



TL FRAMES

GUIDE (English)

March 22, 2023

TL ELEMENTS: FRAMES - FRAMING TOOL \\ GUIDE

TL Elements FRAMES is a tool for filtering and manual selection of frame elements and walls; insertion of multiple windows/doors in walls at once with the use of parameters of elevation and horizontal offset; Sill creation and floors mergence by selected frames; moving, flipping and mirroring of multiple frame elements. You can use the core functionalities of the TL Elements lists to handle elements selection and visualization. The standard TL Elements integrated visualization tools are also available to improve this workflow.

This is a guide to get you started on the basics of the command. Please, keep in mind that, in addition to this and any other support material, TL Elements also provides helpful tooltips with descriptions of features that you may invoke by hovering your mouse over the buttons of the application.

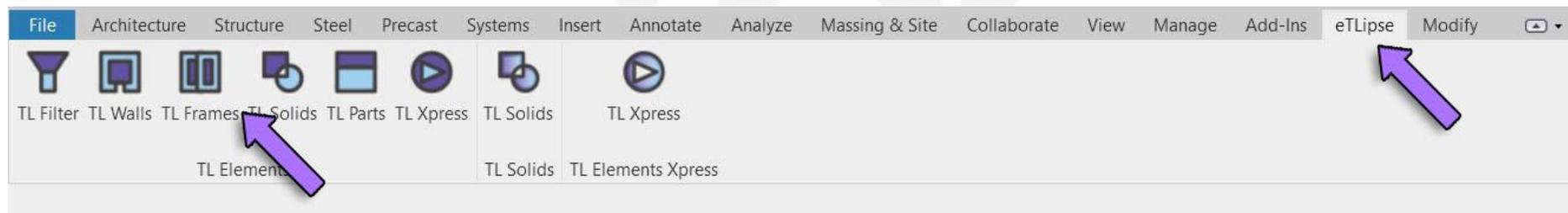


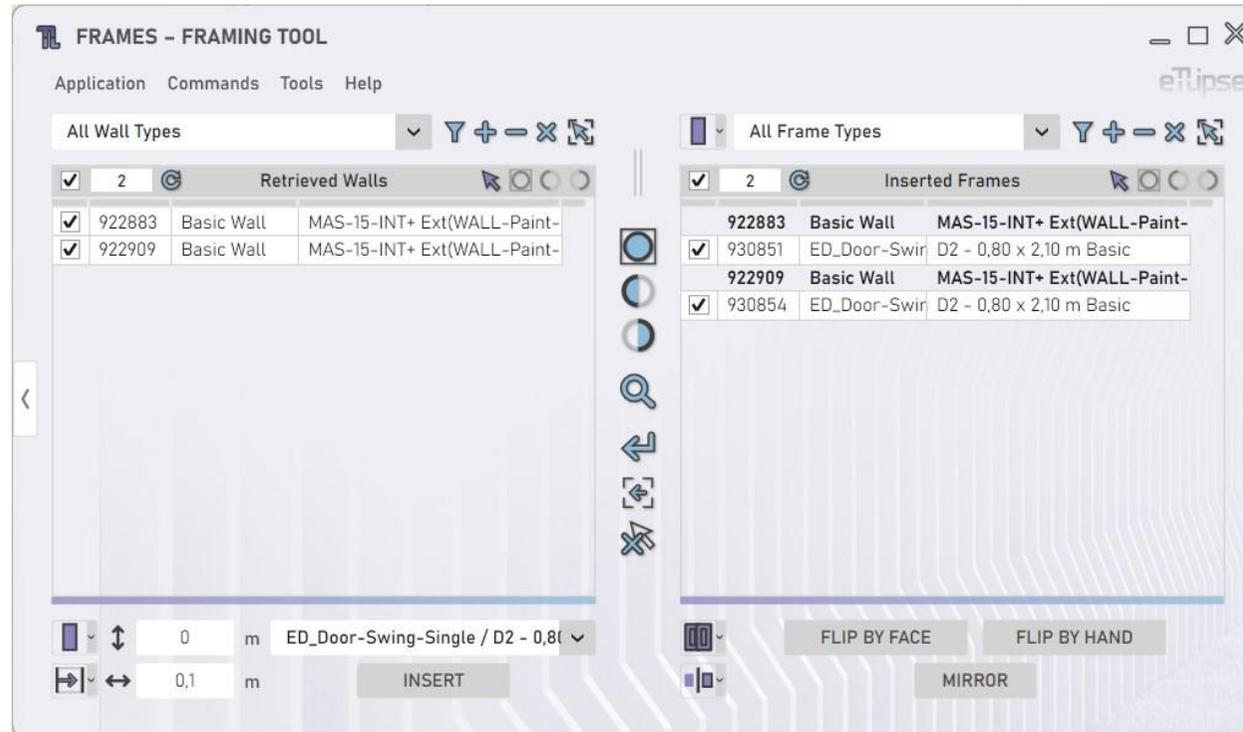
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TL Frames Interface

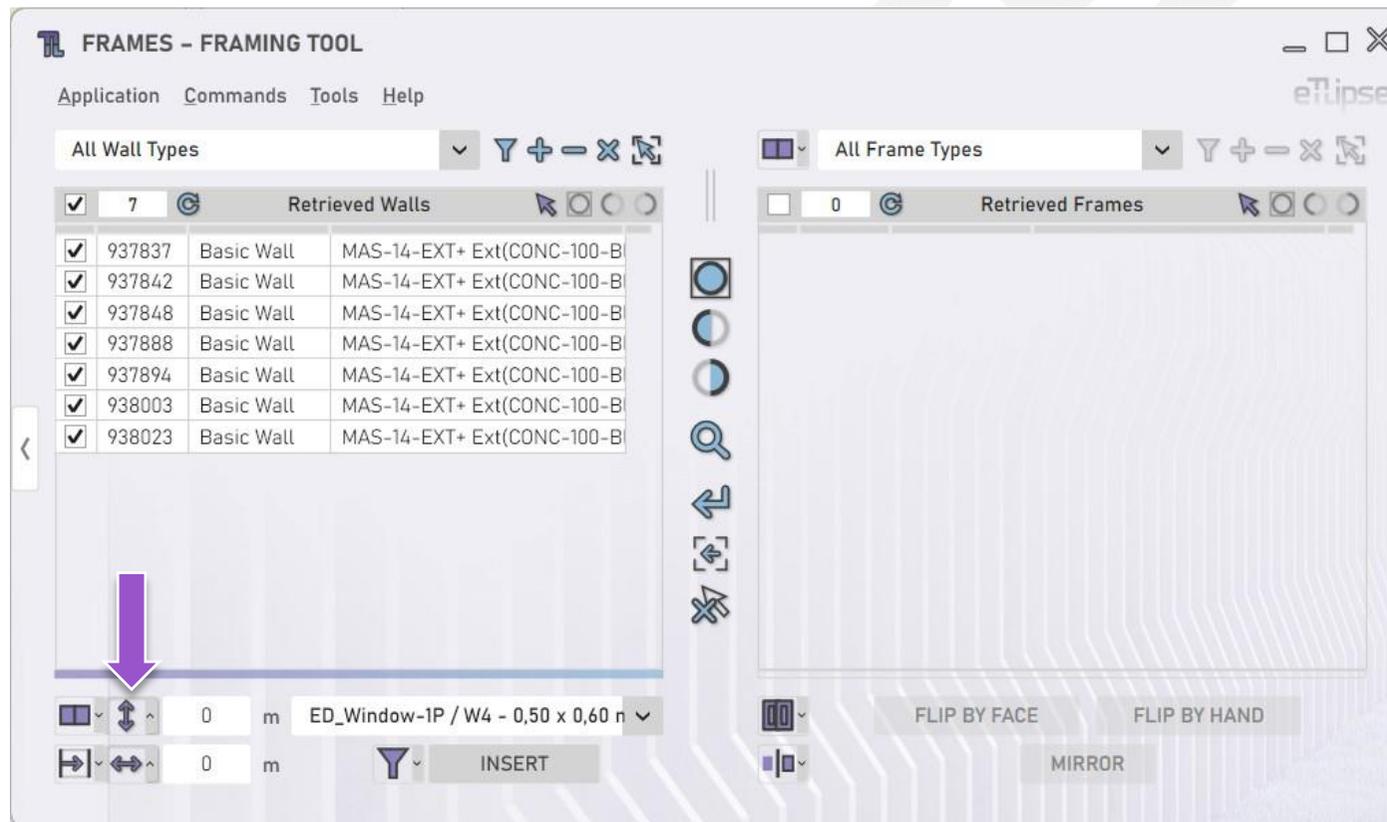


As we can see in the image, the Frames command shows a centered set of visualization tools and two lists in its user interface. The first one, on the left side, is used to list Revit elements of the Walls category (**Walls Retrieval List**) and the second one, on the right side, is used to list Revit elements of the Doors or Windows categories (**Frames Retrieval List**), depending on the chosen operation mode. These elements may be retrieved from Revit either by user selection, filtering or specific operations and become available to be used by the TL Frames features as soon as their respective checkboxes are checked. Above each list we can find tools for elements retrieval and below them we can find buttons and options to execute the featured operations of the command for the checked elements in the respective list. To learn how to use the controls in lists and the visualization tools, please, refer to the **TL List** and **TL Visualization Tools** guides.

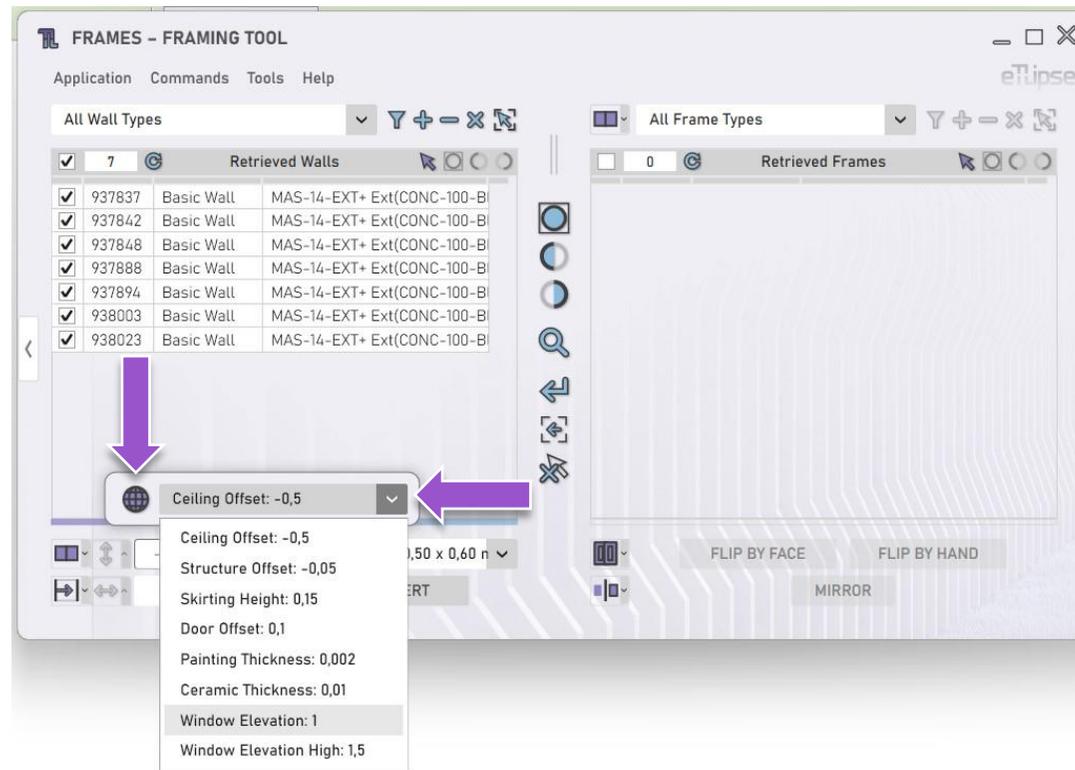
All numeric text boxes in the interface will assume values in the **unit currently set for length in the active project** (for the examples in this guide, it will be meter) and also can parse simple formulas of multiplication, division, subtraction and addition in this unit.

USE OF REVIT GLOBAL PARAMETERS

Before using any of the multiple features of TL Frames, we should note that every field for numeric value in its user interface can be locked and receive values from Revit global parameters. We must keep in mind that the global parameter must always match the unit type of the numeric field (fields for length values require length global parameters, fields for integer values require integer global parameter, etc.).



Every field is preceded by a button that opens the panel with the option to lock the values in the field to a Revit global parameter. In the image, we can see an example of this button next to a field that takes values for elevations of windows (in this case, values of length).



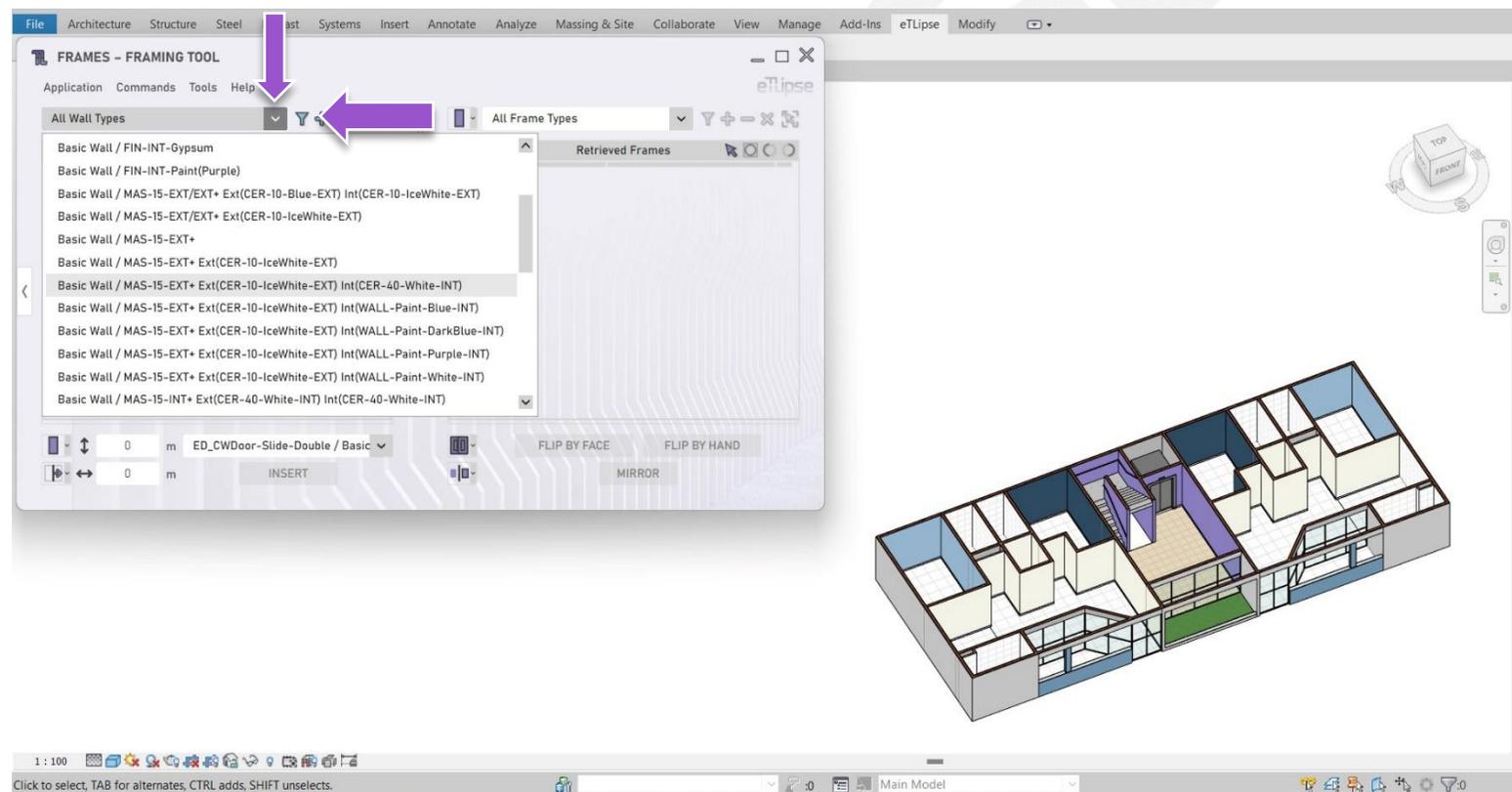
After clicking the button, we can click the "globe" icon to lock the field to one of the available global parameters of the respective unit type found in the active Revit project.

If no global parameter for the unit type of the field is found, the button to open the panel will be disabled.

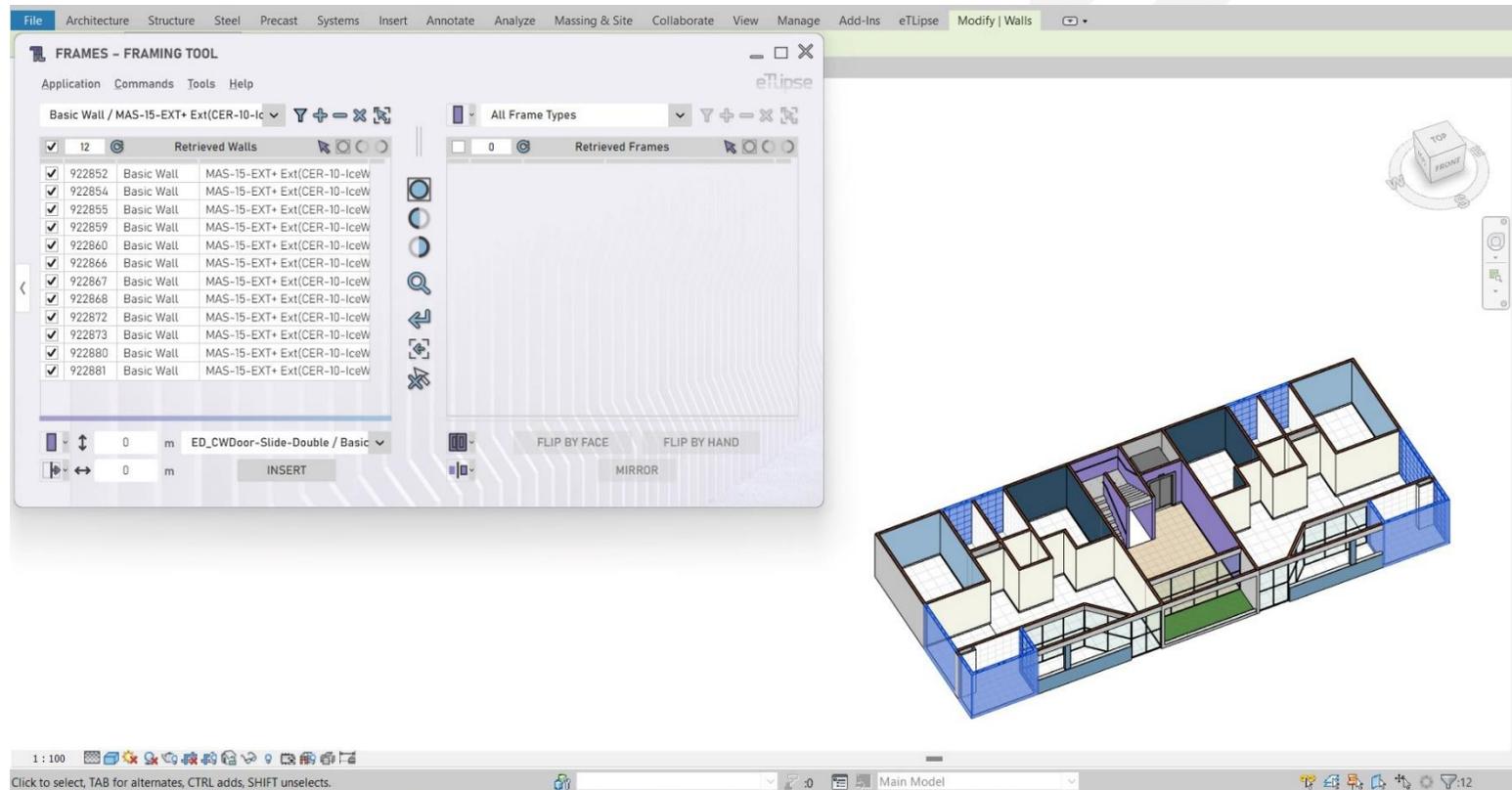
WALLS RETRIEVAL

The tools that we have right above the list on the left-hand side (Walls Retrieval List) of the TL Frames interface will help us to retrieve and list elements of the Walls category and Basic Wall family. The retrieved walls can be used for the operations of doors/windows insertion (**for this reason, they must be Basic Walls, not Curtain Walls**), as we are going to explain in other topics of this guide.

Retrieving Walls by Type

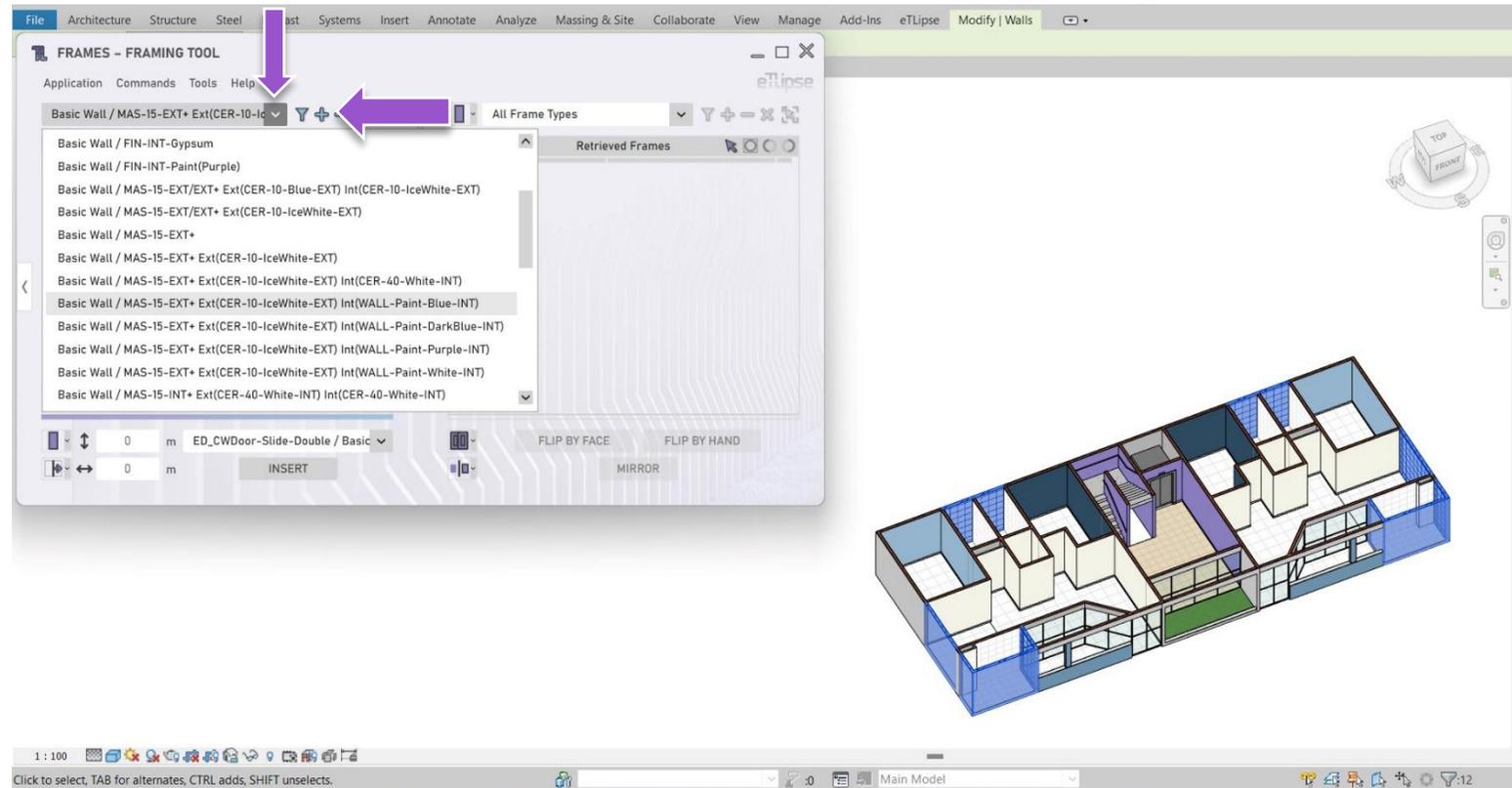


Above the Walls Retrieval List there is a dropdown box with all the wall types that have instances in the active Revit project. In the first image, we are choosing the wall type with external Ice-White ceramic and internal White painting, for example. After the selection of the type, we can click the **Retrieve Walls** button (the one presented as a filter, as indicated in the first image) to fill the respective list with all walls of the selected type found in the project (if the list already presents elements, these will be overridden).

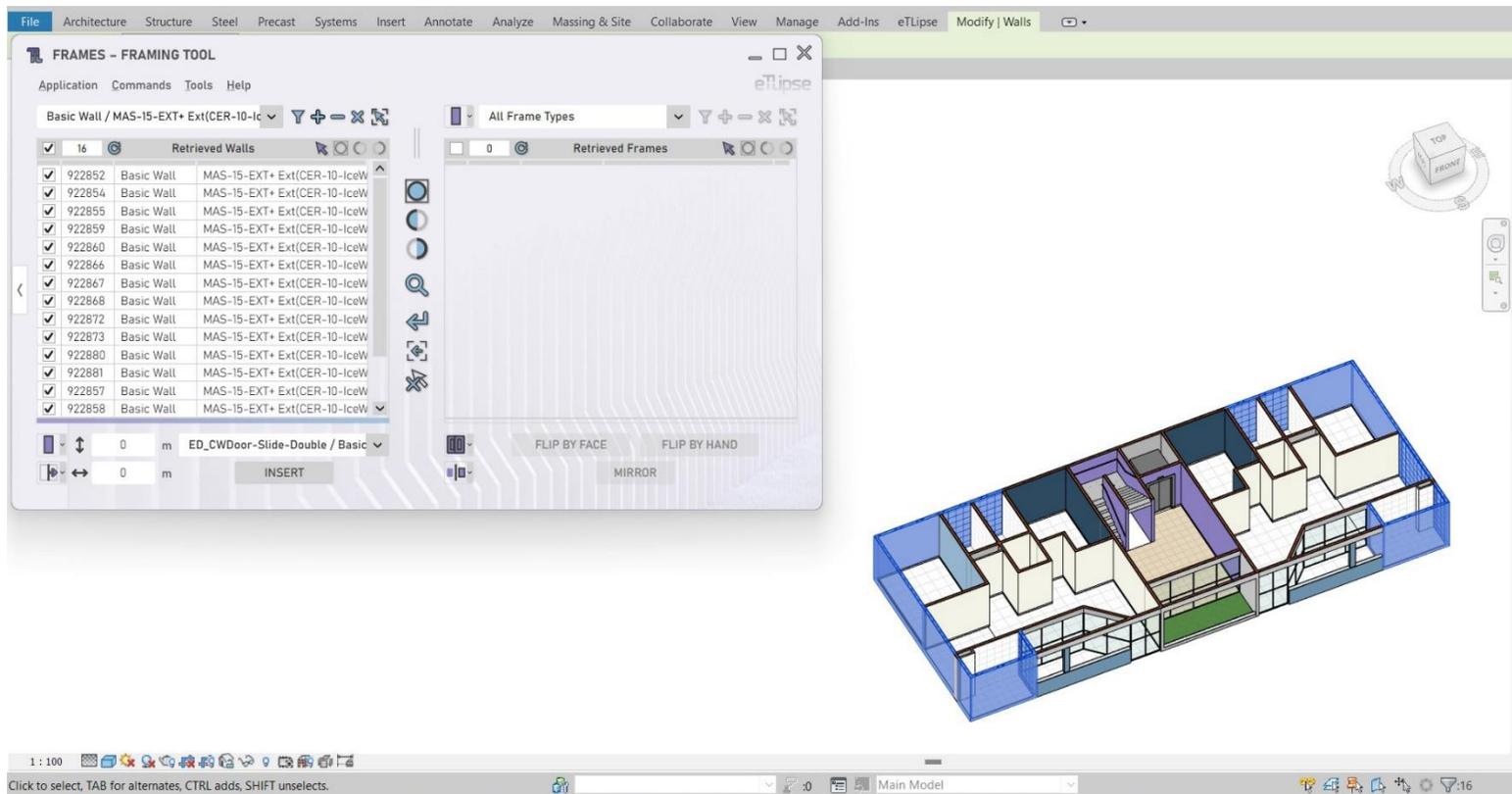


In the second image we can see the result in our example project: the Walls Retrieval List is filled with all 12 instances of the selected wall type present in the project (and highlighted in the Revit view once they are all checked in the list).

Adding Walls of specific Type to the List

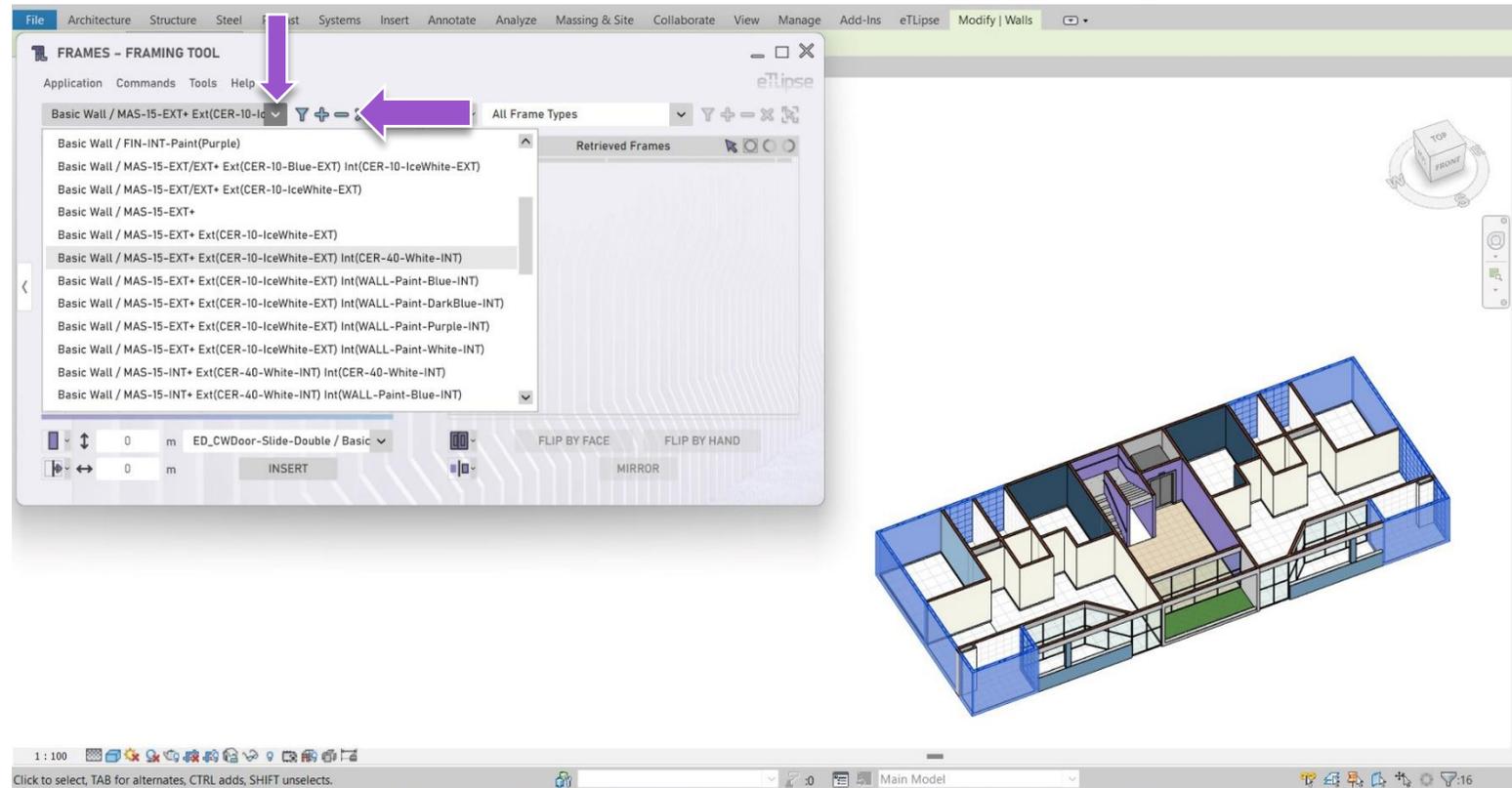


On the dropdown box above the Walls Retrieval List, we will select another specific wall type now. In the first image, we are choosing the wall type with external Ice-White ceramic and internal Blue painting. After the selection of the type, we can click the **Add Walls** button (the one presented as a plus sign, as indicated in the first image) to add the walls of the chosen type to the list (in addition to any elements already listed).

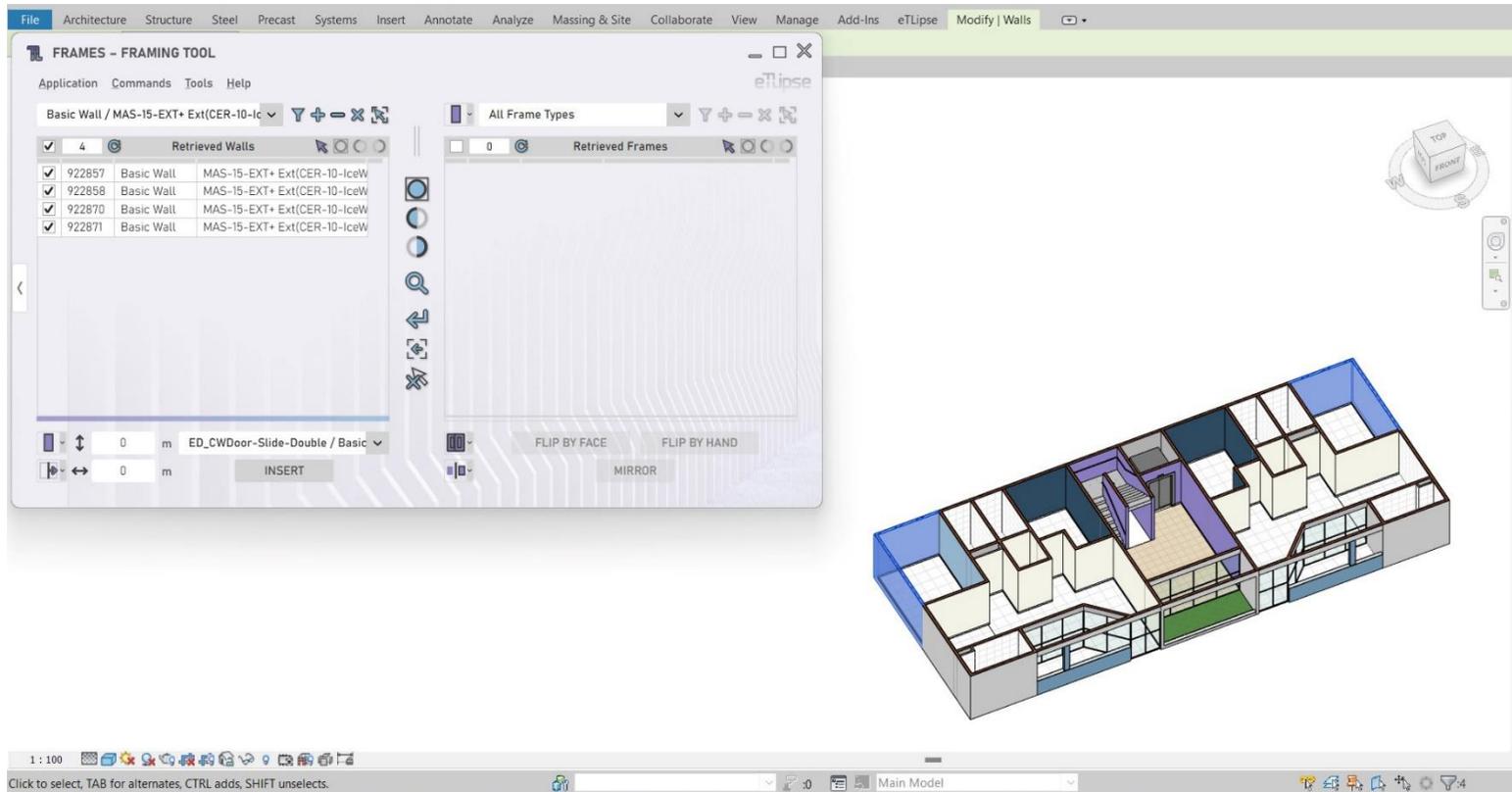


In the second image we can see the result in our example: 4 walls of the selected wall type were added to the 12 walls that were already listed, resulting in a list with 16 walls in total.

Removing Walls of specific Type from the List

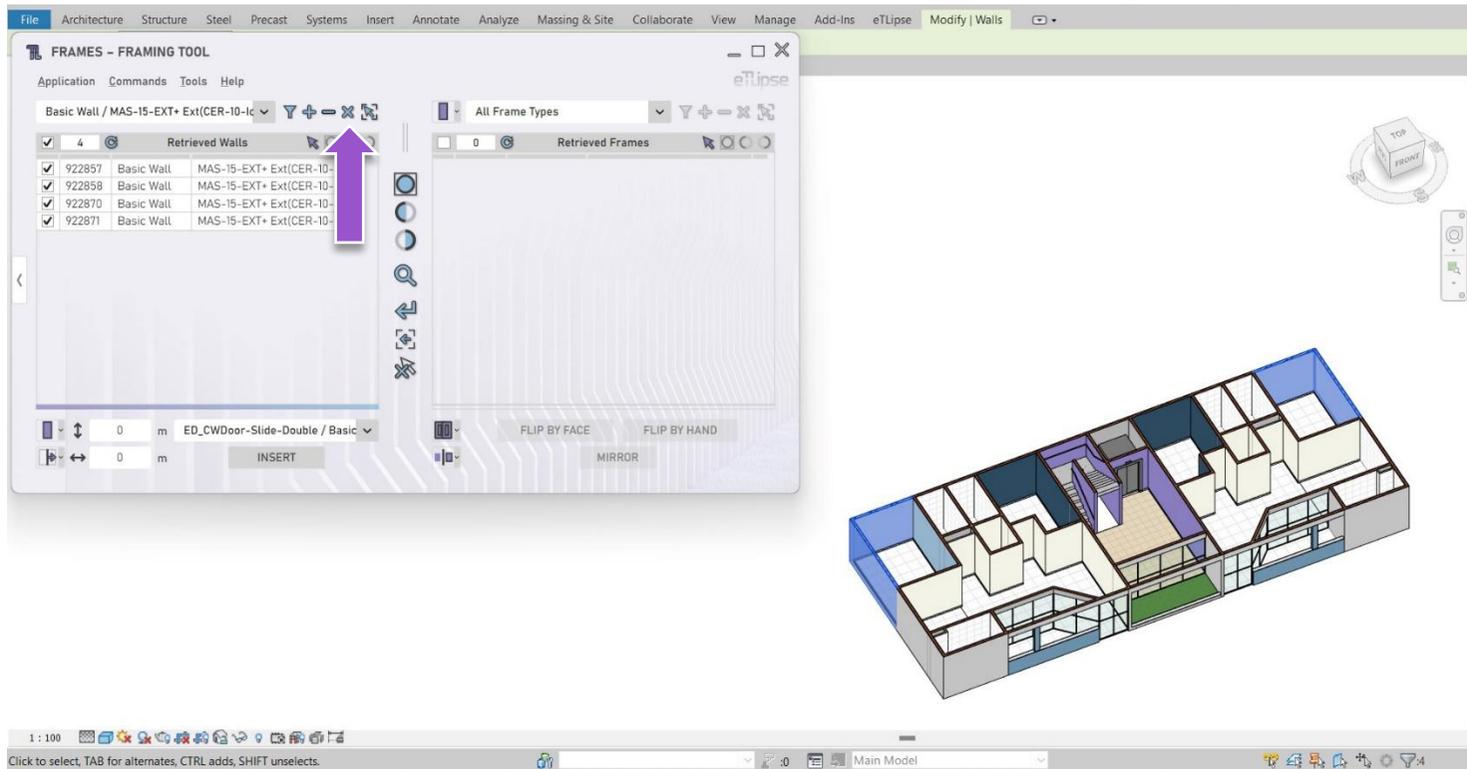


To remove all walls of a specific type from the list, first we select the type in the dropdown box and then we can click the **Remove Walls** button (the one presented as a minus sign, as indicated in the first image).



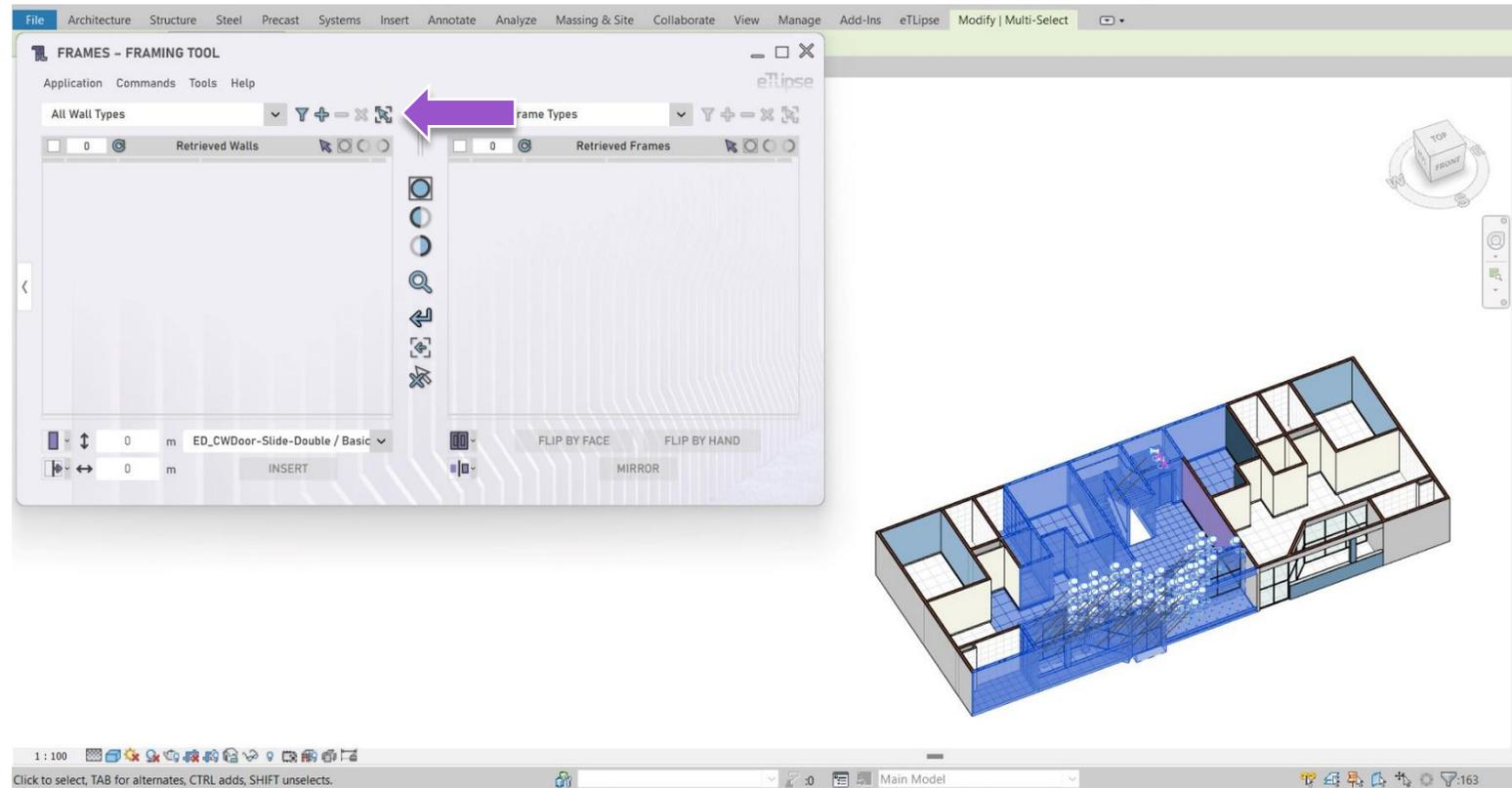
In the second image we specifically removed the walls of the type with external Ice-White ceramic and internal White painting we had previously retrieved (as indicated in the first image).

Clearing the Walls Retrieval List

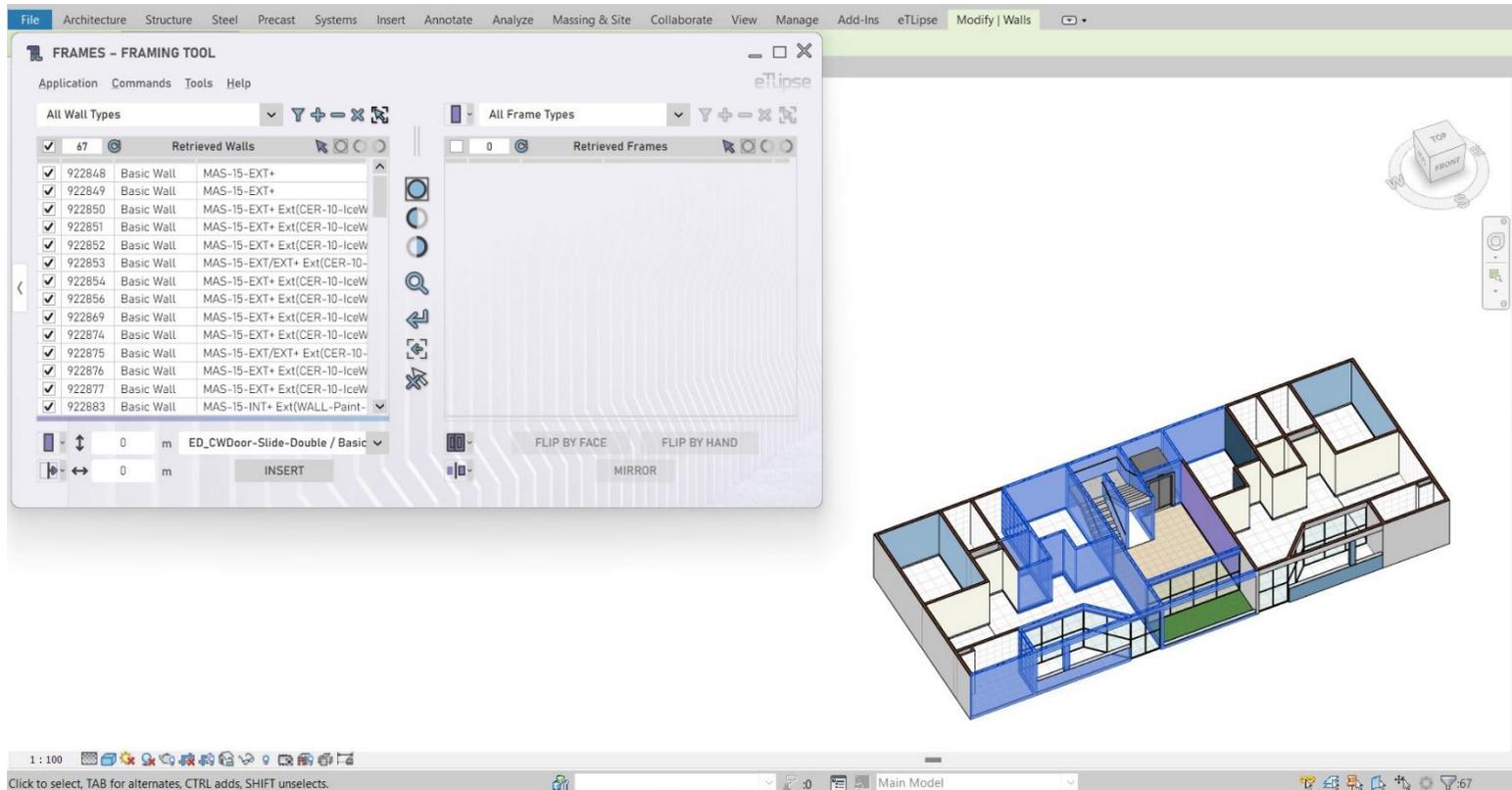


To clear all elements listed in the Walls Retrieval List, we must click the **Clear Retrieved Walls** button above the list (as indicated in the image).

Retrieving Already Selected Walls to the List



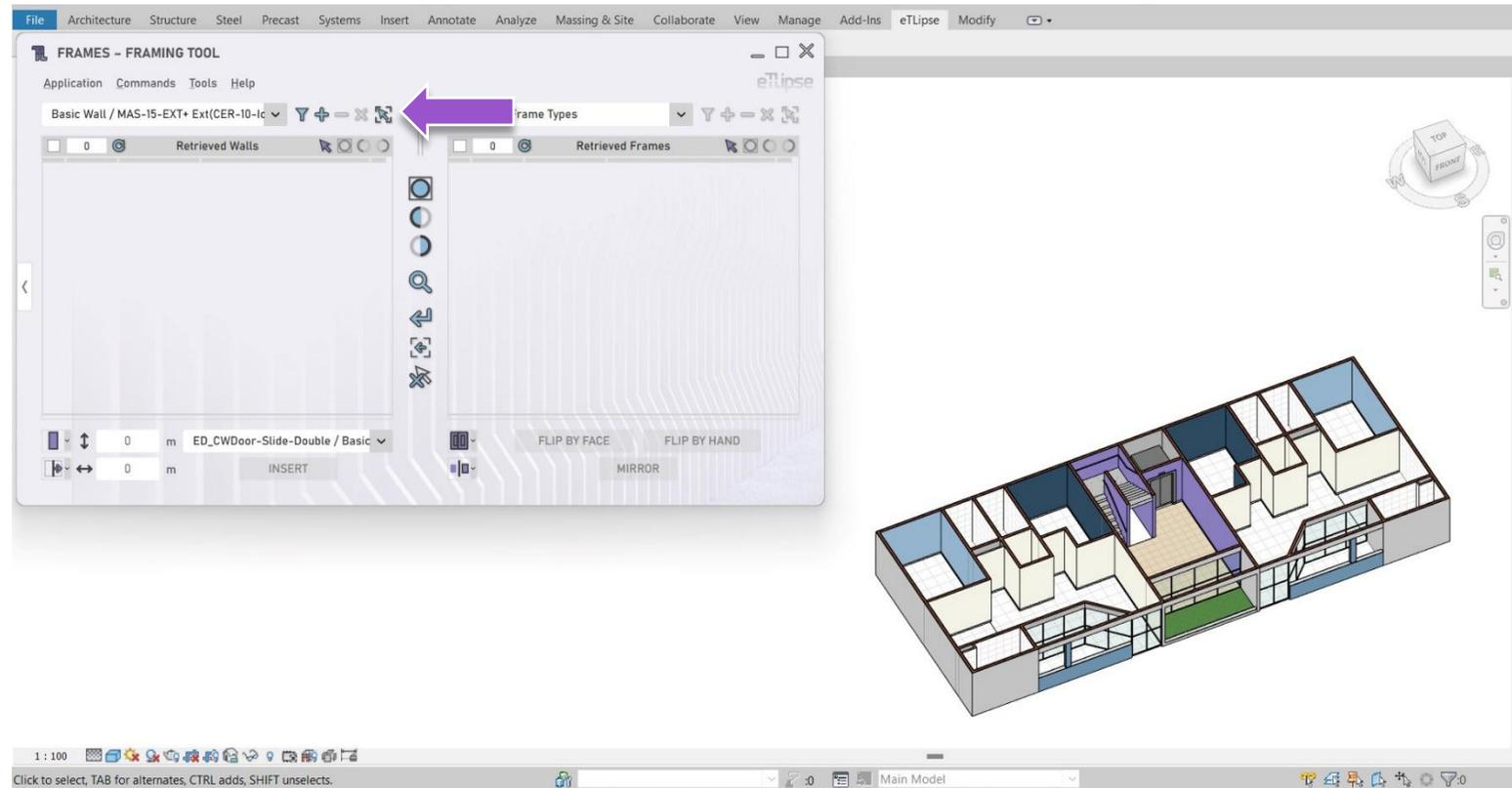
If the **Override List** option in the menu Application>On Sending Elements to Lists is enabled and we have already selected elements of the currently selected wall type in the Revit active view, we can list them on the Walls Retrieval List by clicking the **Retrieve Walls by Picking** button (the one presented as an arrow inside a selection square, as indicated in the first image).



In the second image we can see that, from all those elements that were already selected in the Revit active view (as seen in the first image), 67 of them present a wall type and were automatically listed in the Walls Retrieval List.

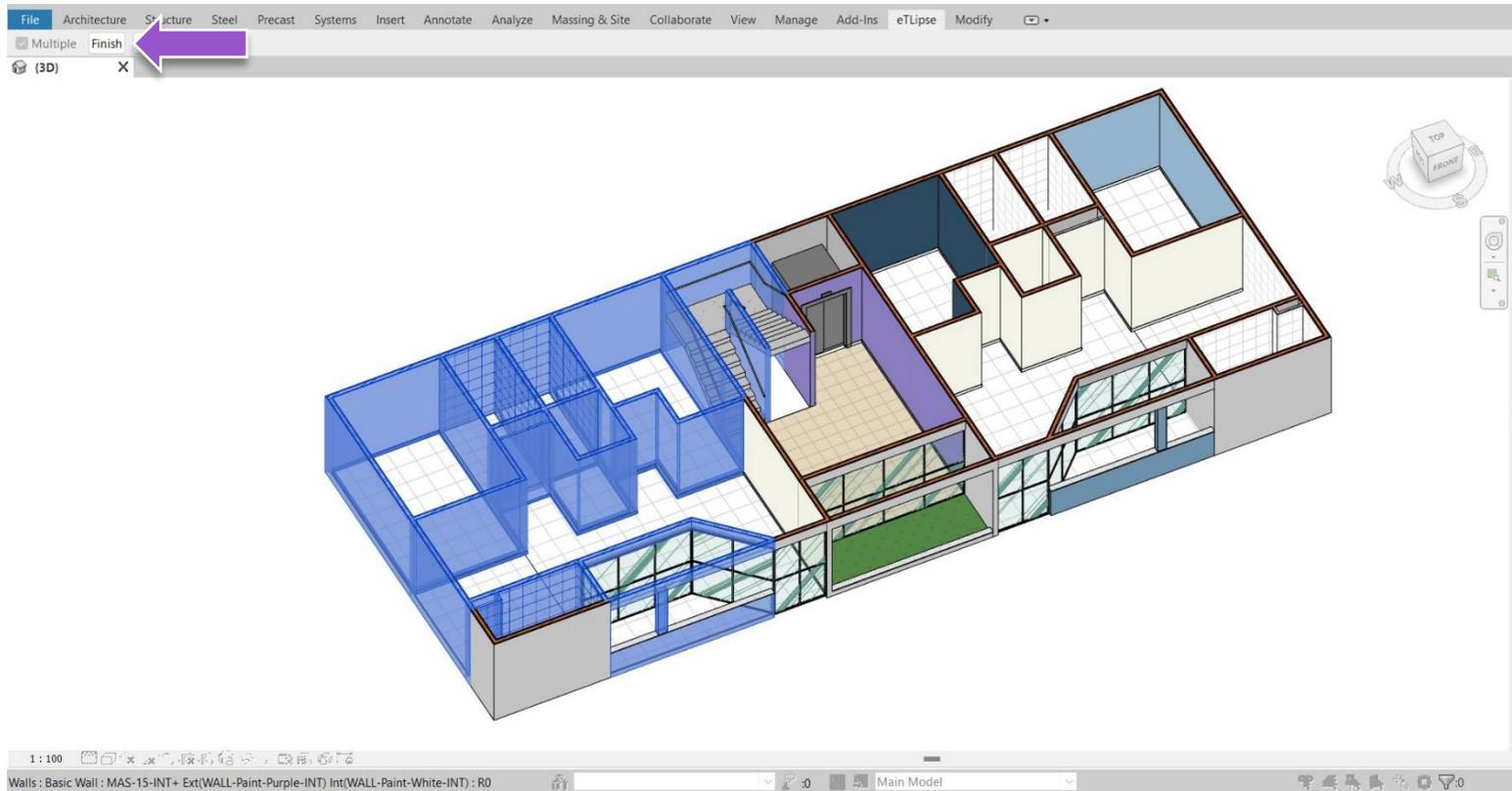
Please, note that **only walls of the chosen type will be listed**. So, if you want to fill the list with walls of any type, make sure to set the dropdown box to the "All Wall Types" option.

