: The element plan table still includes an oval border even when you choose Number, circular or Letter, circular.

The size of the text and thus of the circle is based on the settings for Text attributes in the Mark number of reinforcement and Mark number of fixtures areas on the Text tab in the Properties of a view or section (fixtures only).

Mark number of reinforcement

We added some features for Mark number of reinforcement to the Text tab in the Properties of a view with the viewing direction 1 or 6 in Catalogs - General - Layout catalog.
Mark number for basic reinforcement

You can now create the label automatically for basic reinforcement generated in a precast element automatically due to the settings you defined when you designed or modified the precast element.

To do this, use the Basic reinforcing bars option, which is at the top.

New labeling options

Instead of the check boxes for Basic reinforcing bars, Secondary reinforcement and Basic mesh reinforcement, you can now find a selection list with the following settings:

- **No** (This is equivalent to selecting the former check box.)
- **Just once for each mark number**
- **All** (This is equivalent to not selecting the former check box.)

The new Just once for each mark number option labels each mark just once.

- The program starts with the smallest bar mark number or mesh mark number and labels the other bars or meshes in ascending order.
- The program always labels the next possible mark of a bar or mesh.
- Labeling is from top to bottom and from right to left.

In addition, there is the new Position option you can use to define the position of the mark number.

This new option includes the following settings:

- **At the reinforcement**: The program labels the reinforcement directly.
- **Inside or outside the opening**: The program labels the bars in openings and above and to the right of the element.

When you select Inside or outside the opening, you can see three more settings above the text attributes.

- **Minimum length or width of opening**: You can enter the size (default setting = 900 mm) from which the label is inside the opening.

  The program only places labels inside openings that are greater than or equal to the size defined here. Smaller openings will be ignored. In this case, you can find the labels at the element outline.

- **Offset to element outline** (default setting = 5 mm)
• **Length of short line** (default setting = 3 mm)

**Note:** Always check the labels visually to ensure that they do not overlap or collide. The program does not move labels automatically.

### iTrigger

Using iTriggers, you can now configure layouts in Catalogs - General - Layout catalog. The options that are available to you depend on the properties and complexity of the precast element in question.

Thanks to these iTriggers, you do not have to create a separate layout with the same lists, title block and so on for each precast element with specific properties, details and so on. Instead, you can configure the program to select different pages of the same layout based on one or more properties of the precast element.

**For example:** If elements have more than ten fixtures, the program is to output a separate page with the fixtures. Create a layout with three sheets for displaying the elements. Use one sheet for elements with up to ten fixtures and display the geometry, reinforcement and fixtures on this sheet. Use two sheets for elements with more than 10 fixtures and display the geometry with the reinforcement on one sheet and the geometry with the fixtures on the other sheet. The program always outputs the other pages of the layout.

You can define conditions for individual cells or for the whole page of a layout. These conditions decide whether the cell or page in question will be created:

- The program is to include details or symbols in the element plan if specific conditions are met. For example, the program only includes details or symbols if a precast element has a specific fixture or a specific custom attribute.

- Whether the program creates a page depends on how complex the precast element is. For example, the program only creates a specific page if the precast element has more than ten fixtures. The program provides several pages for displaying fixtures in the layout. However, the program only creates one of these pages depending on the conditions defined.

- The title block is to vary depending on the factory, customer or project attributes.

Start by defining as many iTriggers as you need in the General area at top left in the layout catalog.

An iTrigger always includes a name and a condition, for example:
New Features in PLANBAR 2018-0-1  Precast Elements

- **High column** Height > 3.0 m; @204@.gt.3
- **High, heavy column** Height > 3.0 m & Weight > 2.5 to @204@.gt.3 and @721@.gt.2.5
- **Complex element** Number of fixtures > 15
  \[\text{FIXTURECOUNT}().gt.15\]

Enter the conditions by means of the PLANBAR formula editor. These conditions return a result that is true or false.

The formula editor includes the new FIXTURECOUNT function, which was specially developed for iTrigger. Using this function, you can check how many fixtures with a specific name are included in a precast element and create a different layout depending on the number of fixtures.

Some examples:

- \[\text{FIXTURECOUNT}(@1332@;"Halox")>5\]
- Number of fixtures with references to the catalog (=
@1332@)
   = “Halox” greater than 5
   FIXTURECOUNT(@1332@;“E-Dose,Halox”)>2
   Number of fixtures with references to the catalog (= @1332@)
@1332@
   = “E-Dose” or “Halox” greater than 2
   FIXTURECOUNT(@1332@;“IsoKorb”)>0
   Fixtures with references to the catalog (= @1332@)
   = “IsoKorb” included
   FIXTURECOUNT(@1013@;1)>2
   Number of fixtures with dimension line indices (= @1013@)
@1013@
   = 1 greater than 2
   FIXTURECOUNT(@1981@;3)>3
   Number of fixtures in the third layer of the precast element
   (= @1981@) greater than 3

After you have defined iTriggers in the General area, you can add these iTriggers as conditions to the page of a layout or to individual cells.
Pages or cells without iTriggers will always be created by the program. If there is an iTrigger, the program analyzes the condition set for the precast element while creating the element plan. Whether the program creates the page or cell in question depends on the result of this analysis.

