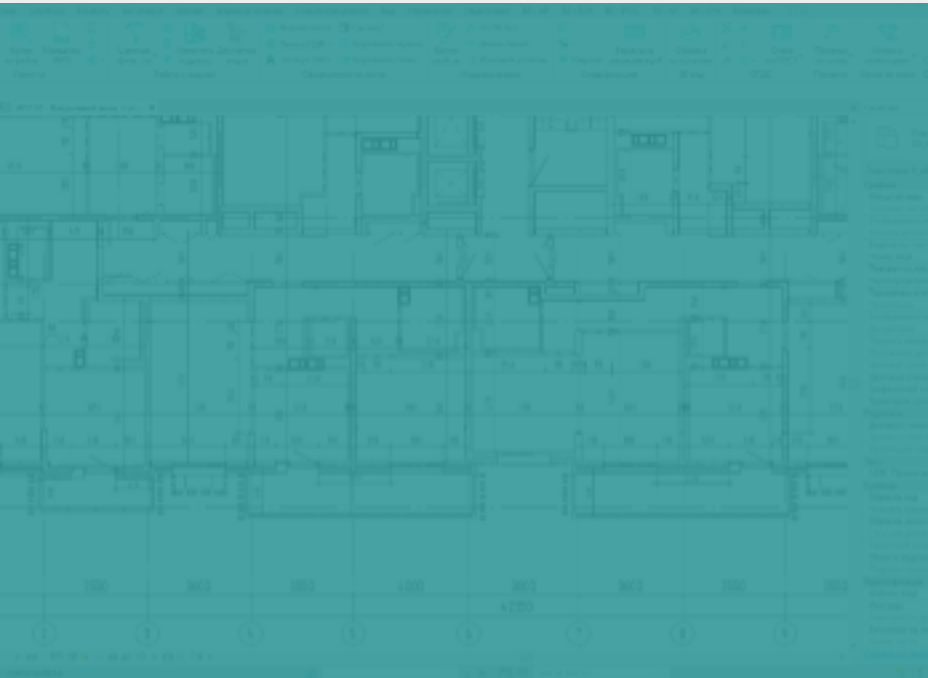


bimstep

Plugins operation instruction

BS • AR



Finishing

Premises Finishing plugin is not just a plugin as it is a whole bim process, built on algorithmically structured actions, as a result of which you will eventually be able to get a list of room finishes. The algorithm of work is as follows:

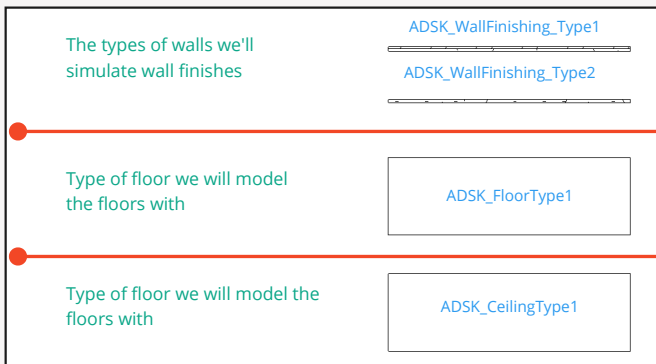
1. In our project we create types of walls and slabs, which we will use the plugin to create the finishing directly.
2. Customize all the parameters, and there are a lot of them, so here you should be patient, but the result is worth it!
3. We create the finish, modeling it with walls and slabs (floors and ceilings).
4. Write the room number into the finishing elements with the help of the plugin.
5. Write the sheet of rooms into the finishing elements using the plugin.
6. Write the names of skirting boards to the rooms and run the plugin to calculate the length of the skirting boards.
7. Using the corresponding plugin, we create a schedule of the sheet of room finishes, which is created automatically!

Let's go!

1. In our project we create types of walls and slabs, which we will use the plugin to create the finishing directly.

This is probably the easiest and most straightforward step, as we just need to use standard Revit tools to create wall and floor types that will be used to finish the rooms in the future.

That is, we create a type, fill it with certain layers with materials, assign the function of finishing for all layers and set each layer its thickness and material. Please note that the plugin for creating room finishes works for building ceilings with the system family "Overlap", unfortunately, we can't use ceilings here.



You will have many more types, I make a few types for example.

Warning for all types of walls and slabs in the parameter "ADSK_Name short" or in any other that you specify in the next step (see item 2 parameter number - 2) it is necessary to type in its certain values

Example:

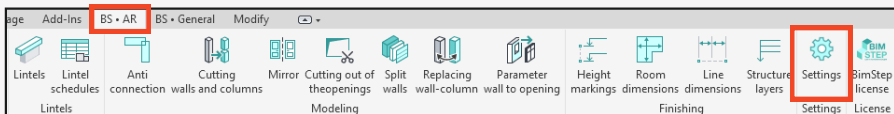
- for reinforced concrete wall - enter Reinforced concrete
- for Brick wall - brickwork
- for gypsum plasterboard, etc.
- for finishing walls - enter "Wall Finishing".
- for finishing walls, with which you want to simulate column finishing, in order to display it in separate columns in the sheet of room finishes - type in "Column finishing".

for finishing walls that you want to simulate ceiling finishes with, you can display them in separate columns in the room finishes sheet - type in "Ceiling finishing".

2. Customize parameters in plugins.

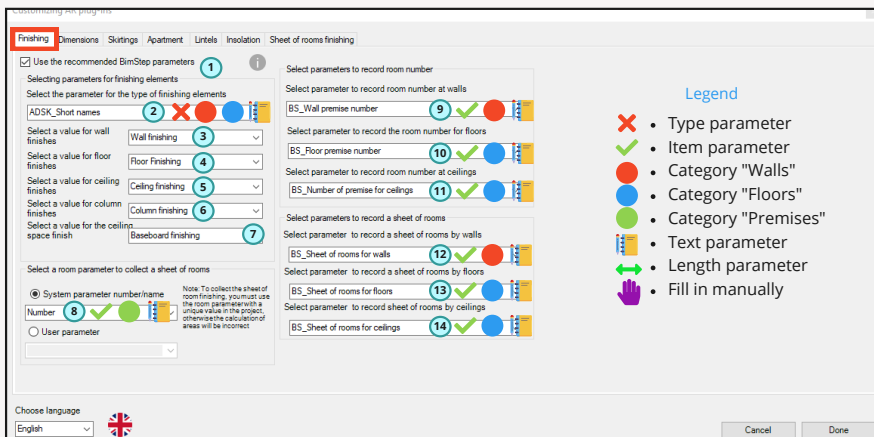
It's worth being patient. So, let's go through everything in order:

Go to the plugin settings:

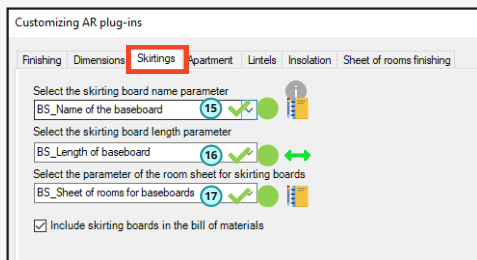


Open the tab here and fill in all fields by selecting them from the drop-down list.

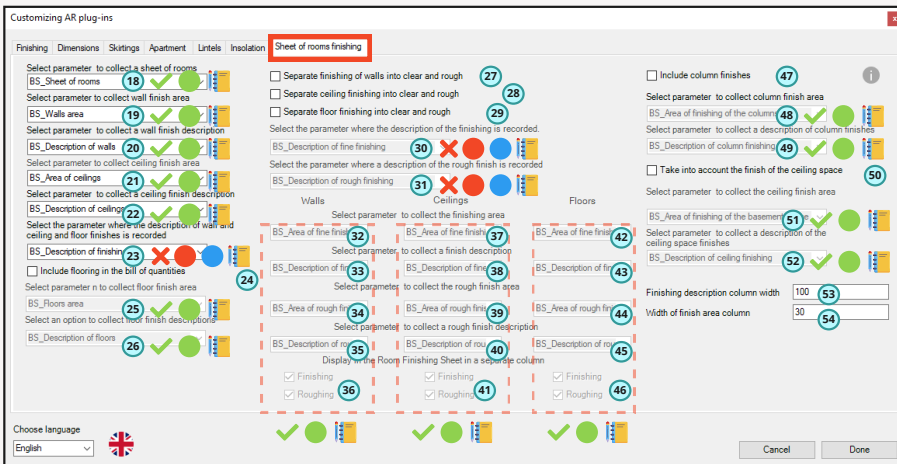
Warning! For sure you will not have all the parameters from the list of those that need to be selected in your project, so for a complete and correct cycle of actions on finishing of premises - add these General parameters to your project, having created them in advance in your file of general parameters or if you have a BIM specialist - ask him for help in customization. If you have a question: what are common parameters and how to create and add them to the project? - we advise you to take a basic course on revit.



1. If you are too lazy to do the configuration and there are no requirements on parameters, you can click on the checkbox and the plugin will configure everything by itself. Then you can go to chapter 3.
2. text parameter type for wall and floor categories 3-7 Select the parameter values from step 2.
8. Select from which room parameter we are going to take the value of the number
9. Text parameter of the instance for walls to record the room number
10. Text parameter of the example instance for floors to record the room number in floors
11. text parameter of the instance for floors to record the room number in ceilings
12. text parameter of the instance for walls to record the sheet of rooms
13. Instance text parameter for slabs to write room sheet to floors
14. Text parameter of the instance for floors to record the sheet of rooms in ceilings



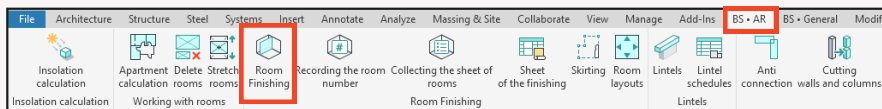
15. Instance text parameter for premises to record the name of the baseboard
16. Dimensional parameter of the instance for rooms to record the length of the baseboard. It is counted by the plugin itself
17. Text parameter of the rooms instance for recording the sheet of rooms, it will be filled by the plugin.