Retrieving Walls by Picking

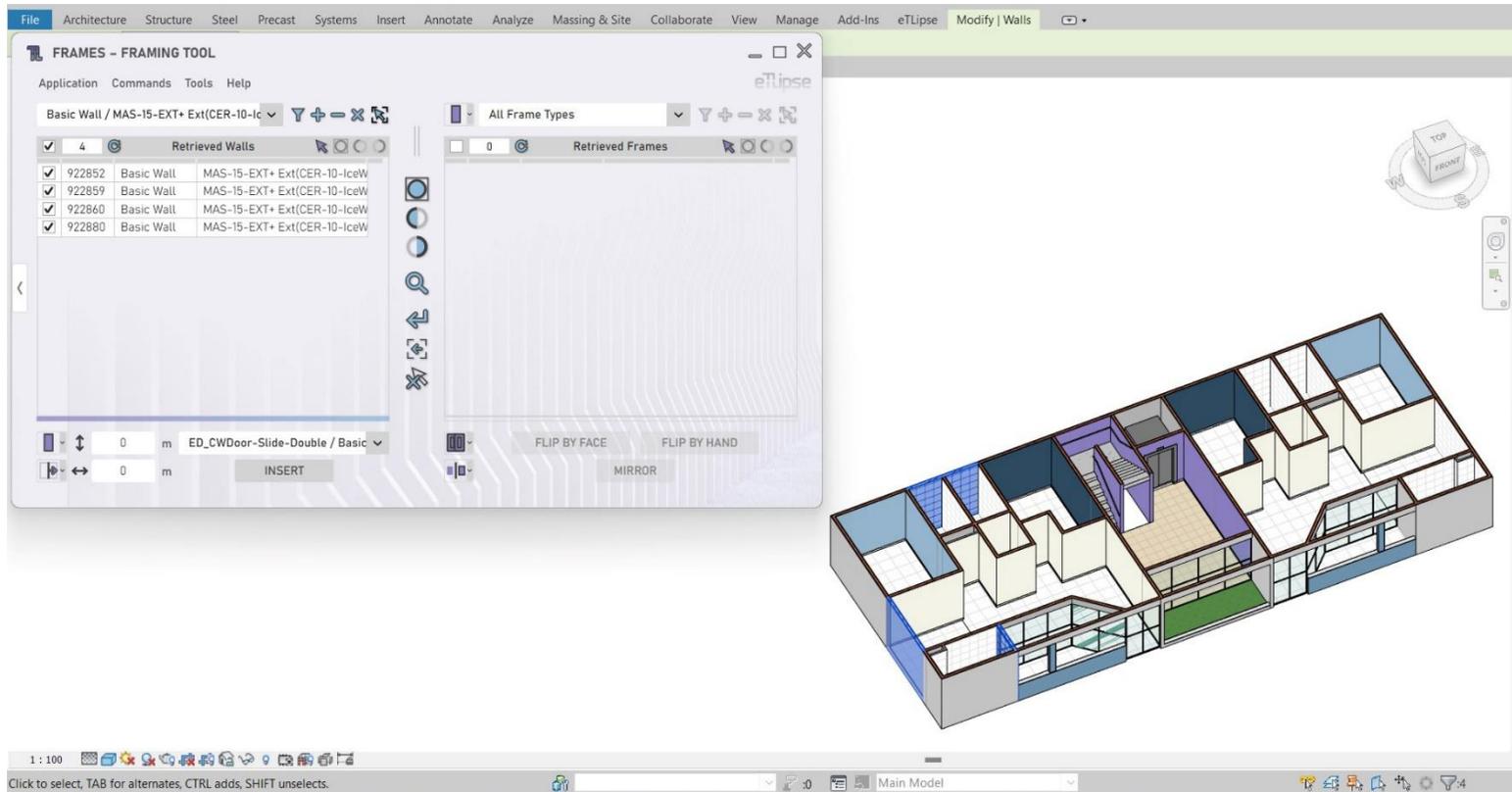


In order to manually pick elements in the Revit active view to fill the Walls Retrieval List, it is mandatory that no Wall element is currently selected or checked (as seen in the first image). We chose the wall type with external Ice-White ceramic and internal White painting to filter our retrieval.

Also, the **Override List** option in the menu Application>On Sending Elements to Lists must be enabled. Under this condition, by clicking the **Retrieve Walls by Picking** button (the one presented as an arrow inside a selection square, as indicated in the first image) the user is allowed to pick walls in the Revit active view.



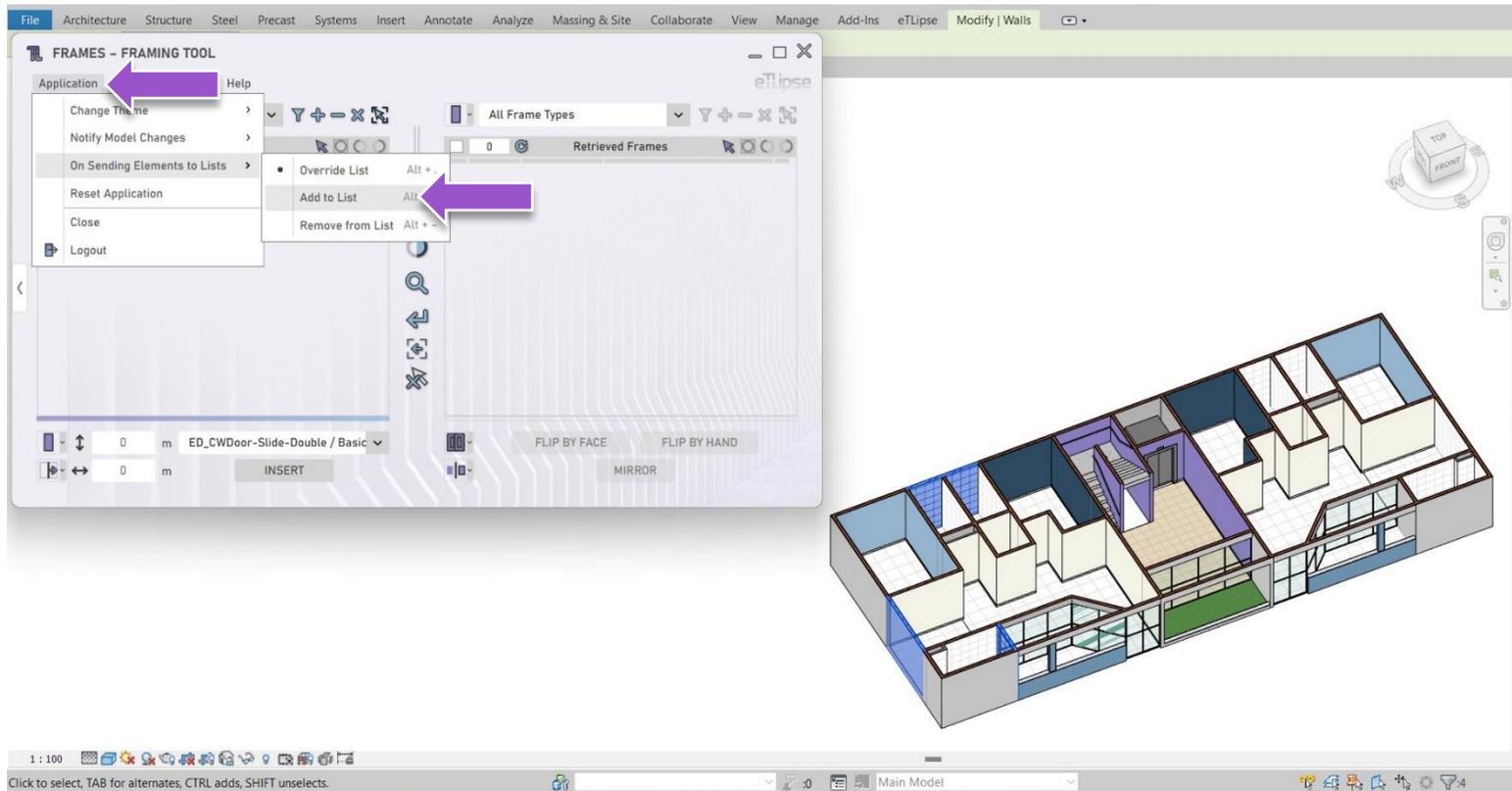
Once the selection is done, the **Finish** button can be clicked in the Revit interface (as seen in the second image) and the picked Wall elements of the selected wall type will fill the Walls Retrieval List (if the list already presents elements, these will be overridden).



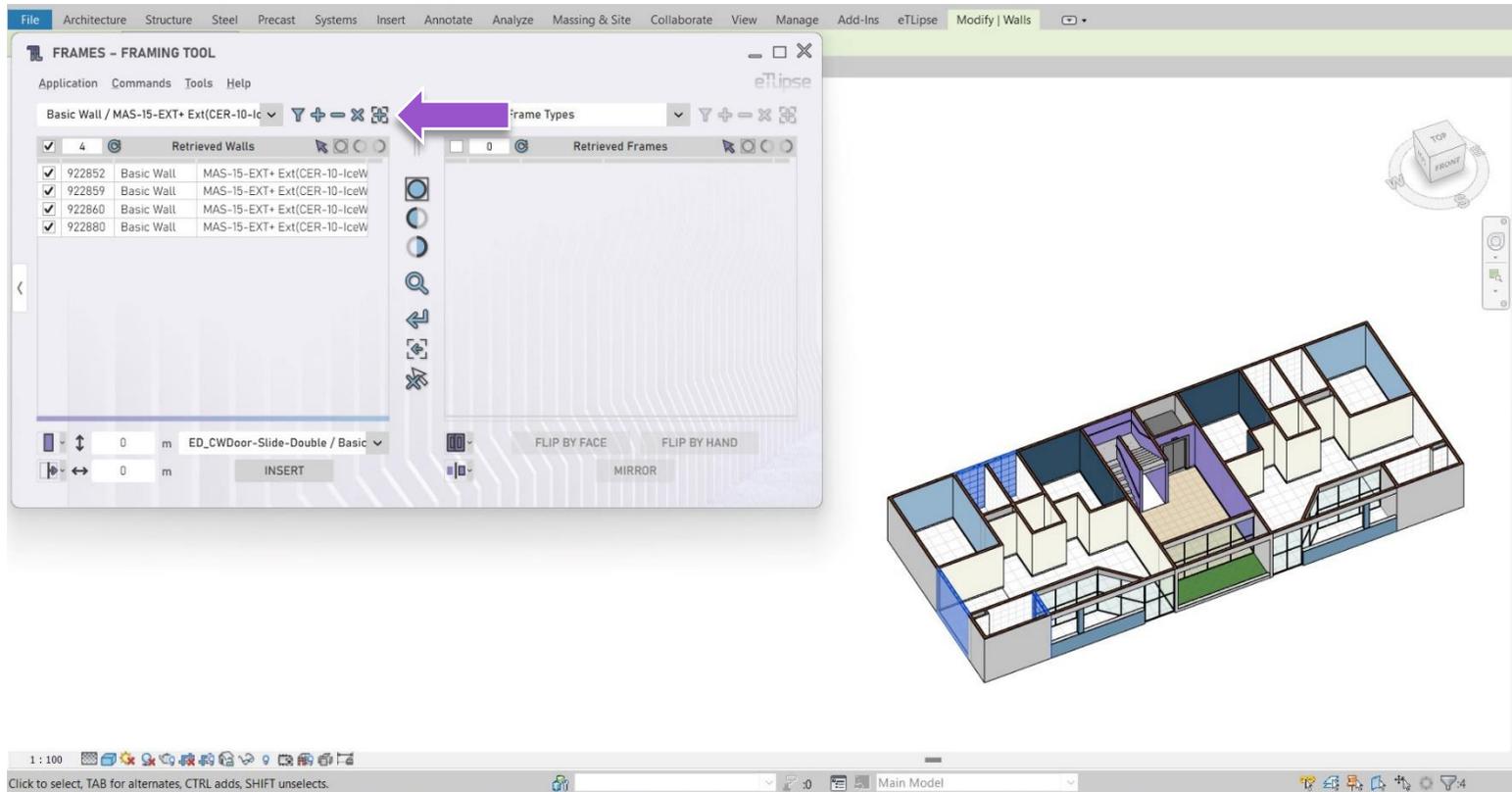
In the third image we can see that only the walls of the type with external Ice-White ceramic and internal White painting were listed.

Please, note that **only walls of the chosen type will be listed**. So, if you want to fill the list with walls of any type, make sure to set the dropdown box to the "All Wall Types" option.

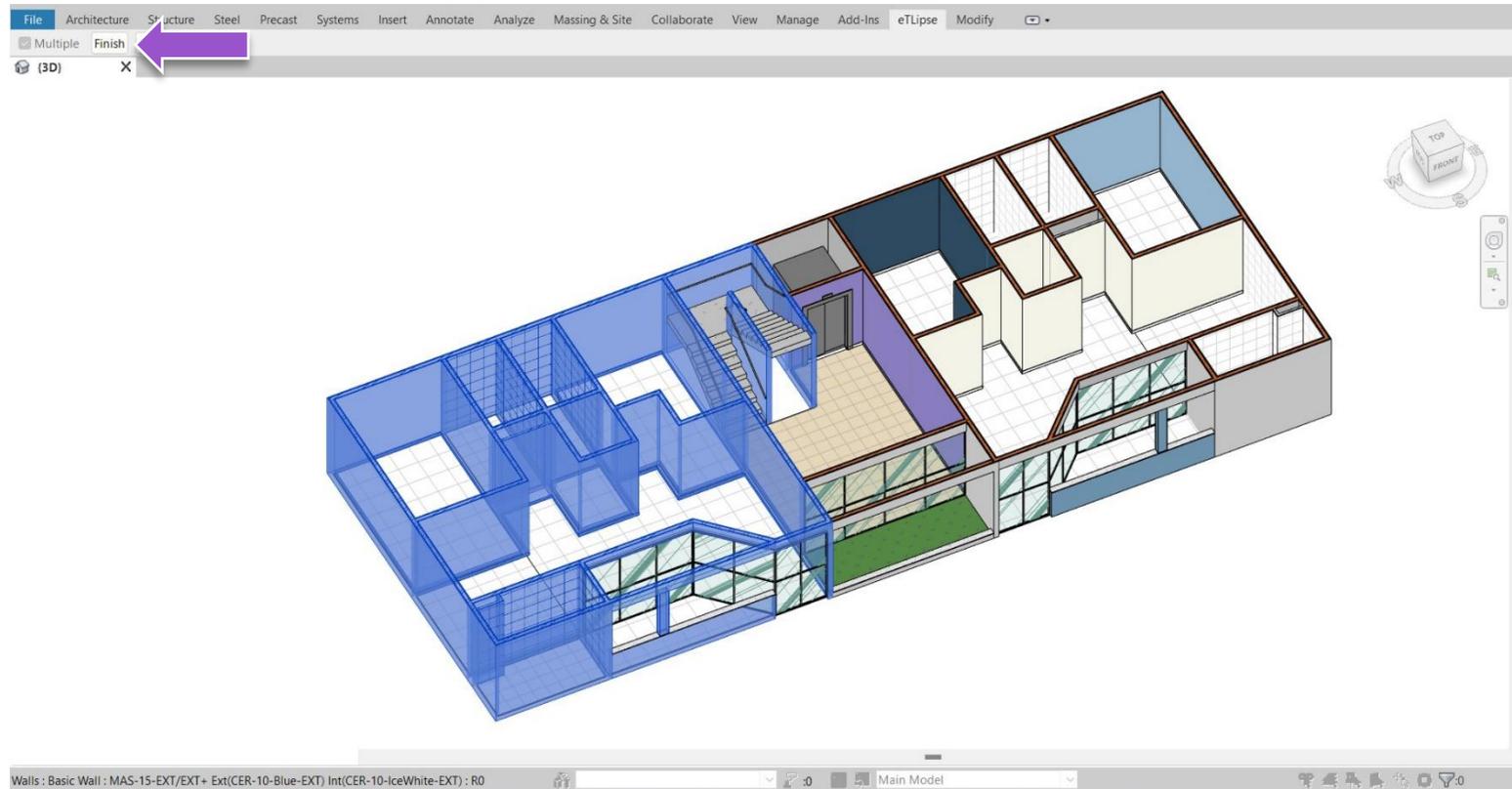
Adding Walls to the List by Picking



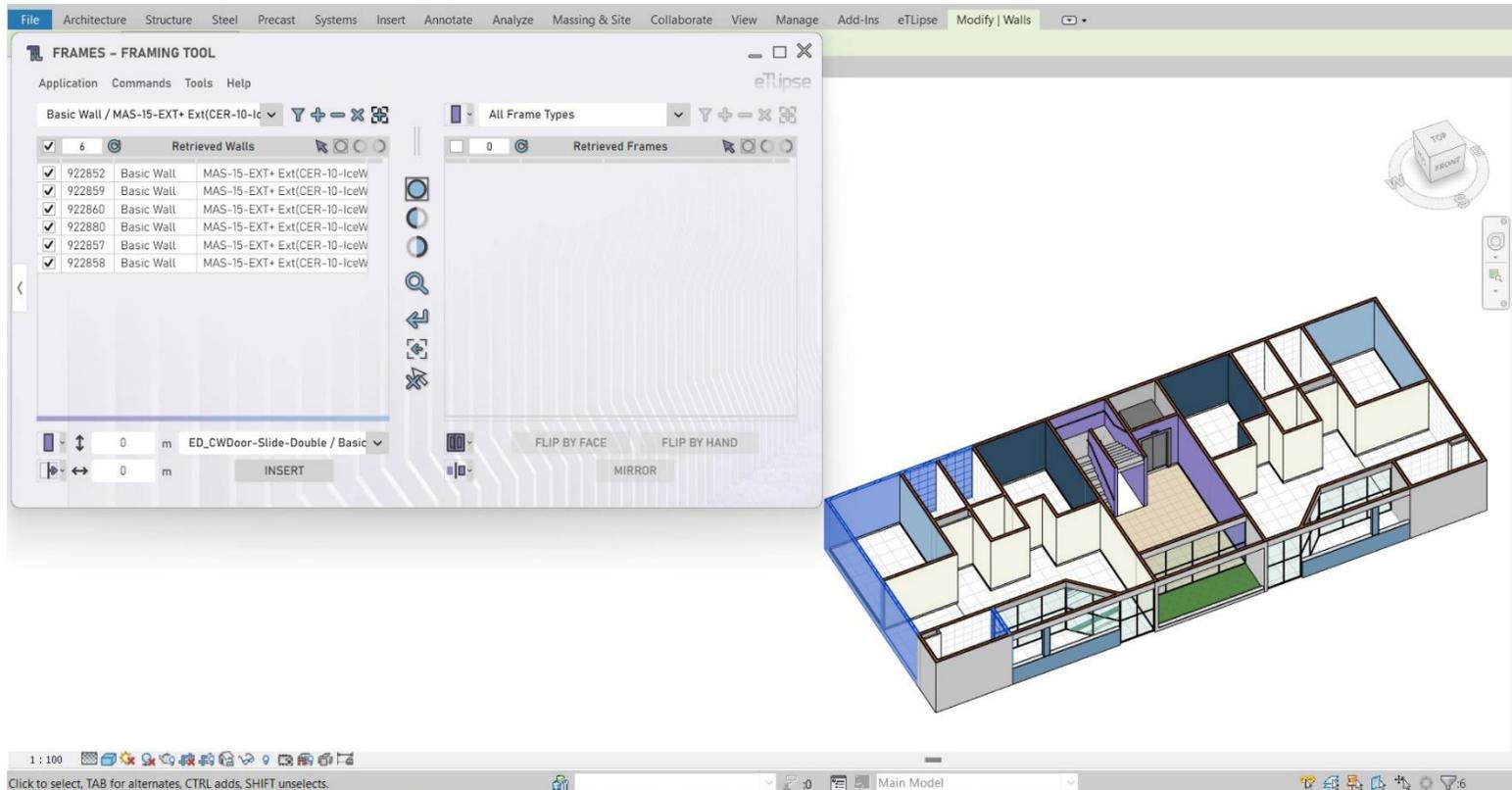
In order to add elements manually picked in the Revit active view to already listed elements in the Walls Retrieval List, we need to choose the **Add to List** option in the menu **Application > On Sending Elements to Lists** (as seen in the first image).



Also, we chose the wall type with external Ice-White ceramic and internal Blue painting to filter our retrieval. Under this condition, by clicking the **Retrieve Walls by Picking** button (the one now presented as a plus sign inside a selection square, as indicated in the second image) the user is allowed to pick walls in the Revit active view.



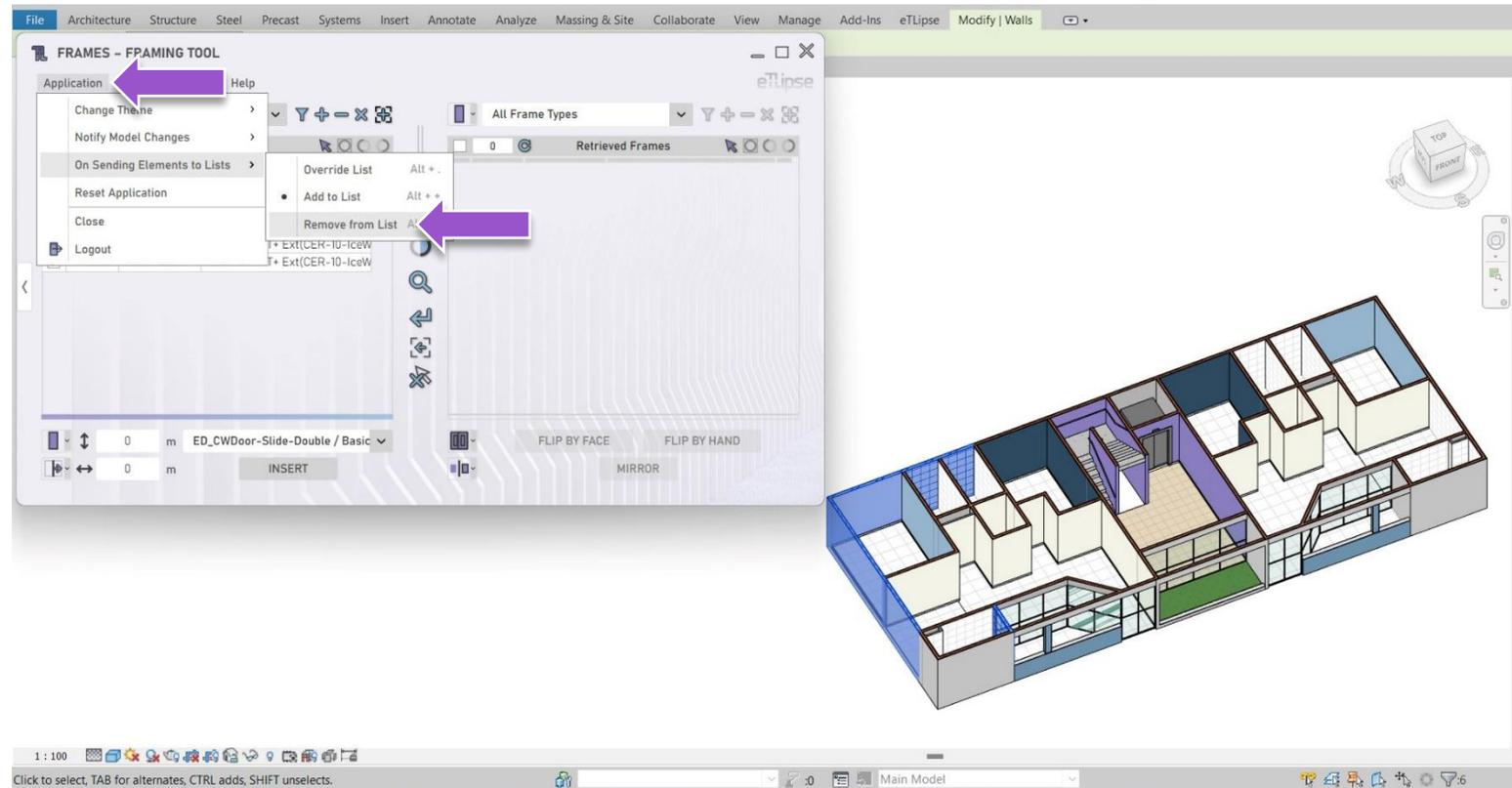
Once the selection is done, the **Finish** button can be clicked in the Revit interface (as seen in the third image) and the picked Wall elements of the selected type will be added to the Walls Retrieval List (in addition to any elements already listed).



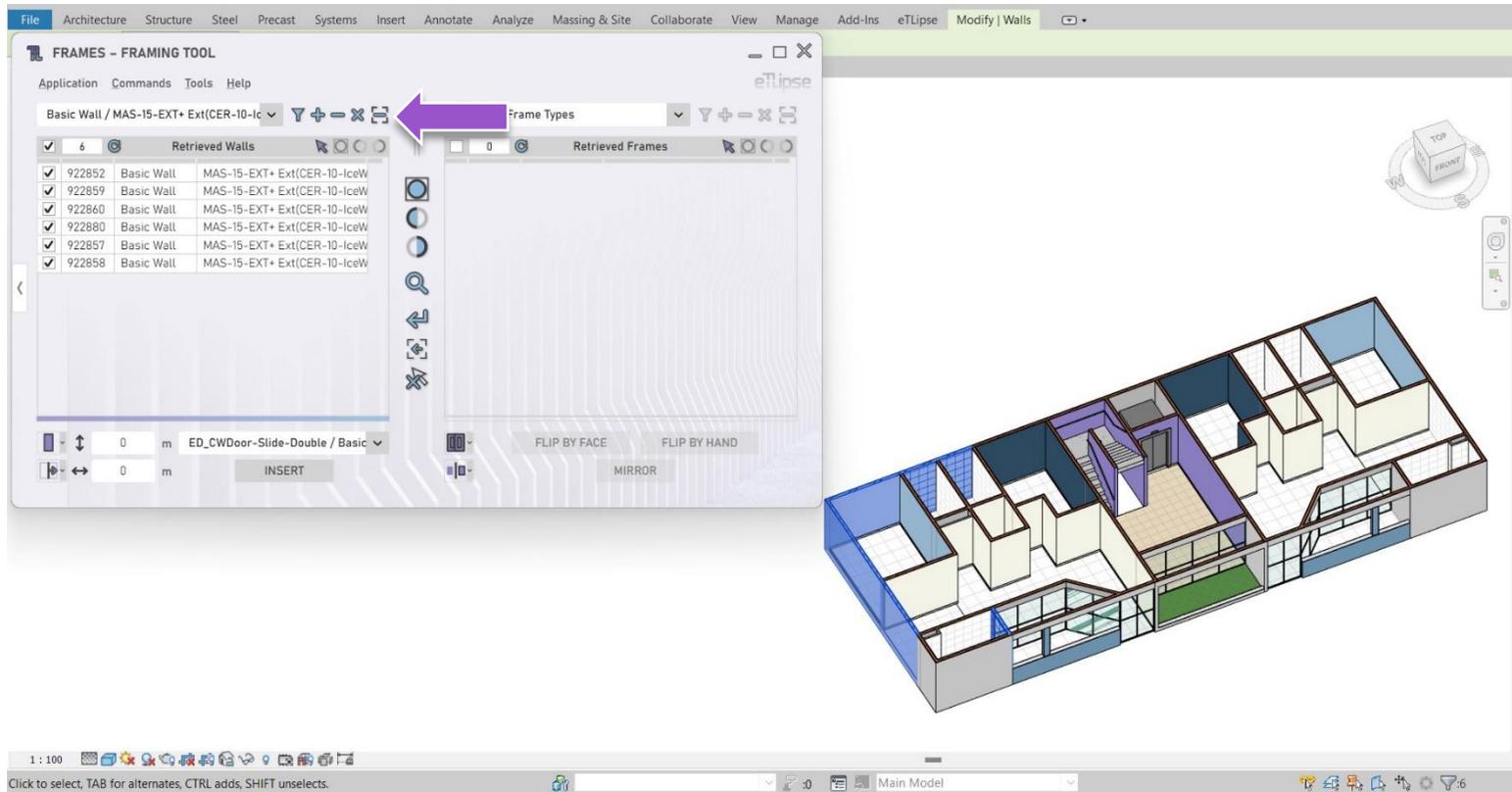
In the fourth image we can see that, from all those walls that were picked in Revit in the fourth image, 2 present the currently selected type and were added to the list that already had 4 retrieved walls from the last example (resulting in a total of 6 retrieved walls).

Please, note that **only walls of the chosen type will be added to the list**. So, if you want to add walls of any type, make sure to set the dropdown box to the "All Wall Types" option.

Removing Walls from the List by Picking



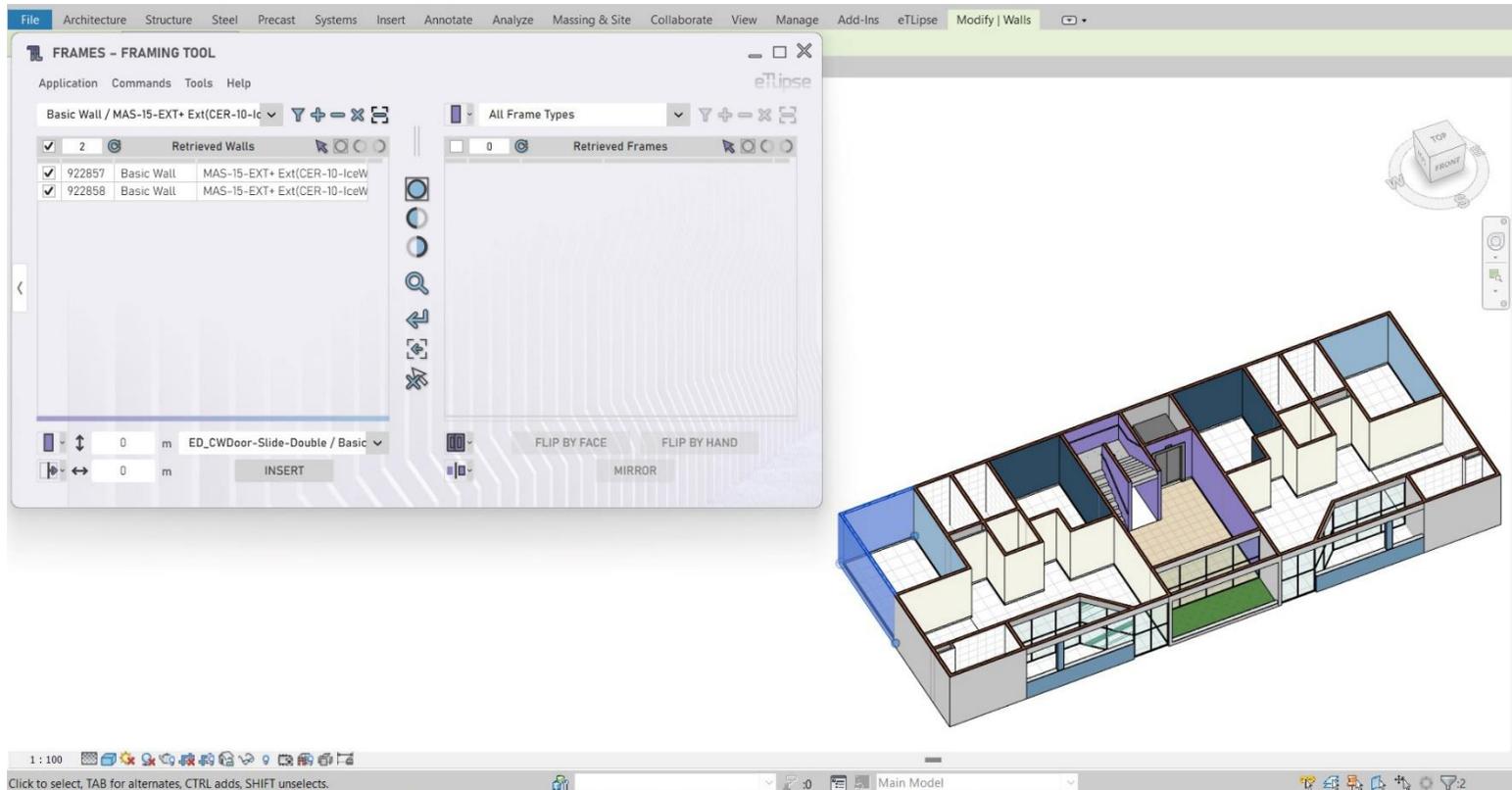
In order to remove elements manually picked in the Revit active view from the Walls Retrieval List (if they are listed), we need to choose the **Remove from List** option in the menu **Application>On Sending Elements to Lists** (as seen in the first image).



Also, we chose the wall type with external Ice-White ceramic and internal White painting to filter our retrieval. Under this condition, by clicking the **Retrieve Walls by Picking** button (the one now presented as a minus sign inside a selection square, as indicated in the second image) the user is allowed to pick walls in the Revit active view.



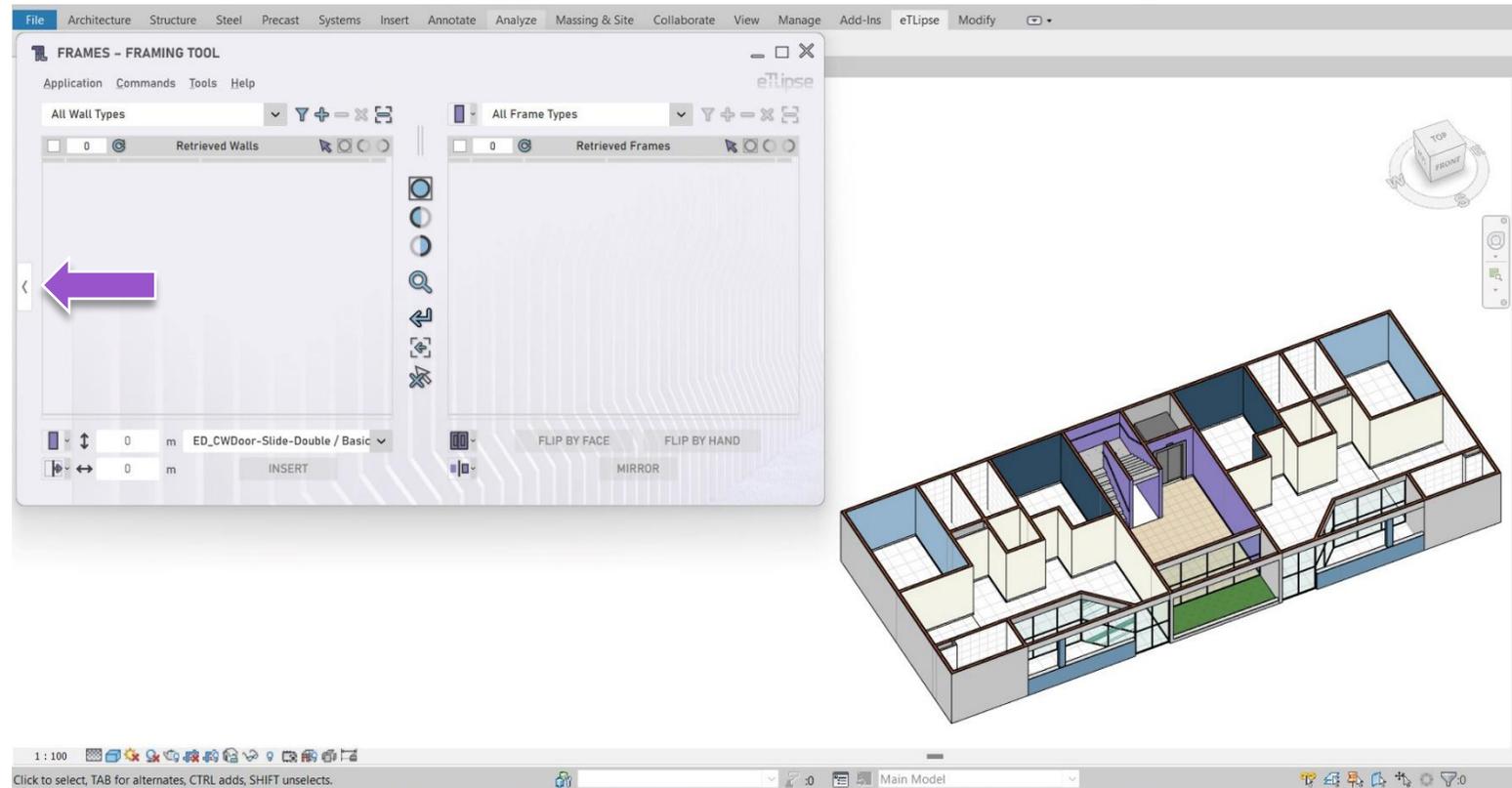
Once the selection is done, the **Finish** button can be clicked in the Revit interface (as seen in the third image) and the picked Wall elements of the currently selected type that are already listed will be removed from the Walls Retrieval List.



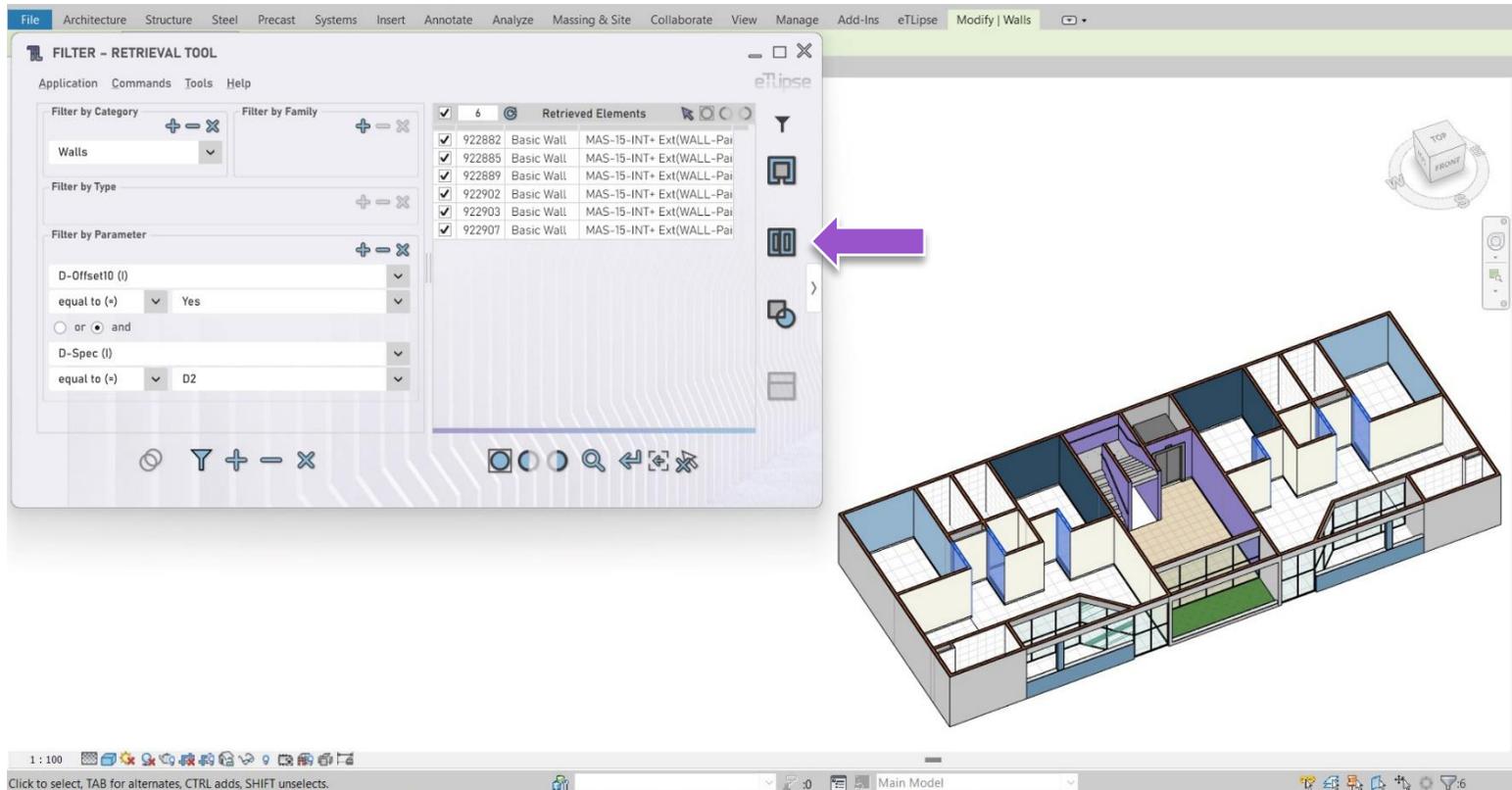
In the fourth image we can see that 4 of all those walls that were picked in the fourth image present the selected type and were among the initial 6 walls listed. Then, they were removed from the list (resulting in a total of 2 retrieved walls).

Please, note that **only walls of the chosen type will be removed from the list**. So, if you want to remove walls of any type, make sure to set the dropdown box to the "All Wall Types" option.

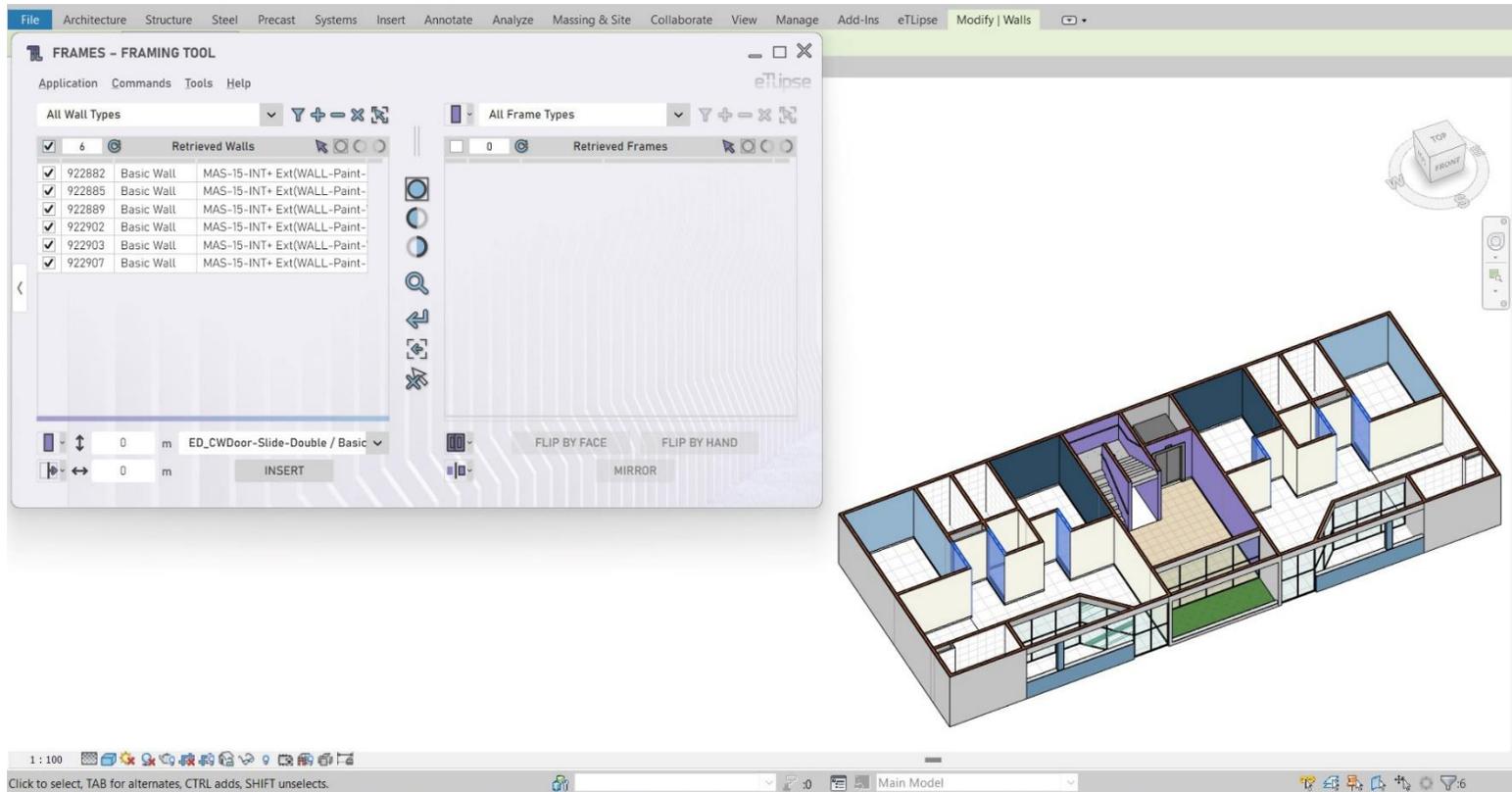
Filling the Walls Retrieval List using TL Filter



Whenever we want to use TL Filter to retrieve walls for the Walls Retrieval List (for more details on how to retrieve elements using TL Filter, please, refer to the **TL Elements: Filter - Retrieval Tool** guide), we can click the **Slide to TL Filter** button (the one presented as an arrow pointing to the left side, as indicated in the first image) to access the TL Filter command.



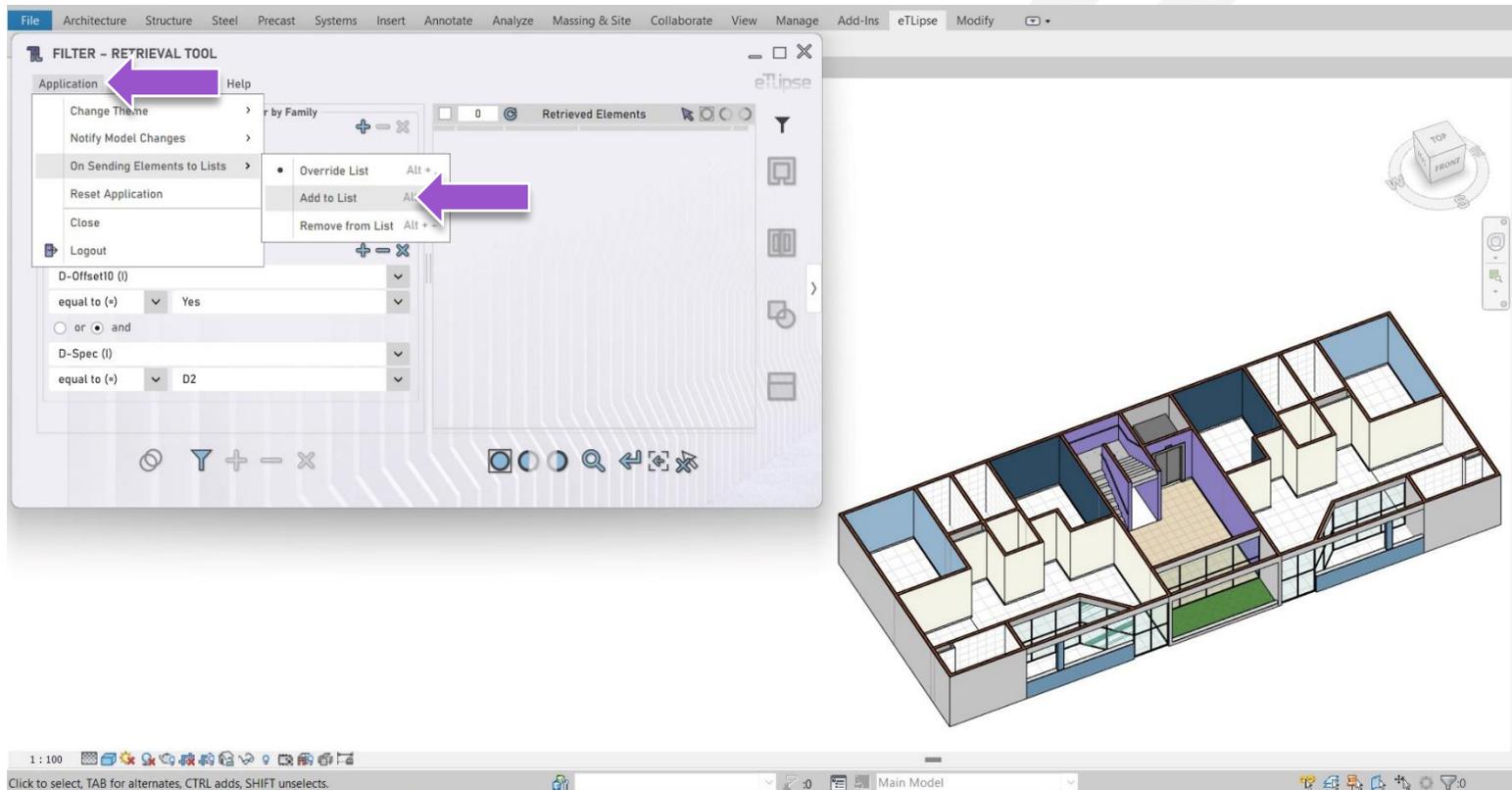
In the TL Filter interface, we must retrieve the collection of Wall elements we want to send to the Walls Retrieval List in the TL Frames command. It is mandatory that the collection of elements retrieved in TL Filter contains at least one Wall element (any other element of a different category will be ignored by the destination list). In the example shown in the second image, we filtered all walls with the custom parameter “D-Offset10” set as “Yes” and the custom parameter “D-Spec” set as “D2” in the TL Filter interface. Also, the **Override List** option in the menu Application>On Sending Elements to Lists must be enabled. Under this condition, by clicking the **Send Elements to TL Frames** button (the one with the TL Frames icon, as indicated in the second image) we send the Wall elements in the list to the Walls Retrieval List in TL Frames.



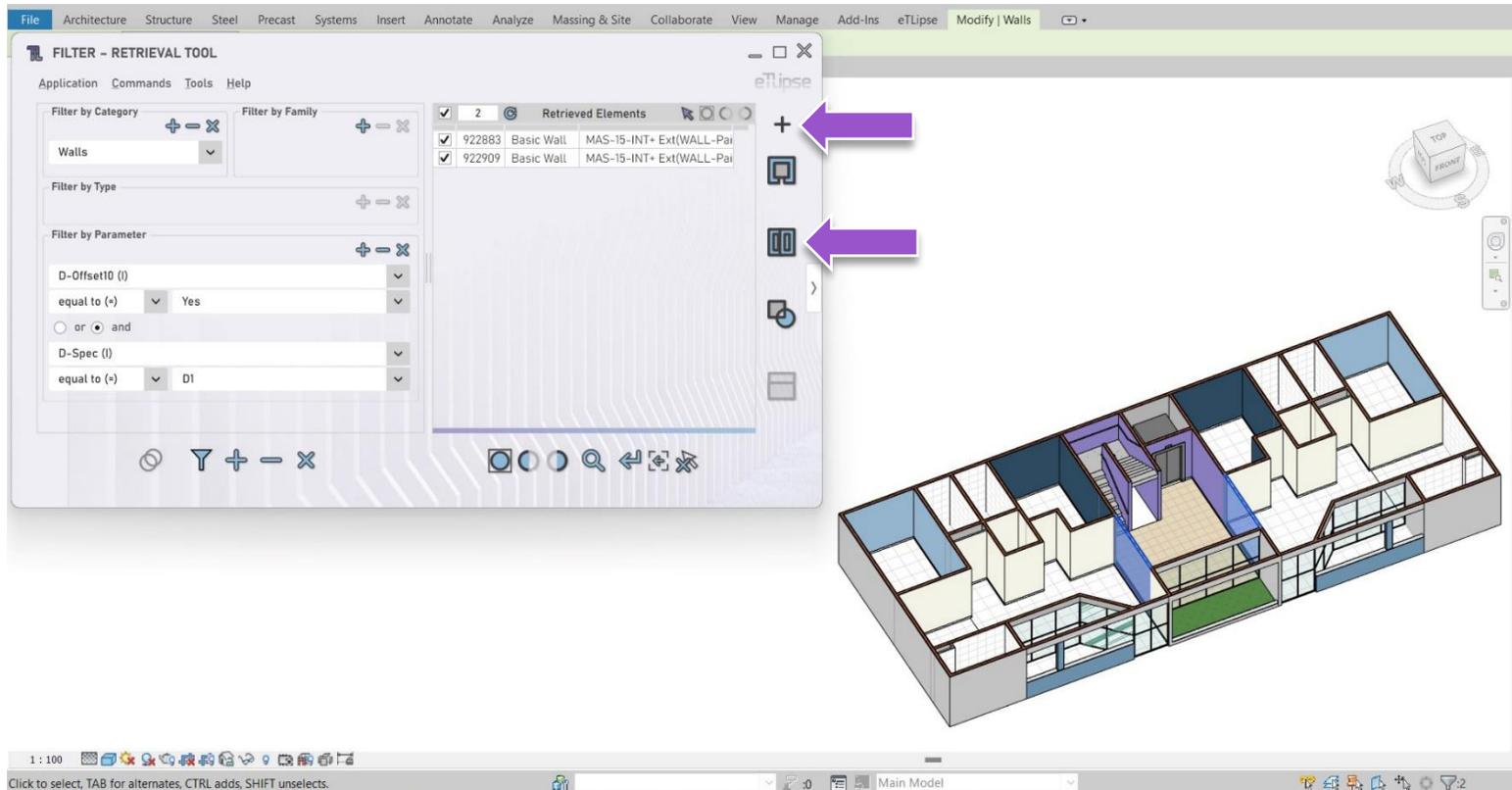
As seen in the third image, all 6 Wall elements sent by TL Filter are now filling the Walls Retrieval List in TL Frames (if the list already presented elements, these were overridden).

Adding Walls to the Walls Retrieval List using TL Filter

We can as well use TL Filter to retrieve walls to add to the existing ones in the Walls Retrieval List (for more details on how to retrieve elements using TL Filter, please, refer to the **TL Elements: Filter - Retrieval Tool** topic).



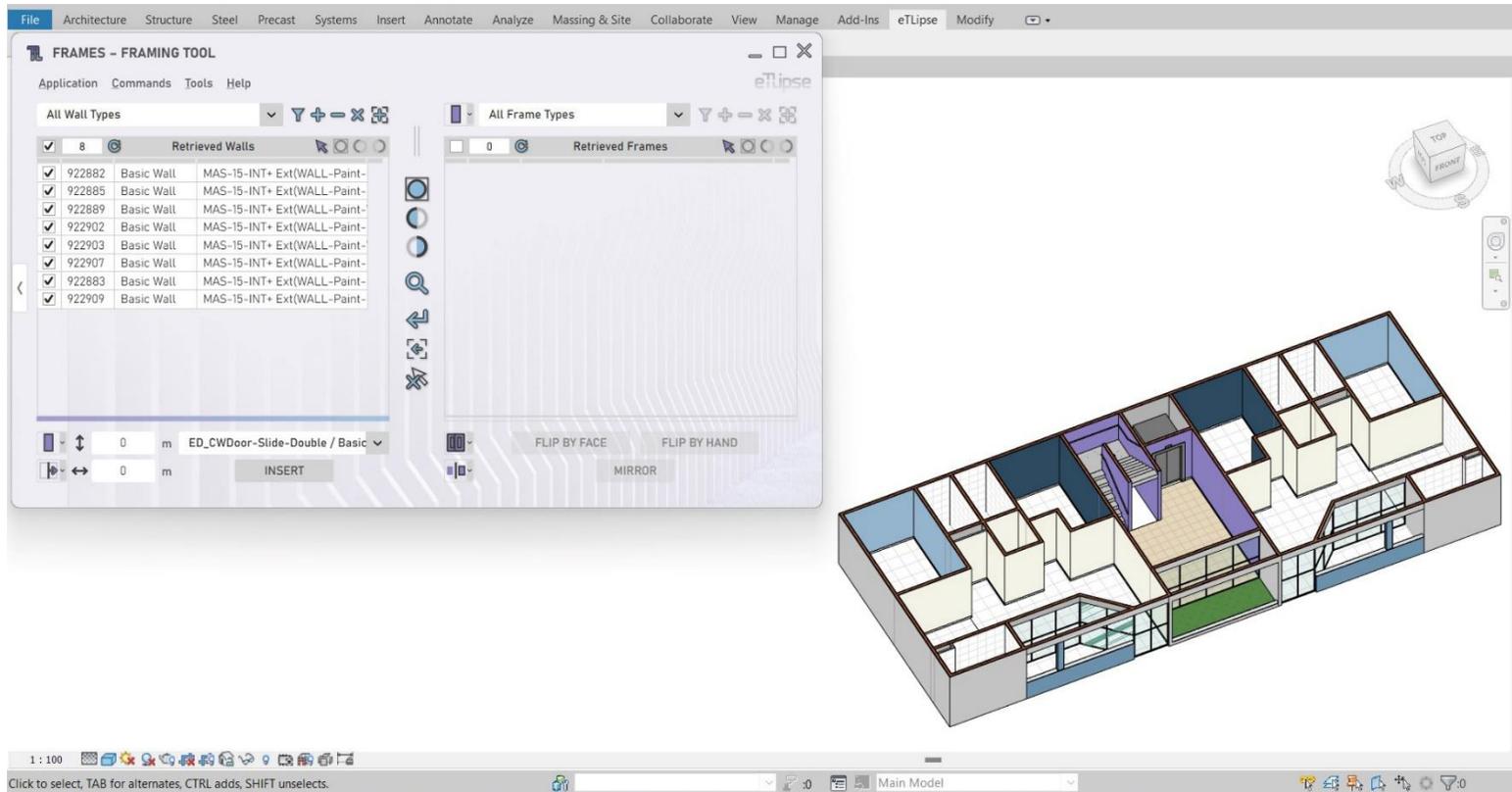
Back in the TL Filter interface, in order to perform the addition of the elements to the destination list, we need to choose the **Add to List** option in the menu **Application > On Sending Elements to Lists** (as seen in the first image).



The **Sending Mode** icon in the TL Filter interface should now present the “plus sign” (as seen in the second image).

We must also retrieve the collection of Wall elements we want to add to the Walls Retrieval List in the TL Frames command. It is mandatory that the collection of elements retrieved in TL Filter contains at least one Wall element (any other element of a different category will be ignored by the destination list). In the example shown in the second image, we filtered all walls with the custom parameter “D-Offset10” set as “Yes” and the custom parameter “D-Spec” set as “D1” in the TL Filter interface.

