SKILLPARK

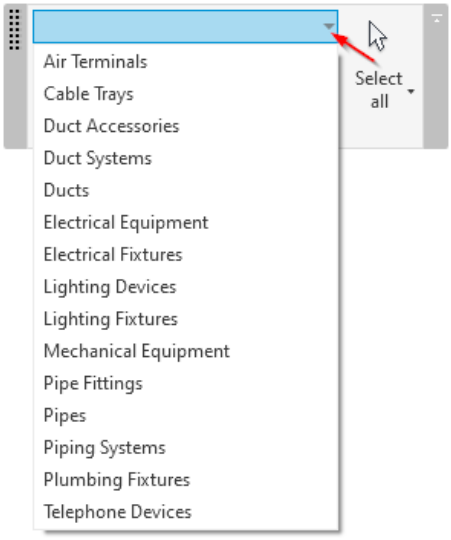
Cracow, 12-03-2025

Skillpark MEP > Select by Value

The tool allows selecting model components based on the value of a chosen parameter.

Tool usage scheme:

1. The dropdown list displays the model categories of all elements used in the project. You need to select the category of elements to be included in the selection.



2. In the first text field, enter the name of the parameter by which the selection of elements should be performed. If this field is left empty, all elements from the selected category will be chosen.

In the second text field, enter the parameter value for selection. If this field is left empty, all elements containing the specified parameter will be selected. Additional available actions:

- Any value – all elements with any value assigned to the selected parameter will be selected. Enter the asterisk symbol „*”.
- Multiple values – all elements with any of the specified values will be selected. Enclose values in square brackets [ ] and separate them with a semicolon (“;”) e.g., [18;96].
- A parameter of the Yes/No data type – all elements with a defined value of Yes or No will be selected; you must enter the value “Yes” or “No”.
- Empty value – all elements with no value assigned to the selected parameter will be selected. Enter the symbol „<>”.

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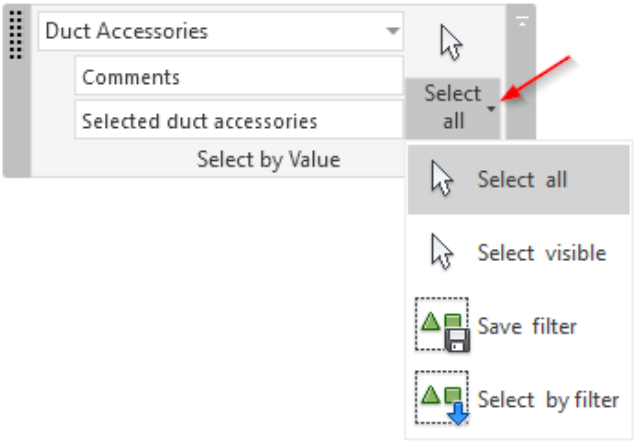
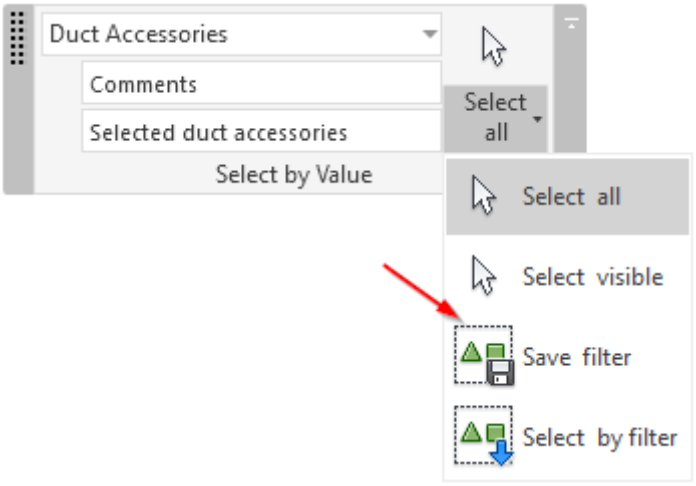
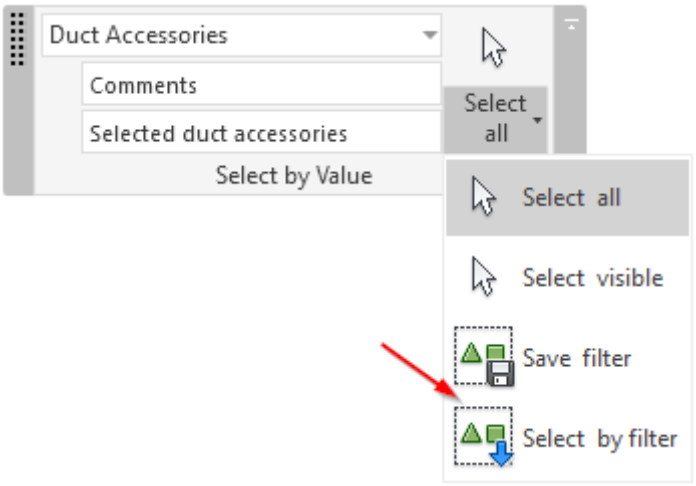
3. The tool allows you to continue the selection from either all elements (*Select All*) or only the currently visible elements (*Select Visible*).



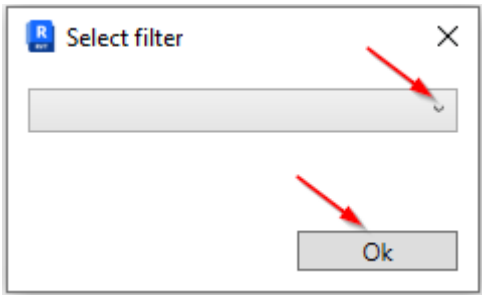
4. The tool allows saving the prepared configuration as a filter (*Save filter*).



5. The tool allows you to load a previously saved selection (*Select by filter*).



After choosing this option from the dropdown list, select the desired filter and then click the *Ok* button.



SKILLPARK

Cracow, 12-03-2025

Skillpark MEP > Openings > Generate

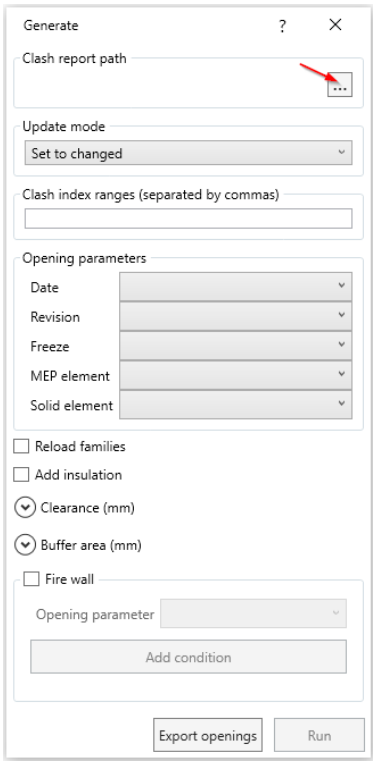
The tool places opening families in the project based on a previously prepared clash report from Autodesk Revit. It uses a predefined family type for insertion depending on the shape of the opening and the type of partition. It adds buffer space and the minimum required distance between inserted openings. It allows updating and changing the status of openings that have undergone significant modifications during the design process.

Tool usage scheme:

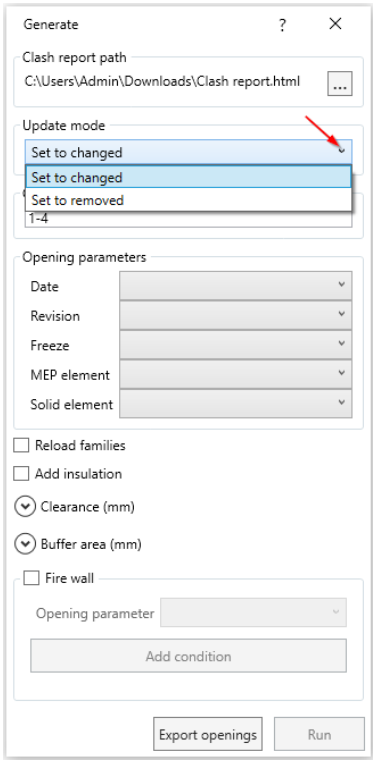
1. The tool requires a collision report file *.html generated in Autodesk Revit (*Collaborate > Clash Detection*) between linear installation segments and building partitions. To use the tool correctly, one of the projects included in the clash report must be opened, while the other must be linked.

2. Before using the tool, project parameters must be defined (parameter descriptions in section 6).

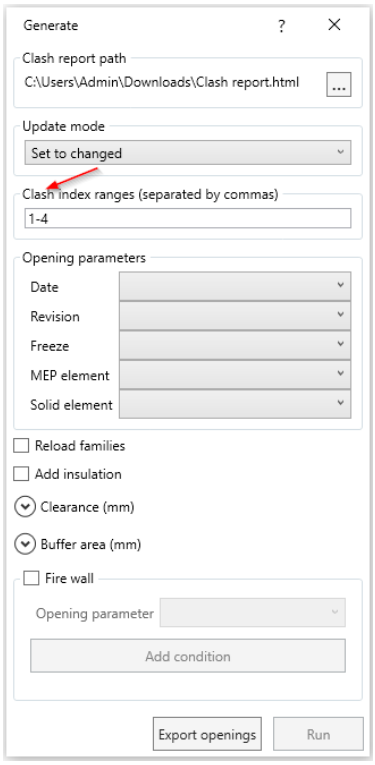
3. The path to the clash report file must be specified.



4. During the insertion of a new instance of the opening family, the tool checks whether an opening corresponding to the given clash already exists in the model (based on the ID numbers of the colliding components). From the drop-down list *Update mode* for existing openings, the update mode must be selected in case automatic changes are needed for an existing opening, where:
   - *Set to changed* – applies the update and changes the status of the existing opening to *Changed*
   - *Set to removed* – does not apply the update, changes the status of the existing opening to *Deleted*, and inserts a new opening

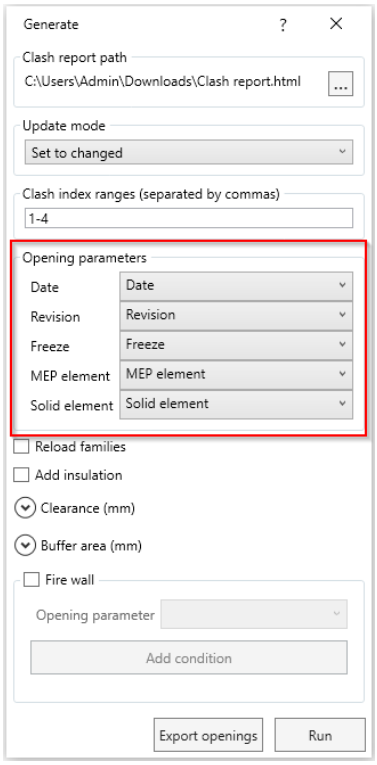


5. In the *Clash index ranges* text field, the set of clashes to be considered in the current tool run must be specified numerically, according to the sequential numbers assigned to collisions in the report. The range must be entered in the format "x-y" (from x to y, inclusive) or "x" for a single clash. To define multiple separate ranges, they must be separated by commas.

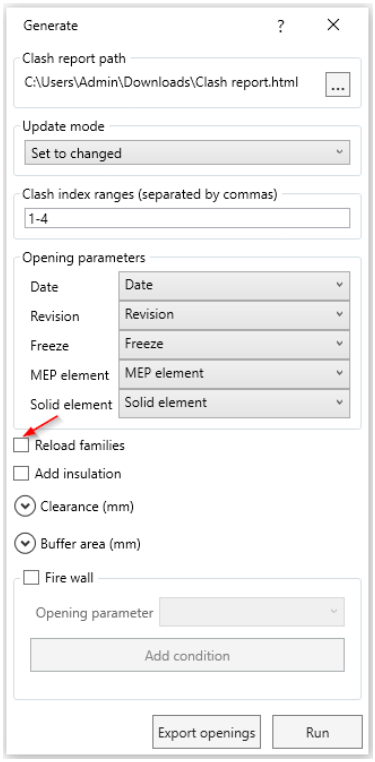


6. Using the drop-down lists *Date, Revision, Freeze, MEP Element, Solid Element*, the parameters must be specified where information will be entered:

- *Date* – a text parameter containing the insertion or last update date of the opening
- *Revision* – a text parameter containing the current status of the opening, with possible values: New, Changed, Deleted, Joined
- *Freeze* – a Yes/No parameter; if set to *Yes*, the opening will be skipped during the tool run
- *MEP Element* – a text parameter containing the ID number, name, and source model of the installation element passing through the opening
- *Solid Element* – a text parameter containing the ID number, name, and source model of the partition element containing the opening



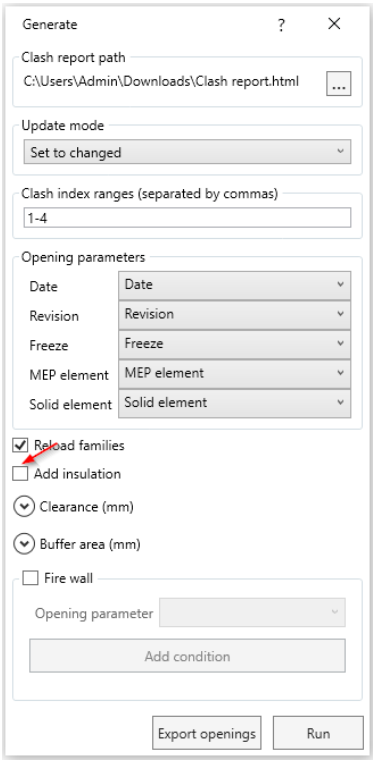
7. If the current situation requires reloading the original families provided with the add-on, this can be done during the current tool run by selecting the *Reload families* in model checkbox.



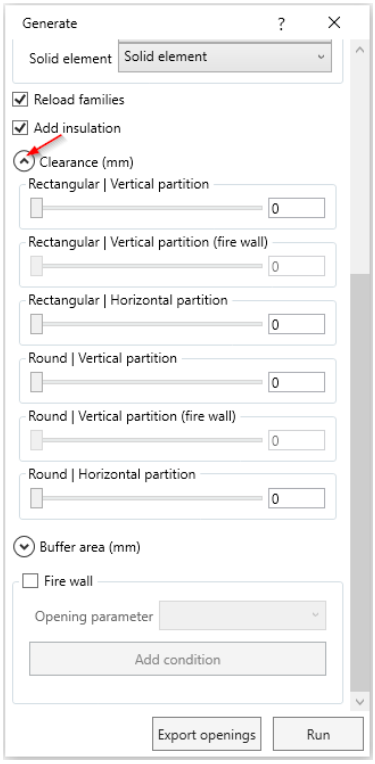
If the checkbox is unchecked or the active model does not contain families, they will be loaded automatically. If the model contains families incompatible with the current version of the tool, it is recommended to use the *Reload families* in model option.
Family names used by the tool:

- Round opening (vertical partition)
- Round opening (horizontal partiton)
- Rectangular opening (vertical partition)
- Rectangular opening (horizontal partiton)

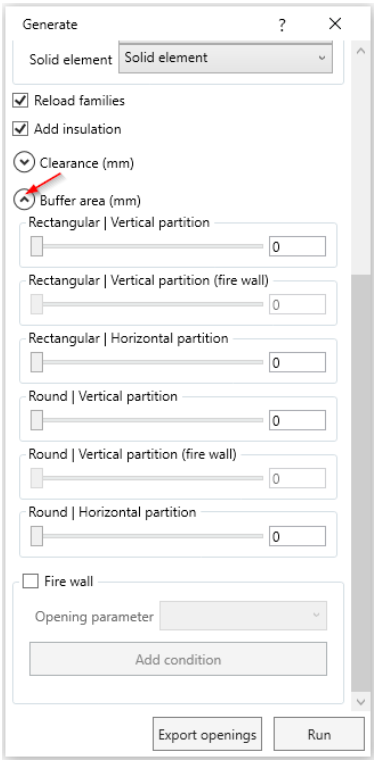
8. To account for the insulation thickness of installation elements in the opening dimensions, the *Add insulation* checkbox must be selected.



9. To define an additional installation clearance for specific types of openings, the *Clearance (mm)* panel must be expanded, where a slider or input field allows its definition for different opening cases. The maximum installation clearance is 100 mm.

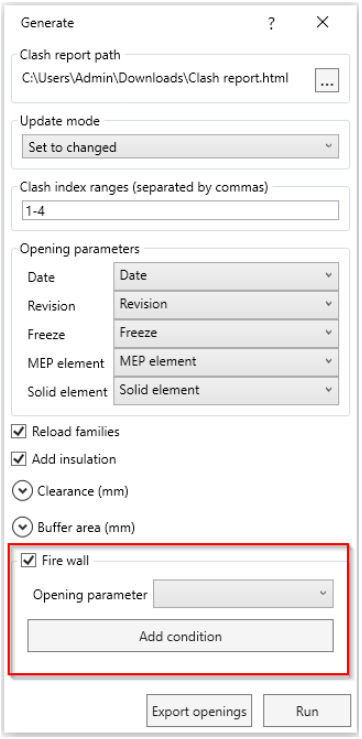


10. To define the minimum distance between openings for different types, the *Buffer area* (mm) panel must be expanded, where a slider or input field allows its definition for different opening cases. The maximum buffer area is 500 mm. Overlapping buffer areas of two or more openings may indicate the need to insert a merging opening combining them.



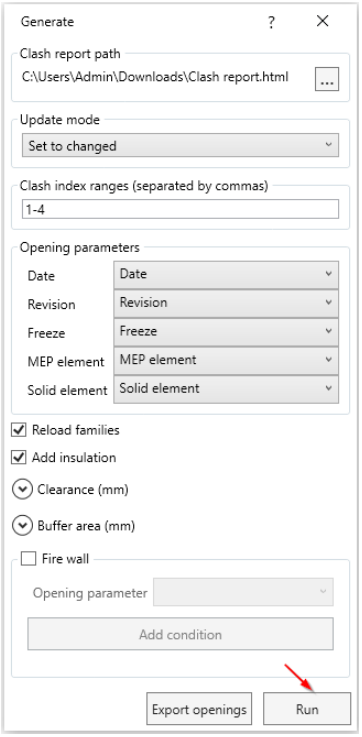
11. For fire-rated walls, separate conditions can be set. To enable wall analysis based on defining parameters, the *Fire wall* checkbox must be selected. This activates two additional configuration areas:

- *Opening parameter* – a drop-down list to select a Yes/No project parameter indicating whether the opening is placed in a fire-rated wall
- *Add condition* – allows defining a set of logical conditions for wall definition, where the first drop-down list on the left selects the wall parameter, and the second (depending on the parameter type) contains logical conditions for verification. If the condition applies to a text parameter, a comparison value must be entered in the text field. If it applies to a numerical parameter, a unit must be selected from the last list.

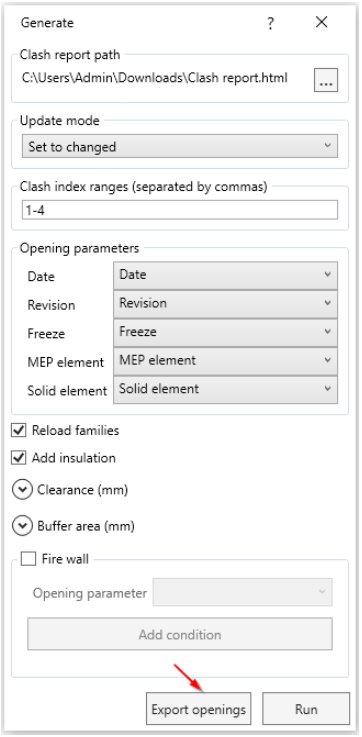


If the wall in which the opening is placed meets at least one of the specified conditions, the opening will be considered placed in a fire-rated wall. It may then have a different installation clearance and buffer area.

12. After completing the configuration, press the *Run* button.



13. To export the openings based on the selected configuration, press *Export openings*, then specify the location where the openings file will be saved.



