PLANBAR 2016

New Features in PLANBAR 2016-1

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Contents

Welcome

Dear Sir or Madam,

The following pages present the most important new features we have developed since version PLANBAR 2016-1.

Again, we were able to put a great number of your ideas into practice.

This time, development focused on the new BIM Booster module, which assists you in efficiently editing large-scale projects in parallel.

A new placing option allows you to place short linear fixtures along a line segment (for example, an edge).

We implemented a new algorithm for calculating connecting elements for walls created with wall element design. This algorithm was developed by the Kappema company. In addition, we improved group fixtures for use with connections. You can now create lattice girders for concrete slabs and define free profiles of hollow blocks for hollow core elements and prestressed hollow core elements.

We considerably expanded the options you have to configure file names for exporting PDF files, invoicing lists and production data. You can now select from all Allplan attributes.

We added a new option for the creation of production data in PXML format (version 1.3): you can now choose to create PXML Delegate Files, too

We wish you fun and success in exploring PLANBAR 2016-1!

Precast Software Engineering GmbH

Salzburg, November 2015

Precast Elements

New features across modules

Restoring formwork attributes to their defaults

Clicking **Restore basic settings** in the **Formwork Attributes for Panel Edges** dialog box replaces the input parameters with the default parameters defined in the configurations. When dealing with slab elements, you can find this option in the following tools: **Design**, **Modify Design** and **Modify Parameters, Basic Reinforcement**, **Change Formwork Attributes**. When it comes to wall elements, you can use the following tools: **Design** and **Modify Parameters, Basic Reinforcement**, **Change Formwork Attributes**. Earlier versions restored the formwork attributes to the state that was set when you opened the dialog box.

Steel grade for secondary reinforcement

When you place reinforcement, the program always saves the last **Steel grade** or **Cross-section catalog** set in the **Bar Reinforcement** module for all the bars that do not belong to the basic reinforcement of a precast element.

This is the **Steel grade** or **Cross-section catalog** set in the **Enter** dialog box or in the palette for **secondary bars, reinforcement for trimming, freeform secondary bars, stirrup cages** and so on you enter using the **Secondary Reinforcement** tools or bar reinforcement you enter using the **Enter** and **Bar Shape** tools of the **Bar Reinforcement** module. For reinforcement created with **Enter Area Reinforcement**, the program takes the steel grade from the **Options - Reinforcement**.

The program now analyzes the **Steel grade** or **Cross-section catalog** saved according to the following criteria:

- If there is a cross-section catalog number (= **2nd data entry box** for the **Name** of **Bar cross-section catalogs**) that is entered for only one steel grade (**Cross-section catalog code** parameter on the **General** tab in the **Catalogs, General, Steel grade catalog**), the program assigns this steel grade to the bar.

- If there is a cross-section catalog number without a **Cross-section catalog code** in the steel grade catalog, the secondary reinforcement gets the steel grade of the basic reinforcement used for the reinforcement unit that contains the secondary reinforcement.
- If there is a cross-section catalog number of which the **Cross-section catalog code** exists multiple times in the steel grade catalog (for example, the **Cross-section catalog code** is set to **4** for all the steel grades in the default catalogs that come with the program), the program assigns the steel grade of which the yield strength **fyk** in the steel grade catalog matches the **yield strength** in the bar cross-section catalog.
  If the steel grade catalog contains several steel grades with matching yield strengths **fyk**, the program uses the first steel grade found.

Representation of lattice girders

Earlier versions always displayed lattice girders with the same fixed settings (pen = 1, line = 5, color = 13). Now you can customize the settings for your needs. In addition, you can define a symbol indicating the girder direction.

To do this, you can find the new **Display** tab in the **Lattice girder catalog** (in **Catalogs**, **General**).

When you select **As defined in general settings** for **Line display**, the program displays the lattice girders as usual. This is the default setting for lattice girders when you use a lattice girder catalog from an earlier version or when you create a new girder.

When you select **Custom definition**, you can set the **Pen**, **Line** and **Color** as you need.

Using the entries in the **Symbol** area, you can define a custom symbol for identifying the girder.

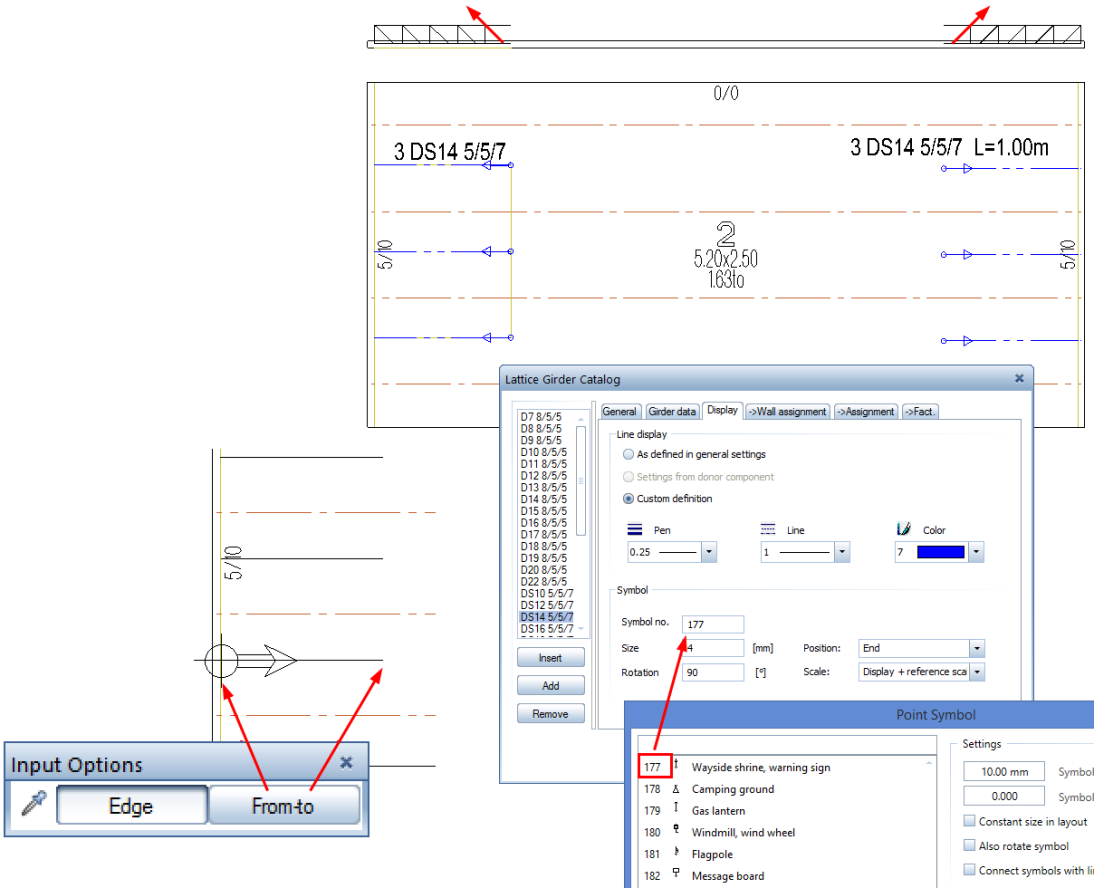
To do this, enter the number of a point symbol in the **Symbol no.** box. The numbers are the same as those in the **Point symbol** dialog box of the **Point Symbol** or **Terrain Point** tool.

Using **Size** and **Scale**, you can define the size of the symbol and configure the program to set the size of the symbol in accordance with the scale. These parameters are the same as those for **Mark stop position with a symbol** you can find in the **Configurations**, **Slab Programs**, **Half Floor**, **Entry**, **Labeling** on the **Symbols** tab.

You can rotate the point symbol by entering a value that is not equal to 0 for **Rotation** (see illustration below).

The **Start**, **End**, **Start and end** and **Middle** settings define the **Position** of the symbol.

Note: Lattice girders you place manually always start at the point where you can see the temporary placing symbol during creation ("from point" for **from - to**). Lattice girders the program places automatically always start at the support.



Element labels

Label in mark number line

Configurations, ..., **Labeling**, **Mark no. line** tab: if you define a text border (%%EA, %%EE) for the pattern and this border does not stretch along the entire text length, the program applies the text border to the area defined.

Earlier versions always created the border along the entire length. When you changed the mark number later, they applied the border only to the area defined in the pattern.

as-values for walls

To analyze the as-values of the reinforcement layers of walls created with **Wall Element Design**, you can use the following new variables for the lines below the mark number line. These new variables are of the **Floating-point number** type and use the unit **[cm²]**.

- **AsVorhS1, AsVorhQS1** — visible leaf, reinforcement unit 1, concrete wall, double wall, sandwich wall, thermal wall
- **AsVorhS2, AsVorhQS2** — visible leaf, reinforcement unit 2, concrete wall, sandwich wall, thermal wall
- **AsVorhO1, AsVorhQO1** — in-situ concrete, reinforcement unit 1, thermal wall with in-situ concrete core
- **AsVorhU1, AsVorhQU1** — invisible leaf, reinforcement unit 1, sandwich wall, thermal wall
- **AsVorhU2, AsVorhQU2** — invisible leaf, reinforcement unit 2, double wall, sandwich wall, thermal wall

Note: The manner in which the program assigns values to the **AsVorhS1**, **AsVorhQS1**, **AsVorhS2** and **AsVorhQS2** variables for walls created with **Design** has not changed. Bear in mind though that the **double wall** type calls for a different assignment of variables.

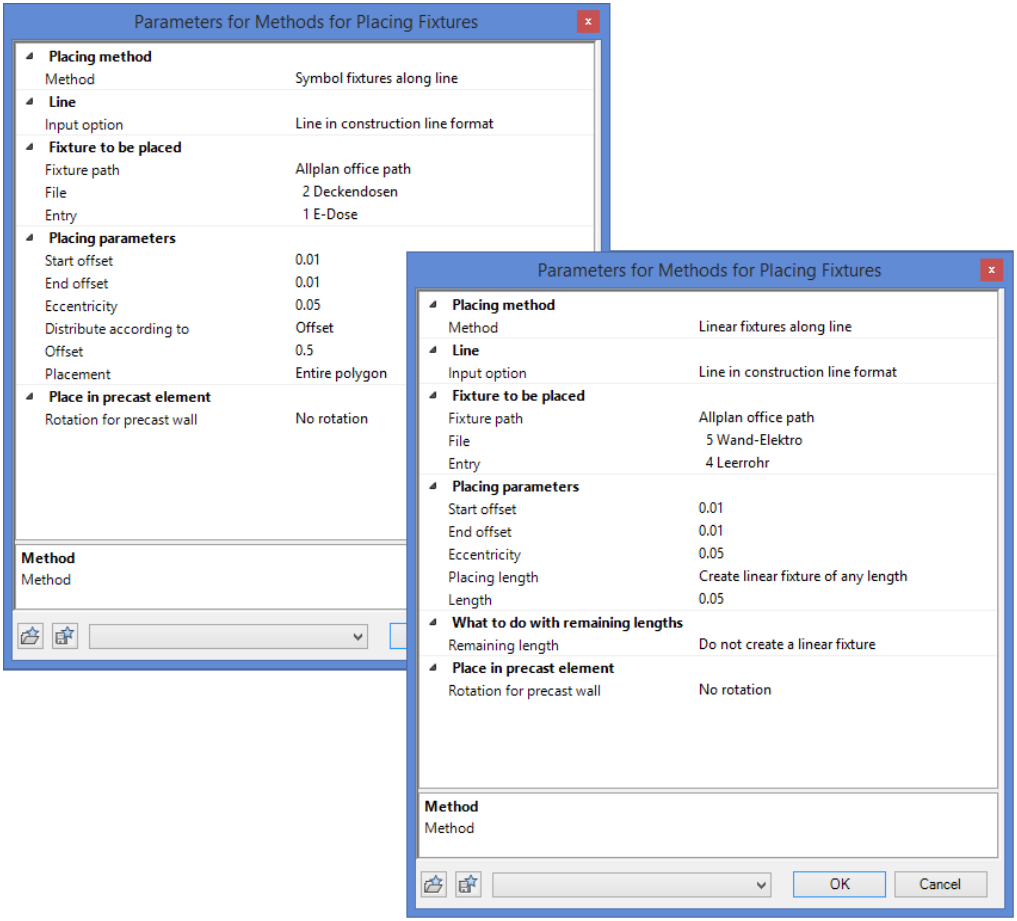
Methods for placing fixtures

Using the **Methods for Placing Fixtures** tool, you can now place symbol fixtures, group fixtures and linear fixtures (for example, Isokörbe, cast-in channels) along a predefined line (for example, an element edge).

We replaced the **Methods for Placing Fixtures** dialog box with a palette. Start by selecting the **Placing method**.

You can choose between **Symbol fixtures along line** and **Linear fixtures along line**.

The palette changes with the selection you make.



Tip: Use **Save as a favorite** to save frequently used settings as favorite files. The program saves the settings to files ending in *.FPM. You can retrieve these files whenever you need. Just click **Load favorite**.

Placing symbol fixtures along a line

When you select **Symbol fixtures along line** for the **Placing method**, the parameters in the palette and their effects are the same as those in version PLANBAR 2016. The only exceptions are the **Eccentricity** parameter and the new **Max. offset** placing option.