The layout in the layout catalog no longer looks like the finished element plan if several cells are on top of one another or some cells are created or left out due to the conditions defined.

**Note:** If several cells are on top of one another (for example, different title blocks for different conditions), you can select the cell you want to use in the tree structure.

Due to iTriggers, the final element plan may have fewer pages than the element plan in the layout catalog. The element plan window always displays and numbers the pages that have actually been created.

**Note:** If the conditions change (for example, height or number of fixtures), the program does not adjust the layout automatically. Use ![Create New Element Plan](Create New Element Plan) to create the element plan again!
Setting a subfolder for element plan in batch run

When creating element plans and production data in earlier versions, you could not configure the program to automatically name and create an output folder in accordance with different attributes and to save element plans and production data to this folder.

Using formula editor, you can now configure subfolders for **Element Plan in Batch Run**. To do this, open the **Configurations - General - Program sequence - Element plan - Export files** tab.

By resolving the name specified, the program creates the folders dynamically.

**Note:** You can also configure subfolders for **DXF export files**, **DWG export files**, **HPGL export files** and **BVBS export files**.

Do not insert backslashes in front of **subfolders**. If a backslash is missing at the end of the **Output path for ... export files** line, the program will add this backslash automatically.

The program does not resolve the name in the settings in the catalog and in the dialog box of **Element Plan in Batch Run**. Here, you can only see the attribute numbers selected.
You can only use attributes that refer to the project. The same applies to NC generator.

**Note:** You can now find the **Only one sheet / file for identical mark numbers** and **One PDF file for multi-page element plans** settings on the **General** tab in the Configurations - General - Program sequence - Element plan.

**Selecting pages in element plans**

When editing an element plan, you can now select the page you want to edit.

Therefore, we changed the **Element Plan** toolbar by moving the **Modify Element Plan** icon up one line. You can now find this icon in the group including **Update Element Plan**, for example. In addition to the **Previous Page** and **Next Page** icons, the bottom line now includes a field displaying the current page and the total number of pages of the element plan.

Click within this field to open a dialog box, where you can directly select the page you want to display.
The pages are numbered in this dialog box. In addition, you can see the page name defined in the Layout catalog.
Select a page to display this page of the current element plan.

Min-max box of wall leaves in element plans

When displaying walls of which the leaves are offset (for example, a double wall with a long outer leaf at the top level), earlier versions used the min-max box of the entire element to display the leaves in the element plan.

Now the program calculates the min-max box of each leaf separately. This not only makes things clearer but also saves space in the element plan. Furthermore, the dimension lines are now next to the layer of the component to be dimensioned.

Updating labels of reinforcement

The Update Element Plan tool includes the new Do not update labels of reinforcement, Update labels of reinforcement settings. Using these new settings, you can choose to update labels of bars and meshes.

When you select Do not update labels of reinforcement, the program does not create new mark numbers for new bars or meshes. Consequently, these mark numbers are not included in the element plan.
Note: The program still updates existing mark numbers, which may also change, as the program includes fixed rules for assigning local mark numbers.
Precast Slab

Entering slab spans

We reworked the Design tool for slabs. In particular, we changed the following features:

- The **Prompt immediately after entering the placing region** text in front of the check boxes in the Design and Support Parameters dialog box on the Bar Overlaps, Bending Shapes tab now matches the text on the Supports tab (Properties - Design).

- While entering the slab span, you see some dialog boxes for defining the Supports. Now the program only prompts for the parameters of which the check boxes are selected on the Supports and Bar Overlaps, Bending Shapes tab in Properties - Design. The other parameters are not available. Consequently, they are grayed out (for example, the Support width if the associated check box is not selected on the Supports tab in Properties - Design).

Using the check box on the **Enter attributes for supports in the dialog line** tab in Configurations - Slab programs - Half floor - Entry - BS number, you can define whether you want to enter the attributes for the supports in the dialog line or use the dialog boxes instead. To make things clearer, we renamed this tab.

The dialog box for entering slab spans for half floors now includes a data entry box for entering the **Bending shape number**. If the number entered is not used or outside the number range, the program issues an error message.
Lifting bolts for half floor and concrete slab

You can now configure the program to automatically create lifting bolts for slabs of the Half floor type. This has already been possible for slabs of the Concrete slab type.

In addition, we added new options to the methods for calculating the positions of lifting bolts for slabs of the Concrete slab type. The same algorithms are now available for both slab types.

You can now preset the method for calculating lifting bolts for the two slab types on the Lifting bolts tab in Configurations - Slab programs - Half floor or Concrete slab - Entry - Design.

You can choose between No, Option 1, Option 2 and Option 3.

- **No**: The program does not calculate any lifting bolts. This is the default setting. However, you can choose one of the three options at any time while designing or modifying a slab.
- **Option 1**: The program selects the lifting bolts based on the panel weight. The program enters the offsets, starting at the outer edges of the element. This is the method the program has always used to calculate lifting bolts for concrete slabs.
- **Option 2**: The program selects the lifting bolts based on the panel weight. The program enters the offsets, starting at the panel's center of gravity.
- **Option 3**: The program selects the lifting bolts based on the panel length. The program enters the offsets, starting at the outer edges of the element.
You can switch lifting bolts on or off or select a different method while working with the Design or Modify Design tool.