SKILLPARK

Cracow, 12-03-2025

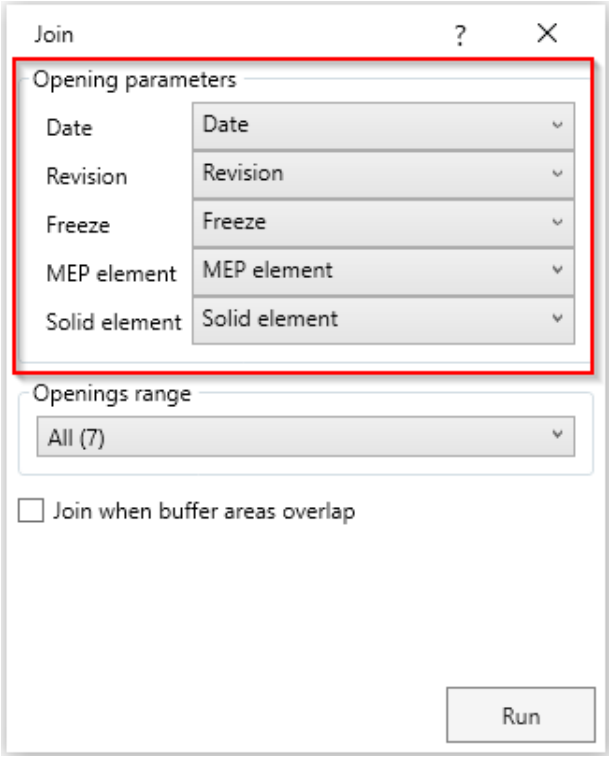
Skillpark MEP > Openings > Join

The tool analyzes the openings inserted in the model and places a collective opening for those which geometry overlaps, including in the buffer area.

Tool usage scheme:

1. Using the drop-down lists *Date, Revision, Freeze, MEP Element, Solid Element*, the parameters must be specified where information will be filled in:

- *Date* – a text parameter containing the insertion or last update date of the opening
- *Revision* – a text parameter containing the current status of the opening, with possible values*: New, Changed, Deleted, Joined*
- *Freeze* – a Yes/No parameter; if set to *Yes*, the opening will be skipped during the tool run
- *MEP Element* – a text parameter containing the ID number, name, and source model of the installation element passing through the opening
- *Solid Element* – a text parameter containing the ID number, name, and source model of the partition element containing the opening



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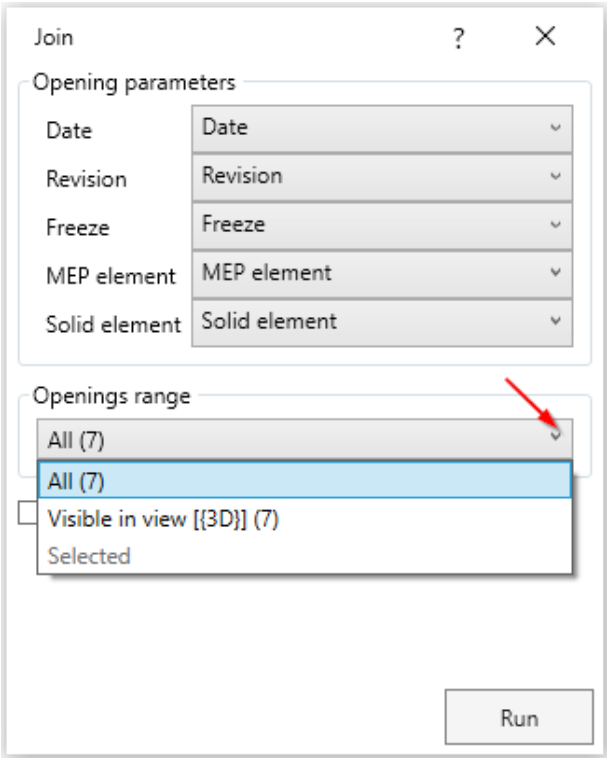
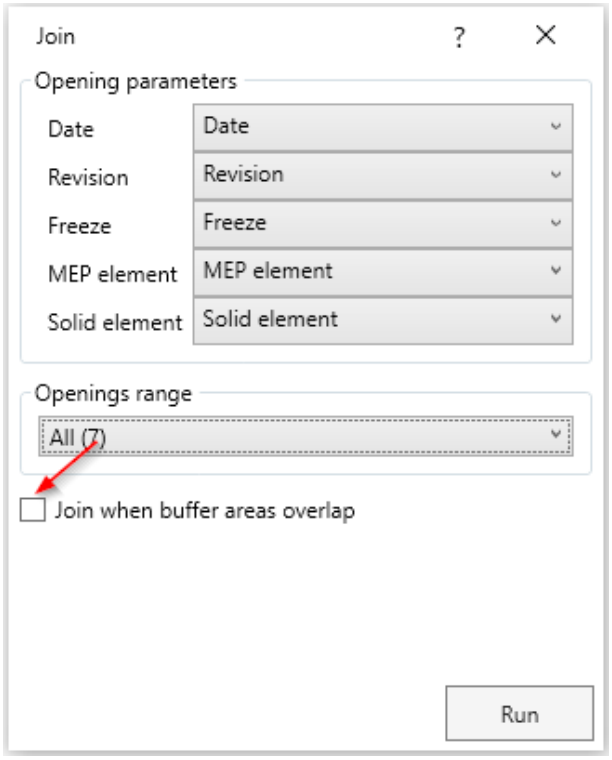
2. From the drop-down list *Opening Range*, a set of openings to be considered for merging must be selected, where:

- *All* – includes all instances of openings in the mode
- *Visible in view* – includes openings visible in the view that was active when the tool was launched
- *Selected* – includes openings selected by the user before launching the tool



3. In order to include buffer areas in the merging process, the *Join when buffer areas overlap* checkbox must be selected.



If the checkbox is selected, openings whose buffer areas overlap will be merged into one. If the checkbox is deselected, only openings overlapping in geometry (excluding the buffer area) will be merged. In this case, the tool's generated report will contain a separate table titled *Openings too close together*, listing the ID numbers of elements whose buffer areas overlap.

SKILLPARK

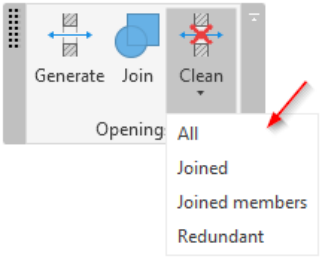
Cracow, 12-03-2025

Skillpark MEP > Openings > Clean

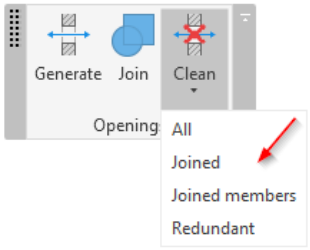
The tool is used to remove specific types of openings from the project. It only removes openings inserted by the *Generate* and *Join* tools.

Tool usage scheme:

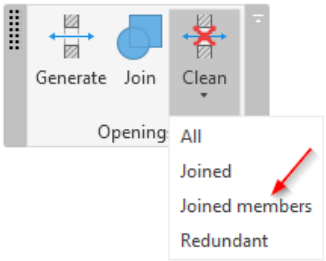
1. Clicking the "All" button removes all openings from the project that were created using the "*Generate*" and "*Merge*" tools.



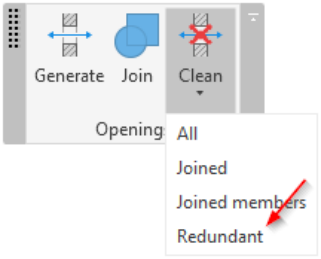
2. Clicking the "*Joined*" button removes merged openings from the project that were created using the "*Join*" tool.



3. Clicking the "*Joined members*" button removes individual openings from the project for which merged openings were created using the "*Join*" tool.



Clicking the "*Redundant*" button removes openings located in areas where there are no longer any clashes between installations and building partitions.



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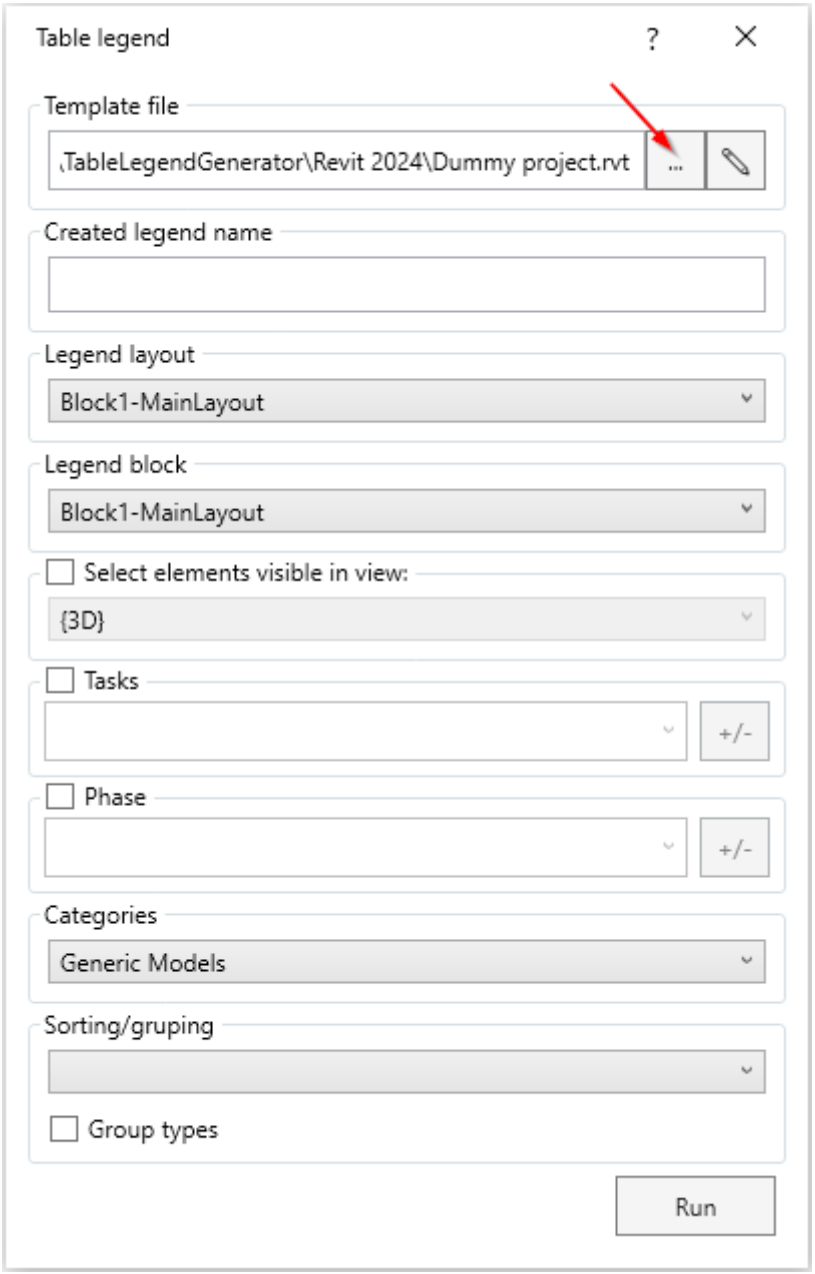
Skillpark ARCH > Index > Table

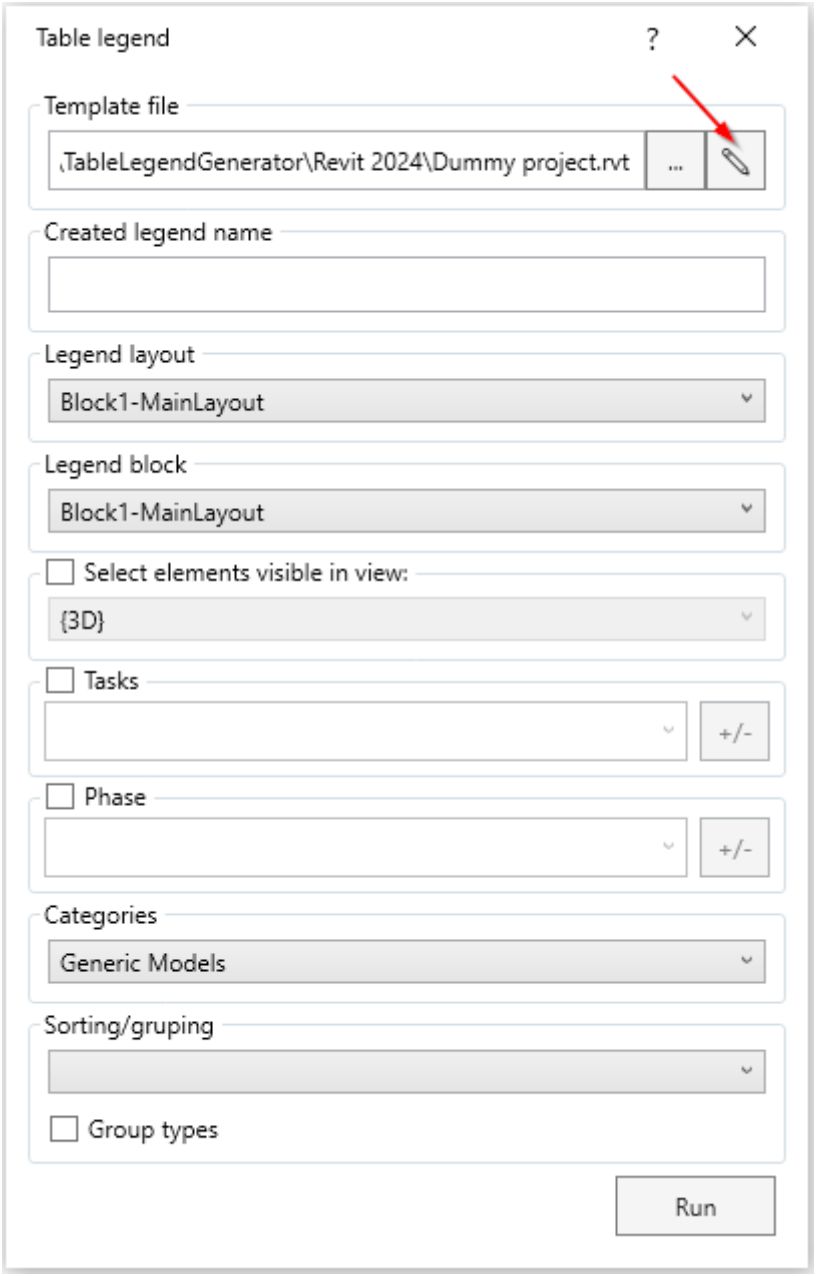
This tool generates a legend of components placed in the project in the form of a table. It's ideal for creating window and door schedules.

Tool usage scheme:

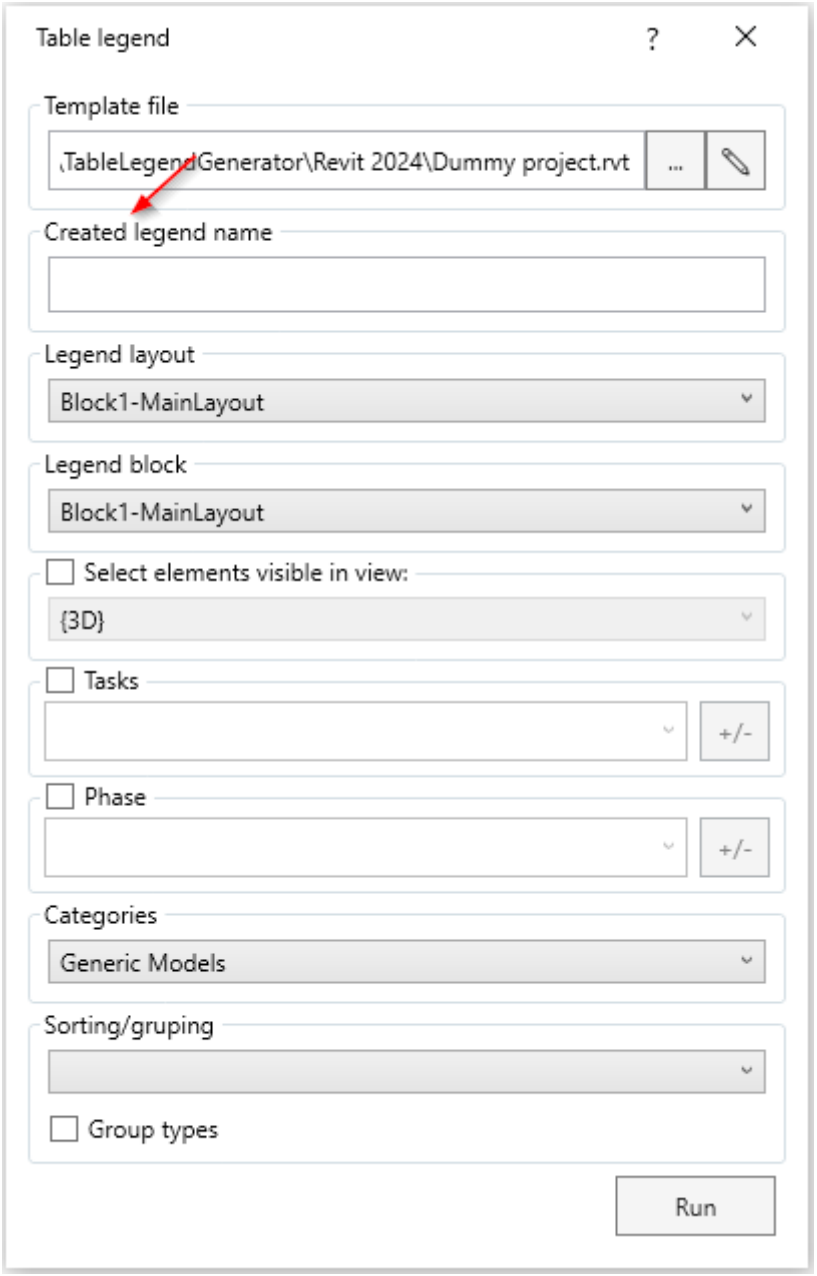
1. The tool requires a supporting file containing the legend template. According to this template, the tool will create subsequent legend entries in the project file targeted for this process. You need to select a *.rvt file containing the legend template.
   The attached template is tailored only for elements in the window and door category



The tool allows direct editing of the template file.