18. Instance text parameter for premises instance to record a list of premises. Fills the plugin
19. text parameter of the instance for rooms to record the area of walls. Fills the plugin
20. Instance text parameter for rooms to record the description of wall finishes. Fills the plugin
21. Instance text parameter for rooms to record ceiling area. Fills the plugin
22. Instance text parameter for rooms to record ceiling finishing description. Fills the plugin
23. Type text parameter for walls and slabs to record finishing description. Filled manually
24. Check the checkbox if we want the list of room finishes to include floors as well
25. Text parameter of the instance for rooms to record the floor area. Fills in the plugin
26. Text parameter of the instance for rooms to record the description of floor finishes. Fills in the plugin
27. If you want the plugin to split the wall finishes into rough and finish, check the checkbox
28. If you want the plugin to split ceiling finishes into rough and clean finishes, check the box 28.
29. If you want the plugin to split the floor finish into rough and finish, check the box 30.
30. Text type parameter for walls and slabs to record the description of finishing. Filled in manually
31. Text type parameter of type for walls and floors to record the description of rough finish. To be filled in manually
32. Instance text parameter for rooms to record the area of finishing walls. Filled by plugin
33. Text parameter of the instance for rooms to record the description of wall finishing. Fills in the plugin
34. Text parameter of the instance for premises to record the area of rough wall finishes. Fills n the plugin
35. Instance text parameter for premises to record the description of rough wall finishes. Fills in the plugin
36. Check the checkboxes if we want to output finish/black wall finishes in the statement
37. Text instance parameter for rooms to record the area of ceiling finish. Fills in the plugin
38. Instance text parameter for rooms to record the description of ceiling finishing. Fills in the plugin
39. Instance text parameter for premises to record the area of rough finish ceilings. Fills in the plugin
40. Instance text parameter for premises to record the description of rough finish ceilings. Fills in the plugin
41. Check the checkboxes if we want to output ceiling finish/black ceiling finish in the statement
42. Text instance parameter for rooms to record the area of floor finishing. Fills in the plugin

43. Instance text parameter for rooms to record a description of the floor finishing. Fills in the plugin
44. Text parameter of the instance for premises to record the area of rough floor finishing. Fills in the plugin
45. Instance text parameter for premises to record the description of rough floor finishing. Fills in the plugin
46. Check the checkboxes if we want to output finish/black finishing of floors in the sheet
47. Check the box if we want the list of room finishes to also include column finishes, which have been previously modeled as a separate type of wall, see p.6.
48. Text parameter of the instance for rooms to record the area of columns finishing. Fills the plugin
49. Text parameter of the instance for rooms for recording the description of the column finishes. Fills in the plugin
50. Check the checkbox if we want the list of room finishes to include also the finishing of the ceiling space, which was previously modeled as a separate type of walls, see item 7.
51. Text parameter of the instance for rooms to record the area of the ceiling area. Fills in the plugin
52. Text parameter of the instance for rooms to record the description of the ceiling space finishes. Fills in the plugin
53. Specify in "mm" the width of the column that will contain the description of the finishing
54. Specify in "mm" the width of the column that will contain the area of the finishing

3. Now you can "stretch" the finishing using the "Room Finishing" plugin

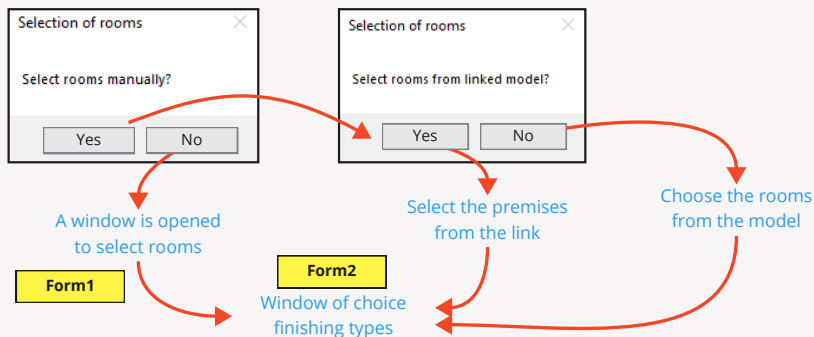


Tip: the plugin can work with rooms that were selected before the plugin was started, as well as with rooms that you can select in the window later.

The plugin can process rooms in the actual model or from a linked model.

Algorithm for selecting rooms

Run the plugin and first give an answer to the 2 pop-up windows.

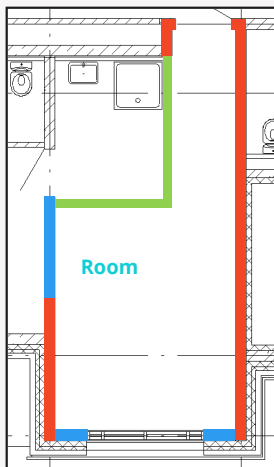


- Select the format of work on selection of rooms.
 - All rooms in the view (for working with rooms from the current model)
 - All rooms in the model
 - All rooms from the level, further it is necessary to select the level.
- Specify from which model it is necessary to take rooms as input data. There are two options
 - Current model
 - Linked model. In this case, further you need to specify a certain linked model.
- Select a certain stage. Since there can be several stages in the model and each stage will have its own set of rooms.
- After all the actions above - you will see in the window minimized list of rooms by name, which are suitable for the specified conditions. In this window you will need to specify which rooms from this list you want to run the plugin to form the finishing.
- Click done.

So now the next window is opened. In this window we define what type of finishing we will use for the rooms we selected in the previous form.

Here is the step-by-step procedure for filling in the form

- Specify the option of work: what kind of finish we will build. There is an option to choose: 1 wall or two walls in height. This is necessary in cases where you have, for example, up to 2m is tile, and above whitewash, etc.
- Specify what kind of finishing should be set for a particular type of wall being finished, i.e. specify what type we will finish reinforced concrete, and what type we will finish brickwork, etc., etc. So, in my case I have 3 types of finishing walls
 - Reinforced concrete
 - GPB
 - Brick masonry
- Specify the height for the walls. Or check the boxes that we will build walls from the floor to the ceiling or at the height of the premises.
- In the drop-down list choose exactly what type of flooring we will pull the floors in the rooms
- Specify the offset of the floor from the level, for example, if we have a clean mark of the floor physically above or below the level at which the room is located
- In the drop-down list we choose what type of flooring we will stretch the ceilings in the premises.
- Specify the offset of the ceiling from the level.
- Specify: the mark that we put in the previous item, will be the bottom or top of the ceiling. A very useful function for suspended ceilings



Finishing

1. Building the walls One wall height Two walls height 1

Wall type

Finishing wall type	Finishing wall type1	Finishing wall type2
Concrete	Finishing reinforced concrete	Finishing reinforced concrete
Gasobeton	Finishing gypsum	Finishing gypsum
Gypsum	Finishing gypsum	Finishing gypsum

2

Form2

Wall height1: 3 2000 , mm Wall height2: 1000 , mm Disable room boundary at finishing walls

2. Building the floor

Floor type

Floor finish type2: 4

Offset of the floor from level: 0 , mm 5

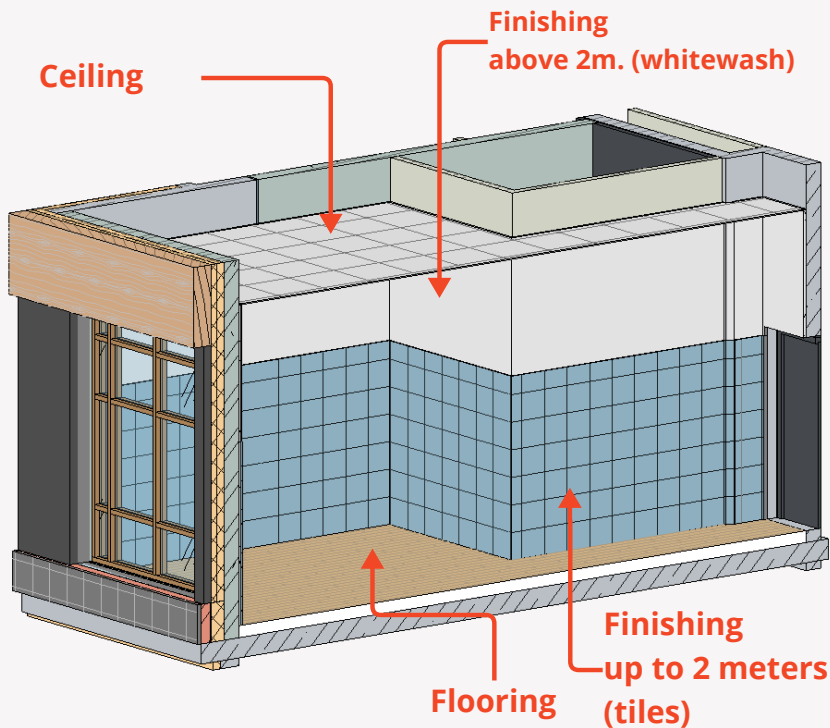
3. Building the ceiling

Ceiling type

Ceiling finish type1: 6

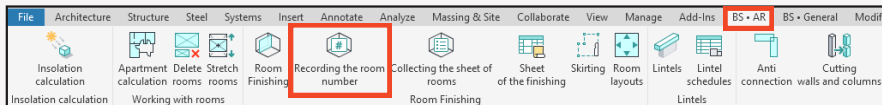
Ceiling height: 3000 , mm By bottom By top 7 8

Cancel Done



4. Write the room number into the finishing elements using the plugin.

So we've modeled the finishing itself. Now it's time to fill in the parameters. The first thing we will do is to write the room numbers to the finishing elements. It is labor intensive to do this manually, so we will use the plugin



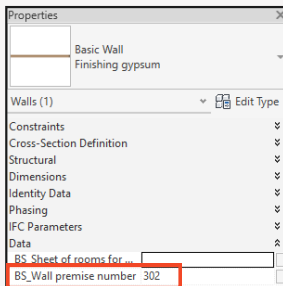
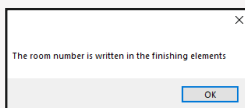
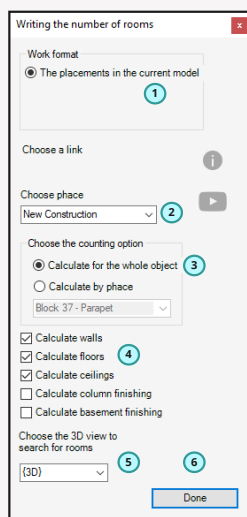
Click on it and set the settings in the form that is opened

- Choose the work format from which model the finishing element needs to determine the room number:
 - By rooms in the current model
 - By rooms in the linked model. In this case it is obligatory to specify from which link.
- Select the stage in which you need to look for rooms for finishing elements.
- Select a count option:
 - We count for the whole object. In this case all finishing elements in the model will be processed
 - By floor. It will work faster, but only the elements of a certain selected level will be considered.
- Indicate by check marks which finishes to go over and record the room number.
- Select the 3D view on which the plugin will search for rooms. Make sure that the selected 3D view is in the model and nothing is hidden on it.
- Click "Done".

But note that the plugin can not always process all walls and floors because of the complex geometry, in this case the plugin will not be able to determine which room the finishing element belongs to.

So if everything is ok - then in the parameter of the finishing element you will see the number of the room by example.

In case the plugin is unable to set the room number - it is necessary to set it manually, otherwise in the end you will not be able to correctly collect the list of rooms finishing.

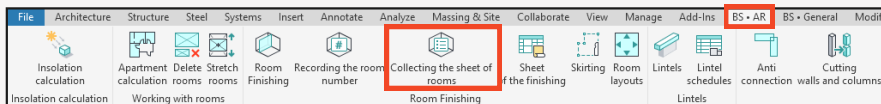


5. Write the sheet of rooms to the finishing elements using the plugin.

So, we have recorded the room numbers, the next step is to record a comma separated list of room numbers. To do this, we need to run the following plugin "Collect room list".

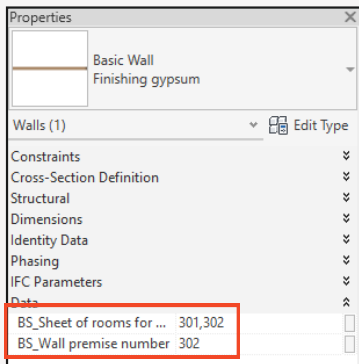
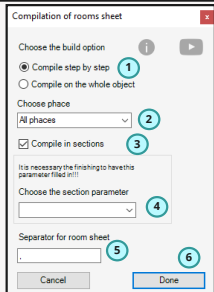


You can skip this step if you want to collect a list of room finishes, not a list of rooms for specific types of finishing elements.



Click on it and set the settings in the opened form.

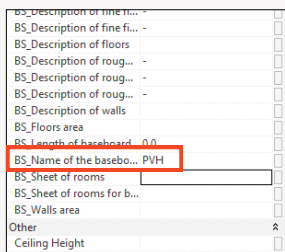
1. Specify the assembly format: whether we will record by level or for the whole object. If by level, the parameter for recording the list of rooms will contain all rooms with a certain type of finish within one level, and if for the whole object, then within the whole object, i.e. for all rooms in the model.
2. Specify the stage or select "All stages"
3. If you have several sections in the model and you want the list of rooms to be recorded by section, select this option.
4. Specify which parameter the plugin should use to get the section number. Please note that you will need to fill this parameter for the plugin to get it right.
5. Specify the separator character. By default it is a comma.
6. Click done and in case of successful completion of the plugin we can see the filled value in the next parameter.



