GRAITEC MODELING THE FUTURE

What's New

PowerPack Rebar Detailing for Revit 2024.1.2

GRAITEC POWERPACK
FOR REBAR DESIGN & DETAILING FOR REVIT

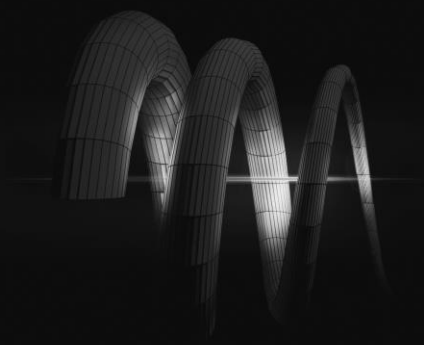


Table of Contents

1. Welcome to Graitec Powerpack Rebar Detailing for Revit 2024.1.2

We're thrilled to introduce the latest PowerPack Rebar Detailing for Revit 2024.1.2, with major enhancements to slab reinforcement.

This update streamlines the reinforcement process through new fabric tools, allowing faster and more accurate reinforcement of entire floors, supports, and edges. Key improvements also include enhanced flexibility with hybrid reinforcement options.

These updates reflect our ongoing commitment to boosting efficiency and usability for our users.

2. PowerPack Rebar Detailing for Revit

2.2. Auto Fabrics for Slabs

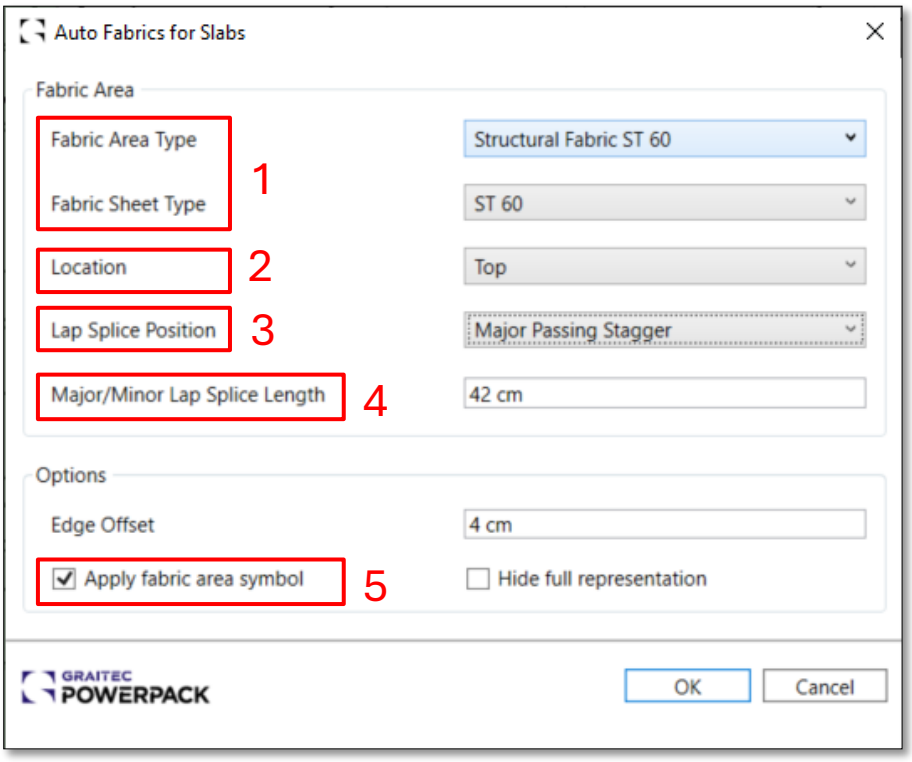
Streamline your slab reinforcement process in Revit with the Auto Fabrics for Slabs feature, designed to significantly speed up your workflow by allowing the reinforcement of entire floors or multiple levels at once without the need to define boundaries manually.

This efficient tool lets you select slab objects directly and easily customize options such as fabric type, position, and lap splice details through an intuitive dialog box. Enhance both efficiency and accuracy in your construction projects with this user-friendly addition.

The tool is available in the **Powerpack Detailing => Edit Reinforcement => Auto Fabrics for Slabs.**

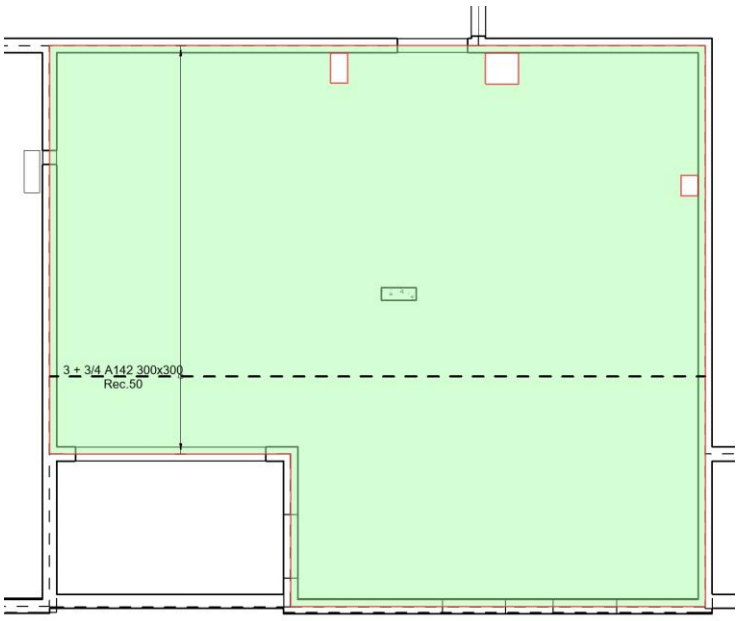
2.2.1. Specific Configurations

This new feature allows for seamless customization of fabric implementation through an intuitive configuration window. Within this window, you can easily adjust several key parameters, including:



Control window

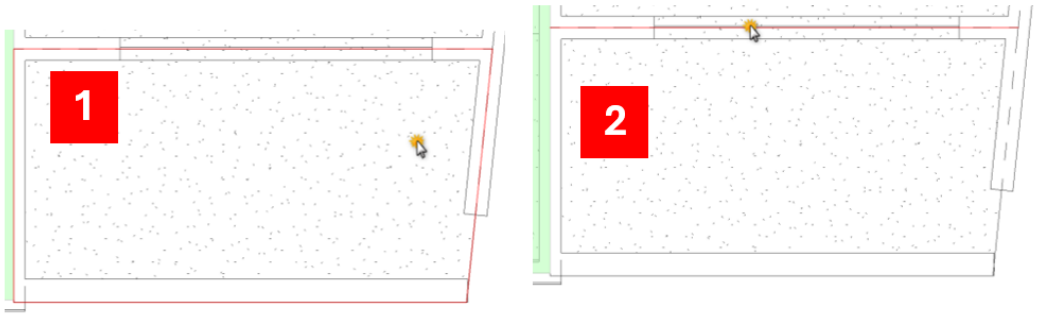
1. Configuration of the fabric panel reference.
2. Placement of the panel within the slab section, either at the top or bottom.
3. Orientation of the fabric panel's position.
4. Specification of the desired overlap for the fabric panel.
5. This option enables the implementation of both the fabric panels in the model and the corresponding reinforcement labels (in the figure below an example of this annotation).