2. In the Created l*egend name* text field, enter the name of the created legend.



3. The *Legend layout* and *Legend block* in the template file can be edited to meet the user's project requirements.

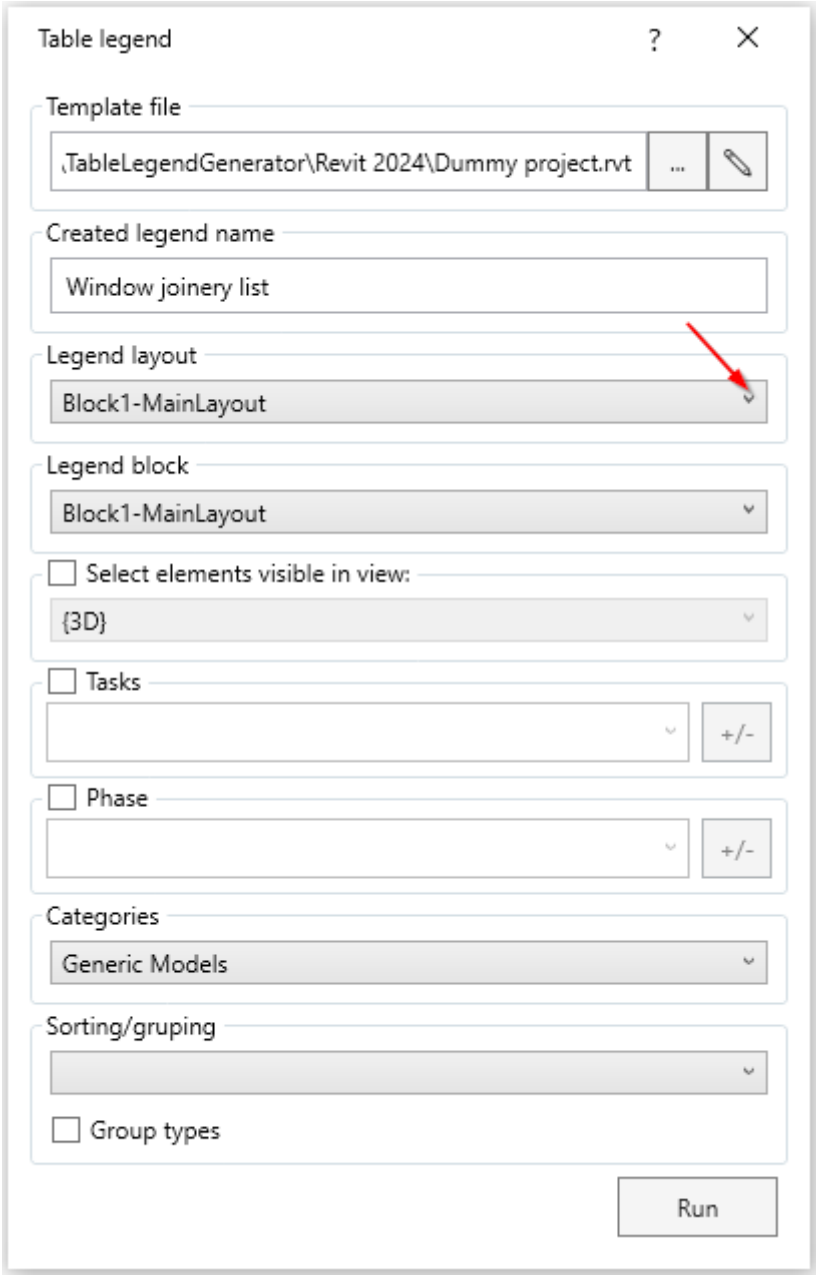
   Legend layout is a predefined arrangement of legend entries, stored as a legend view.

   Legend block is a view-defined composition of the information scheme (layout of legend components, parameter references, text data) of a single legend entry.

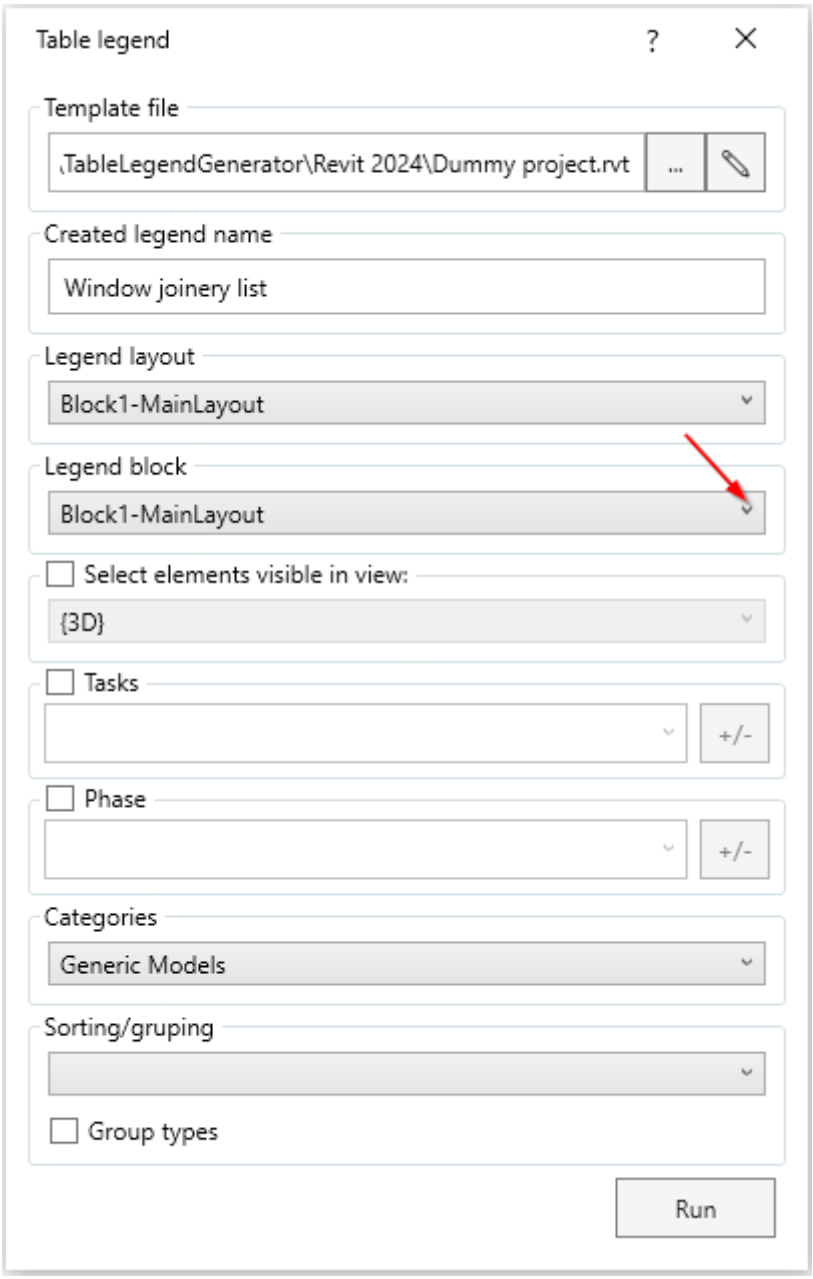
   To include a value from a selected parameter in the entry, edit the selected template and choose the legend associated with the legend block (in the sample file, this is named "Block2-ItemBlokck-PL"). Then, enter the parameter name in {}, e.g., {Width} refers to the value of the parameter named Width. To count the number of components meeting a given condition, enter e.g., {QTY:{Level=Level 2}}. References to parameters that cannot be linked to a component type's parameter value will be ignored.

If the specified parameter has different values within a single legend entry, all values present in that group of components will be shown, and the number of components with each value will be shown in brackets [ ].

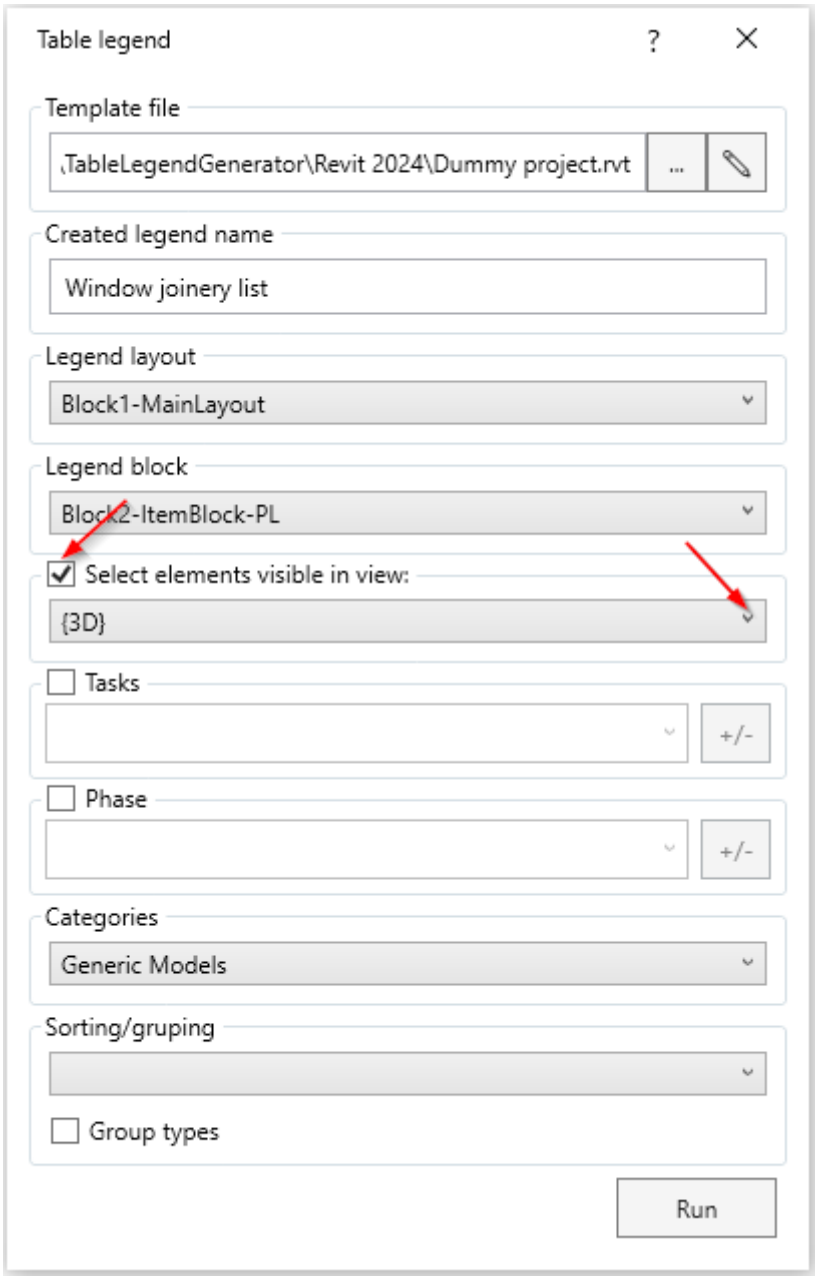
4. From the *Legend layout* dropdown list, select the overall layout of the legend from the template file.



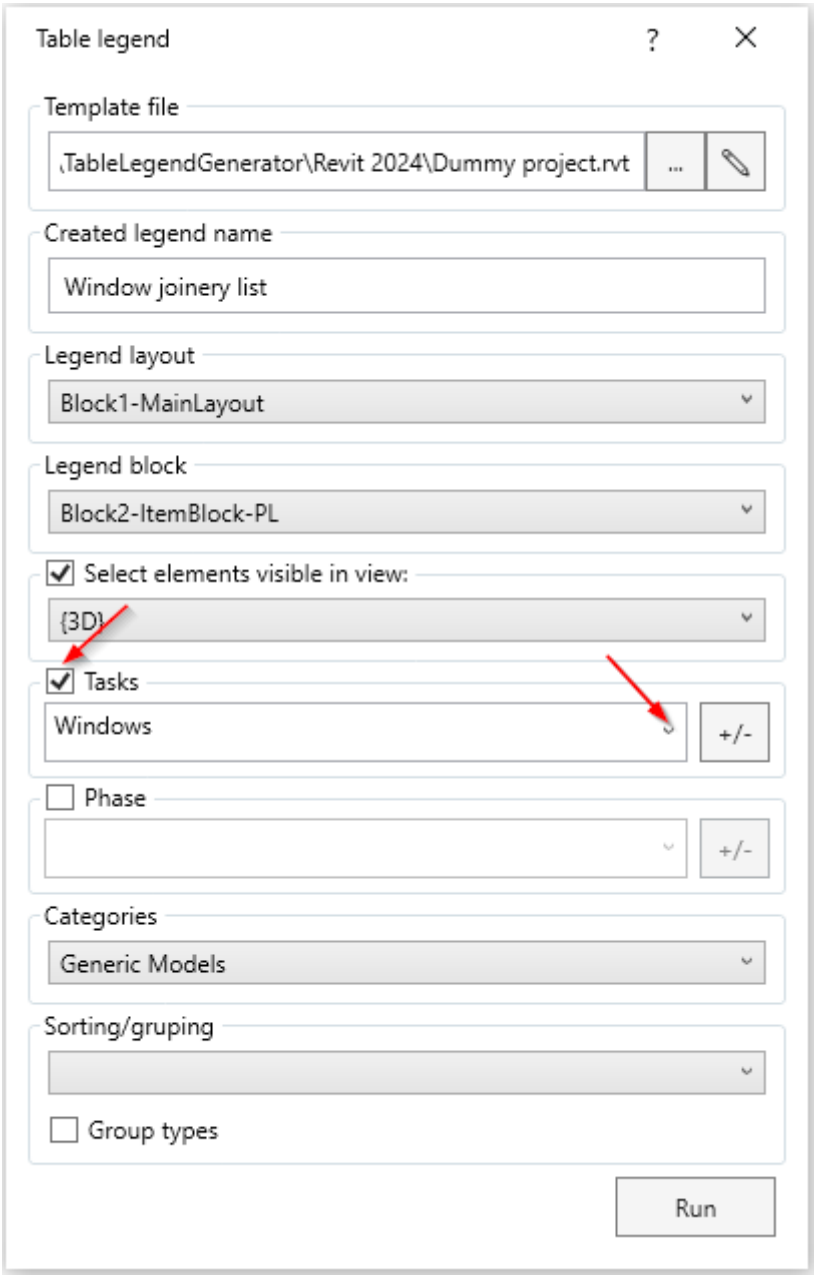
5. From the *Legend block* dropdown list, select the layout for a single legend entry from the template file.



6. Checking the *Select elements visible in the view* box allows you to filter components based on the current view. Leaving the corresponding dropdown field blank means components are not filtered by view (all components in the project are considered).

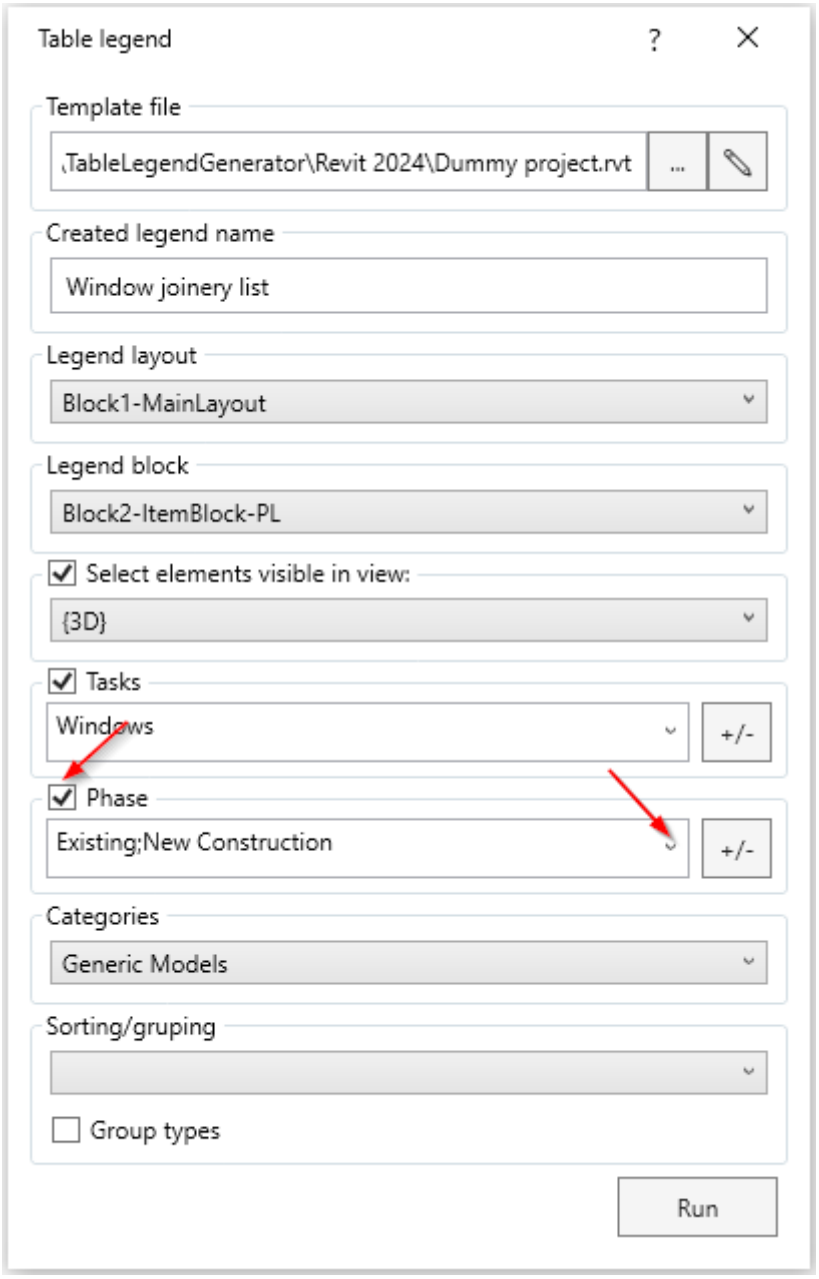


7. From the *Tasks* dropdown list, select the task from which components should be included in the legend. Leaving the field blank means no filtering by task.



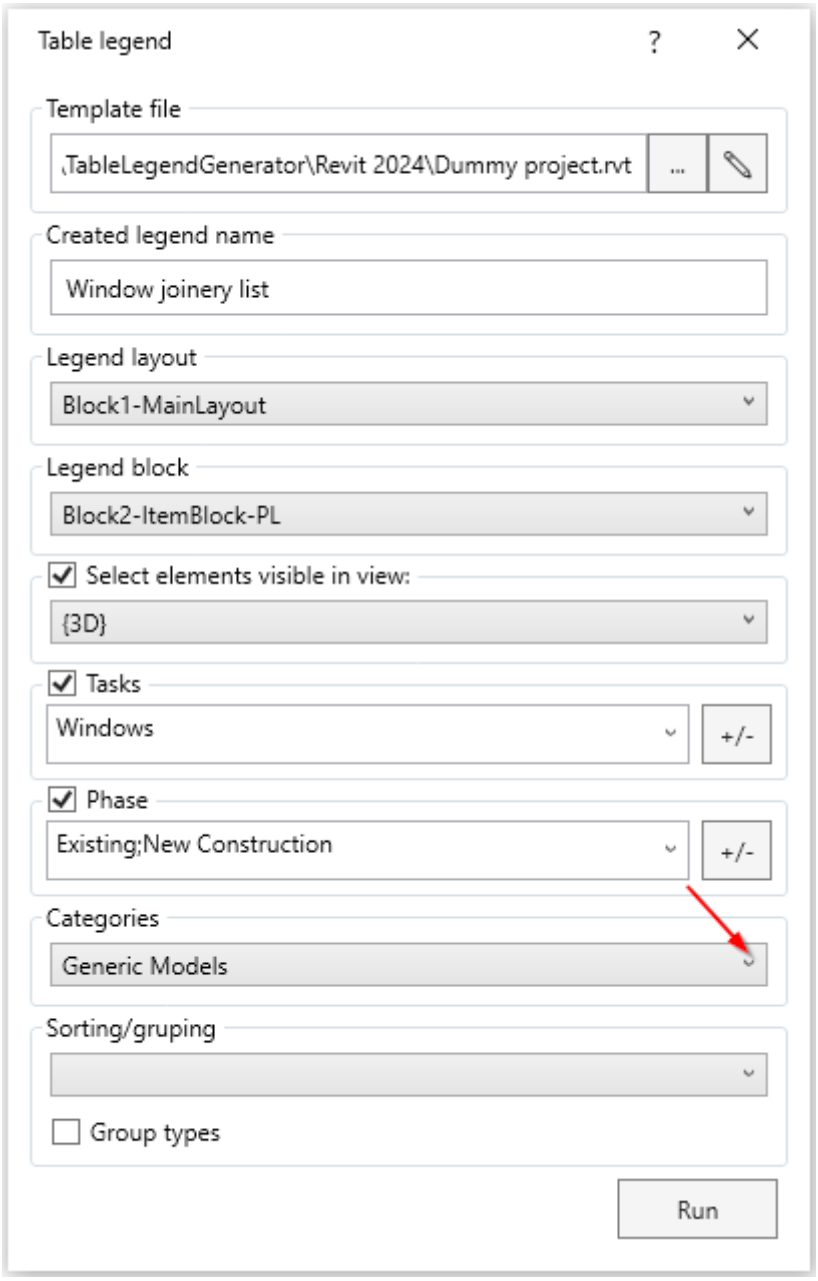
The button +/- allows adding/removing all tasks present in the model.

8. From the *Phase* dropdown list, select the project phase from which components should be included in the legend. Leaving the field blank means no filtering by phase.