You can change the parameters of one or more slabs in the placing region using Modify Lifting Bolt Parameters in Modify Parameters, Basic Reinforcement.

All three options for calculating lifting bolts include the following new parameters:

- Choose the option you want to use to Calculate the position (see above).
- Define the Minimum offset to the element edge or recess edge.
- Define the Height of the fixture in the z-direction. Do not forget that the reference point of the fixture is the bottom level of the half floor and the top level of the concrete slab.
- Use the Drop-in angle to turn the lifting bolts.
- Choose to create 2 lifting bolts (yes/no).
- Define the Distance between the two lifting bolts (provided you have chosen to create two lifting bolts).

The other parameters (Spacing between lifting bolts, Max. weight and so on) have not changed.
Entering parameters of hammer heads and recesses

We reworked hammer heads (longitudinal side) and recesses (end face) for slabs of the **Hollow core element** and **Prestressed hollow core element** types.

In particular, we changed the following features:
• The **Panel type catalogs** (in Catalogs - Slab) of these two slab types include the new **Bond - end face** and **Bond - longitudinal side** pages for defining recesses on the end face and on the longitudinal side (hammer heads).

• If you select the **Fixture** option for creating hammer heads (longitudinal side), recesses (end face), concrete blocks or concrete beams, you can select one of the four **Subtypes** - **Hammer head**, **Concrete block**, **Concrete beam** or **Recess** - for the relevant fixture in the **Fixtures - Catalog** area of the associated dialog box, regardless of whether you enter or modify fixtures.

Consequently, you can include these fixtures in lists (for example, list for **Hammer head reinforcement** in Plan Display - Slab - Bending schedules) and in production planning.

• When you select the **Parameters** option, the **Bond - end face** and **Bond - longitudinal side** pages include three new parameters:
  - **Draw diagonal**: Select this check box to draw a diagonal.
  - **Label**: Enter some text to label the recess or hammer head.
  - **Fixture for invoicing**: The invoicing lists analyze the symbol fixture you select here.

• We reworked the parameters for entering hammer heads and recesses so that you can now use these three new parameters: **Draw diagonal**, **Label** and **Fixture for invoicing**.

• You can include hammer heads and recesses in lists generated by List Generator and in production data created by Production Data, NC Generator.

  **Note**: If you want to display the real recesses and hammer heads in the sketch of the Unitechnik file, set the Substitute symbol setting to **No - 3D geometry** for the corresponding fixtures on the Prod. Internal tab in the **Fixture catalog** in Catalogs - General.

### Definition ranges

**'Edge offset' parameter for definition ranges**

When defining secondary reinforcement by means of Definition Ranges - Secondary Reinforcement, you can now find the **Edge offset** parameter directly under the **Offset** parameter.
In addition, this option is only available if the **Input parameters** are set to **Offset**. If you set the **Input parameters** to **Number of pieces**, the edge offset is not available.

**Secondary reinforcement for definition ranges**

We reworked the **Secondary Reinforcement** tab of **Definition Ranges**.

- The former check box for **Alternating shortening** is no longer available. Instead, you can find the **Reinforcement shortening** selection list. You can select the following options in this list:
  - **None**: The reinforcement is as long as the definition range. If an edge of the definition range and an edge of the precast element are congruent, the program takes the bar overlap from the precast element edge.
  - **Alternating**: Bars of the reinforcement length set will be placed alternately. To do this, the program creates two placements of the same length.
  - **On both sides**: Bars of the reinforcement length set will be placed centrally.

- When you set the **Input parameters** to **Offset**, you can use the new **Edge offset** parameter to define how to calculate the edge offset:
  - **Start = end**: The program applies the edge offsets evenly to the start and end of the placing region.
  - **Start**: The program applies half the spacing to the start of the placing region. The program calculates the last offset at the end of the placement.
  - **End**: The program applies half the spacing to the end of the placing region. The program calculates the edge offset at the start of the placement.

**Note**: When you set the **Input parameters** to **Number of pieces**, the program always uses the **Start = end** option to calculate the edge offset.
Precast Wall

Wall element design

Usability

We revised and adjusted the texts in the palettes of Wall Element Design so that you can read everything without difficulty.

Facing layers for concrete wall and double wall

You can now apply facing layers to walls of the Double wall type created with Wall Element Design. To do this, select the With facing layer check box.

When you switch to Design type, you can select the Material for the facing layer: Tiles or Insulation.

Now you can also select Insulation for the Material of the facing layer of a Concrete wall.

Note: If you select the On both sides option for the facing layer, you can choose Insulation for the Material on one side and Tiles for the material on the other side.

When it comes to Connections, the Concrete wall provides appropriate options for walls with facing layers. The Double wall does not include its own connections. Here, you can use the Section of the Free connection type and Layer adjustment.

Note: Please contact our support team if you want to learn more about these new connections or find out how to create special connection types.

Using the tabs of Basic reinforcement,.... you can define how to place Tiles or Insulation in the additional layers.

In addition, you can find the new Favorite 2 tab for the Double wall in Configurations - Wall programs - Double wall (new) - Entry - Design. These two pages include definitions for the Double wall, Double wall with the facing layer on the side of the design identifier, Double wall with facing layers on both sides and Double wall with the facing layer on the opposite side of the design identifier. These pages are the same as those for the Concrete wall.
**Note:** We did not duplicate the settings on the **Favorite 2** page. You must decide whether you want to write **Tiles** or **Insulation** to the **Favorites** for the **Facing layer**!