Example of label in a slab

2.2.2. Slab Selection

After clicking OK in the configuration window, click on the slab and then specify the main direction of the slab. The user can repeat this process for all desired slabs. To finalize the selection, simply press the ENTER key.



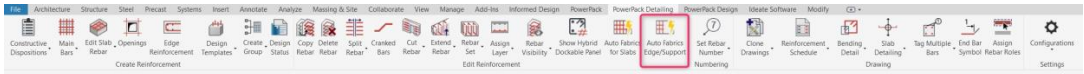
Slab Selection Process
for Feature Implementation

1. Select the entire slab.
2. Select one line to indicate the major direction.
3. Enter to validate the configuration and generate the fabrics.

2.3. Auto Fabrics on Edge / Support

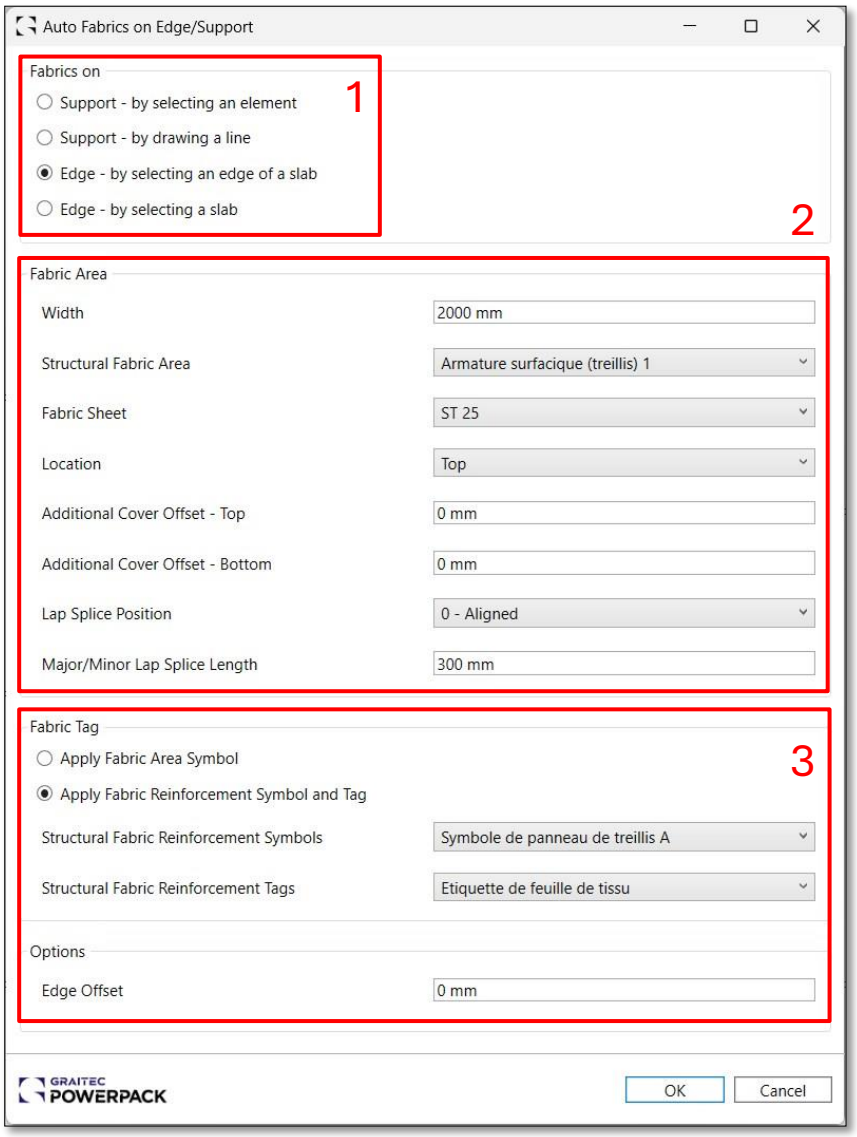
In this version, the **Auto Fabrics on Edge** tool allows for precise positioning of fabrics along slab edges in 3D models. It enables you to meet specific edge reinforcement length requirements by integrating with existing views and selecting the appropriate fabric types, streamlining fabric placement for improved accuracy and efficiency

The tool is available in the **Powerpack Detailing => Edit Reinforcement => Auto Fabrics for Edge**.



2.3.1. Function Specific Definition

In this instance, this function shares a control window with another new feature that will be introduced later in this document. This window offers a comprehensive range of configuration options to accommodate the user's modelling needs.