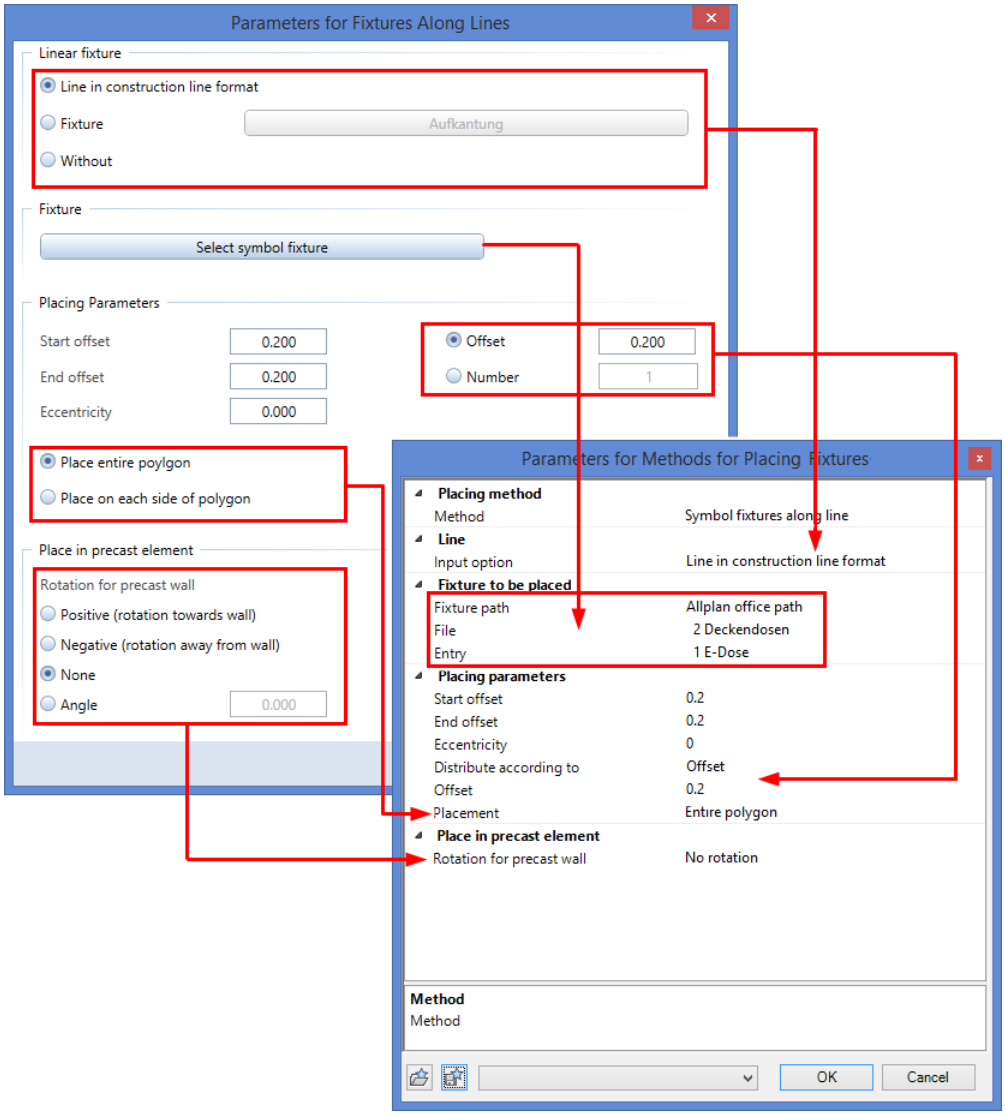
Selection boxes replaced the former radio buttons (for example, the **Offset** and **Number** placing options).

You can select the fixture you want to place by selecting the **Fixture path**, **File** and **Entry**. This is the same in all property palettes. You no longer select the fixture graphically using the **Fixtures** palette.

The palette offers only fixture files and fixture entries you can actually use. For example, when you select the **Fixture** input option for the line, you can select only linear fixtures. Similarly, the program offers only symbol fixtures and group fixtures for the **Fixture to be placed**.

Note: You cannot select fixtures from manufacturer catalogs or article catalogs.

The **Eccentricity** parameter now applies always to the view in which you enter the fixtures. In earlier versions, the eccentricity defined was associated with plan view. Consequently, you could not define symbol fixtures on the lateral sides of walls or slabs, as these fixtures were always outside the precast element. A positive eccentricity value is always to the right of the defined path. This is the same as entering a positive offset for the **Offset Polyline** tool with the **right** setting being active in the input options.



In addition to the **Offset** and **Number** placing options, the **Distribute according to** parameter offers the new **Max. offset** option. When you choose **Max. offset**, you need to define the maximum distance between neighboring fixtures.

The program distributes the fixtures evenly along the defined length, taking into account the maximum offset, the start offset and the end offset defined.

Selecting this new option automatically sets the **Place** parameter to **On each side of polygon**. You cannot change this.

Placing linear fixtures along a line

Like **Symbol fixtures along line**, the **Linear fixtures along line placing method** requires you to start by selecting the **input option** for defining the line along which you want to place the fixtures. Here, too, you can choose between **Line in construction line format** and **Without**. But you cannot select the **Fixture** option for linear fixtures.

The procedure for selecting the **Fixture to be placed** is the same as that for symbol fixtures: select the **Fixture path**, **File** and **Entry**. You can select only linear fixtures with or without the "outline" option.

Note: Here, too, you cannot select fixtures from manufacturer catalogs or article catalogs.

The **Start offset**, **End offset** and **Eccentricity** parameters in the **Placing parameters** group are the same as those for symbol fixtures.

By choosing the **Create linear fixture of any length** or **Create linear fixture of given length** option, you tell the program how to create the linear fixtures along the placing length.

- When you select **Create linear fixture of any length**, you need to define the **Length**. The program then creates fixtures of this length. If the program cannot use the full length, it creates the linear fixture according to the rules defined in **What to do with remaining lengths**.
- When you select **Create linear fixture of given length**, you need to select the **Given length** in the selection dialog box.
  You can add more lengths to the selection dialog box. All you need to do is enter the required length and press ENTER to confirm. The program sorts the lengths by value in ascending order. To delete a value, select it, replace it with the value 0 and press ENTER to confirm.
  Tip: Use **Save as a favorite** to save the possible standard lengths for specific linear fixtures (for example, cast-in channels). The program then creates fixtures of the selected length. If the program cannot use the full length, it creates the linear fixture according to the rules defined in **What to do with remaining lengths**.

Unlike symbol fixtures, linear fixtures do not provide the **Place** parameter. The program always places linear fixtures on each polygon side defined. Otherwise, the program would have to create ”corner pieces”.

Using the parameters in the **What to do with remaining lengths** group, you tell the program how to handle remaining lengths. The **Remaining length** parameter offers the **Do not create a linear fixture**, **Create linear fixture of remaining length** and **Create linear fixture of given length** options.

- When you select **Do not create a linear fixture**, the program does not create a fixture of the remaining length.
- When you select **Create linear fixture of remaining length**, you can configure the program to check the remaining length. To do this, select the **Check minimum length** check box and enter a value for the **Min. length**. If the remaining length is less than the value defined, the program does not create a linear fixture of the remaining length. By selecting the **Round remaining length down** check box and entering a **Rounding value**, you can configure the program to round down the remaining length to the next possible length defined by the **Rounding value**. If you select both options, the program rounds down the remaining length first and checks the minimum length afterwards.
- When you select **Create linear fixture of given length**, the program goes through the list of lengths defined in the selection dialog box and picks out the length that is less than or equal to the remaining length. You can add lengths to or remove lengths from the selection dialog box as described above. If the remaining length is less than the smallest value defined, the program does not create a linear fixture of the remaining length. **Note:** You can leave the value set to **0**. It is not possible to select a specific remaining length. The program always calculates the possible remaining length automatically from all the lengths entered in the list.

The parameters of the **Place in precast element** group and their effects on placing the linear fixtures are the same as those for the **Symbol fixtures along line** placing method.

Replacing fixtures

When you use the **Replace Fixtures** tool in conjunction with the **Smart fixture symbol**, **Smart fixture symbol (identical)** or **Smart group fixture symbol** option, the program replaces the fixtures that are in the current drawing file and in drawing files open in edit mode.

Revised catalogs

PLANBAR 2016-1 comes with some changes in the **General** and **Miscellaneous** tabs in the **Diameter catalog**. The same applies to the **General** and **Mesh data** tabs in the **Mesh catalog** (in **Catalogs, General**). Similarly, we revised the **General** and **Miscellaneous** tabs in the **Reinforcement type catalogs**.

We replaced the check boxes and radio buttons for defining parameters with selection dialog boxes in all catalogs mentioned.

The contents of the tabs have not changed.

Transferring labels for reinforcement and fixtures

Using **Transfer Elements**, you can now include the labels of bars, meshes and fixtures in the transfer.

To do this, select the new **Transfer labels** option on the **Input Options** toolbar.

The labels of the bars, meshes and fixtures of the source precast element can be in the placing drawing (floor plan) itself, in associative views and sections in the placing drawing and in the element plan.

The target precast element can have associative views and sections in the placing drawing and in the element plan. However, these associative views do not need to be an exact match of those of the source precast element. For example, the layout of the element plan may differ or the source precast element has additional sections or views created manually although the layout of the element plan is identical.

The program chooses the view or section of the target precast elements to which it transfers a label of the source precast element according to the following criteria:

- Label in placing drawing➔ placing drawing
- Label of associative views and sections in placing drawing ➔ associative views and sections in placing drawing
- Label of associative views and sections in element plan ➔ associative views and sections in element plan

In the case of associative views and sections, the program tries to map the labels according to the following criteria:

- Viewing directions (for example, plan view only in plan view)
- Display settings (for example, the program tries to transfer a label in an associative view or section with the ”only fixtures” setting to an associative view or section with the ”only fixtures” setting)
- In the case of element plans with the same layout, the program also uses the automatically created views and sections defined in the layout catalog for the assignment.

If there are still a number of possible views or sections after all these checks, the program picks out a random associative view or a random associative section and then transfers all the view-specific, section-specific and element-specific labels.

The program also transfers partial schemas, ignoring full schemas.

Attributes of the superordinate precast element

You can use the new PARENTPRECAST () command to retrieve attributes of the superordinate precast element (parent) of reinforcement elements and fixtures in legends, label styles and reports.

For example, this allows you to create a report of all bars with their local mark number in the placing drawing (see illustration below).

Element		Reinforcement						
Number	MrkNo	Local mark number of bar	Bar (element)	Bar (total)	Diameter	Length	Bending shape	Total weight
4x	1	(1)	50	200	8	2,460	246	194,340
		(2)	26	104	8	4,960	496	203,757
1x	2	(1)	40	40	8	2,460	246	38,868
		(2)	26	26	8	3,960	396	40,669
							Sum of total weight	477,634

Tip: Using the new PARENTPRECAST () command, you can also find bars or fixtures that do not belong to any precast element. To do this, use the filter to find bars or fixtures that do not have a superordinate precast element (**Precast ID** attribute, @1877 = 0).

Attributes for lattice girders and fixtures

The precast elements category offers new attributes for use in legends, label styles and reports: **MrkNo with prefix for fixtures** (@1460, text), **Lattice girder name** (@1461, text), **Lattice girder total weight** of a placement (@1462, floating-point value) and **Lattice girder weight** of a single girder (@1463, floating-point value).

Unlike the old **Standard lattice girder** (@1872, text) and **Lattice girder steel weight** (@1367, floating-point value) attributes, the new attributes also apply to secondary girders.

List text for fixtures

To define list text, you can now use the **V6 - V9** variables for fixtures on the **Logging** tab in the **Fixture catalog** (in 📖 **Catalogs, General**).

As you know, the **$Pi** variables are associated with the values of the ith prompt parameter of a fixture. Similarly, the new variables are associated with the **$P6** to **$P9** variables in the fixture catalog.

Recesses

Adjoining recesses with smart symbols

For the last version (see "New Features in PLANBAR 2016"), we completely redeveloped the algorithms that compare smart architectural symbols in recesses with panel outlines or recess outlines for setting up production data. This version comes with improved algorithms for detecting smart symbols in adjoining recesses (for example, window and door, windows of different height, window and lintel and so on).

For example, you can now analyze smart symbols in adjoining recesses in the element plan list or in invoicing lists.

In addition, these improvements lead to a number of changes in the manner the program generates reinforcement. These changes are described in the following section.

Effects of smart symbols in recesses on reinforcement

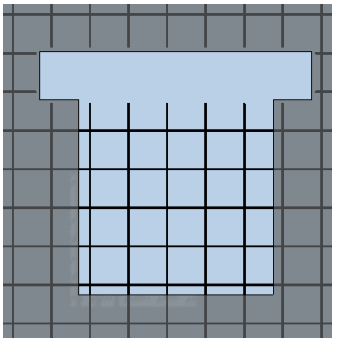
While improving the algorithms for detecting smart symbols in adjoining recesses, we adjusted the behavior of loose reinforcement, that is to say reinforcement that is not attached, to the behavior of attached reinforcement for openings with smart symbols.

The program now analyzes the setting for the **Intersect bars** option on the **Reinforcement** tab of the **Fixture catalog** (in **Catalogs**, **General**) for loose reinforcement, too.

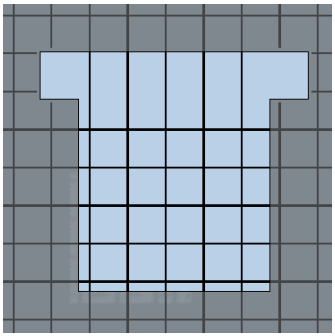
Earlier versions always cut loose reinforcement in openings with smart symbols, ignoring the settings in the fixture catalog. Therefore, check the settings of smart symbols used in openings.

Loose reinforcement for slabs created with **Design** or loose reinforcement for walls created with **Design** can differ from loose reinforcement for walls created with **Wall Element Design** in adjoining recesses if you insert smart symbols with different settings for cutting reinforcement in the recesses.