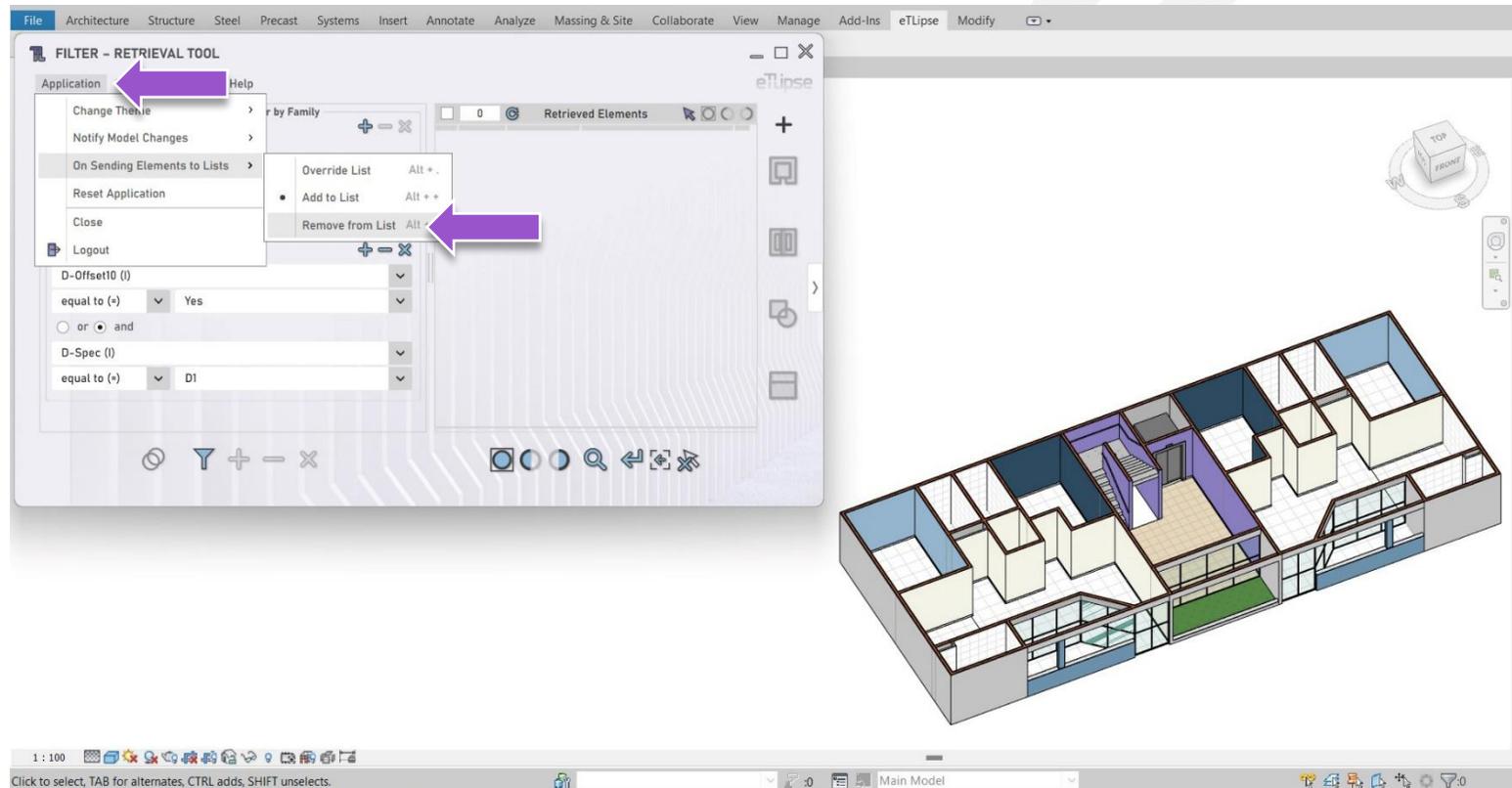
Under this setting, by clicking the **Send Elements to TL Frames** button (the one with the TL Frames icon, as indicated in the second image) we add the Wall elements in the list to the ones already listed in the Walls Retrieval List in TL Frames.



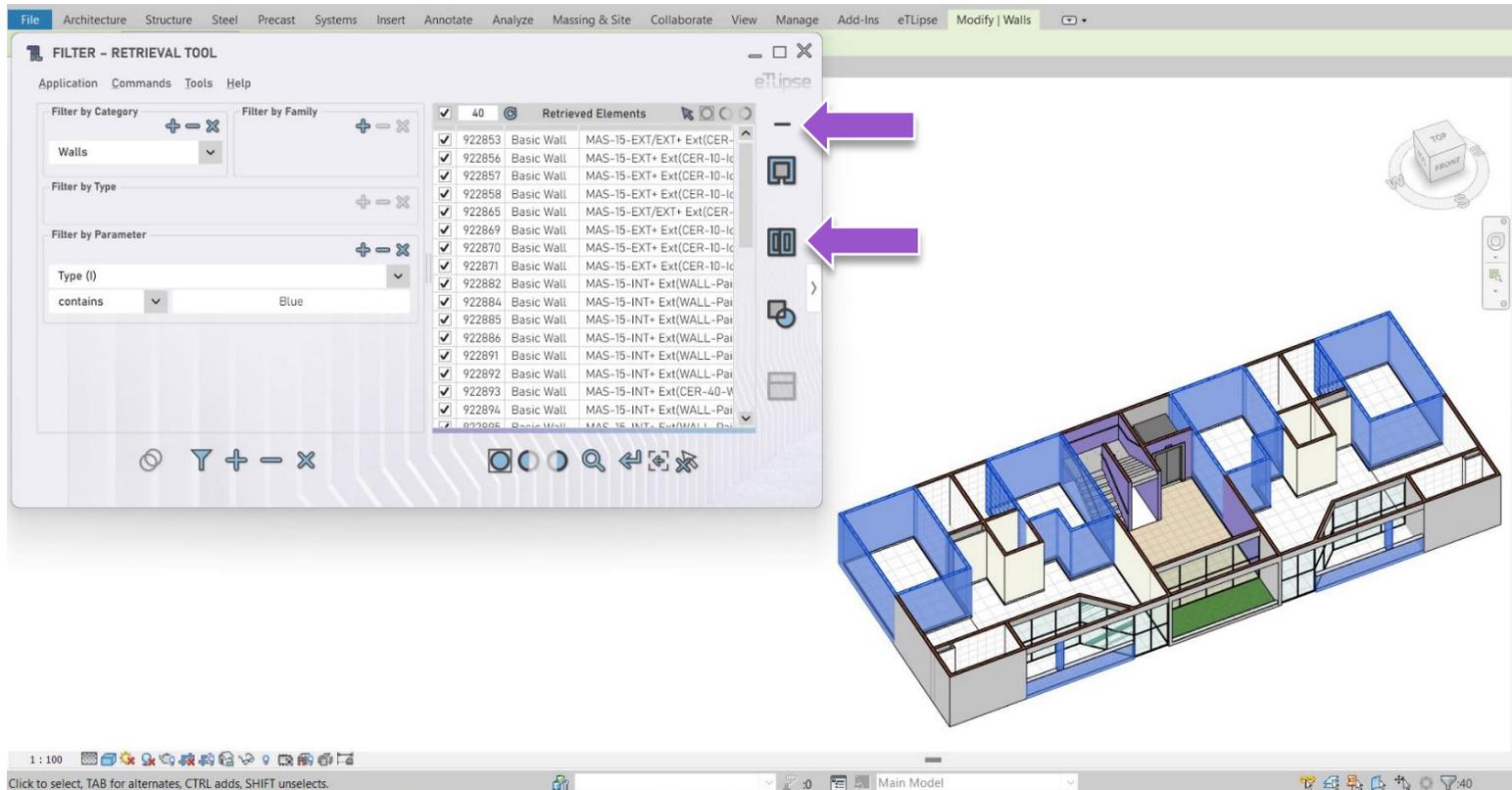
As seen in the third image, both elements sent by TL Filter are now added to the Walls Retrieval List in TL Frames (there were 6 walls in the list, now we have 8 with the 2 new ones that were retrieved in TL Filter).

Removing Walls from the Walls Retrieval List using TL Filter

We can as well use TL Filter to retrieve walls to remove from the Walls Retrieval List (for more details on how to retrieve elements using TL Filter, please, refer to the **TL Elements: Filter - Retrieval Tool** topic).



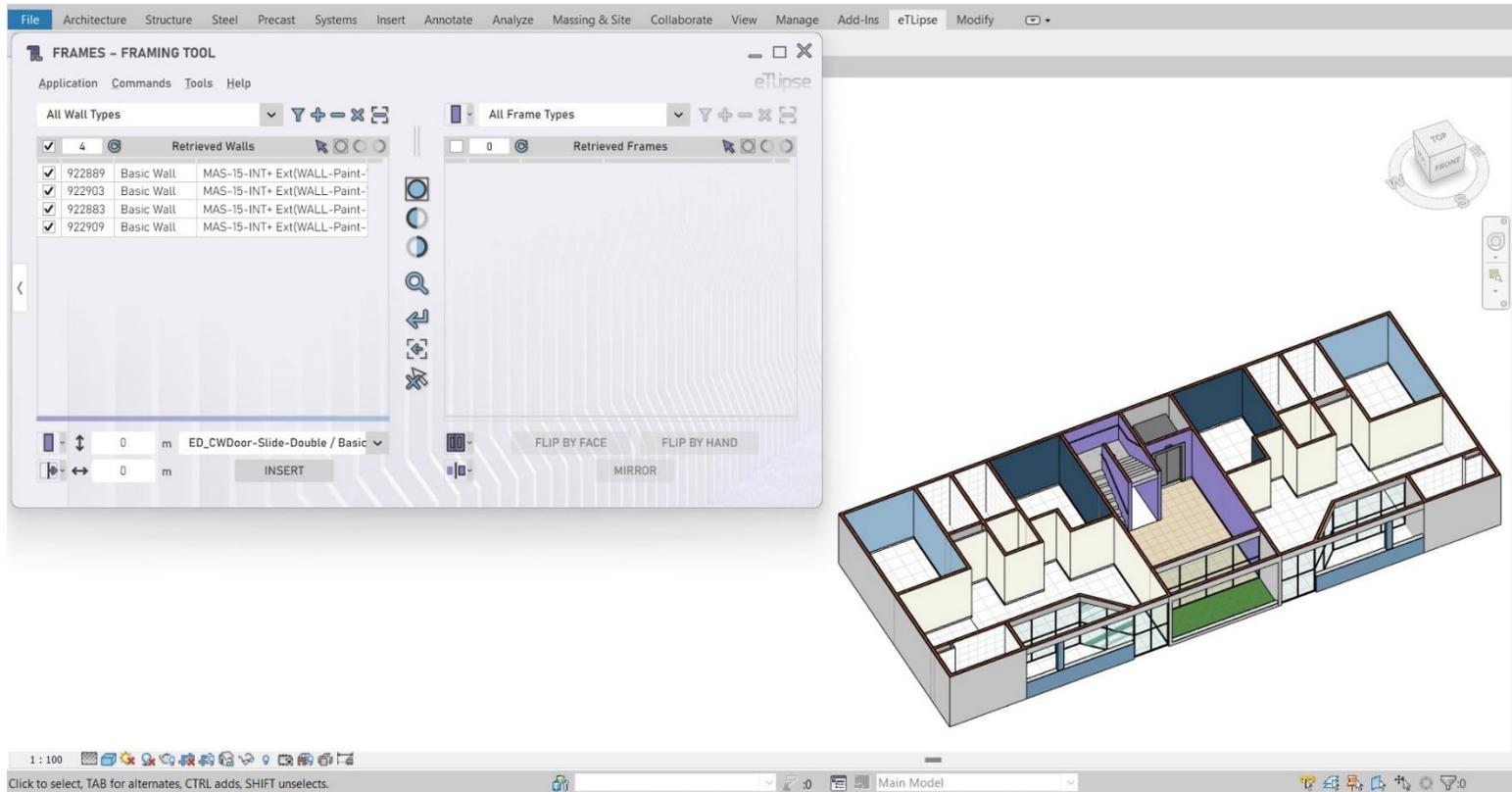
Back in the TL Filter interface, in order to perform the removal of the elements from the destination list, we need to choose the **Remove from List** option in the menu **Application > On Sending Elements to Lists** (as seen in the first image).



The **Sending Mode** icon in the TL Filter interface should now present the “minus sign” (as seen in the second image).

We must also retrieve the collection of Wall elements we want to remove from the Walls Retrieval List in the TL Frames command. It is mandatory that the collection of elements retrieved in TL Filter contains at least one Wall element (any other element of a different category will be ignored by the destination list). In the example shown in the second image, we filtered all walls of types whose name contains the word “Blue” (which includes types with blue ceramic and blue painting finishes) in the TL Filter interface.

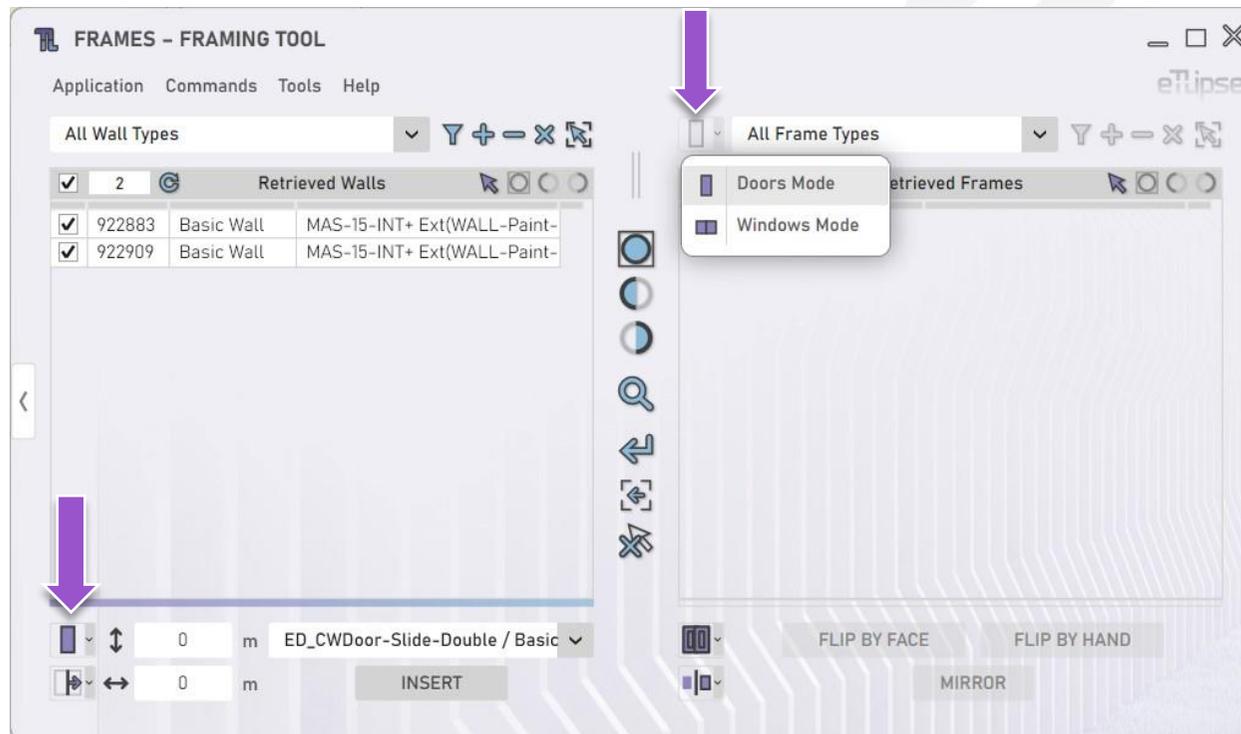
Under this setting, by clicking the **Send Elements to TL Frames** button (the one with the TL Frames icon, as indicated in the second image) we remove the Wall elements in the list from the Walls Retrieval List in TL Frames (in case they are present in the latter).



As seen in the third image, 4 of the 40 Wall elements sent by TL Filter are now removed from the Walls Retrieval List in TL Frames (they were also listed in the destination list and therefore removed from it, leaving 4 listed walls in total from the original 8).

FRAME MODES

Right below the Walls Retrieval List and above the Frames Retrieval List we have buttons that set the current frame mode. Basically, they enable the **Doors** or the **Windows** workflow. These options limit their respective sets of tools and operations to the chosen category.



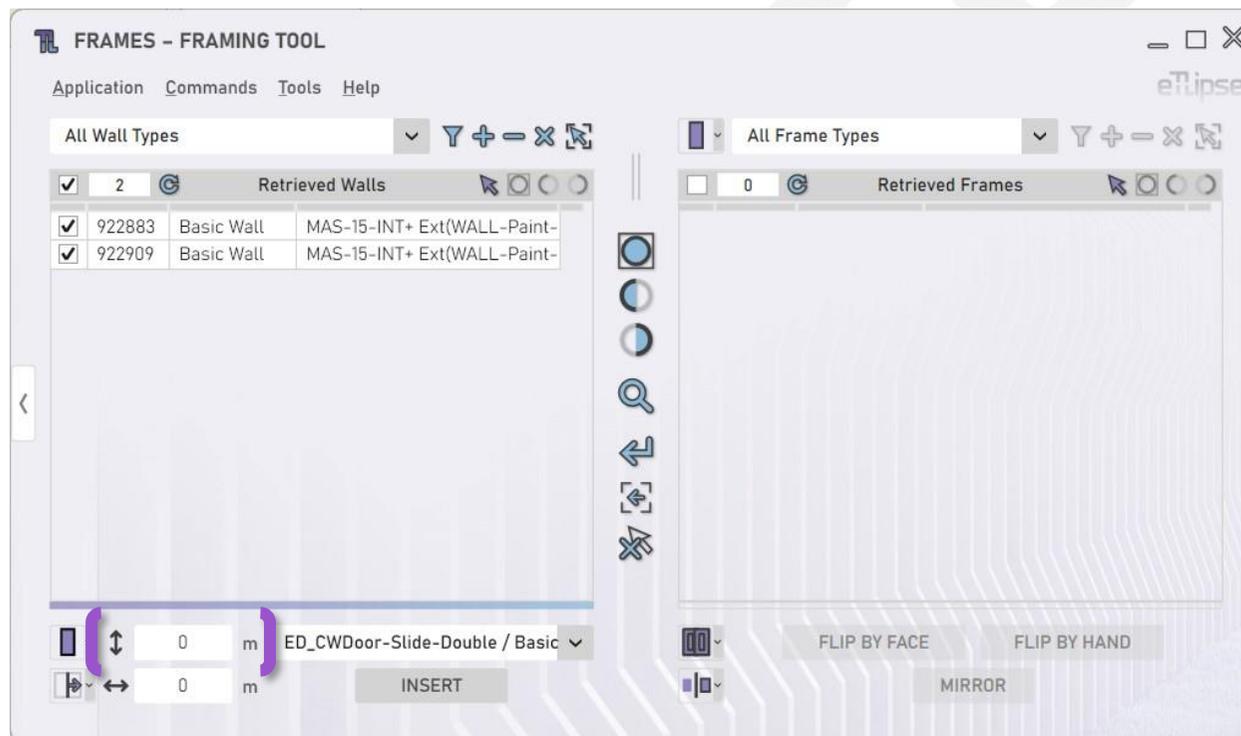
The first mode is the **Doors** Frame Mode (represented by the “door” icon, as seen in the image) and limits all frame retrievals, available types in menus and operations to the use and creation of elements of the Doors category.

The other mode is the **Windows** Frame Mode (represented by the “window” icon, as seen in the image) and limits all frame retrievals, available types in menus and operations to the use and creation of elements of the Windows category.

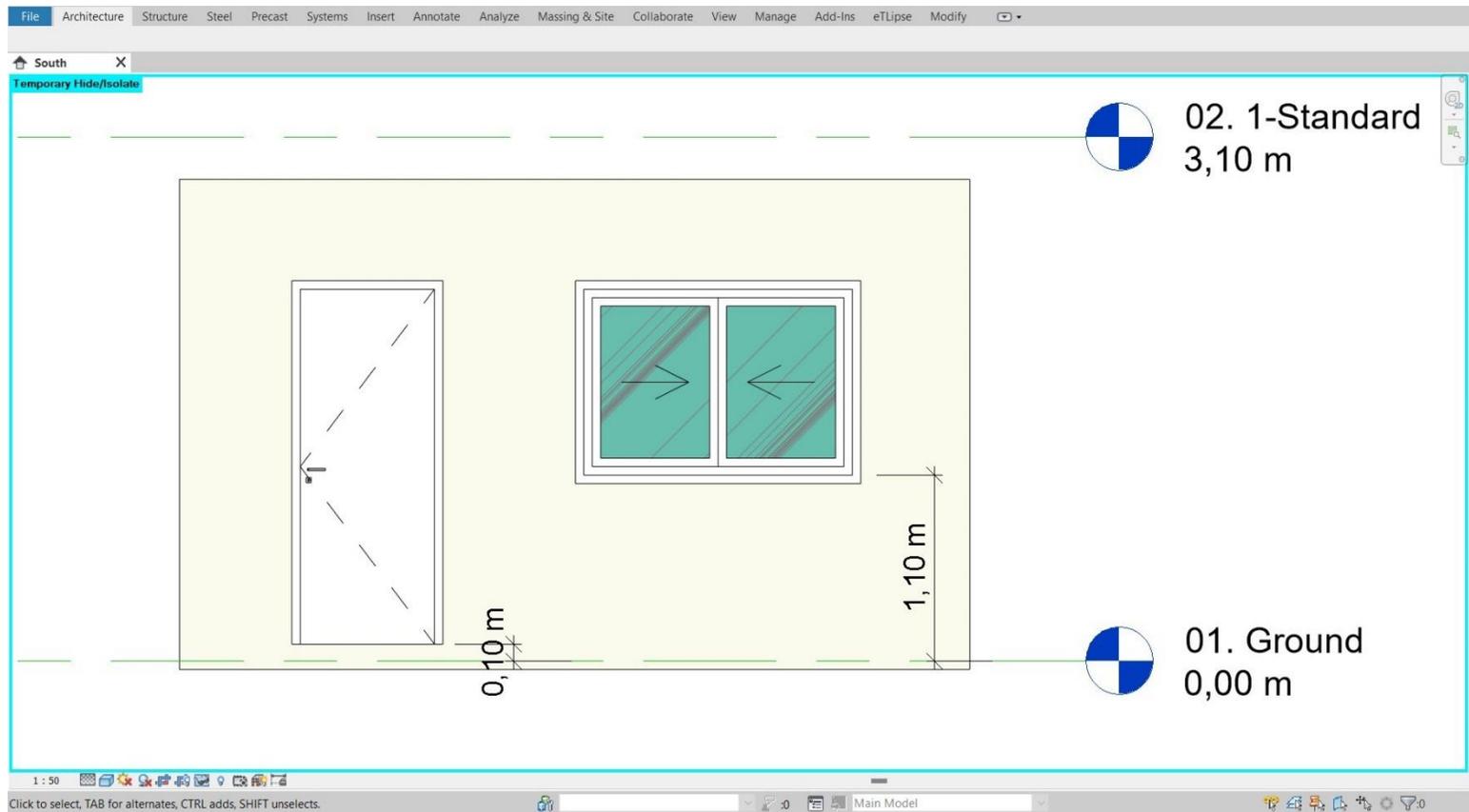
FRAMES INSERTION

We can use the tool set right below the list on the left-hand side (Walls Retrieval List) to perform insertions of frame elements (Doors or Windows, depending on the currently active frame mode) in each listed wall above.

Frame Elevation

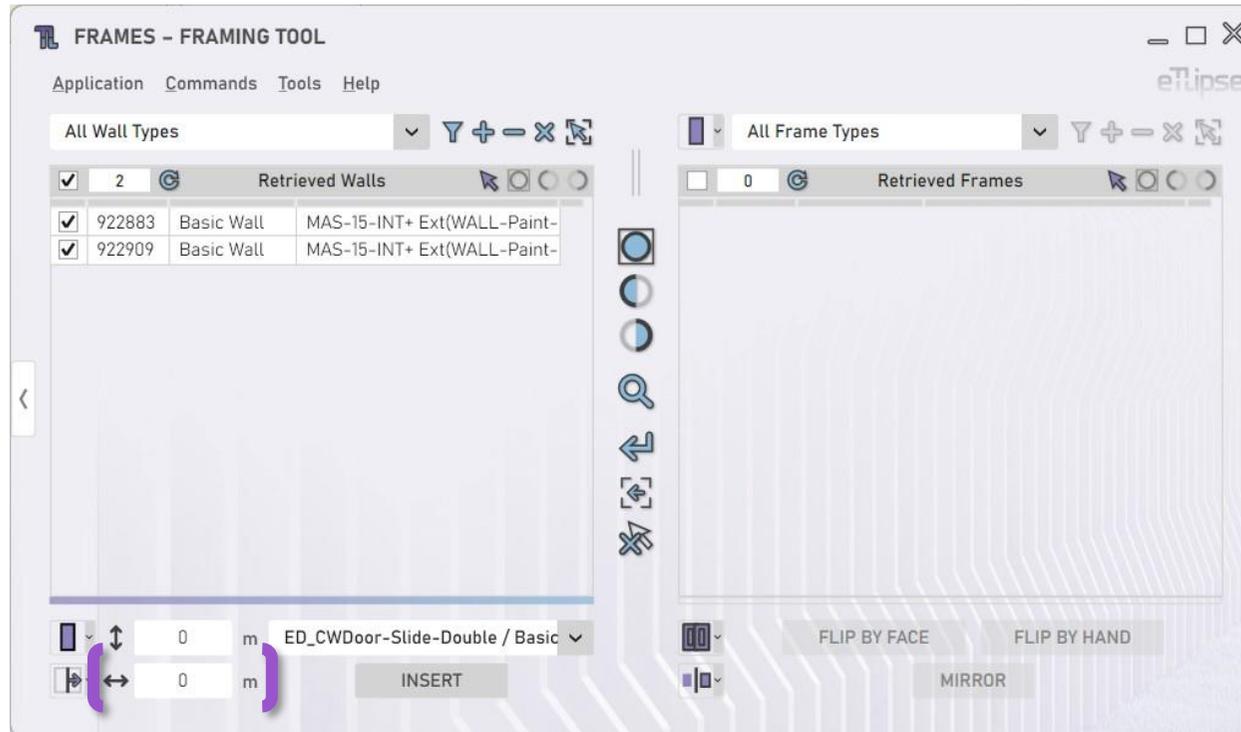


In order to properly insert frame elements, we need to provide a value for the elevation (Sill Height parameter) of these elements based on the respective wall level (basically, the distance between the frame family's insertion point and the level line/height). This value must be entered in the text box indicated in the image.



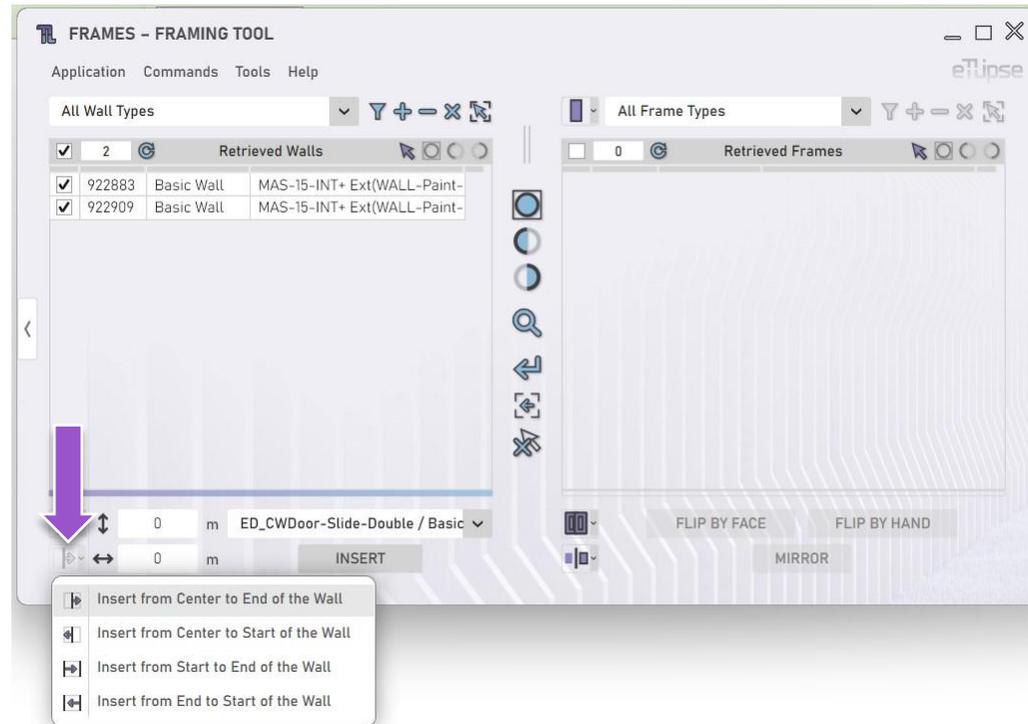
To better explain this concept, in this image we have an elevation view showing a door and a window on a wall. The door has an elevation value of 0.10 m based on the Ground level. The window, on the other hand, has an elevation value of 1.10 m based on the Ground level.

Frame Horizontal Offset



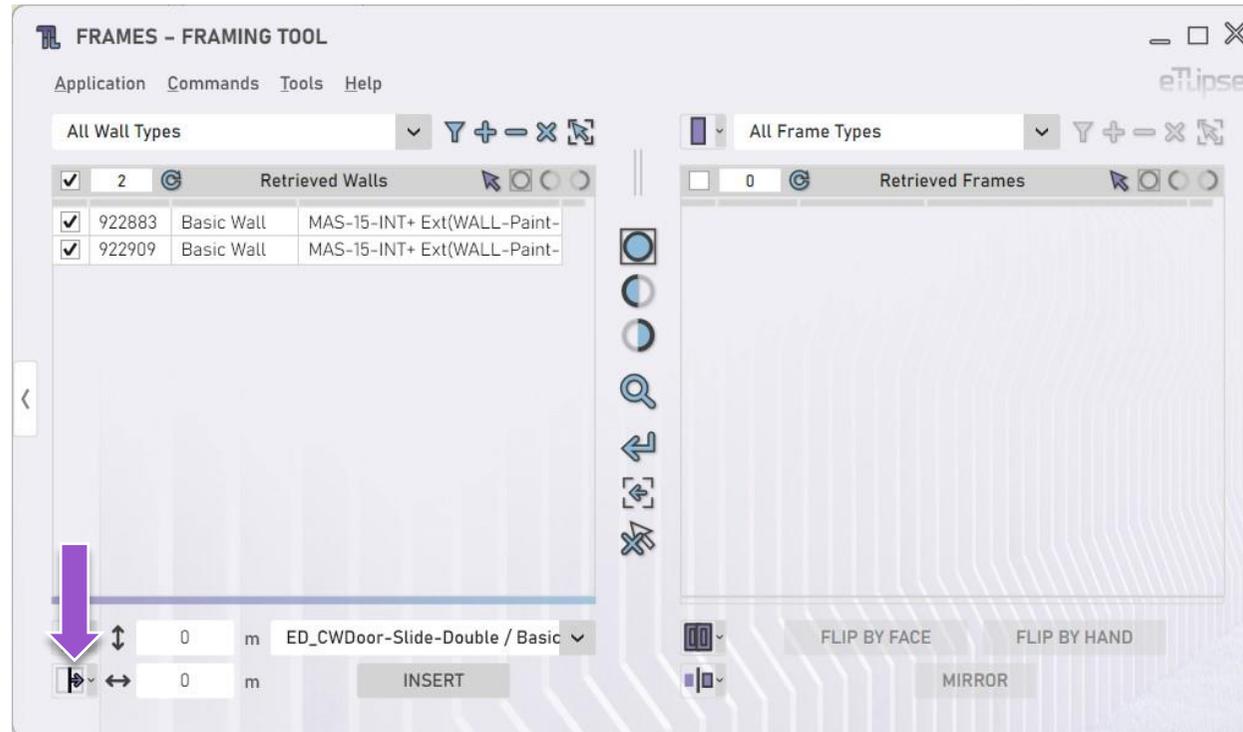
To insert frames, we also need to provide a value for the horizontal offset of the elements to be inserted based on the wall's center, starting or ending point, depending on the chosen **Insertion Offset Mode** (see the next topic). The offset value must be entered in the text box indicated in the first image.

Insertion Offset Modes

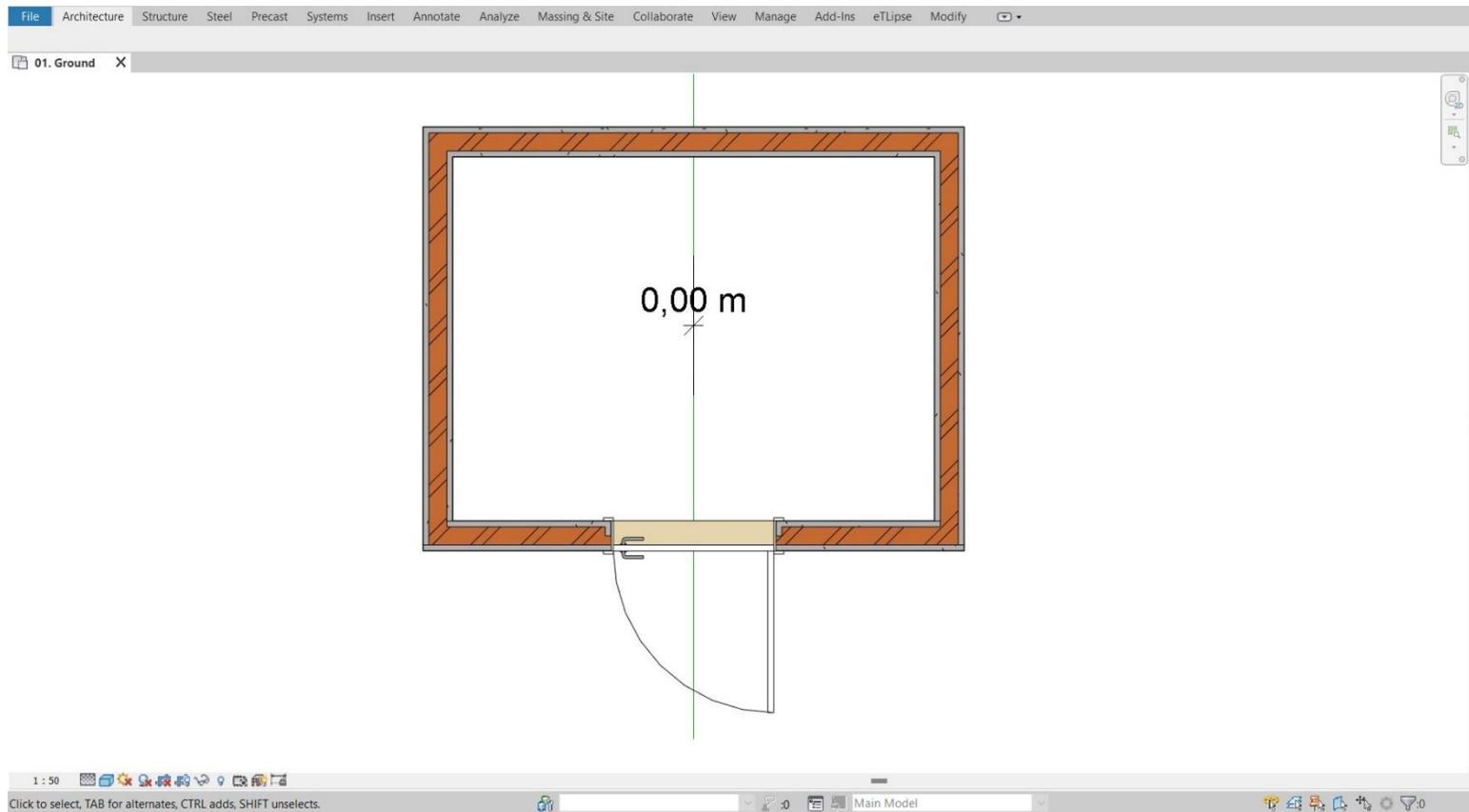


Below the Frame Modes button, we have the button that opens the **Insertion Offset Modes** menu. This menu contains options that determine the starting point in the wall for calculating the **Frame Horizontal Offset** used in the frame insertion. The available modes are: **Insert from Center to End of the Wall**, **Insert from Center to Start of the Wall**, **Insert from Start to End of the Wall**, **Insert from End to Start of the Wall**.

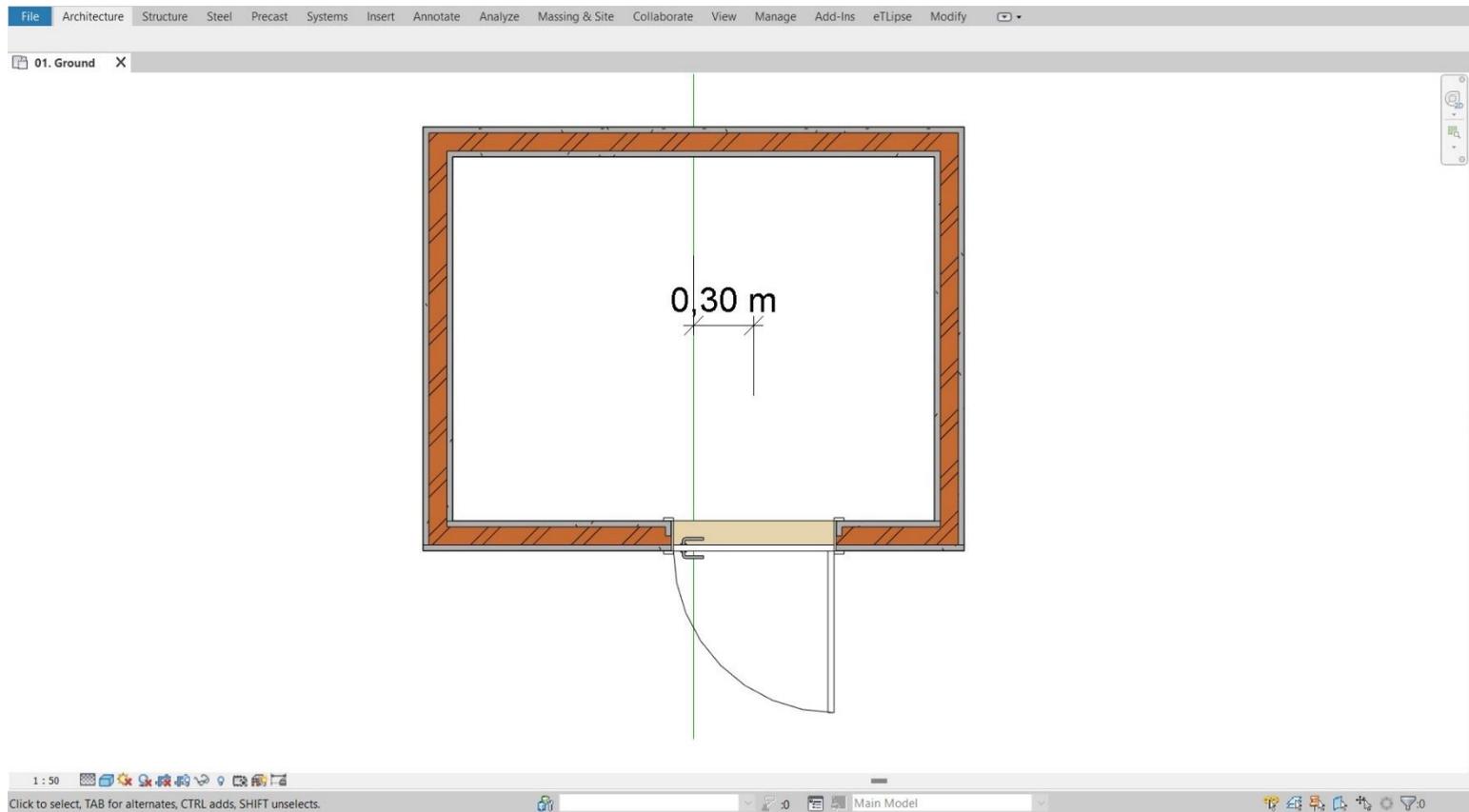
Insertion Offset Mode: Insert from Center to End of the Wall



As mentioned previously, the value provided as **Frame Horizontal Offset** is interpreted in different ways according to the Insertion Offset Mode. When the **Insert from Center to End of the Wall** mode is enabled (as represented by the icon indicated in the image), the provided offset value is calculated starting from the **center** of the wall towards its **ending** point.

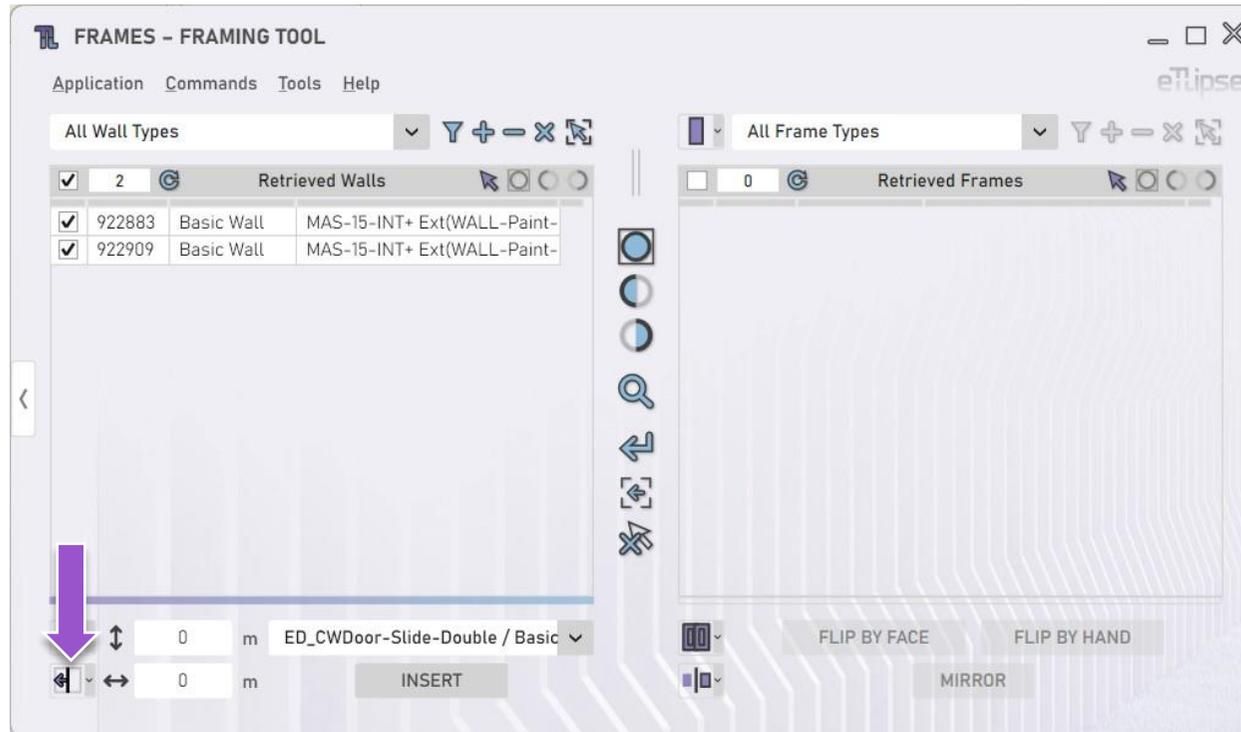


To better explain this concept, in this image we have a plan view showing a door inserted at a wall. The green line represents the center of the wall. The dimension of 0.0 m between the insertion point of the door and the center of the wall demonstrates a door inserted with a 0.00 m offset value in **Insert from Center to End of the Wall** Mode.

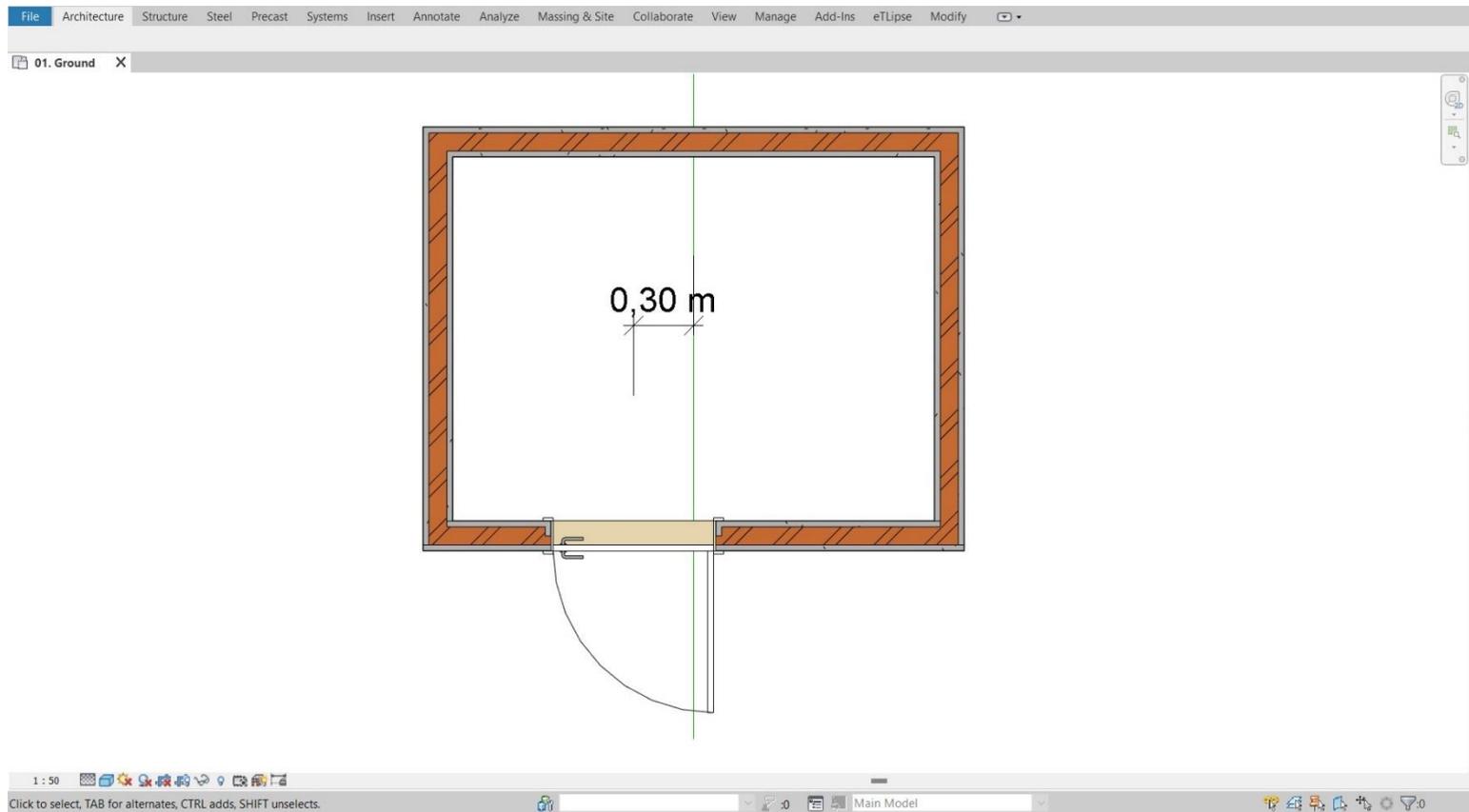


In this image we have a plan view showing a door inserted at a wall as well. The starting point of this wall is on the left side and its ending point on the right side of the screen. The green line represents the center of the wall, but this time the dimension between the insertion point of the door and the center of the wall has 0,30 m value towards the ending point of the wall. This demonstrates a door insertion with a 0.30 m offset value with the **Insert from Center to End of the Wall** mode enabled.

Insertion Offset Mode: Insert from Center to Start of the Wall

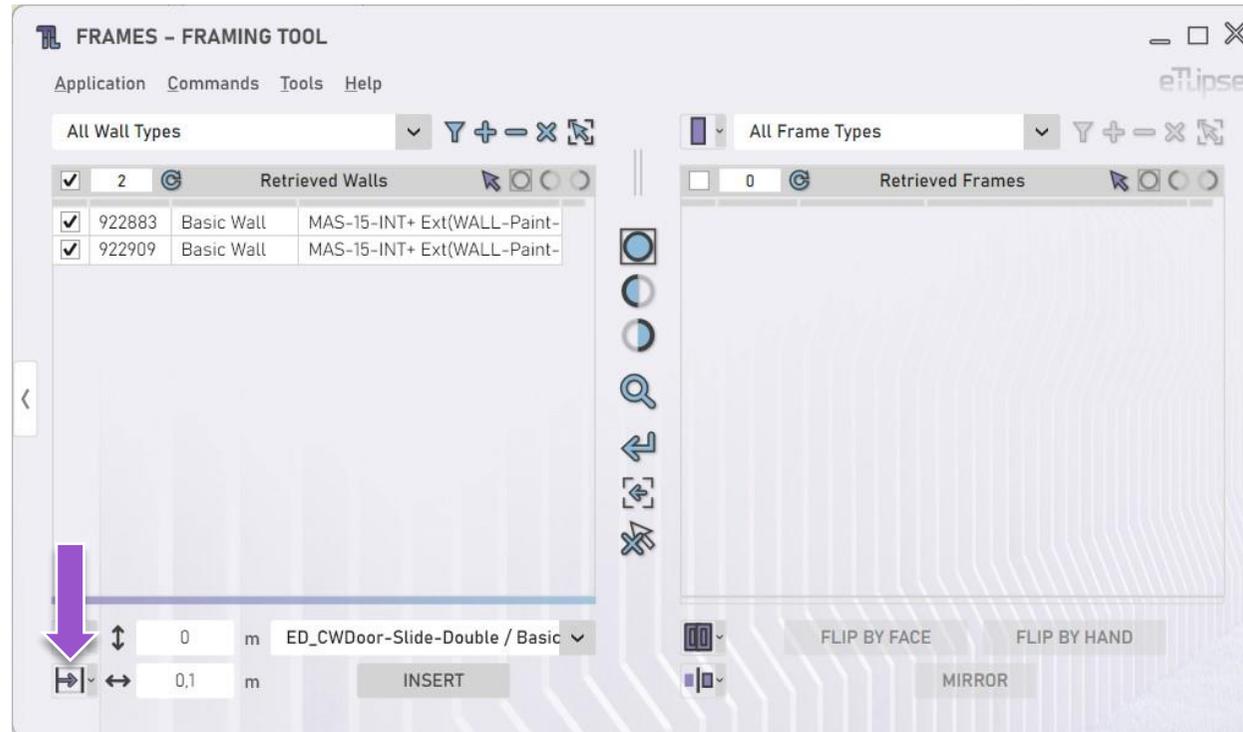


When the **Insert from Center to Start of the Wall** mode is enabled (as represented by the icon indicated in the image), the provided offset value is calculated starting from the **center** of the wall towards its **starting** point.

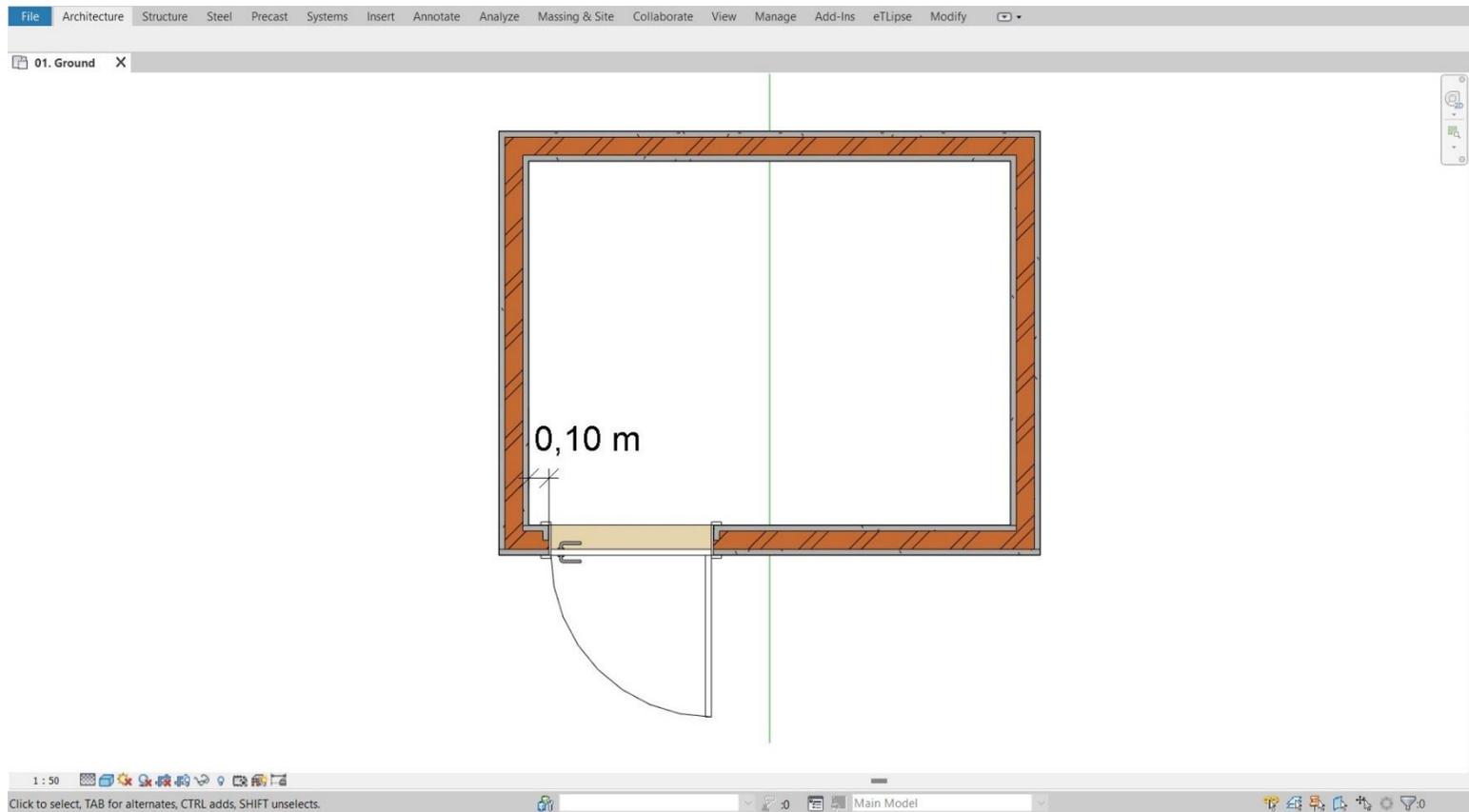


In this image we have a plan view showing a door inserted at a wall as well. Also, the starting point of this wall is on the left side and its ending point on the right side of the screen. The green line represents the center of the wall, but this time the dimension between the insertion point of the door and the center of the wall has a 0,30 m value towards the starting point of the wall. This demonstrates a door insertion with a 0.30 m offset value with the **Insert from Center to Start of the Wall** mode enabled.

Insertion Offset Mode: Insert from Start to End of the Wall

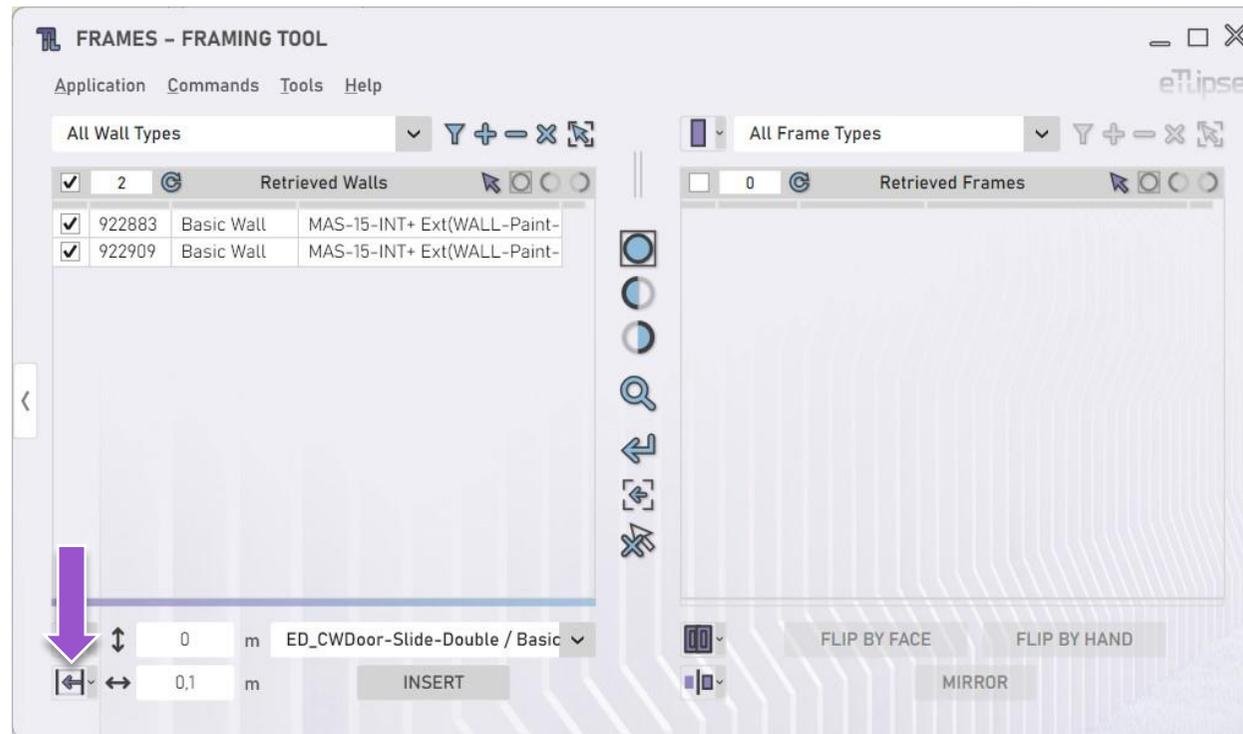


When the **Insert from Start to End of the Wall** mode is enabled (as represented by the icon indicated in the image), the provided offset value is calculated starting from the **starting** point of the wall towards its **ending** point.