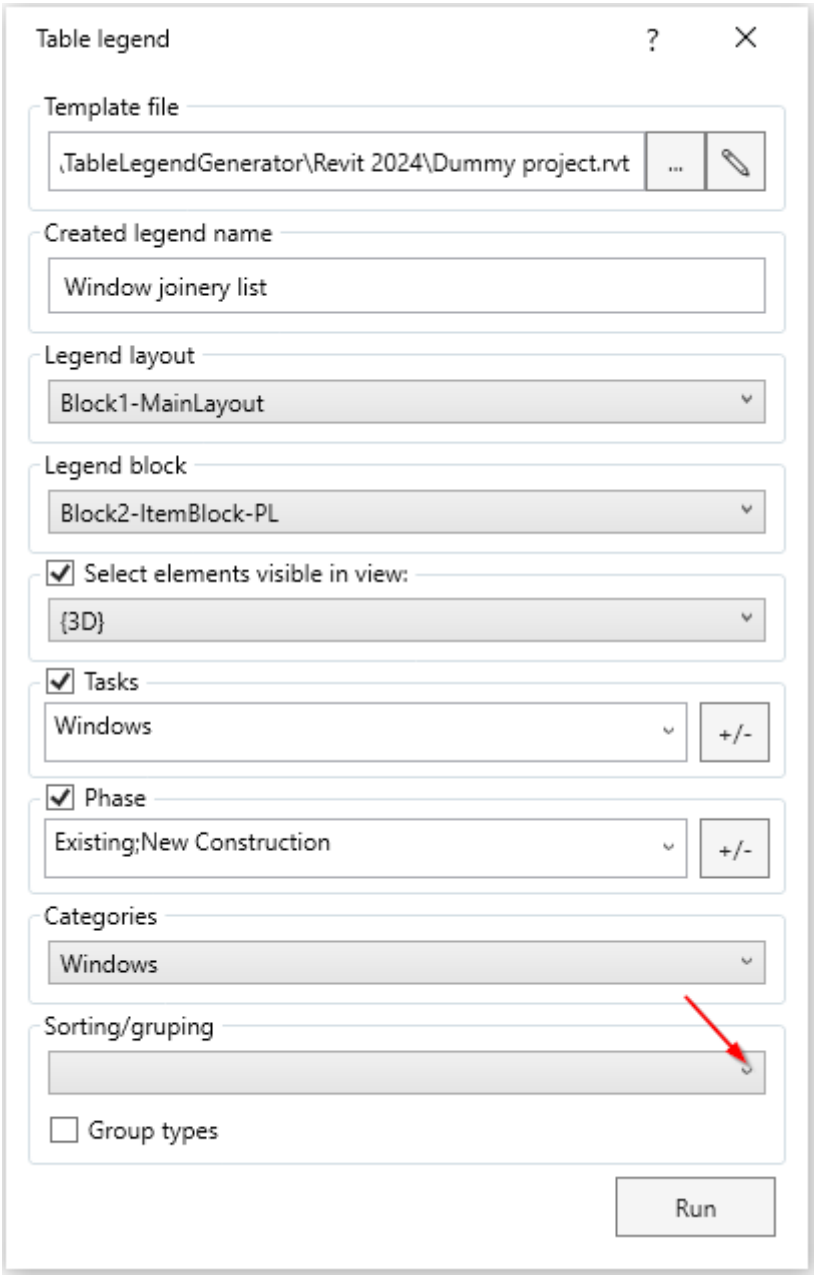


The button +/- allows adding/removing all phases present in the model.

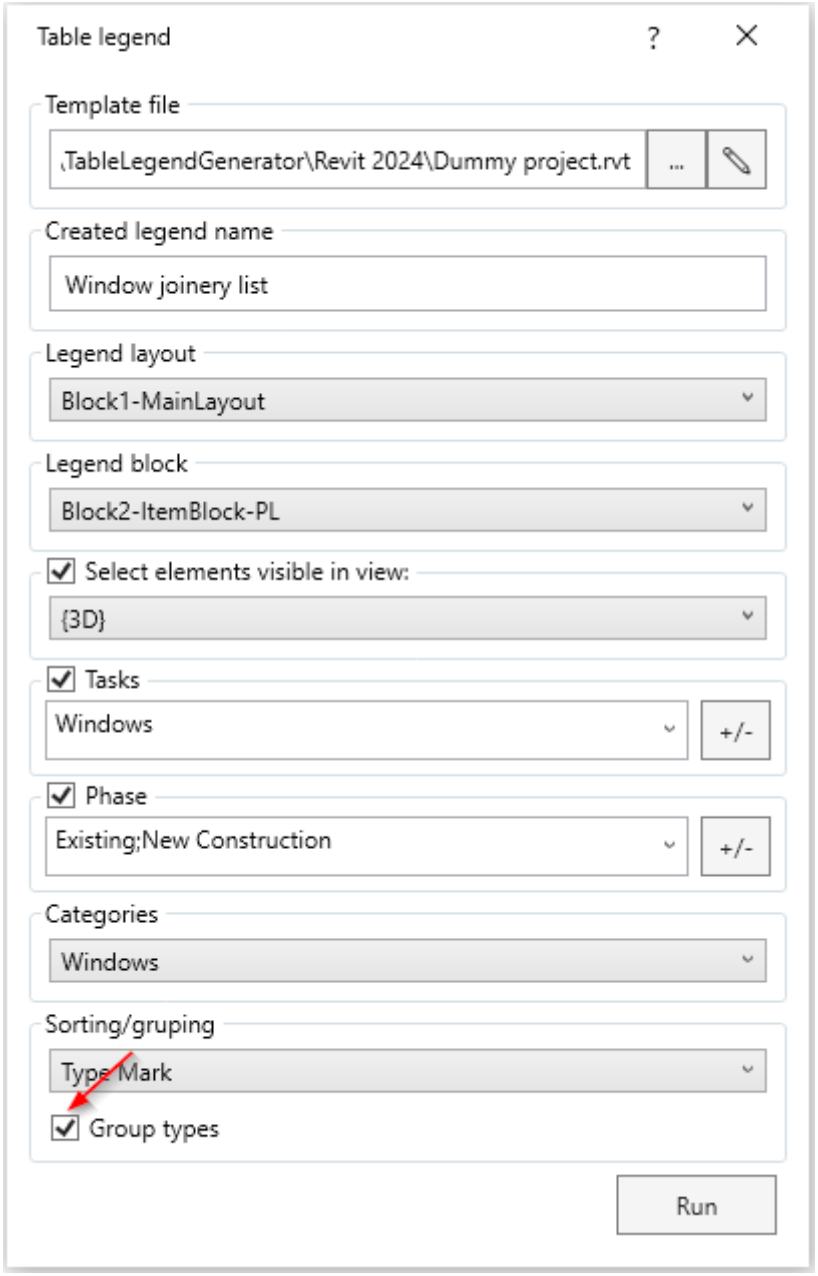
9. From the *Categories* dropdown list, select the model category from which components should be included in the legend.



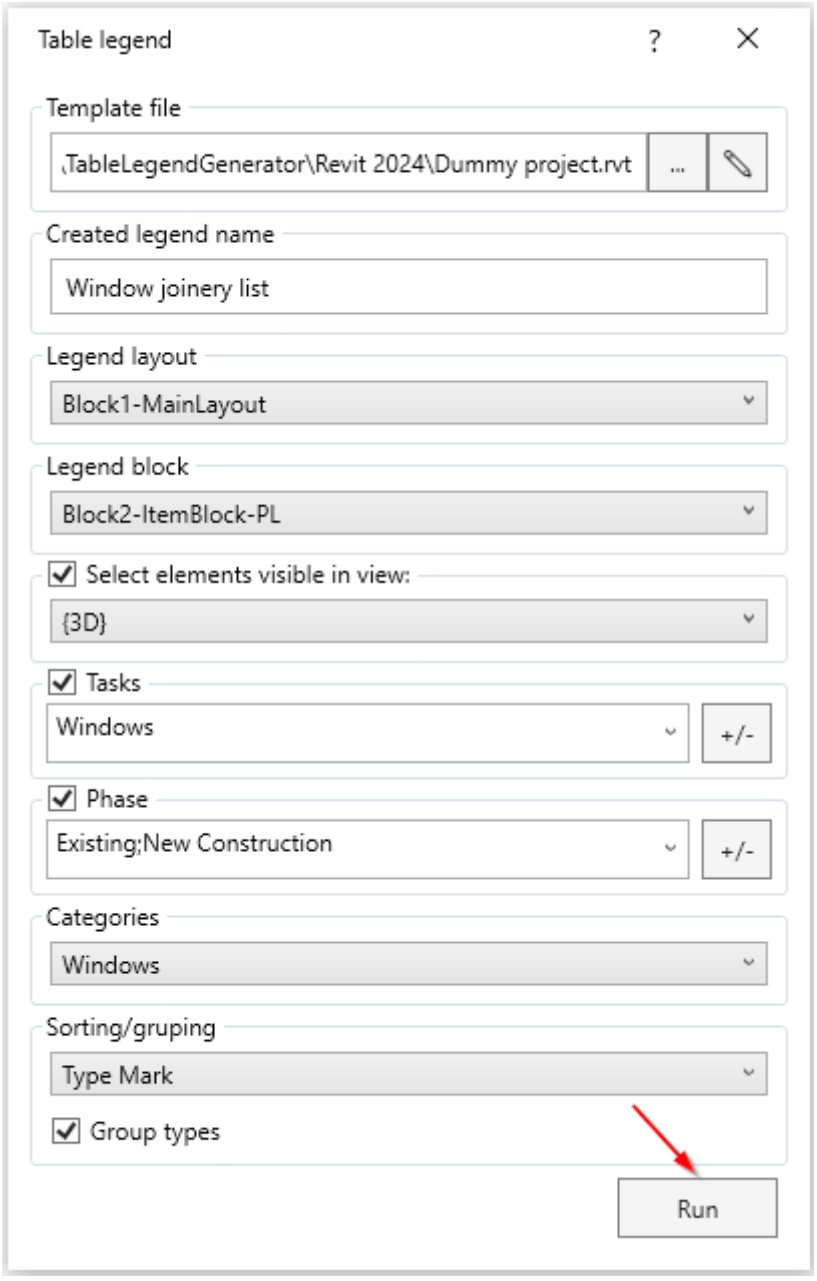
10. From the *Sorting/grouping* dropdown list, select the parameter by which components in the legend should be sorted.



The *Group types* field allows grouping legend items based on a selected parameter.



11. After completing the configuration, press the *Run* button.



Skillpark ARCH > Analysis > Glass area

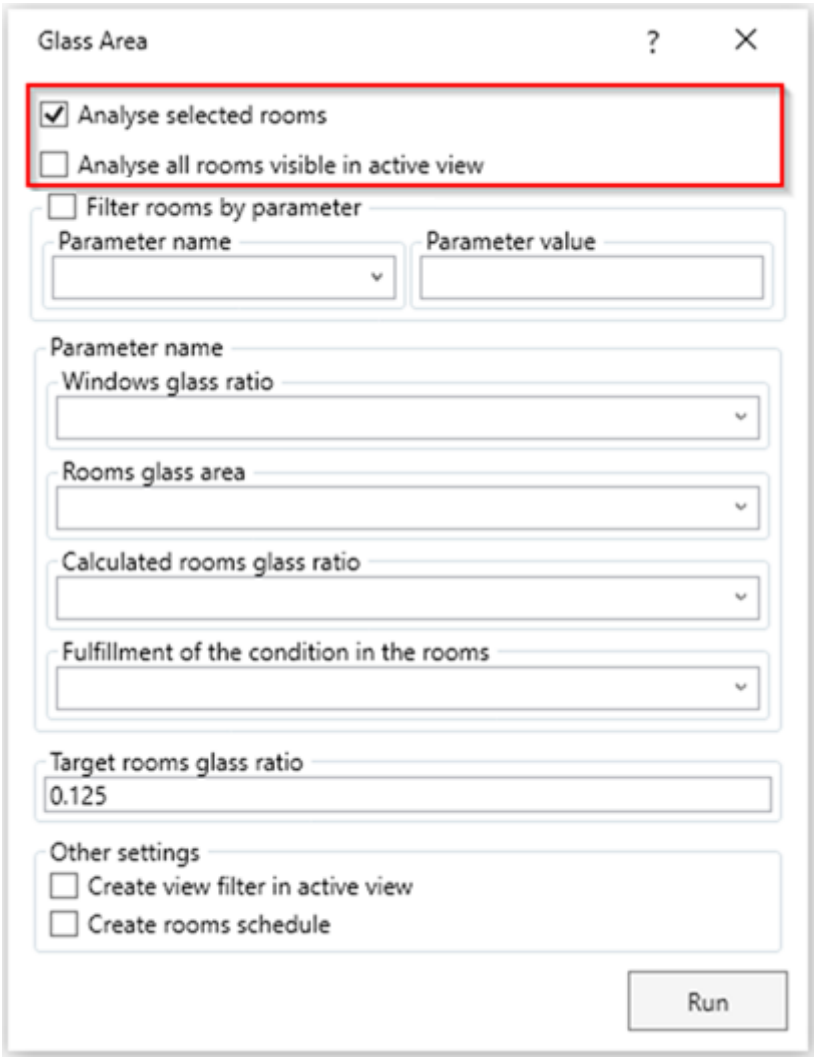
The tool is used to automatically calculate the ratio of glazing area to the area of selected rooms. The tool calculates the glazing area based on solids assigned with a material of the Glass class. For accurate calculations, skylights must be based on a flat floor slab. If skylights are based on a sloped slab or roof, all calculations should be verified.

Tool usage scheme:

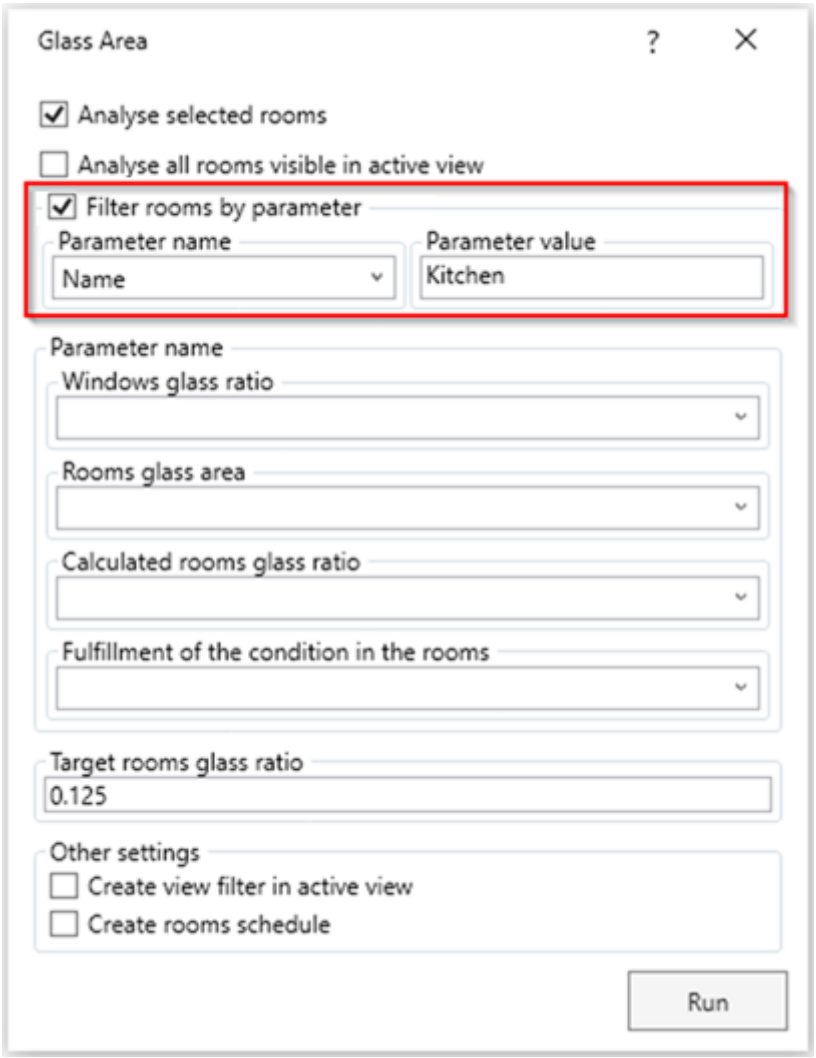
6. To calculate the ratio of glazing area to room area, project parameters must be defined to store analysis results and information needed for the calculation:
    - Glazing area in windows (category *Windows*, data type *Area*) – the parameter where the tool will write the calculated glazing area.
    - Glazing area in rooms (category *Rooms*, data type *Area*) – the parameter where the tool will write the total glazing area for a given room.
    - Calculated proportion of glazing in rooms (category *Rooms*, data type *Number*) – the parameter where the tool will write the calculated glazing ratio.
    - Optional: Compliance in rooms (category *Rooms*, data type: *Yes/No*) – the parameter where the tool will store the result of the analysis.
    - Optional: Parameter for filtering rooms (category *Rooms*, data type e.g., Text) – the parameter based on which rooms will be filtered for analysis.

7. Before starting the tool, open the view with the rooms to be analyzed or select individual rooms from the view.

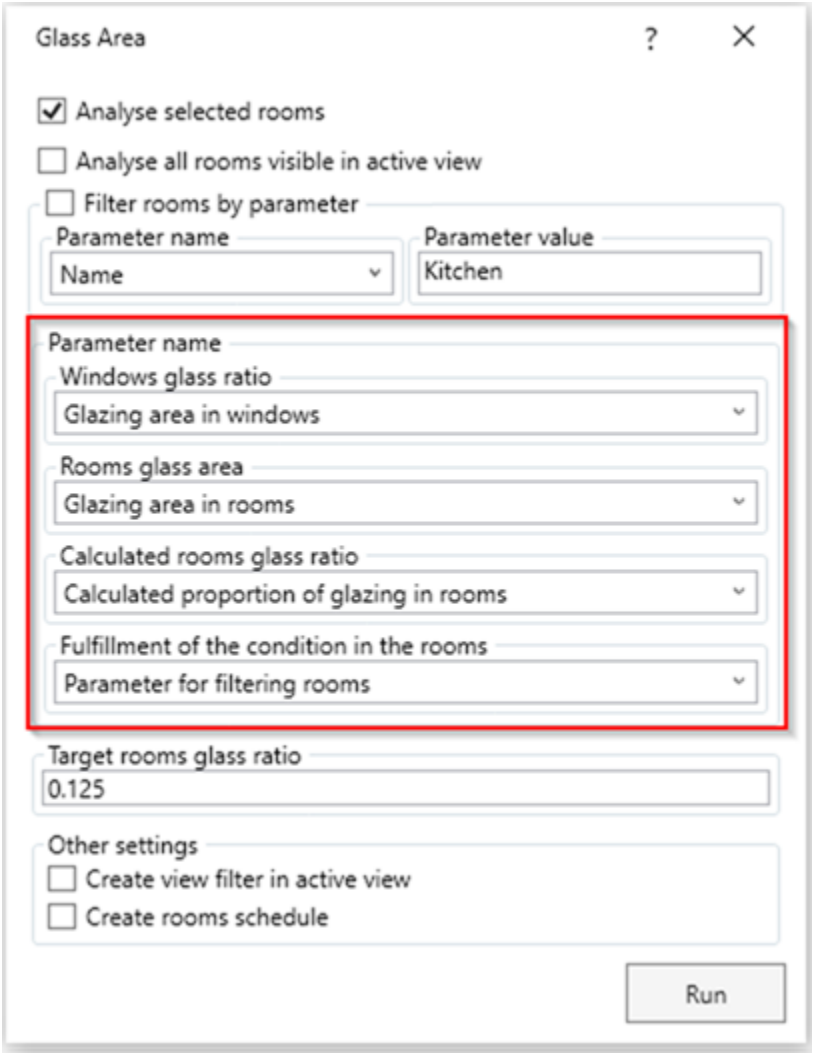
8. After launching the tool, indicate whether only selected rooms will be analyzed (*Analyse selected rooms*) or all visible rooms from the active view (*Analyse all rooms visible in active view*).