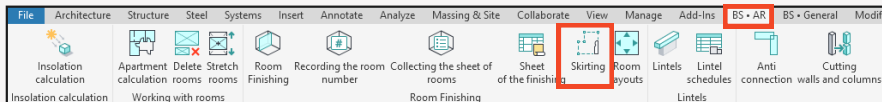
6. Write the names of baseboards in the rooms and run the plugin to calculate the length of the baseboard

So, with the finishing of walls, floors and ceilings we have sorted out, now it remains to count the baseboards. To do this, you need to do the following:

1. In each of the rooms in the parameter responsible for the name of the baseboard, put its name accordingly

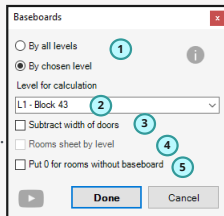


2. Running the plugin to calculate the length of the baseboard

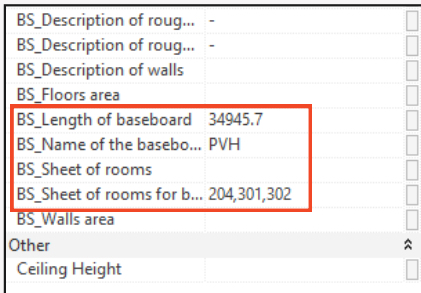


Click on it and set the settings in the opened form.

1. Specify the format of plugin operation: by level or by the whole object.
2. If by level, select a specific level.
3. Click the checkbox if you want to subtract the width of doors.
4. Click the checkbox if you want to make a list of rooms for each level.
In this case, the numbers of rooms with this type of baseboard will be written in the parameter specified in the settings, separated by commas.
5. Click the checkbox if you want to specify the value "0" in rooms where there is no baseboard.

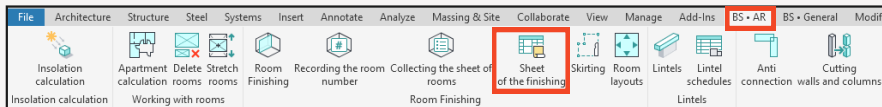


As a result of the plugin processing we get the following situation in filling of room parameters.



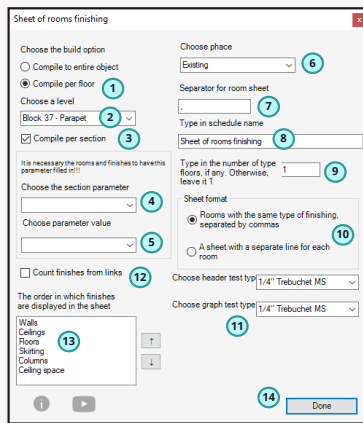
7. Making a sheet of rooms finishing.

Here we come to the very last step to get the room finish list
Run the plugin



In the opened window select settings.

1. Select the format of counting: per whole object or per floor.
2. In case of choosing the format of work by level - it is necessary to select it.
3. If you have a building with several sections and you need to collect a list of room finishes for each section, click on the checkbox, thus specifying this setting.
4. If you will eventually collect section by section, then for the plugin to work, select the parameter that will be responsible for the definition of this or that section in the rooms and finishes. Please note that you need to fill in this parameter before starting the plugin, so that the plugin will work correctly.



5. As a continuation of point 4. within the running plugin - specify for which section you want to collect the sheet of rooms finishing.
6. Be sure to select the stage, because in Revit in one and the same place, in fact, can be 2 rooms in different stages.
7. Specify the separator for the list of rooms, by default it is a comma.
8. Enter the name of the specification as we want it to be called in the project manager.
9. If you want to collect finishing on all typical floors, but the collection will be conducted only on one floor, you can specify how many you have such typical floors, and the plugin already obtained values multiplied by the number you entered.
10. There are different types of rooms finishing sheets, but we distinguish 2 types in the plugin.
 - 1 - when you have in one line in comma numbers of rooms in which all types of finishes are the same, or
 - 2 - when you want to get a list of room finishes for each room on each line.
11. Since the list of room finishes is a specification, the text in this specification is responsible for a certain type of text that you have in the project. Choose it both for the header and for the columns.
12. If it is necessary to take into account the finishing elements from the connection, check the corresponding box.
13. Set the order of finishing when forming the statement.
14. Click Done

Obtaining a bill of materials

Sheet of rooms finishing

Name or room number	Walls	Area, m ²	Ceiling	Area, m ²	Skirting	Length, s.r.	Note
A	B	C	D	E	F	G	H
301	Finishing reinforced concrete	61,99	Ceiling finish type1	227,37	PVH	79.86	
302	Finishing reinforced concrete	26,52	Ceiling finish type2	61,47	PVH	62.65	
507B	Finishing gypsum	20,53	-	-	-	8.12	

Sheet of rooms finishing

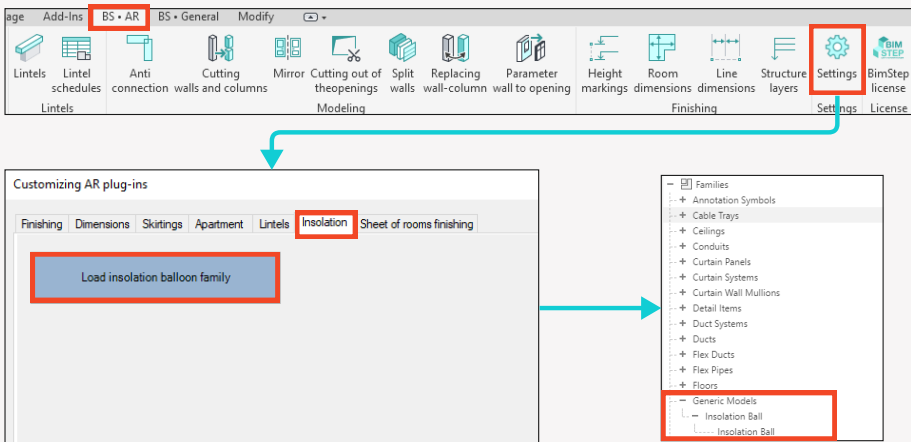
Name or room number	Finishing of walls	Area, m ²	Black finishing of walls	Area, m ²	Finishing of ceilings	Area, m ²	Ceiling roughing	Area, m ²	Finishing of floors	Area, m ²	Floor roughing	Area, m ²	Skirting	Length, s.r.	Note
301	Finishing reinforced concrete fine	61,99	Finishing reinforced concrete rough	61,99	Ceiling finish type1 fine	227,37	Ceiling finish type1 rough	227,37	Floor finish type1 fine	227,37	Floor finish type1 rough	227,37	PVH	79.86	
	Finishing gypsum fine	153,22	Finishing gypsum rough	153,22											
302	Finishing reinforced concrete fine	26,52	Finishing reinforced concrete rough	26,52	Ceiling finish type2 fine	61,47	Ceiling finish type2 rough	61,47	Floor finish type2 fine	61,47	Floor finish type2 rough	61,47	PVH	62.65	
	Finishing gypsum fine	142,83	Finishing gypsum rough	142,83											

Insolation

Plugin "Insolation Calculation" - allows you to make an approximate calculation of insolation on the points that you designate with a special family of "Insolation Ball" and so you can use the sun, which is embedded in the standard functionality of Revit, to make a calculation of insolation on your object.

1. Loading of the insolation ball family into the model

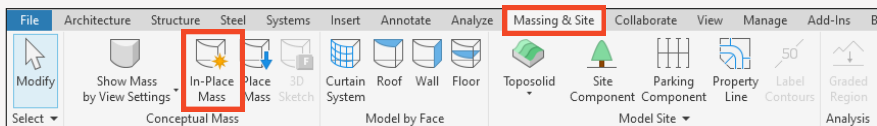
The first thing we will do is load the insolation ball family. To do this, open the plugin settings.



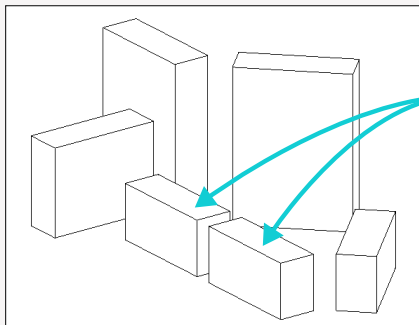
As a result, the insolation ball family in the Generalized Model category will be loaded into your project.

2. Creating an environment.

The next step is to create the environment. Since the calculation of insolation is a calculation of the amount of time during which the sun's rays hit a particular point. Accordingly, the barrier to the sun's rays and is the environment, ie the neighboring building blocks the direct hit of these rays. So, the environment we will do with the standard Revit functionality, namely with the help of forms. If you have never worked with this tool, please check out the video on YouTube or Revit Help. There is nothing complicated, the main thing is to "squeeze" cubes of the current building and neighboring buildings.



Suppose we have the following environment.



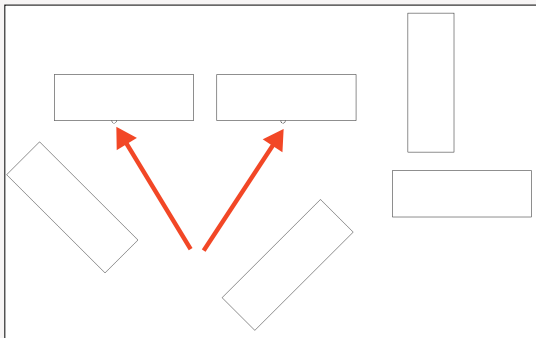
We're going to calculate the insolation for these buildings.

3. Placement of insolation ball families

We have the environment ready.

The next task is to place families of our insolation balls in the project at the points by which we are going to count insolation. In our example, let it be "some" window of "some" apartment #58.

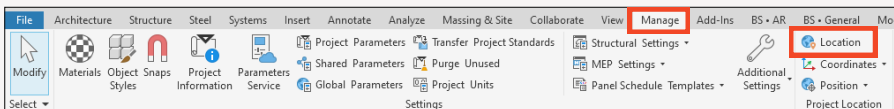
Let's go to the corresponding plan (for example, on the 2nd floor) and put the family of our insolation ball at the location of the window of this apartment. Let's put 2 families for example.



4. Setting coordinates.

Since we will be calculating using the standard Revit functionality, namely the sun, and the sun has a different path in different points of our planet, we first need to set up the correct position of our project in the world.

It is absolutely necessary to correctly locate your site in the world. We do this using the standard Revit functionality, specifically here:



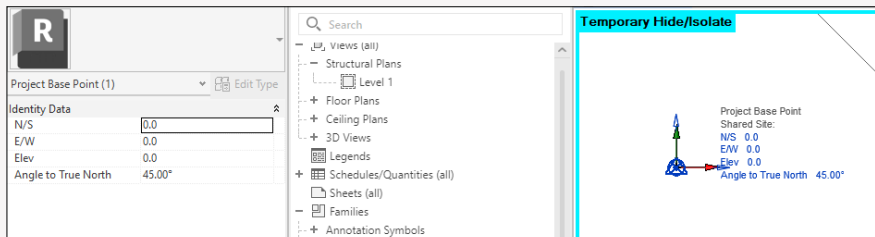
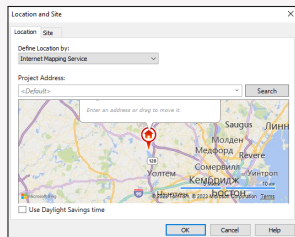
In the opened window select the city of your site location accordingly.

Now you need to specify the rotation angle of your site. We do this by specifying the angle of rotation in the base point of the project.

In our case we will put 45 degrees.

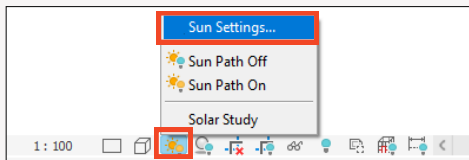


If you don't know where to find the project base point, go to the 3D view and find it in the override of graphics visibility in the General Plan category.