The **Layout catalog** (in **Catalogs - General**) includes the three new wall types with facing layers for the double wall. You can find them on the **Properties - Element types** tab.

In addition, we added the three new wall types to the dialog box of **Element Plan in Batch Run**.

**Adjusting the layers at the top and bottom**

We changed the way the program behaves when you select **As shorter leaf** for the **Thermal wall with in-situ concrete** type in **Design type - Layer adjustments, concrete strips**.

When you select the **As shorter leaf** for **In-situ concrete**, the program always uses the concrete leaves.

In addition, the **As shorter leaf** option is now available for the **Insulating layer**.

**Production sequence changed**

You can now change the production sequence of all walls created with **Wall Element Design**.

The production sequence defines which side of the wall is the leaf 1 (for double wall and thermal wall) or which side is the formwork bottom (concrete wall and sandwich wall).

In earlier versions, the production sequence was predefined for all four wall types:

- Concrete wall: formwork bottom on the side opposite the design identifier
- Double wall: leaf 1 on the side opposite the design identifier
- Sandwich wall: formwork bottom on the side of the design identifier
- Thermal wall: leaf 1 on the side of the design identifier

You can now change this side. The placing drawing displays the symbol of the leaf 1 or formwork bottom on the side defined.

In addition, the production sequence defines ...

- how lattice girders or connecting elements will be placed.
- how stirrup cages will be placed.
• how lifting bolts will be placed.
• the production data.

In addition, you must define separate layouts for element plans when you change the production sequence.

Setting the symbol for the leaf 1 or the formwork bottom
You can define two different symbols for placing drawings on the Symbols tab in Configurations - Wall programs - Wall type (new) - Entry - Labeling.

If you set the Representation parameter to ‘Yes’, the placing drawing displays the symbol defined for the leaf 1 or the formwork bottom.

**Note:** For element plans, you can also define a symbol for the leaf 1 or the formwork bottom in the layout catalog. To do this, open the Catalogs - General - Layout catalog, go to the properties of a View and define a symbol in the Symbols in drawing area on the Symbols tab. You must define symbols for element plans at a reference scale of 1:1.

Setting the parameter for changing the production sequence
Input has changed as follows: You can now select or change the side of the leaf 1 or the formwork bottom in the Production parameters group of Design type.
Effects of changing the production sequence

The palettes for defining the connections and design have not changed.

When you change the production sequence, the Basic reinforcement,... palette considers and displays the relevant settings. The program creates the basic reinforcement as usual. Changing the production sequence has no effect on the reinforcement.

Depending on the production sequence, the program rotates and places the lattice girders, connecting elements and lifting bolts as usual.

**Note:** Regardless of the production direction, Secondary lattice girders of the Thermal wall design type are always in the invisible leaf, extending into the in-situ concrete. You can only rotate the lattice girders.

**Note:** You cannot change the production sequence when you select Schoeck thermal anchor, dimensioning and arrangement or Kappema earthquake resistance for Calculation of connecting elements. The program will issue a warning if you try to do this.

The reinforcement may change if you rotate the lattice girders and the Include in as-value parameter is selected.

**Note:** The program always assigns stirrup cages or bent-up meshes to the leaf defined. This applies to stirrup cages and bent-up meshes created with Stirrup cages, Bent-up meshes or FF.
reinforcement in Element Plan - Secondary Reinforcement or Edit Element - Secondary Reinforcement.

The layout catalog (in Catalogs - General) includes the new Formwork bottom / leaf 1 option for Direction definition 1 in the Principal directions group on the View - parallel projection or Section tab of the properties of a View or Section. Here, you can define your own layouts if you want to use this new option of changing the production direction.

When you change the production direction in the Production parameters group of Design Type, the program issues a message indicating that the side of the leaf 1 or the formwork bottom has changed and that you have to select a different layout. The program does not change layouts automatically.

When creating production data, the program turns elements on the palette so that the geometry, recesses, reinforcement and so on are placed correctly in accordance with the Default, Layer/lot or 3D polyhedron setting in Catalogs - Process planning - NC generator, driver catalog - Mirroring/structure.

Elements created with the 2-tier setting will be assigned to the appropriate leaf.

Rounding the element length

When you set the Division option to Maximum element length, you can now decide whether you want to round off the length of wall elements created with Wall Element Design.

To round off the element length, select the Round off length check box and enter the Rounding value.

Bending shape at any edge

We reworked the Bending shapes at any edge option for the Element Plan and Edit Element tools.
When you click a point, the arrow is always placed on the point clicked.

In addition, we reworked the visibility settings of reinforcement. As a result, these settings do not change even if you enter several areas one after the other. Earlier versions set the visibility back to the visibility settings defined for the element plan after you entered the first area.

Furthermore, attached reinforcement is invisible by default, making things more apparent on screen.
Structural Precast Elements, iPars

Usability

We revised and adjusted the texts in the palettes of Structural Precast Elements so that you can read everything without difficulty.