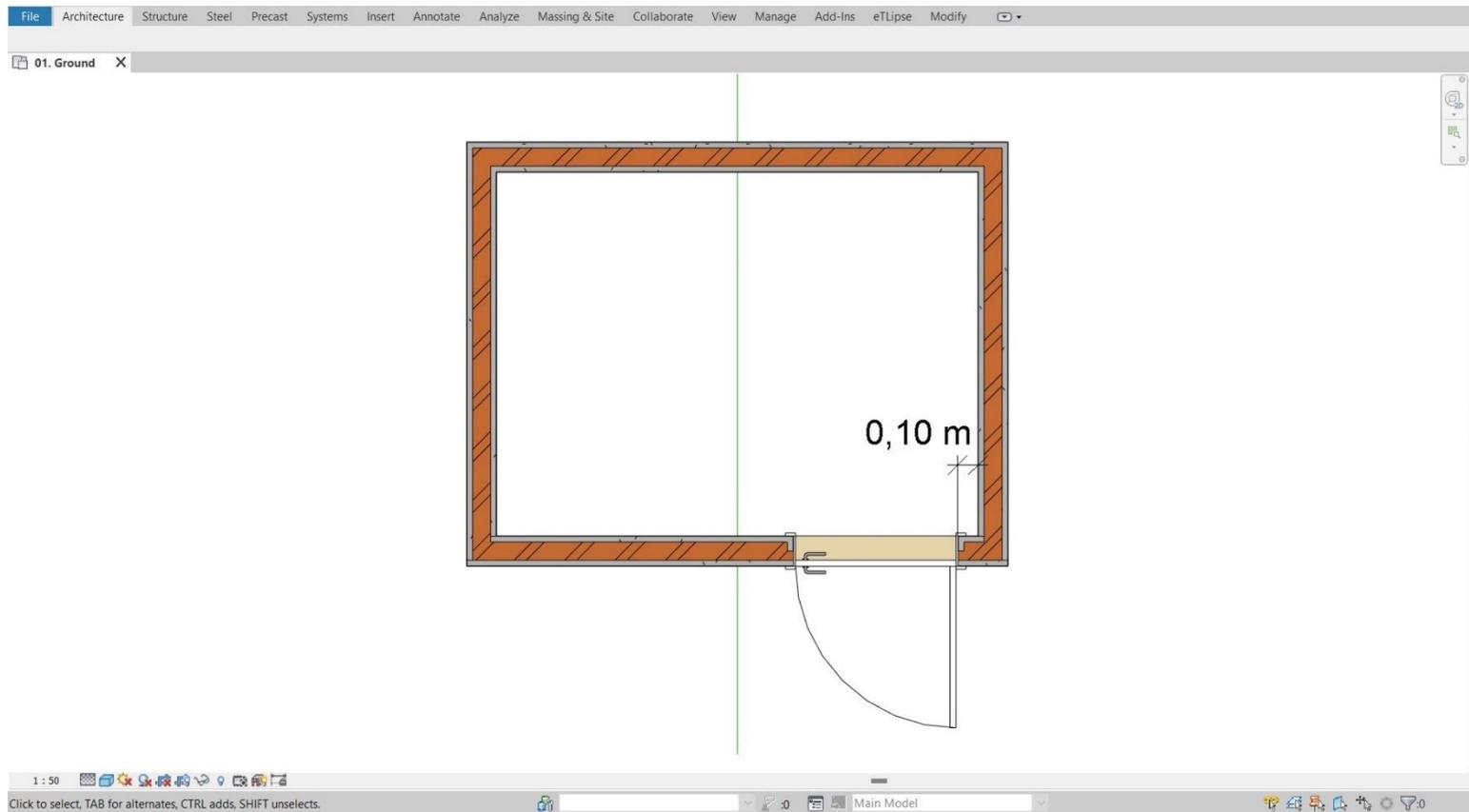


In this image we have a plan view showing a door inserted at a wall. The starting point of this wall is on the left side and its ending point on the right side of the screen. The dimension of 0.10 m between the insertion point of the door and the face of the perpendicular wall connected to the starting point of the first wall demonstrates a door insertion with a 0.10 m offset value with the **Insert from Start to End of the Wall** mode enabled.

Insertion Offset Mode: Insert from End to Start of the Wall

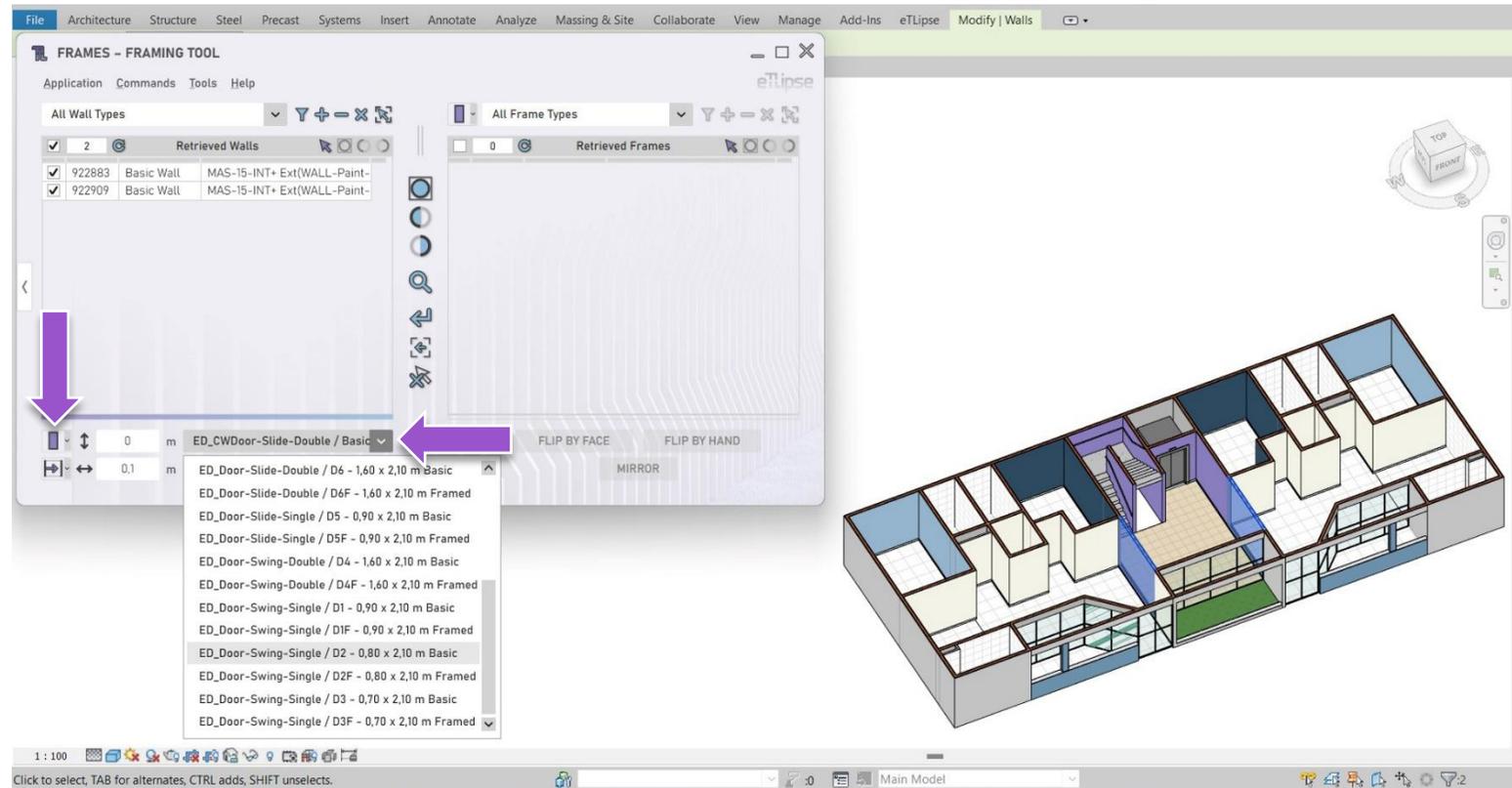


When the **Insert from End to Start of the Wall** mode is enabled (as represented by the icon indicated in the image), the provided offset value is calculated starting from the **ending** point of the wall towards its **starting** point.



In this image we have a plan view showing a door inserted at a wall. The starting point of this wall is on the left side and its ending point on the right side of the screen. The dimension of 0.10 m between the insertion point of the door and the face of the perpendicular wall connected to the ending point of the first wall demonstrates a door insertion with a 0.10 m offset value with the **Insert from End to Start of the Wall** mode enabled.

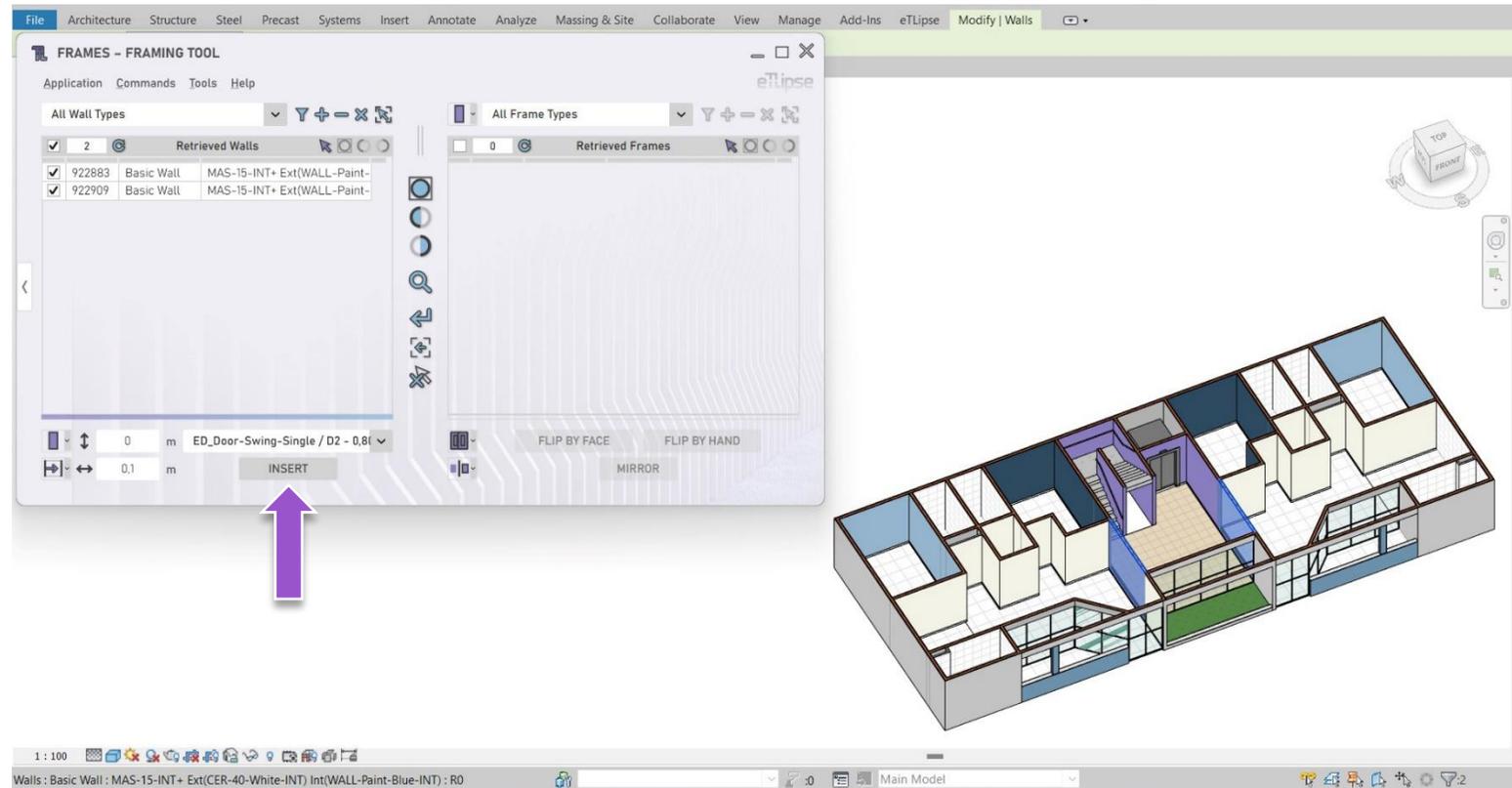
Frame Type (Doors)



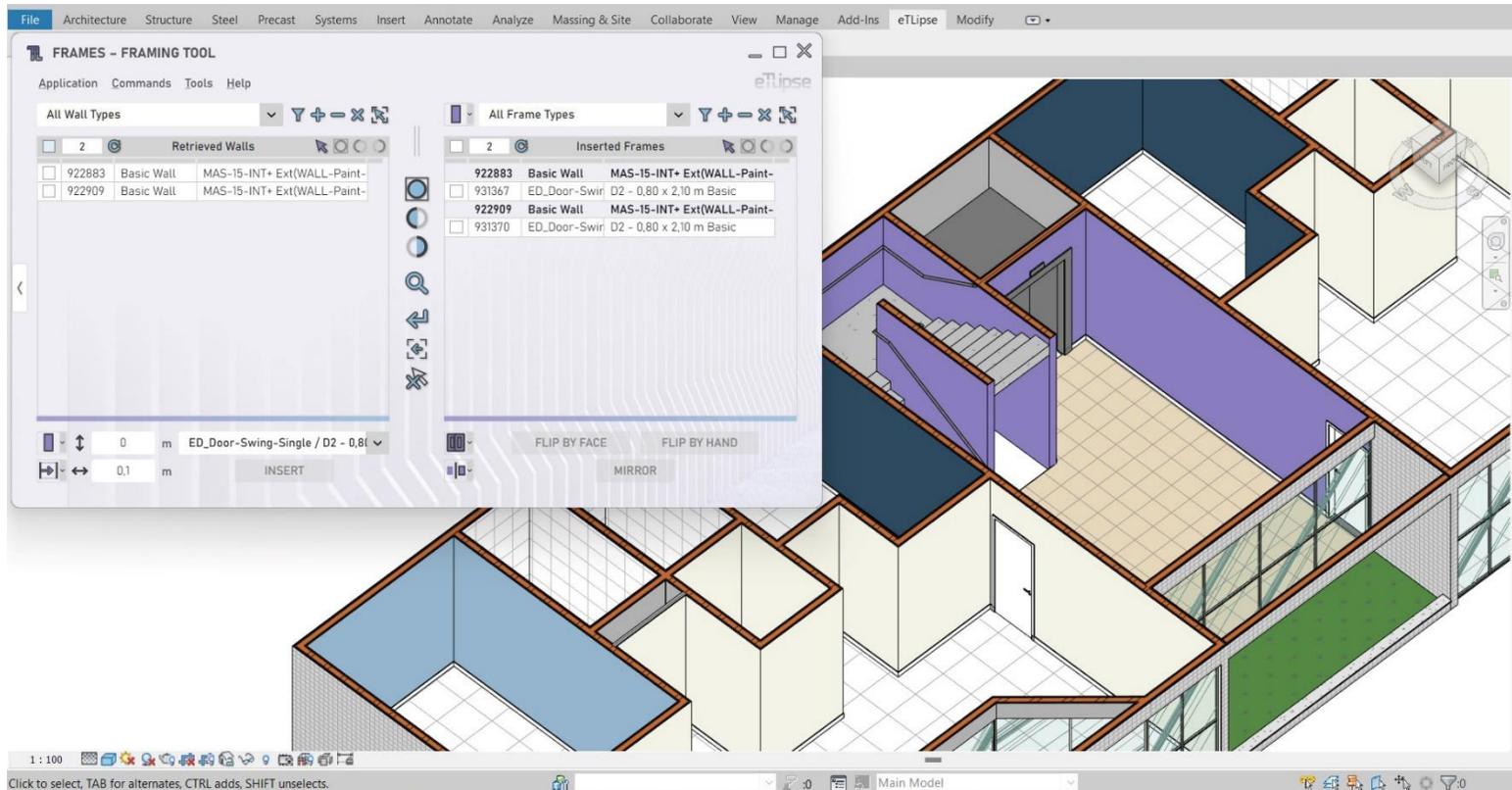
By keeping the Doors Frame Mode enabled Mode (as indicated in the image), we can use the frame insertion tool set to perform insertions of Door elements in each listed wall above.

One of the main requirements to insert doors in a wall is the choice of a valid family type for the doors to be created and inserted. We can choose it in the dropdown box indicated in the image, where we can find all the valid door types loaded in the active project (we can never stress enough how important it is to use wise and well-planned project templates and families). In the image we are choosing the “D2” door type, which is available in our active project.

Insert Frames (Doors)



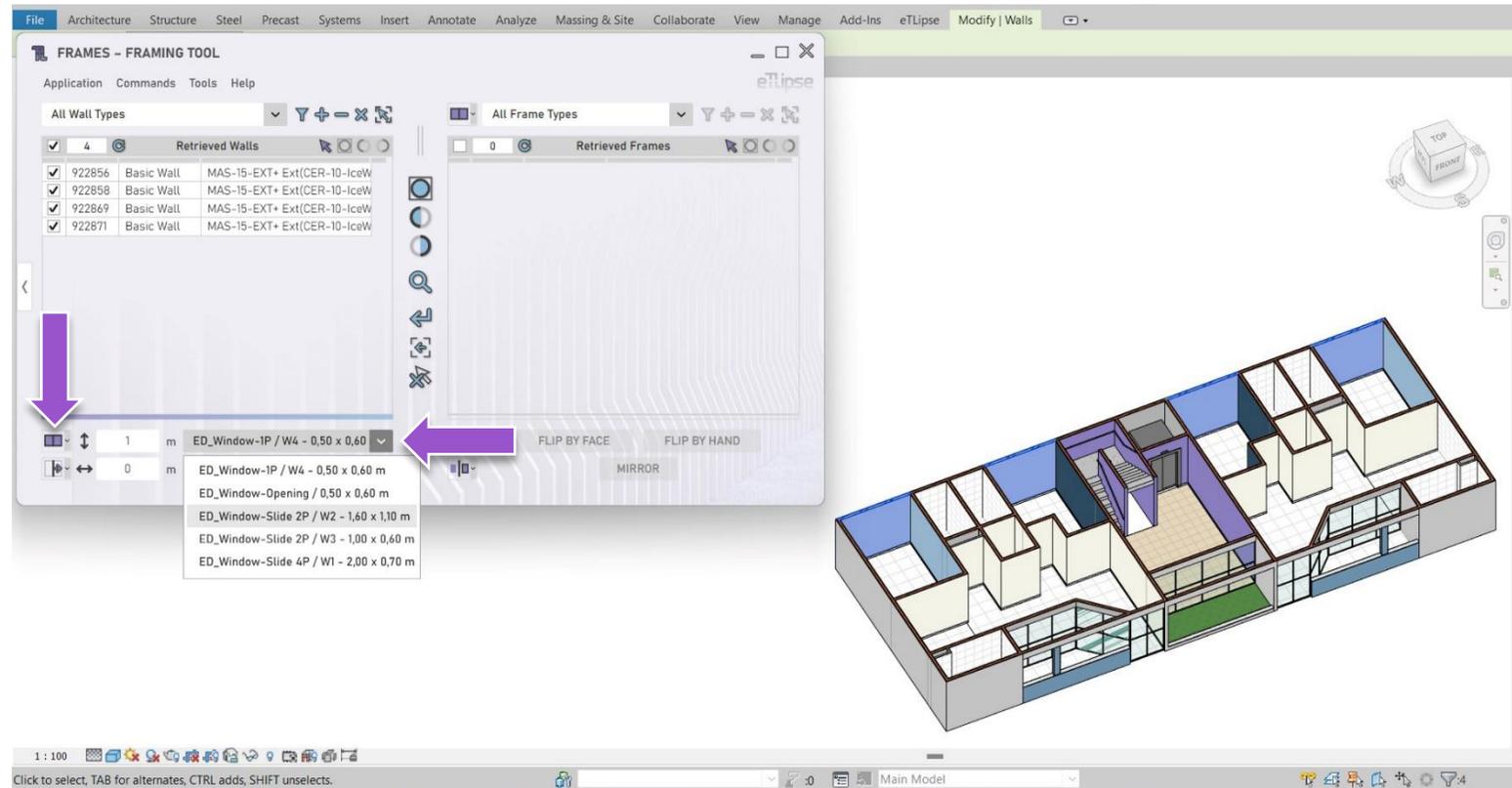
Once all the previously explained settings are done, we can click the **Insert Frames** button (as indicated in the first image) to insert a door in every wall checked in the Walls Retrieval List, based on the provided type, elevation, horizontal offset and insertion mode.



In the second image we can see two inserted doors with a 0.10 m distance from their respective reference points, but, as you may have noticed, one of them is not at the desired side of the wall (predicting each side of a wall contains its starting or ending point is not a usual concern in projects). To fix this, TL Frames offers the **Mirror Frames** operation, which we will talk about further ahead.

This operation will not be available if there is no valid wall checked in the Walls Retrieval List.

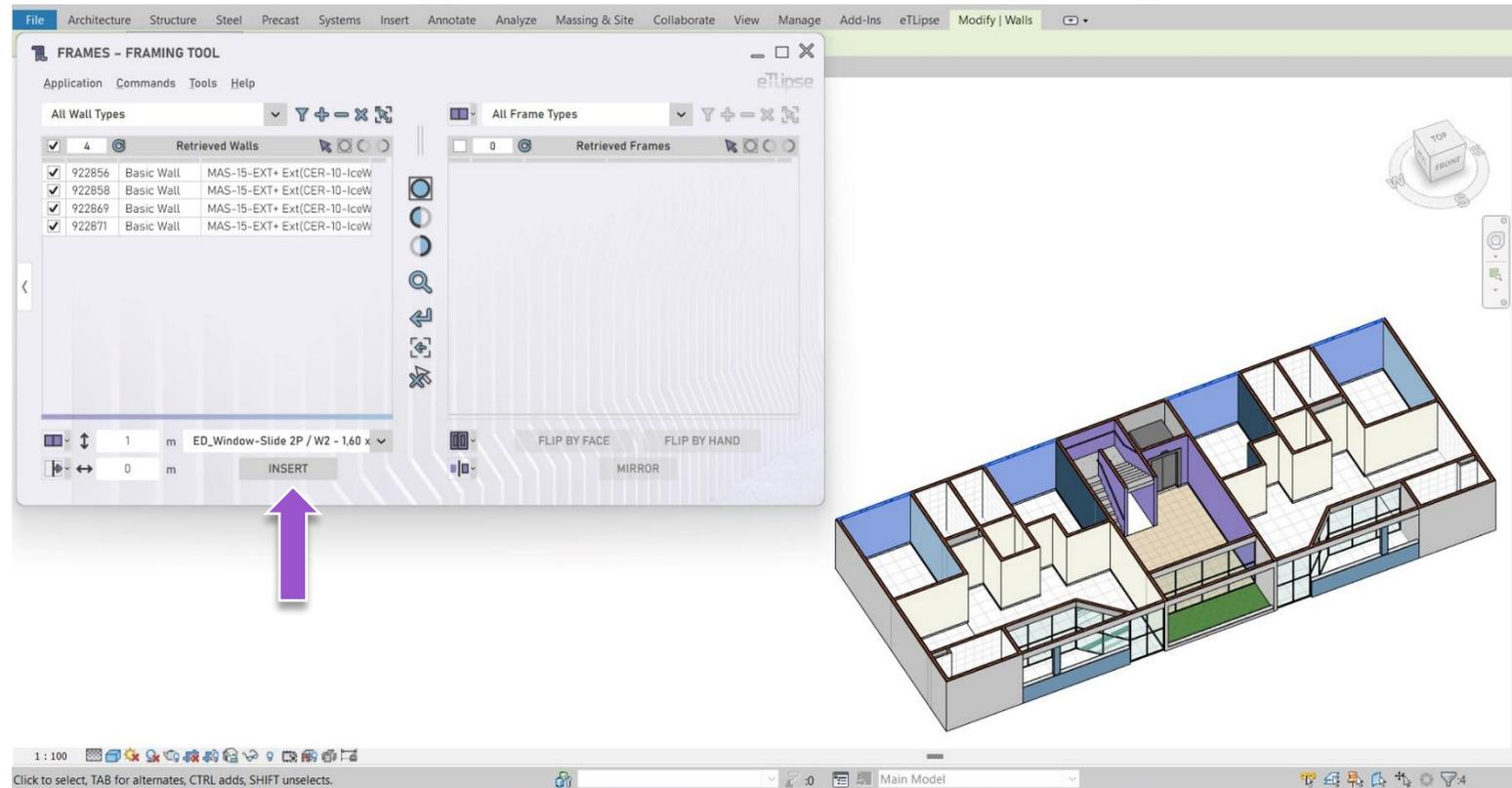
Frame Type (Windows)



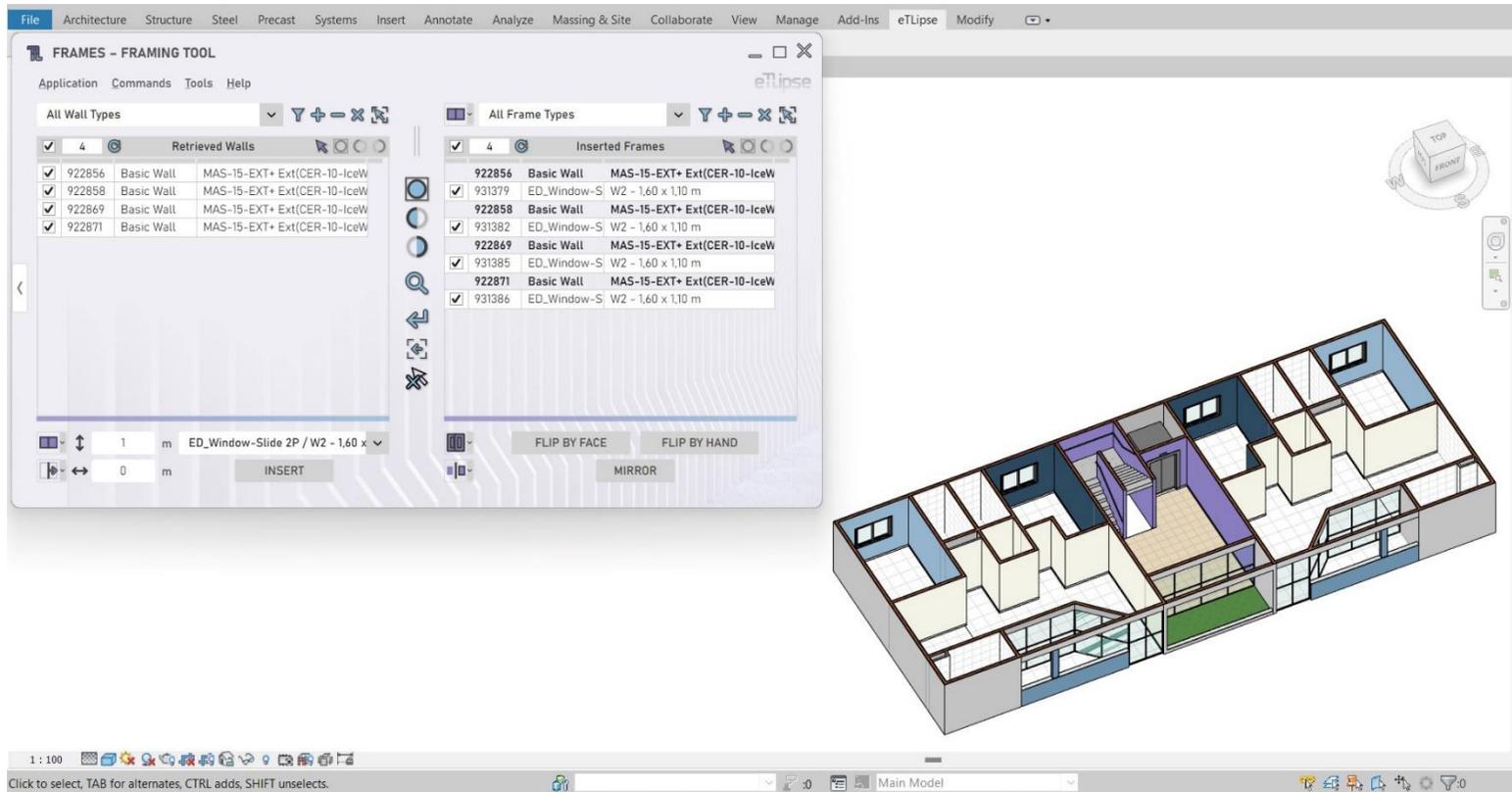
By enabling the Windows Frame Mode (as indicated in the image), we can use the frame insertion tool set to perform insertions of Window elements in each listed wall above.

One of the main requirements to insert windows in a wall is the choice of a valid family type for the windows to be created and inserted. We can choose it in the dropdown box indicated in the image, where we can find all the valid window types loaded in the active project (we can never stress enough how important it is to use wise and well-planned project templates and families). In the image we are choosing the "W2" window type, which is available in our active project.

Insert Frames (Windows)



Once all the previously explained settings are done, we can click the **Insert Frames** button (as indicated in the first image) to insert a window in every wall checked in the Walls Retrieval List, based on the provided type, elevation, horizontal offset and insertion mode.

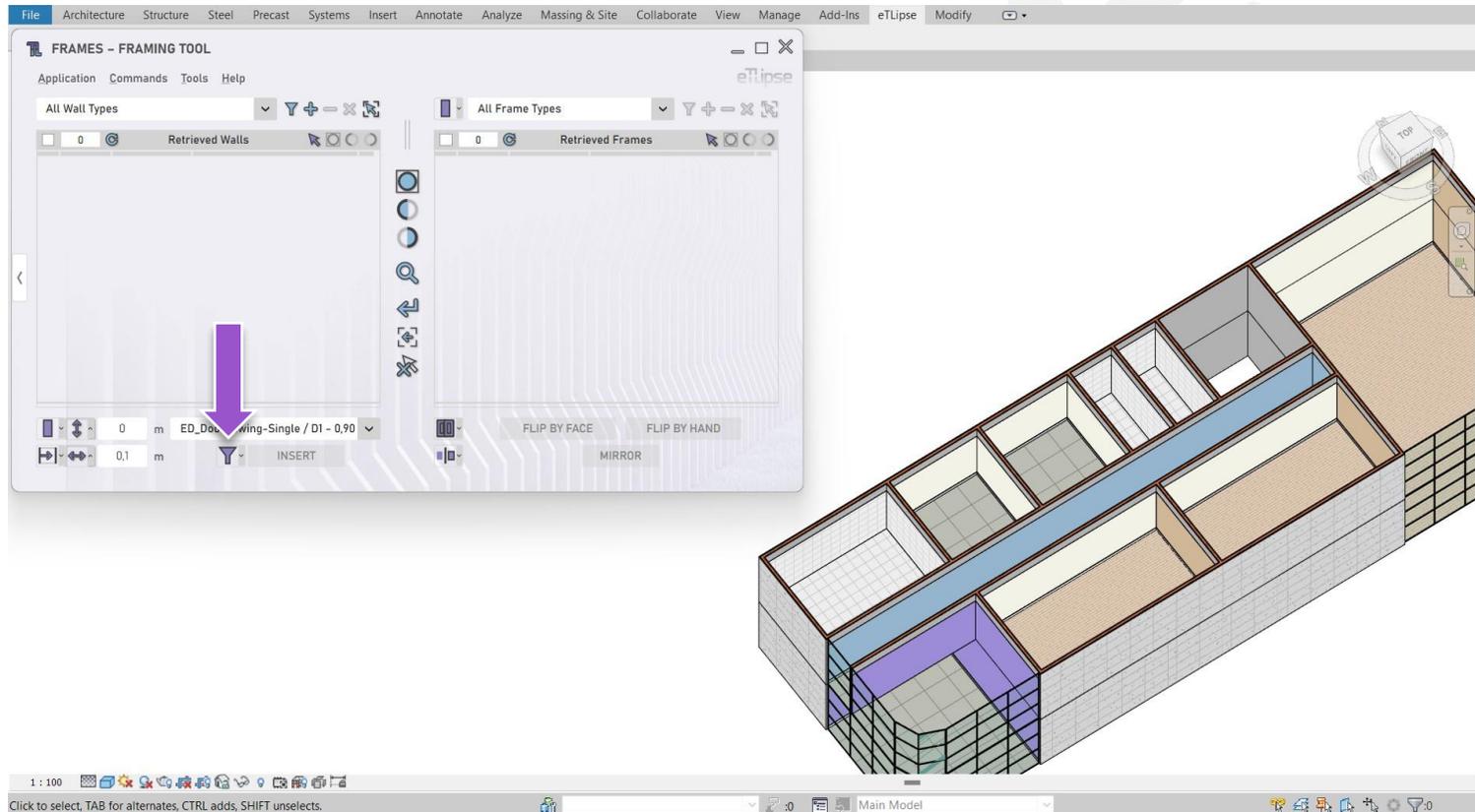


In the second image we can see one inserted window at the center of each listed wall, at an elevation of 1.0 m.

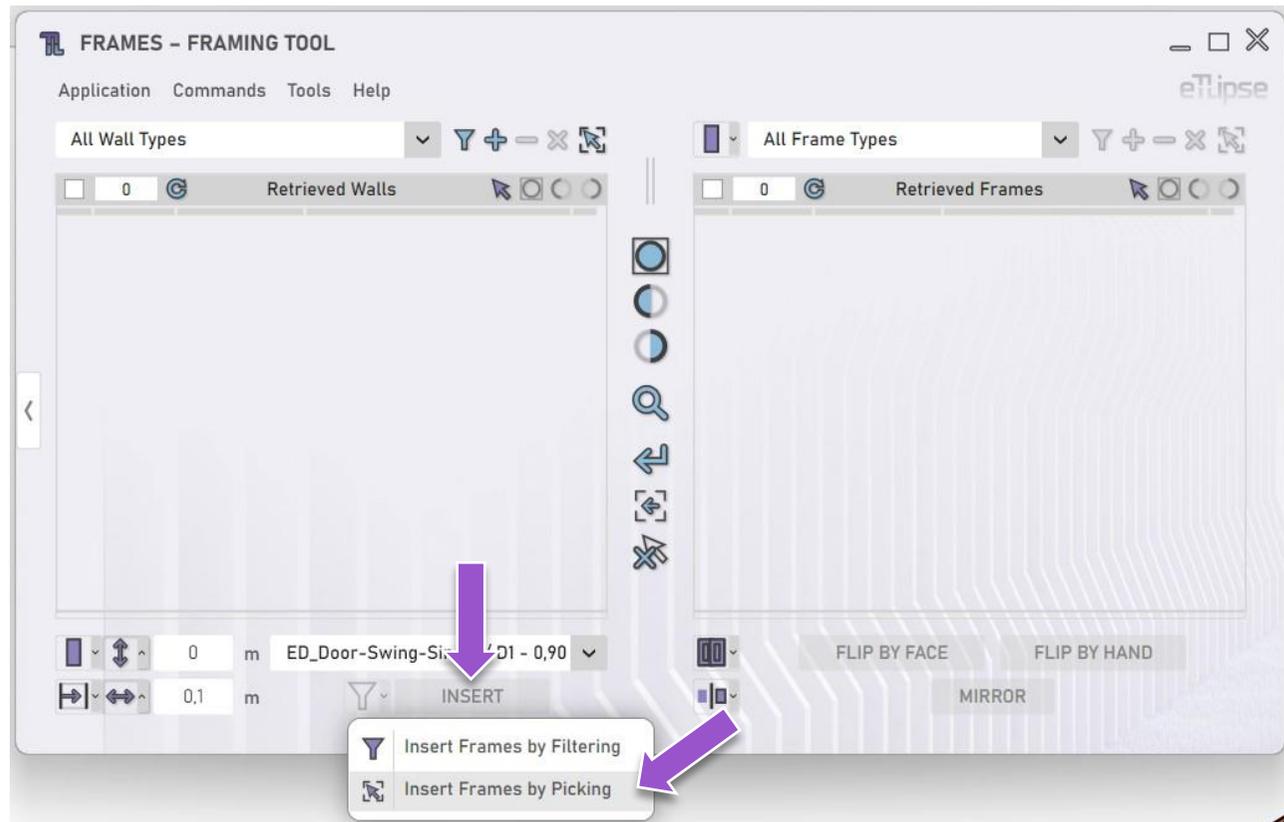
This operation will not be available if there is no valid wall checked in the Walls Retrieval List.

FRAMES INSERTION BY PICKING

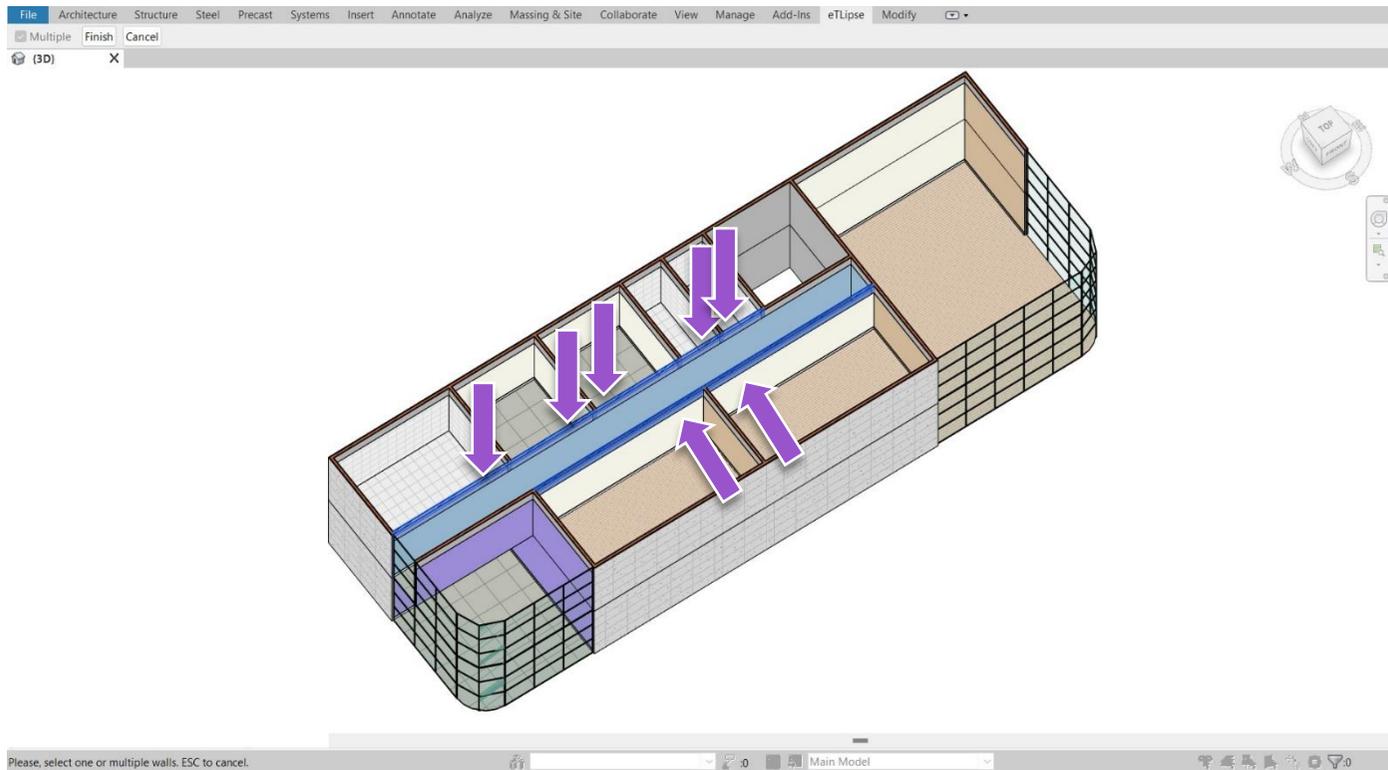
It is possible to insert frames by picking the desired side of each wall we want to place the frames in. The process of frames insertion will be executed manually by picking (allowing the picking of basic walls in the active view to use as target references). Any offset and position values will be applied to the side of each wall picked in the process.



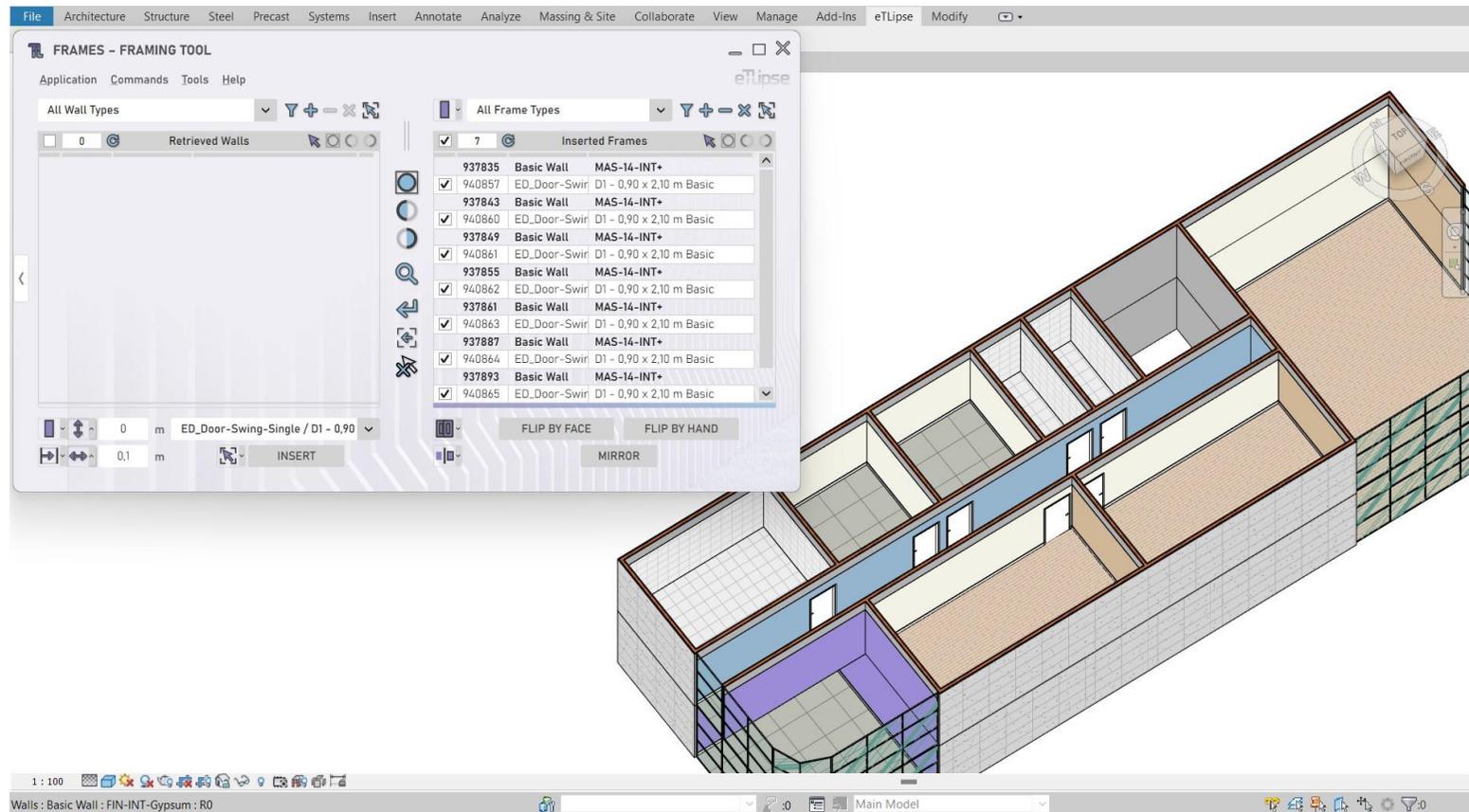
With any frame insertion mode enabled (except the Multiple and Equidistant one), we can see the button that allows us to enable the Picking mode right next to the Insert button, as seen in the image.



We must choose the **Insert Frames by Picking** mode in the pop-up panel. After this, with the elevation, horizontal offset and frame type parameter set, we can click the **Insert** button to start the selection process.



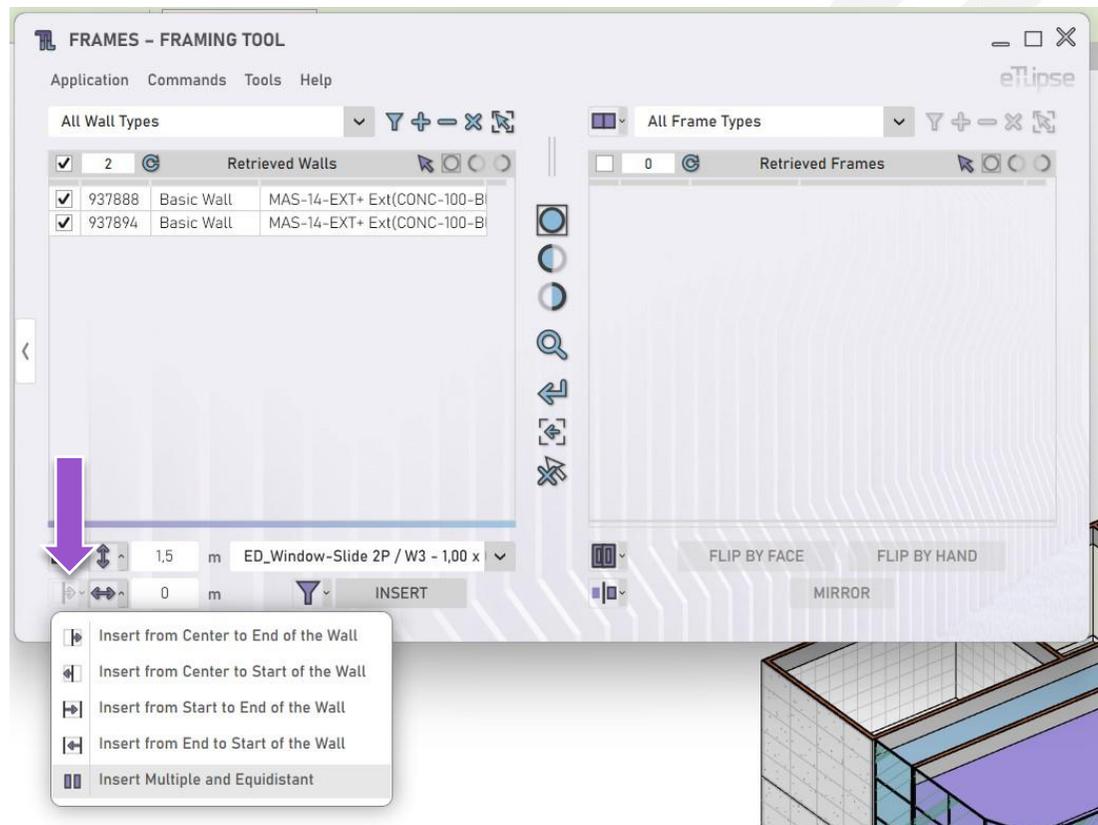
Revit will then allow us to pick the walls we want to place the frames in. It is important to note that picking a specific side of each wall will apply the provided Horizontal Offset with the picked side as reference. In the image, we clicked the selected walls at the indicated sides.

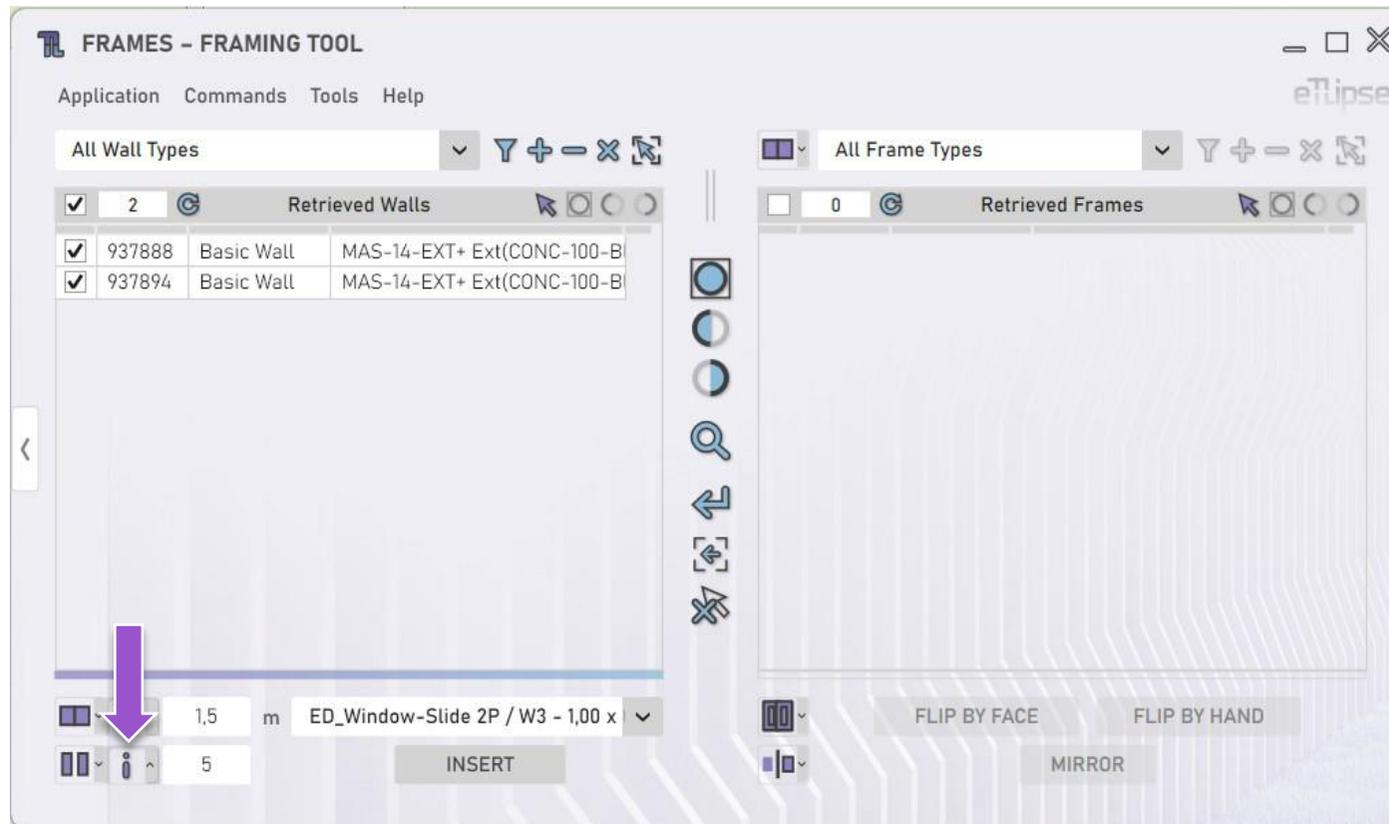


In the image we can see the result: the doors were inserted at each picked side of the walls, at the given horizontal offset.

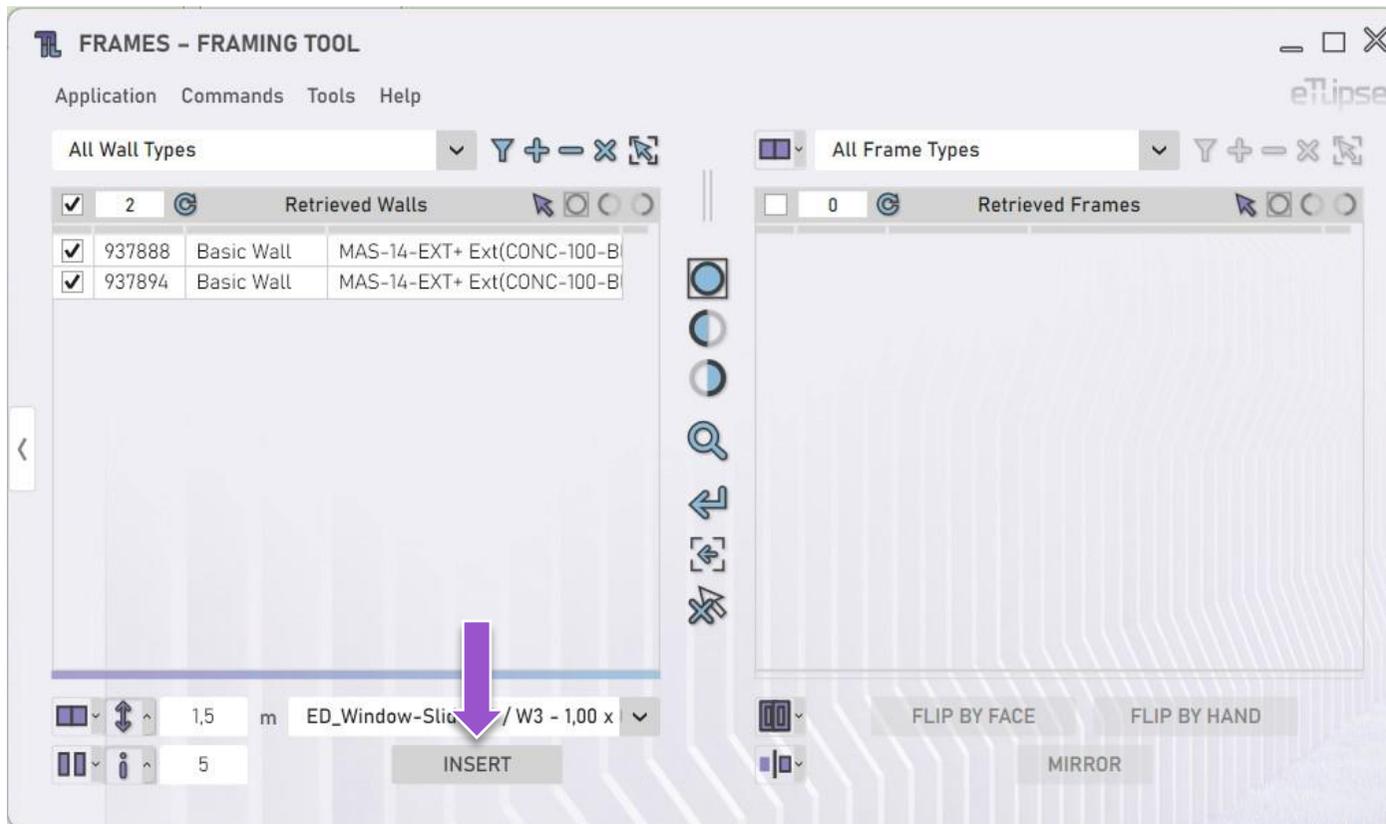
MULTIPLE FRAMES INSERTION

It is possible to insert multiple and equidistant frames at each wall checked on the Walls Retrieval List as well. To access the commands for this, we can enable the **Insert Multiple and Equidistant** mode at the **Insertion Offset Modes** menu.

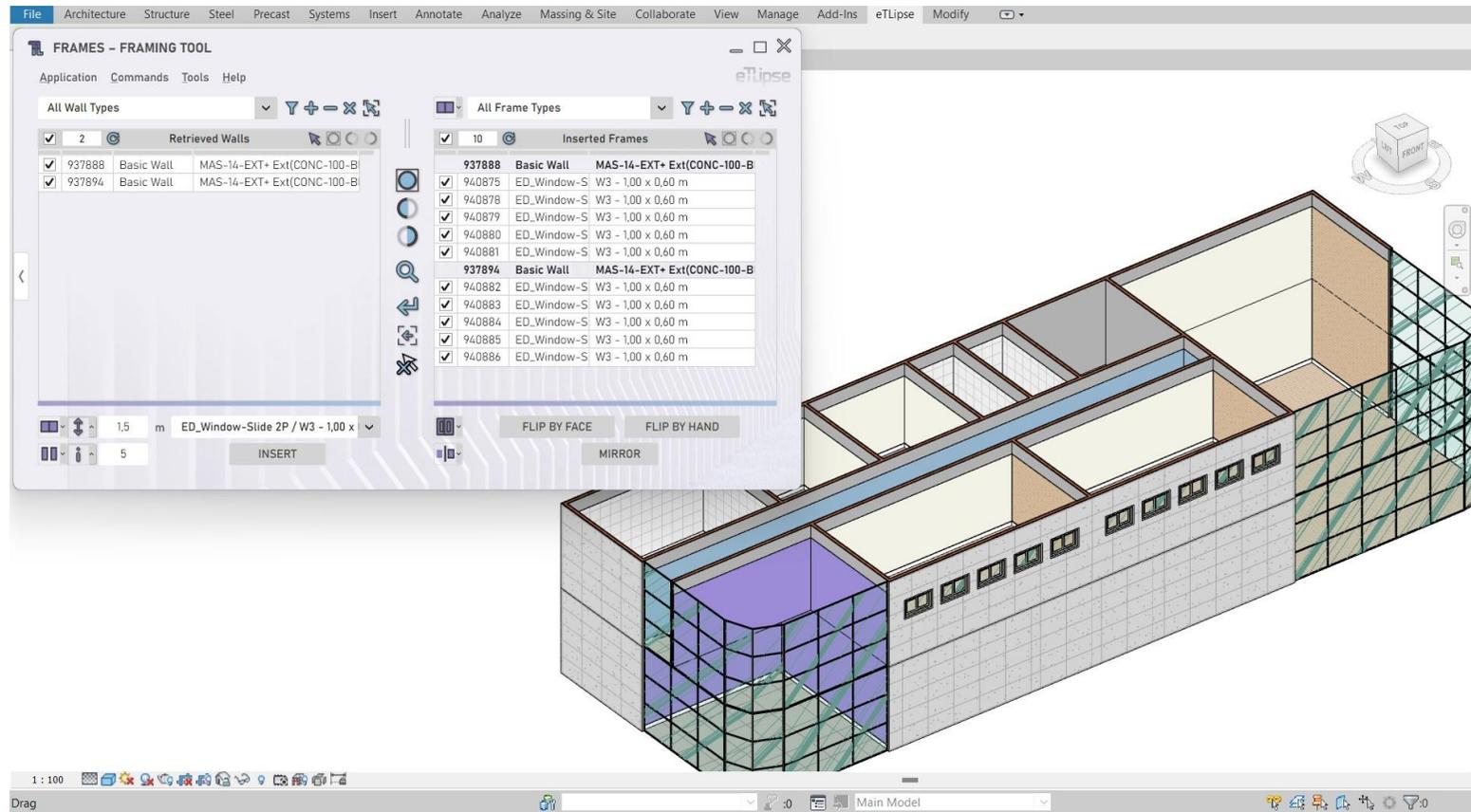




When the **Insert Multiple and Equidistant** mode is enabled, the Horizontal Offset field becomes the **Number of Frames** field and takes integer values (greater than 1) that will define the number of frames to be inserted at the walls checked on the list.