5. Sun Setting.

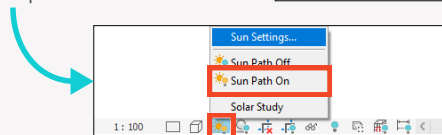
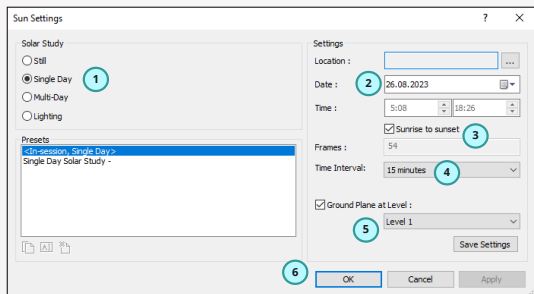
There is only 1 step left before we start working with the plugin. All that is left is to set up our sun on the plan on which we are going to work. So, go to the plan on which we placed our insolation balls, and then click on the button for setting the sun.



In the opened window, you need to make all the settings as follows:

1. Set 1 day
2. Set the settlement date.
3. Check the sunrise to sunset box.
4. Set the calculation of 15 minutes.
5. Set the level of the 1st floor for example.
6. Press ok.

Now let's turn on the sun on our open plan.



As a result, this is roughly what your plan should look like.

6. Setting the parameters

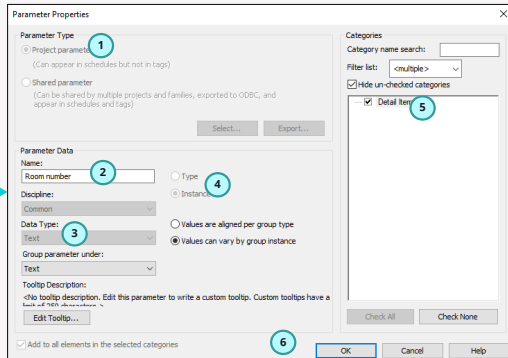
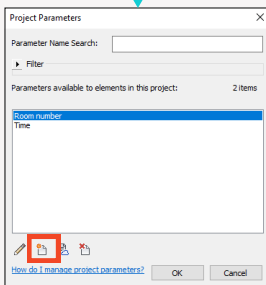
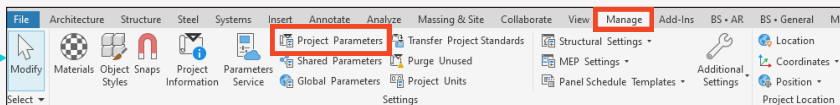
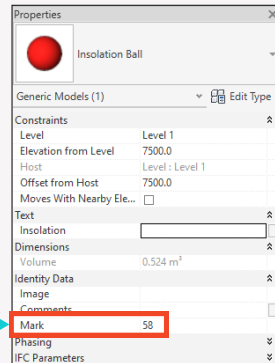
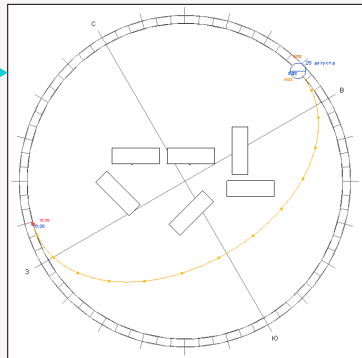
Before running the plugin, do one more operation. Specifically: for example, let's set the brand parameter of our insolation balls to indicate whether they belong to a particular apartment or room. I.e. just fill in the "Brand" parameter.

This filling will be useful for us in order to be able to determine its belonging to this or that room by the created hatching. And also, if you need, you can use it to calculate the total amount of insolation for a particular apartment or room with the help of the specification.

We also need to add a couple of project parameters for the category "Node elements".

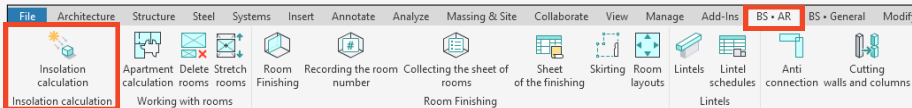
One parameter should be textual and called, for example, "Room number" and the second one should be numerical and called, for example, "Time". You can add these parameters manually using the standard Add Project Parameters functionality in Revit.

Instructions for adding a text parameter are below, for the numeric parameter we do the same, but specify the data type "Number" and the corresponding parameter name



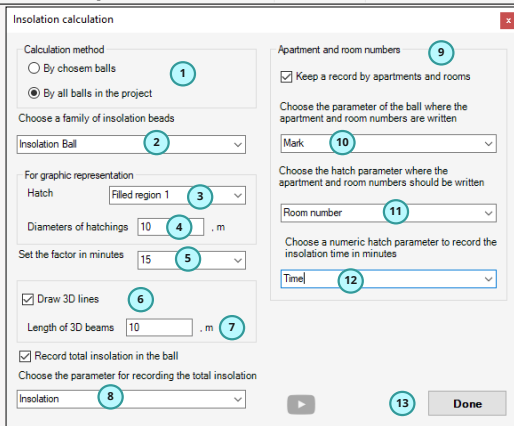
7. Plugin operation

Launch the plugin on the BS_AR line



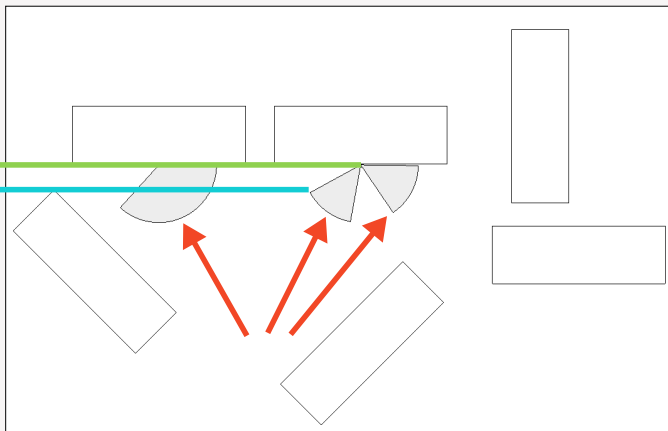
In the opened plugin, make the following setting:

1. Select the format of work: By all balls or only by selected ones. If only by selected ones, they should have been selected before launching the plugin.
2. Select our insolation balloon family.
3. Select the type of hatching. It will be needed to create the insolation petals on the plan.
4. Specify the petal diameter for the hatching that will be built on the plan.



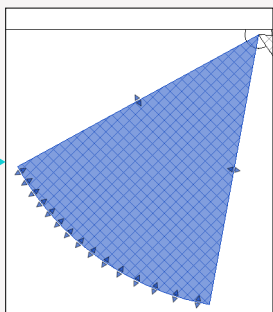
5. Set the multiplicity in minutes, you can choose 15,5,3 or 1 minute. The less we set, the more accurate the calculation will be, but longer the plugin will work.
6. If you want to see on the 3D view of the extreme rays of the petals, which fall from the sun to your family insolation balloon, check this box.
7. If you specified a check mark in step 6, you can specify the length of these edge rays.
8. Specify the parameter where the total insolation by point will be written. I.e. this is the parameter of the insolation ball family.
9. If you want the insolation information to be recorded also in the hatch petals, check this box.
10. Specify the parameter of the insolation balloon where the room number is recorded. In our case, this is the "Brand" parameter.
11. Specify the parameter of the hatch where you want to record the room number from the insolation ball.
12. Specify the hatching parameter where to record the insolation time for one petal.
13. Click Done!

As a result, we get hatching petals in our plan.

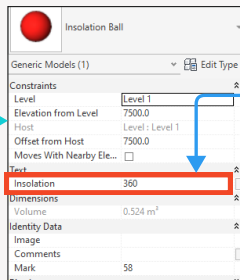
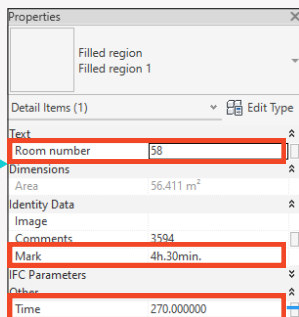
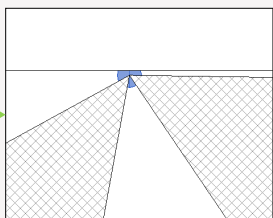


Consequently, each of the lobes shows in the form of a sweep the insolation at the point where it passes and where it breaks.

Look at the parameters. Choose one hatching lobe.



Choose the insolation family ball

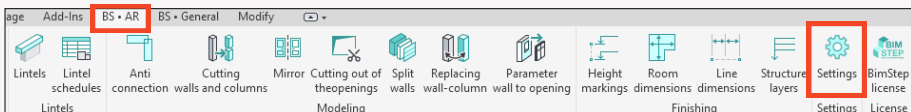


Apartmentography

Plugin "Apartmentography" - will allow you to calculate the apartmentography for residential objects where you need to take into account how many square meters in your apartment are living quarters, the total area, as well as the area including balconies and loggias depending on the specified coefficients, as well as the number of living quarters.

1. Setting up the plugin

Since the plugin implies in its work and filling in certain parameters, you need to set them up. Go to the plugin settings



Legend

- ✓ • Example parameter
- • Room category
- • Text parameter
- • Parameter with data type "Integer"
- • Area parameter
- • Manually filled in

Here we go to the "Apartmentography" tab and select a specific parameter in each block.

1. If you don't know or don't want to fill in, you can just click on the "Fill in the recommended BimStep parameters" checkbox, and then the plugin will set up everything by itself.

2. text parameter of the compartment by instance to fill in manually the apartment number of the compartment set.

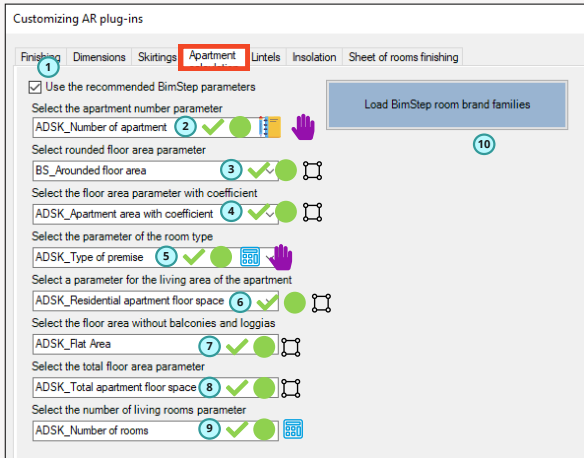
3. area parameter of a room by instance. In it the plugin will record the rounded area. For example, if the area of the room is 12.578sq.m. then the plugin will write 12.58sq.m or 12.6 to this parameter depending on the rounding according to the plugin settings.

4. The area parameter of the room by instance in which the plugin will record the area rounded and multiplied by the appropriate coefficient, for example, the balcony by 0.3.

5. Room parameter by instance with data type "Integer". This parameter must be filled manually by room by specifying the room type.

What are the types:

1- Residential premises. 2- Non-residential premise. 3- Loggia. 4- Balcony. 5- Terrace.



6. Room area parameter by instance, where the plugin will record the total rounded area for residential rooms only (i.e. only those rooms that have room type 1).
7. Room area parameter by instance, where the plugin will record the total rounded area of residential and non-residential rooms (i.e. only those rooms with room type 1 or 2).
8. Premises area parameter by instance, where the plugin will record the total rounded and multiplied by a coefficient area of all premises of all types.
9. Premises parameter by instance with data type "Integer", where the plugin will record the number of dwellings it found within one apartment (i.e. only those rooms with room type 1).
10. If you use the recommended BimStep parameters, you can use this button to upload 2 marks to your project: 1 - Mark for the apartment and 2 - Mark for the rounded area of the room. So, probably by the settings you already guess what the algorithm of the plugin will be. Below is a schematic of the plugin's operation in the form of a tabular diagram of a 2-room apartment. And also it is displayed, what exactly parameters and how are displayed in the mark of the apartment.