- For walls created with **Wall Element Design**, the program handles each recess part separately and cuts the reinforcement exactly. Have a look at the following example of a wall with two recesses (window and roller shutter box): the program is to create cut reinforcement in the area of the roller shutter box and continuous reinforcement in the area of the window.



- For slabs created with **Design** and walls created with **Design**, the program lengthens the bars in recess parts as far as an edge of the overall recess. This is due to the completely different algorithm for creating loose reinforcement. As you can see in this example, the longitudinal bars of the window pass through the roller shutter box.

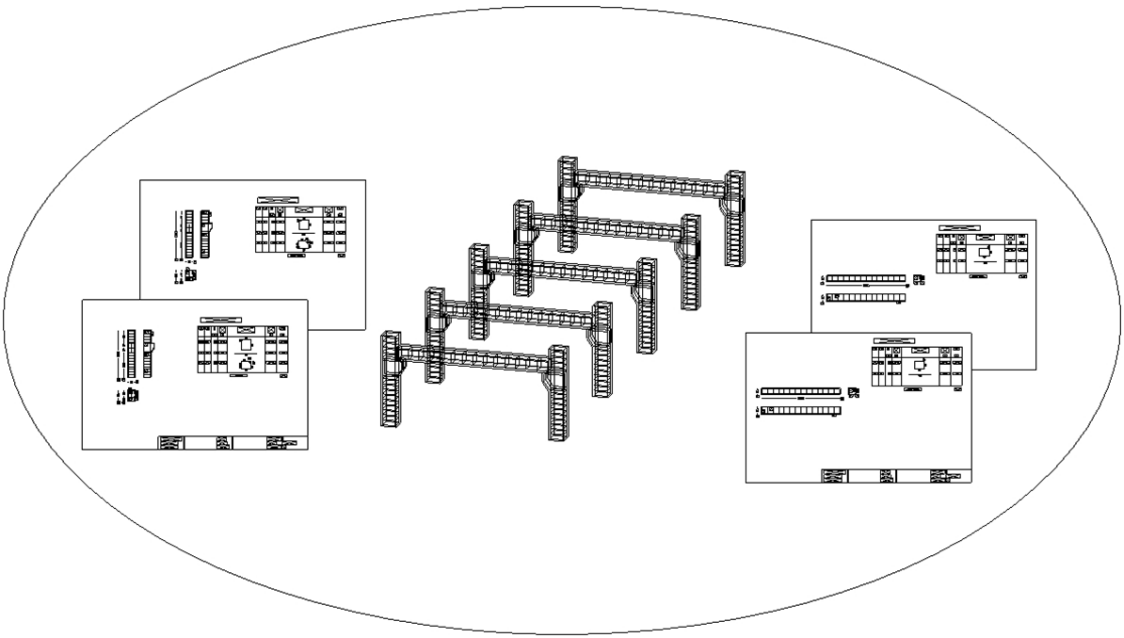


Note: this difference for loose reinforcement also applies to adjoining openings without smart symbols of which the settings for cutting reinforcement differ.

BIM Booster

When you work with PLANBAR in the conventional way, all the data of a building or building part are in a single document (drawing file) or in a few drawing files.

The model data of the precast elements (geometry, reinforcement and fixtures) are connected with the associated element plans directly in the drawing file.



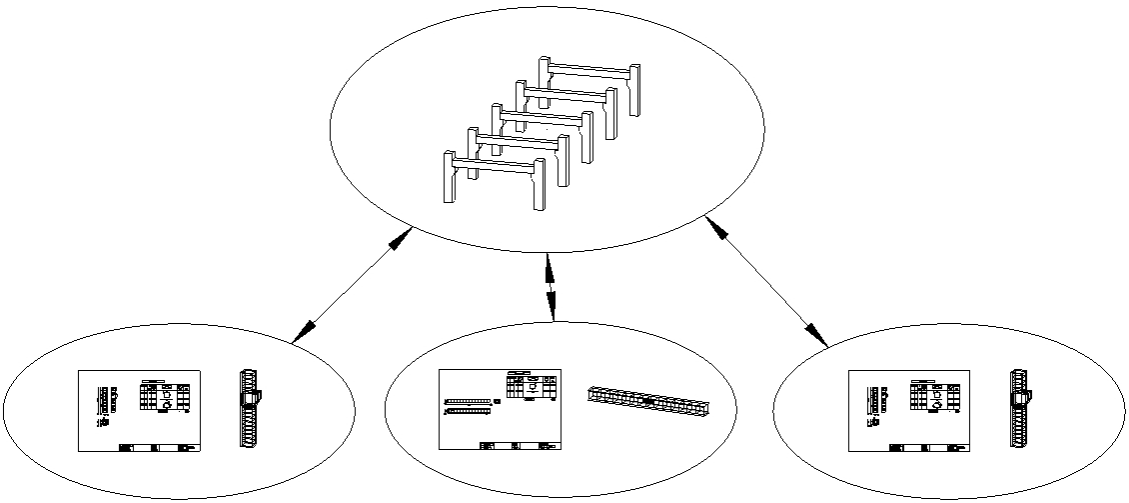
However, this considerably increases the data volume, in particular, with large-scale projects. When you work on complex projects, there are times when you will find that the amount of data exceeds the maximum file size and you can no longer edit a drawing file. In this case, you usually spread the data among more drawing files.

Furthermore, a planning team cannot work on the same project in parallel (for example, a part of a hall; A draws columns; B creates girders and beams), as only one team member can actively edit a drawing file at any one time.

This is where the new **BIM Booster** module comes in: the model unit (model drawing file) contains only the raw data of the precast elements (geometry and some fixtures or reinforcement units connecting the precast elements). Consequently, the model drawing file does not require much disk space, allowing you to handle large projects.

In addition, there is a separate planning unit (detailed drawing file) for each precast element. This planning unit contains all the data (geometry, fixtures and reinforcement including the element plan). Consequently, the data volume for a detailed drawing file is small enough to work efficiently.

The planning team can efficiently edit the building or building part in parallel. Using the shortcut menu, team members can switch between the model drawing file and the detailed drawing file at any time.



Like the conventional way of working, the **BIM Booster** module calls for some preliminary considerations and planning, making sure you keep track of everything.

It is not a good idea to just get started. This would lead to a number of warnings and error messages you would have to correct manually later, wasting a lot of time.

Before you start working with the **BIM Booster**, spend some time thinking about the following issues:

- Who works on the project? Who is in charge and who defines the structure?
- When should the detailed drawing files be created or when should a detailed drawing file be assigned to a precast element?
- Is there a component that already has a finished detailed drawing file that can be associated with a model precast element?
- Which detailed drawing file requires only minor changes before it can be assigned to a model precast element?
- Who is in charge of synchronizing the model data with the detailed data, keeping the data consistent?
- When should the data be synchronized?
- Which data (attributes, changes in geometry, all fixtures or only special fixtures, and so on) should be synchronized?

When working with the **BIM Booster** module, the person in charge usually divides the project into detailed units, distributing these detailed units among the team members, who can then work on the project in parallel.

This facilitates concurrent editing; however, the results need to be brought together in the end. Changes on one side must be transferred to the other side. Depending on the precast elements affected, you must change either the model or the detail. For example, if you need to change the story height, you should do this in the model unit, which contains the basic data of all precast elements. Afterwards, you need to transfer the changes in the geometric data (for example, higher columns) to the detailed drawing files.

The team members can return parts of their results (for example, only changes in the geometry and some selected fixtures but no reinforcement) or all their results to the overall model. This is done by synchronizing the data.

When there are changes in the model unit, the person in charge must adjust the detailed units affected by synchronizing the data.

Plausibility checks help the team members find out whether geometries are identical or whether the assignments between model drawing files and detailed drawing files are correct.

The program uses the model drawing file to analyze data across the whole project (for example, to create an element plan in batch run, to create production data or to transfer data to TIM). To do this, the program reads the data of the precast elements from one detailed drawing file after the other. The data are then available for analyses.

Note: For the time being, you can use the BIM Booster tools with structural precast elements, iParts. We have planned to make these tools available for certain slab types and wall types created with  **Wall Element Design**.

Terms used in the BIM Booster module

The  **BIM Booster** modules uses the following terms:

- Precast element group

A **precast element group** includes identical precast elements of the same type (for example, columns, girders and so on) having the same mark number.

The precast elements of a **precast element group** can be in different **model drawing files**.

When modifying precast elements of a **precast element group**, make sure you have also loaded the **model drawing files** of the other precast elements belonging to this **precast element group**. This is the only way to ensure that the program applies the changes to all the precast elements in the group. Otherwise, this may result in the illegal state of precast elements having the same mark number despite being not identical.

All precast elements of a **precast element group** can have only one element plan or one **detailed drawing file**.

- Model precast element

A **model precast element** is a precast element from which a **detailed drawing file** has been created or to which a **detailed drawing file** has been assigned.

The program saves the drawing file number of the **detailed drawing file** with the **model precast element**.

By creating or assigning a **detailed drawing file**, you turn all the precast elements in the **precast element group** into **model precast elements**.

A **model precast element** cannot have an element plan.

- Detailed precast element

The **detailed precast element** is a copy of a precast element of a **precast element group**.

The detailed precast element is in a separate drawing file. The program saves the drawing file numbers of all **model precast elements** with the **detailed drawing file**.

A **detailed precast element** can have an element plan.

- Normal precast element

A **normal precast element** is a precast element that is neither a **model precast element** nor a **detailed precast element**.

A **normal precast element** can have an element plan.

- Model drawing file

A **model drawing file** is a drawing file containing at least one **model precast element**.

A **model drawing file** can also include additional **normal precast elements**.

However, a model drawing file must not contain **detailed precast elements**.

- Detailed drawing file

A **detailed drawing file** is a drawing file with a detailed precast element.

A **detailed drawing file** can include only one **detailed precast element**. Furthermore, a detailed drawing file must not contain **model precast elements**. But it can include other **normal precast elements**.

- Normal drawing file

A **normal drawing file** is a drawing file that contains neither a **model precast element** nor a **detailed precast element**.

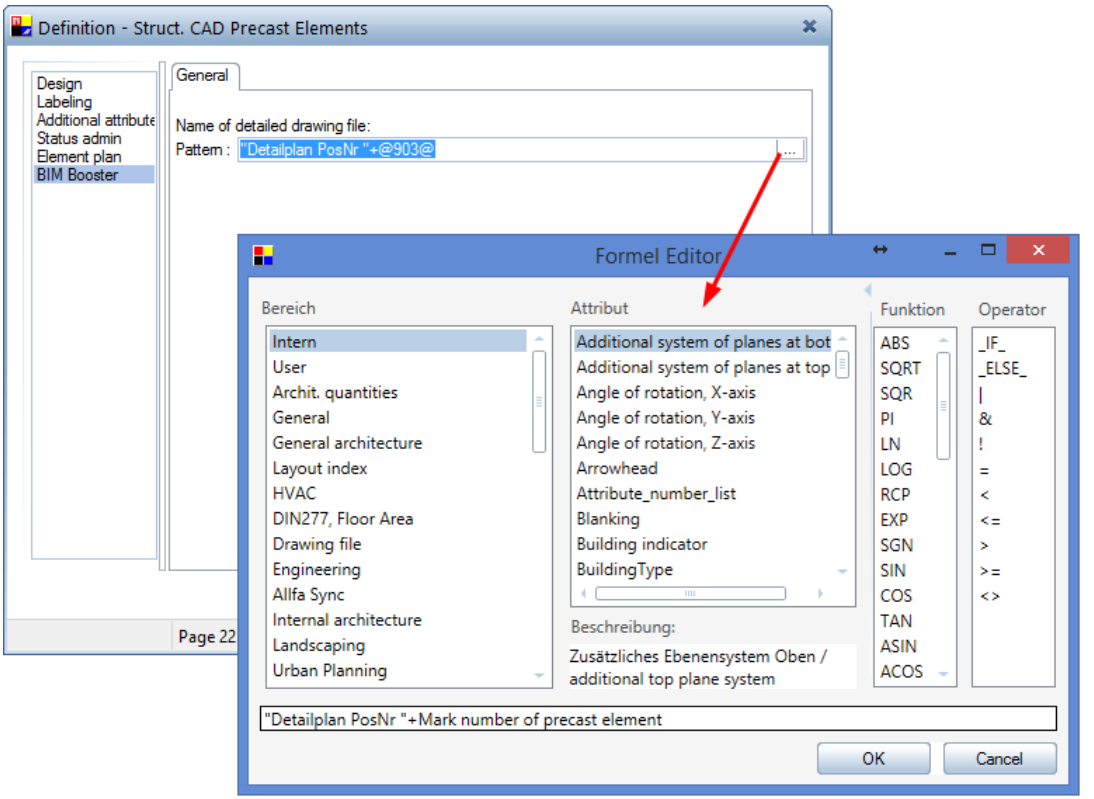
Configuration of file names for detailed drawing files in BIM Booster

You can define the name the program automatically assigns to a **detailed drawing file**. To do this, use the text box of the **Pattern** parameter for the **Name of detailed drawing file** parameter on the **General** tab in **Configurations**, **Structural Precast Elements**, **General entry**, **BIM Booster**.

You can enter a single attribute, fixed text or a formula consisting of several attributes and fixed text in the text box of the **Pattern** parameter.

Click ... to the right of the **Pattern** parameter to open the **Formula editor** dialog box for selecting attributes. You also use this dialog box when you create reports in Allplan.

If you want to define formula attributes, expand the dialog box for selecting attributes by clicking ▶, thus displaying the required functions and operators.



If you have installed the program for the first time, the default pattern is **“Detail drawing mark number“ + @903@** (**@903@ = Mark number of precast element**).