Using PythonParts

The Structural Precast Elements tool includes a new Input option: PythonPart. Using this option, you can match a PythonPart or convert a PythonPart to a structural precast element, iPart.

- When you Match a PythonPart, the program reads the geometry of the PythonPart, creating a discrete structural precast element, which is attached to the crosshairs.
  Any reinforcement applied to the PythonPart will be lost.
  Afterwards, you can only modify the attributes of the structural precast element, iPart. You cannot change the geometry by means of parameters.

- When you Convert a PythonPart, the program attaches the structural precast element directly to the PythonPart.
  Any reinforcement applied to the PythonPart is still available.
  Afterwards, you can modify the geometry or reinforcement of the PythonPart; the structural precast element will adapt accordingly.
  This does not affect the way structural precast elements function (for example, Element Plan, Production Data, NC Generator or List Generator).

'Join Structural Precast Elements' and 'Modify Joined Elements' no longer available

Join Structural Precast Elements and Modify Joined Elements are no longer included in PLANBAR 2018.
Stacking

Viewports

You can now change the size of the viewport with the Isometric view in the Stack tool. For example, you can Minimize the viewport or Zoom out. You can even close it by clicking Close.

The viewport with the Plan view can be resized but not closed. You can move the two viewports to a second monitor as usual.
Production Planning

Production planning, catalogs

Default setting for production data path

When creating element plans and production data in earlier versions, you could not configure the program to automatically name and create an output folder in accordance with different attributes and to save element plans and production data to this folder.

This is now possible. To define default settings for the production data path, you can now use the Production data path area on the Data creation tab in the NC generator, driver catalog in Catalogs - Process planning.

In addition, you can use the new Subfolder data entry boxes to define one or more subfolders by means of variables.

You can define these settings in the same way as you define the Naming convention of the Production file.

There are some new variables: Project name, Order number (= project attribute), Story (= project attribute), Fileset name and Drawing file name.
To define folder names, you can use all project-specific attributes including the attributes of the building structure. 

**Note:** The main **Folder** must exist; the subfolders will be created automatically.

**Weight of fixtures considered**

You can find the new **Consider weight** setting on the **General** tab in the **Fixture catalog** in **Catalogs - General**.
Using this setting, you can choose to include the weight of a fixture in the element weight.

To do this, select the check box.

Enter the weight in the data entry box. You can enter the weight directly or define a formula.

If you want to use a formula, you can enter the formula directly in the data entry box or click the Variables for formula icon to open a dialog box.

This dialog box lists the variables you can use. To use one of the variables displayed, select a variable and click Transfer variable to text box. To define the formula, use the variables of the list text or the logging formula.

Click the Copy text to Windows clipboard icon to copy the expression entered to the clipboard.

Click to close the dialog box and insert the expression you copied to the clipboard into the data entry box.

Make sure that you enter the values for all fixtures (symbol, linear and surface fixtures) and smart symbols so that the result is always in kg!

Some examples:
- Symbol fixture; entry = 250
  ➔ 250 [kg]
  ➔ (2*H+W)*10 [m]*[kg/m] ➔ [kg]

- Linear fixture; entry = A*100
  ➔ A*100 [m²]*[kg/m²] ➔ [kg]

- Surface fixture; entry = (2*H+W)*10 + A*100
  ➔ (2*H+W)*10 [m]*[kg/m] + A*100 [m²]*[kg/m²] ➔ [kg]

The program includes the weight entered or calculated in the element weight of the precast element. In addition, it includes the weight when calculating the center of gravity of the precast element.

You can enter a positive or negative number for the weight.
Additional parameters for lists and element plans

The **Fixture catalog** (in **Catalogs - General**) includes some new parameters for lists and element plans.

You can find the following new settings on the **Logging** tab:

- **Rounding function for logging formulas of fixtures**: You can round off the result calculated by a formula using a function applying to the whole formula. The following options are available:
  - **REX**  rounding exactly
  - **RUP**  rounding up
  - **RDN**  rounding down

Syntax: **RUP** ([formula], rounding value); for example, **RUP** (U,1.0) rounds up the length of a linear fixture to a whole meter.

**Note:** This rounding function always applies to the whole formula! You cannot use this function with terms of a formula! Make sure the syntax is correct: keyword; open brackets; formula; comma; rounding value with a dot as a decimal separator; close brackets!

- **Invoicing factory**: You can enter a second calculation formula for each fixture. This second calculation option can be analyzed by lists or element plans. The program transfers the quantities
calculated for Invoicing factory as separate variables to lists. For the time being, these variables cannot be analyzed by a standard list. By request, we can customize some lists to your needs.

- **Round total sum**: You can round off the sum of fixtures in lists (for example, measurement sheet). You must enter the rounding type and rounding value as you would when using the rounding function (see above).

- **Balance rounding amount on elements**: If you choose to round off the total sum, it no longer matches the sum of the individual items listed by the single panel schedule. So you can balance the items as follows:
  - **Evenly** calculates a factor, multiplying all items by this factor. When you add up all items, you get the total sum.
  - **Optimize** identifies only items that do not match the rounding rule. Based on this rule, this option calculates a factor.

We changed the catalog slightly so that the new parameters fit on the Logging tab:

- We moved the Add list text to precast menu for smart opening symbols parameter to the tab with the parameters for external single panel schemas. In addition, we renamed the ext. EPA tab. Its new name is BFT menu.