<p>
</p>

Room name	Room type	Area from Revit	Rounded area	Coefficient	Area rounded with a coefficient	6 Area apartment dwelling	7 Apartment area	8 Total floor area of the apartment
Room1	1	15.688	15.69	1	15.69	15.69	15.69	15.69
Room2	1	20.578	20.58	1	20.58	20.58	20.58	20.58
Kitchen	2	12.588	12.59	1	12.59	0	12.59	12.59
Bathroom	2	6.897	6.90	1	6.90	0	6.90	6.90
Loggia	3	5.477	5.48	0.5	2.47	0	0	2.47
Balcony	4	3.544	3.57	0.3	1.07	0	0	1.07
Total						36.27	55.76	59.30

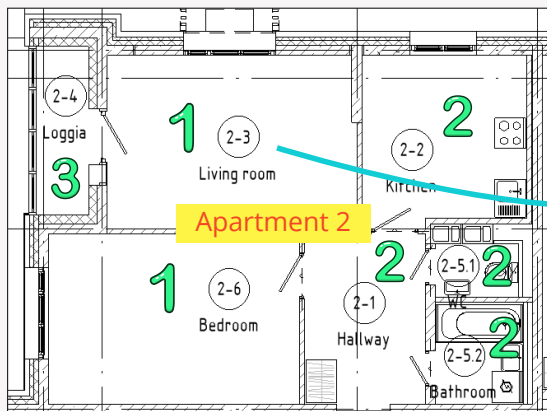
9	6	36.27
2	7	55.76
	8	59.30

2. Filling in the parameters of the premises.

So, we have the parameters set up. Now you can fill in the parameters.

To do this, you need to fill two parameters within all rooms of the apartment:

- Apartment number (by this parameter the plugin will group rooms within one apartment)
- Room type (by this parameter the plugin will determine what type of room it is and which coefficient to apply to this room when calculating).

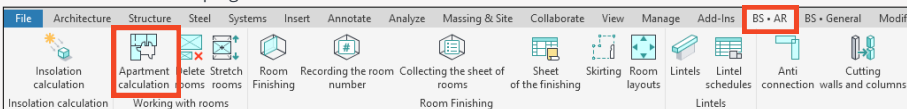


Properties	
R	
Rooms (1) Edit Type	
Constraints	
Dimensions	
Area	72.565 m ²
Perimeter	40087.8
Unbounded Height	4000.0
Volume	195.925 m ³
Computation Height	0.0
Identity Data	
Phasing	
IFC Parameters	
Data	
ADSK_Apartment area ...	0.000 m ²
ADSK_Flat Area	0.000 m ²
ADSK_Number of apart... Flat NR2	
ADSK_Number of rooms	1
ADSK_Residential apart...	0.000 m ²
ADSK_Total apartment f...	0.000 m ²
ADSK_Type of premise	1
BS_Arounded floor area	0.000 m ²

3. Launching the plugin

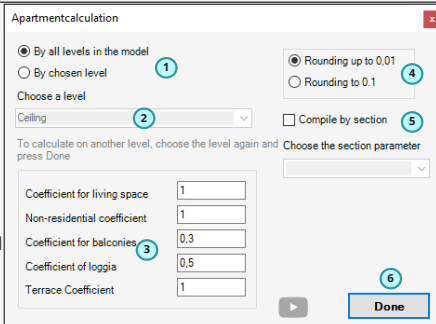
So, we have set up all the parameters and filled out the necessary for the plugin to work.

Let's launch the plugin!

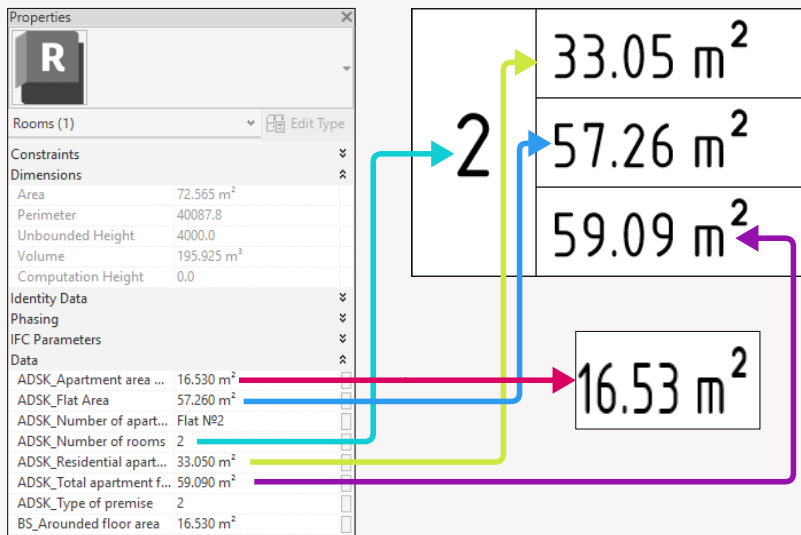


Select the settings in the opened window:

1. Choose the format of work: by all levels or by one.
2. If in item 1 you have chosen by a certain level, here specify which one.
3. In this block, for each of the types of premises, specify the coefficient.
4. Select the format of rounding the area: to hundredths or to tenths.
5. If you have several sections in your model and apartment numbers are repeated within one level, you can additionally choose to filter by level and specify the parameter in which the section is specified.
6. Click Done.



As a result, we get filled in parameters for each of the rooms of the apartment. And now we can apply the marks that we downloaded from the settings and place them on the rooms.

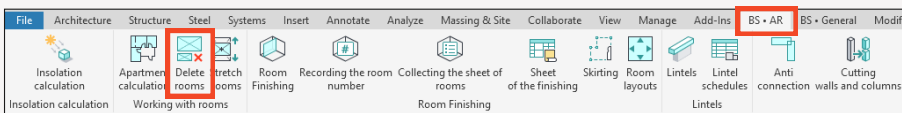


Remove the rooms

"Remove Premises" plugin allows you to remove unplaced, uncluttered and redundant premises in 2 clicks.

It often happens that the project accumulates a lot of such rooms and with the help of this plugin you will be able to clean up your project faster.

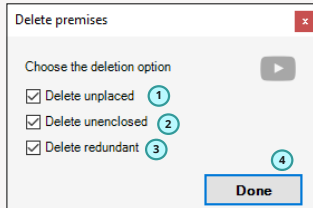
Launch the plugin



In the opened window you need to select the following parameters Будем ли удалять неразмещенны помещения

1. Shall we remove unsurrounded rooms
2. Shall we remove redundant rooms
3. Press ok

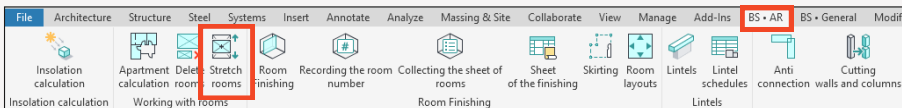
As a result, all rooms that were classified as such were removed from your project



Stretch out the rooms

Stretch out Rooms plugin allows you to stretch your rooms in height within building structures such as floors, ceilings so that automatically you have stretched rooms regardless of where the floor or ceiling is located.

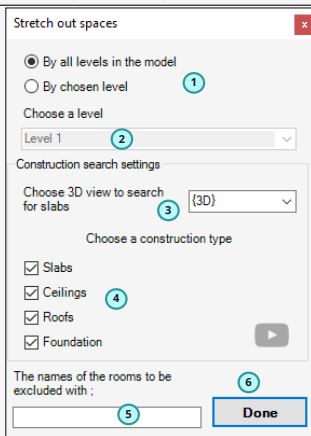
Launch the plugin



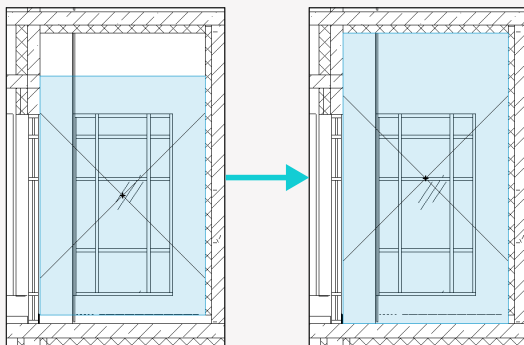
In the opened window you need to select the following parameters:

1. Select which rooms you want to work with. There are 2 options - by the whole model or by a certain level.
2. If in item 1 you have chosen the format of work on the selected level, then here you should select it.
3. Choose 3D view, on which the plugin just and will determine what there are over the room and under the room building structures by firing a phantom beam up and down and it is on this 3D view and look for the nearest building structures from the room.
4. Choose which types of building structures to consider when the plugin is running.
5. If suddenly, you want the plugin to not process some rooms, write in this window with commas their names.
6. Click done.

As a result, the plugin pulls the rooms within the building structures. You can see it in the section.



Before launching the plugin After launching the plugin

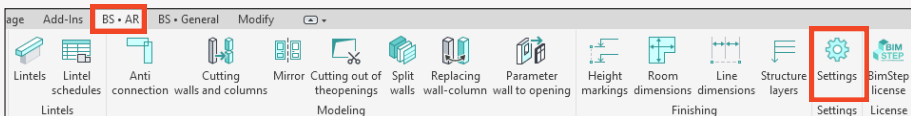


Lintels

The "Lintels" plugin allows you to automatically place metal lintels on selected doors or windows, as well as to make an automatic specification of both the lintels themselves and their parts.

1. Setting up the plugin

Since the plugin implies in its work and filling in certain parameters, you need to set them up. Go to the plugin settings



Legend

- ✓ • Instance parameter
- • Generalized Models category
- 📄 • Text parameter
- 📄 • Parameter with data type "Number"
- ↔ • Parameter with data type "Length"

Here we go to the "Lintels" tab and select a certain parameter in each block.

1. If you don't know or don't want to fill it in, you can just click on the "Fill in the recommended BimStep parameters" checkbox, and then the plugin will set everything up by itself.

2. Text parameter for the "Generalized Models" category by instance, which will be responsible for the position.

3. Text parameter for the category "Generalized models" by instance, which will be responsible for the name.

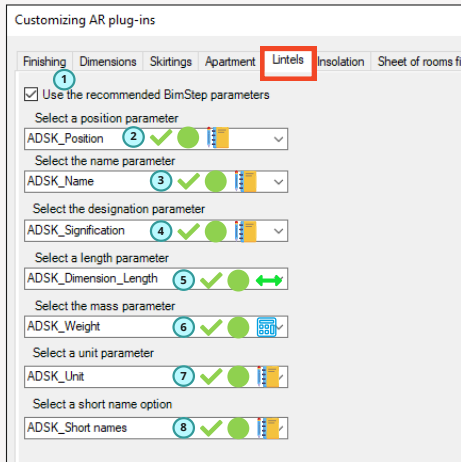
4. Text parameter for the category "Generalized Models" by the instance that will be responsible for the denomination.

5. A parameter with the data type "Length" for the category "Generalized Models" by instance, which will be responsible for the length of lintels and their components.

6. A parameter with the data type "Number" for the category "Generalized Models" on the instance to which the plugin will record the mass of the jumper and its components.