Note: Text must be enclosed in double quotation marks ” ”.

You can customize this pattern for your needs.

Start by selecting the **Area** from which you want to take the attribute. You can then select the Allplan attributes of this area in the **Attribute** column.

To select an attribute, double-click it. Depending on whether you have expanded the **Formula editor** or not, you can see the selected attribute in the text box at the bottom of the editor or the editor closes and you can see the attribute in the text box of the **Pattern** parameter.

When you have expanded the **Formula editor**, you can use all the functions listed in the editor and the functions provided by Excel, such as **TEXT**, **LEFT**, **RIGHT**, **MID** and so on. The options you have are the same as those for creating reports. You can select functions in the same way as attributes: double-click a function in the **Function** column to enter this function in the text box of the editor. If you want to use Excel functions, enter the function manually in the text box.

The **Operator** column includes the operators you can use. Here, too, double-click an operator to enter it in the text box of the editor.

When you have finished, click **OK** to close the **Formula editor** and to save the formula.

Note: The formula must not be longer than the drawing file name, which can be up to 70 characters long.

The program only uses the name you configure here when you create a new detailed drawing file using **Detailed Drawing File(s)** (see further down). The program does not update the drawing file name when you assign a model precast element using **Assign Detailed Drawing File** or when you change attributes included in the drawing file name.

Attributes for BIM Booster

The precast elements category offers new attributes for use in legends, label styles and reports: **Detailed drawing file number** (@1458, integer) and **Model drawing file numbers** (@1459, text).

Using these new attributes, you can create a list showing which model drawing files belong to a certain detailed drawing file.

Tools in the BIM Booster module

Provided you have an appropriate license, you can see the new **BIM Booster** module in the **Precast Elements** family. This new module provides the following tools:

- **Detailed Drawing File(s)**

You can use the **Detailed Drawing File(s)** tool to create detailed drawing files.

Open the model drawing file and select the precast elements for which you want to create detailed drawing files. You can select only normal precast elements.

Note: If you inadvertently select a model precast element or a detailed precast element, the program will issue an error message. Similarly, you cannot create a detailed precast element from a normal precast element that already has an element plan.

After you have confirmed the selection, the **Select target drawing file** dialog box opens. Select an empty drawing file. This is the first drawing file. Starting at this drawing file, the program creates the detailed drawing files in succession. The program creates a separate detailed drawing file for each normal precast element group selected.

To name the detailed drawing files, the program uses the pattern you defined on the **General** tab in **Configurations**, **Structural Precast Elements**, **General entry**, **BIM Booster**.

The program creates exactly one detailed drawing file for each precast element group. In doing so, the program picks out a precast element of the group and copies this precast element to the detailed drawing file. The program assigns the drawing file number of the detailed drawing file to all the precast elements in the group, thus turning these precast elements into model precast elements. The program saves the drawing file numbers of all model precast elements with the detailed drawing file.

Tip: When you point to a model precast element, you can see the number of the associated detailed drawing file in the ToolTip. When you point to a detailed precast element, the ToolTip shows the numbers of all associated model drawing files.

The detailed precast element is an exact copy of the model precast element. The position of the detailed precast element in the detailed drawing file is exactly the same as that of the model precast element in the model drawing file. You can move and rotate the model precast elements and the detailed precast elements at will without

this having an effect on the connection between the precast elements or on later data synchronization.

You can also find the **Detailed Drawing File(s)** tool on the shortcut menu of normal precast elements.

- **Delete Detailed Drawing File(s)**

You can use the **Delete Detailed Drawing File(s)** to delete the detailed drawing files of the selected model precast elements. The program removes the drawing file numbers of the detailed precast elements from the model precast elements, thus turning the model precast elements into normal precast elements.

Before you select this tool, be sure to load the drawing files of all model precast element groups. Otherwise, the program cannot delete the detailed drawing file(s). If you have not loaded all the model drawing files, the program disconnects only the loaded model precast elements. The model precast elements that are not loaded retain their connection to the detailed drawing file, which is not deleted.

You can also find the **Delete Detailed Drawing File(s)** tool on the shortcut menu of model precast elements.

- **Transfer Detailed Drawing File**

You can use the **Transfer Detailed Drawing File** tool to transfer the detailed drawing file of a model precast element group to one or more similar normal precast element group(s).

During transfer, the program copies the detailed drawing file of the source model precast element to an empty drawing file and associates the copied detailed precast element with the target precast element group, thus turning it into a model precast element group.

Then synchronize the geometry of the model precast element with that of the detailed precast element and adjust the fixtures and reinforcement in the detailed drawing file to the new geometry. As a result, you get a number of additional finished model precast elements including detailed precast elements.

To transfer a detailed drawing file, start by selecting a model precast element of which you want to copy the detailed drawing file. Then you can select one or more normal precast elements to which you want to transfer the detailed drawing file.

After you have confirmed the selection, the **Select target drawing file** dialog box opens. Select an empty drawing file. This is the first drawing file. Starting at this drawing file, the program creates the detailed drawing files in succession. The program creates a separate detailed drawing file for each normal precast element group selected.

To name the new detailed drawing files, the program uses the pattern you defined on the **General** tab in **Configurations**, **Structural Precast Elements**, **General entry**, **BIM Booster**.

You can also find the **Transfer Detailed Drawing File** tool on the shortcut menu of model precast elements.

- **Assign Detailed Drawing File**

You can use the **Assign Detailed Drawing File** tool to assign a detailed drawing file to a normal precast element group, turning it into a model precast element group.

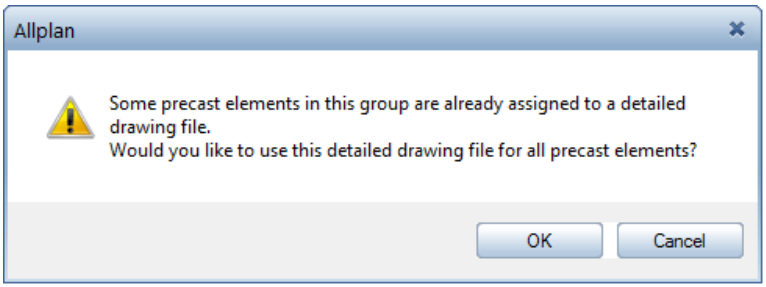
To assign a detailed drawing file, start by selecting a precast element of a normal precast element group.

After you have confirmed the selection, the **Select target drawing file** dialog box opens. Select a detailed drawing file.

The program turns the normal precast element group selected into a model precast element group, connecting this group with the detailed drawing file.

Note: The program does not check whether the detailed precast element in the detailed drawing file is identical to the model precast elements you just assigned. Nor does the program check whether the model precast elements previously assigned are identical to the new model precast elements. Check the plausibility.

If the drawing files currently loaded also contain other precast elements of the same precast element group and these precast elements already have a detailed drawing file, you will see the following message:



When you confirm this message by clicking **OK**, the program assigns the precast elements to the detailed drawing file without prompting for another drawing file.

You can also use **Assign Detailed Drawing File** to assign a normal precast element group to a different drawing file containing exactly one normal precast element, thus turning the normal precast elements into model precast elements. The single normal precast element changes to a detailed precast element in a detailed drawing file.

The name of the drawing file turning into a detailed drawing file does not change. The program ignores the pattern defined on the **General** tab in **Configurations**, **Structural Precast Elements**, **General entry**, **BIM Booster**. If you want, you can change the name manually.

You can also find the **Assign Detailed Drawing File** tool on the shortcut menu of normal precast elements.

- **Clear Detailed Drawing File Assigned**

You can use the **Clear Detailed Drawing File Assigned** tool to disconnect the model precast elements from the detailed drawing file, thus turning the model precast elements into normal precast elements.

This tool has the following effects:

- When you select model precast elements, the program disconnects the associated model drawing files in the detailed drawing file assigned, thus turning the model precast elements into normal precast elements.
  If you have also assigned the detailed drawing file to other model precast elements that are not loaded, the program does not disconnect the associated model drawing files, thus retaining the detailed precast element.
- When you select a detailed precast element, the program loads all associated model drawing files and disconnects all model precast elements.
  If the program cannot load all associated model drawing files, it does not disconnect the detailed precast element from any model precast element.

You can also find the **Clear Detailed Drawing File Assigned** tool on the shortcut menus of model precast elements and detailed precast elements.

- **Synchronize Model with Detail**

You can use the **Synchronize Model with Detail** tool to apply changes in the model precast elements to the associated detailed precast element or vice versa.

Start by selecting what you want to transfer on the **Input Options** toolbar.

After this, select

- Model precast elements of which you want to transfer the changes to the associated detailed precast elements or
- Detailed precast elements of which you want to transfer the changes to the associated model precast elements.

You do not need to load the drawing files containing the targets for the transfer; the program does this automatically. If some of these drawing files have been opened by another user, the program issues an error message and does not transfer anything.

The program offers two different synchronization modes:

- You can synchronize data without using the **Filter**. To do this, switch off the filter (the icon is not pressed in!). To select what you want to synchronize, you can use the icons to the left of **Filter**. You can combine these icons as you need.

When you select **Synchronize Attributes** to synchronize the model data with the detailed data, the program synchronizes the mark number, the precast ID, the factor, the internal attributes (concrete grade and so on) and the custom attributes. When you synchronize the detailed data with the model data, the program synchronizes only the internal attributes and the custom attributes.

To synchronize the basic geometry of the precast element (without modeled objects and shaped fixtures), select the **Synchronize Basic Geometry** icon.

The **Synchronize Modeled Object** icon synchronizes objects created with **Model Precast Elements** and a positive or negative setting for interaction.

You can use **Synchronize Fixtures** to synchronize shaped fixtures with or without geometric interaction, normal fixtures and group fixtures including reinforcement.

Use **Synchronize Reinforcement** to synchronize reinforcement of any type (reinforcing bars and reinforcing meshes).

The **Copy** and **Copy/Replace** tools on the **Input Options** toolbar have an effect on the way the program transfers modeled objects, fixtures and reinforcement. When you use **Copy** to copy elements from the source precast element to the target precast elements, the program copies only elements that have not yet been included in the target precast elements. This prevents duplicate elements in the target. When you use **Copy/Replace** to copy elements from the source precast element to the target precast elements, the program transfers all elements that have not yet been included in the target precast elements. At the same time, the program deletes elements that do not exist in the source from the target precast elements. Using this option, you make sure the source and target are identical. In addition, you prevent duplicate elements in the target.

Note: When synchronizing data without the filter, you can select several model precast elements or detailed precast elements when the program prompts for the precast elements to be synchronized.

- You can synchronize data with the **Filter**. To do this, click the filter icon to switch on the filter (the icon is pressed in!). This automatically switches off all the other icons on the **Input Options** toolbar.

When you synchronize data without the filter, the program always transfers all modeled objects, fixtures or reinforcement units from the source to the target whereas synchronizing data with the filter allows you to select the modeled objects, fixtures or reinforcement units you want to transfer. You can use all the filter functions provided by Allplan. When synchronizing data with the filter, you cannot transfer attributes and basic geometries.

Furthermore, the program does not differentiate between **Copy** and **Copy/Replace**. Instead, the program always uses the **Copy** tool.

Note: When synchronizing data with the filter, you can select only one model precast element or detailed precast element for the source precast element at any one time. After you have selected the source, the program prompts for the elements to be synchronized (modeled objects, fixtures or reinforcement).

- **Check Plausibility**

You can use the **Check Plausibility** tool to select and check any normal precast elements, model precast elements or detailed precast elements. You can even select the detailed precast element and the associated model precast element together.

While checking, the program automatically loads all the drawing files it needs to check the precast elements. As soon as the checks are complete, the program restores the drawing files to their original state.

When loading the drawing files, the program opens them in reference mode. So the program can check the data even if one of the drawing files is opened by another user.

Depending on the problem detected, the program displays notes, warnings or error messages in a dialog box. The messages include the mark numbers of the precast element groups affected.

Note: You can resize the dialog box by dragging; so you can always read the full message. The program remembers the size you defined and the next time it opens the dialog box at this size.

Here are some examples of plausibilities the program checks for the precast elements selected:

- Are all the precast elements of a precast element group identical (attributes, geometry, fixtures, reinforcement)? To check this, the program uses the same procedure as for rearranging mark numbers using the **Identical** mode.
- Are the attributes, geometric data and fixtures of model precast elements the same as those of the detailed precast element assigned?
  Note: The program does not check reinforcement.
- Does a drawing file include model precast elements and detailed precast elements?

- Is every free precast element assigned to a detailed drawing file?
- Are all model precast elements assigned to a detailed drawing file identical and do they all have the same mark number?
- Do all the precast elements of a model precast element group have a detailed drawing file and are all these precast elements assigned to the same detailed drawing file?
- Have model precast elements actually been assigned to a detailed drawing file?
- Does a detailed drawing file include normal precast elements in addition to the detailed precast element?
- Does a precast element include fixtures or reinforcement units that are congruent?
- Is the sum of factors of all model precast elements the same as the factor of the detailed drawing file?

You can find the **Check Plausibility** tool on the shortcut menus of normal precast elements, model precast elements and detailed precast elements.

- **Load Detailed Drawing File, Load Model Drawing File(s)**

You can find the **Load Detailed Drawing File** and **Load Model Drawing File(s)** tools only on the shortcut menus of model precast elements and detailed precast elements.

You can use the **Load Detailed Drawing File** tool to load the detailed drawing file associated with the model precast element selected. The program opens this drawing file in edit mode, closing all the other drawing files.

You can use the **Load Model Drawing File(s)** tool to load all the model drawing files associated with the detailed precast element selected. The program opens these drawing files in edit mode, closing all the other drawing files.