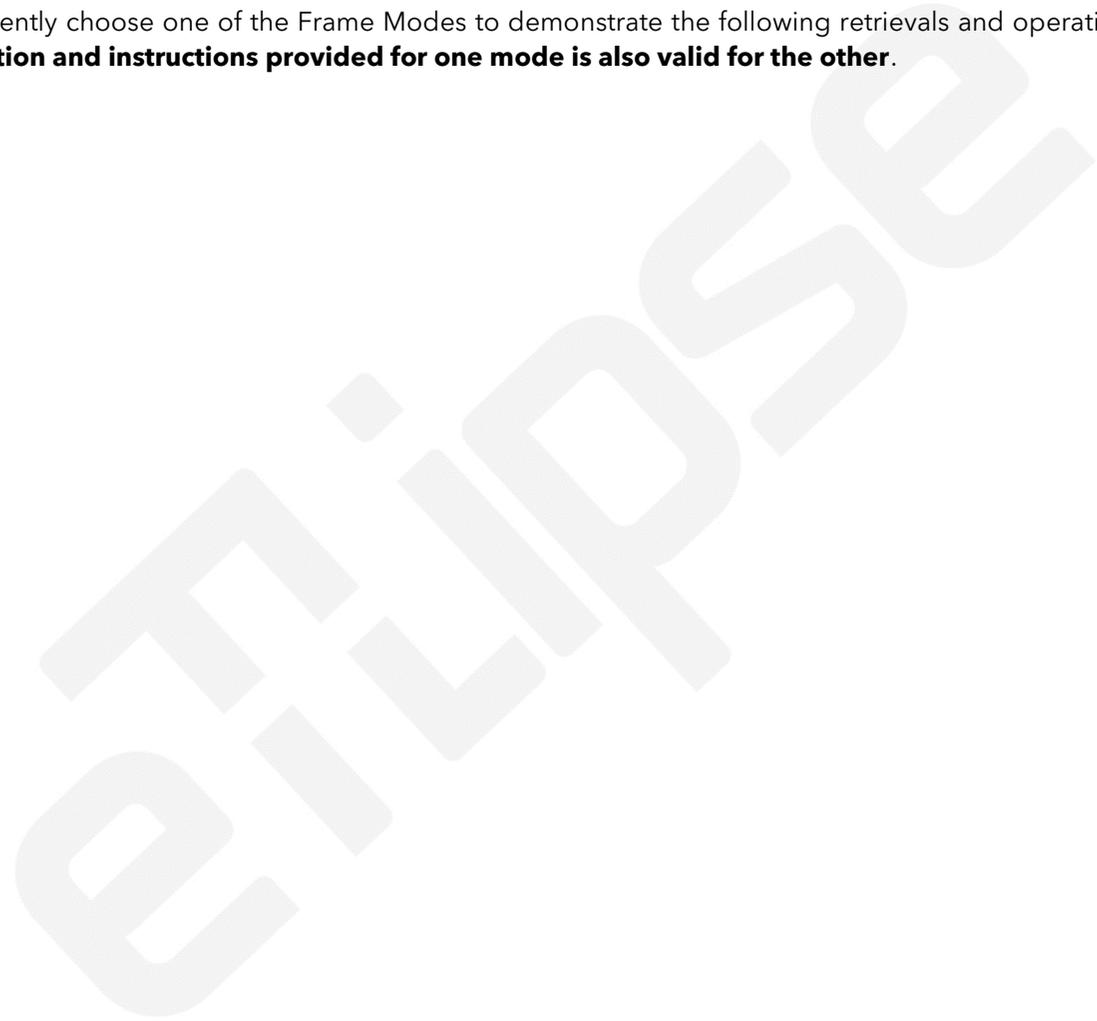
With the elevation, number of frames and frame type parameters set, we can click the **Insert** button to insert the multiple frames at the checked walls in the list.



In the image we can see the result of insertion of 5 windows in each wall checked on the list.

RULE FOR FRAME MODES

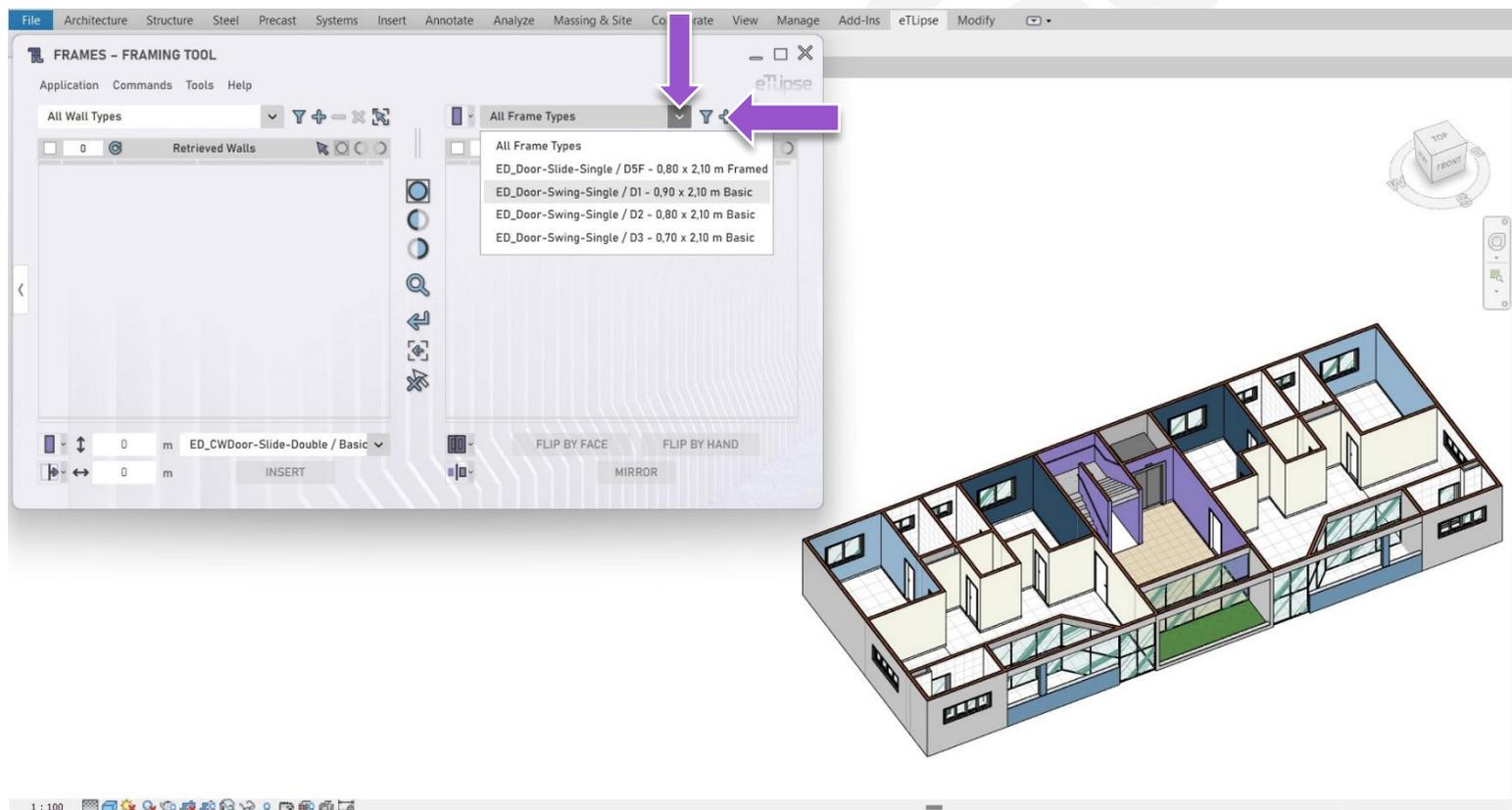
For simplification, we will frequently choose one of the Frame Modes to demonstrate the following retrievals and operations of TL Frames in this guide. **Keep in mind that all explanation and instructions provided for one mode is also valid for the other.**



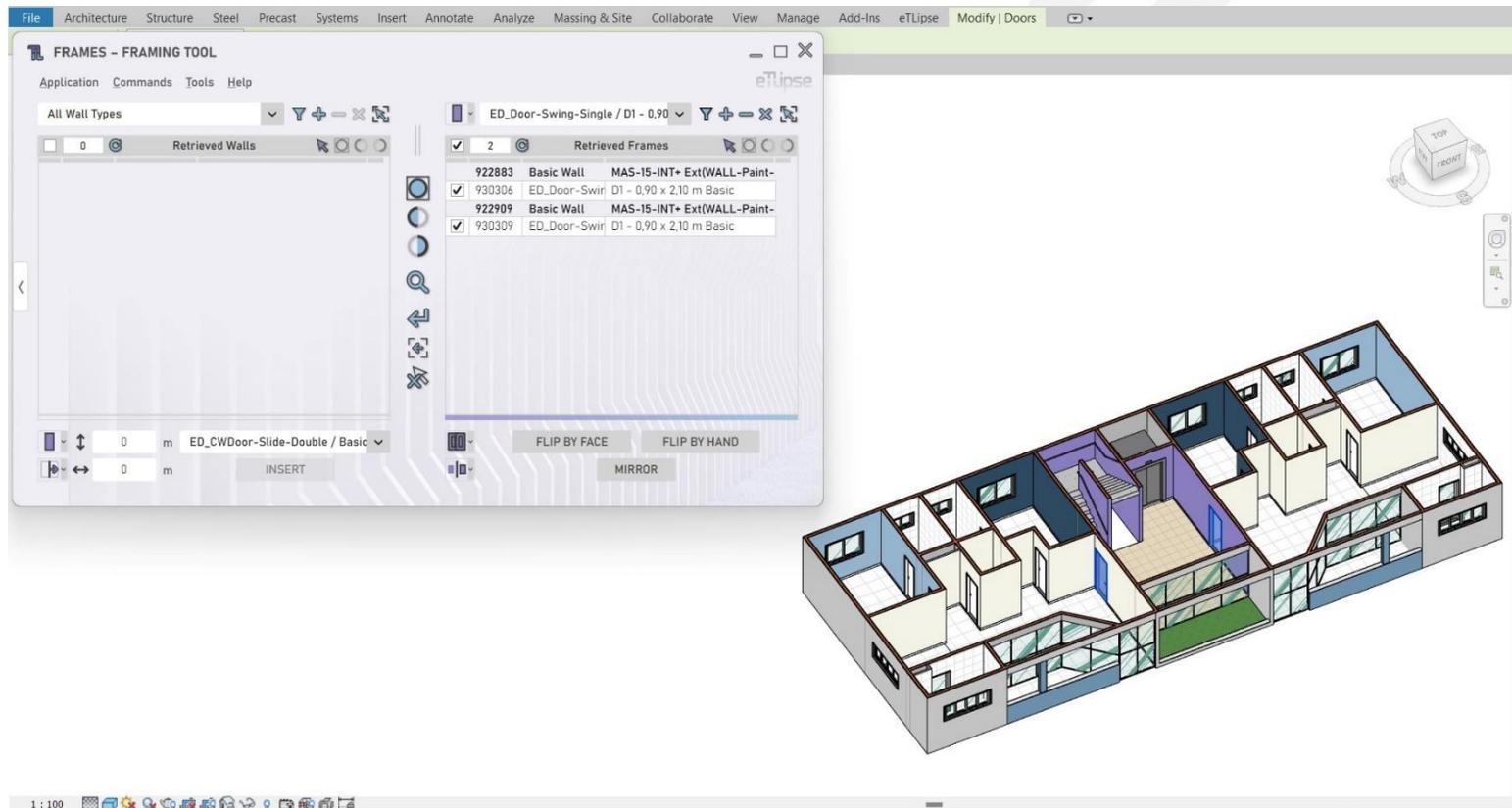
FRAMES RETRIEVAL

The tools that we have right above the list on the right-hand side (Frames Retrieval List) of the TL Frames interface will help us to retrieve and list elements of the Doors (if the Doors Frame Mode is enabled) or Windows (if the Windows Frame Mode is enabled) category. The retrieved frame elements can be used for the frame operations of moving, flipping, mirroring, sill insertion and floor mergence, as we are going to explain in other topics of this guide.

Retrieving Frames by Type

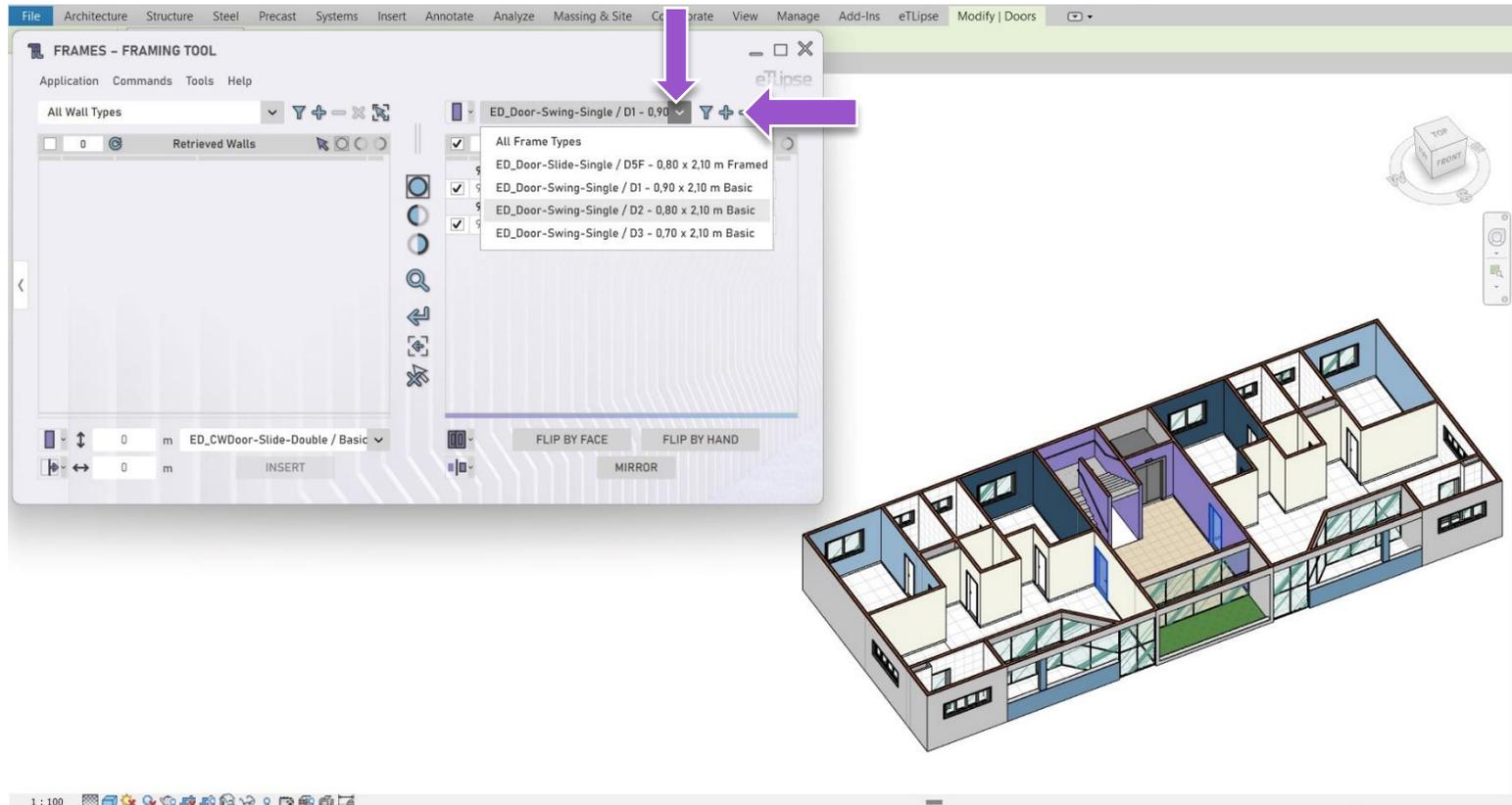


Above the Frames Retrieval List there is a dropdown box with all the frame types that have instances in the active Revit project. In the first image, we are choosing the "D1" door type, for example. After the selection of the type, we can click the **Retrieve Frames** button (the one presented as a filter, as indicated in the first image) to fill the respective list with all frames of the selected type found in the project (if the list already presents elements, these will be overridden), grouped by their host walls.

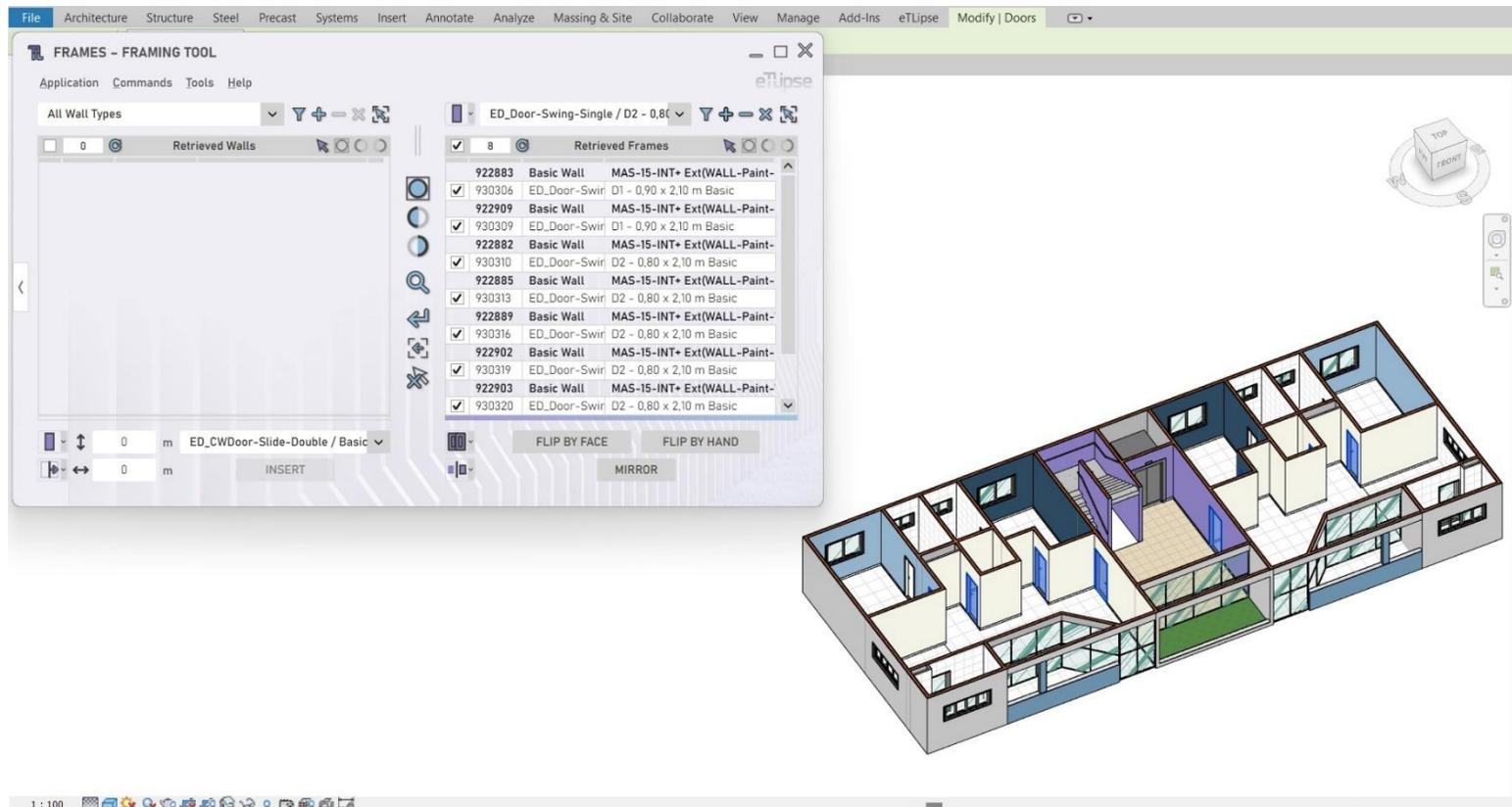


In the second image we can see the result in our example project: the Frames Retrieval List is filled with the 2 instances of the selected door type present in the project (and highlighted in the Revit view once they are all checked in the list). Note that the frames on the list are grouped by their host walls.

Adding Frames of specific Type to the List

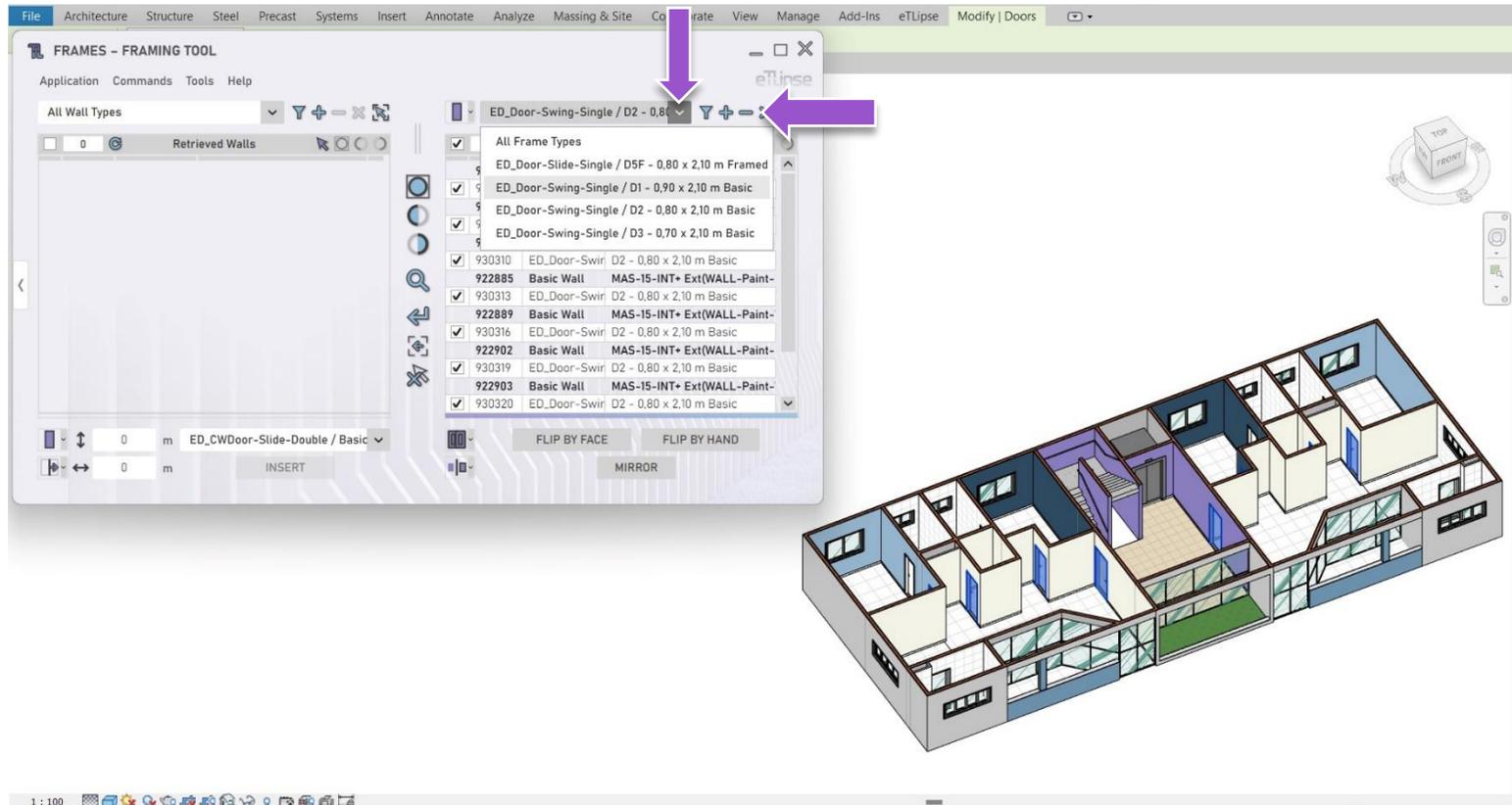


On the dropdown box above the Frames Retrieval List, we will select another specific frame type now. In the first image, we are choosing the “D2” door type, for example. After the selection of the type, we can click the **Add Frames** button (the one presented as a plus sign, as indicated in the first image) to add the frame elements of the chosen type to the list (in addition to any elements already listed), grouped by their host walls.

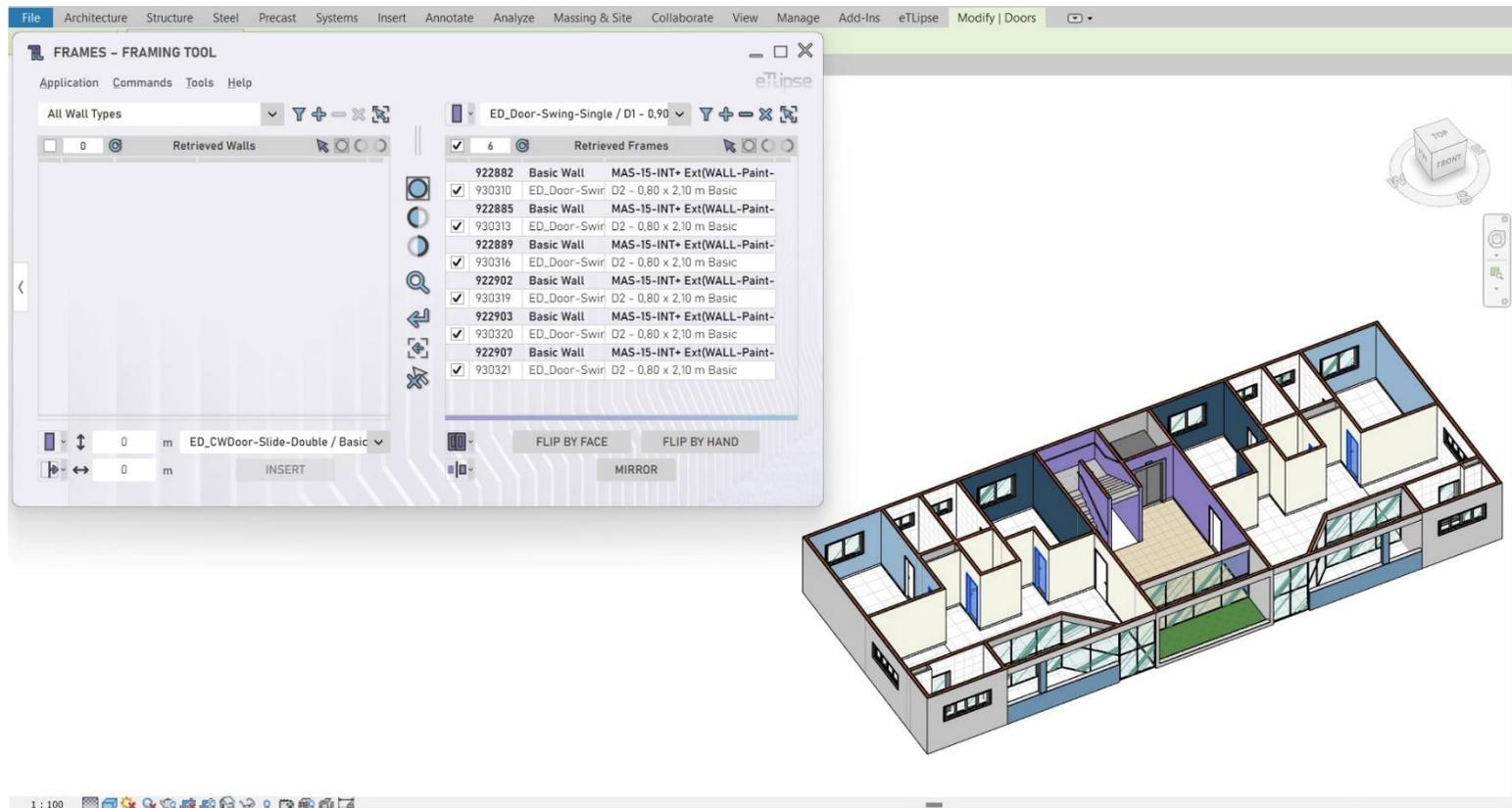


In the second image we can see the result in our example: 6 doors of the selected type were added to the 2 doors that were already listed, resulting in a list with 8 doors in total.

Removing Frames of specific Type from the List

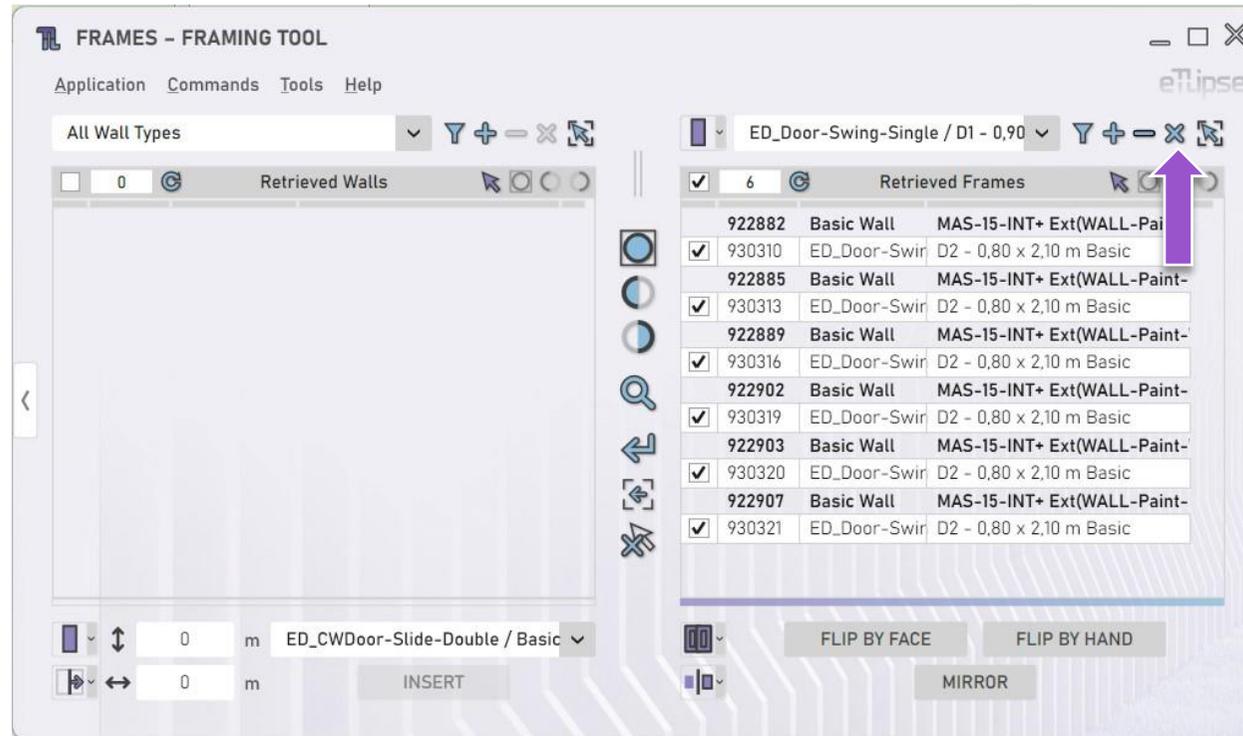


To remove all frames of a specific type from the list, first we select the type in the dropdown box and then we can click the **Remove Frames** button (the one presented as a minus sign, as indicated in the first image).



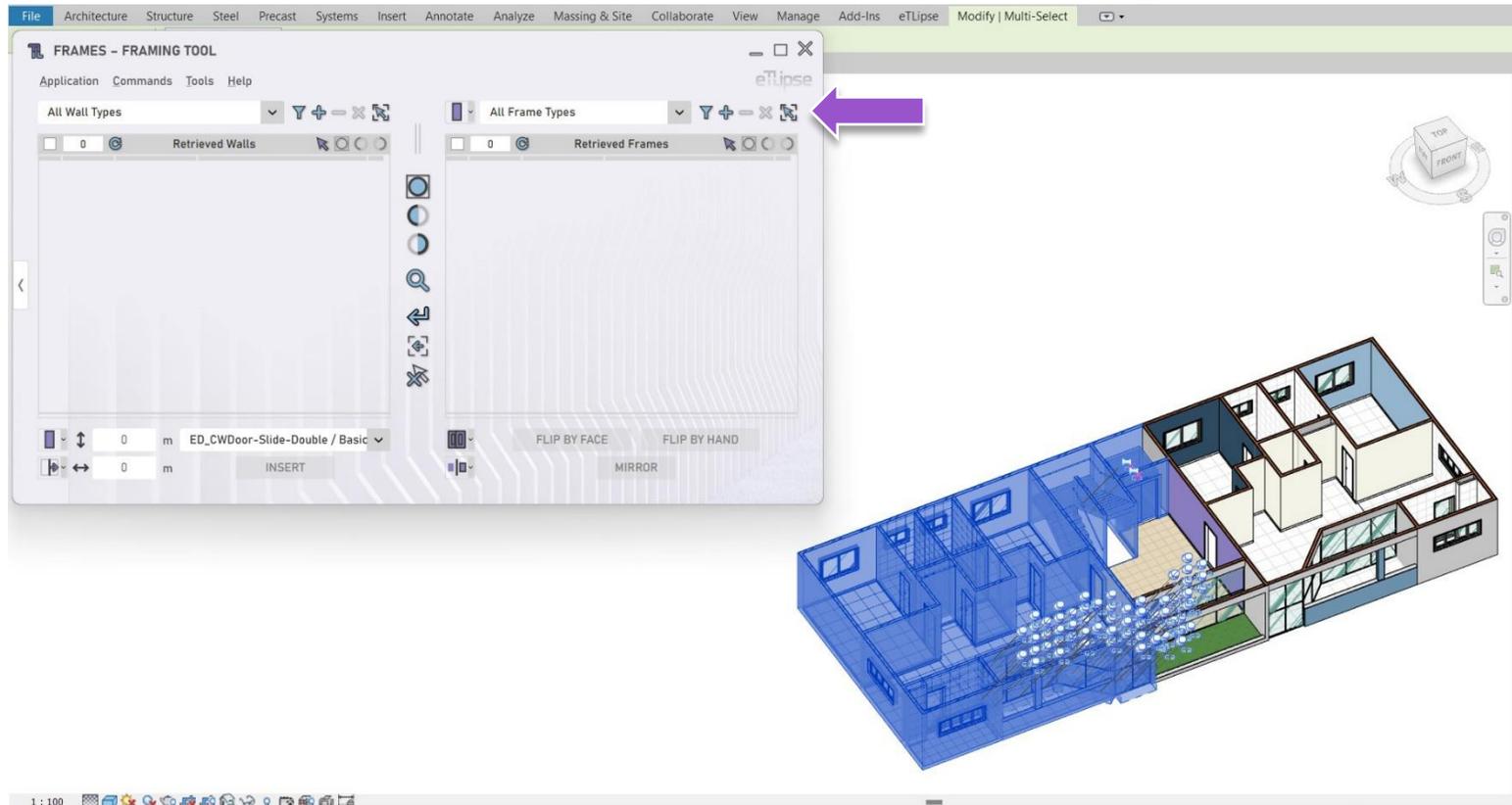
In the second image we specifically removed the doors of the "D1" type, that we had previously retrieved (as indicated in the first image).

Clearing the Frames Retrieval List

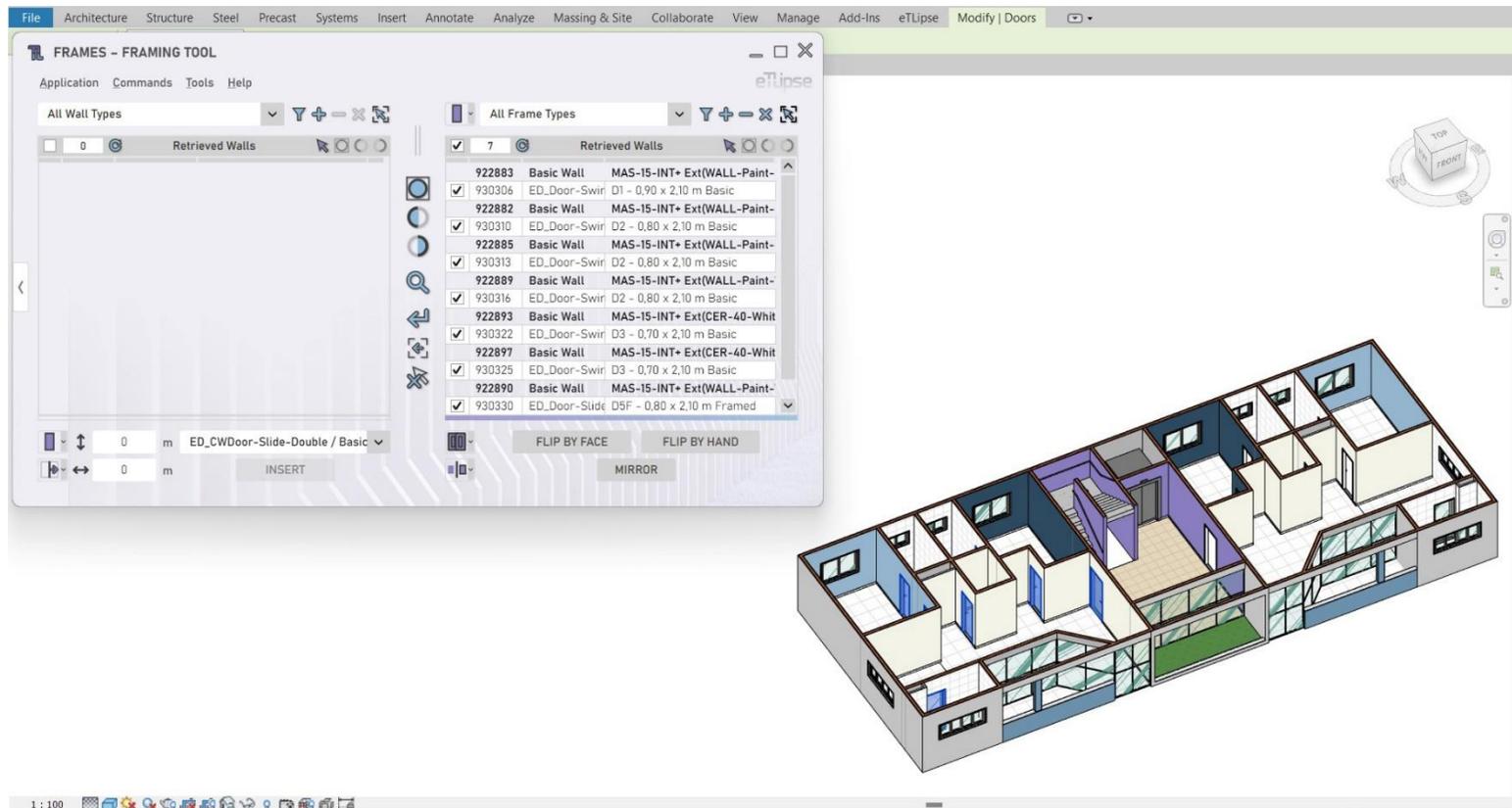


To clear all elements listed in the Frames Retrieval List, we must click the **Clear Retrieved Frames** button above the list (as indicated in the image).

Retrieving Already Selected Frames to the List



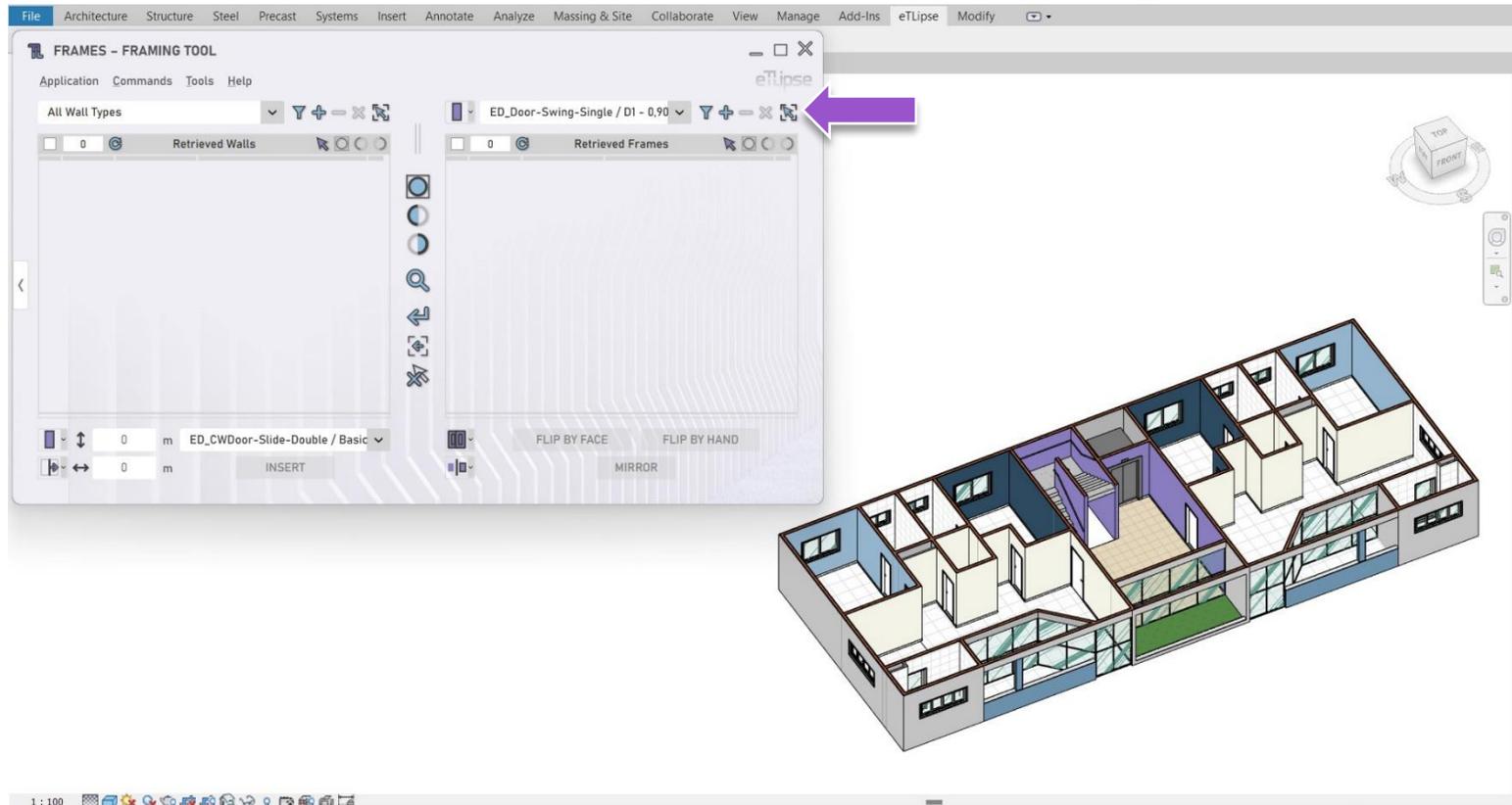
If the **Override List** option in the menu Application>On Sending Elements to Lists is enabled and we have already selected elements of the currently selected frame type in the Revit active view, we can list them on the Frames Retrieval List by clicking the **Retrieve Frames by Picking** button (the one presented as an arrow inside a selection square, as indicated in the first image).



In the second image we can see that, from all those elements that were already selected in the Revit active view (as seen in the first image), 7 of them present a door type (Doors Frame Mode is enabled) and were automatically listed in the Frames Retrieval List.

Please, note that **only frames of the chosen type will be listed**. So, if you want to fill the list with frames of any type, make sure to set the dropdown box to the "All Frame Types" option.

Retrieving Frames by Picking

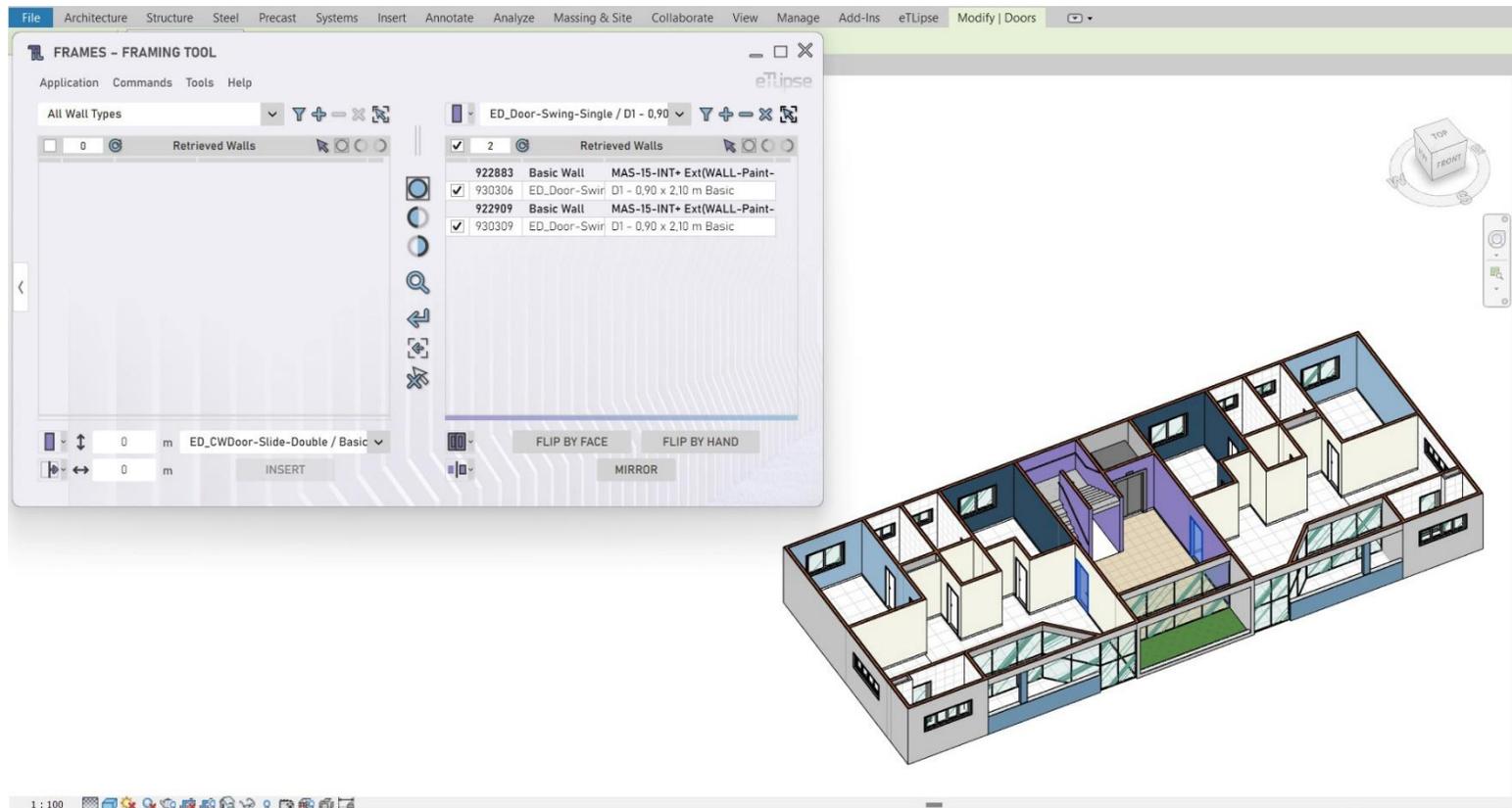


In order to manually pick elements in the Revit active view to fill the Frames Retrieval List, it is mandatory that no Frame element is currently selected or checked (as seen in the first image). We chose the "D1" door type to filter our retrieval.

Also, the **Override List** option in the menu Application>On Sending Elements to Lists must be enabled. Under this condition, by clicking the **Retrieve Frames by Picking** button (the one presented as an arrow inside a selection square, as indicated in the first image) the user is allowed to pick door elements (since the Doors Frame Mode is enabled) in the Revit active view.



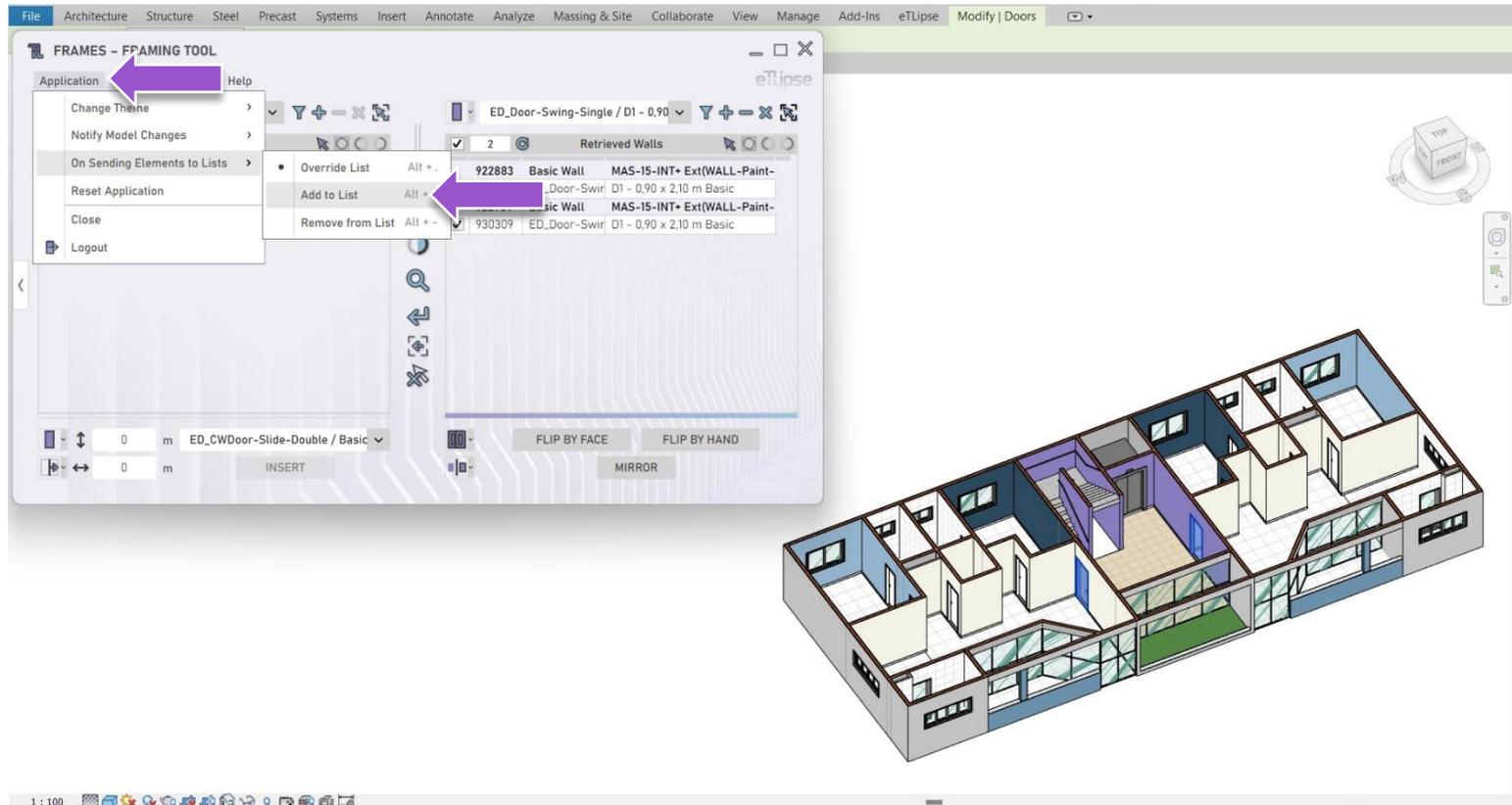
Once the selection is done, the **Finish** button can be clicked in the Revit interface (as seen in the second image) and the picked frame elements of the selected frame type will fill the Frames Retrieval List (if the list already presents elements, these will be overridden).



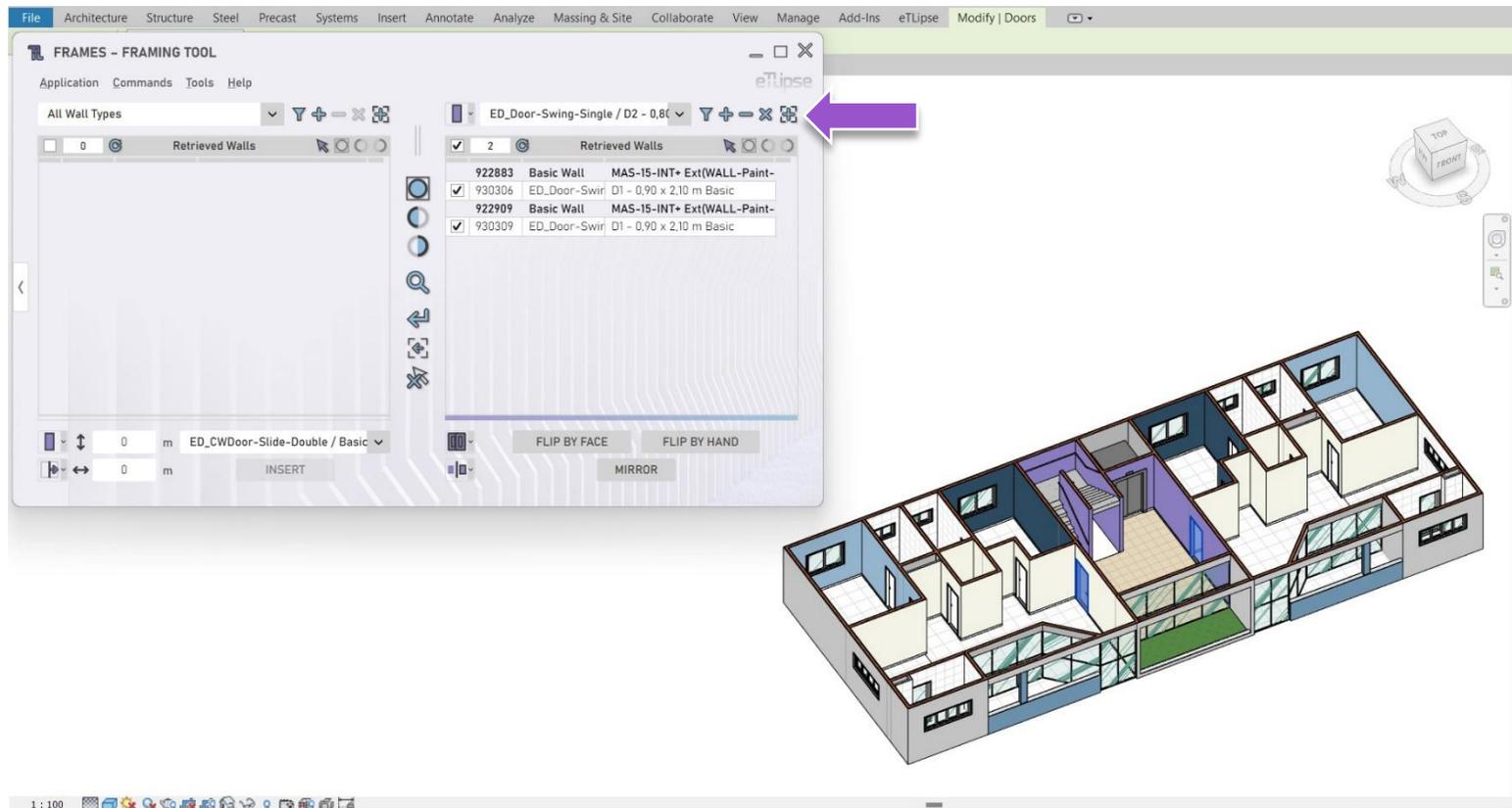
In the third image we can see that only the doors of the “D1” type were listed from the manual selection we made with doors of many other types as well.

Please, note that **only frames of the chosen type will be listed**. So, if you want to fill the list with frames of any type, make sure to set the dropdown box to the “All Frame Types” option.