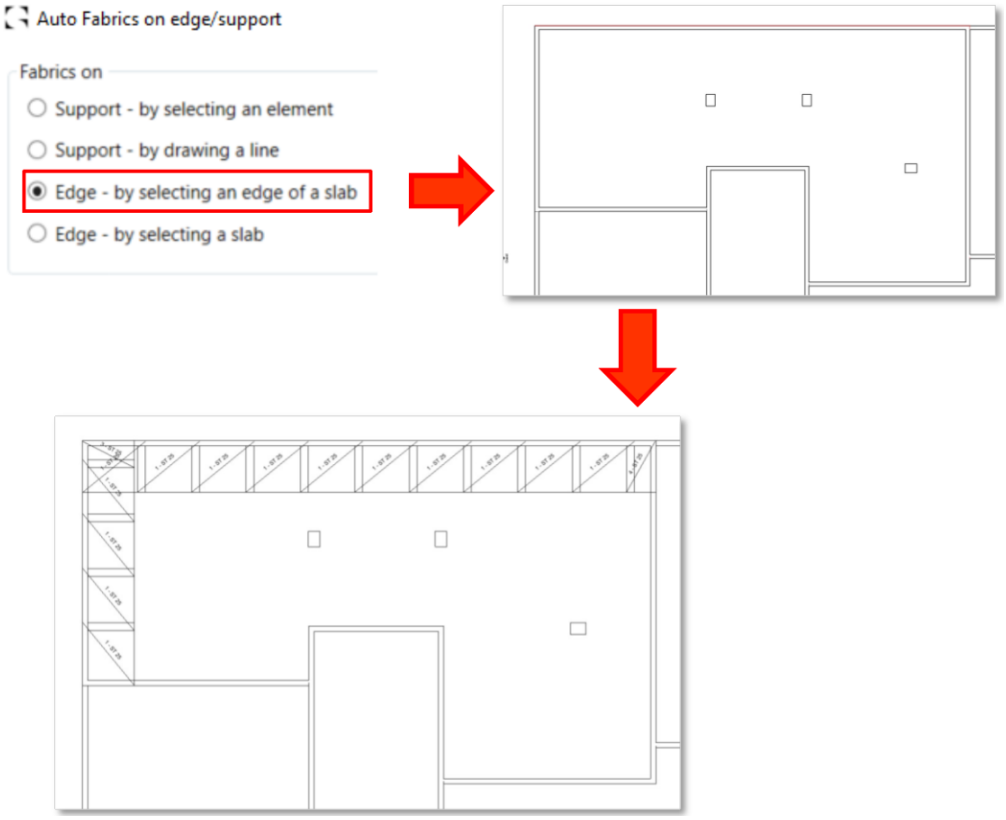
Dialog Box for Auto Fabrics on Edges

1. First, select the desired method for placing the panels.
2. Next, define the geometric parameters for positioning the panels.
3. Last, select the type of tag you want to apply to the fabrics distribution.

2.3.2 Auto Fabrics on Edge

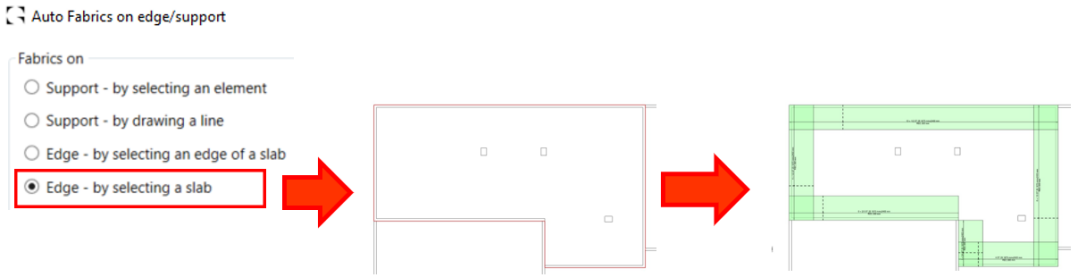
As shown in the dialog box in the above figure, there are two options for placing fabric panels along the edges. These options provide users with greater flexibility and enhance the usability of this new feature.

The first option in the dialog box allows users to manually select a specific edge of a slab and place panels along its axis.



Placing fabrics by manually selecting edges

The second option consists of placing Edge Fabrics by selecting an entire slab. With this option, users can place fabrics around all the edges with a single click.



Placing fabric on edges by selecting a slab

2.3.4 Auto Fabrics on Support

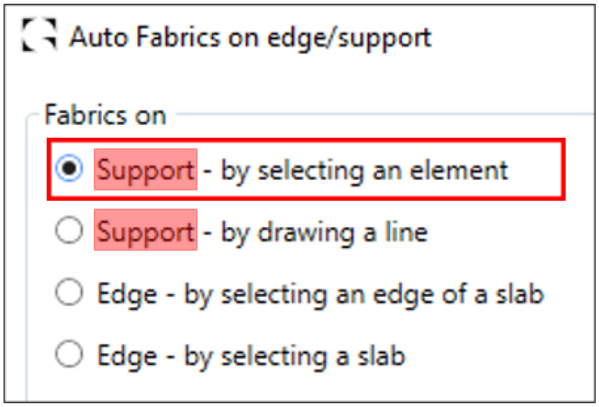
Enhance your structural detailing in Revit with our new Auto Fabrics on Supports feature, designed to streamline the distribution of fabrics over structural supports with precision.

This tool allows for accurate fabric placement within a 3D model, ensuring that fabrics are applied with specified lengths. Users can integrate the placement into an existing view and adjust the support zone as needed, significantly improving the reinforcement process and overall efficiency.

This tool shares the dialog box with the previously introduced "Auto Fabrics on Edge" feature. While both tools aim to enhance fabric placement, their purposes are quite different, catering to specific aspects of the reinforcement process

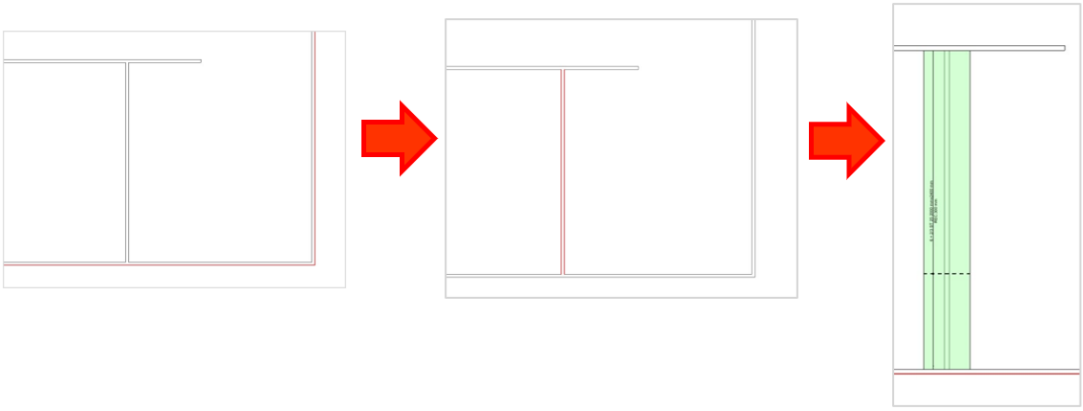
The tool is available in the **Powerpack Detailing => Edit Reinforcement => Auto Fabrics on Supports.**

The dialog box shown in Figure 4 provides the interface for this tool. The Fabric Area configuration remains the same, but the variation lies in the first section of the window, where you need to select supports as the element to apply the function. The first option for using the tool is called "By Selecting an Element."