- We removed the descriptions of the variables from the dialog box. You can now find them in a separate dialog box including input options. To open this dialog box, click the Variables for formulas icon in the Logging formula area. The list includes all available variables. You can copy the variables individually into the data entry box and then copy the entire contents of this box to the clipboard.

- The Element plan tab includes the following new parameters:
  - **Maximum text**: You can define the maximum number of characters for labels in the table (before the program adds quantities). Existing entries are initialized with 64.
  - **Complete formula**: You can choose between Invoicing customer and Invoicing factory. You can also select No. The default setting is Invoicing customer as usual.

  **Note**: When you choose No, the program does not add the quantity calculated by the formula. Instead, the program adds the default quantity of the fixture, that is to say, the length for a linear fixture or the area of the polygon for a surface fixture.
Icon for opening dialog boxes

The **Variables for formulas and smart symbols** icon opens a dialog box helping you define formulas. In addition, you can now find this icon in front of other text fields for defining the **List text, Material number, Free info line 1** and **Free info line 2**.

Enter the formula as usual or click the **Variables for formulas and smart symbols** icon to open the dialog box.

Enter the formula as described above (see **Variables for formula** for the weight of a fixture).

**K and U variables for symbol fixtures**

We enhanced the way the program calculates the values for the **K** (maximum edge length [m]) and **U** (circumference [m]) variables of symbol fixtures in the **Fixture catalog**:

- First, the program looks for the longest polyhedron edge of the fixture.
  
  **Note:** The fixture must have a polyhedron defined as a 3D foil!

- If the longest polyhedron edge is parallel to the XY plane of the corresponding view, the program turns the fixture so that its longest edge is placed at 0 degrees in this plane. In this position,
  
  - **K** defines the maximum in the x-direction, y-direction or z-direction.
    
    - **U** = 2X +2Y.

- If the longest edge is not within the XY plane, the program turns the fixture so that its longest edge is placed along the z-axis. The program then looks for the longest edge that is within the plane that is parallel to the XY plane. Finally, the program turns the fixture so that its longest edge is placed at 0 degrees (parallel to the x-axis). Here, the following still applies:
  
  - **K** defines the maximum in the x-direction, y-direction or z-direction.
    
    - **U** = 2X +2Y.
Production planning, creating production data

Several PTS servers

One or more PTS servers can check the reinforcement at the same time in PLANBAR. This is done by the new PTS Server Control tool.

In earlier versions, you could only transfer attached reinforcement to a single PTS server by means of the Mesh Welding System Editor tool. Using the new PTS Server Control tool, you can also transfer loose reinforcement and individual bars.

When it comes to attached reinforcement, however, you can only transfer whole meshes as usual. The program always checks all bars of a mesh even if you select a single bar only.

PTS catalog

Use the new PTS catalog in Catalogs - Process planning to define one or more PTS servers. You can then send the data you want to check to these servers.

You need to define at least one PTS server. Otherwise, the program will issue an error message.

Enter a name for the server in the Name box. If you want, you can also enter a Description.

You can select a driver in the NC driver box. You can only select drivers that were created with the ProgressXML 1.2 or ProgressXML 1.3 setting for the driver in Catalogs - Process planning - NC generator, driver catalog.

Use the next two boxes to enter the paths to the PXML file folder and the Feedback file folder. Make sure the settings you define match those of the PTS server(s). Check this with the Progress company.
Finally, select the **Language** and **Time limit** for the server.

![PTS server catalog](image)

**PTS server control**

After having selected the **PTS Server Control** tool, select the precast elements of which the reinforcement is to be checked by the PTS server(s). The selected elements are highlighted in green and the **PTS Server Control** dialog box opens.

Using this dialog box, you can send precast elements, layers, reinforcement units, groups or individual bars to the PTS server(s).

You can find the following icons at the top:

- **Select all** reselects all entries after you clicked individual groups, bars and so on.
- **Expand all groups/Collapse all groups** opens or closes all groups at once.
- **Zoom in on selected objects** highlights the selected bar(s) in green and zooms in on the selected bar(s) in PLANBAR.
- **PTS Selection** includes or excludes a specific PTS server.
Click the Filter icon at the top to filter the bars according to predefined criteria (for example, PrecastMarkNo (= mark number of precast element), Group type (MWS mesh, loose bars), MarkNo (= mark number)). This way, you can show or hide the bars as you need.

You can use the icons to undo your selection, show or hide individual elements and so on.

Initially, all reinforcement elements get the symbol. The bars are sorted by Element type, Layer number, Reinforcement unit and Group number.

By clicking the PTS Server Control button, you send the data of the reinforcement to be checked to the PTS server(s). The PTS server(s) check the reinforcement, displaying information on the status in a dialog box. As soon as the PTS server(s) have returned all results, the Please wait text changes to PTS Server Control completed and the Cancel button changes to Close. Now you can close the dialog box.
Depending on the results, the symbols change in the PTS Server Control dialog box.

When pointing to an error symbol in the overview, you can always see the most serious error.