Note: When you work with the fileset structure, the program temporarily assigns the required model drawing files or detailed drawing files to the current fileset.

Reference point for synchronizing data in BIM Booster

A local coordinate system is the basis for transferring elements between model data and detail data. Each precast element has this coordinate system, which consists of the **reference point**, the **viewing direction** and the **span direction**.

You can define the **Viewing direction** and **Span direction** as usual in the **Alignment** group on the **Dimensions** tab in the **Properties** palette of structural precast elements, iParts. What's new is the definition of the reference point.

When dealing with a structural precast element, iPart you created from parameters or a 3D solid, the program defines the **reference point** based on the **drop-in point** specified on the **Input Options** toolbar. The minimum z coordinate of the solid serves as the z coordinate of the reference point.

For structural precast elements, iParts you created from a 3D solid with the **Convert/match** option being active, the **drop-in point** - and thus the **reference point** - is as usual in the center of the precast element's min-max-box.

To change the reference point, click the **Reference point** parameter on the **Dimensions** tab. The position of the reference point is indicated by an arrow, which is similar to the arrow indicating the viewing direction.

Enter the coordinates of the new reference point directly or click **Point entry** at the end of the parameter box and select the new reference point by clicking it in plan or in isometric view. When you click the point in plan, the program automatically sets the z coordinate to z = 0.0.

Note: The **reference point** is the basis for synchronizing data, for rearranging structural precast elements, iParts using the **Identical** mode (see below) and for the **Transfer Elements** tool (see the following section).

Elements outside the target precast element in BIM Booster

When you use **Synchronize Model with Detail** or **Transfer Elements** to transfer modeled objects (synchronizing only), reinforcement or fixtures, the program no longer deletes these elements automatically if they are outside the target precast element after the transfer.

The source drawing file can be a normal precast element, a model precast element or a detailed precast element. The target precast element must always be a detailed precast element.

Note: When you apply **Transfer Elements** to normal precast elements or model precast elements, the program checks whether the reinforcement or fixtures to be transferred are within the target precast element (or within a different precast element).

If this is not so, the program issues a warning as usual and deletes the reinforcement or fixtures affected.

After the program has synchronized or transferred the data, you can manually adjust the elements outside the target precast element to the changed geometry. For example, you can move fixtures into the target precast element, adjust placing regions or bar spacing, modify the bar length using **Stretch Entities** and so on.

If these adjustments result in a reinforcement unit or a fixture being again outside the target precast element, the program deletes this reinforcement unit or fixture.

Similarly, the program deletes all reinforcement units and fixtures outside the target precast element when you modify or move the target precast element itself.

Note: If the transfer moves modeled objects (synchronizing only), reinforcement and fixtures into a normal precast element that is also in the same detailed drawing file, the program links these elements with this normal precast element as usual.

Element plan, element plan in batch run in BIM Booster

The following rules apply to element plans used in conjunction with the BIM Booster module:

- You can use **Element Plan** to create manual element plans only for a detailed precast element (or a normal precast element). You cannot create manual element plans for model precast elements.
- Although you can create a manual element plan for normal precast elements in a model drawing file, you cannot create a detailed drawing file from a normal precast element afterwards.
- You can print a single page of a manual element plan in the detailed drawing file as usual. To do this, use **Element Plan**.
- You can select **Element Plan in Batch Run** in the detailed drawing file if you want to use this tool for a single detailed precast element.
- You can also select **Element Plan in Batch Run** in the model drawing file if you want to use this tool for several or all precast elements. To set up and output the element plans, the program automatically loads the detailed drawing file associated with the model precast elements. After having created and output the element plan, the program restores the detailed drawing file to its original state.

The program does this for all model precast element groups one after the other. While you are working with **Element Plan in Batch Run**, the detailed drawing files must not be loaded by other users. Otherwise, the program issues an error message.

Production data, invoicing lists in BIM Booster

As with **Element Plan in Batch Run**, you can use **Production Data, NC Generator** to create production data and **List Generator** to create invoicing lists either for a single detailed precast element in the detailed drawing file or for several or all precast elements in the model drawing file.

When you select one of these tools in the model drawing file, the program temporarily loads the detailed drawing files and outputs the data in these drawing files. Therefore, the detailed drawing files must not be loaded by other users, which is the same as working with the **Element Plan in Batch Run** tool. Otherwise, the program issues an error message.

Exporting TIM data to BIM Booster

If you want to create data for the TIM database using **Export TIM Data**, you can do this only for model precast elements and normal precast elements in a model drawing file.

Here, too, the program temporarily loads the detailed drawing files, which must not be loaded by other users.

The program transforms the data of the detailed precast element to the position of each model precast element, exporting these data instead of the data of the model precast element. The model precast element thus defines the global position, the mark number and the precast ID whereas the detailed precast element defines the geometry, the fixtures and the reinforcement.

Note: Using TIM, you can create production data and invoicing lists straight from the database. Consequently, you do not need to export production data and invoicing lists from PLANBAR.

Element plan

Layout catalog

Importing layout catalogs from Allplan 2005 FTW

Import Layouts no longer includes the option to import catalogs (plan.cat) that were used instead of layout catalogs (layout.cat) by versions earlier than Allplan 2008 FTW.

If you want to use those catalogs, import them before you install PLANBAR 2016-1.

Maximum number of dimension lines taken into account

When you select the check box of the new **Include max. number of dimension lines** option in the **Scale** group in the **Properties** palette of an element plan sheet, the program calculates the space required for views and sections and the distance between the views and sections as if there were as many horizontal dimension lines and vertical dimension lines as possible to the left of, to the right of, above and below each view and section.

As a result, the views and sections are farther away from one another. This is particularly useful if you want to add fixtures later, as the dimension lines of the fixtures no longer overlap the dimension lines or geometry of neighboring views and sections.

Separate dimension lines for fixtures

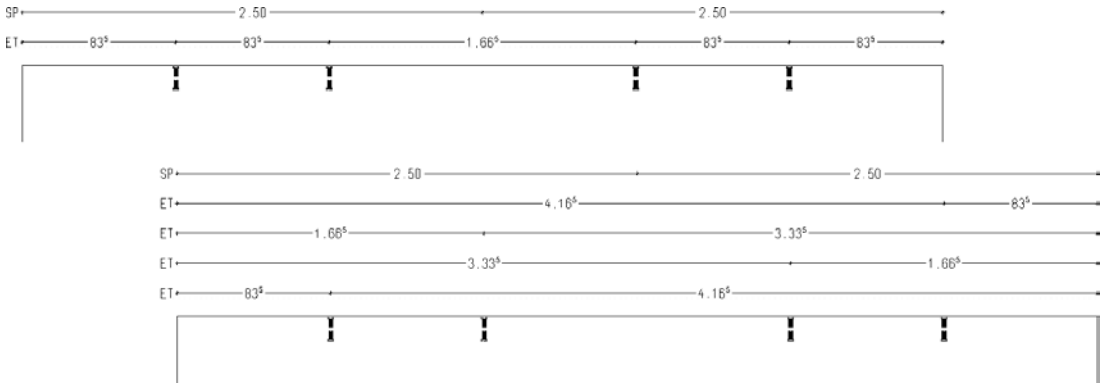
You can create separate dimension lines for fixtures by selecting the new **Special dimensioning for fixtures** option on the **Dimensioning** tab in the **Other settings** group in the **Properties** palette of a view.

After having selected the **Special dimensioning for fixtures** option, define the dimension lines index of the fixtures you want to dimension separately.

To add new dimension line indexes, click ... to the right of the **Dimension line index** parameter. ◀ and ▶ take you from entry to entry.

Click **Add** to add a new column and define the **Dimension line index**. By selecting the check boxes of the **Separate horizontal dimension lines** and **Separate vertical dimension lines** parameters, you define which separate dimension lines you want to create for the fixtures with the dimension line index defined. Click **Delete** to remove entries.

Note: You can use this new option as an alternative to dimensioning fixtures using absolute values if you want to output the dimensions for each fixture.



Clipping areas in element plans

Clipping areas in element plans are no longer based on the box enclosing the whole component (for example, column plus foundation) but on the box enclosing the intersected components (for example, column shaft or column shaft plus corbels).

This allows the program to move the automatically created dimension lines closer to the section.

If you want the program to use this new calculation method for the current section, make sure you have not selected the **Display** option for displaying the clipping path of the other sections the program generates automatically for the current section. You can find this option on the **Clipping path** tab in the **Properties** palette of a section in **Catalogs**, **General**, **Layout Catalog**. Otherwise, calculations are based on the old method; thus, the dimension lines are farther away.

Element plan in batch run

Preconfiguring the file names

In **Configurations**, **General**, **Program Sequence**, **Export file name**, you can define the **Export file name for element plan in batch run** (name for the PDF files) as you would define the drawing file names for detailed drawing files in the **BIM Booster** module (see above) and the file name for the export file created for production data (see below).

In earlier versions, you did this using the **File name includes** parameter on the **Export files** tab in **Configurations**, **General**, **Program Sequence**, **Element plan**. This parameter is no longer available in the current version.

The **File name includes** parameter offered the **Mark number**, **Mark number text** and **Component name** options.

The program then created the name of the PDF file based on the option you selected and the file name defined in the **Production file – naming convention** area on the **Program sequence** tab in **Configurations**, **Process Planning**, **General**, **Production Data Transfer**, **General**.

Furthermore, the program created the file names in accordance with the following special rules:

- If an element plan had several pages, the **Page number** preceded the **Mark number**, the **Mark number text** or the **Component name**, provided the **One PDF file for multi-page element plans** option was not active on the **Export files** tab in **Configurations**, **General**, **Program Sequence**, **Element plan**.
- If there were precast elements with identical mark numbers and each element got its own element plan, the **Component ID** (@12@, integer) followed the **Mark number**, the **Mark number text** or the **Component name**, provided the **Only one sheet / file for identical mark numbers in element plans** option was not active on the **Export files** tab in **Configurations**, **General**, **Program Sequence**, **Element plan**.

- If you created PDF files from the "empty" project (project in user folder) and you selected one of the project attributes that cannot be used in the empty project (for example, **Project name**, **Project number** and so on) for the file name defined in the **Production file – naming convention** area on the **Program sequence** tab in **Configurations**, **Process Planning**, **General**, **Production Data Transfer**, **General**, the program output the text **export** instead of the file name defined in **Production file – naming convention**.

The variables of the former **File name includes** parameter on the **Export files** tab in **Configurations**, **General**, **Program Sequence**, **Element plan** are now assigned to the following Allplan attributes:

Variable	Allplan attribute	Attribute number
Mark number	Mark number of precast element	@903@
Mark number text	Element name	@1021@
Component name	Component name	@1893@

To configure the same file name as the program used to generate automatically, you can find the new **Number of pages** attribute (@1465@, text) in the **Precast elements** category. Using this attribute, you can create an _IF_ query: the **Page number** (@499@, integer) is only output if the layout of the element plan has more than one page and the **One PDF file for multi-page element plans** option is not active in **Configurations**, **General**, **Program Sequence**, **Element plan**.

Note: If you used to work with the **Only one sheet / file for identical mark numbers in element plans** option not being active on the **Export files** tab in **Configurations**, **General**, **Program Sequence**, **Element plan**, you now have to add the **Component ID** (@12@, integer) to the end of the file name, as the program no longer adds this text automatically (see further down).

If **Production file – naming convention** was set to **File name - prefix = Project name**, **Number of characters for prefix = 5**, **File name - suffix = Component** and **Number of characters for suffix = 3** and the **Mark number** option was selected for the **File name includes** parameter on the **Export files** tab in **Configurations**, **General**, **Program Sequence**, **Element plan**, you now have to define the **Export file name for element plan in batch run** as follows:

(_IF_(@405@=”< >”)”export”_ELSE_LEFT(@405@;5)) + LEFT(@1024@;3) + ”.” + (_IF_(@1465@>1)@499@) + (_IF_(@1465@>1)”.”) + TEXT(@903@;”000”)

(_IF_(@405@=”< >”)”export”_ELSE_LEFT(@405@;5)) + LEFT(@1024@;3) + ”.” + (_IF_(@1465@>1)@499@_ELSE_””) + (_IF_(@1465@>1)”.”_ELSE_””) + TEXT(@903@;”000”)

The first _IF_ query considers the special case of creating PDF files from the ”empty” project (project in user folder) with a project attribute that cannot be used in the empty project (for example, **Project name**, **Project number** and so on) being set for the file name.