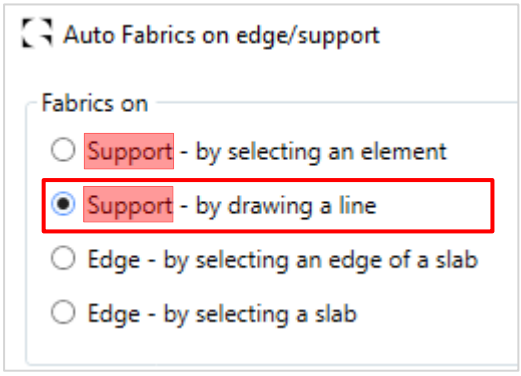
First fabrics on support placement method

The workflow for this option involves two steps after clicking OK in the dialog box. First, select the slab, and then choose the support (one or more supports).



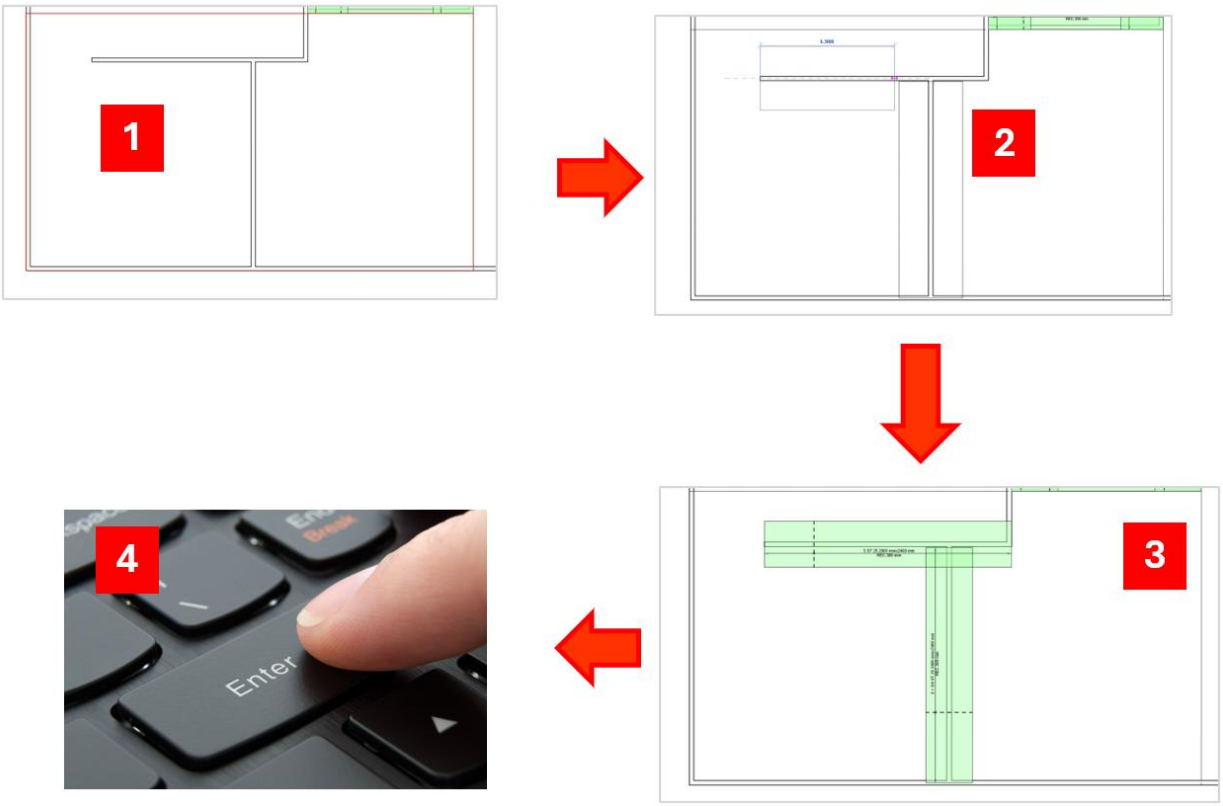
Placing fabric on supports by selection an element

The second option for placing fabrics on supports is by tracing a path where you want to distribute the fabrics.



Second fabrics on support placement method

The workflow for this method involves selecting the slab to reinforce after clicking OK in the dialog box. Then, simply trace the desired line or lines to complete the fabric placement.

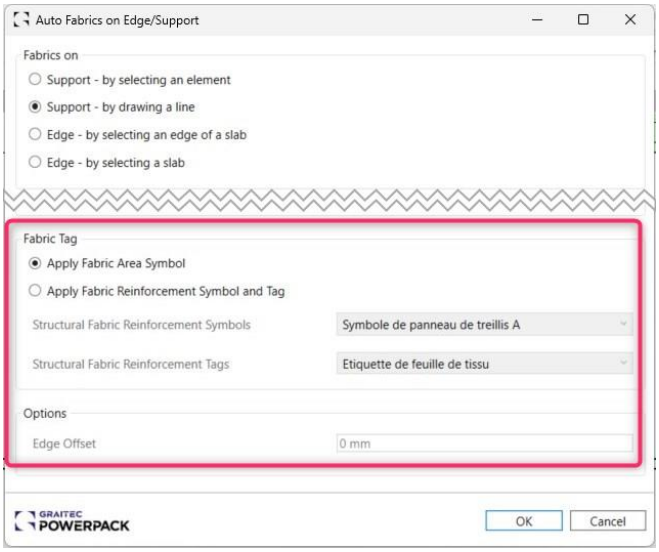


Workflow for place fabrics on support by tracing a line

1. Select the slab.
2. Trace the lines along the desired supports.
3. Press the Enter key.
4. The result: fabrics are placed along the supports.

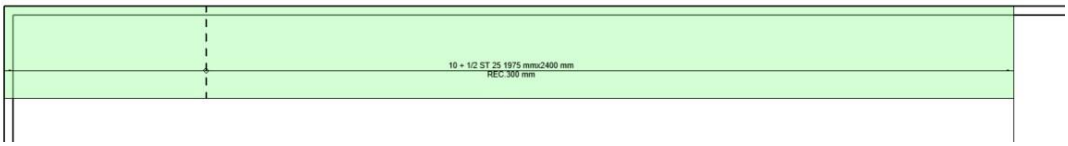
2.3.5. Fabrics Tag

The Auto Fabrics Edge and Support offer flexible tagging options.