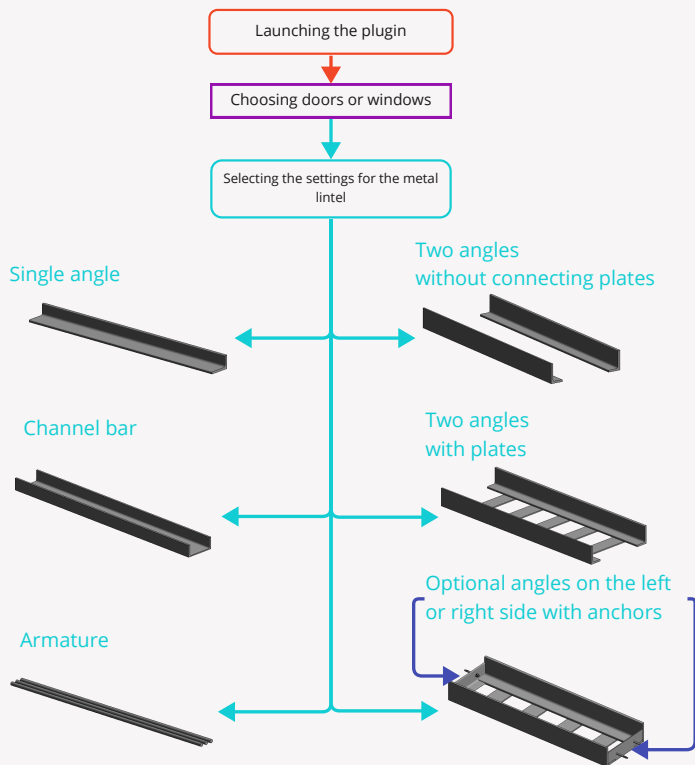
7. A text parameter for the "Generalized Models" category by instance, which will be responsible for the units of measurement.

8. Text parameter for the "Generalized models" category by instance, which will be responsible for filtering elements by specifications.



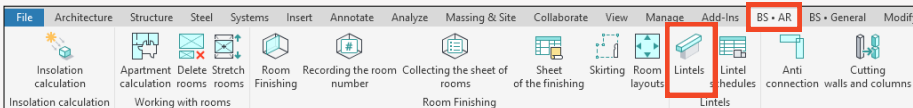
2. Plugin algorithm

Below there is a schematic representation of the plugin's algorithm for setting lintels in a project



3. Positioning of metal lintels

Launch the lintel positioning plugin



Then you need to select the door or window opening on which you want to place the lintel. Then you will see a window where you need to make the following settings:

1. Select the type of metal lintel you need (rebar, single angle, two angles with lintels, two angles without lintels, channel) from all the proposed options
2. If you have an opening adjoining, for example, to the left or right side of the reinforced concrete and you additionally need a supporting corner, check the box.
3. Further, depending on what type of lintel you have chosen - specify its profile according to the assortment. I.e. if you have chosen channel, then specify what kind of channel the plugin needs to use in the family, in the case of selecting rebar - what diameter and how many reinforcing bars should be used in the work, etc.
4. Specify the left and right support lengths for the lintel. I.e. the distance it will go into the wall.

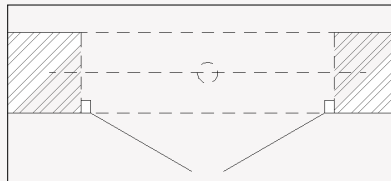
 A screenshot of the 'Metal lintel' dialog box. The settings are as follows:

- 1. Choose lintel type: Reinforcement
- 2. Choose optional placement conditions: Corner bracket on the left, Base corner on the right
- 3. Choose angle type: 65x50x5
- Choose channel type: 14П
- Choose support bracket: 65x50x5
- Choose diameter of armature: 12
- Type in number of rebars: 3
- 4. Basement length to the left: 250
- Basement length to the right: 250
- Choose the width of the opening: Width
- Choose the height of the opening parameter: Height
- 5. (Grouped callout for Width and Height)
- Type in the wall thickness (if the opening is not a door or window), mm: 250
- 6. (Callout for wall thickness)
- 7. Done

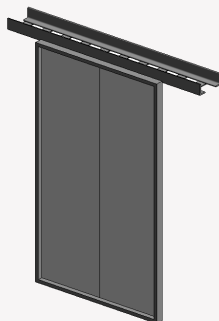
5. Since in revit all families can be created differently by each author - not always the parameters Width and Height are responsible for the actual size of the width and height of the opening, so you will need to specify parameters that accurately define in the door family its opening, so that the lintel gets the real size.
6. In case you want your lintel to be a different thickness than the wall thickness, specify this value in the field.
7. Click Done!

The plugin will install a lintel over the opening

View in plan



In the 3D view

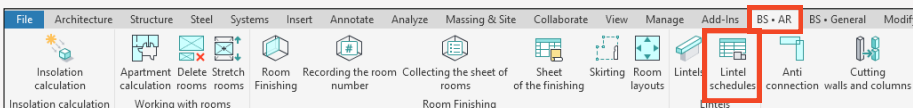


This way you can arrange metal lintels around your door and window openings.

4. Creating schedules for lintels

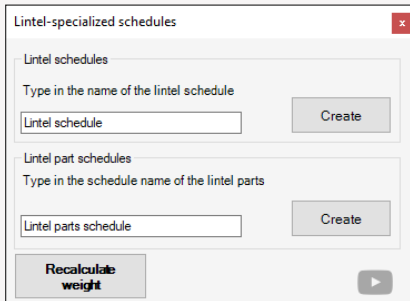
So, we have arranged all the lintels families. Now it's time to make the schedule. Of course, you can make your own schedule or with the help of a BIM specialist, but you can also specify both lintels and parts with the help of a plugin.

On the BS_AR tab, click on the "Lintels Specs" button



In the opened window you can name the new schedule and create it. You have the choice of making a schedule for the lintels or making a schedule for the lintel parts.

Also, if suddenly you have changed your lintel after placing it manually, for example, you have changed the size of the angle or the diameter of the reinforcement, with the help of the button "Recalculate weight" - you can do it.



This results in the following schedules:

1. Schedule of jumpers

Lintel schedule					
Pos.	Identification	Name	Dimension unit.	Num.	Note
A	B	C	D	E	F
		Steel lintel	p.	1	13.531875
		Steel lintel	p.	1	3.767962
		Steel lintel	p.	2	29.4882

2. Lintels details schedule

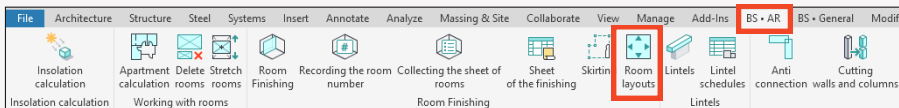
Lintel parts schedule						
Pos.	Identification	Name	Dimension unit.	Num.	Length	Note
A	B	C	D	E	F	G
		BZB-15-26/80	p.	2	0	0.06
		Plate 80x6 mm	p.	6	116	2.64
		Angle 65x50x5	p.	1	156	0.678307
		Angle 65x50x5	p.	2	1200	10.464
		Reinforcement D12	p.	3	1414	3.767962
		Angle 65x50x5	p.	1	1770	7.7172

Rooms layouts

"Rooms layouts" plugin allows you to create an automated set of facades along the contour of selected rooms, and then place these views immediately on the sheet. This plugin will be useful for architects, as well as specialists in interior solutions.

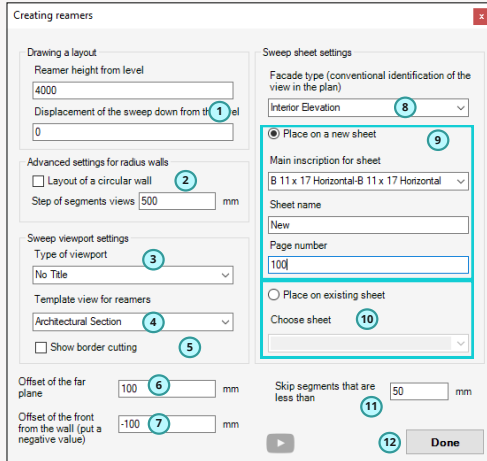
1. Launching the plugin

Since the plugin works specifically with room contours, you need to select these rooms before running the plugin. Then click on the plugin button.



In the opened window you need to make a number of settings:

1. Since the layout will be built on the room, and the room is on the level, you need to set the display height up and down from the level for the cuts.
2. If you have selected a room that has round walls and you want to get a layout including on them, then, as I'm sure you know, Revit can not build facades on curved lines, so here the plugin offers you to make a layout on round walls by creating segments. If this is your case, check the box and specify the pitch of the segments.
3. Select the type of viewport



Since the plugin will place the views on the sheet after creating them, you need to tell it what type of viewport you want to use.

4. Select a view template for the facade of the layout. Here you will be able to select a preset view template, so that your layouts will be at once with customized graphics.
5. Check the box if you want a clipping border enabled on each of your layouts.
6. Set the far plane offset i.e. the distance the facade will see the elements.
7. Set the offset of the facade from the wall. i.e. if you want the created facades to be not close to the wall, set this offset with a negative value. It will be useful for those who want, for example, on the sweep to see the furniture that stands against the walls.
8. Since the plugin uses facades - then you need to select this type of facade in this item. You can customize it in advance and set a correct and beautiful graphical notation.

Lintels plugin allows you to automatically create a set of facades along the contour of selected rooms, and then place these views immediately on the sheet. This plugin will be useful for architects, as well as specialists in interior solutions.

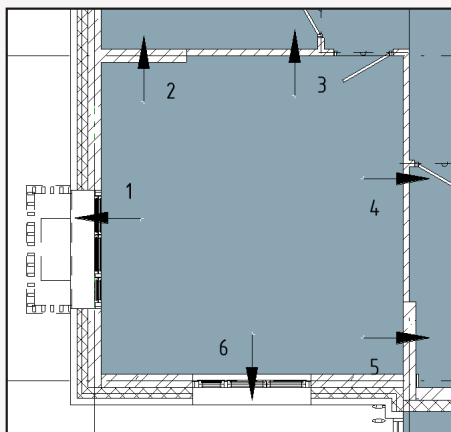
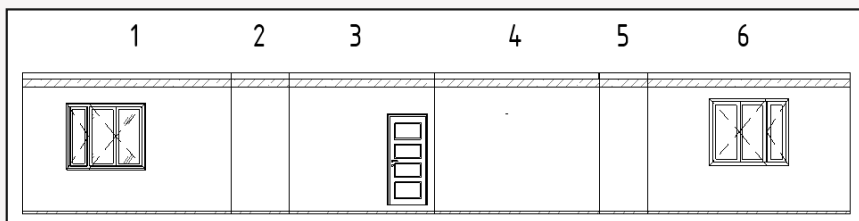
9. After the formation of facades plugin will place them on the sheet in order, so if you choose the format of work - Place on a new sheet, then of course you will need to select the family of the main inscription to create a new sheet, as well as set the number and name of the new sheet.

10. If you choose the work format - Arrange on an existing sheet, then you will need to select that sheet.

11. There may be some small segments in your room that you do not want to layout - for this purpose, specify the segments of what length you would like to skip.

12. Click Done!

As a result, we get formed facades laid out on sheets as a layout of the rooms.

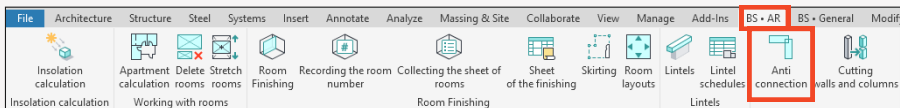


Anticonnection

The plugin "Anticonnection" - allows you to quickly click on the walls to make automatic detachment from both sides of the wall. With this plugin you can do it much faster than with standard Revit functionality.