To see the details, click … A dialog box opens, displaying all warnings and errors.
The symbols in detail:

- ✔️: The reinforcement checked is okay.
- 🔴: This is not a warning; it is only for information.
- 🟢: This is a note (= warning of minor level), indicating that the bars can be produced without difficulty. However, production speed may not be ideal.
- ⚠️: This is a warning of medium level, indicating that it is difficult to produce the bars. For example, the bars may be of poor quality.
- ✗️: This is an error, indicating that the bars cannot be produced.
- 📝: The feedback file is missing or incorrect. This error message indicates that the feedback file cannot be read. For example, the path is incorrect or cannot be accessed. This error is also included in the dialog box displaying information about the status:

![Image](image1.png)

- If the path for the PXML files is not defined correctly or cannot be accessed, the dialog box includes a message. The 📝 symbol does not change in the dialog box.

![Image](image2.png)

Check the errors with the manufacturer, because they vary from machine to machine.
Close the dialog box. Select the next element you want to check or quit the PTS Server Control tool by pressing ESC.

Calculations based on floor plan dimensions

The Calculate Outer/Outer type is mainly used in Southern Germany. This type does not calculate a slab based on the actual slab area. Instead, the square meters of the floor plan are used.

The program subtracts openings > \( xx \) m² (\( xx \) = value for Recess limit area you can enter on the Calculation parameters tab in Configurations - Process planning - General - Production data transfer).

If the exterior walls are thicker than 30 cm, you can reduce the outline manually. Otherwise, the missing areas would be too large.

The external process planning program (BFT menu) provides a program that calculates and documents the area in this way. This program has two functions:

- It calculates the area. You can click recesses you want to subtract. This way, you can reduce the outline as you need.
- It creates a layout so that you can document the resulting area.

Now you can use this program without having to open the external process planning program (BFT menu).

How to calculate the outer/outer area in PLANBAR

You can now find the new Calculate Outer/Outer tool in Production Planning in PLANBAR.

As soon as you open the new Calculate Outer/Outer tool, it creates a DAT file including the data of the floor plan. Slab elements are not included.

You can find this DAT file in the ..\decp folder, which is a subfolder of the current PLANBAR project. The name of the DAT file is the same as that of the current drawing file, for example, drawing file 1 = tb000001.dat.

The BFT menu starts automatically, switching to the Invoicing module.

You can now enter the area directly, reduce or enlarge the outline or print the floor plan. If you do not want to print the floor plan now, you can also create a print file.

After you have quit the Invoicing module of the BFT menu, the program saves the value calculated to the DAT file. This value can
New Features in PLANBAR 2018-0-1  PreCast Elements

now be processed by the List Generator or the Export TIM Data tool.

**Note:** Make sure the correct drawing file is the current drawing file. This is particularly important when parts of the floor plan are on several drawing files.

When you calculate the invoicing area using the Calculate Outer/Outer tool, the program now transfers this area automatically to lists and you can print this area.

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**MEASUREMENT SHEET:**
Invoice according to Outer-outer

Selected positions 27-34;

<table>
<thead>
<tr>
<th>Mark</th>
<th>Name</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Groẞformatplatten</td>
<td>676.31</td>
<td>m²</td>
</tr>
<tr>
<td>2</td>
<td>Schräge Kanten</td>
<td>31.25</td>
<td>lfm</td>
</tr>
<tr>
<td>3</td>
<td>Gitterträger</td>
<td>211.83</td>
<td>kg</td>
</tr>
<tr>
<td>4</td>
<td>Längsleisten</td>
<td>454.61</td>
<td>kg</td>
</tr>
<tr>
<td>5</td>
<td>Quereisen</td>
<td>241.46</td>
<td>kg</td>
</tr>
</tbody>
</table>

---

**Note:** When defining the invoicing parameters of a slab, you can set the basis for invoicing to **Floor-plan area of house** in Properties - Invoicing. This setting calculates the invoicing area of all slabs from the floor-plan area. In this case, the Calculation method is irrelevant and thus not available.

**Exporting TIM data**

If you want to use the Export TIM Data tool, you must define the following new settings on the Calculate Outer/Outer tab in Configurations - TIM - Data export.
• If you want to use the invoicing data with TIM, select the **Export outer/outer area for invoicing** check box.

• You can configure the program to start the calculation program automatically when exporting data to TIM. To do this, select the **Start calculation program automatically during export** check box.

  **Note:** However, this will only work if you select the **Floor-plan area of house** option for the **Basis for invoicing** setting in **Properties - Invoicing** during design.
The automatic feature checks whether the drawing file includes slab elements with this setting. If this is so, the calculation program starts automatically. **Note:** This only makes sense if you want to use the invoicing data calculated automatically. The calculation program saves the result to the DAT file, but it does not save any changes you make by clicking recesses or rooms or reducing the outline. Whenever you restart the program, it recalculates the result automatically. Consequently, you would have to make the same changes every time you restart the program. Therefore, we recommend that you start the program manually from the menu. This way, your changes will not be lost.

- If you want, you can save the invoicing layout as a document on TIM. To do this, choose **in HPGL format (*.HPG)** or **in PDF format (*.PDF)** for **Export layout for invoicing**.

This requires an output channel you must configure using the **BFT menu**. This output channel saves the file as a print file to the project path (like the DAT file).