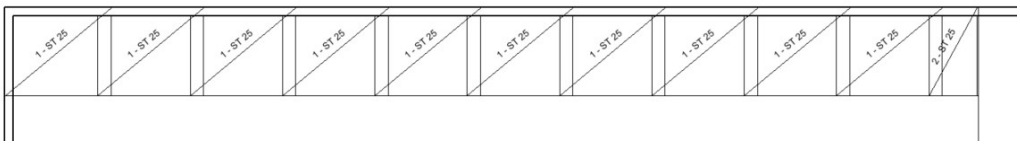


Workflow for place fabrics on support by tracing a line

Users can choose between applying a simplified and optimized representation of the fabrics or using the standard panel representation for the fabrics.



Placing fabric on Edge with Fabric Area Symbol



Placing fabric on Edge with Fabric Reinforcement Symbol and tag

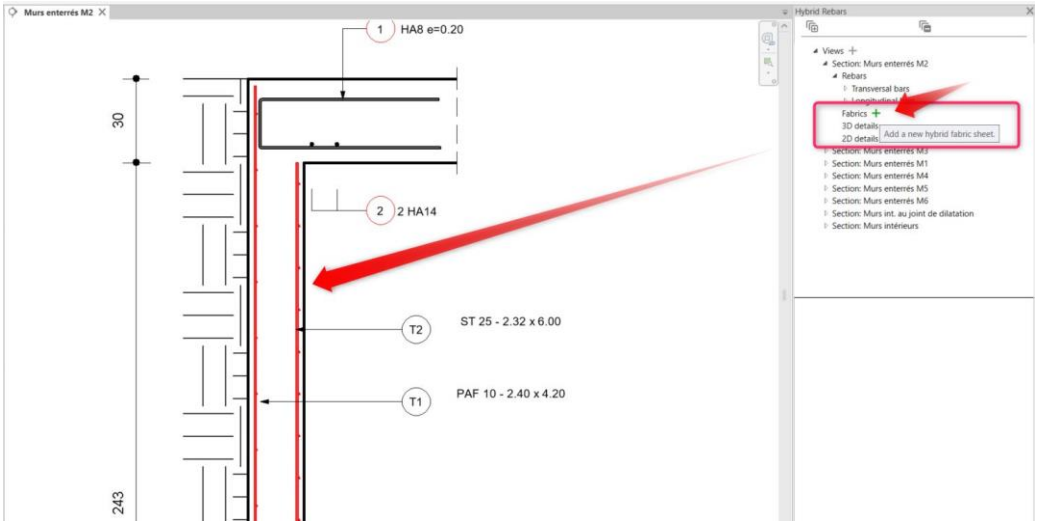
2.4. Reinforcement Continuous Elements: Improvements

This release brings a substantial set of improvements, expanding on the initial implementation of the hybrid method. The update extends the tool's functionality by enabling fabrics to be used as hybrid reinforcement.

Additionally, there are enhancements in ergonomics, particularly in the manipulation and navigation of the hybrid panel, making it more intuitive. Finally, improvements have been made to the options for calculating quantities, optimizing the process for greater efficiency.

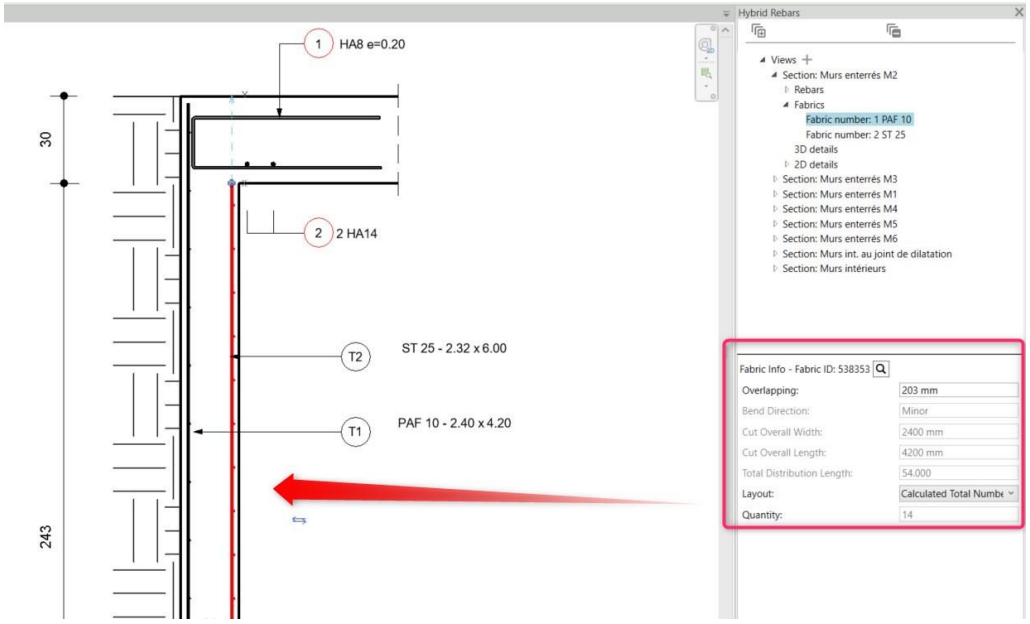
2.4.1. Hybrid reinforcement with Fabrics

When activating the hybrid panel, fabrics can now be added to the hybrid view in the same way that rebar is selected. Simply click on the "+" button and select the fabric in the Revit view.



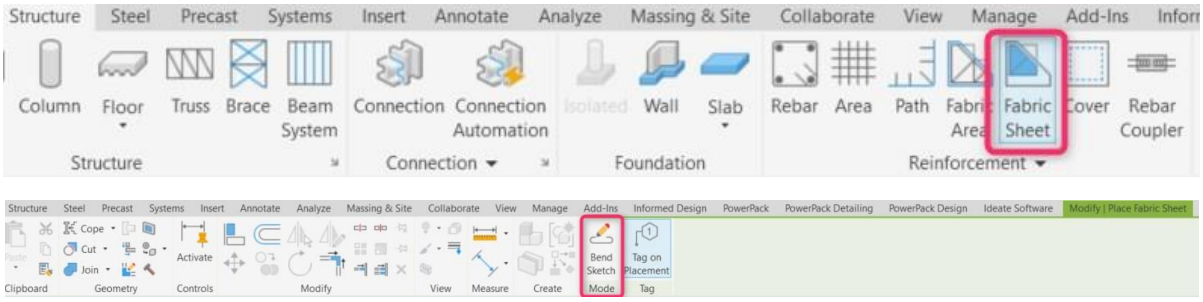
Adding Fabrics to the hybrid view

Once added, the fabric will appear in the browser, and calculations can be performed after sketching the distribution length.