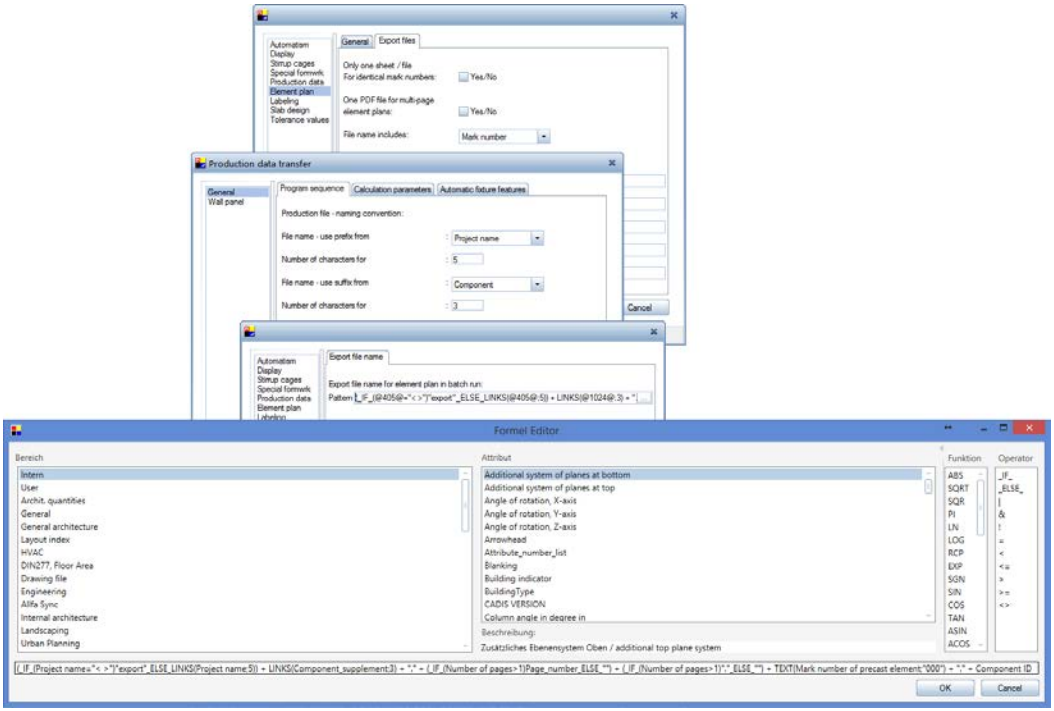
Note: If you want to use one of the other attributes that are not assigned in the empty project, you must replace **@405@=“< >“** with the comparison **@XXX@=““** (XXX = number of attribute) in the first _IF_ query.

The second and third _IF_ queries check whether the element plan has several pages. The **Page number** followed by **.** is only included if **Number of pages** > 1.

The **TEXT** function at the end always produces three-digit mark numbers.

If you have not selected the **Only one sheet / file for identical mark numbers in element plans** option on the **Export files** tab in **Configurations**, **General**, **Program Sequence**, **Element plan**, you must add the **Component ID** (@12@, integer) to the following formula:

(_IF_(@405@=”< >”)”export”_ELSE_LEFT(@405@;5)) + LEFT(@1024@;3) + ”.” + (_IF_(@1465@>1)@499@_ELSE_””) + (_IF_(@1465@>1)”.”_ELSE_””) + TEXT(@903@;”000”) + ”.” + @12@



Note: The **Print Element Plan** tool (in **Element Plan**) also analyzes this preconfigured file name.

Faster element plans in batch run

The **Element Plan in Batch Run** tool is now faster to create data in various places. Here are some examples:

- Reinforcement data are only set up when you have chosen to output the plan in DXF or DWG format.
- Faster scale calculation when you select the **Auto-select** option in the **Scale** group on the **Sheet** tab in the **Properties** palette of an element plan sheet.
- List variables are only set up when they are required for the table in the element plan.
- Faster dimensioning of arcs and circles, of panel edges and of recesses in views.

Precast slabs

Lattice girders for concrete slabs

You can now create lattice girders for slabs of the **concrete slab** type in the same way as for slabs of the **half floor** type. We therefore added the following new features to PLANBAR 2016:

Configurations for lattice girders in concrete slabs

You can find the new **Lattice girders** group in **Configurations**, **Slab Programs**, **Concrete Slab**, **Entry** and **Calculation**.

Using the **Static load capacity** parameter on the **Lattice girder parameters** tab in the **Lattice girders** group (**Entry**), you can configure the program to include the static load capacity of lattice girders in calculations. The other parameters - **Place girder only up to a panel width of** xxx **[mm]**, **Maximum girder spacing**, **Minimum girder spacing** and **Girder edge distance** - tell the program how to distribute the girders.

Note: As opposed to half floors, configurations for defining several lattice girder spacings in accordance with the panel length (see **Configurations**, **Slab Programs**, **Half Floor**, **Entry**, **Girder distance acc. to panel length**) or the panel width (see **Catalogs**, **Slab**, **Half floor**, **Girder distance acc. to catalog**) are currently not included.

The entries for rounding girder lengths, for cutting girders around openings and for defining girder overlaps in accordance with the defined bar spacing are the same as those for half floors (with the exception of the **Shorten girders when overlap <=0** parameter, which is not required for concrete slabs). You can find all these entries on the **Lattice girders 1** and **Lattice girders 2** tabs in the lattice girders group in **Calculation**.

In addition, you can find a new default setting for the **Lattice girder type** on the **Reinforcement prompts** tab in the **Prompts, Entry**.

Input parameters for lattice girders in concrete slabs

In **Design** and **Modify design**, you can define parameters for creating lattice girders on the **Lattice girders** tab. To use this tab, you must select the check box of the **Use girders** parameter on the **General** tab.

As with half floors, you can select the **Girder type** in the **Slab Parameters** dialog box.

Basic Reinforcement Parameters in **Modify Parameters**, **Basic Reinforcement** may override the **Girder type** in the **Element Parameters for Precast Slabs** dialog box and the placing parameters in **Reinforcement Parameters**.

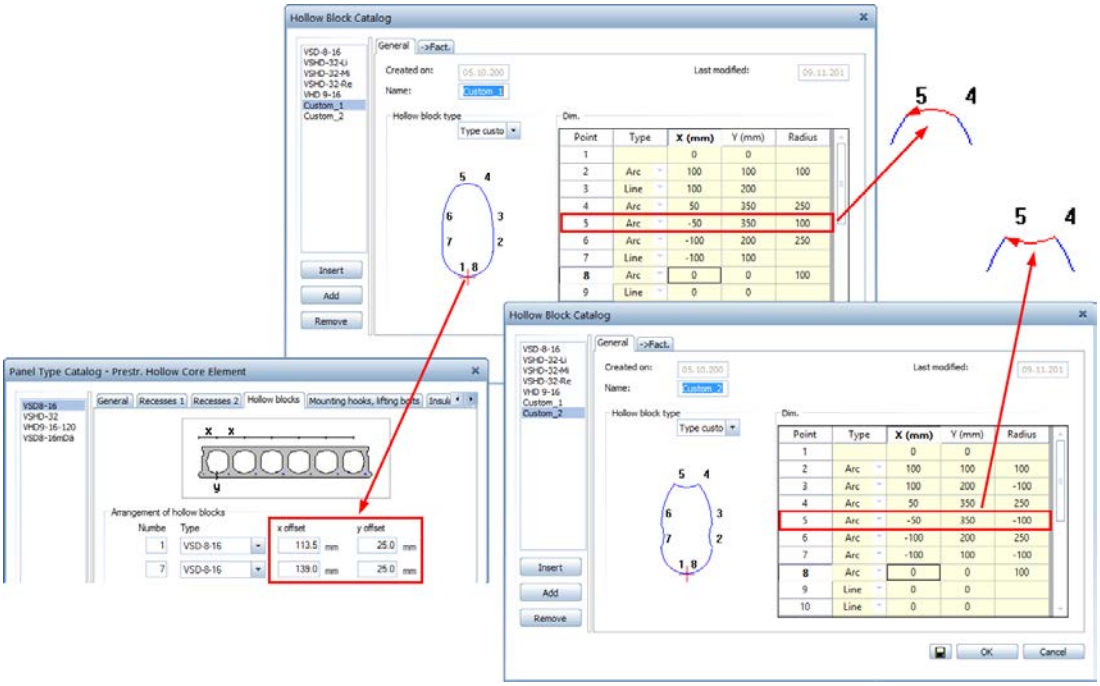
Freely definable hollow blocks for hollow core elements and prestressed hollow core elements

In addition to the familiar **Type A** to **Type L**, you can now select the new **Type custom** in the **Hollow block type** group in the **Hollow Block Catalog** (in **Catalogs**, **Slab**, **General**). Using this new type, you can define a hollow block of any shape, which can consist of lines and arcs.

You can enter the custom hollow block in a table. The procedure is the same as entering a joint section of the **Type custom** in the **Joint Section Catalog** (in **Catalogs**, **Slab**, **General**).

To define the shape of the custom hollow block, enter the x coordinates and y coordinates of its corners. The base point is centered at the bottom. This means that positive x values are applied to the right and positive y values upwards. The program positions this base point and the points defined for the **Hollow core element** and **Prestressed hollow core element** slab types in the **Panel Type Catalog** so that the points are congruent.

Using the **Type** column, you can choose to create a **Line** or an **Arc** between the previous point and the current point. When you select **Arc**, enter the **Radius** for the arc. Positive values define the arc clockwise (in relation to the start point) whereas negative values define the arc counterclockwise (in relation to the start point).



Shear force and bond analyses

We changed the following features in conjunction with shear force and bond analyses:

- The **Concrete Grade Catalog** (in 📖 **Catalogs, General)** no longer offers the obsolete **Tau Rd (EC2)/Tau d (ÖNORM)** entry in the **Analyses of shear force and bond** on the **Design** tab.
- When selecting secondary girders automatically, the program ignores lattice girders with only the **Wall** entry on the **->Assignment** tab in the **Lattice Girder Catalog** (in 📖 **Catalogs, General**).
- We improved automatic selection of secondary girders if the basic girders are not sufficient for calculating the required number of secondary girders. If analyses of the basic girders exceed the value set for **Maximum number of shear girders for each side** (in 🔧 **Configurations**, **Slab Programs**, **Half Floor**, **Entry**, **Shear parameters**), the program goes back to the first girder in the lattice girder catalog, looking for a shear girder of the same height.
- If the inclination of the struts (theta), which is calculated automatically, does not fulfill the **Maximum lateral force resistance** $v_{Rd,max,GT}$ and you thus increase the **Inclination of struts** for **theta selected**, the program retains this inclination even if you change the type of secondary girder.
- You can now change the **zeta** values of the two element sides manually and separately, making it easier for the program to design precast elements whose shear forces were calculated by a program for continuous girders. To do this in an earlier version, you had to enter a very small single load in the slab span in question.
  If you select the **Manually at top** or **Automatically at top** option in the **Increase reinforcement** column in the first or second line of the **Panel parameters (longit. reinf.)** group, the program activates the box for the **zeta** value in the first or second line so that you can enter values. Changing the **zeta** value in one of the two lines no longer causes the value in the other line to change.

Precast walls

Wall element design

Group fixtures for connections and division joints

We improved the group fixtures you can select for connections and division joints of walls created with **Wall Element Design**. These group fixtures can consist of shaped fixtures and reinforcement. To use them, select the **Use symbol fixtures** option. The program also transfers automatically created group fixtures with the "outline" option to production (provided you have defined the settings in the fixture catalog accordingly).

Note: The program only creates a group fixture with the "outline" option if the entire outline is within the wall.

When you select the **Use linear fixtures** option, you can also select linear fixtures with the "outline" option. The program now analyzes the setting that defines how the linear fixture interacts with the element.

In addition, we improved analysis of the **Like high wall** or **Like low wall** setting for the **Joint height** parameter for linear fixtures.

Group fixtures with concrete strips for lifting bolts

You can now use group fixtures for lifting bolts installed automatically. These group fixtures consist of a lifting bolt fixture you have already placed and a concrete strip you create manually using **Modify Wall in View**, **Concrete strips, corbels**, **Concrete strips**.

The program automatically displaces the insulation in the area of the lifting bolt created automatically.

New algorithm provided by the Kappema company for calculating KAP waves

When creating walls with the **Wall Element Design** tool, you can use a new algorithm provided by the Kappema company for calculating KAP waves. This is particularly important for checking earthquake resistance. You can find this new option on the **Lattice girders, connecting elements** tab of the **Basic reinforcement, ...** palette.

You can place the KAP waves across joints at the connections, allowing you to install reinforcement without collision and thus to connect the precast elements so that they are earthquake-resistant.

New option for connecting elements in the basic reinforcement palette

To select the new option, open the **Lattice girders, connecting elements** tab in the **Basic reinforcement, ...** palette and set the **Connection type** parameter to **Connecting elements**. For the **Calculation of connecting elements**, select the new **Kappema earthquake resistance** option.

Note: The **Kappema** option has not changed.

After having selected the new option, you must choose two fixtures (**Default fixtures from** and **Fixed fixtures from** parameters).

The distinction between default fixtures and fixed fixtures is necessary to distinguish between fixtures that can be moved slightly when they are installed during production (= default fixtures) and fixtures that must not be moved in any case (= fixed fixtures). Fixed fixtures are usually above and below the areas with the reinforcement for the earthquake-resistant connection of precast elements.

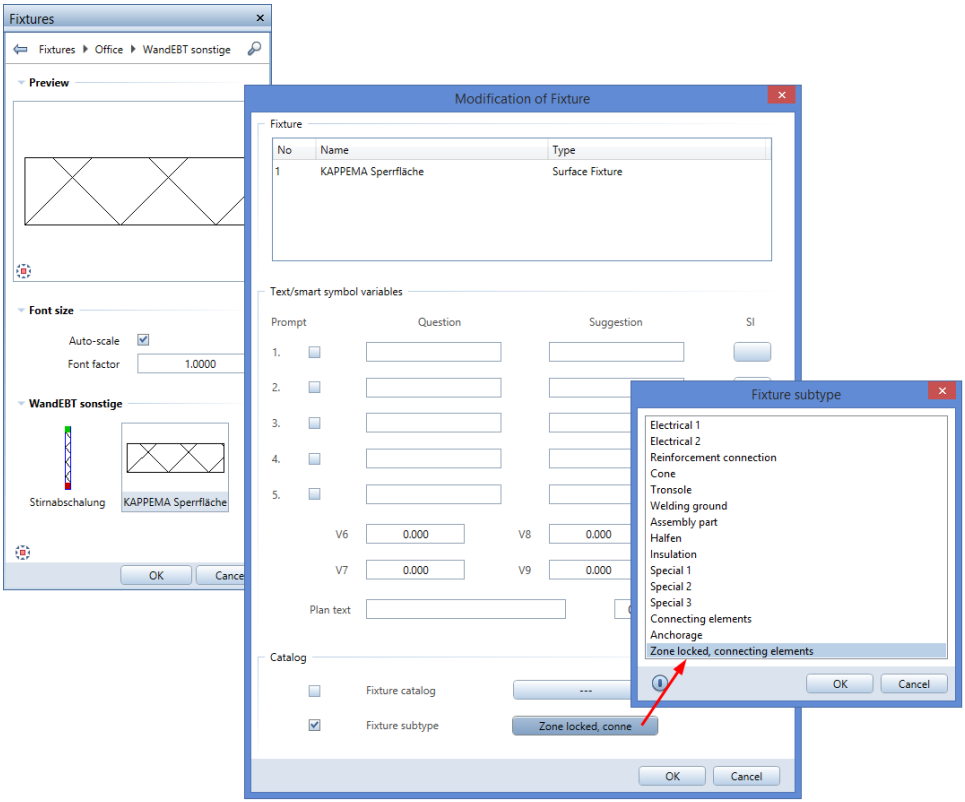
Click ... to the right of **More parameters** to open a dialog box developed by Kappema.