To do this, start the **BFT menu** and select **Slab - Config - Plotter**. Configure the output channel as follows:
- Output to \texttt{[prjpath]\[prj].HPG}: The program enters the correct path and file name automatically.

- The extension is \texttt{.HPG}.

Select the page format on the \textbf{Calculate Outer/Outer} tab.

\textbf{Note}: After this, select \textbf{Print} in the calculation program and use this output channel to create the layout.

- As the \textbf{BFT menu} cannot create PFD files, you can convert the HPGL file to PDF format in \textbf{PLANBAR}.

If \textbf{Export layout for invoicing} is set to \textbf{in PDF format (*PDF)}, the program converts the HPGL file to PDF format. However, the converter must know the page format, as the HPGL data do not include information on the format. Therefore, set the same page format as on the \textbf{BFT menu}.

\textbf{Note}: The program can only convert HPGL files including text in ANSI format. Therefore, select the \textbf{HP} driver (see screenshot above). Moreover, this driver does not include escape sequences. Do not select a different driver. Otherwise, there will be problems with special characters!

- While exporting the data, the program checks whether an invoicing area is available. If you have not run the calculation program or the resulting area is smaller or equal to 0, the program issues a warning during export (\textbf{Issue warning} setting) or cancels export (\textbf{Cancel export} setting). When you select \textbf{Ignore}, the program ignores errors.

\textbf{PXML version 1.3}

You can use the new version 1.3 to create production data in PXML format of the Progress Maschinen und Automation AG company.
When you select the **ProgressXML 1.3** setting for the **Driver** in the **NC generator**, **driver catalog** in **Catalogs - Process planning**, you can now select the additional **NC files include info from delegate file** option.

You can find more information on the PXML interface at [http://www.pxml.eu](http://www.pxml.eu).

**PXML, bars with end hooks greater than 90°**

If an end hook is greater than 90°, PLANBAR inserts an additional point to divide the angle (90° plus the rest). However, some bending machines have problems processing the data.

When transferring production data in PXML format, the program now removes the additional segment, recalculating the length of the end hook as follows:

![Diagram](Image)

To calculate the length $d_1$, the program uses the following equation:

$$d_1 = R \times \tan \left( \frac{a}{2} \right)$$

The terms in detail:
- $a$ is the bending angle limited to 90°;
- $R$ is the bending radius.

If, for example, the program combines the two angles of 90°+20° to a single angle of 110°, the following applies to the segment lengths:

- The length of the first segment does not change, as the length measured at 90° is the same as the length measured at 110°. The program always measures the length as far as the tangential point (see the illustration on the right).
- The second segment will be lengthened by $R \times (\tan (90°/2) - \tan (20°/2))$.

If you do not want to include this information in the PXML file, you can switch off this function using the ‘RemoveHook2=0’ INI value of the driver.
Note: This does not affect the way the program transfers segments and segment lengths when creating Unitechnik data and BVBS data.

List generator

Area calculations based on copes

When it comes to lists created with the List Generator, you can now calculate the areas of elements using the new Copes option.

To do this, open the Schedule defaults and select the Copes option for the Calculate areas based on and List missing areas parameters on the Area calculation and Copes tabs of Slab calculation (or Wall) and Slab recesses (or Wall recesses).

The Recesses option calculates the areas as usual.

Unlike the ‘recesses’ option, the ‘copes’ option includes all areas missing from a rectangle circumscribing the relevant precast element.

You can now list these areas in the measurement sheet. This way, you can invoice articles at an extra charge.

Please contact our support team if you want to learn more about these new options.

Stair list

The List Generator includes the new Stair list you can use for structural precast elements, iParts. You can find this list in the default folder.

Using this list, you can list the most important attributes of a stair: mark number (MarkNo), invoice item (Invoice item), concrete grade (Concrete grade), number of steps (StepNo), flight width (Flight width [cm]), thickness (Flight thick [cm]), rise (Rise [cm]), tread (Tread [cm]), length of the landing top at bottom (Base [cm]), length of the landing top at top (Top [cm]) and steel weight (Steel [kg]).
**Note**: The **Invoice item** field only returns a value if you use an ERP system. Otherwise, this field will be empty.

### ADS prompts for articles

We reworked the prompts for the **xml-ADS interface**. This applies to the lists in the default folder of the **List Generator**.

- When you have already selected **Prompt for all articles** on the list selection page (for example, you want to prompt for the article number or price only), the **Continue with default; do not save data record of article** (formerly **Cancel**) button is grayed out, as you do not need this button for the time being.
Earlier versions always deactivated the selected prompt together with Cancel. So the program prompted for all articles. Therefore, Prompt for all articles is now available as a separate check box in the dialog box. So you can deactivate a selected prompt. Consequently, the program will not prompt again.

When you change the article number in the ArticleNo box, the Continue with default; do not save data record of article becomes available again. You can decide whether you want to apply the change and save it to the catalog or whether you want to use the original default and discard the change.
- If the article catalog does not include an article entry, you can enter the article number.

To add the new data record to the catalog, click **Continue and save data record of article to catalog** (formerly **Apply**).

**Continue with default; do not save data record of article** uses the default and does not save anything to the catalog.

![Image of article entry input fields](image)

This has always been this way. The only exception is the **Prompt for all articles** check box, which you can now deactivate separately.
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