Hybrid quantities calculation for Fabrics

Please note that this command supports only fabric models created using the "Fabric Sheet" command and placed with the "Bend Sketch" option.



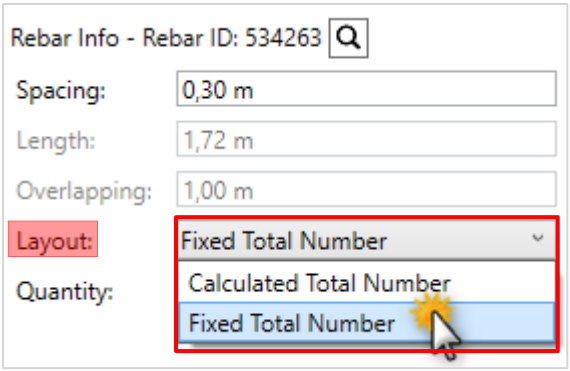
Revit native command – Fabrics Sheet

To maximize the benefits of the hybrid method, it is more efficient to model the fabrics directly from the section, ensuring comprehensive and detailed reinforcement drawings.

Using the "Fabric Area" command in Revit requires sketching the area in plan or elevation views, which is not compatible with the hybrid reinforcement method, as it necessitates returning to the section for accurate modeling.

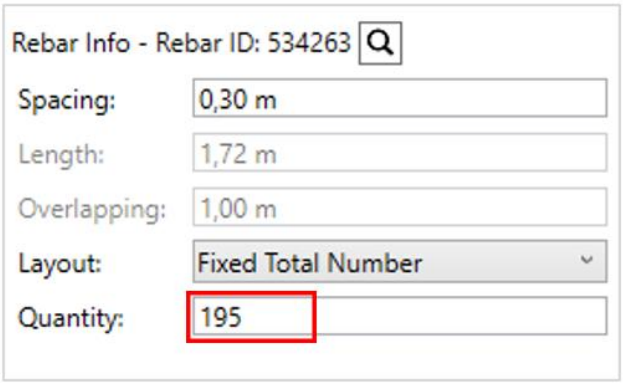
2.4.2. Manual Rebar Quantity Input

It is now possible to manually input quantities for a desired rebar reference, further expanding the flexibility of this reinforcing method. To take advantage of this new option, first select "Fixed Total Number" in the Layout menu of the Hybrid Panel.



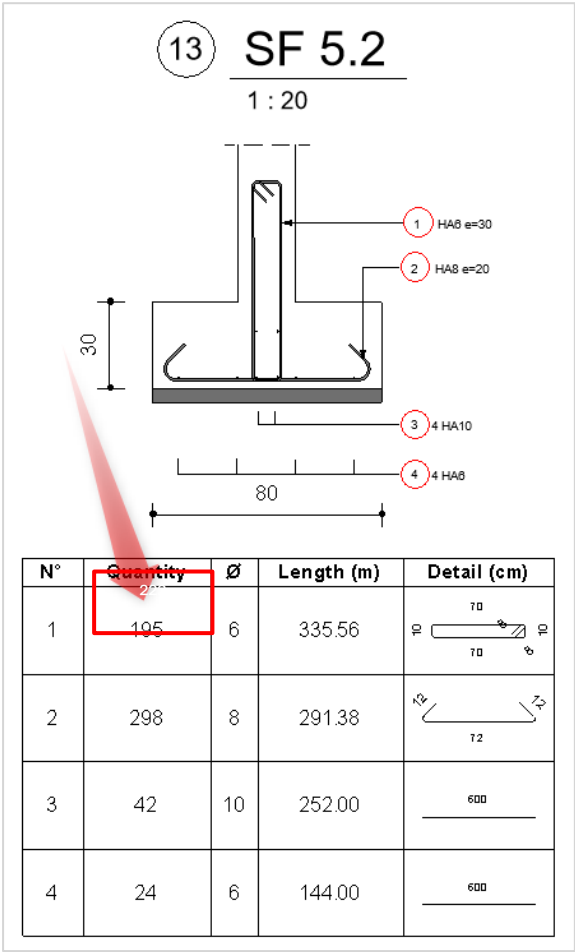
Option for manual quantities calculation

Next, simply enter the desired quantity in the Quantity field.



Manual value placed in the dialog for quantities

The configured quantity will appear, for example, in schedules as a hybrid quantity, alongside other quantities calculated by the function.

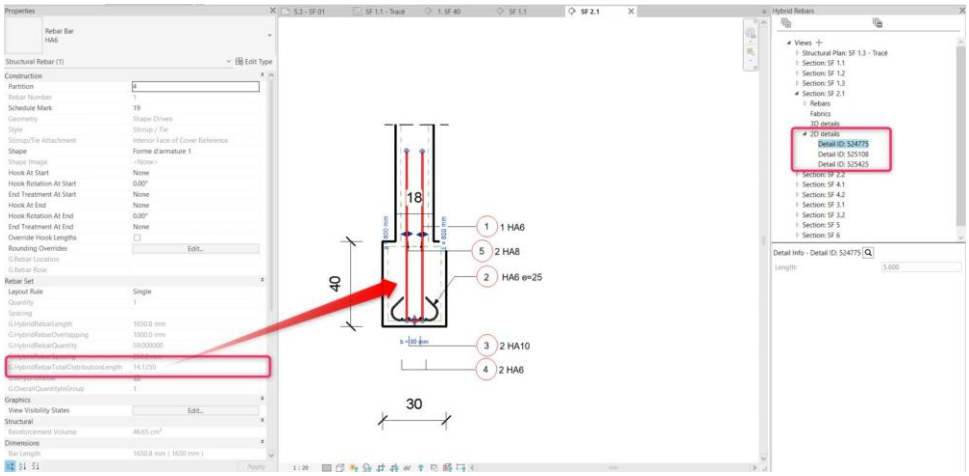


Quantities input in result plan

Note: *When manually inputting the quantity for a specific rebar reference, spacing will still not be automatically calculated due to the manual entry. As a result, the spacing must be manually calculated and entered in the Hybrid Panel.*

2.4.3. Total Length of Detail Lines

This update introduces a new capability for displaying the total length of all detail lines used for bar tracing within the properties palele. The goal of this feature is to improve visibility and calculation accuracy directly within the rebar properties.