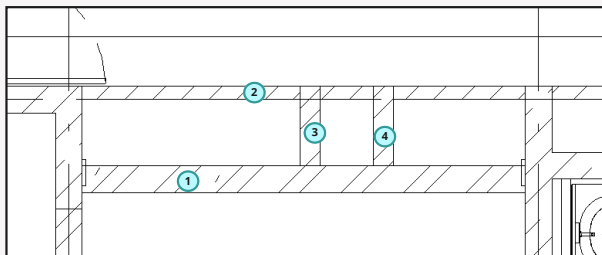
Plugin operation

The algorithm of the plugin is as follows: You launch the plugin, and then alternately click the walls at which you want to cancel the link. Launch the plugin

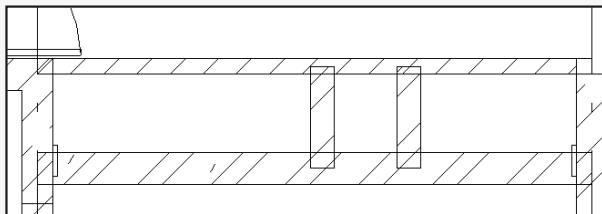


And then click on the first, second, etc. walls and we see that immediately we have a detachment of the selected wall from the rest, and from both sides.

Before



After



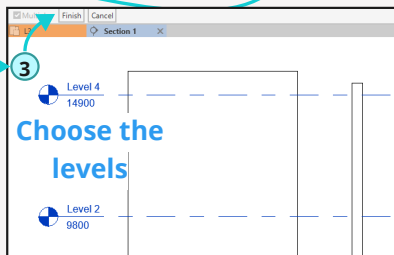
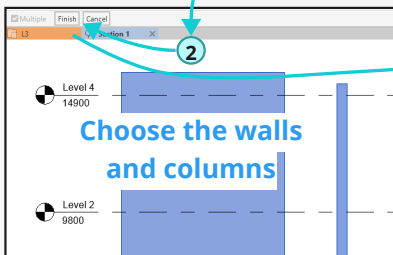
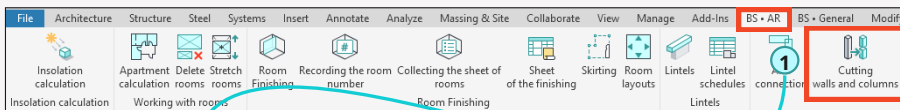
Cut walls and columns

Plugin "Cut walls and columns" allows you to cut selected walls and columns by specified levels. I.e., if you have a wall made to the height of the whole building, but not broken down by levels, this plugin will just help you to do it.

Plugin operation

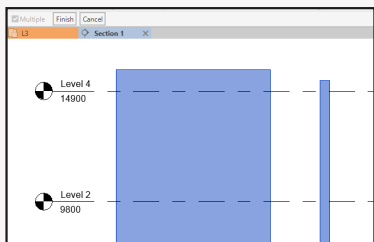
The plugin algorithm is as follows:

1. Run the plugin.
2. Select walls and/or columns, then click done.
3. Select the levels you want to cut the selected walls and columns and click done.
4. Done. The walls and columns have been cut by levels

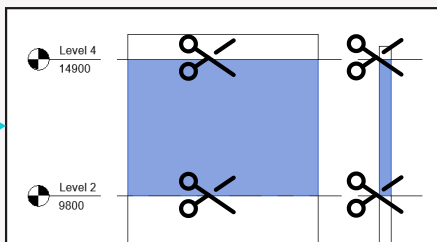


Got a level cut

Before



After

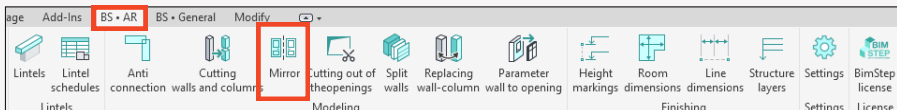


Mirror

The "Mirror" plugin is a small but very useful plugin that will help you easily find mirrored elements in your project and thus make fewer design mistakes.

Plugin operation

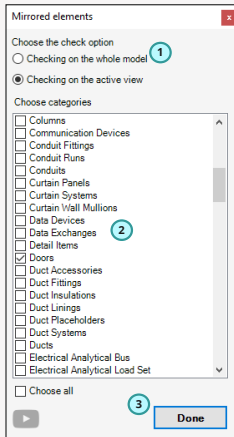
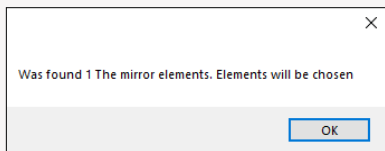
Launch the plugin



In the opened window, we need to select the following settings:

1. Select the format of work. On the whole model or on the active open view we will search for mirrored elements.
2. Specify what categories the plugin should work on to find the mirrored elements.
3. Click done!

As a result, if the plugin finds at least one mirrored item, it will report it, and afterwards it will select items so that it is clear to you which items are mirrored

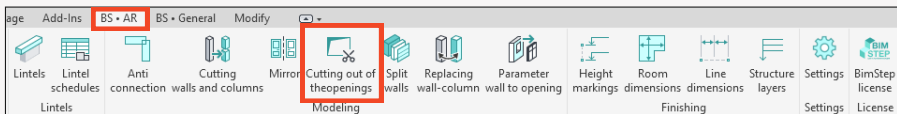


Hole cutting

Plugin "Hole cutting" allows you to cut families from your elements of building structures, which in your model perform the function of holes, but are not physically placed in the walls or floors, ie they are some separate families and with the help of their hollow elements can be cut our building structures

Plugin operation

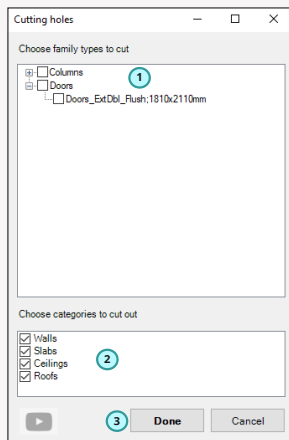
Launch the plugin



In the opened window, we need to select the following settings:

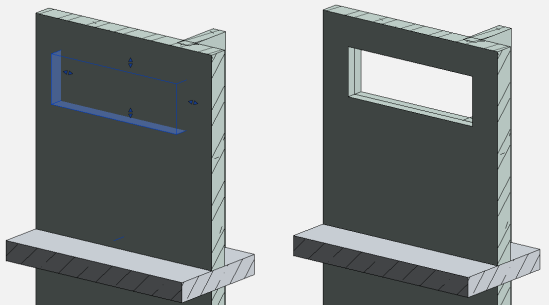
1. Select which families we want to cut out. The tree shows all families by category.
2. Specify which building structures you want to cut out (Walls, floors, ceilings and roofs).
3. Click done!

As a result, if the plugin finds an intersection of the selected families with these constructs, it will perform a cut operation.



Before

After



Split multilayer walls

The "Split multilayer walls" plugin will allow you to make a division of one wall that consists of several layers into several other walls.

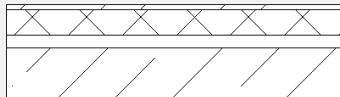
So, let's take an example, when we need to separate a wall, which includes a reinforced concrete wall and facade, into a separate reinforced concrete wall and a separate wall, which will include all other layers.

I.e. we have an initial wall with a thickness of 370mm

Our task is to divide it into 2 walls

The first wall is reinforced concrete 200mm thick.

The second wall - everything else is 170mm thick.



	Function	Material	Thickness	Wraps	Structural Material	Variable
1	Core Boundary	Layers Above Wrap	0.0			
2	Structure [1]	Steel, Paint Finish, Dark	20.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Structure [1]	Insulation / Support Fr	100.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Structure [1]	Air	50.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Structure [1]	Concrete, Cast In Situ	200.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	Core Boundary	Layers Below Wrap	0.0			

Consequently, to accomplish this, we need to first prepare these 2 new wall types, i.e. one wall type is "Reinforced Concrete - 200" and the other is "Facade - 170". Inside these wall types, don't forget to customize all the layers as we need them.

Reinforced concrete - 200



	Function	Material	Thickness
1	Core Boundary	Layers Above Wrap	0.0
2	Structure [1]	Concrete, Cast In Situ	200.0
3	Core Boundary	Layers Below Wrap	0.0

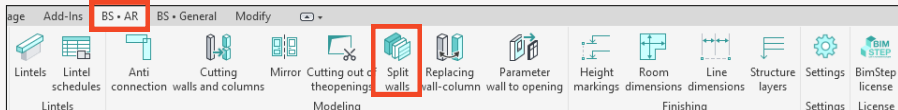
Facade - 170.

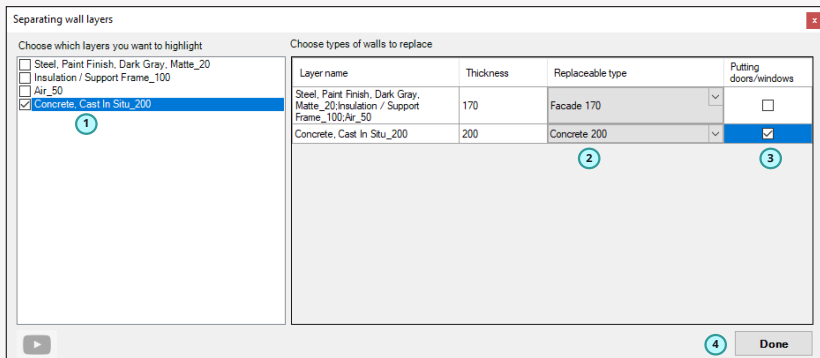


	Function	Material	Thickness
1	Core Boundary	Layers Above Wrap	0.0
2	Structure [1]	Steel, Paint Finish, Da	20.0
3	Structure [1]	Insulation / Support F	100.0
4	Structure [1]	Air	50.0
5	Core Boundary	Layers Below Wrap	0.0

Now everything is ready for the plugin to work!

So, select our layered walls that we want to split and click to launch the plugin!

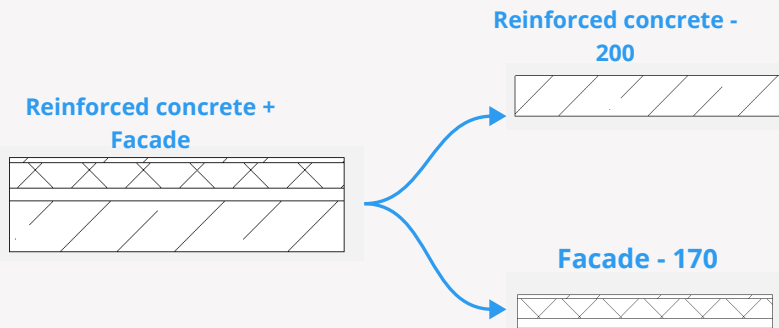




In the opened window we need to make the following settings:

1. Specify in this block which layers we want to separate into separate walls.
2. After point 1 we see how our plugin splits the original wall and so we need to select the appropriate replacement wall type for each of the sets of split layers. This is what we created the replacement wall types for earlier.
3. Specify with a check mark, in which of the created walls will need to put an opening, if it was in the original wall.
4. Click done!

As a result, instead of one multilayer wall, we get one single-layer wall as a reinforced concrete wall and one multilayer wall as a facade.

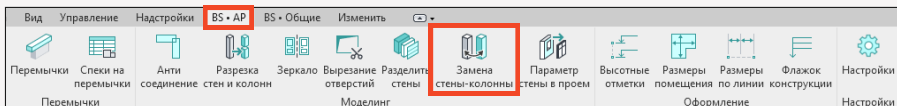


Wall-column replacement

The " Wall-column replacement" plugin will help you easily replace selected walls with column families or vice versa replace selected columns with walls.