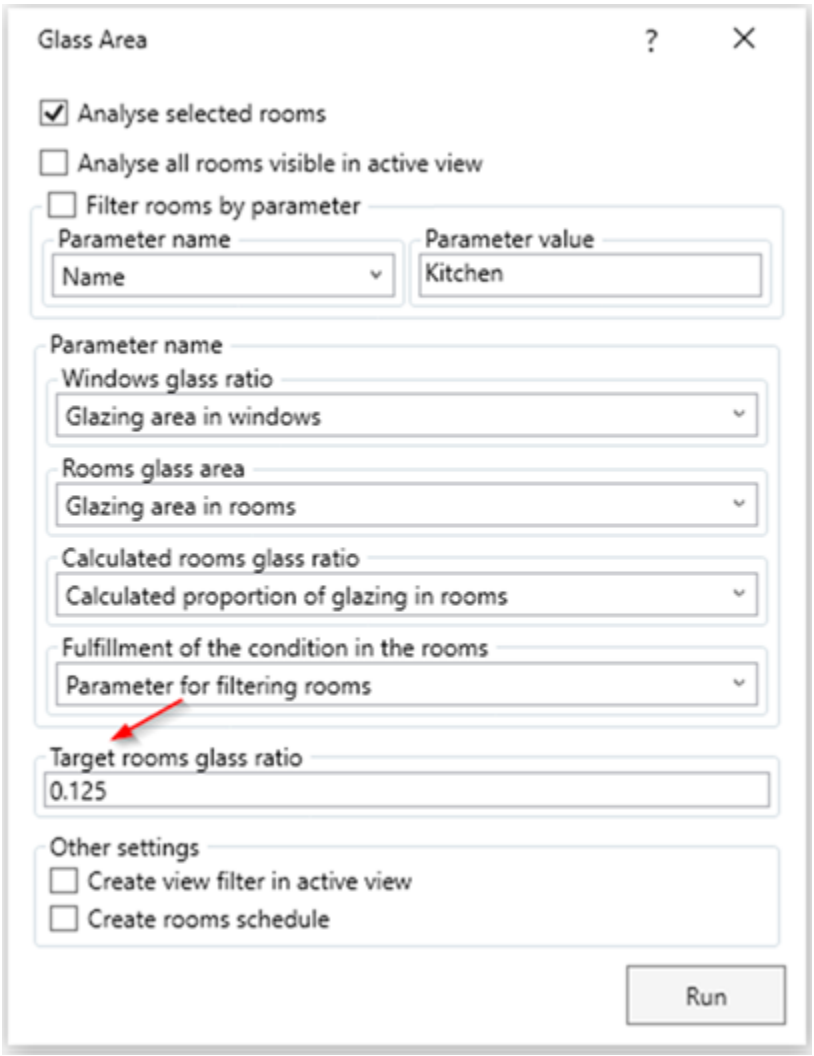
9. Optional: Rooms with a specified parameter value may be analyzed. To enable room filtering, check *Select rooms by parameter*, then choose a parameter name from the dropdown and enter the parameter value.



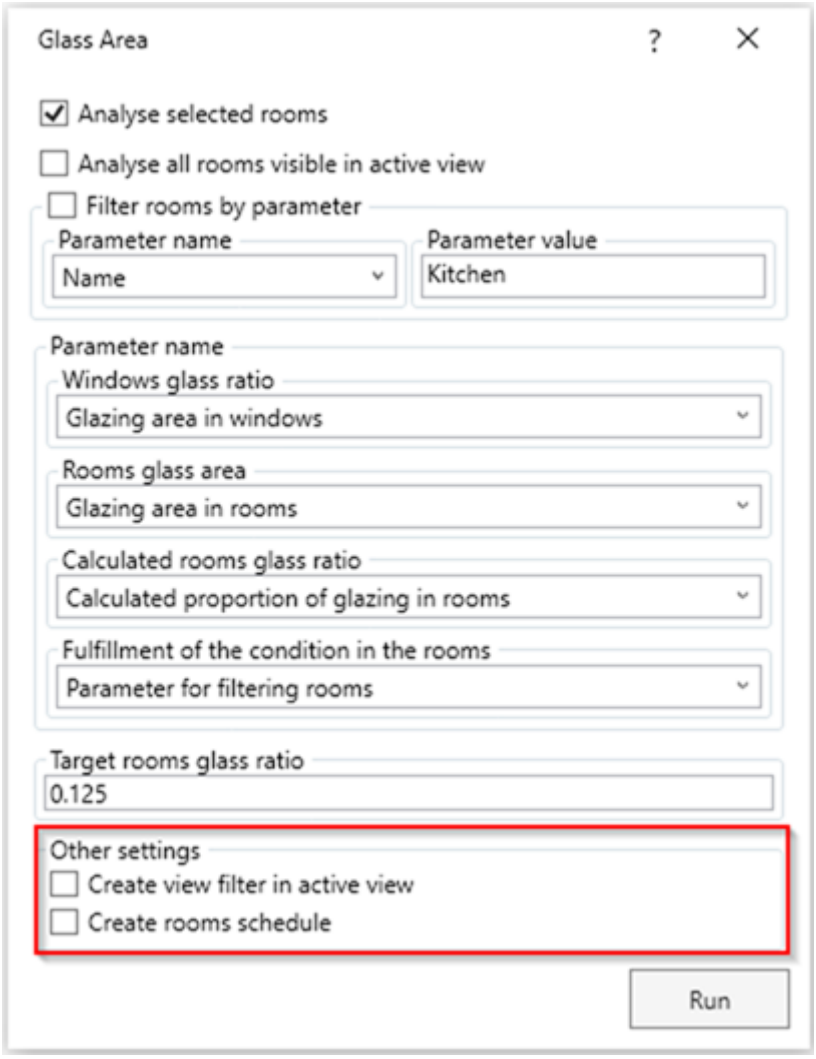
10. From the dropdown lists, select the names of the previously prepared parameters where the analysis results will be stored. If the project parameters have not been created yet, enter new parameter names and the tool will create them with the required properties.



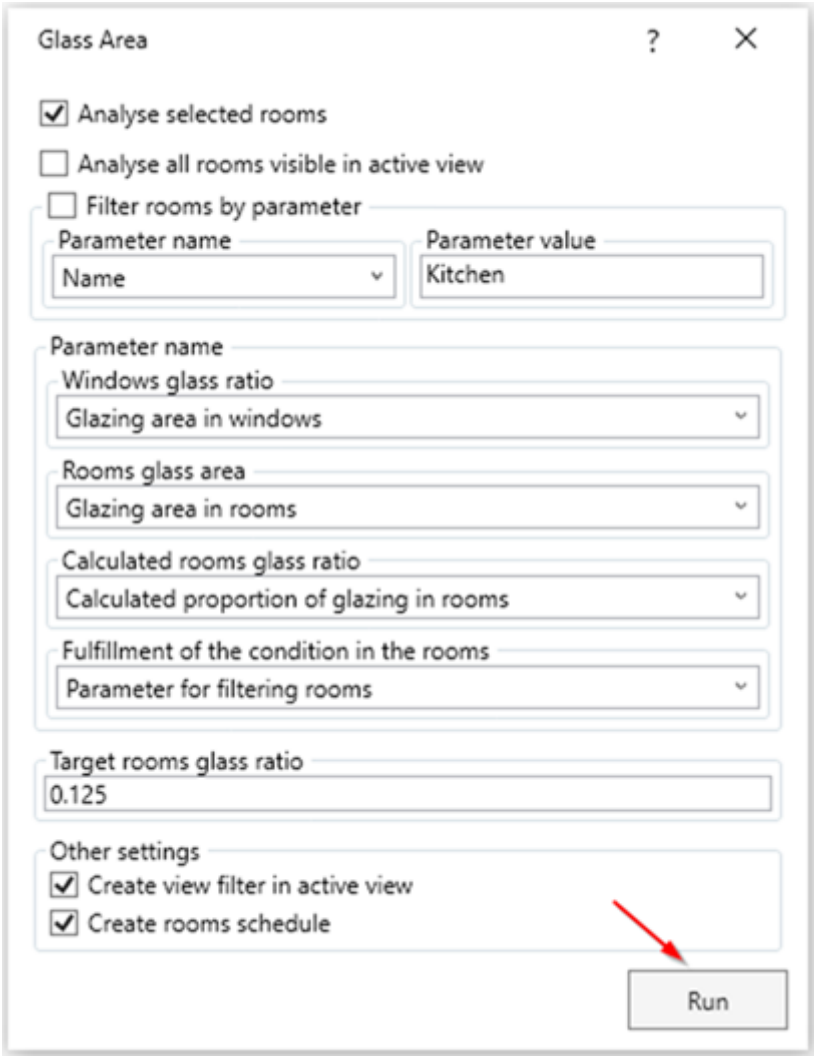
11. Optional: Entering a value in the *Target rooms glass ratio* field will cause the tool to check whether the condition is met and store the result in the parameter selected in the *Fulfillment of the condition in the rooms* dropdown list.



12. Optional: The tool can generate a visual representation of the results (by applying filters to rooms in the active view) or a room schedule. To do this, check the options *Create view filter in active view* and *Create room schedule* as needed. Creating a view filter is only possible if a value has been entered in the *Target rooms glass ratio* field.



13. After completing the configuration, click the *Run* button.

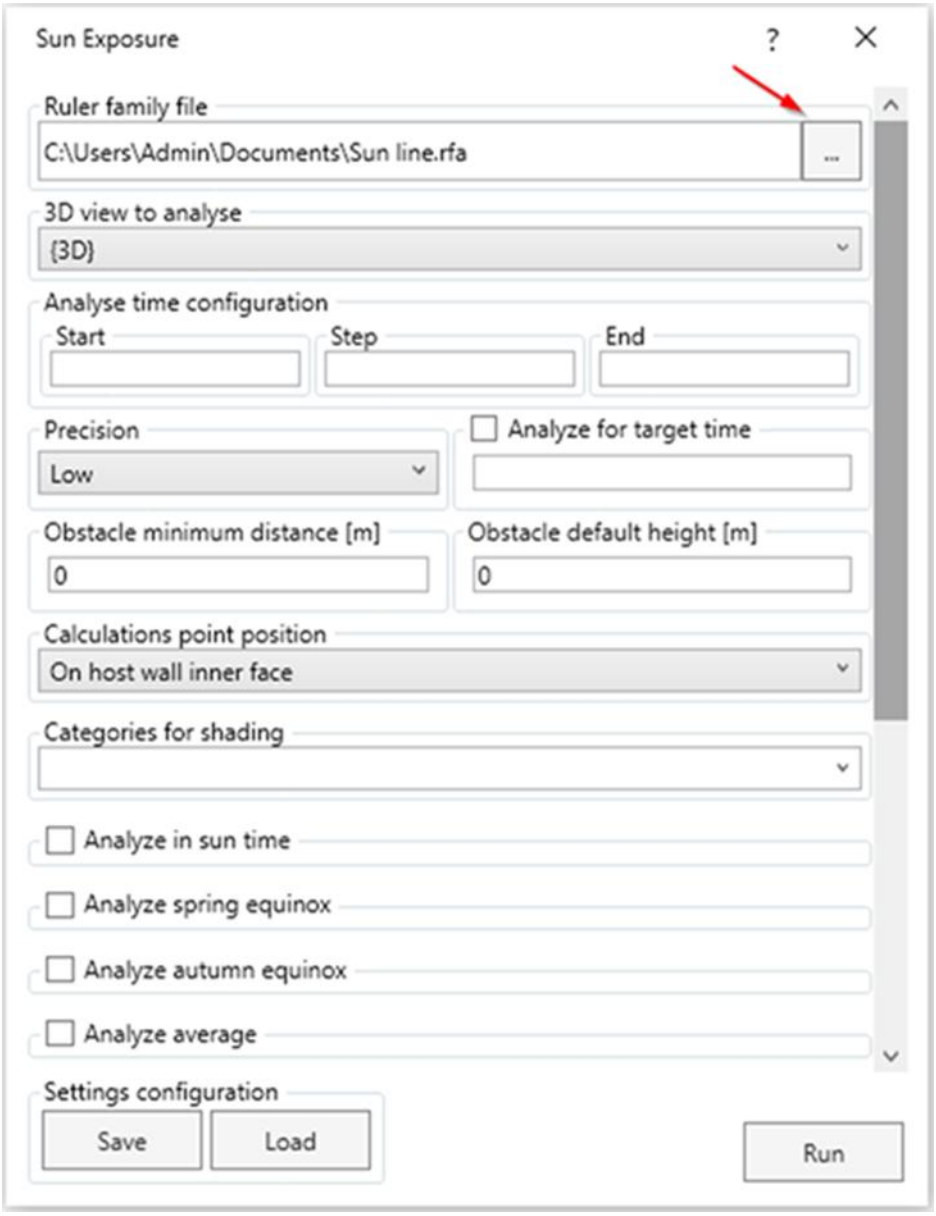


Skillpark ARCH > Analysis > Sun Exposure

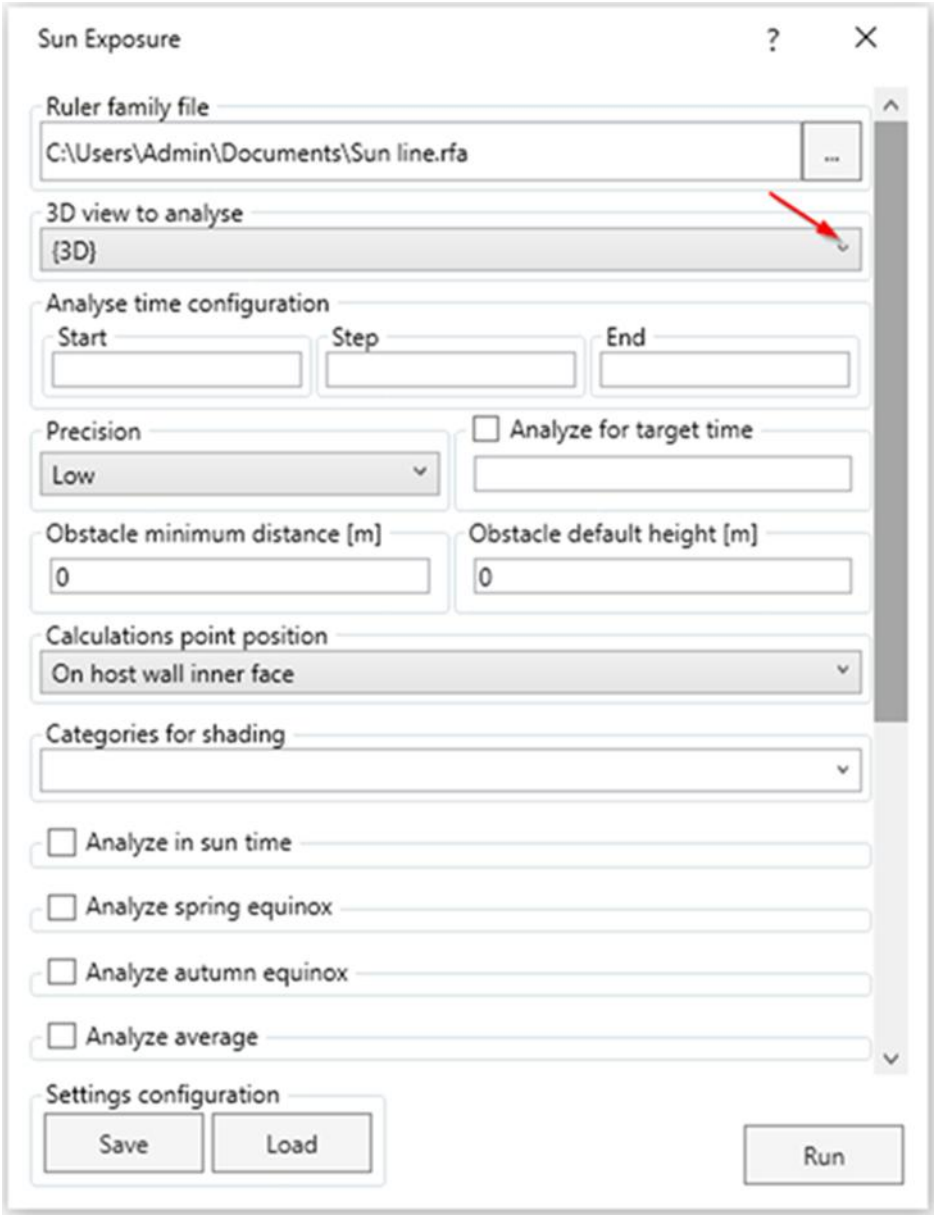
The tool calculates the sunlight exposure time for selected rooms intended for human occupancy.

Tool usage scheme:

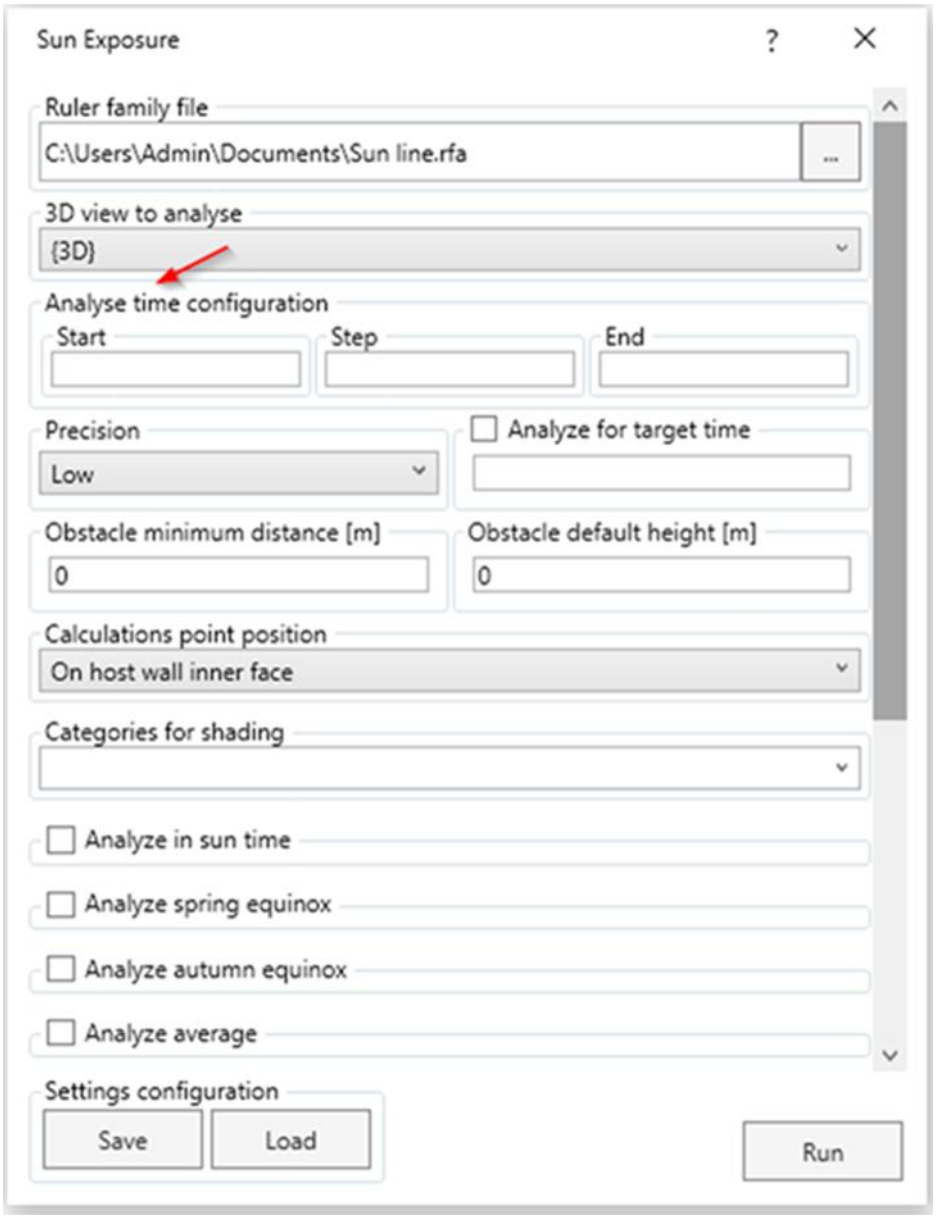
1. In the project, navigate to the floor plan view where the sunlight analysis should be performed.
2. Specify the path to the sun ruler family file.