Adding Frames to the List by Picking



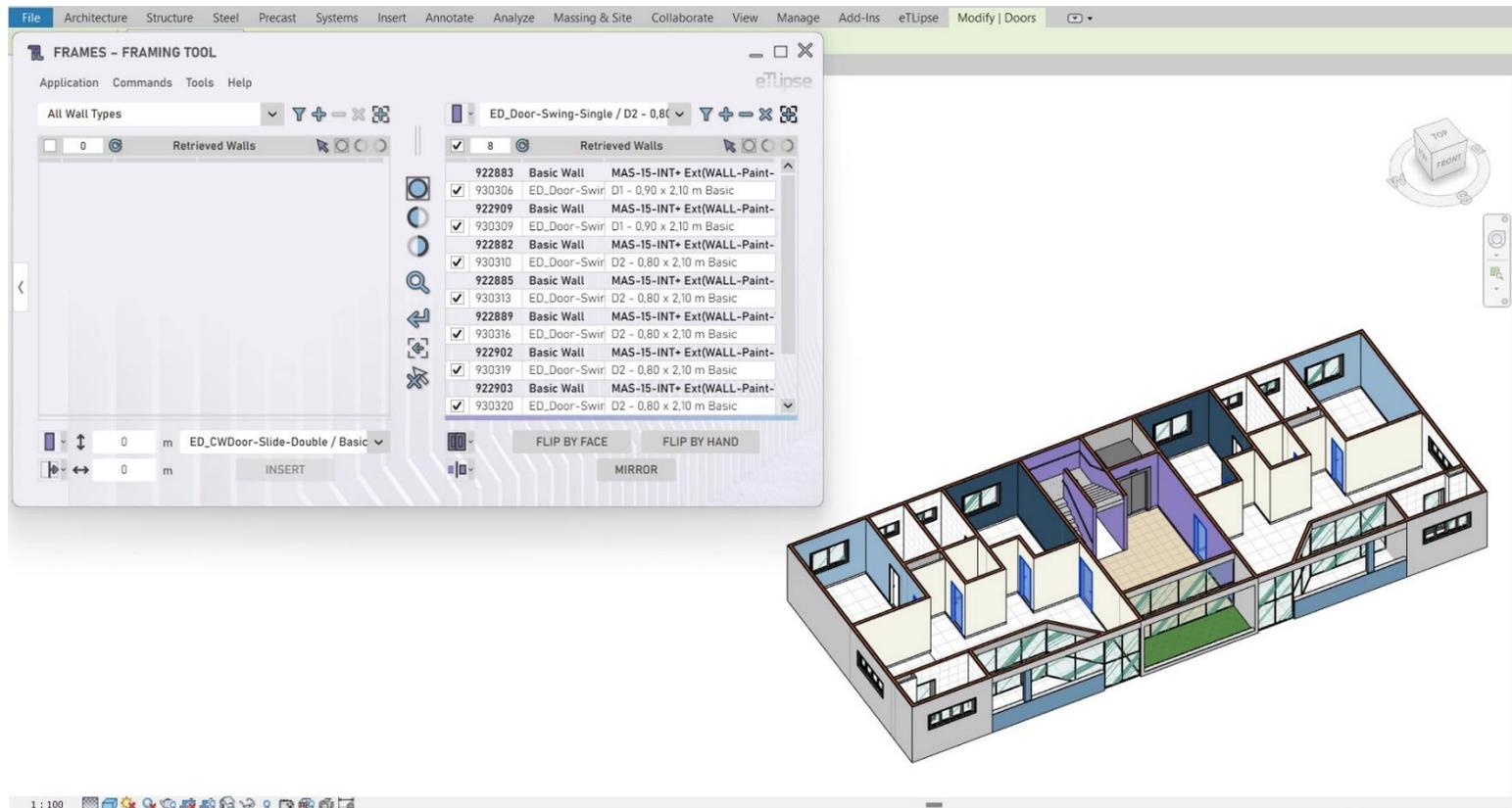
In order to add elements manually picked in the Revit active view to already listed elements in the Frames Retrieval List, we need to choose the **Add to List** option in the menu **Application > On Sending Elements to Lists** (as seen in the first image).



Also, we chose the "D2" door type to filter our retrieval. Under this condition, by clicking the **Retrieve Frames by Picking** button (the one now presented as a plus sign inside a selection square, as indicated in the second image) the user is allowed to pick door elements (since the Doors Frame Mode is enabled) in the Revit active view.



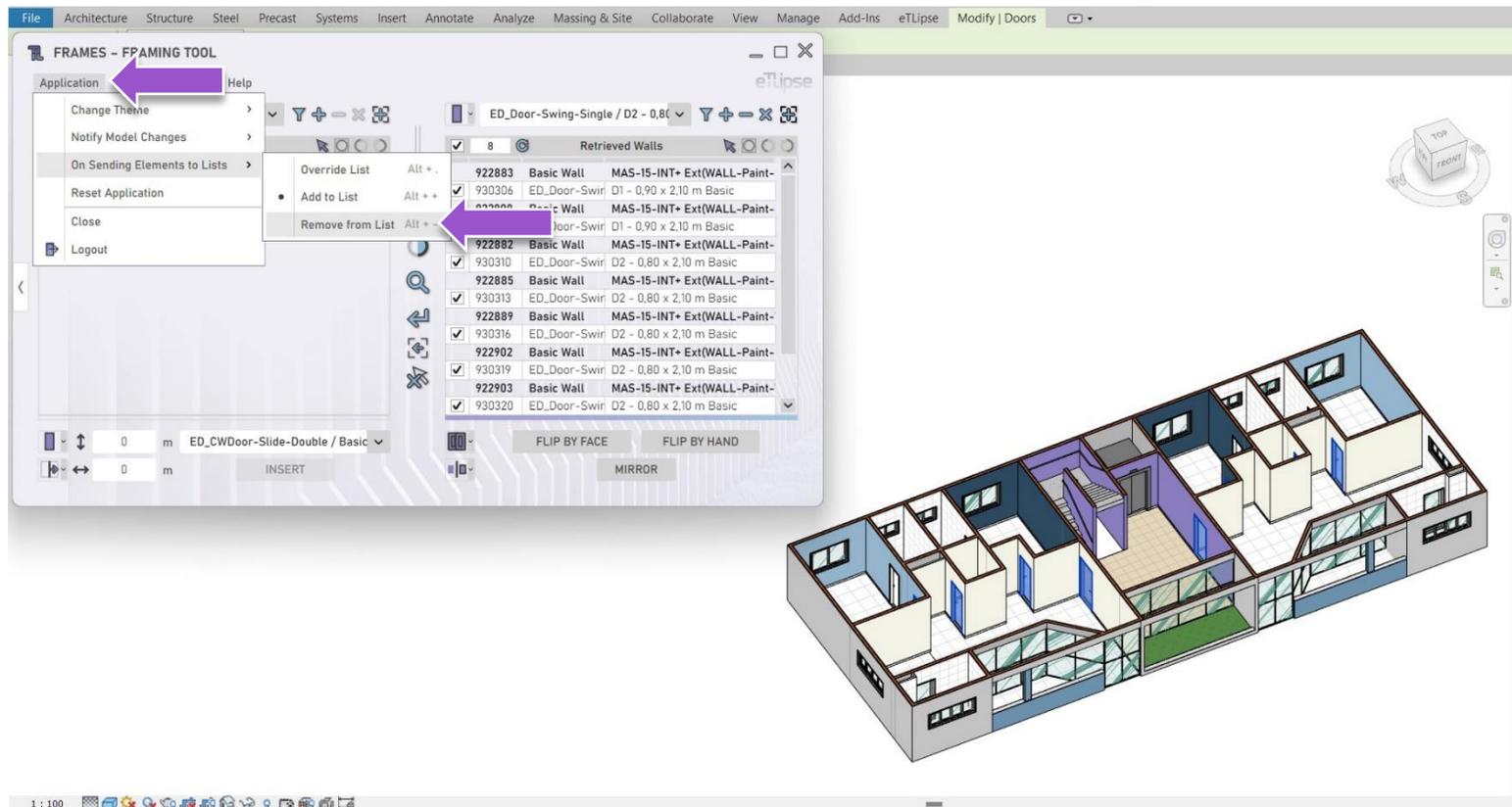
Once the selection is done, the **Finish** button can be clicked in the Revit interface (as seen in the third image) and the picked frame elements of the selected type will be added to the Frames Retrieval List (in addition to any elements already listed).



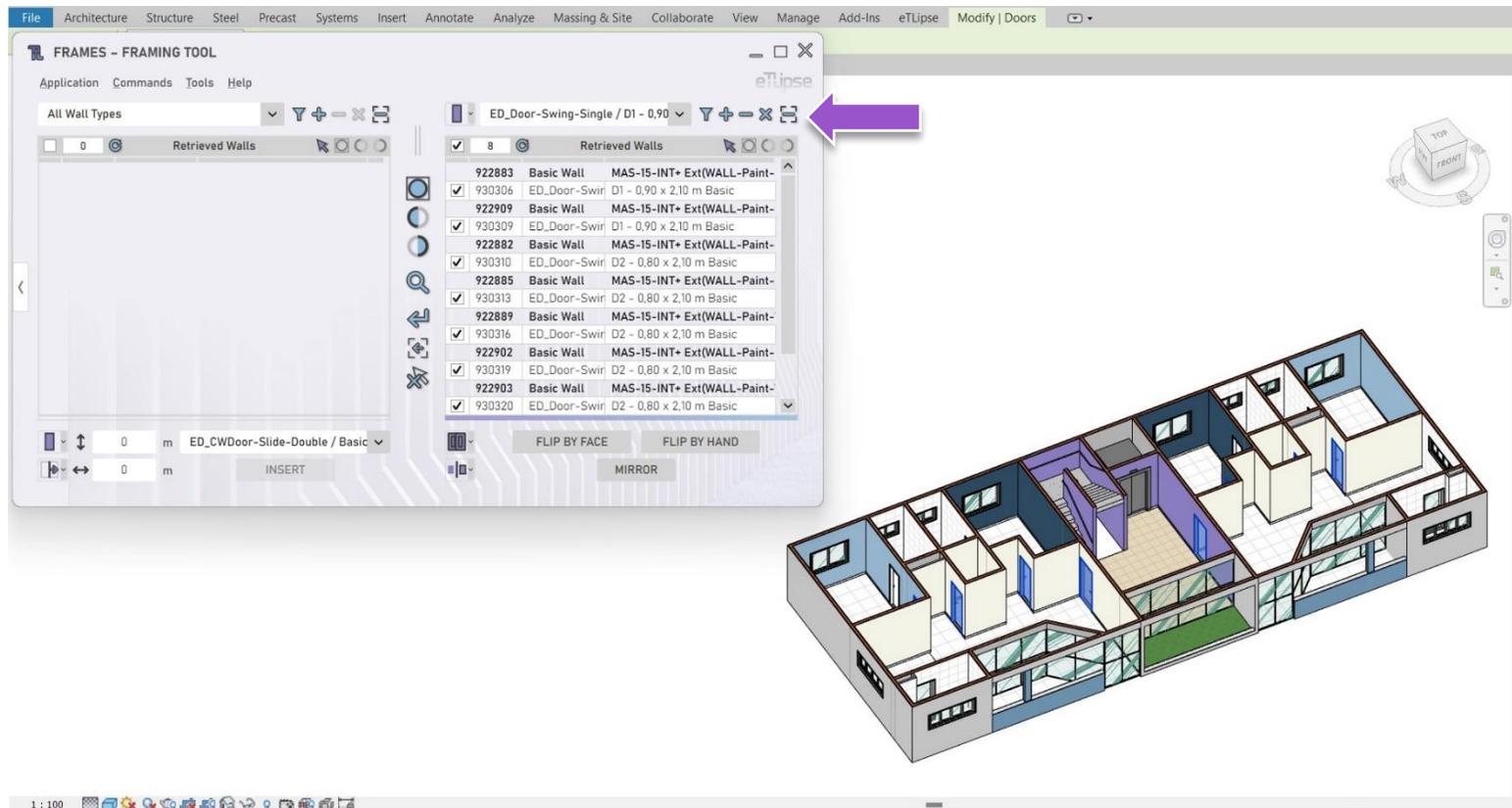
In the fourth image we can see that, from all those doors that were picked in Revit in the fourth image, 6 present the currently selected type and were added to the list that already had 2 retrieved doors from the last example (resulting in a total of 8 retrieved doors).

Please, note that **only frames of the chosen type will be added to the list**. So, if you want to add frames of any type, make sure to set the dropdown box to the "All Frame Types" option.

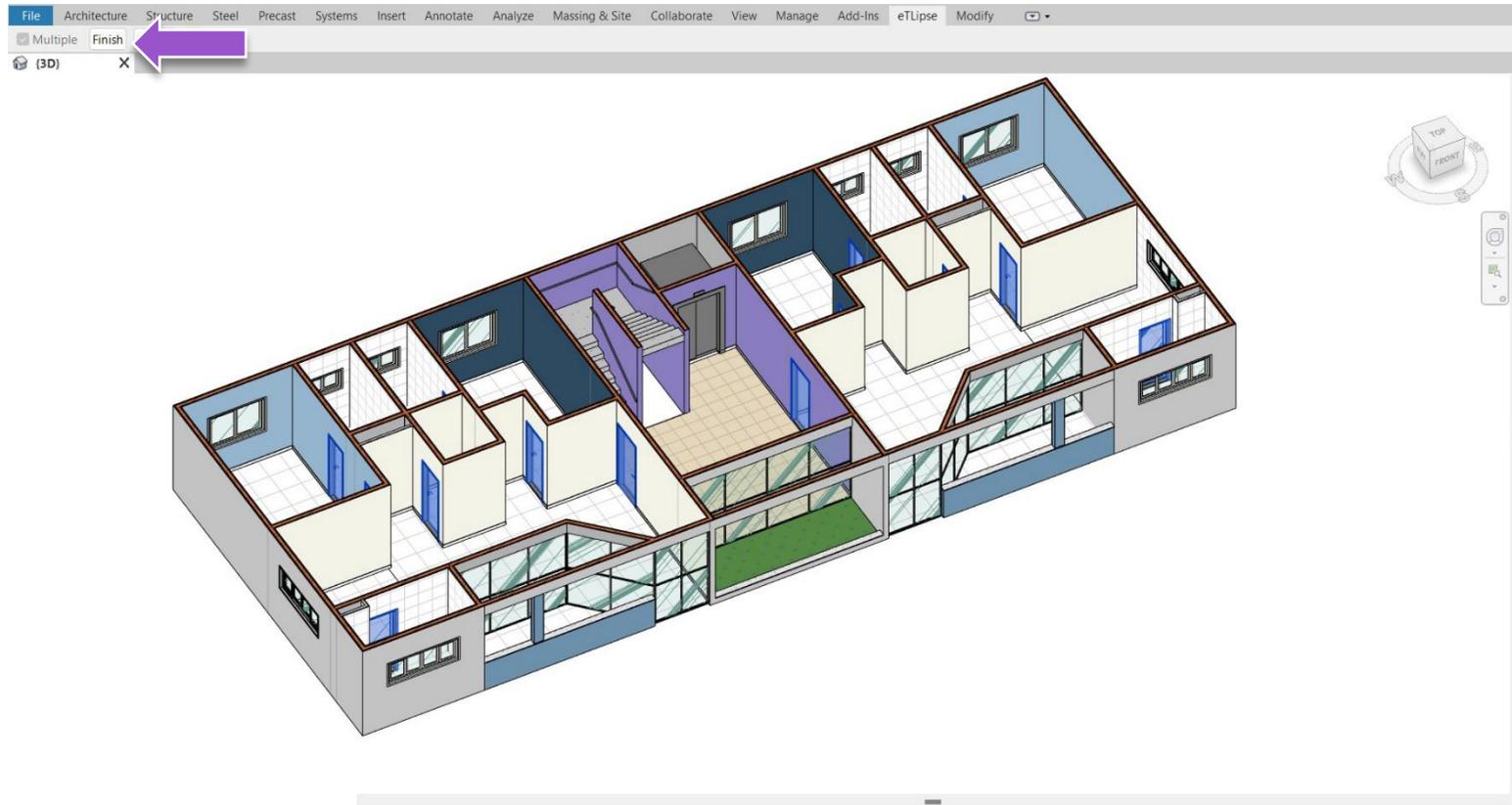
Removing Frames from the List by Picking



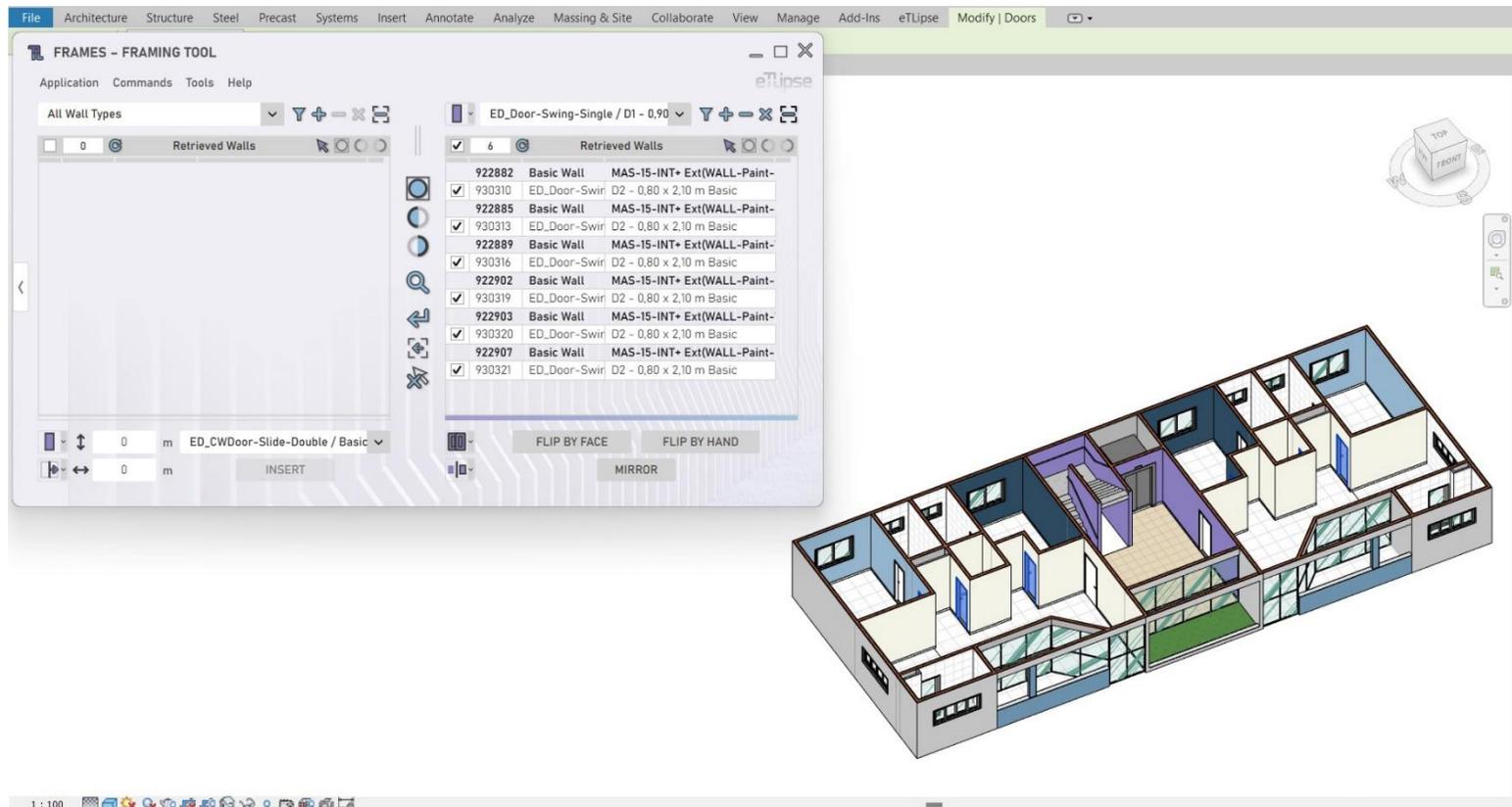
In order to remove elements manually picked in the Revit active view from the Frames Retrieval List (if they are listed), we need to choose the **Remove from List** option in the menu Application>**On Sending Elements to Lists** (as seen in the first image).



Also, we chose the "D1" door type to filter our retrieval. Under this condition, by clicking the **Retrieve Frames by Picking** button (the one now presented as a minus sign inside a selection square, as indicated in the second image) the user is allowed to pick door elements (since the Doors Frame Mode is enabled) in the Revit active view.



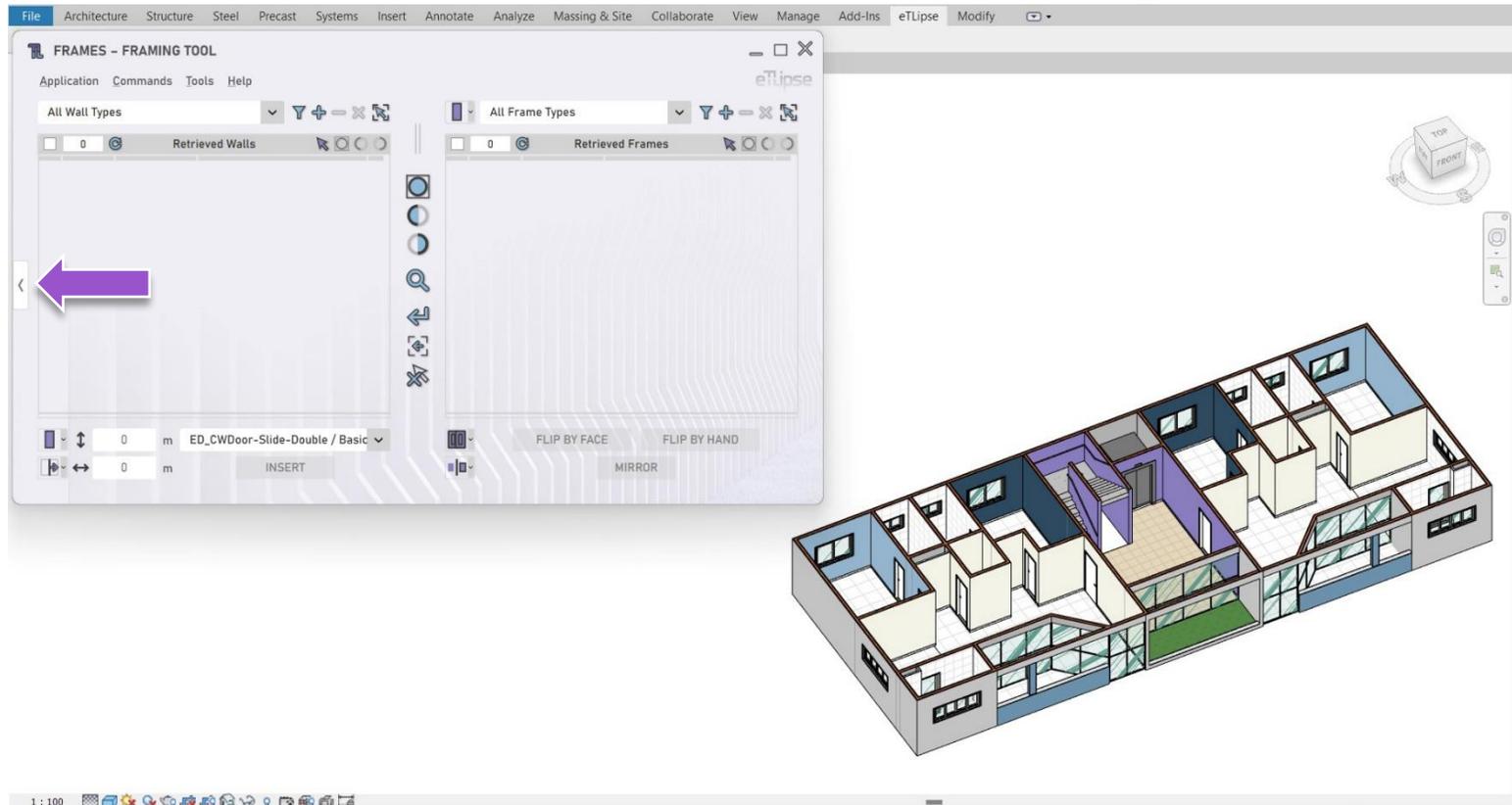
Once the selection is done, the **Finish** button can be clicked in the Revit interface (as seen in the third image) and the picked frame elements of the currently selected type that are already listed will be removed from the Frames Retrieval List.



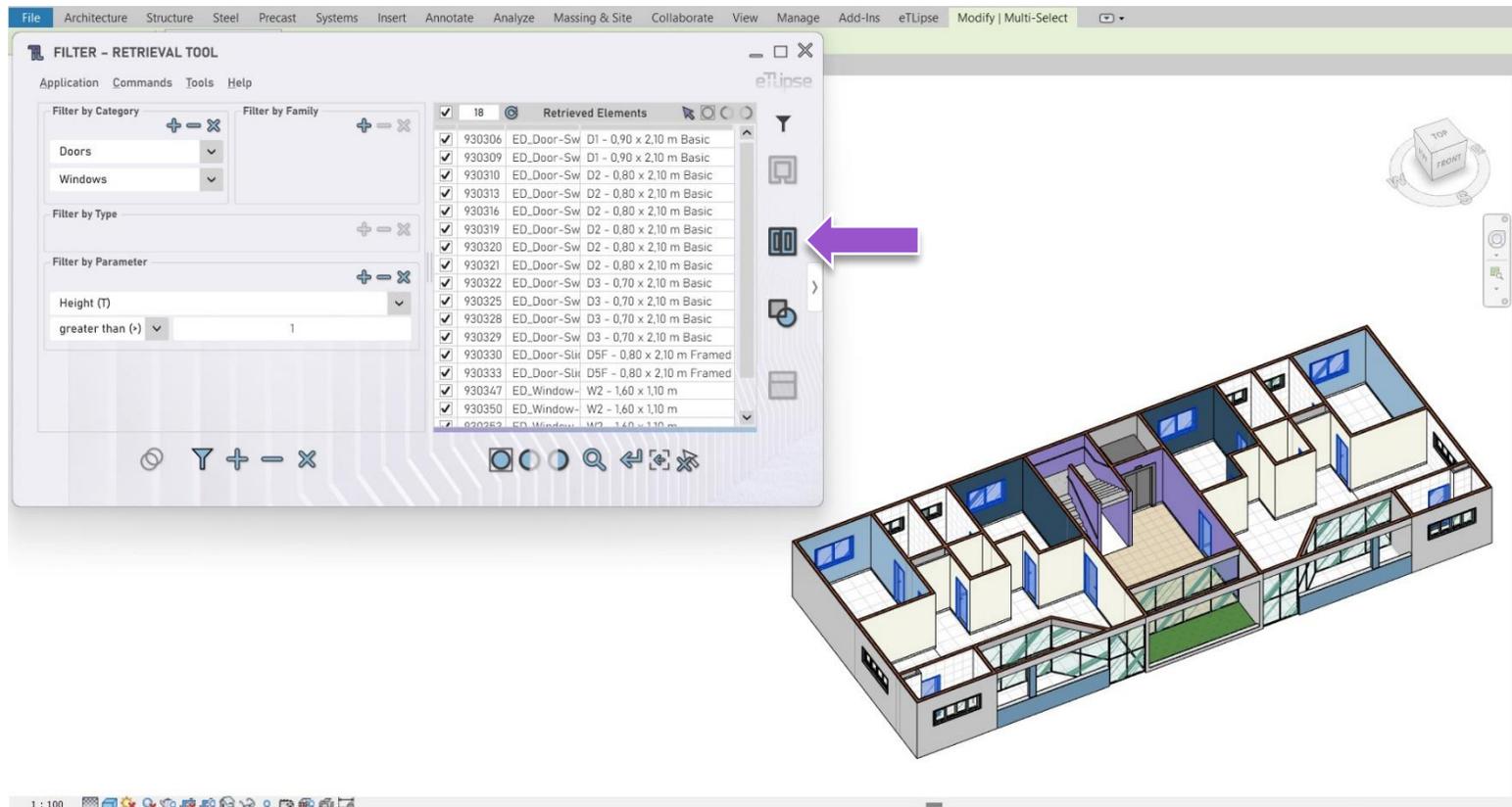
In the fourth image we can see that 2 of all those doors that were picked in the fourth image present the selected type and were among the initial 8 doors listed. Then, they were removed from the list (resulting in a total of 6 retrieved doors).

Please, note that **only frames of the chosen type will be removed from the list**. So, if you want to remove frames of any type, make sure to set the dropdown box to the "All Frame Types" option.

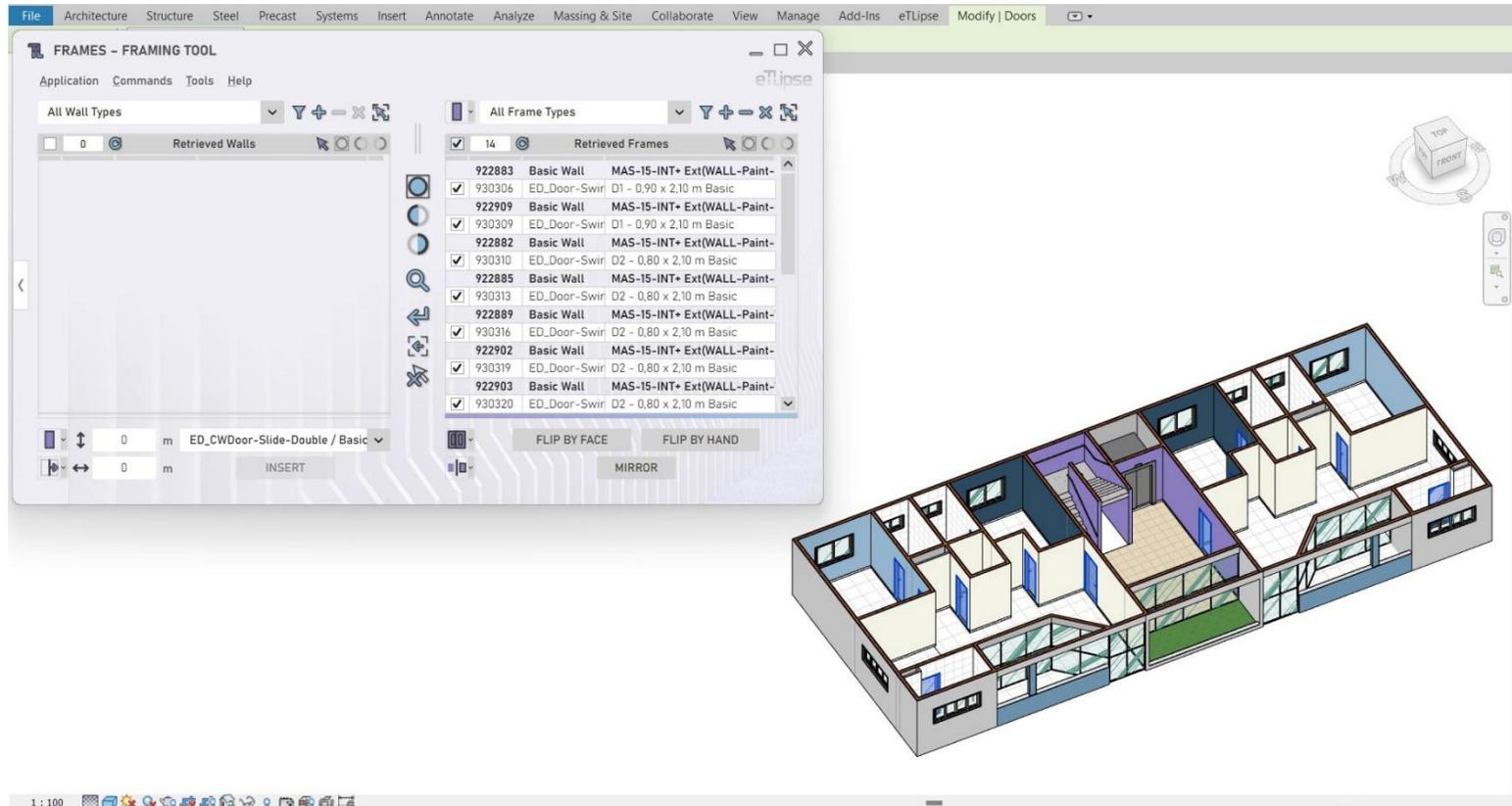
Filling the Frames Retrieval List using TL Filter



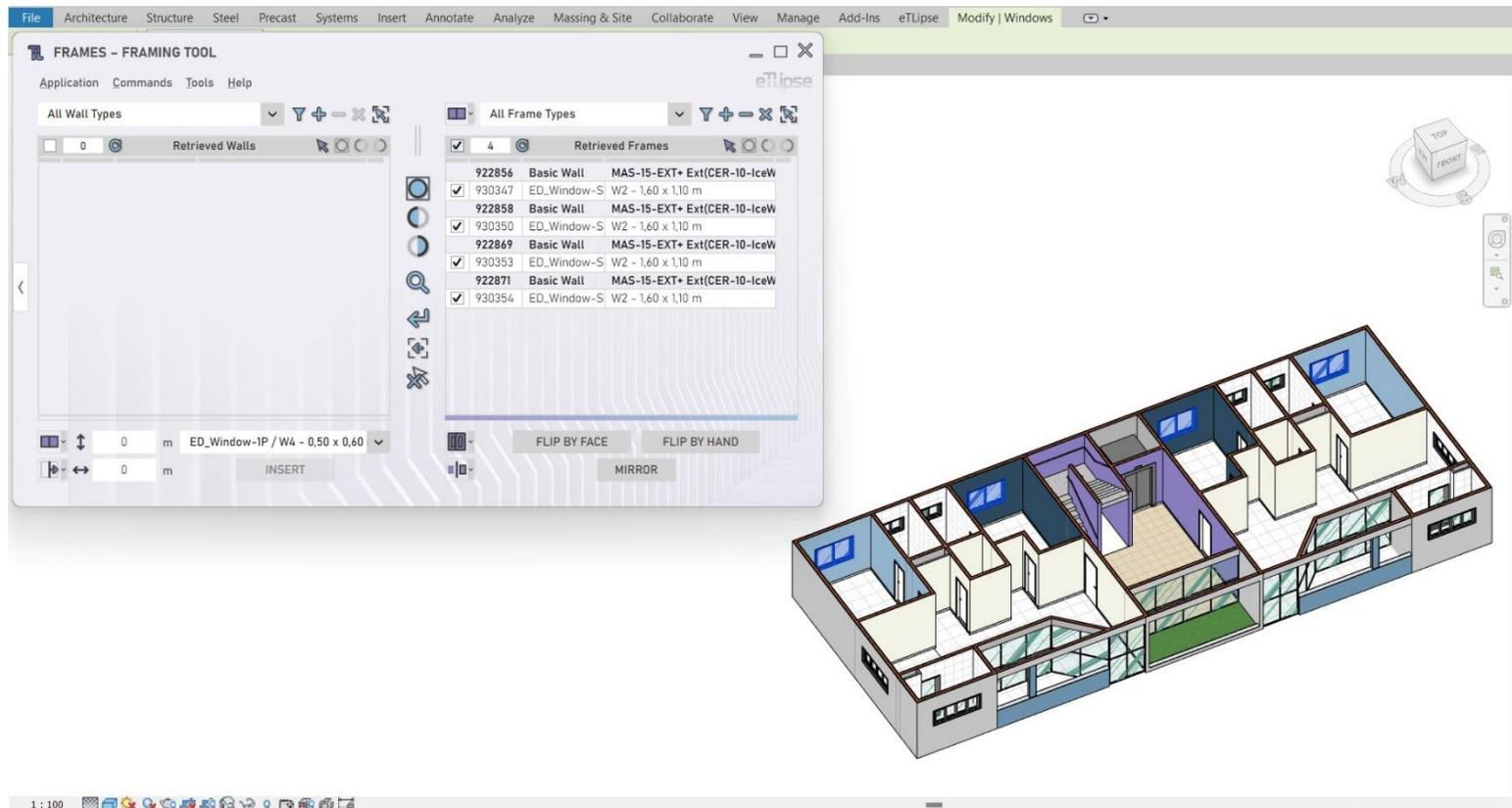
Whenever we want to use TL Filter to retrieve frames for the Frames Retrieval List (for more details on how to retrieve elements using TL Filter, please, refer to the **TL Elements: Filter - Retrieval Tool** guide), we can click the **Slide to TL Filter** button (the one presented as an arrow pointing to the left side, as indicated in the first image) to access the TL Filter command.



In the TL Filter interface, we must retrieve the collection of frame elements we want to send to the Frames Retrieval List in the TL Frames command. It is mandatory that the collection of elements retrieved in TL Filter contains at least one Door element, if the Doors Frame Mode is enabled, or one Window element, if the Windows Frame Mode is enabled, (any other element of a different category will be ignored by the destination list). In the example shown in the second image, we filtered all frame elements (Doors and Windows) with the value for the "Height" parameter greater than 1.00 m in the TL Filter interface. Also, the **Override List** option in the menu Application>On Sending Elements to Lists must be enabled. Under this condition, by clicking the **Send Elements to TL Frames** button (the one with the TL Frames icon, as indicated in the second image) we send the frame elements in the list to the Frames Retrieval List in TL Frames, but only the elements of the currently enabled category (Doors, by Doors Frame Mode, or Windows, by Windows Frame Mode) will fill the list.



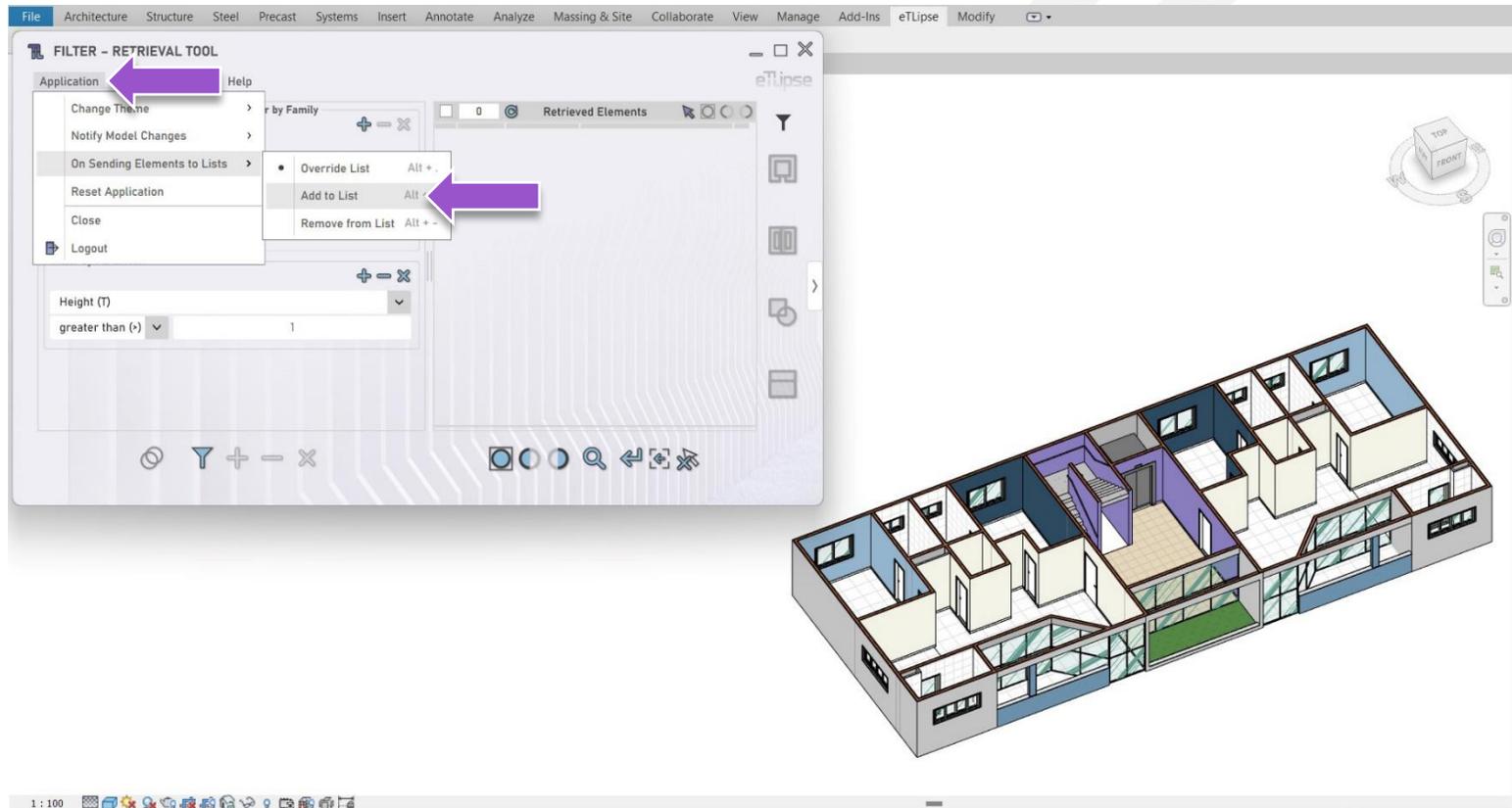
As seen in the third image, only the 14 Door elements among the 18 elements (doors and windows) sent by TL Filter are now filling the Frames Retrieval List in TL Frames (if the list already presented elements, these were overridden), since the Doors Frame Mode is enabled.



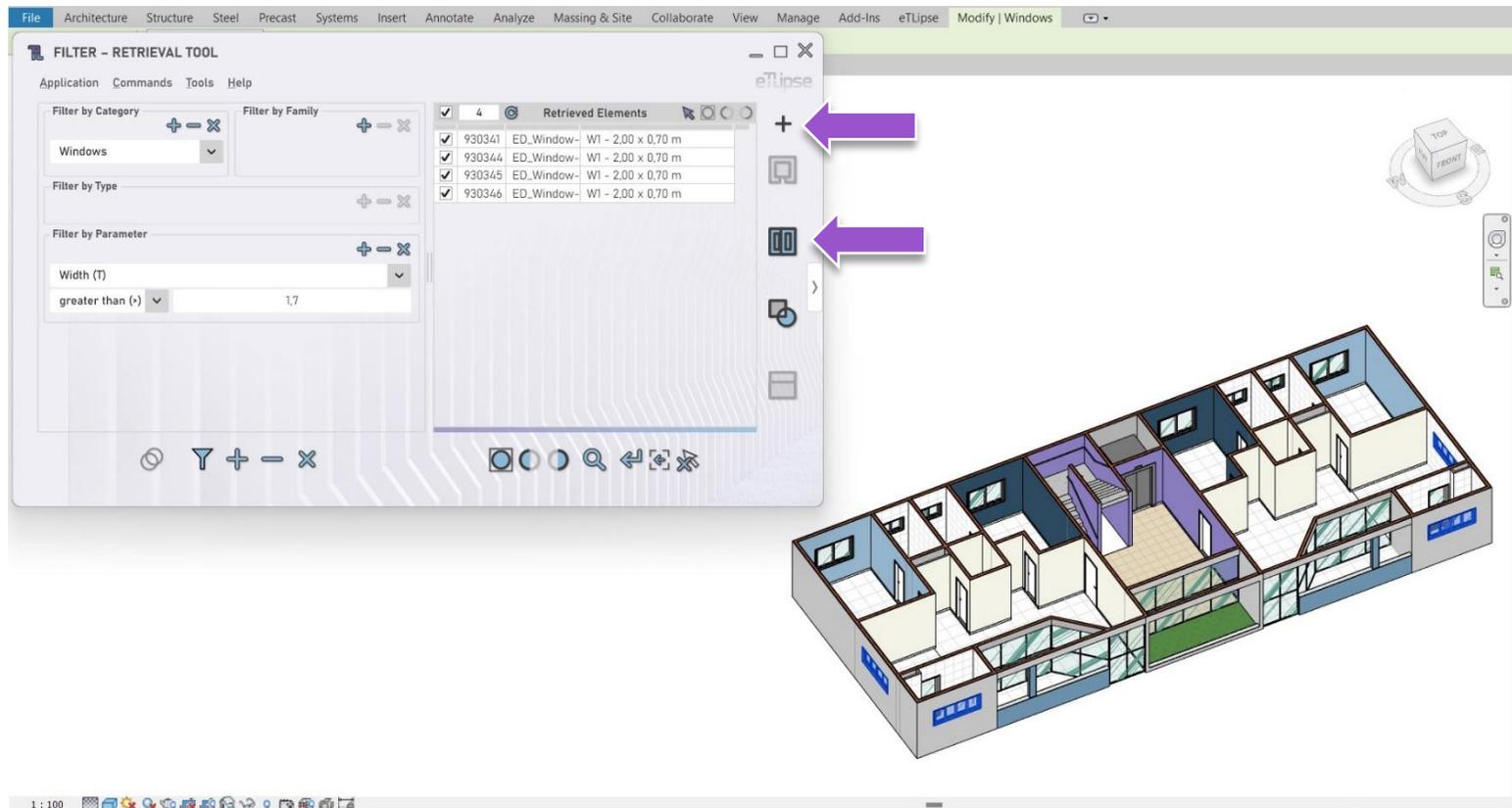
In the fourth image we can see the result if the Windows Frame Mode was enabled instead. Only the 4 Window elements among the 18 elements (doors and windows) sent by TL Filter are now filling the Frames Retrieval List in TL Frames.

Adding Frames to the Frames Retrieval List using TL Filter

We can as well use TL Filter to retrieve frames to add to the existing ones in the Frames Retrieval List (for more details on how to retrieve elements using TL Filter, please, refer to the **TL Elements: Filter - Retrieval Tool** topic).



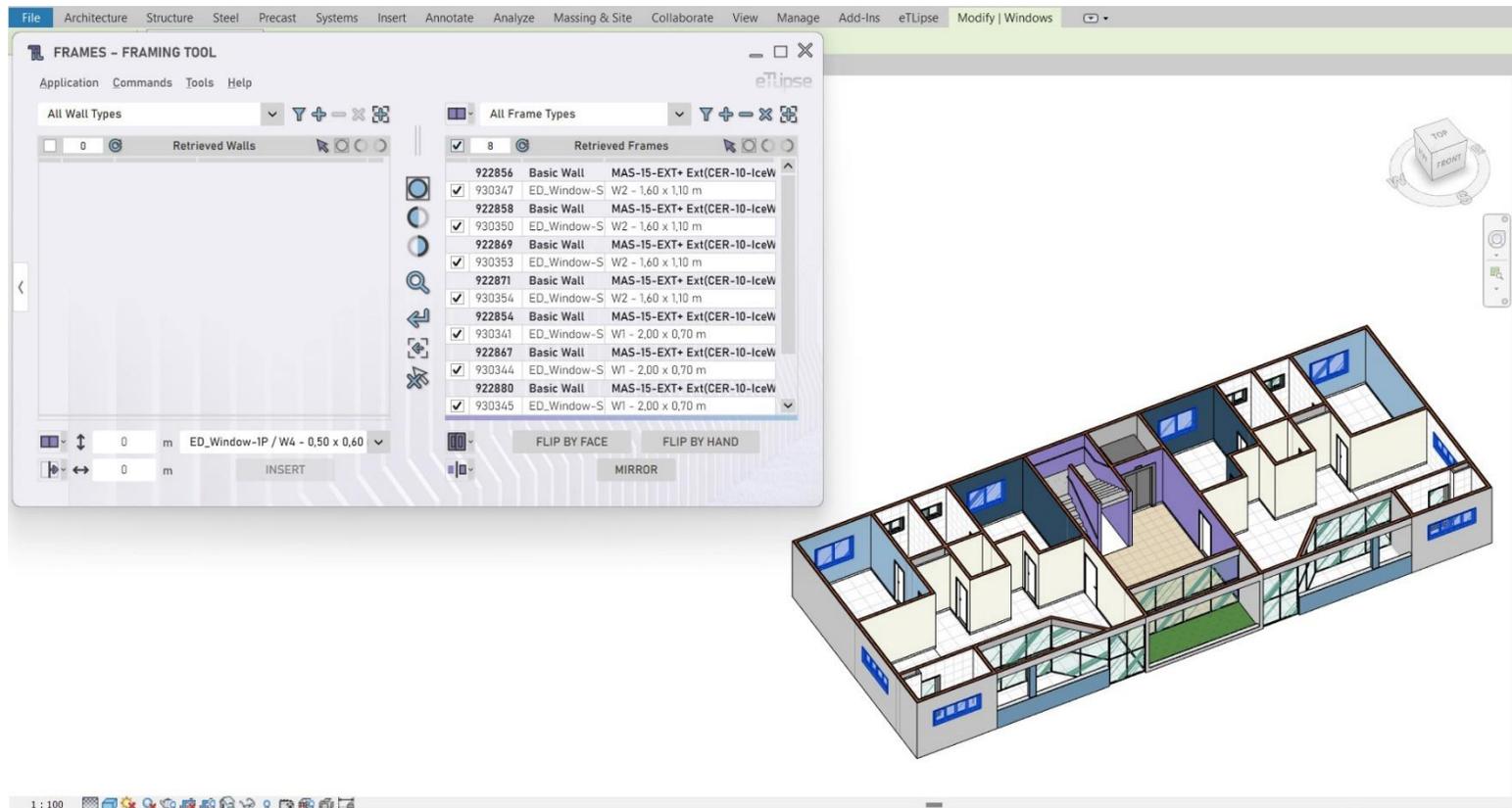
Back in the TL Filter interface, in order to perform the addition of the elements to the destination list, we need to choose the **Add to List** option in the menu Application>**On Sending Elements to Lists** (as seen in the first image).



The **Sending Mode** icon in the TL Filter interface should now present the “plus sign” (as seen in the second image).

We must also retrieve the collection of frame elements we want to add to the Frames Retrieval List in the TL Frames command. It is mandatory that the collection of elements retrieved in TL Filter contains at least one Door element, if the Doors Frame Mode is enabled, or one Window element, if the Windows Frame Mode is enabled, (any other element of a different category will be ignored by the destination list). In the example shown in the second image, we filtered all windows with the value for the “Width” parameter greater than 1.70 m in the TL Filter interface.

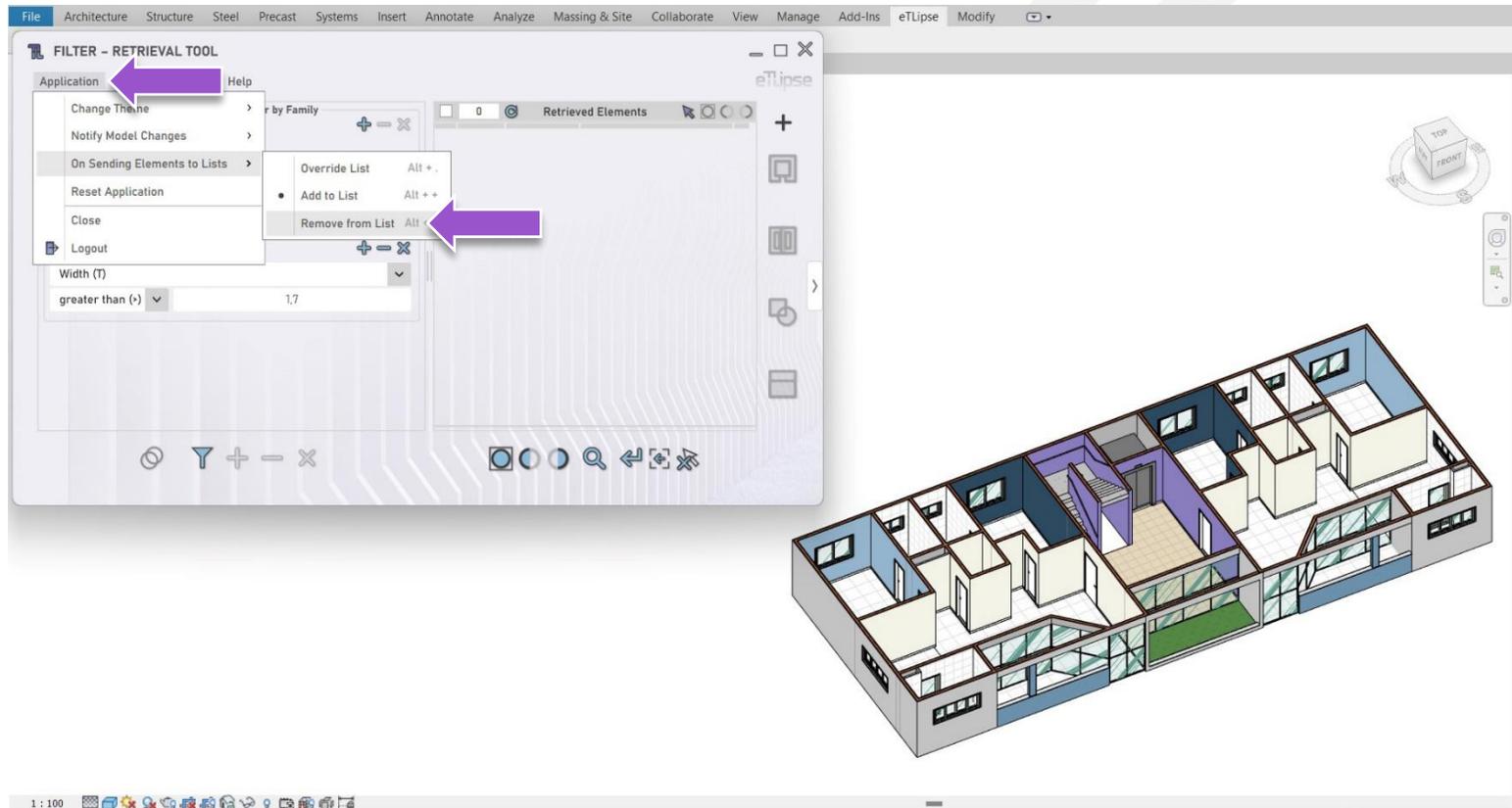
Under this setting, by clicking the **Send Elements to TL Frames** button (the one with the TL Frames icon, as indicated in the second image) we add the Window elements in the list to the ones already listed in the Walls Retrieval List in TL Frames.



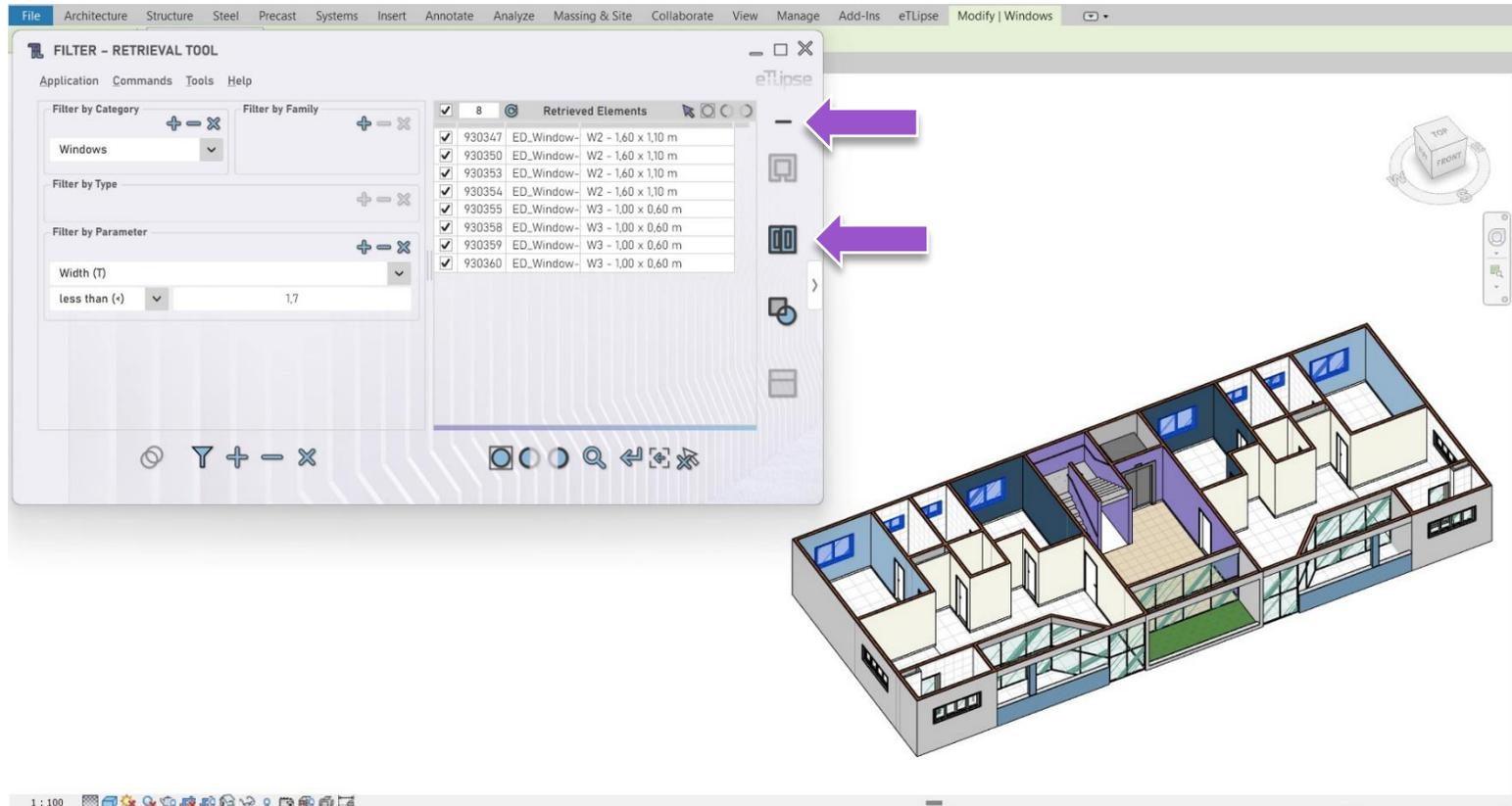
As seen in the third image, all windows sent by TL Filter are now added to the Frames Retrieval List in TL Frames (there were 4 windows in the list, now we have 8 with the 4 new ones that were retrieved in TL Filter).

Removing Frames from the Frames Retrieval List using TL Filter

We can as well use TL Filter to retrieve walls to remove from the Frames Retrieval List (for more details on how to retrieve elements using TL Filter, please, refer to the **TL Elements: Filter - Retrieval Tool** topic).