Using this dialog box, you can set the default values required for distributing the KAP waves (for example, edge offsets, vertical grid spacing and horizontal grid spacing and so on), the default values for calculating the KAP waves (for example, standard, wave type, elements/m² and so on) and the default values for the layer of in-situ concrete (consistency class, rate of rise and so on).

The program saves all the parameters you define in this dialog box and the other values you enter separately for each wall element and for the entire wall design so that you can use these settings if you want to modify the data later.

New subtype for fixtures for defining zones locked for KAP waves

So that the program can define the areas that are to be kept free of fixtures when calculating the KAP waves, you must define the new **Zone locked for connecting elements subtype** for surface fixtures.



The program transfers only surface fixtures of this **subtype** to the Kappema algorithm.

You can define these surface fixtures manually or you can configure the program to automatically apply these fixtures to both sides of a connection using the advanced option to define surface fixtures for connections (see above).

Wall panel

The program immediately saves changes in attributes (for example, **concrete grade**, **exposure class** and so on) assigned to walls of the **wall panel** type created with the **Design** tool.

As a result, the parameters are always up to date even if you use **Match parameters** to take the wall parameters from wall panels you have already placed.

Structural precast elements, iParts

Reference point

The **BIM Booster** module introduces a new **reference point** (see above).

This **reference point** - together with the **viewing direction** and the **span direction** - is the basis for a local coordinate system, which can be found in each precast element.

Furthermore, when rearranging elements using the **Identical** mode, the program uses this new **reference point** as the fixed point for comparing identical elements. Taking into account the **viewing direction** and **span direction**, earlier versions always used the point at bottom left. However, implementation of the **BIM Booster** module has shown that this simple rule for synchronizing the data of the model precast element with the data of the detailed precast element (see above) is not sufficient.

This does not change anything for structural precast elements, iParts in existing drawing files, except that you can see the new **Reference point** parameter in the **Alignment** group on the **Dimensions** tab in the **Properties** palette of a structural precast element, iPart. When you select this parameter, an arrow indicates the position of the reference point in the precast element. The tip of the arrow points to the reference point.

When you rearrange the elements, you get the same result as before (unless you change the values displayed for the new **Reference point** parameter). However, when you change the values, you get a different result.

Note: Adjust the reference points before you edit ”old” drawing files or symbols of structural precast elements, iParts with the new **BIM Booster** module. Otherwise, the program may not be able to synchronize the data correctly, because elements (fixtures, reinforcement and so on) may be outside the target precast elements. We therefore recommend that you create new structural precast elements, iParts for use with the new **BIM Booster** module. Be sure to thoroughly prepare the drawing files you want to use as detailed drawing files or symbols of structural precast elements, iParts, you have created as ”master prints”.

Input options

The **architectural component input option** is no longer available for structural precast elements, iParts of the **Beam**, **Girder**, **Wall** and **Slab** type. Consequently, you can use this input option only for structural precast elements, iParts of the **Column** and **Stair** type.

We renamed the old **3D object** input option **3D solid, architectural component**, making it clear that you can also use an architectural component for the precast element. However, you cannot use this option to convert architectural components.

Defining loading dimensions manually

The program automatically calculates the loading dimensions (**Length**, **Width** and **Thickness**), presenting the results in the **Loading dimensions** group on the **Dimensions** tab in the **Properties** palette of a structural precast element, iPart. You can now change these loading dimensions manually.

For example, you can thus take into account bar overlaps or overlaps resulting from fixtures that are ignored by the automatic features.

To activate the boxes for the **Length**, **Width** and **Thickness**, select the check box of the **Manual** parameter. You can then enter values for the loading dimensions.

Bear in mind that the program does not adjust these values to reflect any changes you make to the geometry of the structural precast element, iPart.

When you clear the check box of the **Manual** parameter, the program restores the values calculated automatically.

Note: The loading dimensions you enter manually are also taken into account when you stack data using **TIM**'s **Delivery Manager**.

Displaying concrete areas in animation

When you display concrete areas you create with **Surfaces and Concrete Areas**, **Concrete areas** in structural precast elements, iParts in animation, they get the color defined on the **Display** tab in the **Concrete grade catalog** (in **Catalogs, General**).

Production planning

Production planning, creating production data

Preconfiguring the file name for the export file

In **Configurations**, **General**, **Program Sequence**, **Export file name**, you can define the **Export file name for production data** as you would define the drawing file names for detailed drawing files in the **BIM Booster** module (see above) and the names for the PDF files created in **Element Plan in Batch Run**.

Like the setting for defining the **PrdNam (ProdName)** variable in **Production file - naming convention** on the **Program sequence** tab in **Configurations**, **Process Planning**, **General**, **Production Data Transfer**, **General**, this new setting defines the new **ExpNam (ExportName)** variable for the pattern you can then use to define the file name for the production data file on the **Data creation** tab in the **NC generator driver catalog** (in **Catalogs**, **Process Planning**). The variable defined by the **Export file name for production data** parameter is also available to the list generator (see below).

Note: The **PrdNam (ProdName)** variable is no longer visible on the **Data creation** tab in the **NC generator driver catalog** (in **Catalogs**, **Process Planning**). However, the program still analyzes it to maintain compatibility. We recommend that you switch to the new **ExpNam (ExportName)** variable.

For **Production file - naming convention**, you could set one of the following variables for **File name - prefix** and **File name - suffix** each: **Project name**, **Project number**, **Order number**, **Component**, **Story**, **Fileset name** or **Drawing file name**.

The variables are now assigned to the following Allplan attributes:

Variable	Allplan attribute	Attribute number
Project name	Project name	@405@
Project number	Project number	@936@
Order number	Contract number	@824@
Component	Component_supplement	@1024@
Story	Story	@1304@
Fileset name	Fileset name - user entry	@1022@
Drawing file name	Drawing file name	@425@

If **Production file – naming convention** was set to **File name – prefix = Project name**, **Number of characters for prefix = 5**, **File name – suffix = Component** and **Number of characters for suffix = 3**, you now have to define the **Export file name for production data** as follows:

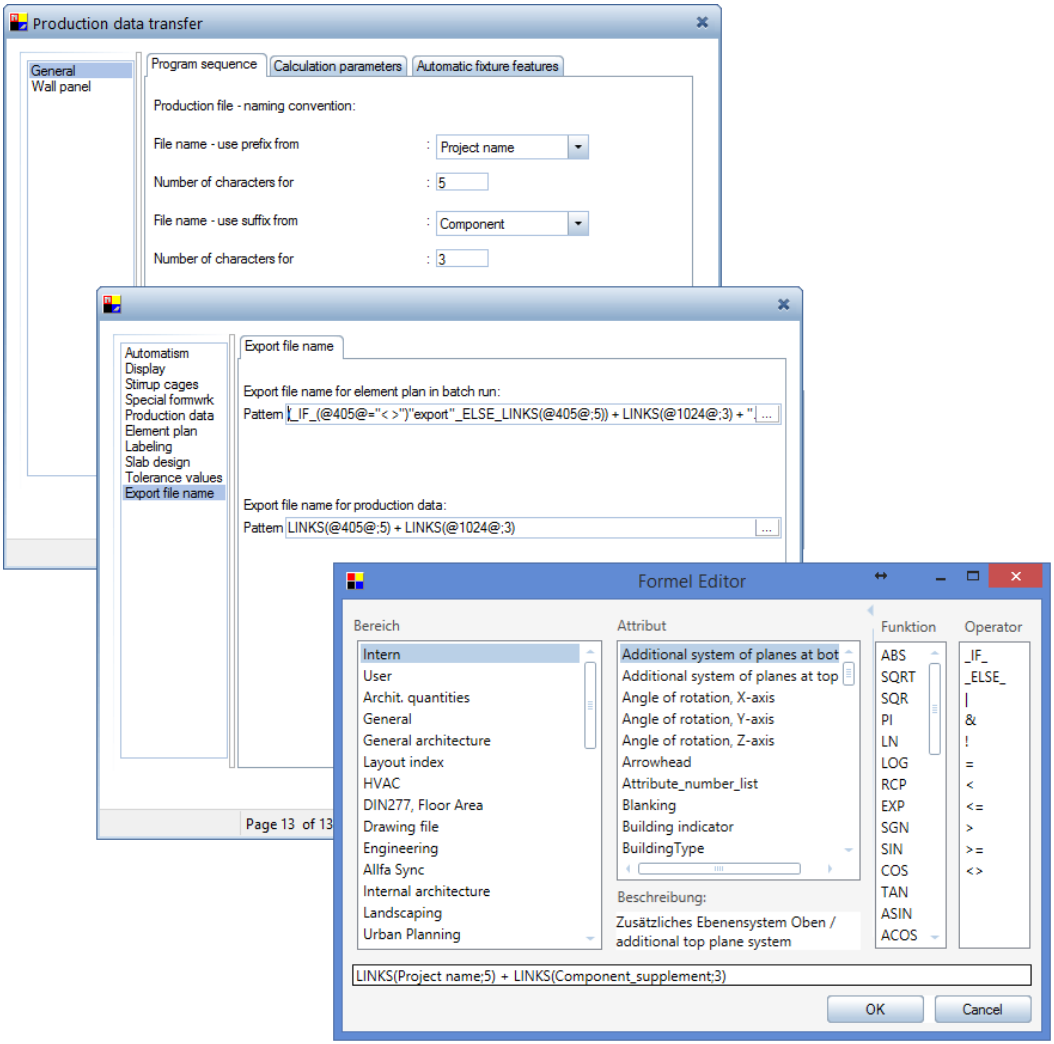
LEFT(@405@;5) + LEFT(@1024@;3)

If you configure the **Export file name for production data** using attributes ...

- that are not assigned,
- of which the values are shorter than the length set for analyses,
- and so on,

the program fills the blanks with "_".

For example, if you set the above configuration and add the mark number to the production data file in the **NC generator driver catalog**, the resulting file name is _____.XXX (XXX = mark number) when you create production data from the "empty" project (project in user folder).



PXML Delegate Files and PXML Include Files

When generating production data in PXML format of version 1.3, you can now create **PXML Delegate Files**.

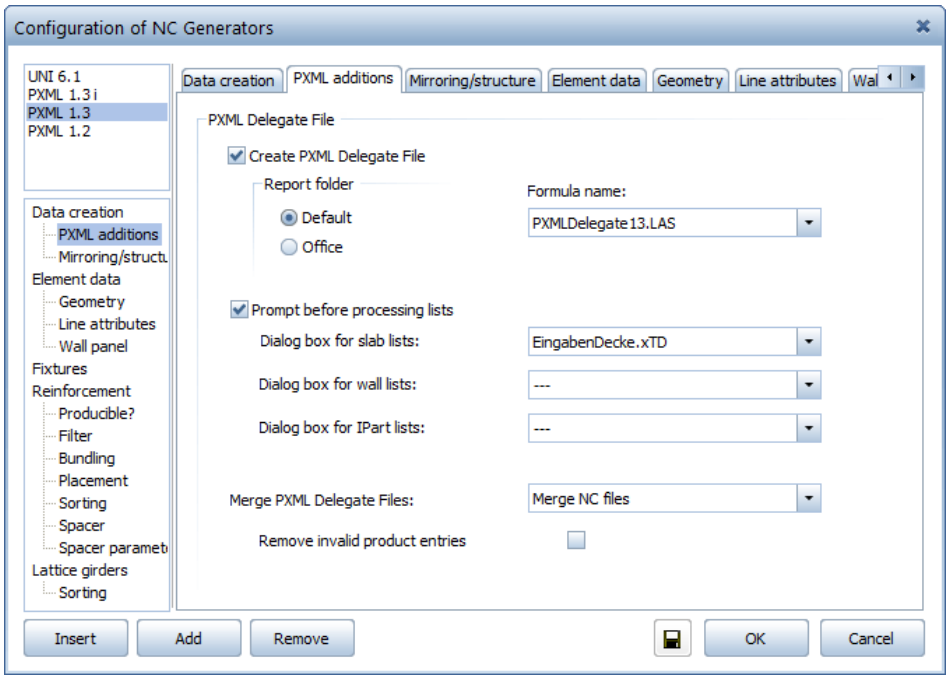
Using **PXML Delegate Files**, you can now merge information from the ERP system, such as data for the order header (order number, customer information, delivery date and so on), and the article list with CAD information (geometric data) in PLANBAR 2016-1.

The **PXML Delegate File V 1.3** lists in the **List Generator**, on the other hand, contain only the data for the order header and the article list of the KST file. Using the KST file, you have to create the production data manually again in a second step.