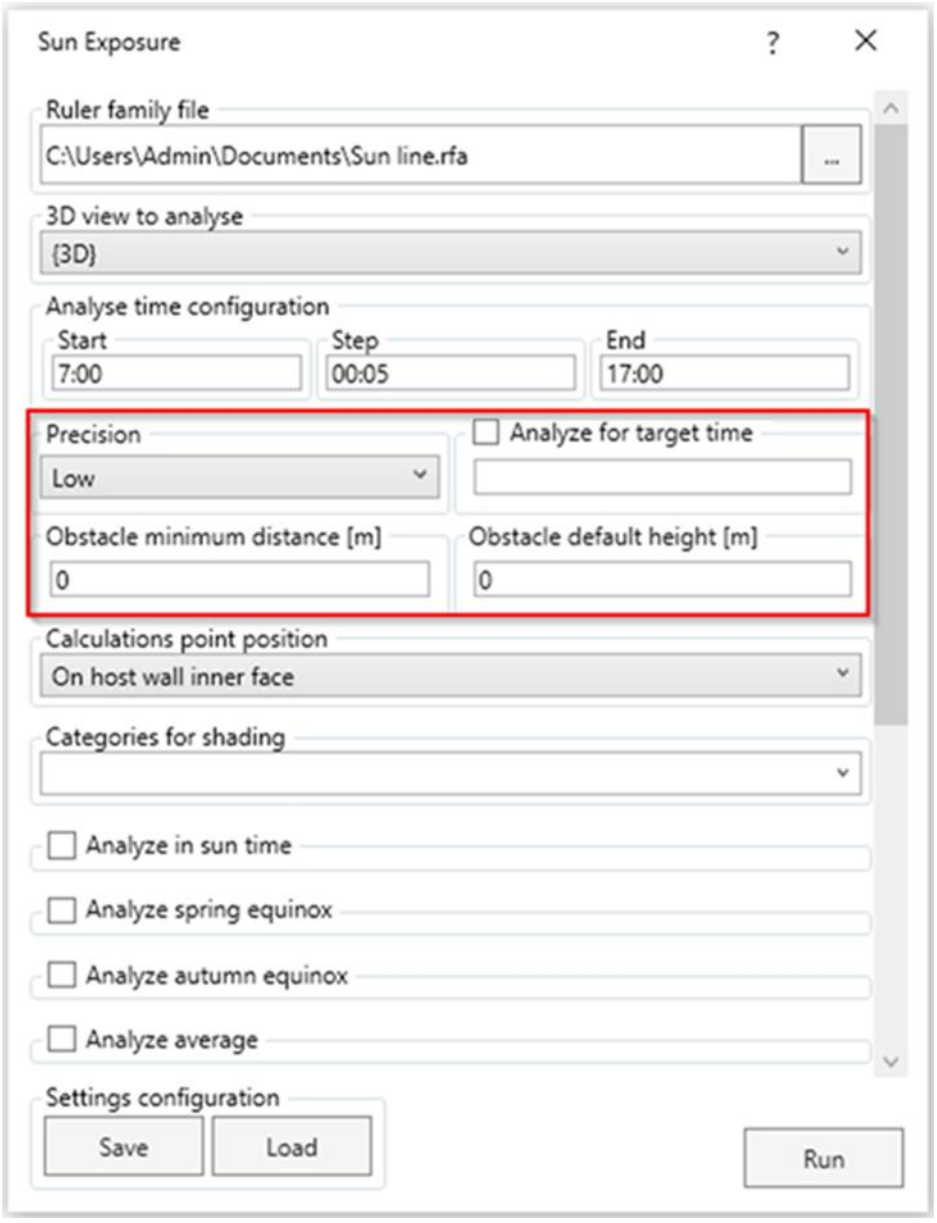
3. From the dropdown list, select the 3D View for the analysis.



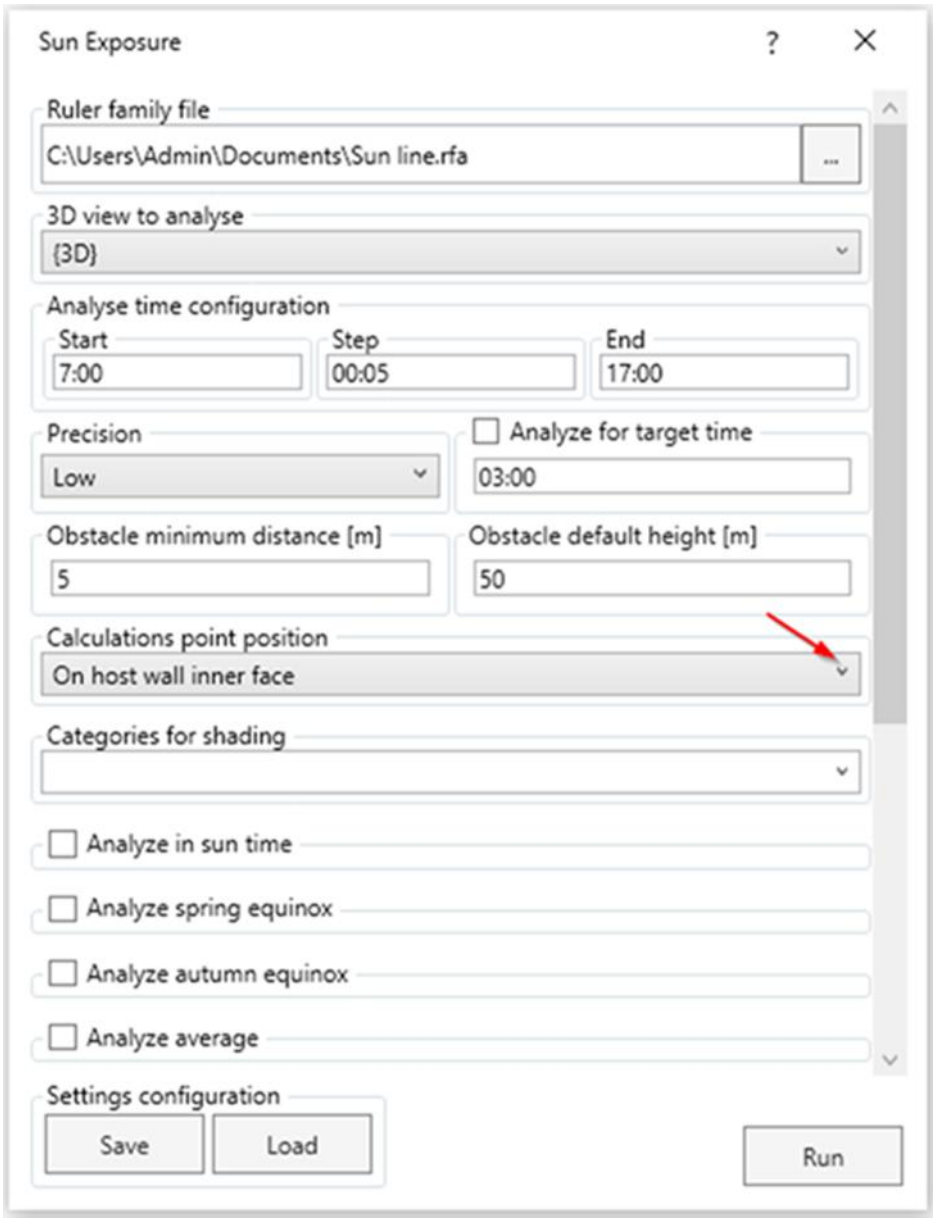
4. Configure the analysis time:
    - *Start* – start time of the analysis
    - *Step* – time between two measurements
    - *End* – end time of the analysis



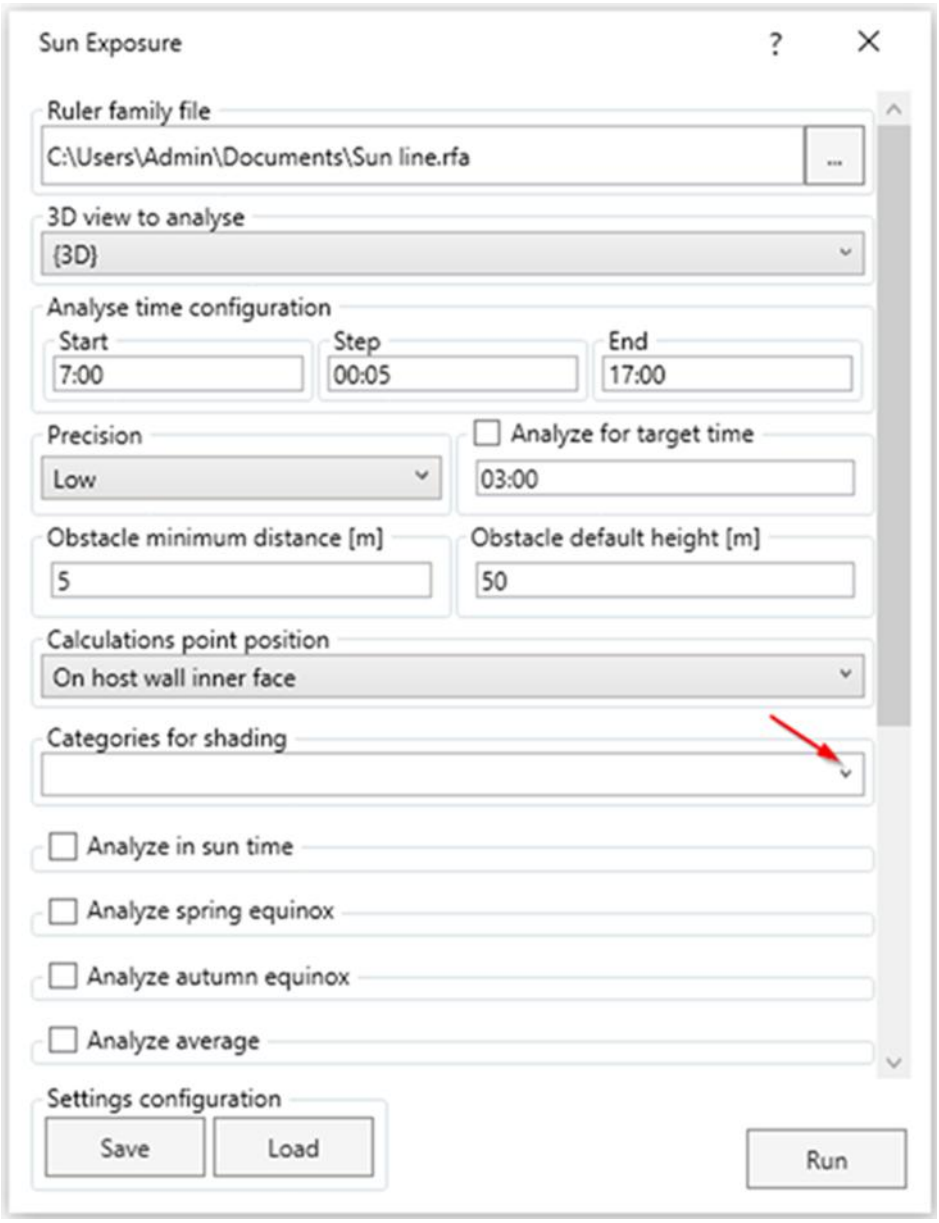
5. Complete the following configuration data:
    - *Precision* – number of analysis points; select from the dropdown list
    - *Analyze for target time* – whether the tool should limit the obtained sunlight time to a specific required value and the time for which rooms should be provided with natural light
    - *Obstacle minimum distance [m]* – the minimum distance from neighboring buildings after which a wall may be classified as an obstacle
    - *Obstacle default height [m]* – the default height of the obstacle to be used if no obstacle is detected



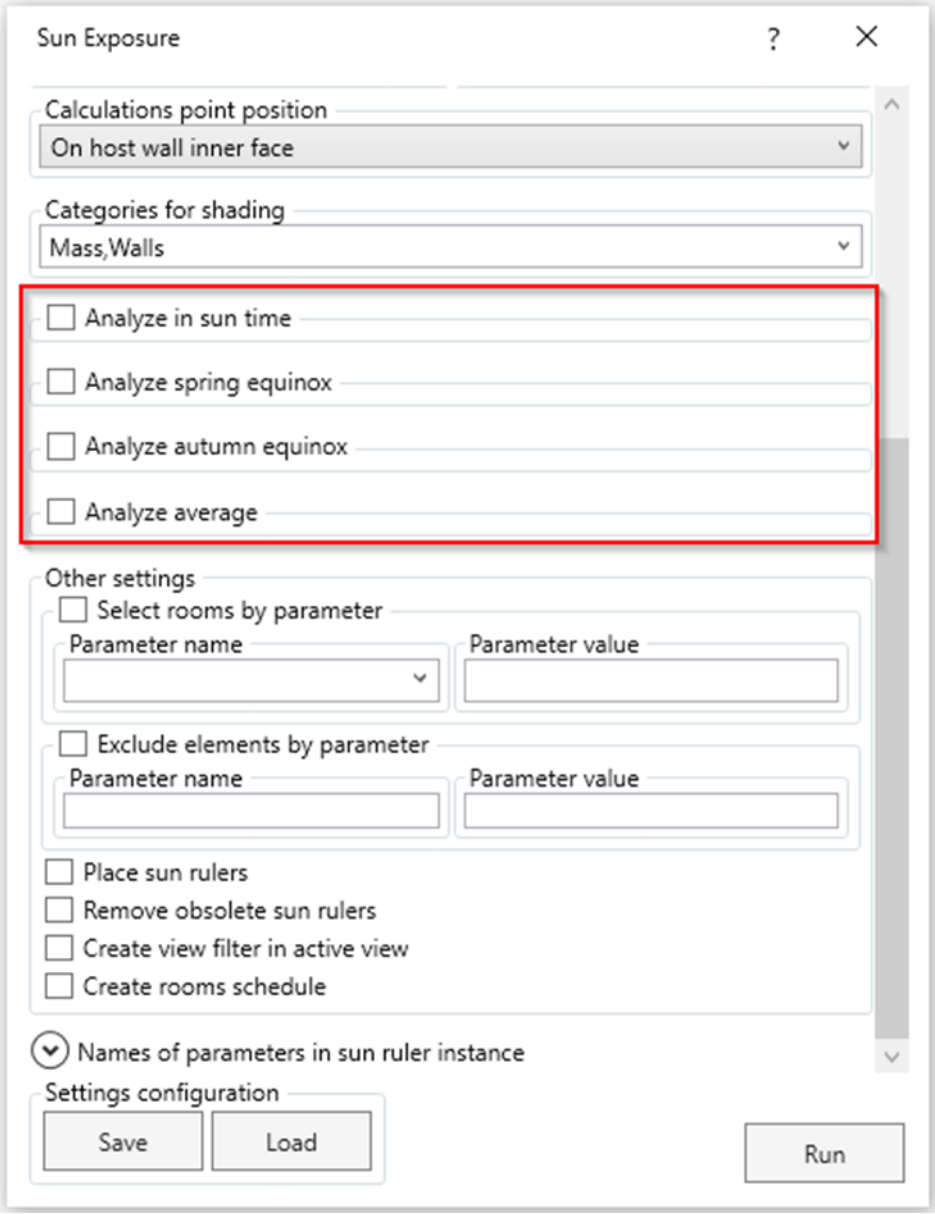
6. From the *Calculation point position* dropdown list, select either *On host wall inner face* or *On the inner surface of the glazing*.



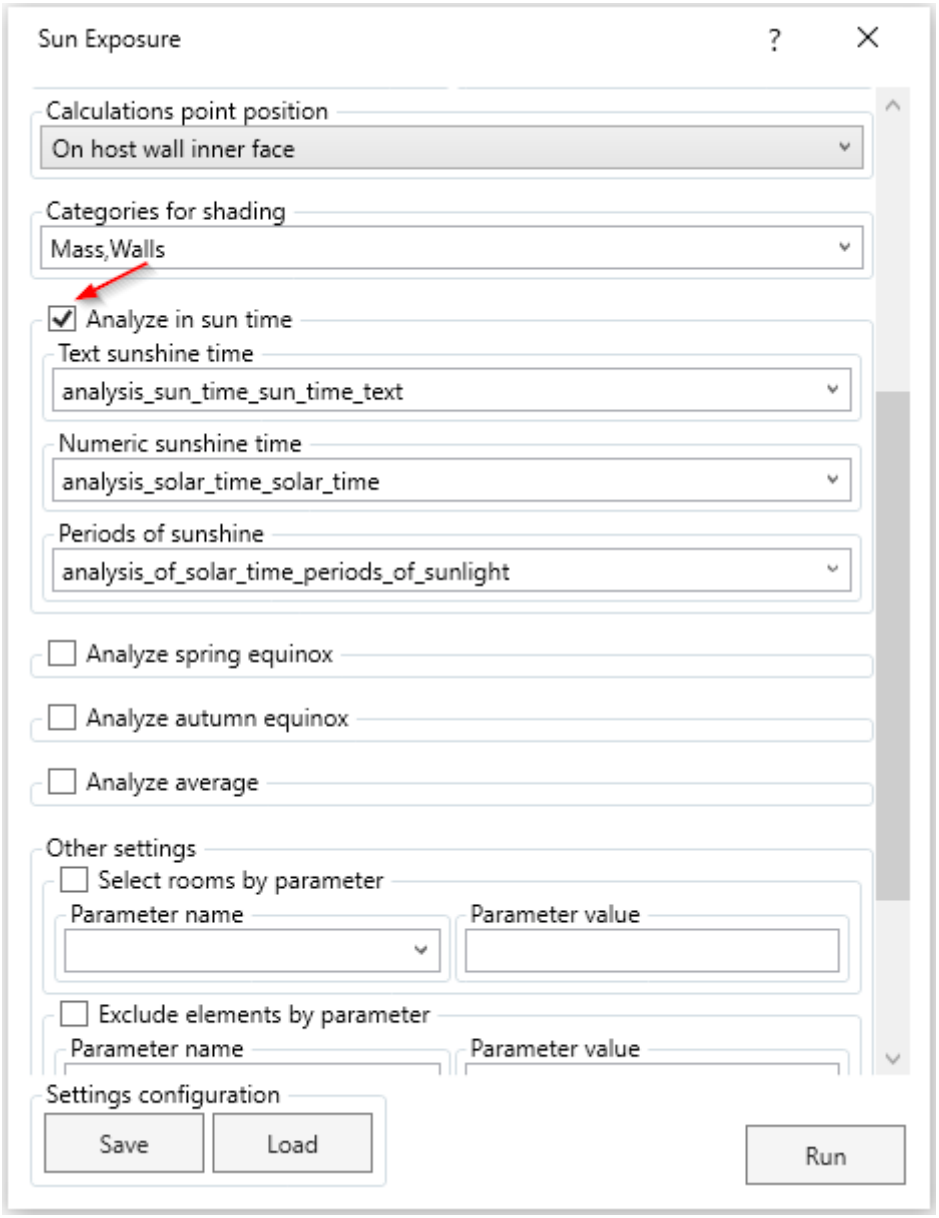
7. From the *Categories for Shading* dropdown list, select the shading categories to be considered in the analysis by checking the appropriate boxes.