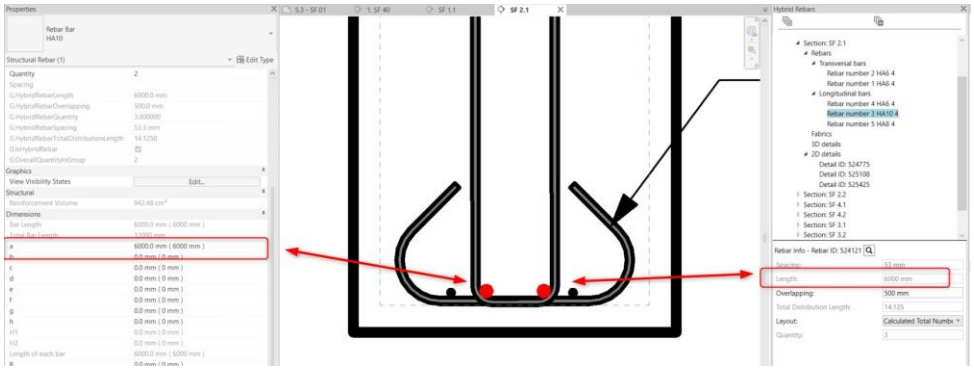
New parameter for total length distribution value

This new parameter will provide users with a precise, automatic calculation, ensuring detailed and accurate reinforcement data without manual input.

2.4.4. Correct Value for Revit Bending Details

This release brings a key improvement to longitudinal bars in the hybrid reinforcement workflow. The hybrid length can now be properly used in Revit bending details, with the value automatically copied into the shape parameter.

This ensures accurate and consistent values in bending schedules and documentation, streamlining the hybrid reinforcement process in Revit.



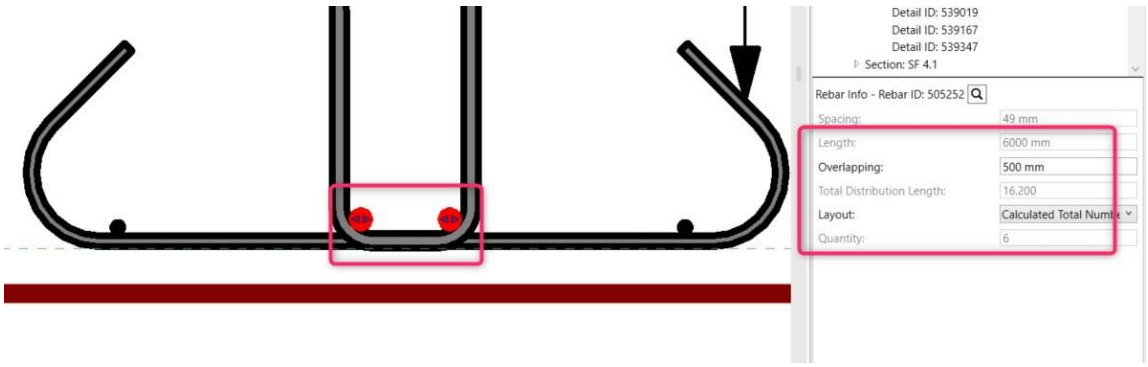
Shape parameter length consistent with hybrid length value

2.4.7. Quantity updates for copied details item

The handling of Revit's copy feature for 2D and 3D details has been enhanced. Now, when detail lines or generic models are manually copied and assigned to a hybrid view, they are correctly included in the total calculations, ensuring accurate quantity updates and improved data management.

2.4.5. Longitudinal bars – Rounded Value

For hybrid longitudinal bars, quantities will now be automatically rounded up to the nearest whole number. This ensures that all values are rounded up, improving precision and consistency. For example, a quantity of 1.1 will be rounded to 2, and a quantity of 2.5 will be rounded to 3.



Rounded value for longitudinal calculation

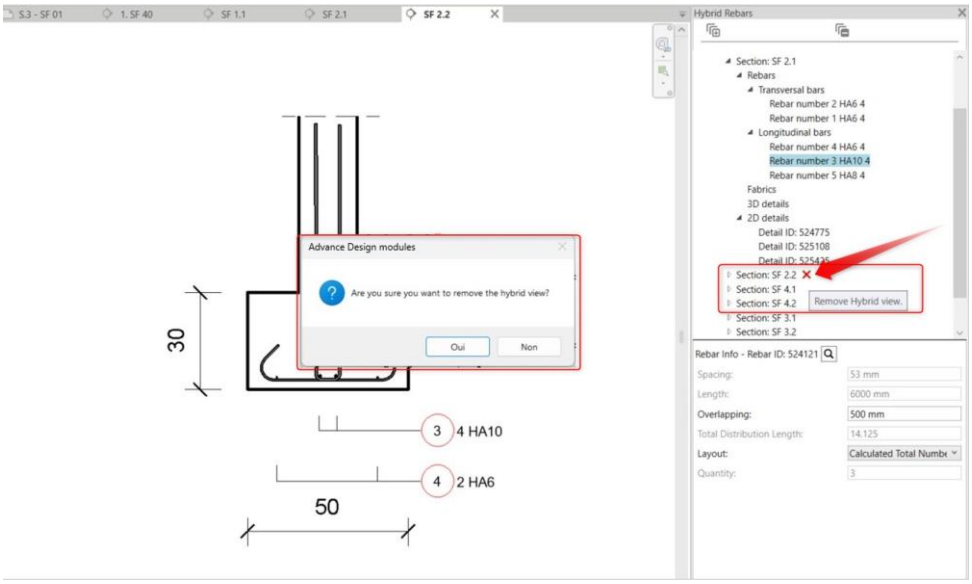
To illustrate how the rounding mechanism works, refer to the example above. In this example, the total distribution length is 16.2 meters. When dividing this by the length of each rebar (6 meters), we get 16.2 / 6 = 2.7. This value is then rounded up to the next whole number, giving 3.

Since there are two longitudinal bars in this setup, we multiply the rounded result by 2: 2 bars * 3 = 6 bars in total. This calculation ensures that the quantity of rebar is both accurate and consistent with the rounding rules applied.

2.4.6. Delete Confirmation message

An important enhancement has been added to the hybrid panel with the introduction of a confirmation dialog box before deleting a view. Users will now be prompted to confirm their action, preventing accidental deletions and ensuring that important views are not unintentionally removed.