You can create PXML data with detailed geometric information in two ways:

- "Delegate" the data to a **PXML Include File**, which will be integrated using an **Include directive**. The geometric data will be written to a separate PXML file, which will be referenced in the **PXML Delegate File**.
- Write the data with the geometric information directly to the **PXML Include File**.

To create **PXML Delegate Files**, select the check box of the **Create PXML Delegate File** parameter on the **PXML extensions** tab in **Catalogs, Process Planning, NC generator driver catalog**.



Go to the **List folder** area and choose whether the form for creating the **PXML Delegate File** is in the **Default** folder or in the **Office** folder. Select the form you want to use in the selection dialog box.

When you select the check box of the **Prompt before processing lists** parameter, you can define prompt templates (see below) for **Slab lists**, **Wall lists** and **iPart lists**. The program then displays these prompts before creating the **PXML Delegate Files**.

Use the **Merge PXML Delegate Files** parameter to define the structure of the file. You can choose between the following options:

- **Do nothing**; the file created is equivalent to a list you create manually using the **List Generator**. The file does not include any CAD information (geometric information). The file containing the PXML production data is an independent file.
  If the form with the template for the **PXML Delegate File** contains an **Include directive** for the PXML production data file, the program uses the path names and the file names as they are defined in the directive.
- **Write include directives**; see above. If the form with the template contains an **Include directive**, the program replaces this directive with the path names and files names configured on the **Data creation** tab in **Catalogs**, **Process Planning**, **NC generator driver catalog**.
- **Merge NC files**; the program writes the contents of the production data file directly to the **PXML Delegate File**. As a result, you get a single file with all the data.

When you select the **Remove invalid product entries** check box, the program deletes invalid nodes from the **PXML Delegate File**. For example, this option is useful if you integrate a **PXML Delegate File** created by a different software program instead of generating the **PXML Delegate File** together with the production data.

You can find more information on the interface definition of PXML version 1.3 and examples of **PXML Delegate Files** and **PXML Include Files** at http://www.pxml.eu. Contact our support team if you have any questions as to how you can create the data in PLANBAR 2016-1.

Inclined edges in PXML file

To transfer inclined edges (for example, in prisms, polyhedrons and so on) to production, you can use the new **PXML geometric data (SVertex)** parameter on the **Geometry** tab in **Catalogs, Process Planning, NC generator driver catalog**.

You can only use this new parameter when you have selected the **ProgressXML 1.3** entry for the **Driver** parameter on the **Data creation** in **Catalogs, Process Planning, NC generator driver catalog**.

You can then choose to create the data as usual using the **Shadow (2D)** option or using the **Advanced vertices/polyhedron splitting (3D)** option, which is new in PMXL version 1.3.

Production data for fixtures in concrete areas

When creating concrete areas using **Change Hollow Blocks, Concrete Strips, Filling Objects, Bricks**, you can select a fixture for the **Concrete** option on the **Input Options** toolbar. The program writes this fixture to the production data file, provided transfer to production is active on the **Prod. internal** tab in the **Fixture Catalog** (in **Catalogs, General**).

Check the settings of the fixtures in the fixture catalog, making sure the production data file only includes appropriate fixtures.

Production data for attached reinforcement

The program writes a CONTOUR data record including the mesh dimensions to the production data file for attached reinforcement that is not linked with a precast element (for example, cages created with **MWS Reinforcement Group**). To create such a file in Unitechnik format, use the **MWS** option on the **Input Options** toolbar of **Production Data, NC Generator**. This data record was empty in earlier versions.

Before you upgrade the program, check whether this change has an effect on the way your control system produces meshes.

Bar types for attached reinforcement meshes

As you know, you can create attached reinforcement meshes that are neither bent nor linked with a precast element. To do this, select the **Use MWS mesh** setting in the **Mesh Reinforcement** module (**Engineering** family). What's new is that you can configure the program to define the **Reinforcement type** of the bars (**1st bar layer**, **2nd bar layer**, value **3** in line **4** of the **RODSTOCK** block) in accordance with the height settings of the bars. Earlier versions always assigned the bars - based on their functions as cross bars and longitudinal bars - to the **1**, **first bar layer (formerly cross reinforcement)** and **2**, **second bar layer (formerly longitudinal reinforcement)** in a fixed manner.

If you want to classify the bars of attached reinforcement meshes that are neither bent nor linked with a precast element in accordance with the height, select the **Calculate cross bar layer** option on the **Reinforcement** tab in **Catalogs**, **Process Planning**, **NC generator driver catalog**.

Check sum in BVBS file

If you not only create a file with production data but also write reinforcement data (for example, for certain bar types, non-producible bars and so on) to a **BVBS file**, the program generally recalculates the check sum block.

Consequently, the program now takes into account any changes resulting from the special rules that apply when you create the BVBS file and the file with the production data in parallel.

Pallet loading in the external process planning program

When you selected the **F7 >PalLoa>** and **F8 <PalLoa<** functions, earlier versions saved the current **Pallet Loading** of the external process planning program (BFT menu) by copying the loading files. We replaced these two functions with a user function.

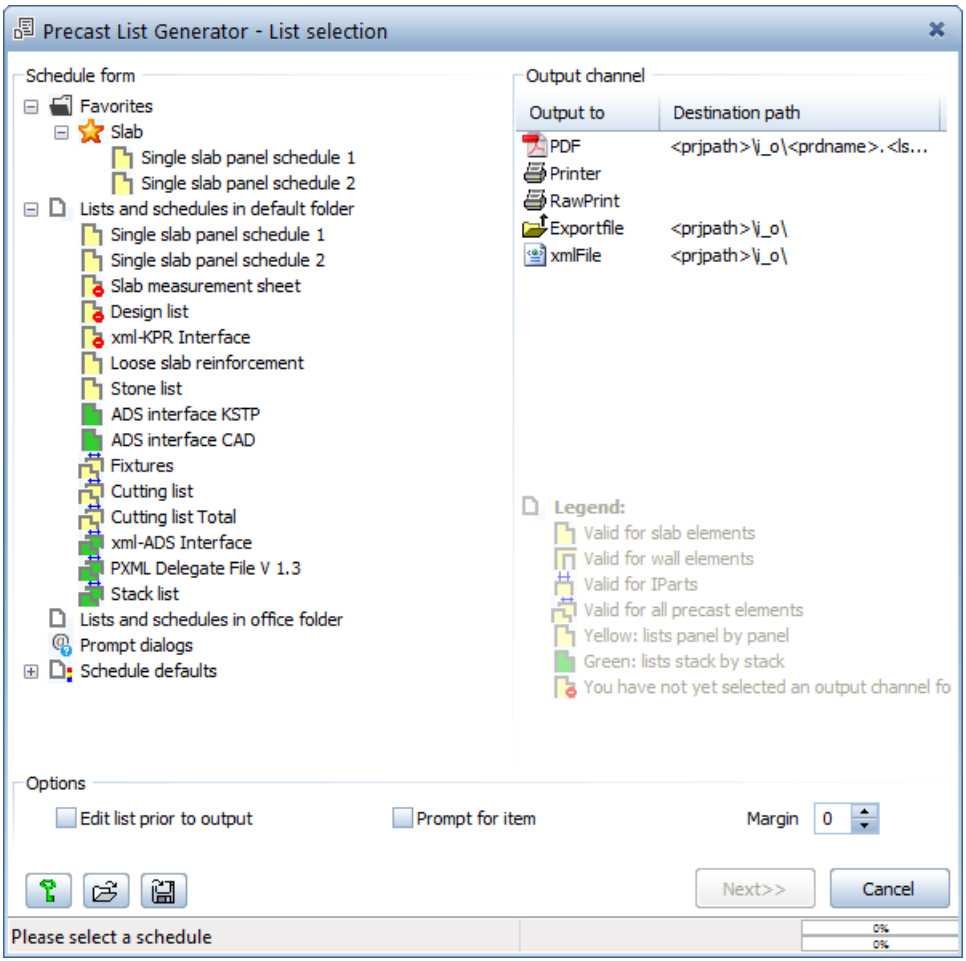
You can now create as many backup files as you need; these files are valid for up to 30 days. The program automatically deletes older files.

You can even restore backup files.

List generator

List selection revised

We revised the **List selection** dialog box in the **List Generator**.



As you can see, we added new color icons: yellow icons indicate **panel-based lists** and green icons identify **stack-based lists**.

As usual, a symbol indicates the precast element type assigned to a list. However, these symbol have changed. The following symbols define the different precast element types:

- **Slab elements**,
- **Wall elements**,
- **Structural precast elements**, **iParts**),
- Valid for **all precast element types**

A colorless symbol indicates the **Schedule defaults** (configurations).

Looking at a symbol, you can immediately see whether an output channel has been defined or whether the file with the defaults is missing.

Lists without output channels or lists with missing defaults get a small **No entry** symbol. When you see this symbol, assign an output channel or defaults as usual.

Note: As usual, you can edit and save the list heads using the shortcut menus of the **Lists and schedules in default folder** and **Lists and schedules in office folder** entries. The same applies to the lists themselves. If you want to edit and save a list, open its shortcut menu and select the corresponding function.

When setting up an output channel in the list generator, you can use the new **Export file name for production data** (see above) defined in **Configurations**, **General**, **Program Sequence**, **Export file name** as follows:

- Like the old **<prdname>** variable, the new **<expname>** variable is available on the shortcut menu of an output channel. You can use it to define the target path.
- Like the old **ProdFName** variable, the new **ExpFName** variable is available in the lists themselves.

As usual, you can print a single list directly. Select the list and click **Next>>**.

If you want to print several lists, you no longer have to choose the lists by selecting check boxes. Instead, open the shortcut menu of **Favorites** and click **New favorite** to create a new **Favorite**. Then drag the lists you want to print onto the new favorite.

As opposed to the old method using check boxes, you can now define different list combinations for different wall types and slab types. In earlier versions, you always had to select different check boxes.

You can rename or delete favorites by selecting **Rename favorite** or **Delete favorite** on the shortcut menu.

To remove a list from a favorite, click the list and drag it somewhere outside the **Precast List Generator – List Selection** dialog box. As an alternative, you can remove the list by clicking **Remove entry** on the shortcut menu.

To print all the lists of a favorite, select the favorite and click **Next>>**. If you want to print a single list of the favorite, select the list and click **Next>>**.

After you have clicked **Next>>**, the program creates the lists as usual. To speed up the whole process, the program now calculates the list variables in the background as soon as you open the **List selection** dialog box.

The two bars below the **Cancel** button indicate the status of the calculation. Calculation is complete when the bars have reached 100 %. The yellow bar stands for the list variables of the panel-based lists whereas the green bar represents the list variables of the stack-based lists.

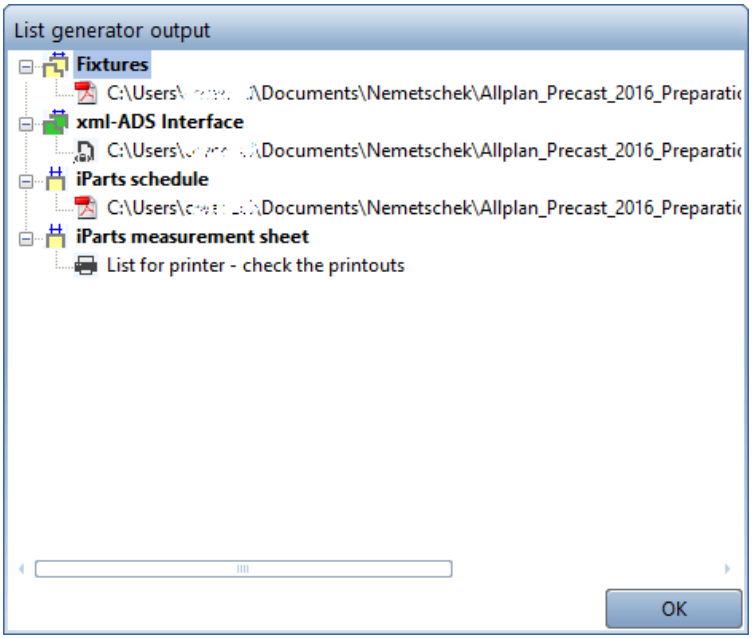
If there are prompts, you must answer them in the next dialog box as usual. You can use the mouse or the keyboard to define and confirm entries. When you have selected several lists, the program - unlike earlier versions - opens the dialog boxes one after the other.

After you have confirmed all entries, the program no longer opens the different lists one after the other in the associated program. Instead, the program collects the data, displaying all the lists in a selection dialog box. This also applies if you print a single list.

Depending on the output type (PDF, XML, TXT), you can click the file name of the list to open the list in the associated program (Editor, PDF Reader and so on).

Click the superordinate node of the list to open the path in Windows Explorer.

If you send lists directly to the printer, the program issues the following message: **List for printer - check the printouts**.



Prompt templates for lists

If you want to see all the prompts together in a single dialog box, you can create templates using **Prompt Templates**. To assign these templates to a **favorite**, drag them onto the required favorite.

Instead of programming the prompts in the lists, you define the prompts for different lists in a special template. Before creating the lists, the program then opens a single dialog box (instead of opening the dialog boxes of all the lists one after the other).

Using this dialog box, you can select and change each prompt separately. The program always proposes the last entries. Consequently, you no longer need to answer the same prompts again and again or skip prompts you have already answered by pressing **<Return>**.

When you confirm the entries by clicking **Save**, the program saves the answers to an XML file in the project so that they are available the next time you generate lists.

Finally, the program creates the lists and displays the selection dialog box.

Contact our support team if you require further information on creating templates for customer-specific lists.

Article numbers for fixtures in concrete areas

Due to the changes for transferring fixtures for concrete areas to production (see above), you can now also include the article numbers of fixtures in invoicing lists (for example, **ADS interface KSTP**).

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