8. Select the type of analysis:
    - *Analyze in sun time* – considers the Sun's actual position in the sky, regardless of official time
    - *Analyze spring equinox* – performed at official time on the day of the spring equinox
    - *Analyze autumn equinox* – performed at official time on the day of the autumn equinox
    - *Analyze average* – averages the results of the spring and autumn equinox analyses

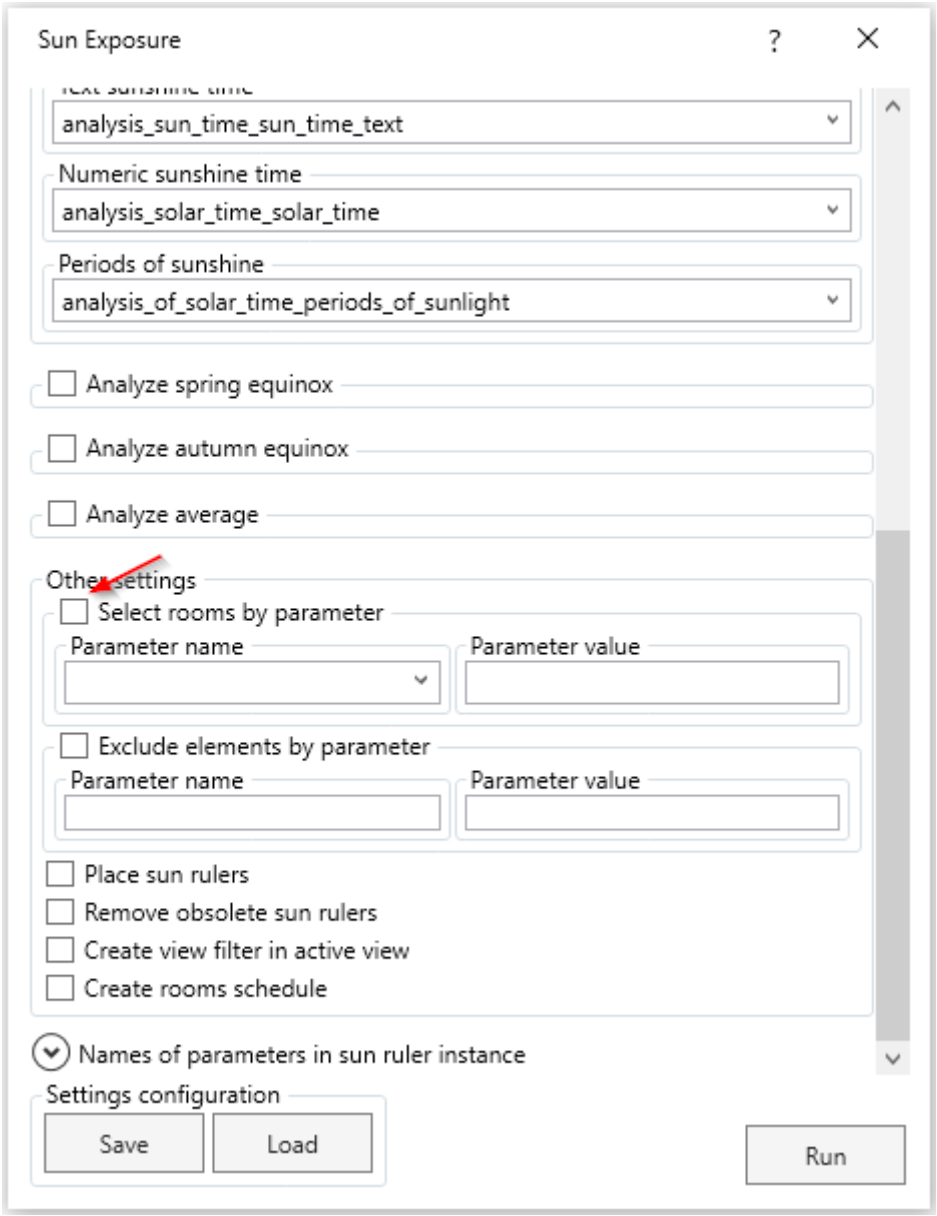


After selecting the type of analysis, choose the room parameters to receive the results. By default, the tool creates new parameters and fills them with results.

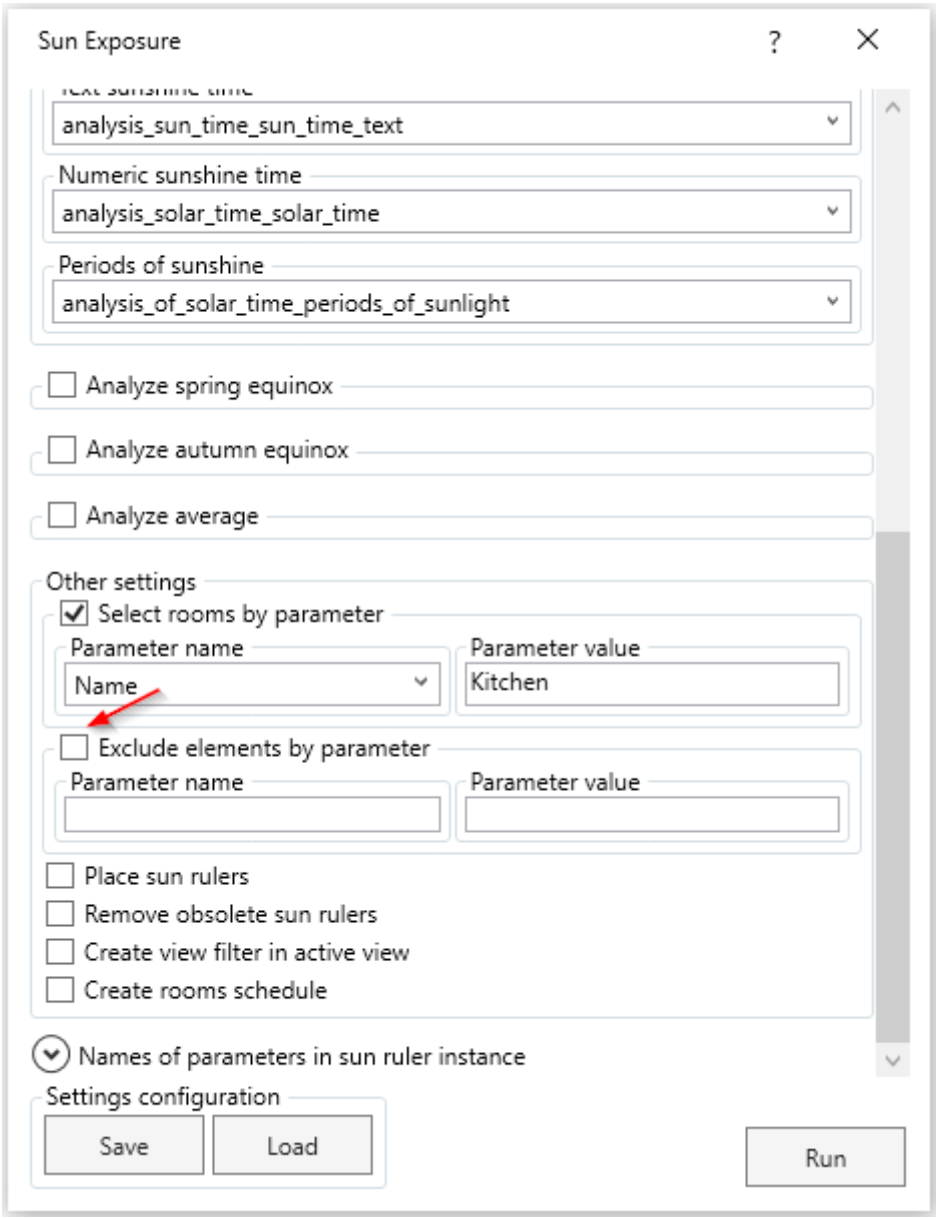


Multiple analyses can be run at once.

9. Optional: In the *Other settings* group, it is possible to filter rooms by parameter. To do this, enable the checkbox *Select rooms by parameter*, then from the *Parameter name* dropdown, choose a parameter from the Rooms category and in the *Parameter value* field, enter the value to filter rooms by.

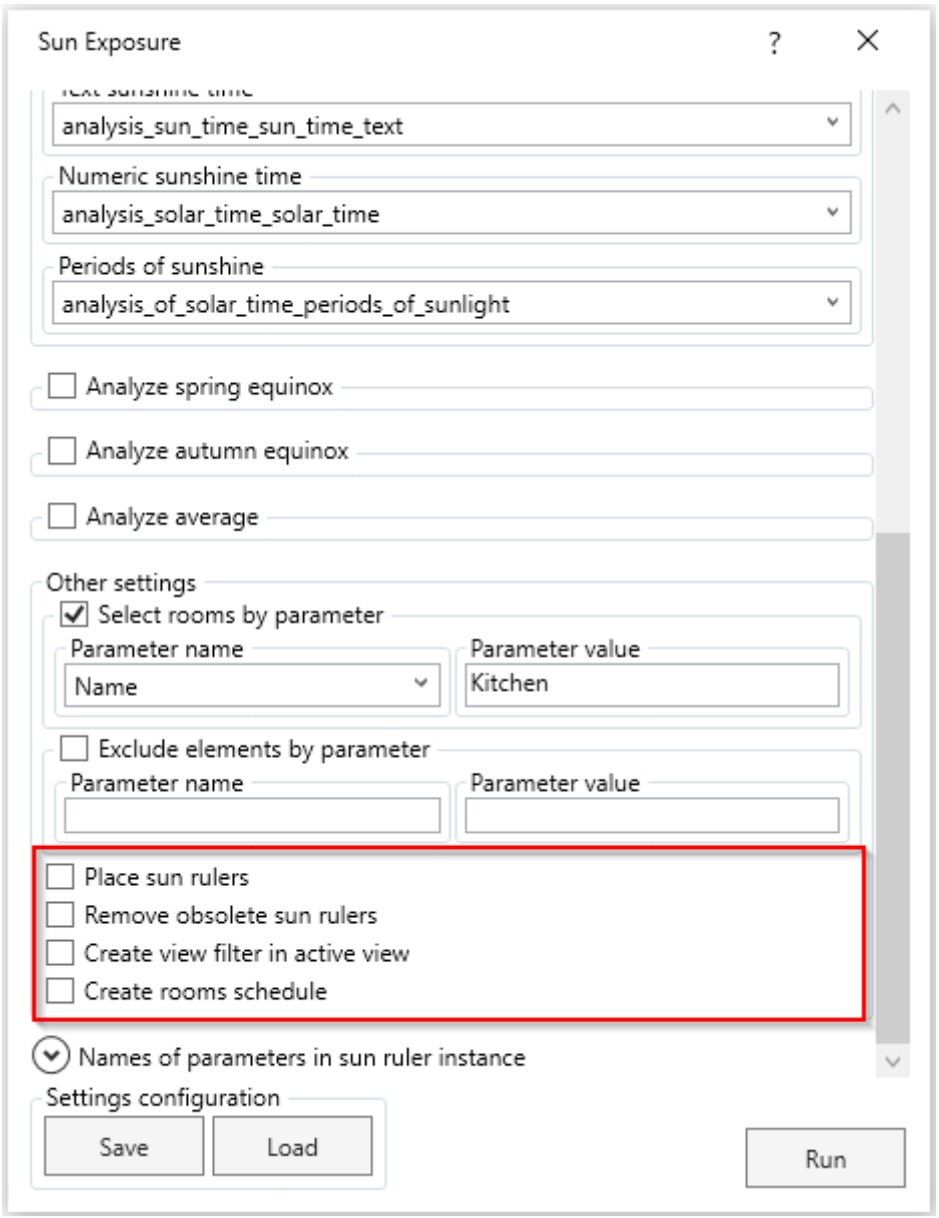


The tool also offers an option to exclude elements by parameter. To do this, enable the *Exclude elements by parameter* checkbox, enter the *Parameter name*, and then the *Parameter value* to filter elements.

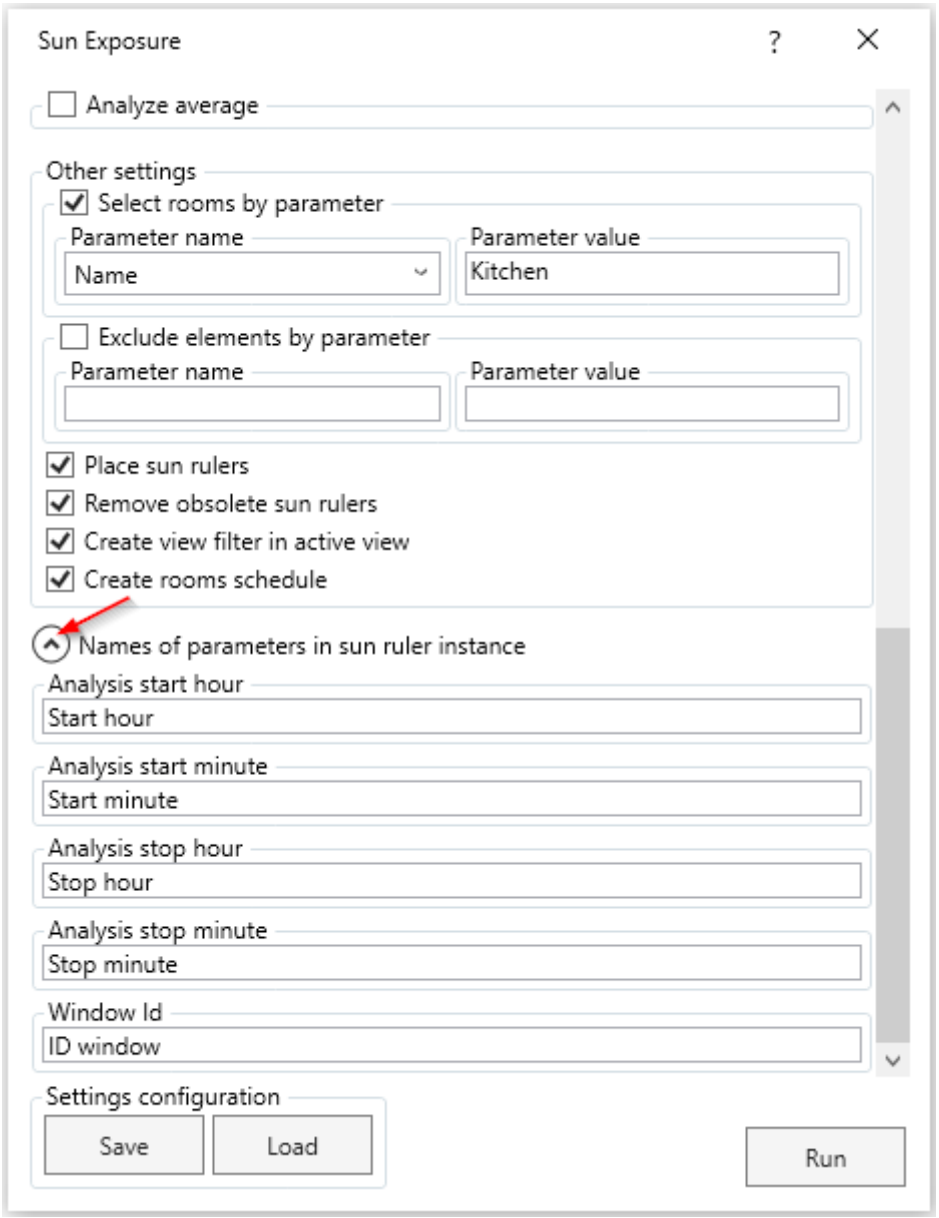


Additional Available Actions:

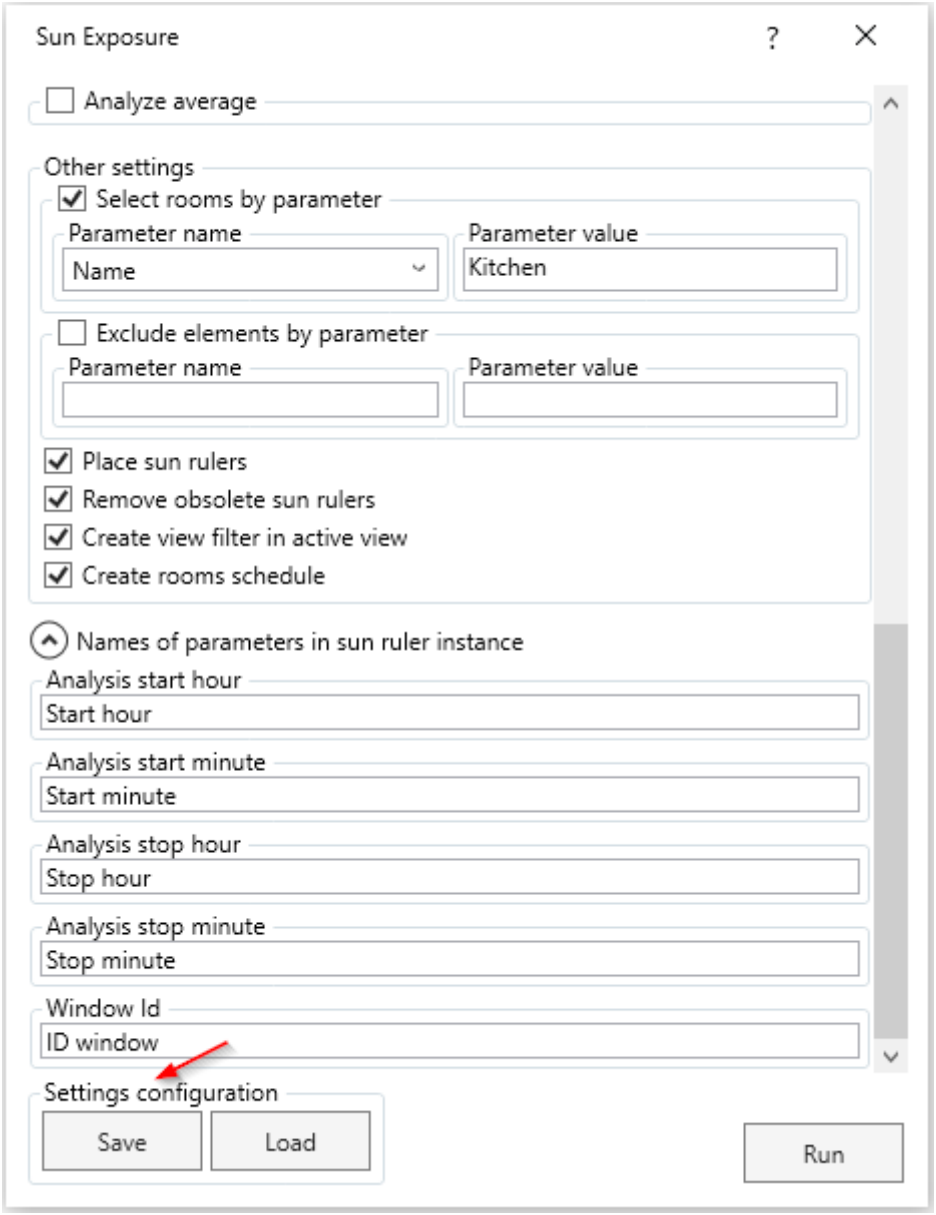
- *Place sun rulers* – inserts the selected sun ruler family into the project. If this option is inactive, the tool will only update the analysis parameters
- *Remove obsolete sun rulers* – removes sun rulers from the previous analysis that were linked to deleted elements
- *Create view filter in active view* – generates a visual representation of the analysis results using a filter
- *Create rooms schedule* – generates a schedule from the analyzed rooms



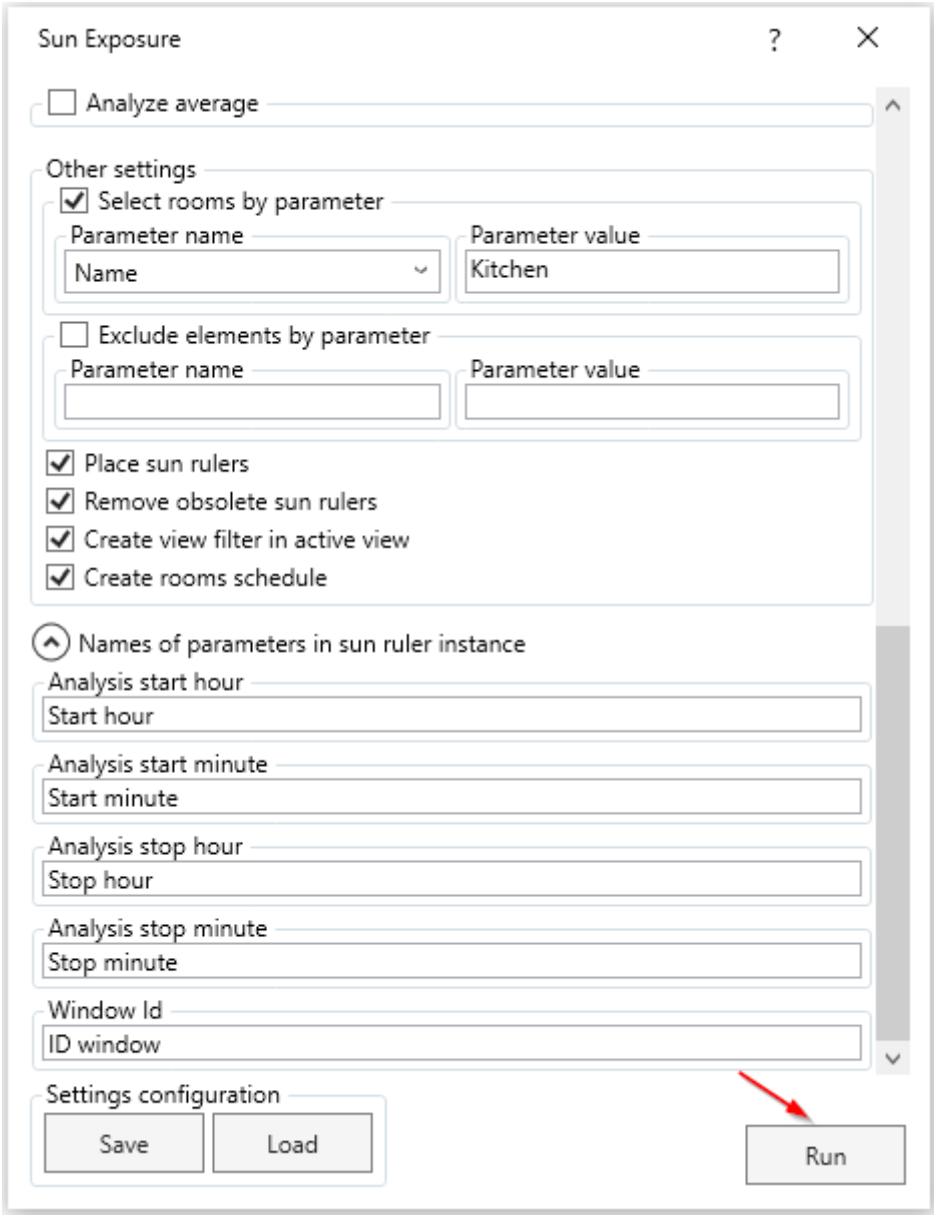
10. In the *Names of parameters in sun ruler instance* section, provide the names of the parameters from the loaded sun ruler family.