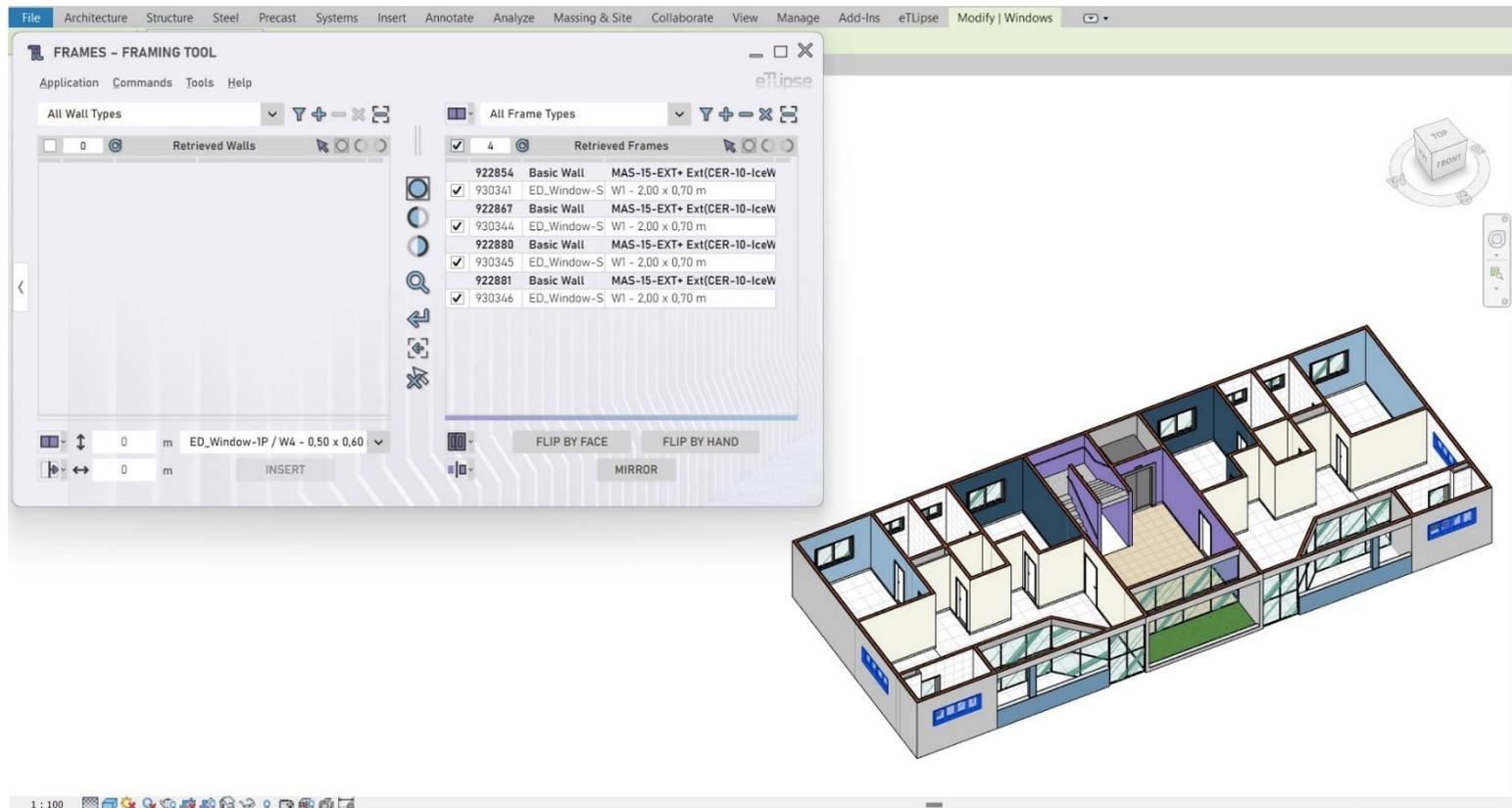
Back in the TL Filter interface, in order to perform the removal of the elements from the destination list, we need to choose the **Remove from List** option in the menu **Application>On Sending Elements to Lists** (as seen in the first image).



The **Sending Mode** icon in the TL Filter interface should now present the “minus sign” (as seen in the second image).

We must also retrieve the collection of frame elements we want to remove from the Frames Retrieval List in the TL Frames command. It is mandatory that the collection of elements retrieved in TL Filter contains at least one Door element, if the Doors Frame Mode is enabled, or one Window element, if the Windows Frame Mode is enabled, (any other element of a different category will be ignored by the destination list). In the example shown in the second image, we filtered all windows where the value for the “Width” parameter is less than 1.70 m in the TL Filter interface.

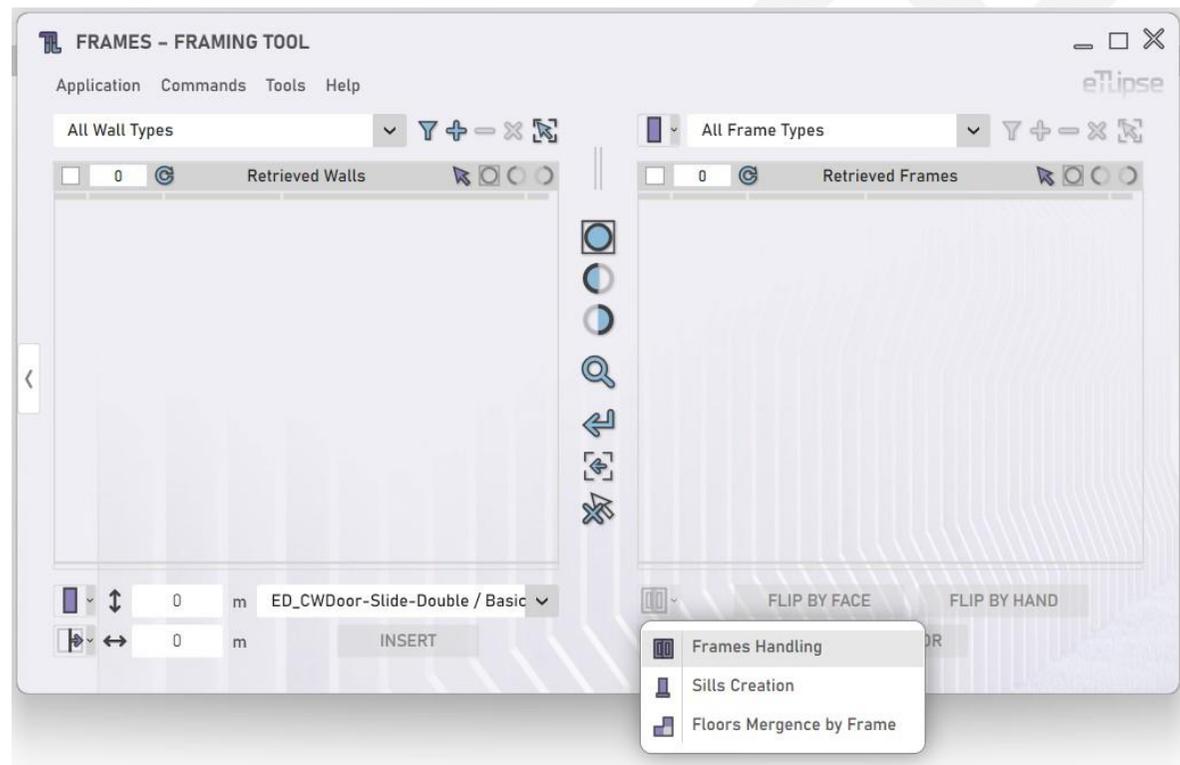
Under this setting, by clicking the **Send Elements to TL Frames** button (the one with the TL Frames icon, as indicated in the second image) we remove the Frame elements in the list from the Frames Retrieval List in TL Frames (in case they are present in the latter).



As seen in the third image, 4 of the 8 Window elements sent by TL Filter are now removed from the Frames Retrieval List in TL Frames (they were also listed in the destination list and therefore removed from it, leaving 4 listed windows in total from the original 8).

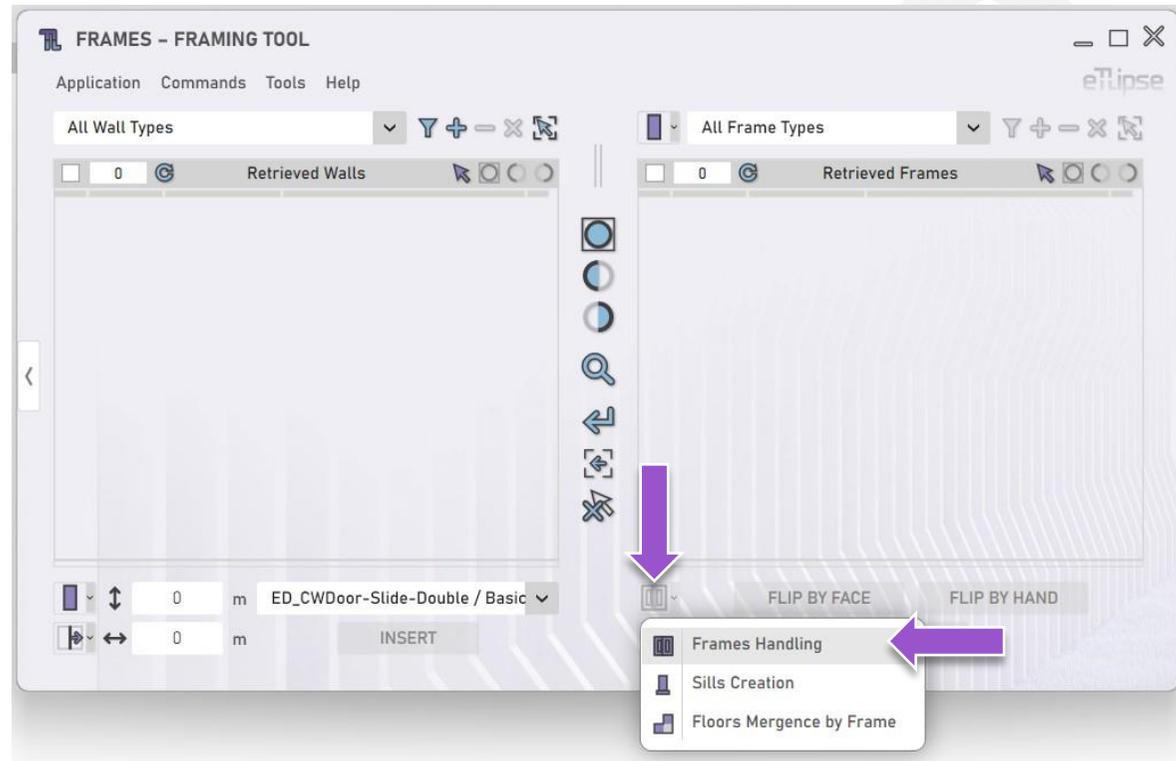
FRAMES GENERAL OPERATION MODES

As previously explained, we have tools that will help us to mirror, flip and move frame elements (doors, if the Doors Frame Mode is enabled, or windows, if the Windows Frame Mode is enabled), as well as insert sills and merge floors for each checked frame in the list. These tools can be found right below the list on the right-hand side (Frames Retrieval List) and can be enabled by selecting the respective option in the **Frames General Operation Modes** menu, opened by the button indicated in the image. These modes are: **Frames Handling** (which includes tools for flipping, moving and mirroring of frame elements), **Sills Creation** and **Floors Mergence by Frame**.



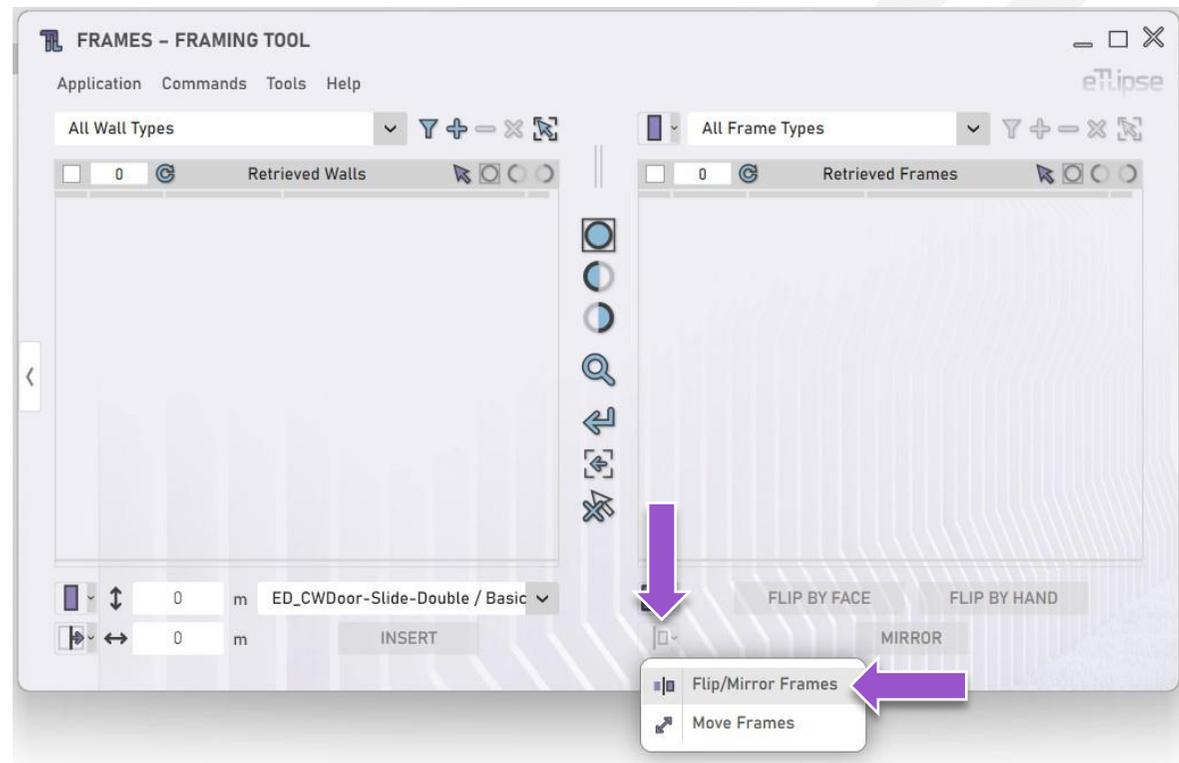
FRAMES GENERAL OPERATION MODE: FRAMES HANDLING

The **Frames Handling** mode includes tools for flipping, moving and mirroring of frame elements and can be selected as indicated in the image.



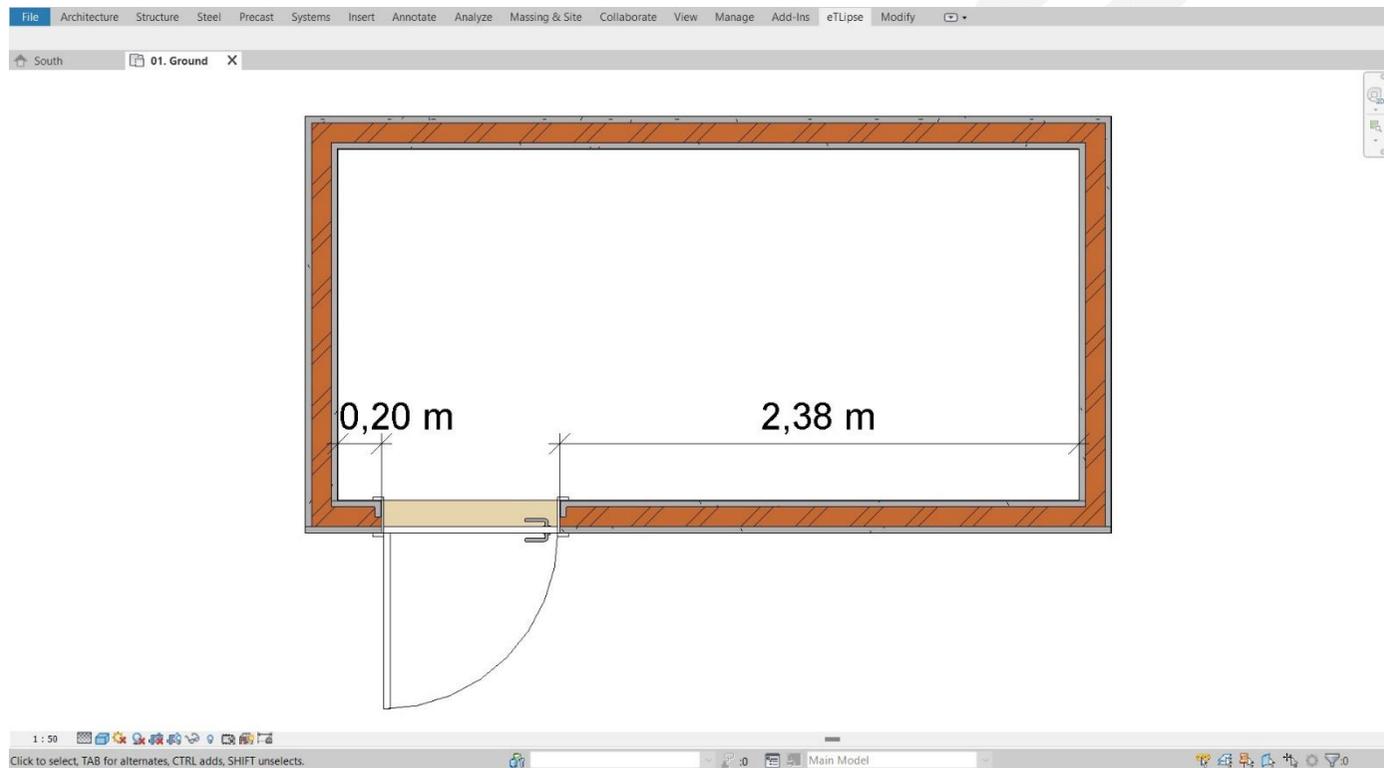
Frames Handling Mode: Flip/Mirror Frames

To enable the tools that allow us to flip or mirror frame elements checked in the Frames Retrieval List, we can select the respective option at the Frames Handling Mode menu, opened by the button indicated in the image.

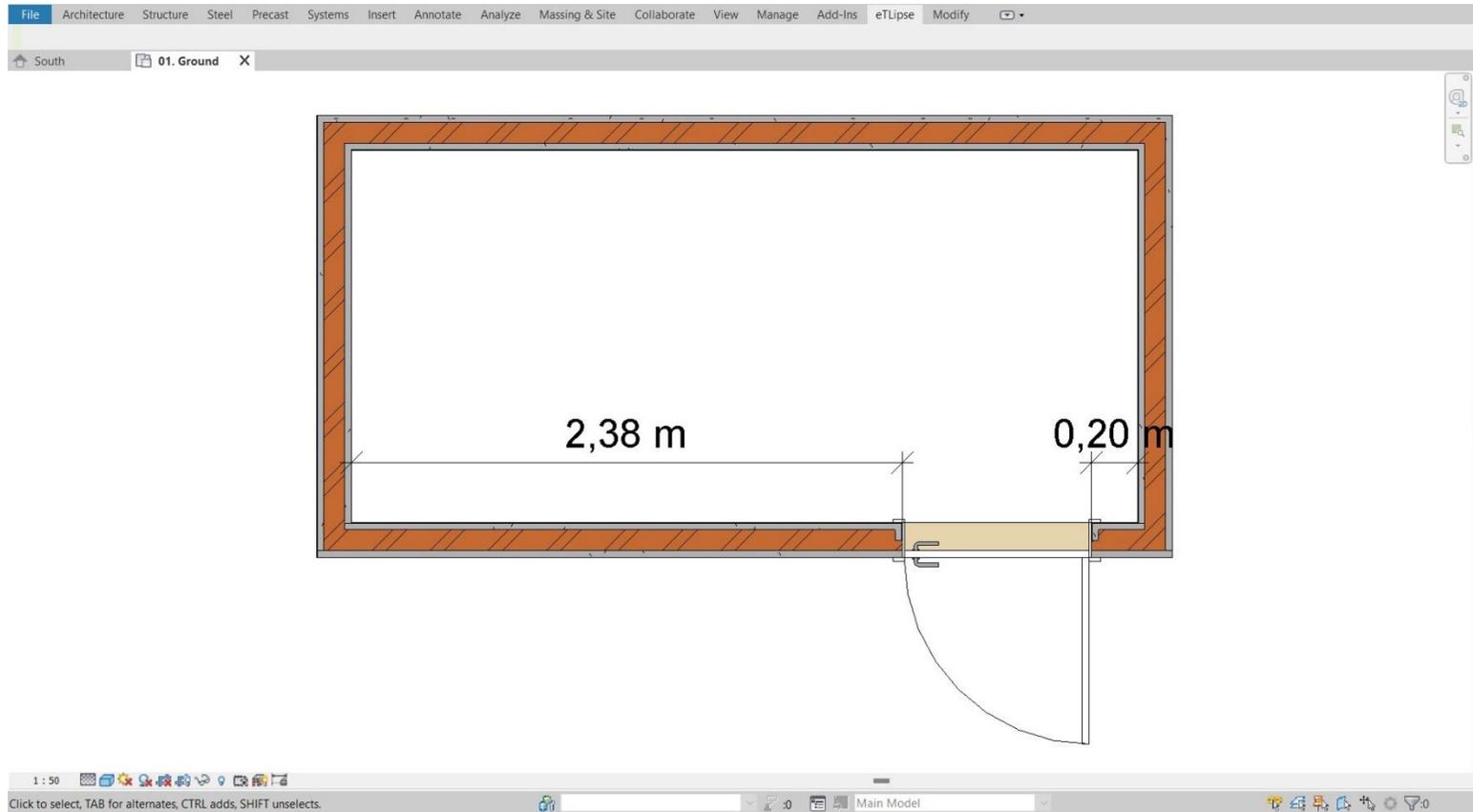


Mirror Frames

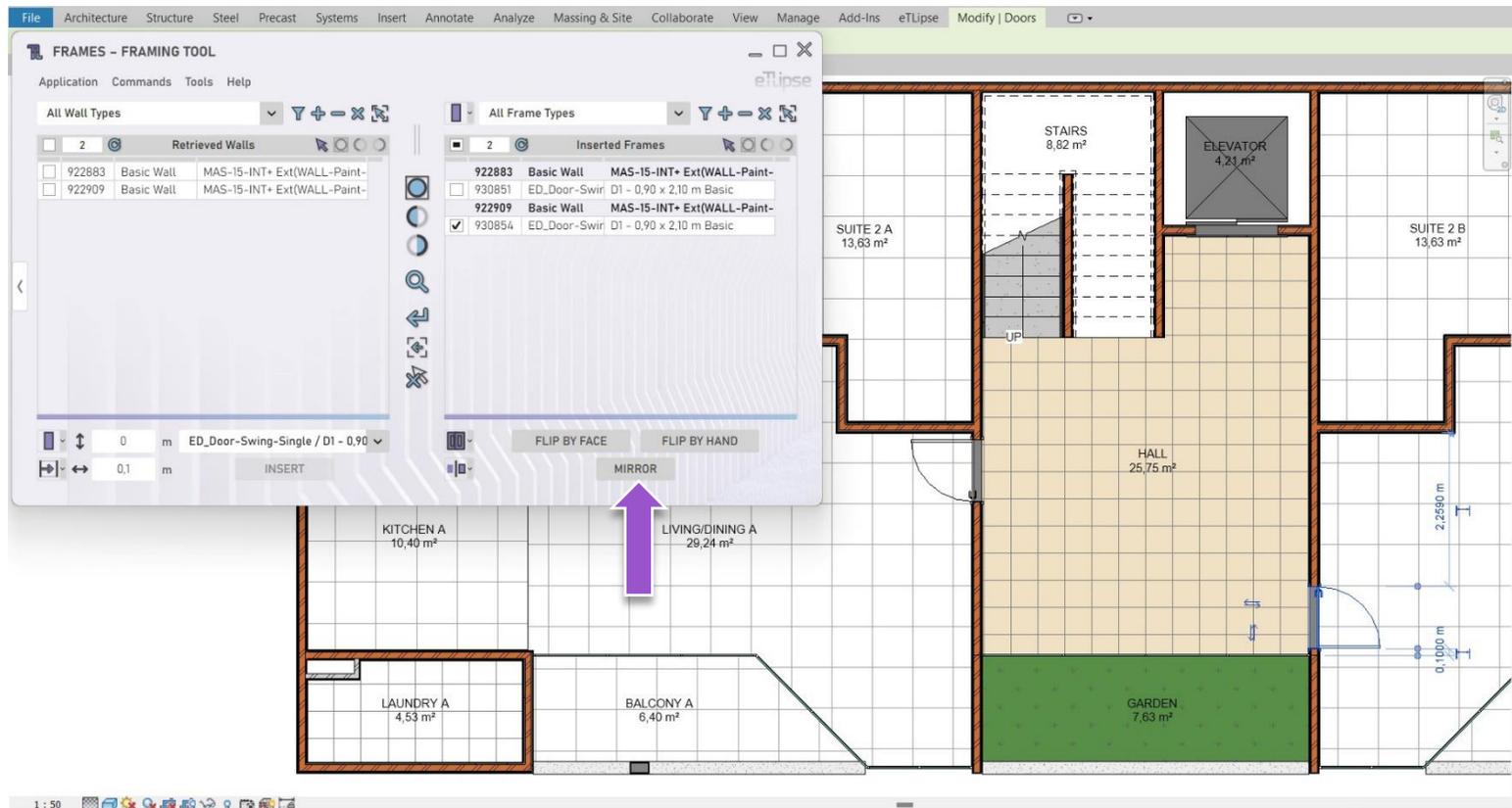
As previously stated, there are some cases where the Insert Frames command will place some frame elements at the unwanted side of the wall, since it is very unlikely for model designers to predict the starting and ending point of each wall. The Mirror Frames feature works as a fix for this problem.



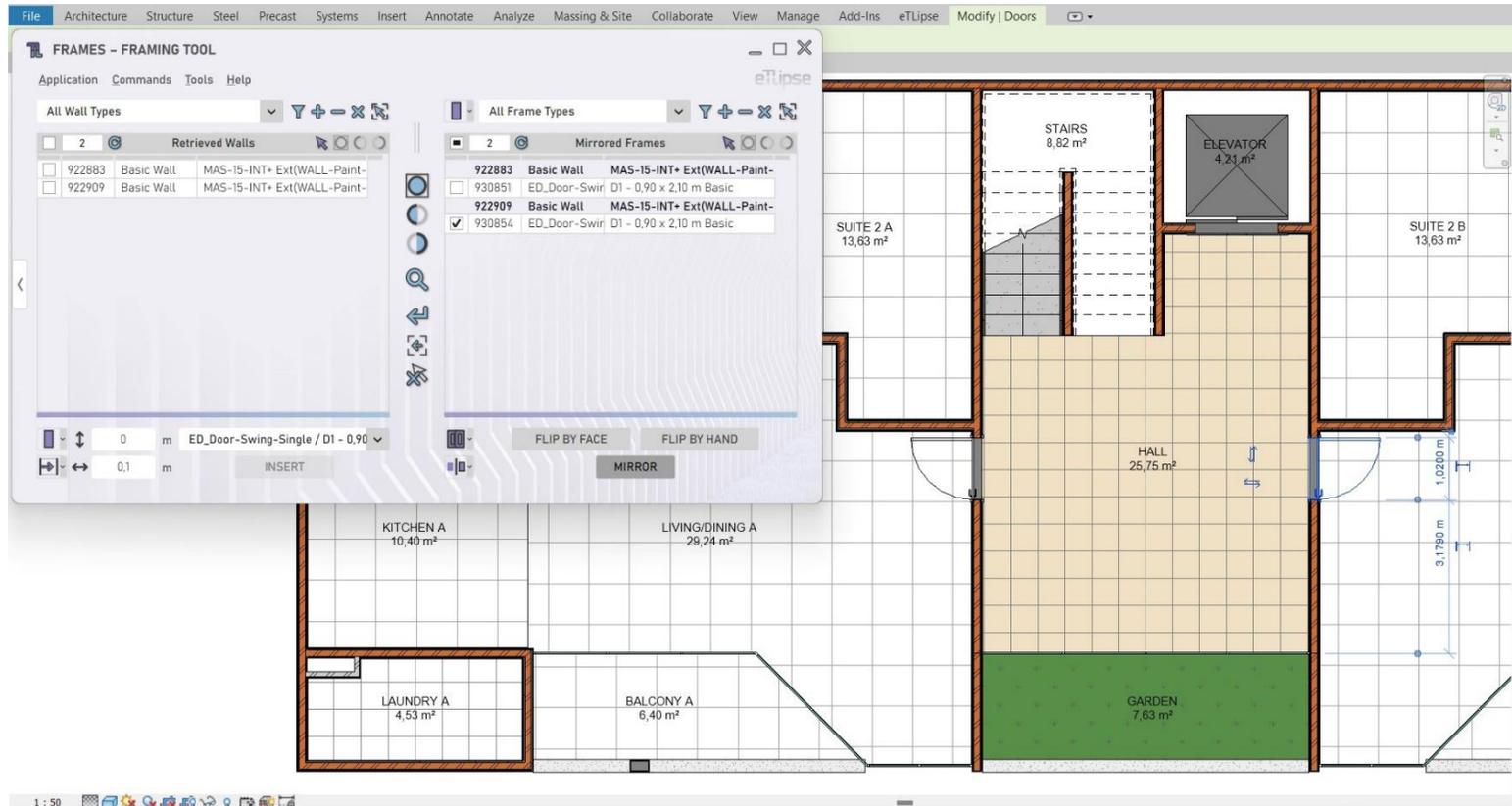
To better explain this concept, in this image we have a plan view showing a door at wall. The door has a horizontal offset value of 0.20 m from the face of the wall connected to the **starting** point of its host wall.



In this image we have another plan view, now showing the same door, but this time mirrored along the host wall. The door now has a horizontal offset value of 0.20 m from the face of the wall connected to the **ending** point of its host wall. This is an example of the result of a Mirror operation.



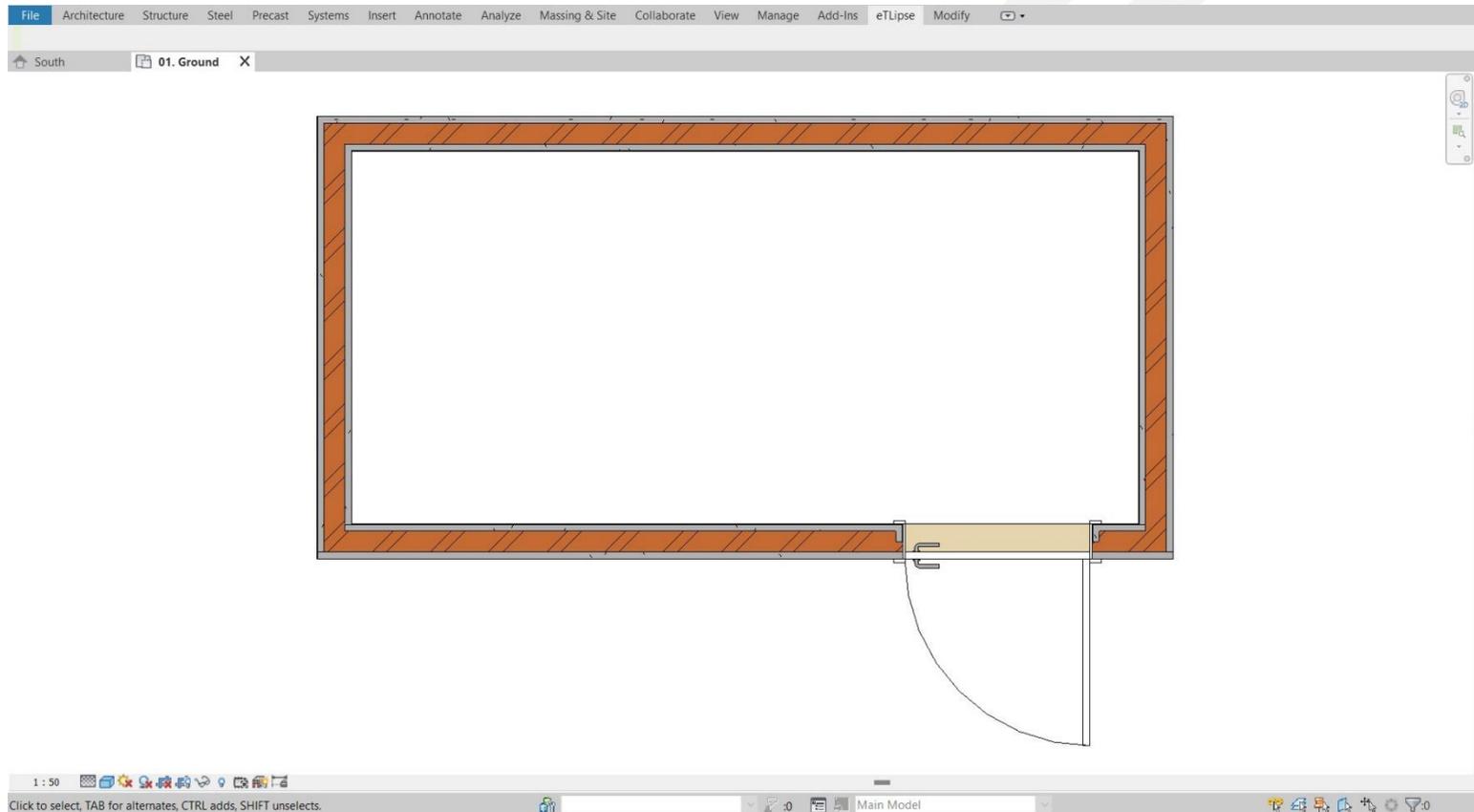
Back to the example at the end of the **Insert Frames (Doors)** topic, we have one of the inserted doors at the wrong end of the host wall. We just need to check the door(s) that we want to mirror and click the **Mirror Frames** button (as seen in the image).



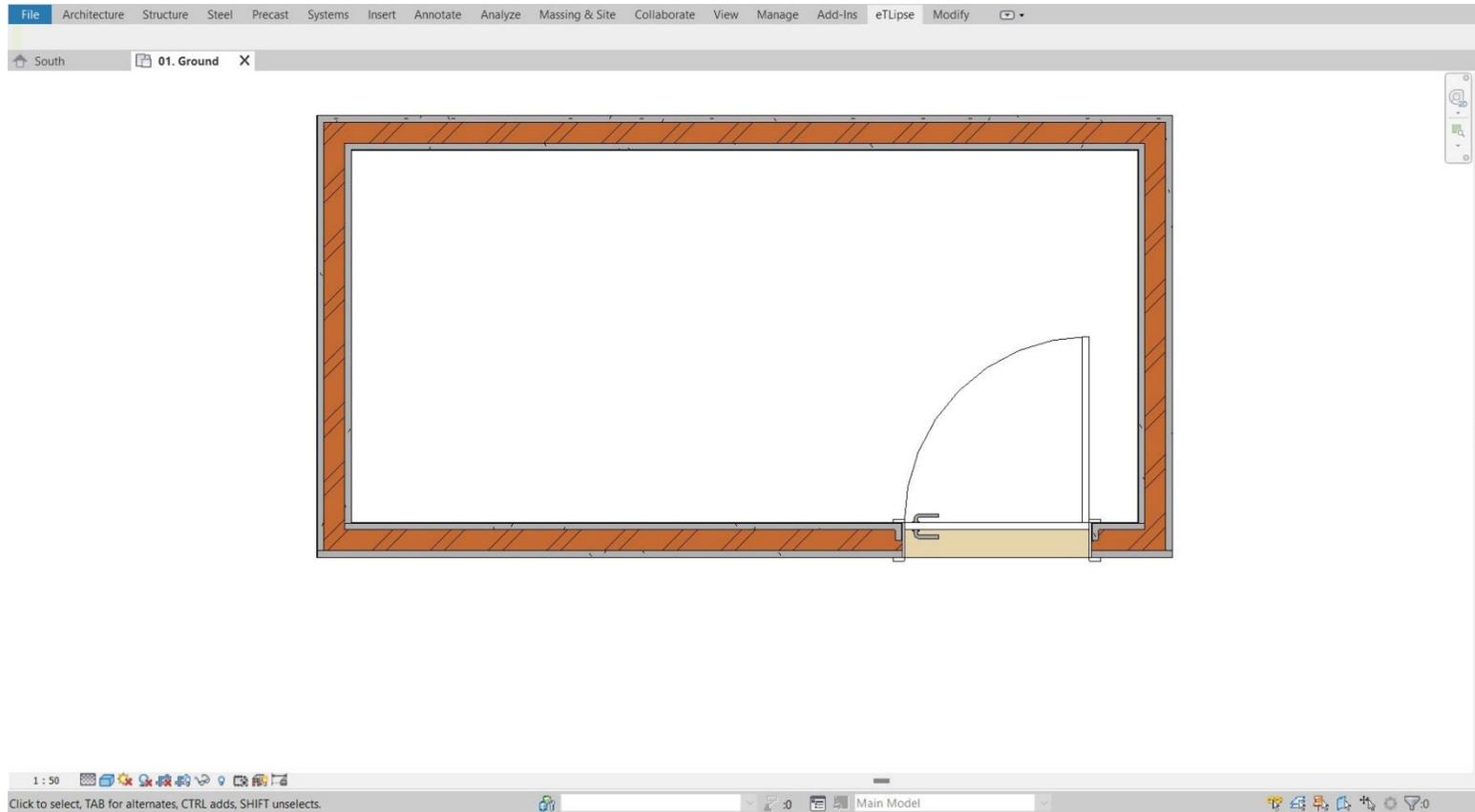
In this image we can see the result of the Mirror Frames operation applied to our example. The checked door is now on the desired end of the host wall.

Flip Frames: By Face

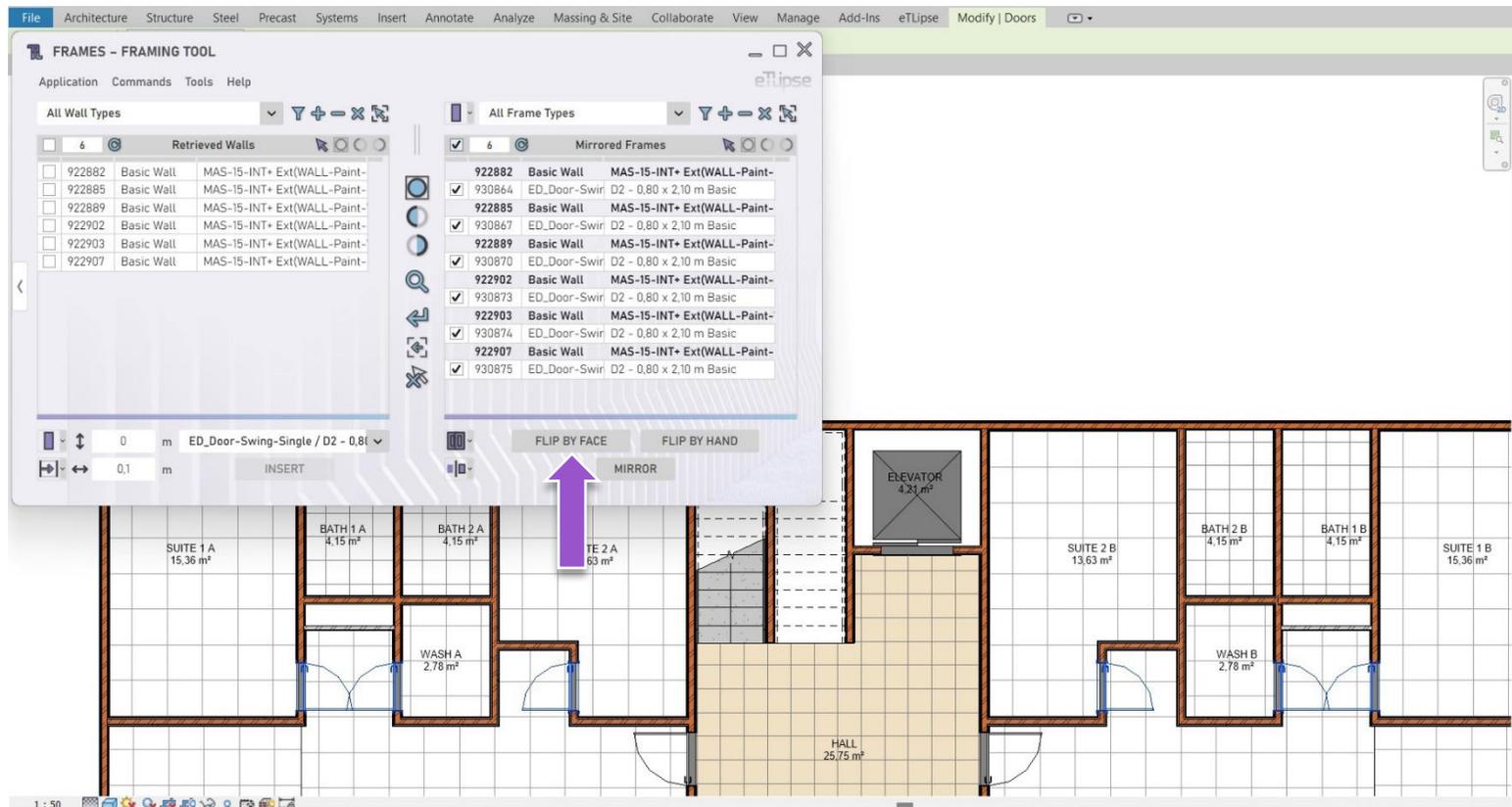
There are also some cases where the Insert Frames command will place some frame elements with their faces in an unexpected orientation. The **Flip Frames** feature works as a fix for this problem.



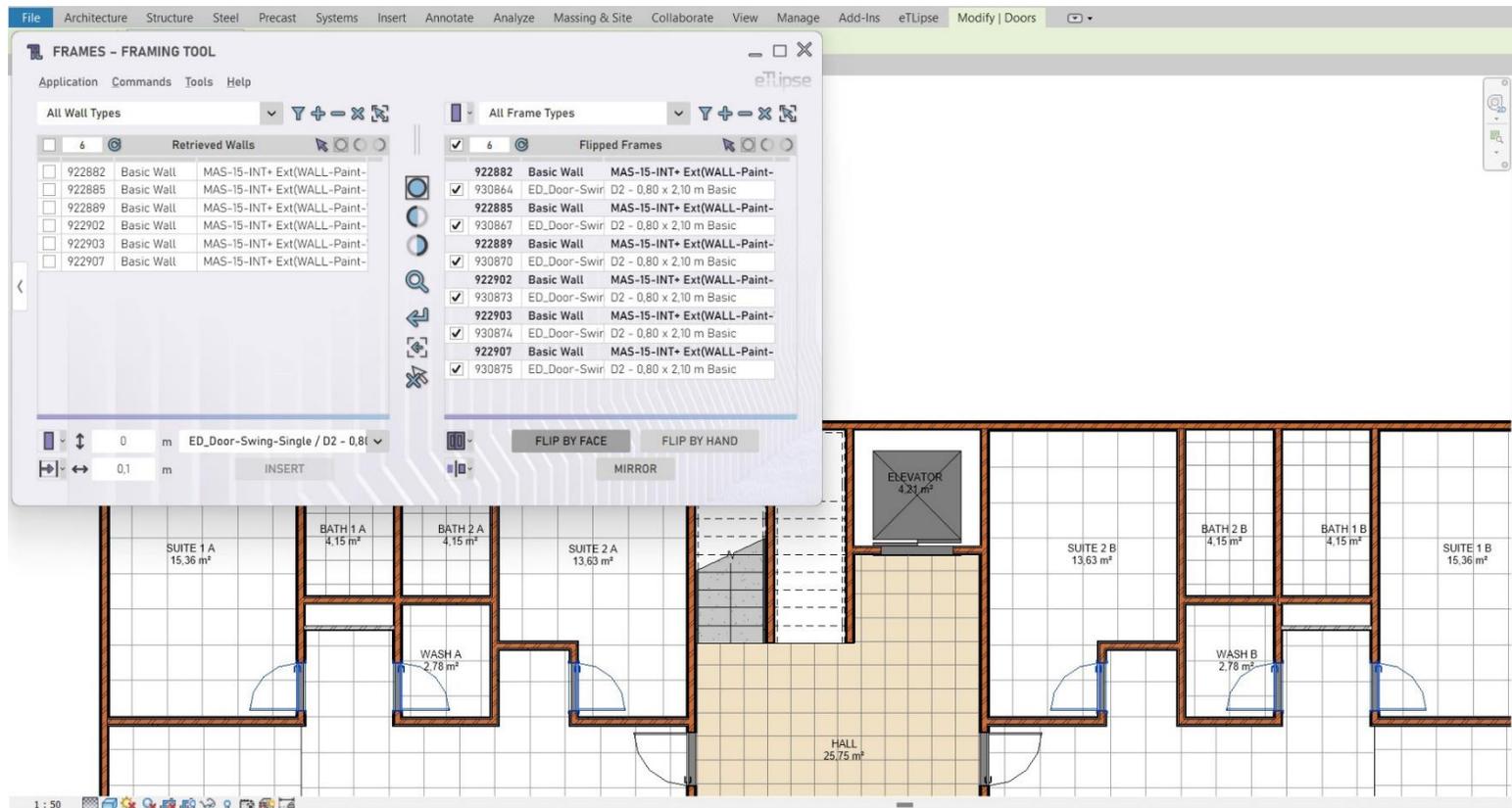
To better explain this concept, in this image we have a plan view showing a door at one of the walls of a room. The door swings towards the exterior of room.



In this image we have another plan view, now showing the same door, but this time swinging to the interior of the room. This is an example of the result of a Facing Flip operation.



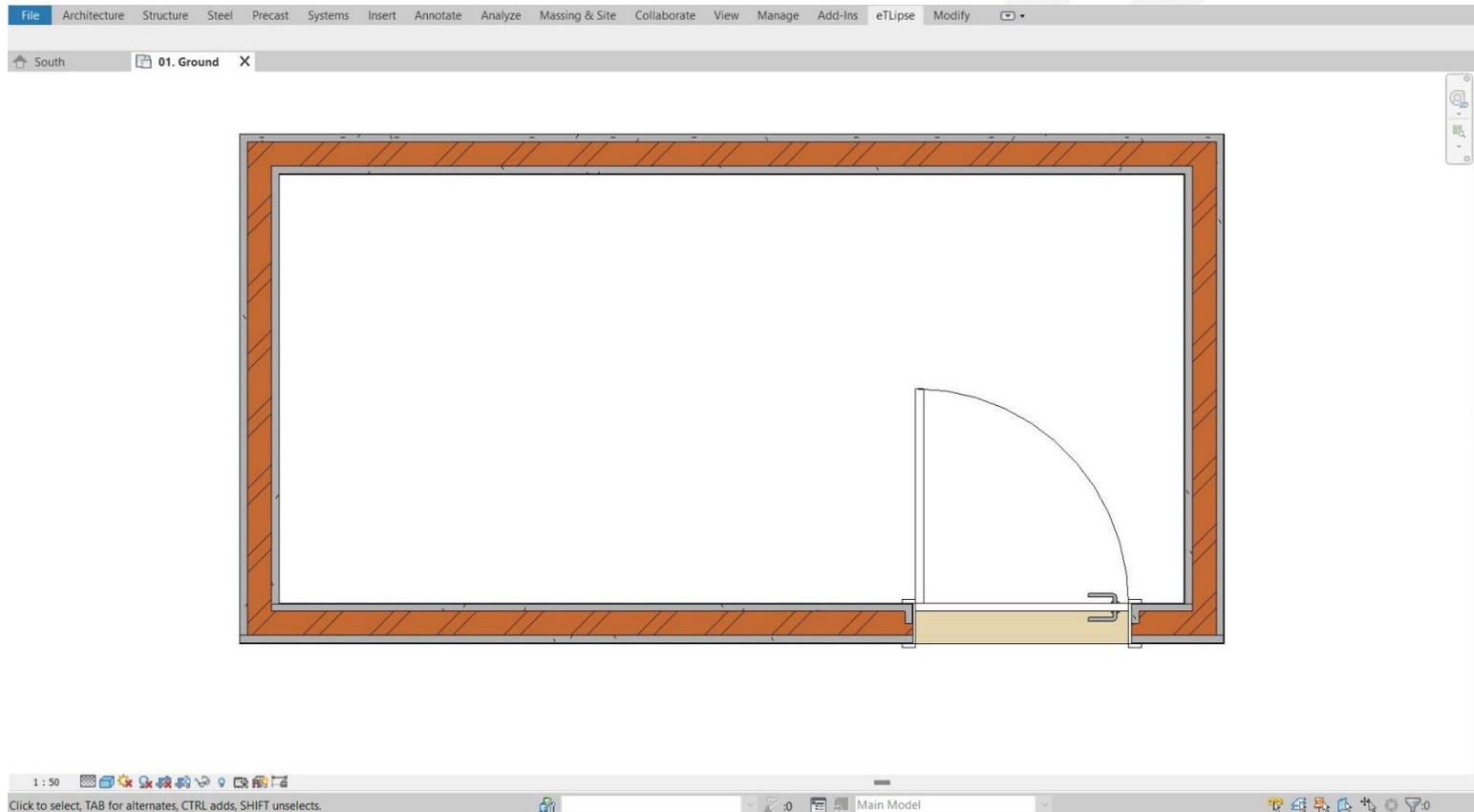
In this image we have an example of six indicated doors facing the wrong side of their host walls. We just need to check the door(s) that we want to flip and click the **Flip by Face** button (as seen in the image).



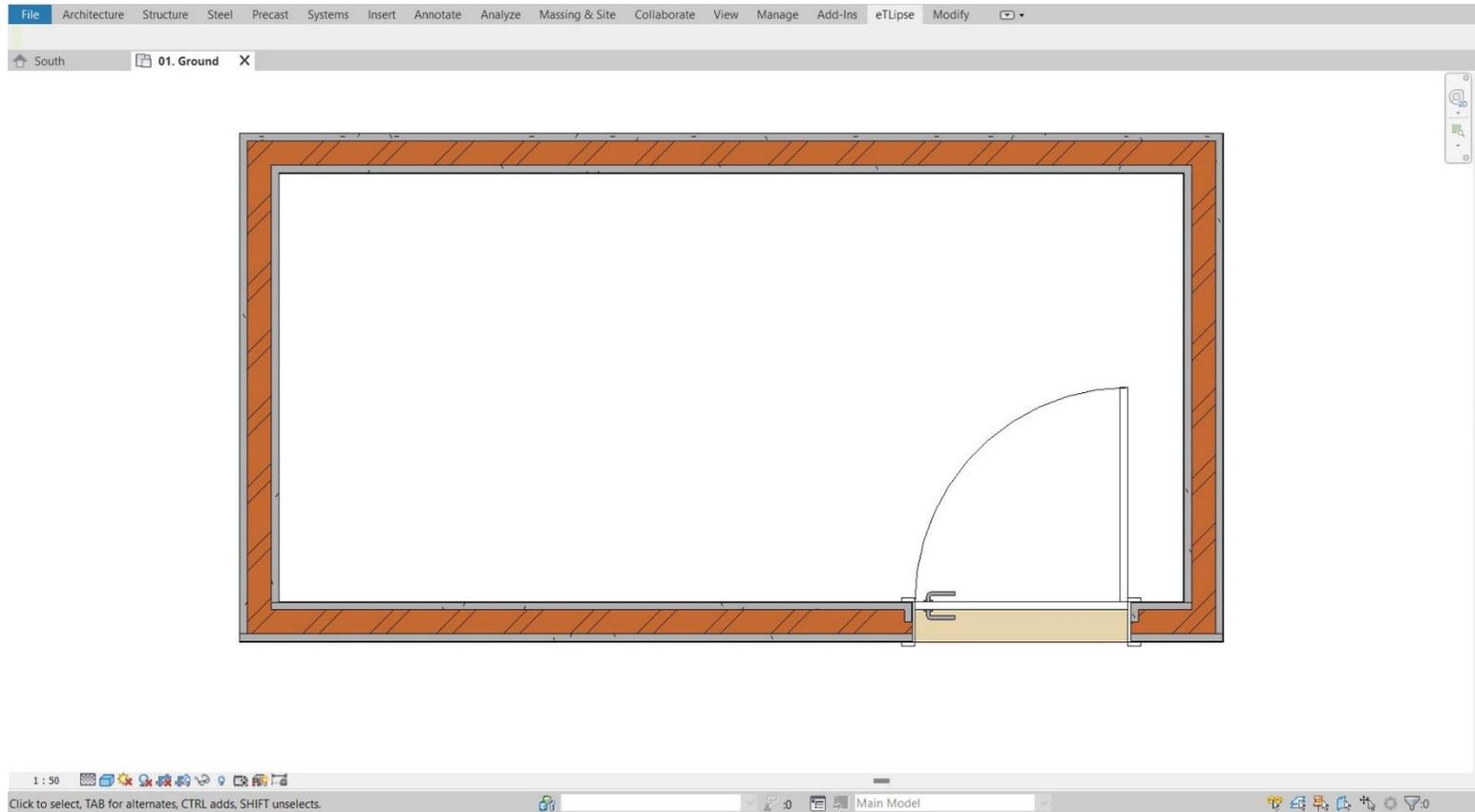
In this image we can see the result of the Flip Frames operation applied to our example. The checked doors are now facing the correct side.

Flip Frames: By Hand

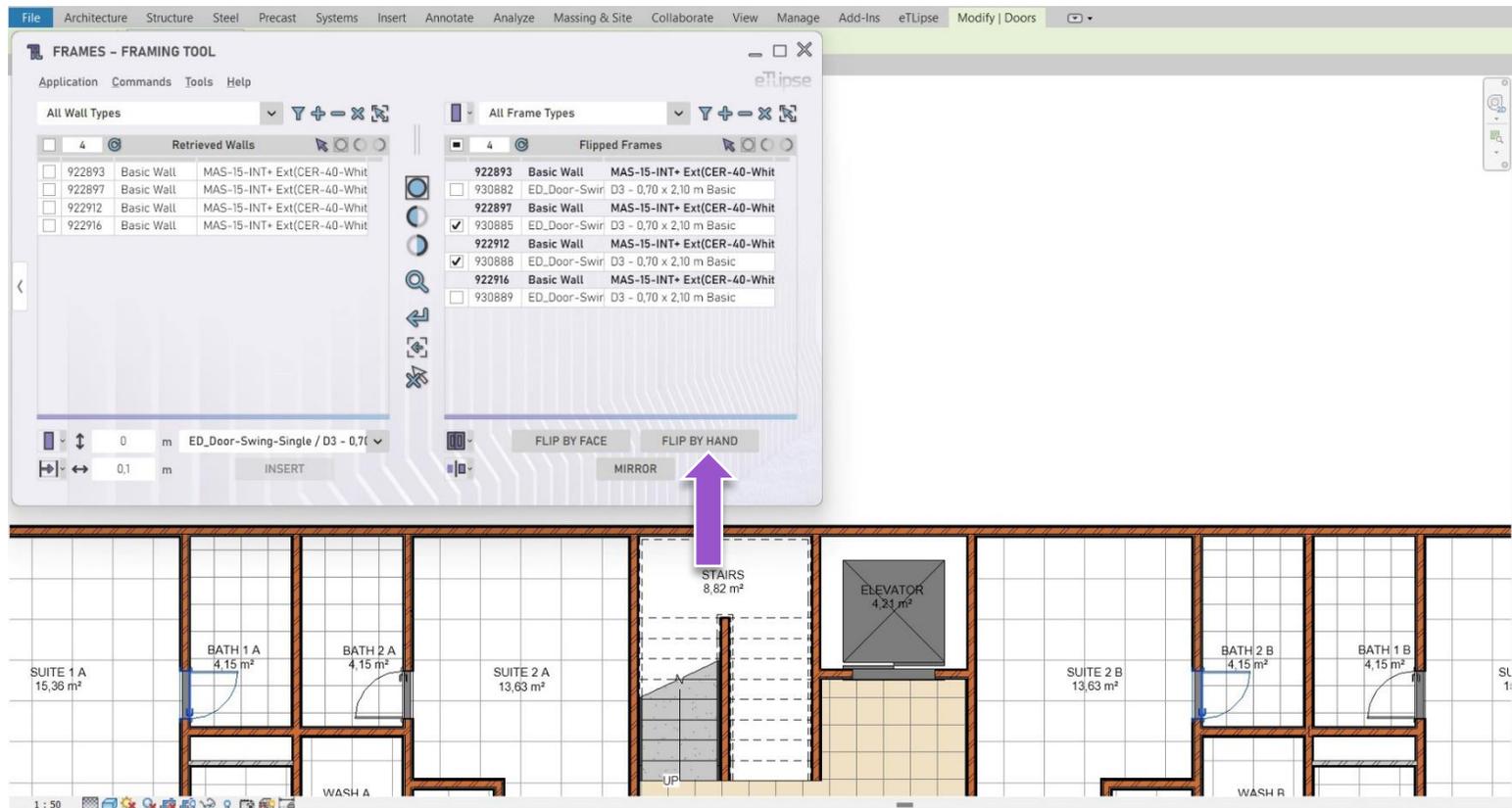
There are also some cases where the Insert Frames command will place some frame elements with their hand in an unexpected orientation. The **Flip Frames** feature works as a fix for this problem.



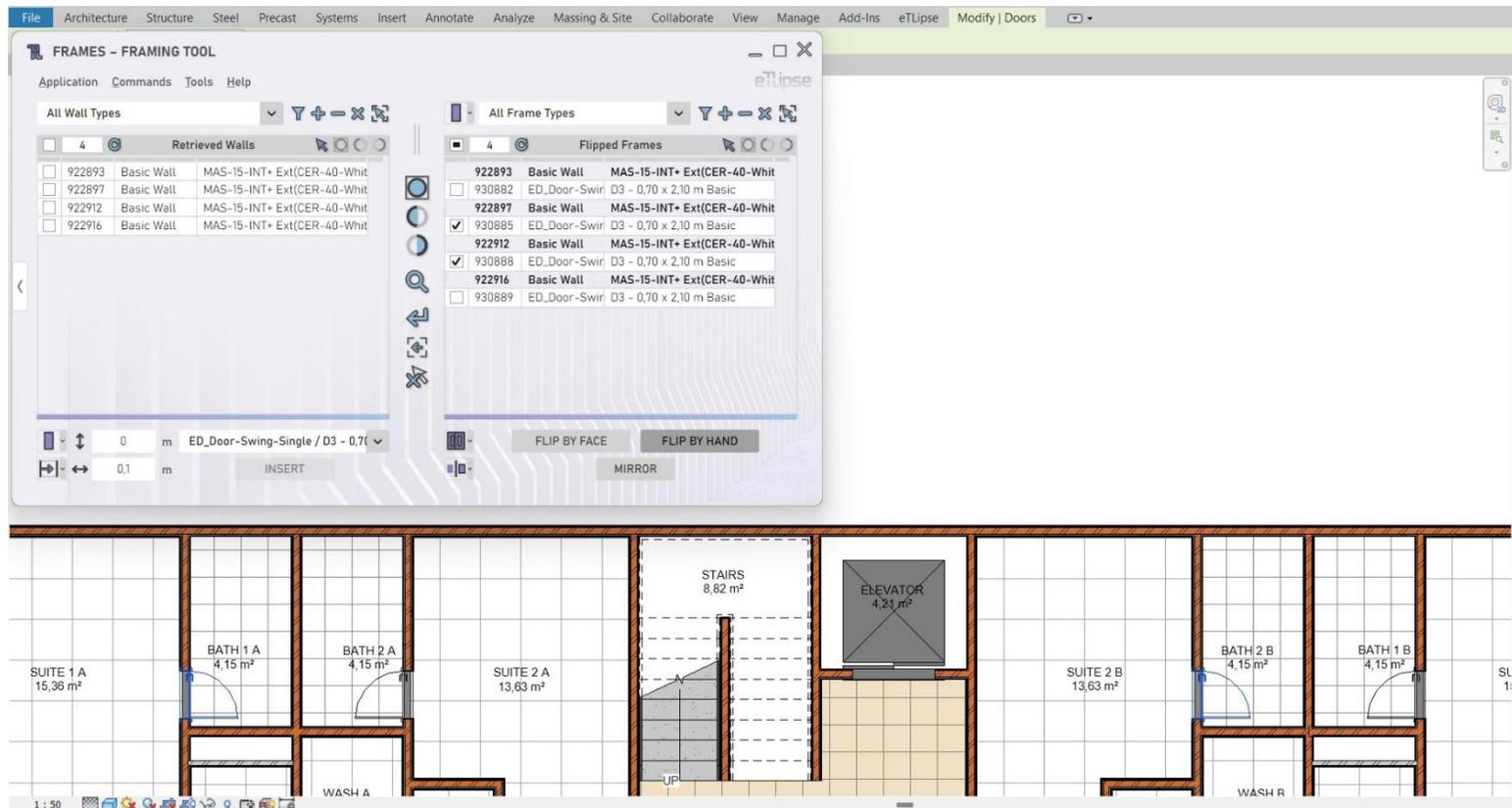
To better explain this concept, in the image we have a plan view showing a door at one of the walls of a room. The door swings towards the interior of the room, but its handle is placed at the wrong side.