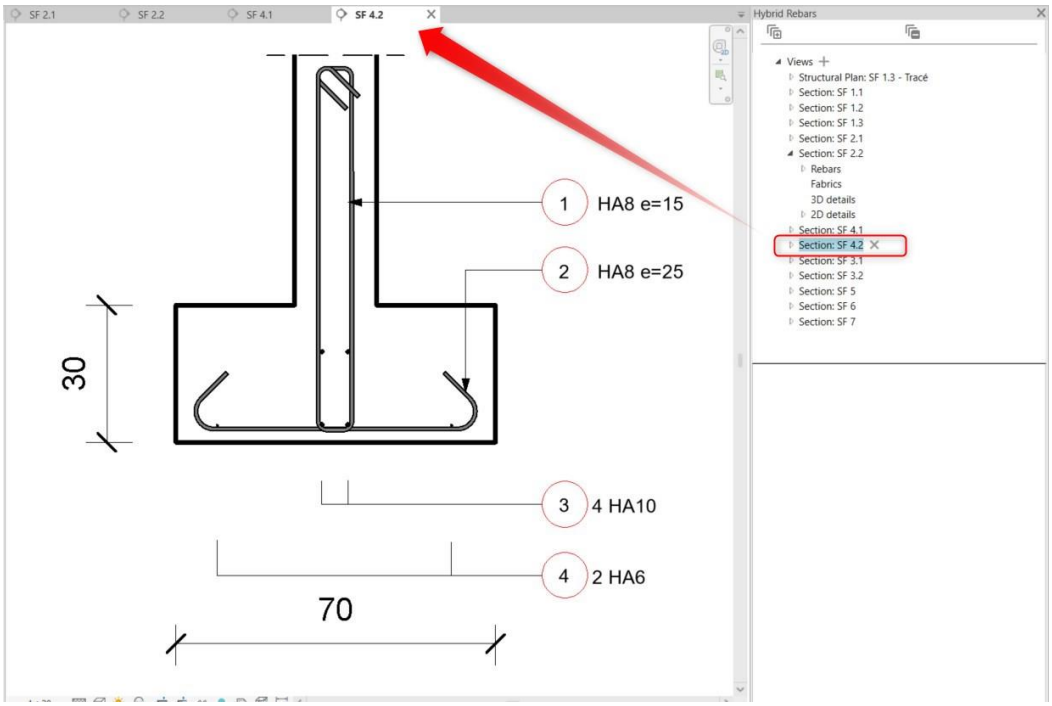
This update improves usability and protects critical project data.



Warning message when deleting hybrid view

2.4.8. Quick Access to Revit View from the panel

The hybrid panel has been enhanced to allow users to quickly navigate to a Revit view with a simple double-click or another quick-access method. This improvement streamlines the workflow, offering faster and more intuitive access to Revit views, significantly enhancing the user experience.

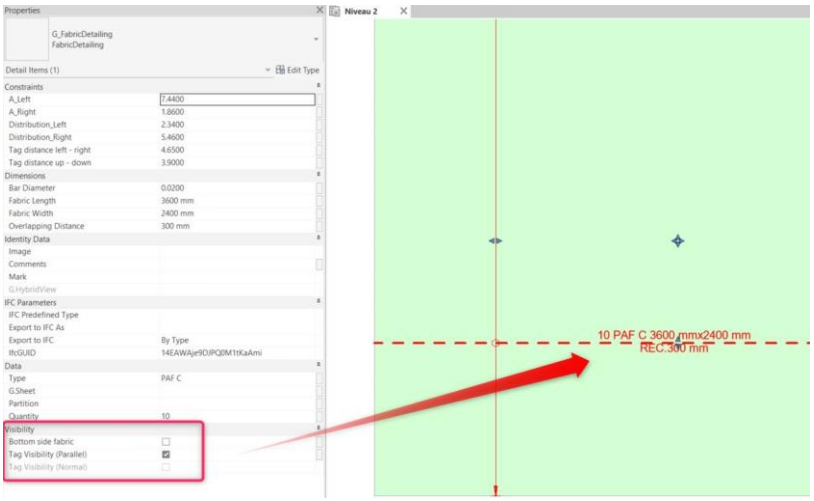


Clicking on the view panel will open the corresponding Revit View

2.4.9. Fabric Area Symbol – Tag orientation

This update enhances the automatic area symbol feature introduced in the previous version by adding control over the orientation of the tag. A new instance parameter, "Tag Visibility", allows users to toggle between vertical and horizontal tag positions.

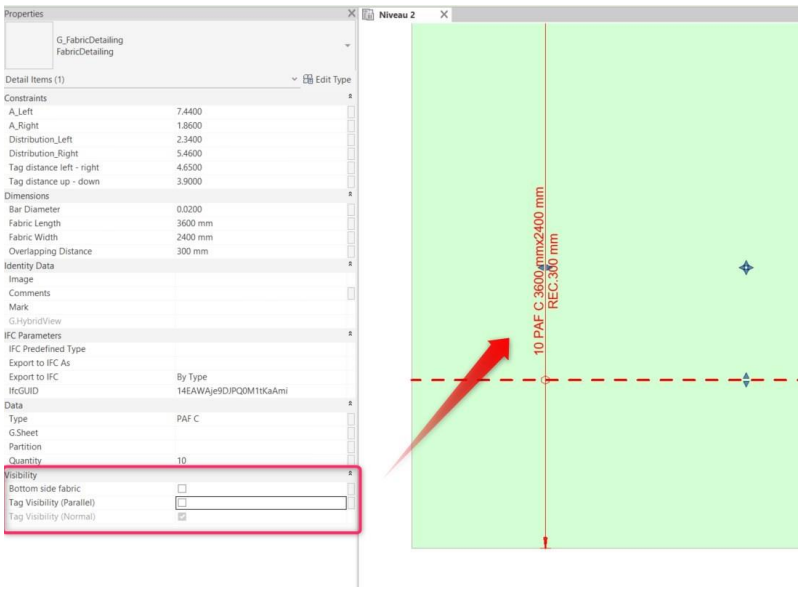
There are two parameters: "Tag Visibility (Parallel)" and "Tag Visibility (Normal)".



New instance parameter to control tag orientation

However, only "Tag Visibility (Parallel)" can be directly manipulated by users. When switching this parameter on or off, "Tag Visibility (Normal)" will automatically adjust accordingly, as it is not possible to have both parameters activated simultaneously.

This improvement provides greater flexibility and precision when placing tags in your projects.



Switching from horizontal to vertical orientation