Plugin operation

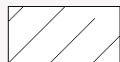
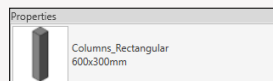
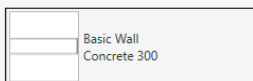
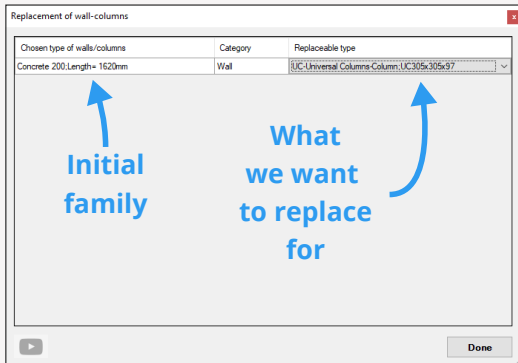
Launch the plugin



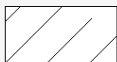
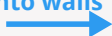
Then select columns or walls and click done.

In the opened window you need to choose which type of wall you want to replace the selected columns with or, on the contrary, which type of columns you want to replace your walls with and click done.

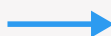
As a result, instead of a column we get modeled walls and vice versa!



From
columns
into walls



From walls to
columns

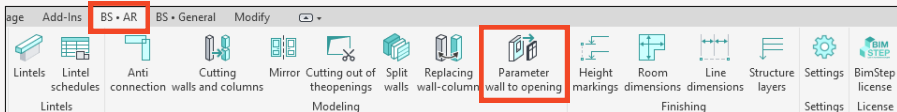


Parameter of wall to opening

The plugin "Parameter of wall to opening" will help you to write a value from the wall, in which stands a family of door or window opening actually in some parameter of this family. I.e. with the help of this plugin you will be able to transfer information to the aperture from the element in which it is located.

Plugin operation

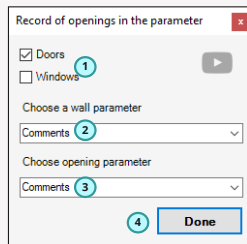
Launch the plugin



In the window that opens, we need to select the following settings:

1. Select which categories of openings we want to process. There are doors and windows to choose from.
2. Select the wall parameter from which the value should be taken.
3. Select the parameter of the opening, where you want to write the value.
4. Click done.

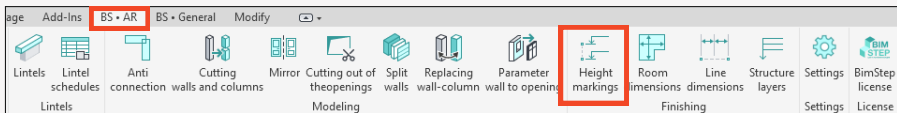
As a result, the parameter value from the wall is overwritten to the specified parameter of the opening.



Height marks

The "Height marks" plugin will allow you to quickly and easily make height marks on your sections and facades on the specified structures both on their bottom and top.

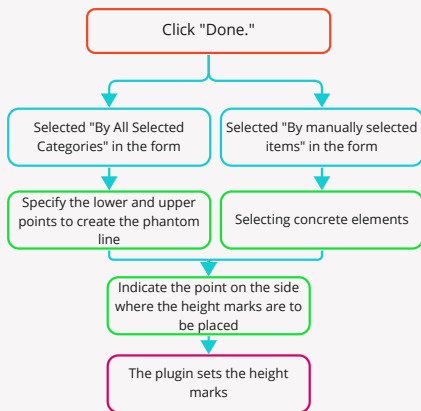
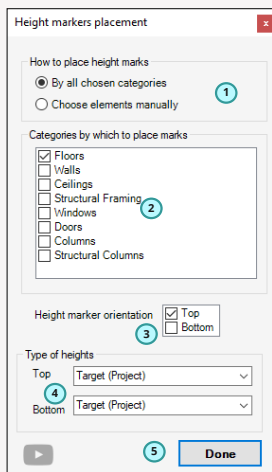
Go to the section or facade and launch the plugin.



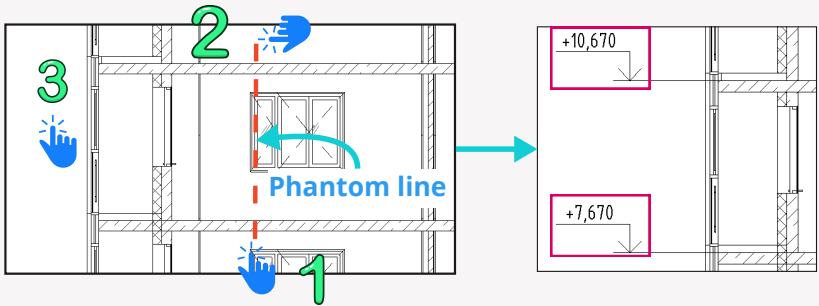
In the opened window we need to select the following settings:

- Select the plugin work format
 - For all elements of the selected categories (see item 2.). I.e. further the plugin will ask you to specify 2 points on your section bottom and top to make a "phantom" line using them and then only those elements that intersect with this line will be processed by the plugin.
 - By elements selected manually. Here everything is simple, the plugin will process only those elements that you select.
- If in item 1 you have chosen the first way of plugin work, then in this window you need to specify the categories on which the plugin will work.
- Specify in which orientation you want to make a height mark (bottom or top).
- Consequently, for marking on the bottom and on the top select the corresponding types of height marks from your project.
- Click Done!

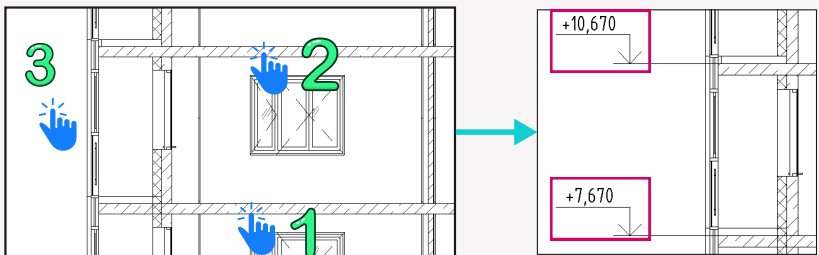
Then the algorithm of the plugin will work as follows:



Option with phantom line construction

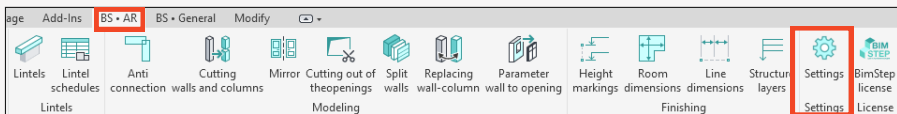


Option with selection of elements



Room dimensions

The "Room dimensions" plugin quickly creates 2 sizes on the plan (vertical and horizontal) and thus will be convenient for architects, when they need to place many sizes on the rooms at once. But before the plugin works, it must be set up, so go to the plugin settings.



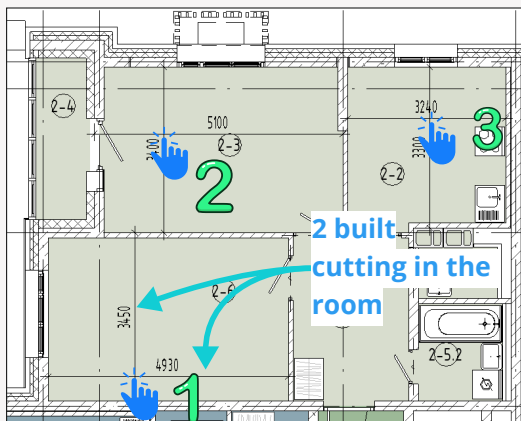
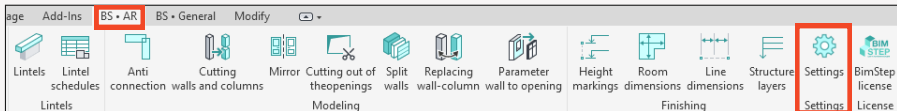
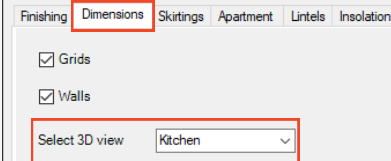
And specify a certain 3D view on the "Dimensions" tab. Why is it necessary?

It is on this 3D view plugin will from the specified point "shoot phantom rays" in 4 directions and look for walls, on which the plugin can just build dimensions.

Accordingly, after customizing the plugin - go to the plan and launch our plugin!

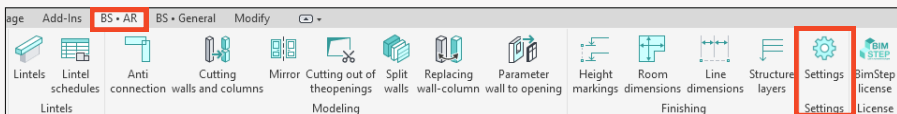
And then alternately click inside the room, showing the point of intersection of dimensions on the room.

Customizing AR plug-ins



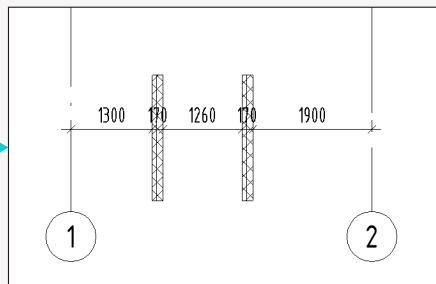
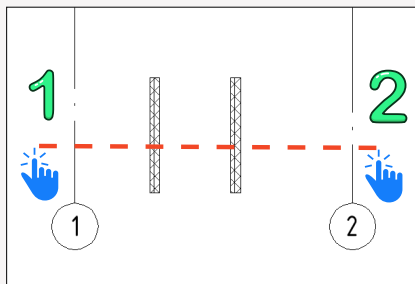
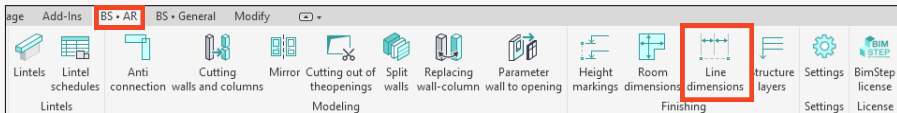
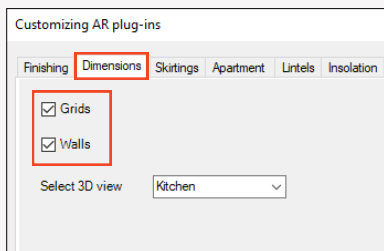
Line dimensions

The "Dimensions by line" plugin will allow you to quickly create a linear dimension chain by creating a phantom line by specifying 2 points. All walls and axes that will be orthogonal to this line and intersect it will be processed and the dimension chain will be built on them. But first the plugin must be set up, go to plugin settings



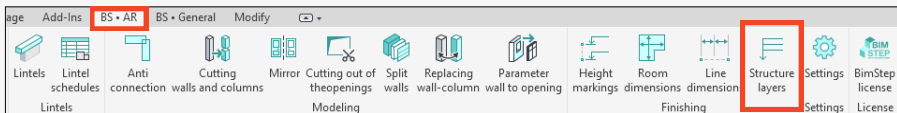
And in the "Dimensions" tab, check the "Grids" and "Walls" categories, thereby setting the plugin's working format. If, for example, you want the plugin to work only on axes, check only one checkbox.

The plugin is ready for customization. Run the plugin on the ribbon, and then specify 2 points on the plan, marking with them a phantom line for the plugin.



Structure layers

The plugin "Structure layers" helps you to conveniently put in your project a family of construction checkboxes (roofs, walls or floors) in the form of a notation. The plugin works on the basis of our family, which is downloaded during the first run. So, start the plugin and specify the point where you want to set the family.



In the opened window we need to specify the following settings:

1. Write or select the name of the already created annotation family type.
2. Enter the shelf length for the family.
3. Specify the direction of the arrowhead.
4. Enter the length of the arrow.
5. Write down in tabular form the composition of all layers as you want to see them in your future annotation.
6. Press done.

As a result, by the specified point we get the placed family of the checkbox of constructions