In this image we have another plan view, now showing the same door, but this time its handle is placed at the correct side. This is an example of the result of a Hand Flip operation.



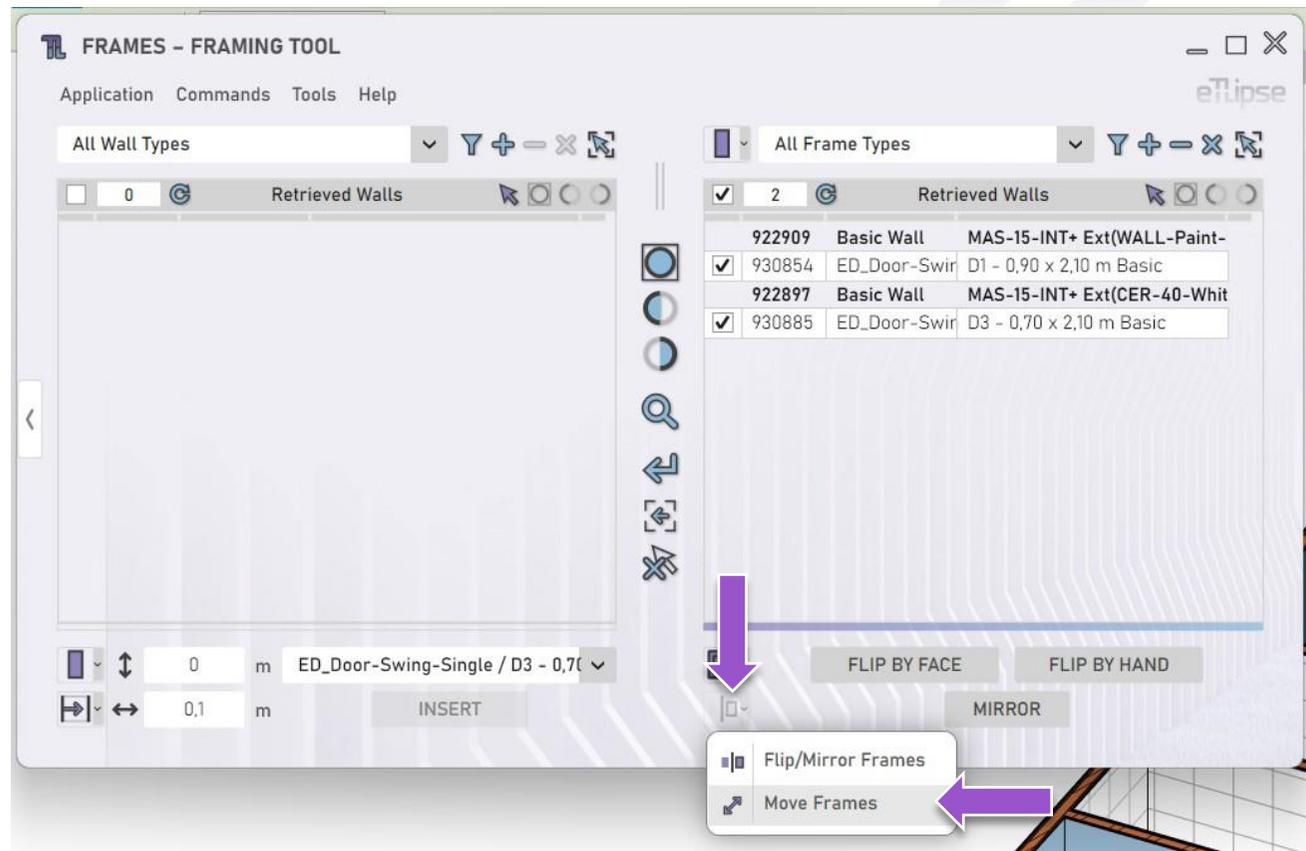
In this image we have an example of two highlighted doors with handles at the wrong side. We just need to check the door(s) that we want to flip and click the **Flip by Hand** button (as seen in the image).



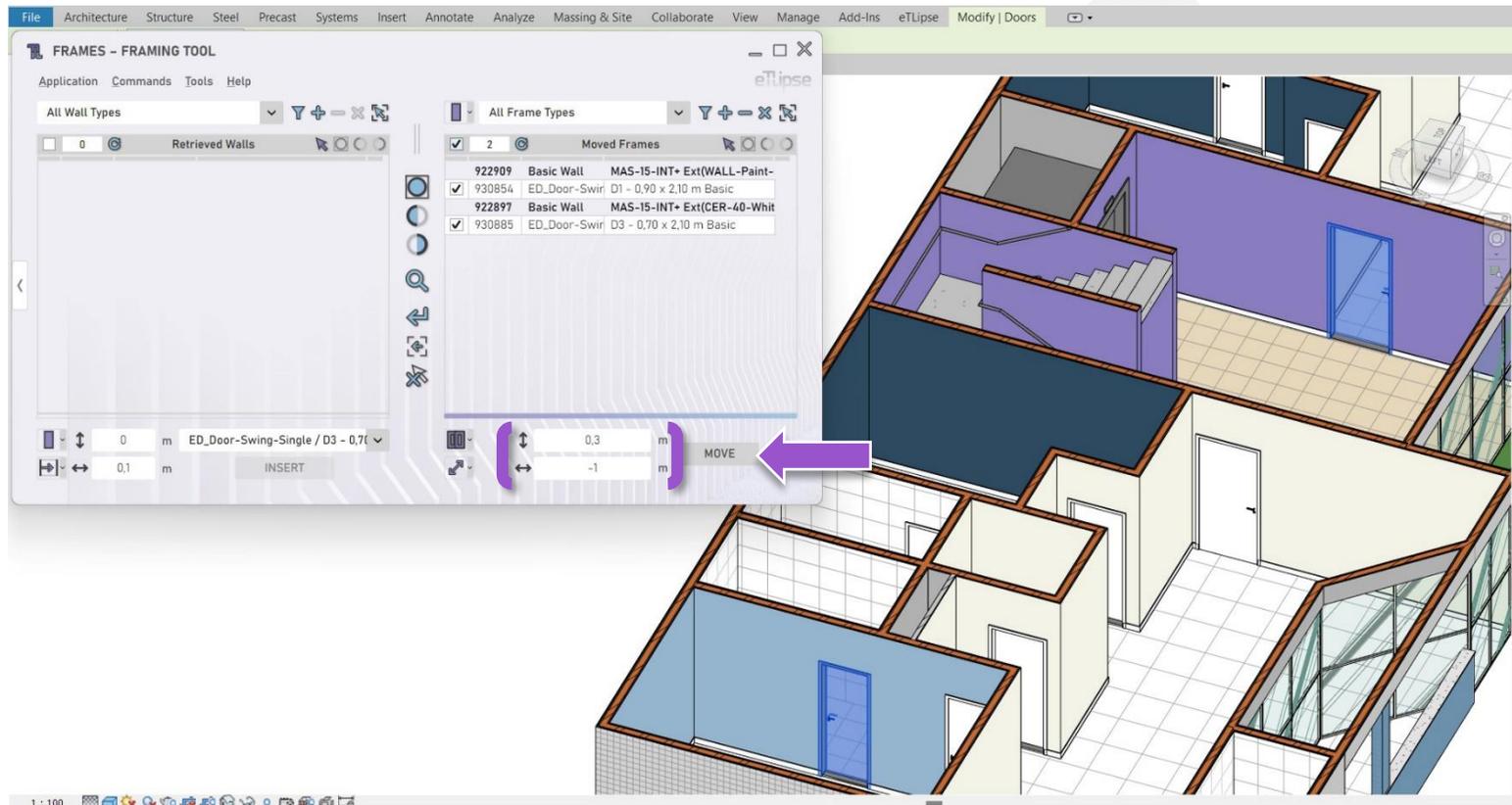
In this image we can see the result of the Flip Frames operation applied to our example. The checked doors have now their handles at the correct side.

Frames Handling Mode: Move Frames

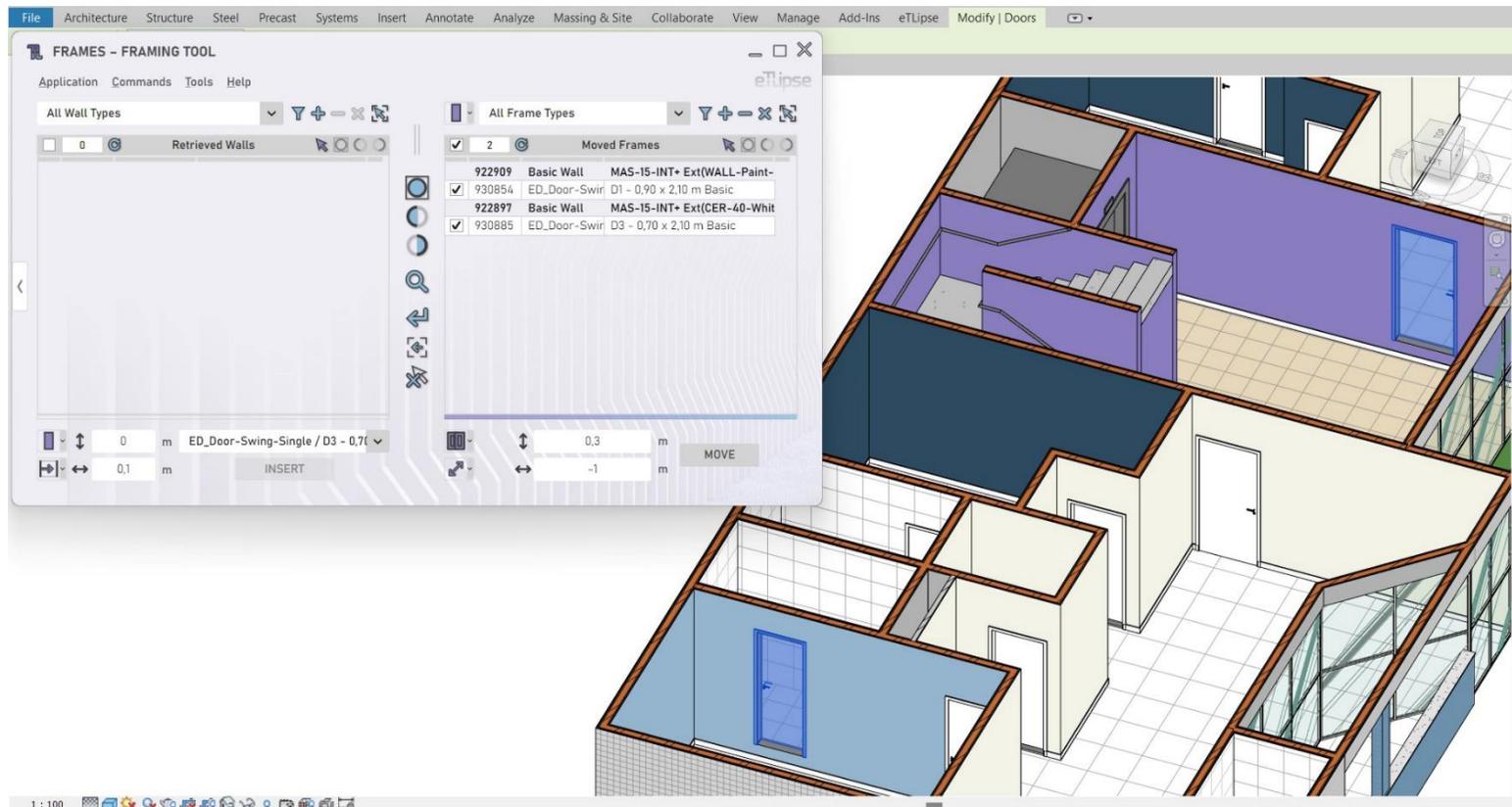
To enable the tools that allow us to move frame elements checked in the Frames Retrieval List, we can select the respective option at the Frames Handling Mode menu, opened by the button indicated in the image.



Sometimes, changes in projects may lead to the necessity of moving several frame elements by the same vertical and /or horizontal offset. The **Move Frames** feature can help us with this.



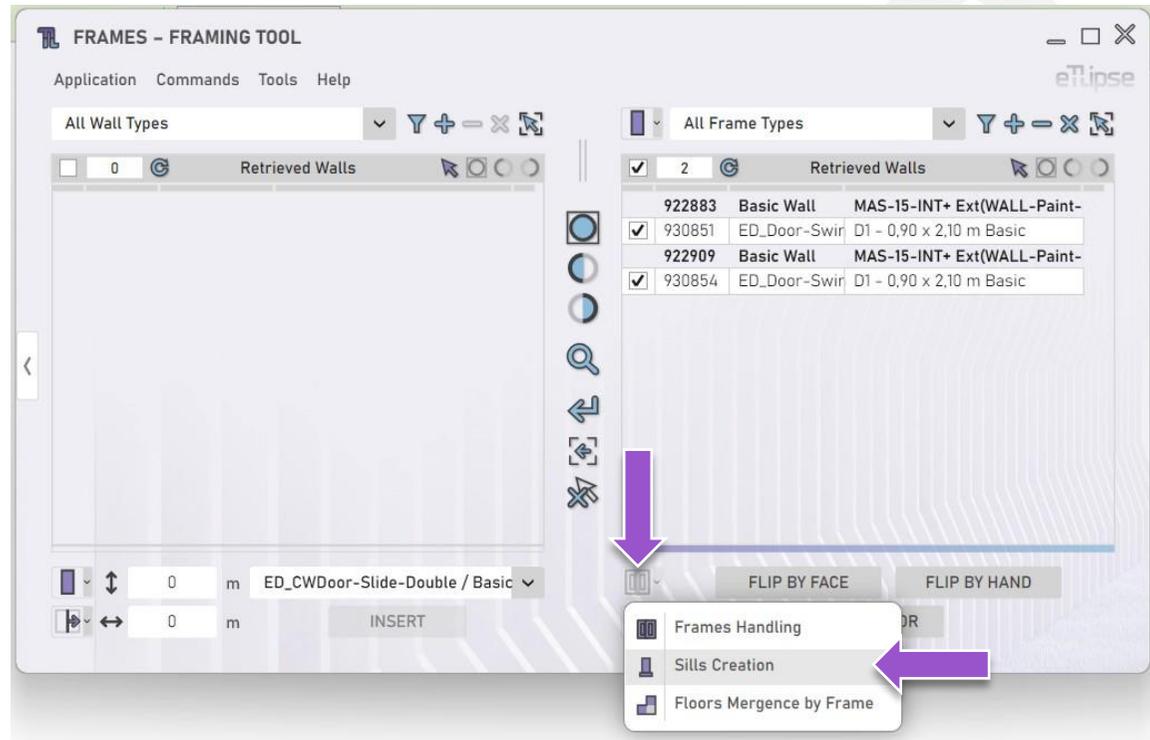
In this image we have an example of two highlighted doors that we want to move both in the vertical and horizontal direction. To accomplish this, first we need to provide values for the vertical offset (in the top text box indicated in the image) and the horizontal offset (in the bottom text box indicated in the image, this offset works just as seen in the **Frame Horizontal Offset** topic in the **Frames Insertion** section). Then we just need to click the **Move Frames** button (as seen in the image) to move the checked frame elements by the provided offset values in the provided directions.



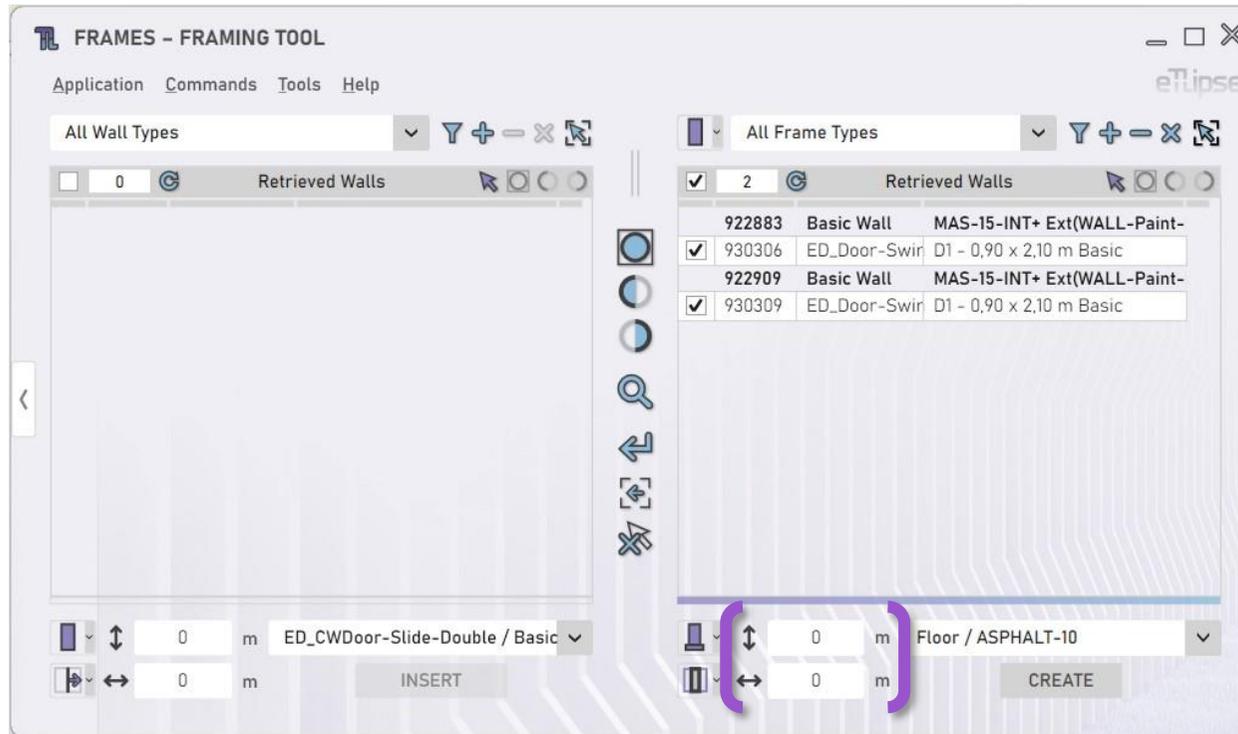
In this image we can see the result of the Move Frames operation applied to our example. Both checked doors have been moved 0.30 m upwards and 1.00 m towards the starting point of their host walls.

FRAMES GENERAL OPERATION MODE: SILLS CREATION

The **Sills Creation** mode includes tools that will help us to create sills for each checked frame in the list and can be selected as indicated in the image.



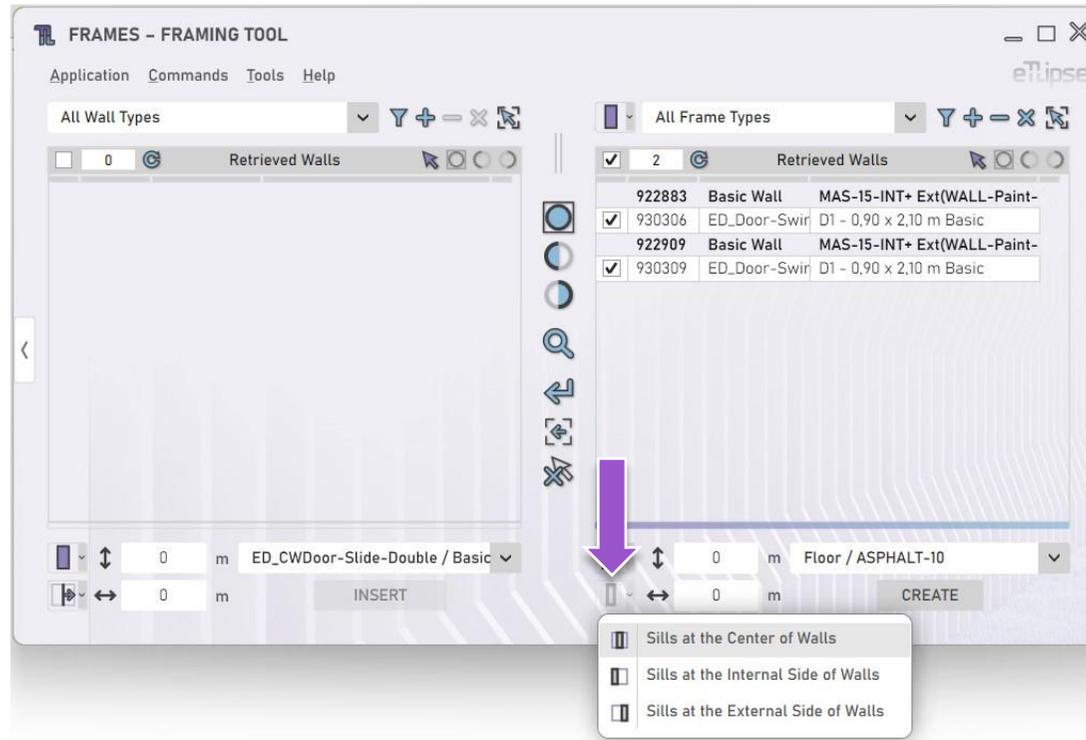
Sill Elevation and Depth



In order to properly create sill elements, we need to provide a value for the elevation of these elements based on the frame's "Sill Height" parameter value (basically, the distance between the top face of the new sill and the base line of the frame). We also need to provide a value for the depth of the sills to be created (if the value is 0, the sill depth will be executed with the respective host wall thickness value). These values must be entered in the text boxes indicated in the image (the superior one takes the **Sill Elevation** value, the inferior one takes the **Sill Depth** value).

In the next topic this concept will be exemplified for better understanding.

Sill Position Modes

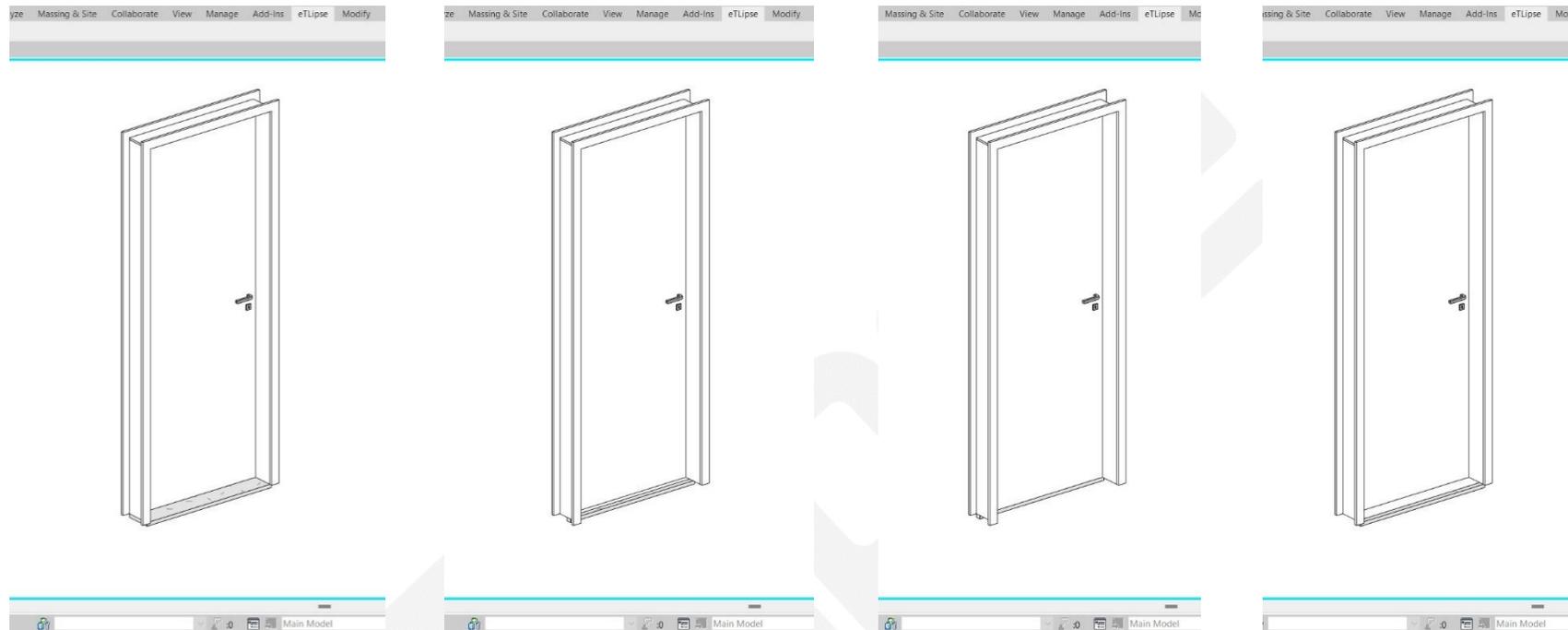


There are different modes for sill positioning. We can create them aligned to the frame/host wall by different parameters, chosen in the menu indicated in the image:

Sills at the Center of Walls: enabled by selecting the first option in the menu. This will place the created sills in the center of the host walls.

Sills at the Internal Side of Walls: enabled by selecting the second option in the menu. This will align the created sills to the internal side of the host walls.

Sills at the External Side of Walls: enabled by selecting the third option in the menu. This will align the created sills to the external side of the host walls.



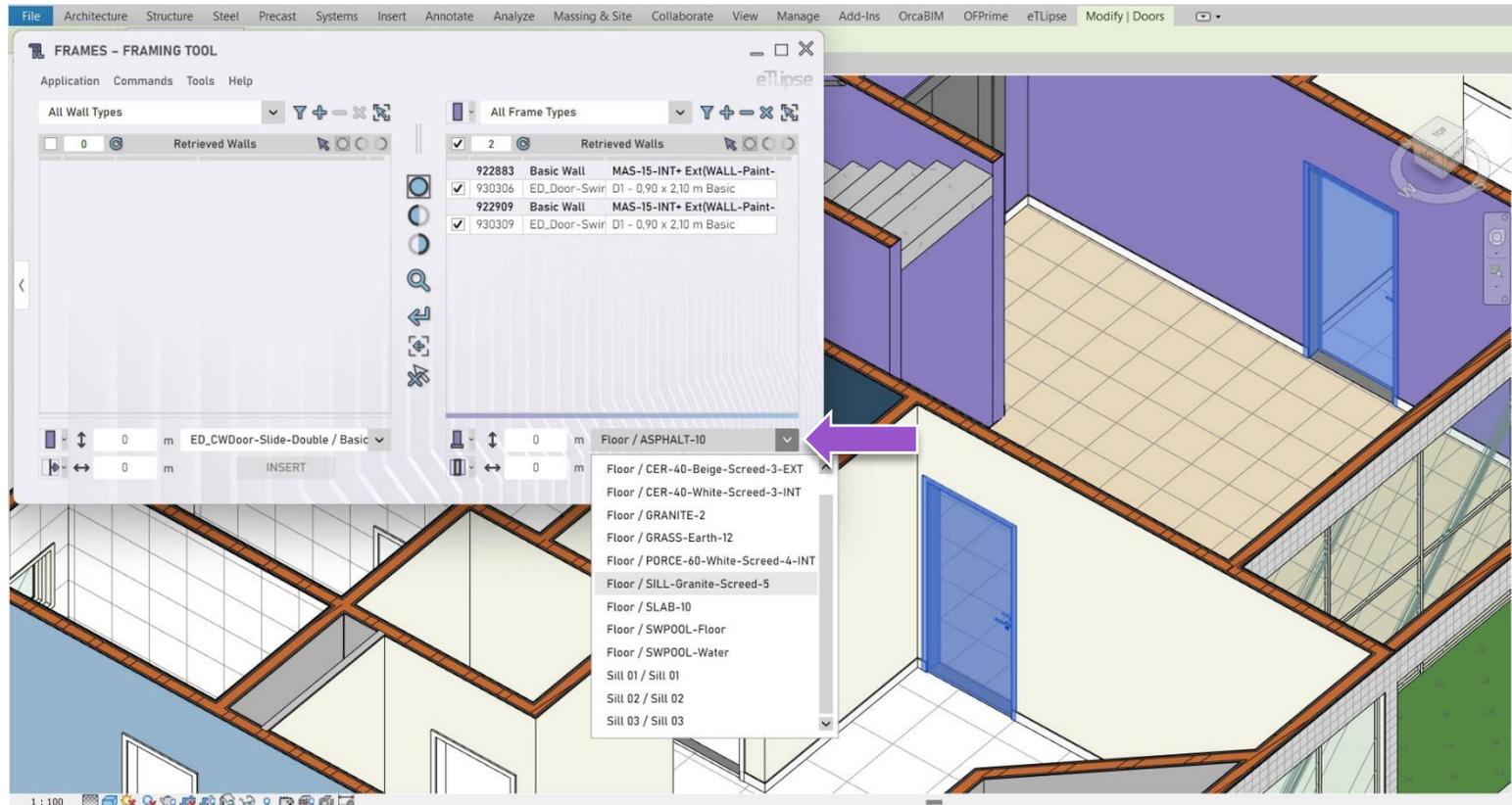
To exemplify this, in the first image we have a door (the wall was hidden for better visualization) and an example of sill created with 0.0 m of elevation and 0.0 m of depth. Note that, as previously stated, independently of the chosen Sill Position Mode, the depth with 0 as value results in the creation of a sill that takes all the host wall thickness.

In the second image we have the same door and an example of sill created with 0.00 m of elevation and 0.03 m of depth in the **Sills at the Center of Walls** mode. As explained, the sill was placed at the center line of the host wall.

In the third image we have the same door and an example of sill created with 0.00 m of elevation and 0.03 m of depth in the **Sills at the Internal Side of Walls** mode. As explained, the sill was created and aligned to the internal face of the host wall (in the image it is right below the door panel).

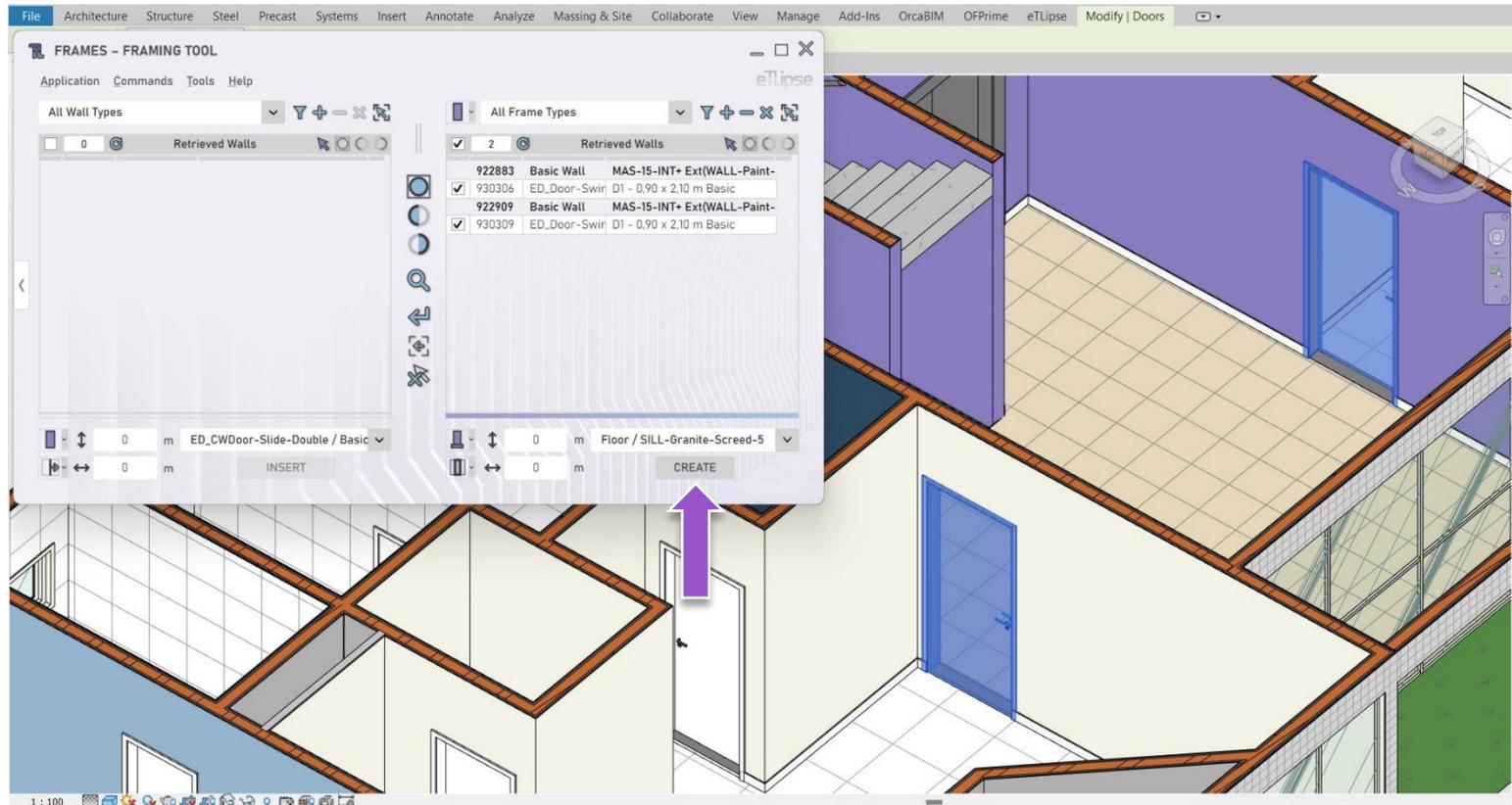
In the fourth image we have the same door and an example of sill created with 0.00 m of elevation and 0.03 m of depth in the **Sills at the External Side of Walls** mode. As explained, the sill was created and aligned to the external face of the host wall.

Sill Type

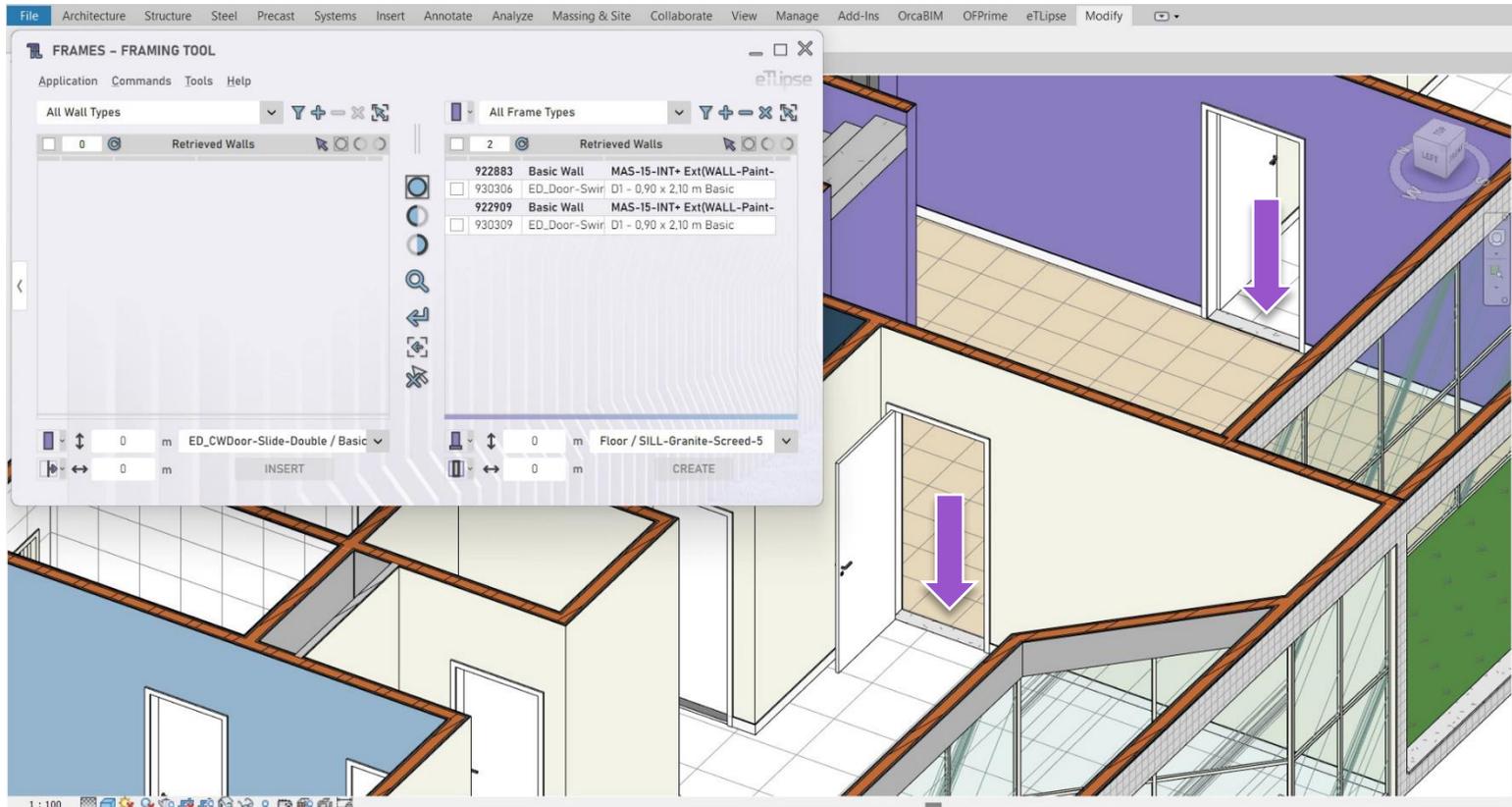


One of the main requirements to create sills is the choice of a valid floor type for the sills to be created. We can choose it in the dropdown box indicated in the image, where we can find all the valid floor types loaded in the active project (we can never stress enough how important it is to use wise and well-planned project templates and families). In the image we are choosing a granite floor type, which is available in our active project.

Create Sills



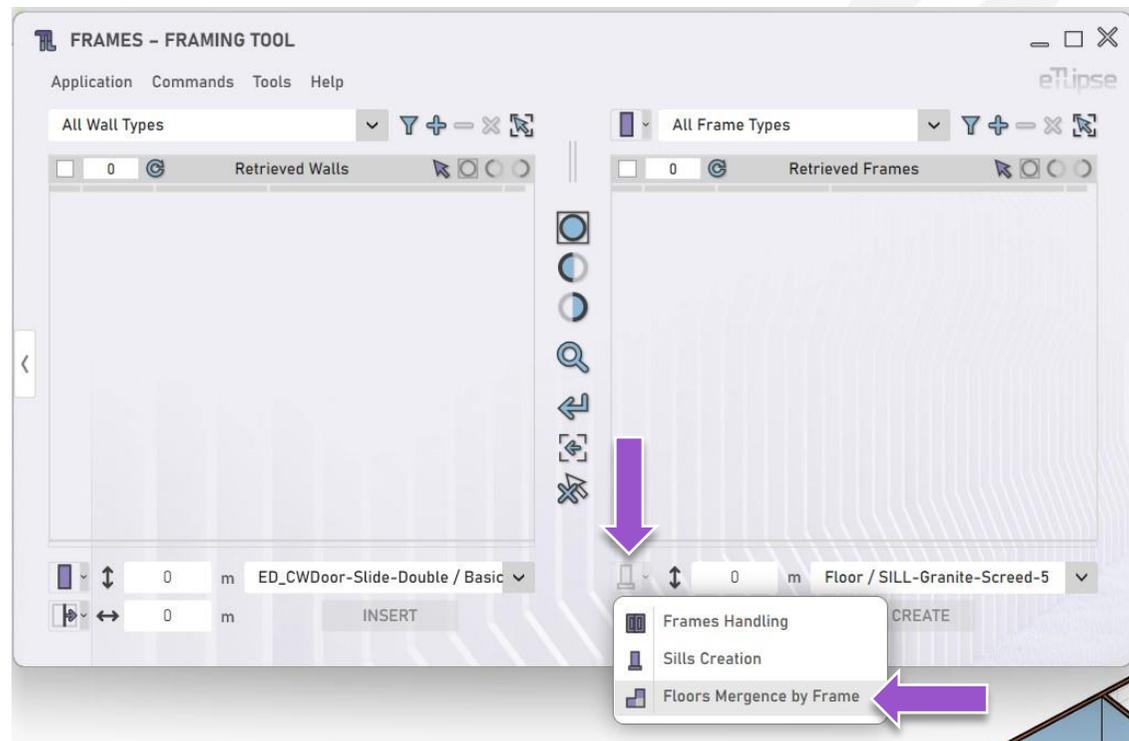
Once all the previously explained settings are done, we can click the **Create Sills** button (as indicated in the image) to create a sill for every frame (doors or windows) checked in the Frames Retrieval List, based on the provided elevation, depth, floor type and creation mode.

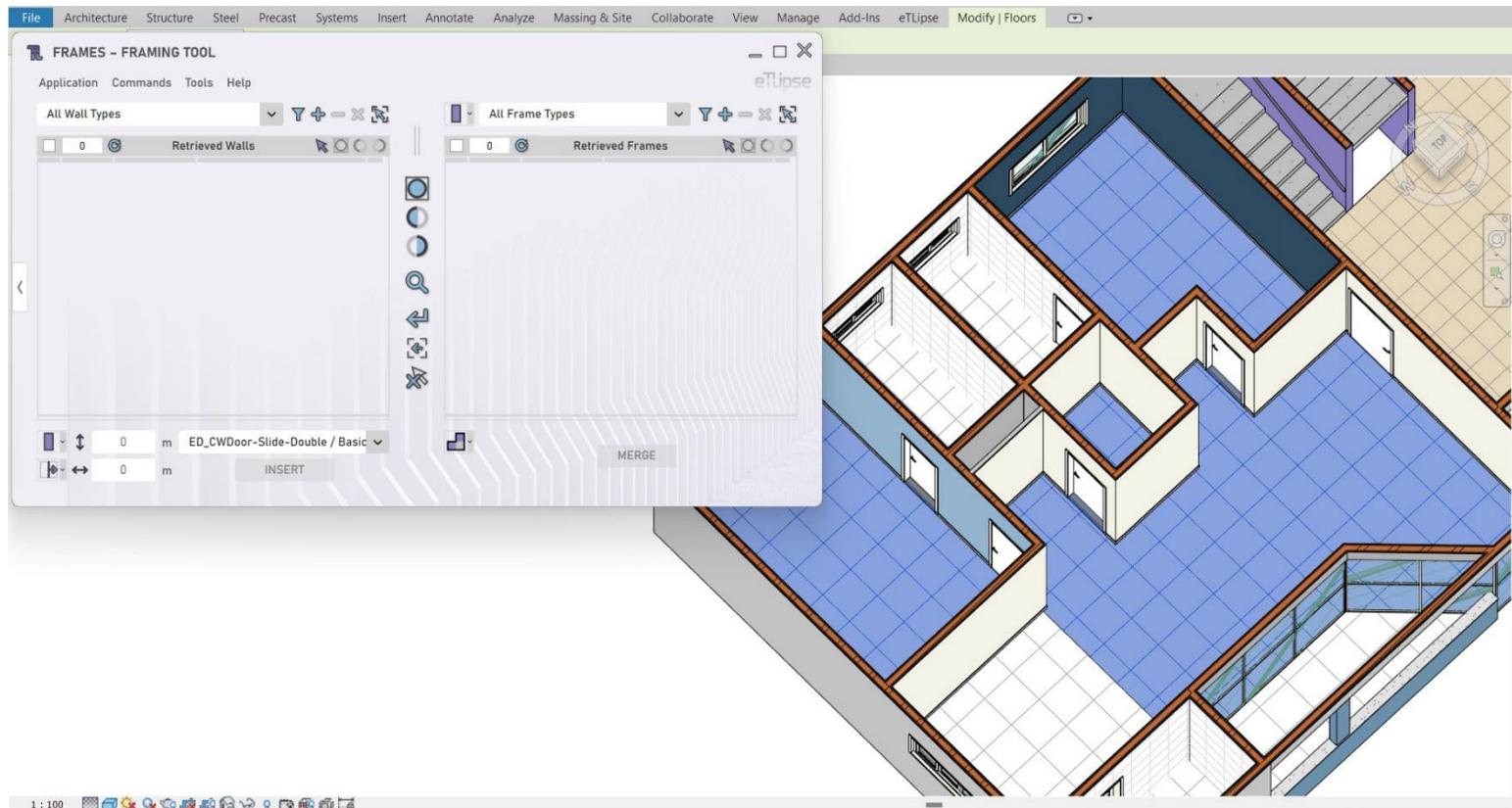


In this image we can see the sills created for both checked doors.

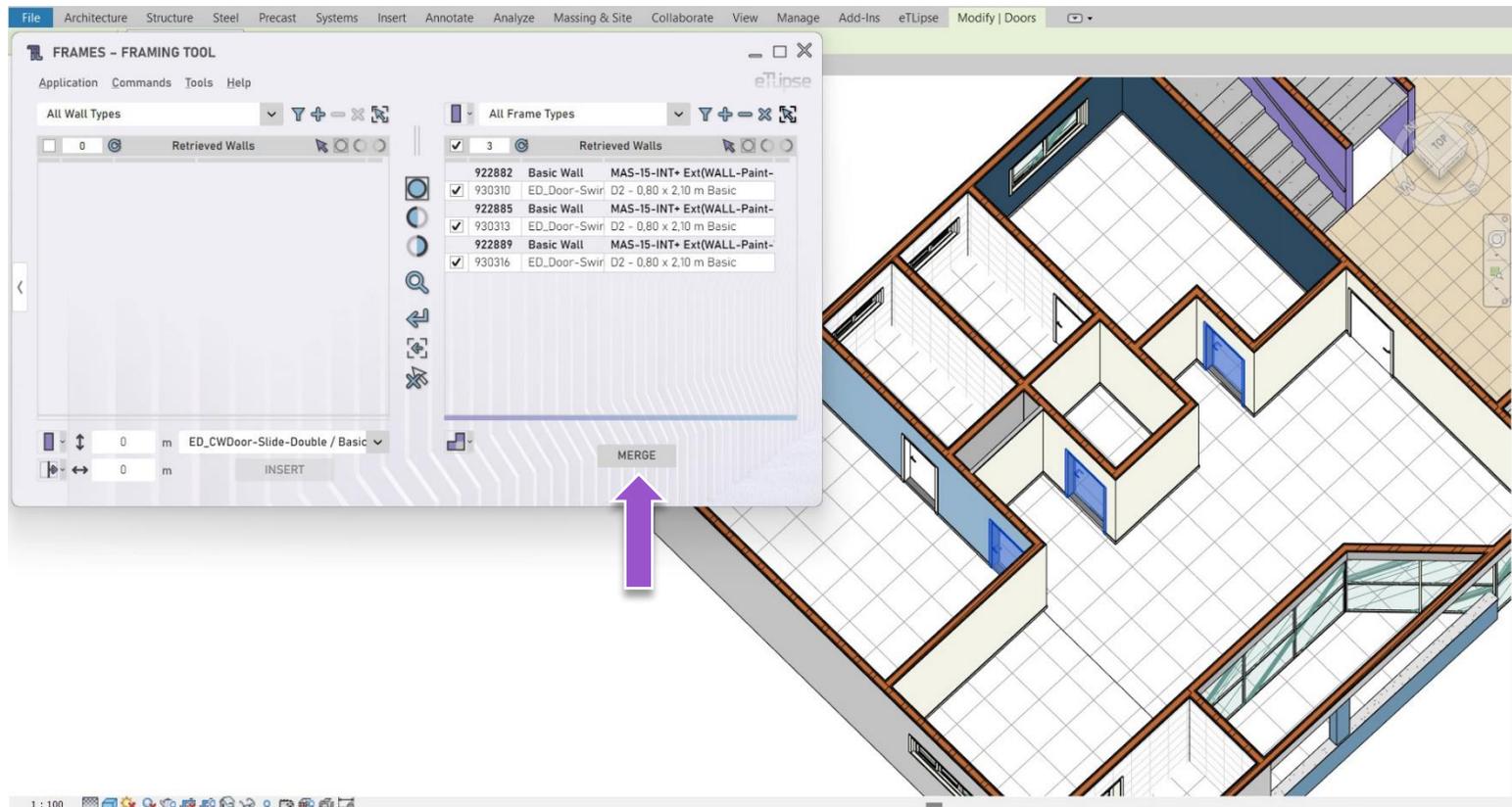
FRAMES GENERAL OPERATION MODE: FLOORS MERGENCE BY FRAME

The **Floor Mergence by Frame** mode includes tools that will help us to merge floors separated for each checked frame in the list and can be selected as indicated in the image.



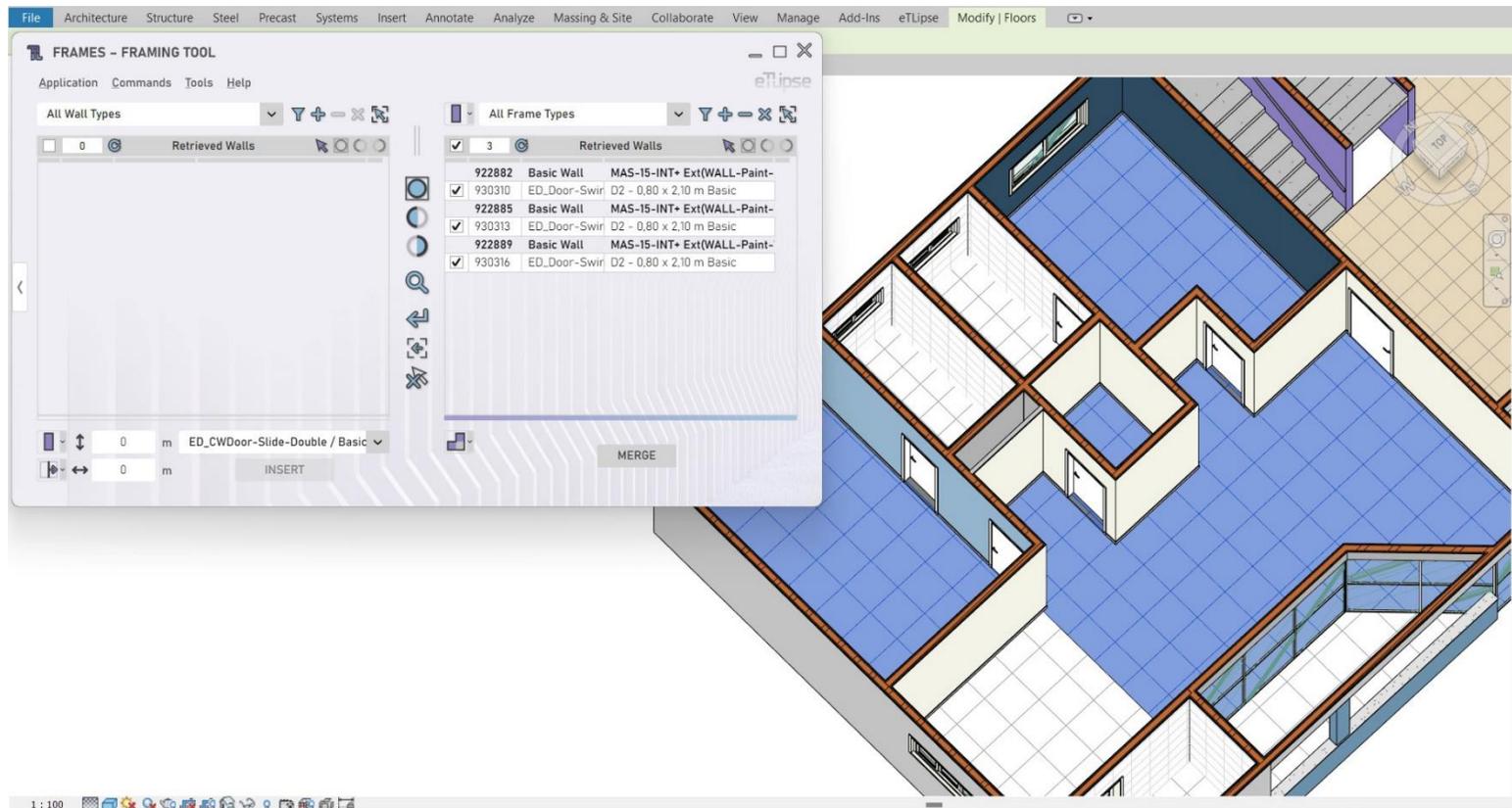


In some cases, instead of inserting a sill element under the doors, we need to merge floors of different rooms as one (as we can see in the example of the image, 4 isolated floors that we want to merge as one).



By clicking the **Merge Floors Under Frames** button (as indicated in the image), TL Frames tries to merge floors separated by walls that host the checked frame elements in the Frames Retrieval List. It is possible to merge only floors with the same type, level and height offset (also, they are supposed to be under or about the same level as the base of the frame). Please, do note that the floors outlines should not reach the longitudinal center line of the wall/frame for the command to work properly. Also note that a new floor will be created in the place of the merged floors, therefore some references between these floors and other elements may be lost in the process.

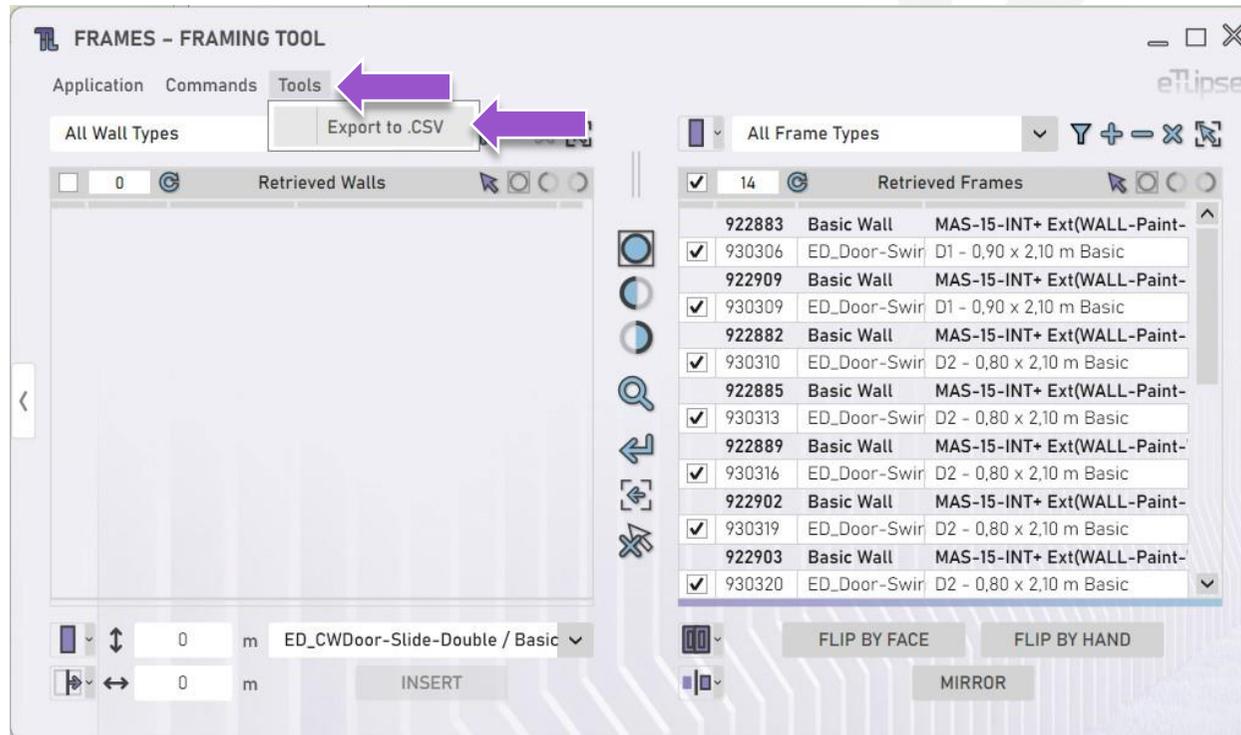
In the image we checked the door elements that consist in merging points for the floors.



In this image we can see the resulting merged floor for our example, after the merge operation.

OTHER TOOLS

Export Frames to a CSV file



At any time, we can export a table with the current list of frames, grouped by their respective walls, to a .csv file. To do so, we just need to go to the menu Tools>Export to .CSV.

To learn how to copy any content from a list of the application, please, refer to the **TL List** guide.