11. Optional: The current configuration can be saved using the *Save* button and loaded using the *Load* button.



12. After completing the configuration, click the *Run* button.

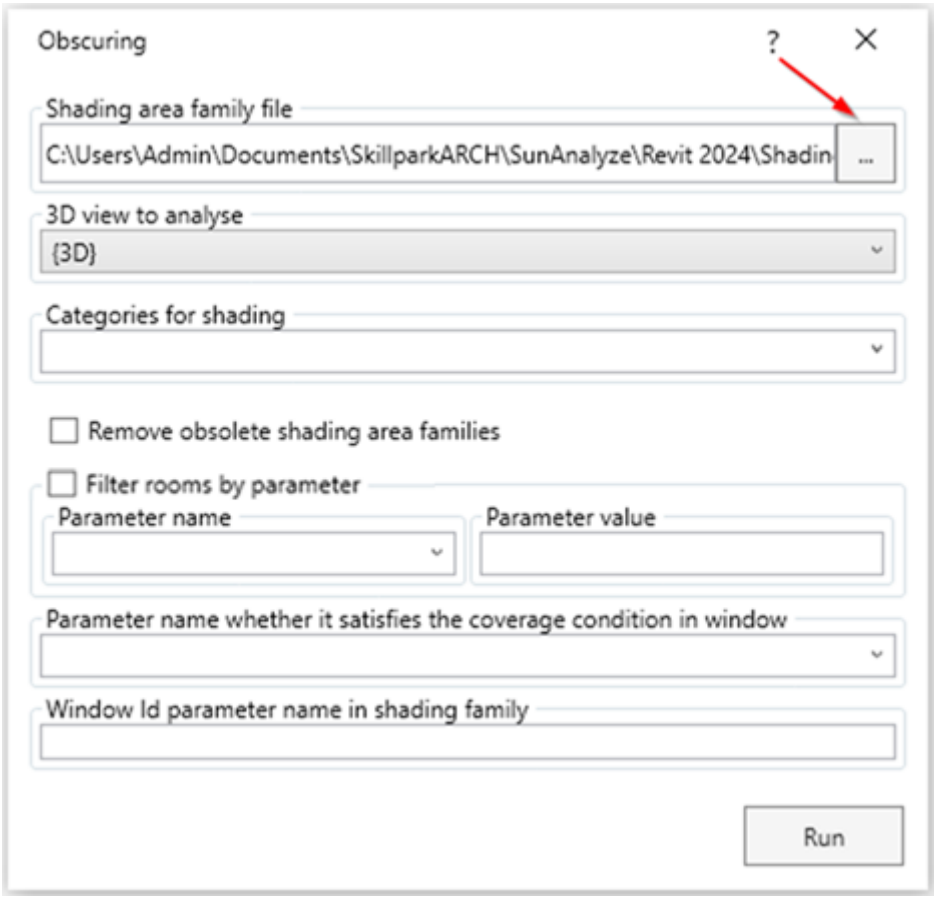


Skillpark ARCH > Analysis > Obscuring

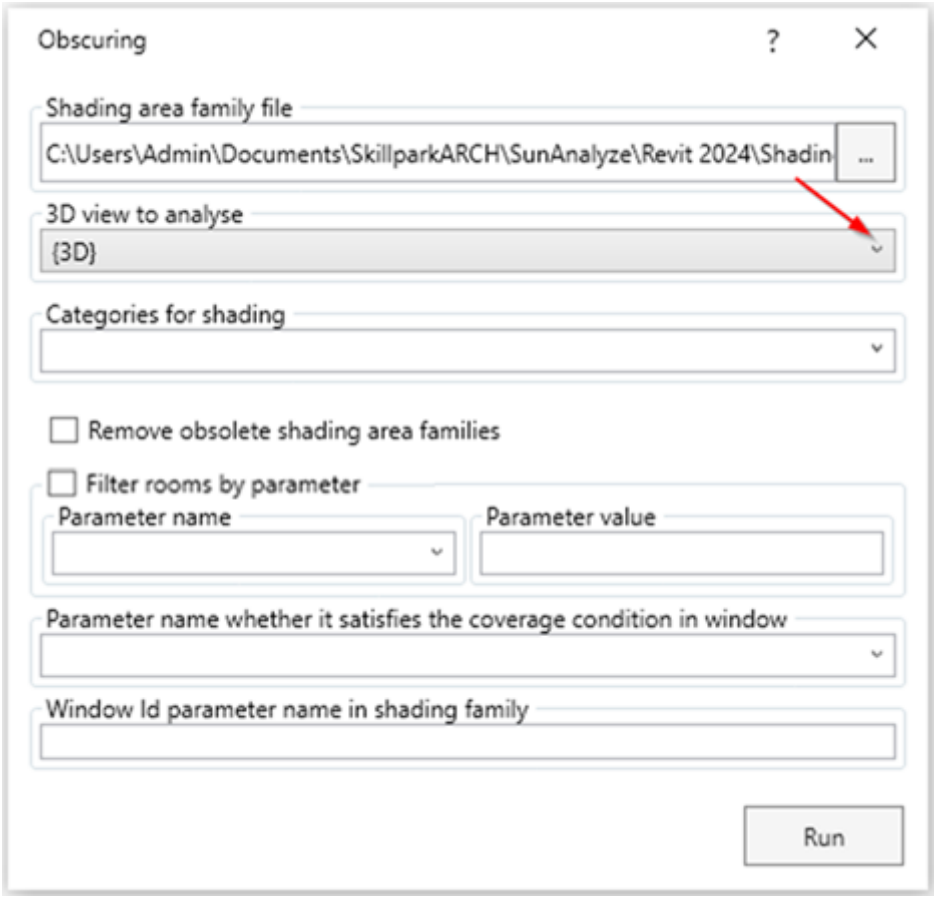
The tool allows users to determine whether the shading requirement has been met in rooms intended for human occupancy and prepares the analysis results in a graphical form on the plan and as a room schedule.

Tool usage scheme:

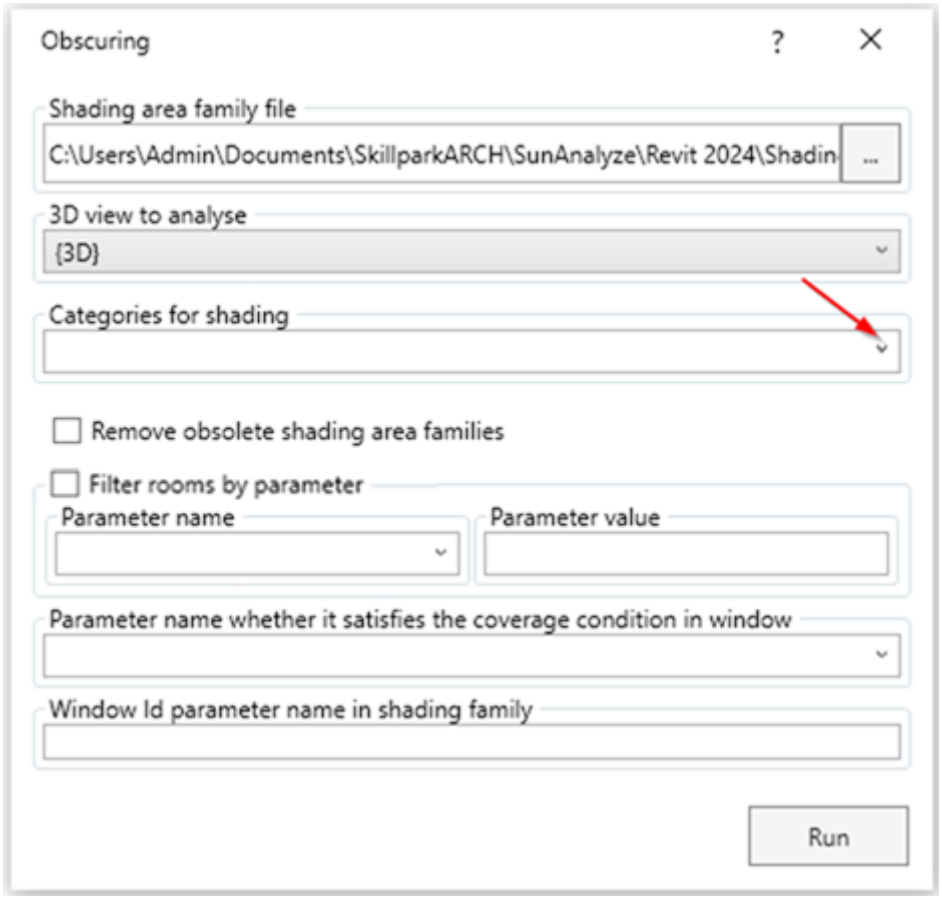
1. The tool requires the use of a shading family file. The user may use the shading family delivered with the installer. After launching the tool, the user should indicate the path to the family file.



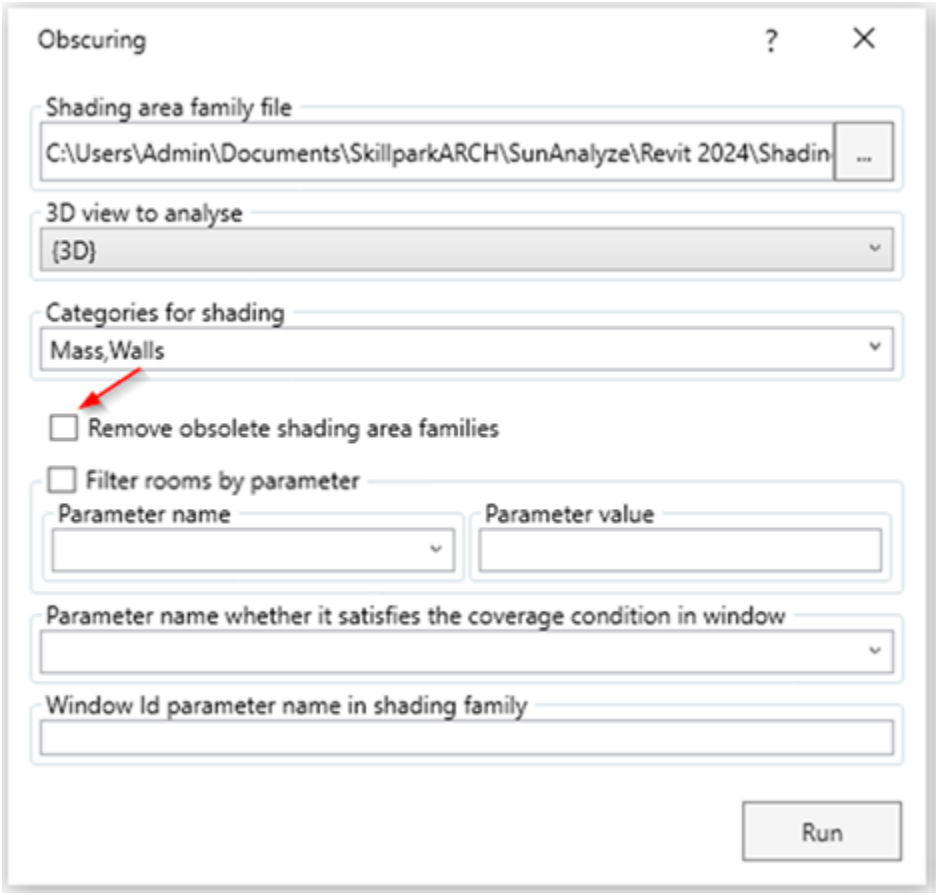
2. From the dropdown list, select the 3D View for analysis.



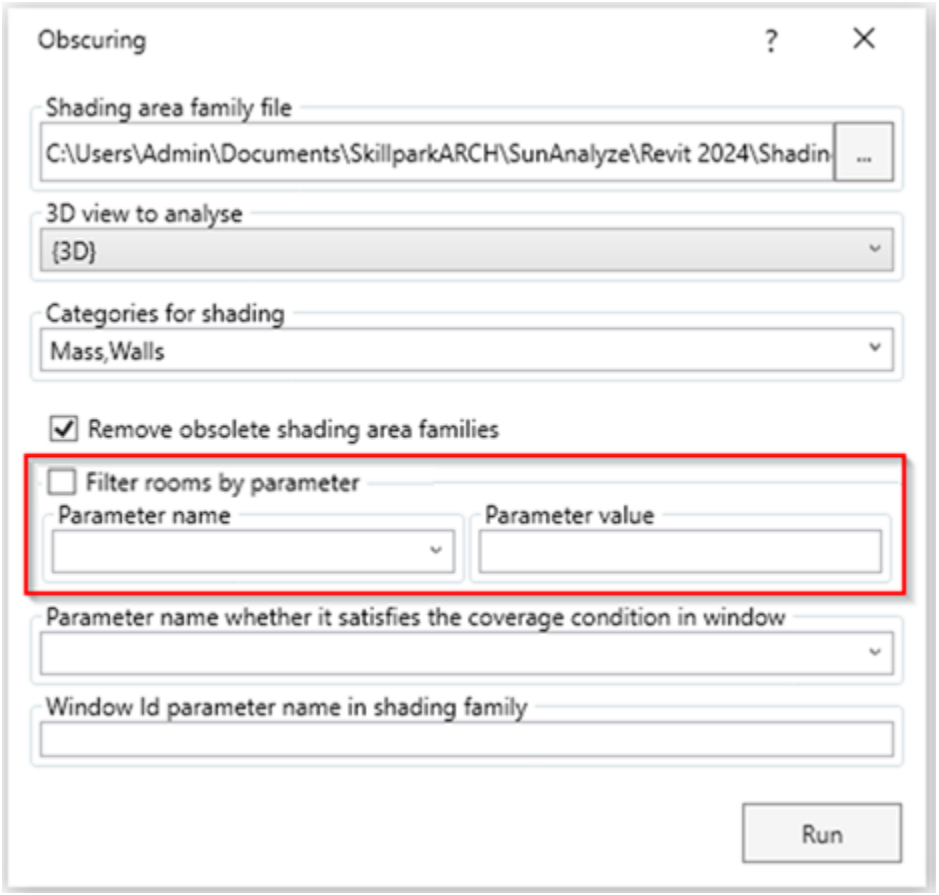
3. From the dropdown list *Categories for shading*, select the categories to be considered in the analysis by clicking the corresponding checkboxes.



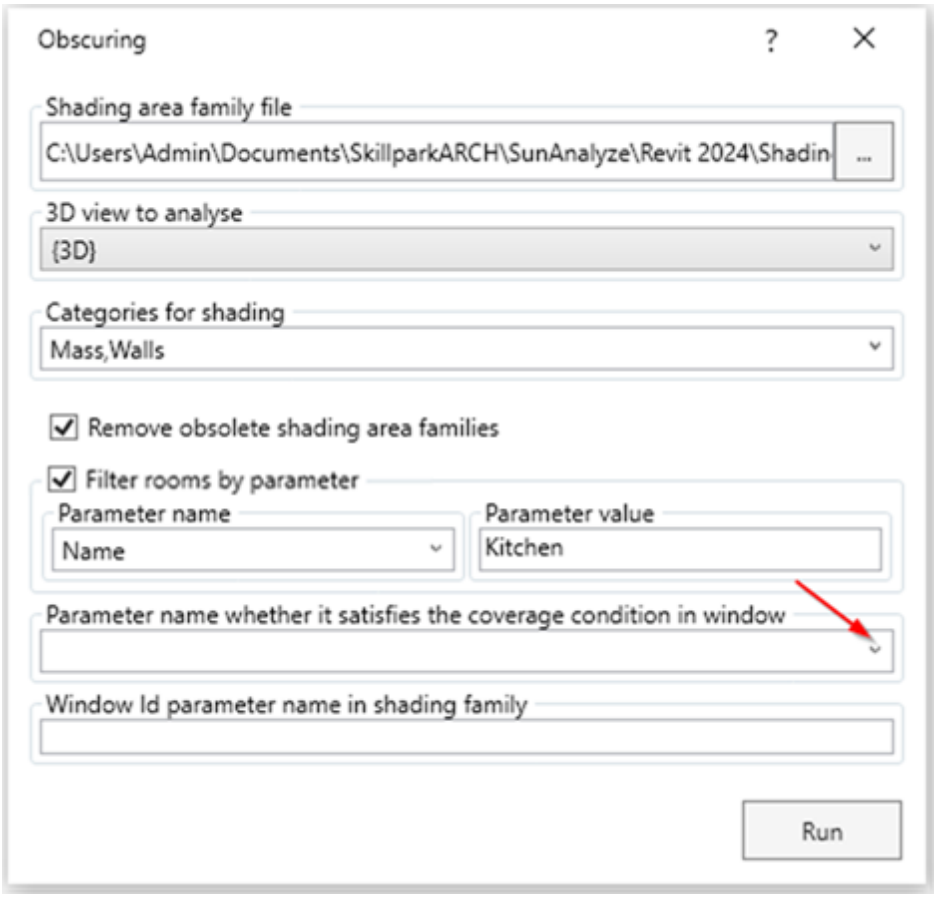
4. Optional: Check *Remove obsolete area families* – if a window has been removed from the model, the tool will delete unnecessary shading families that were used in the previous analysis and related to the deleted elements.



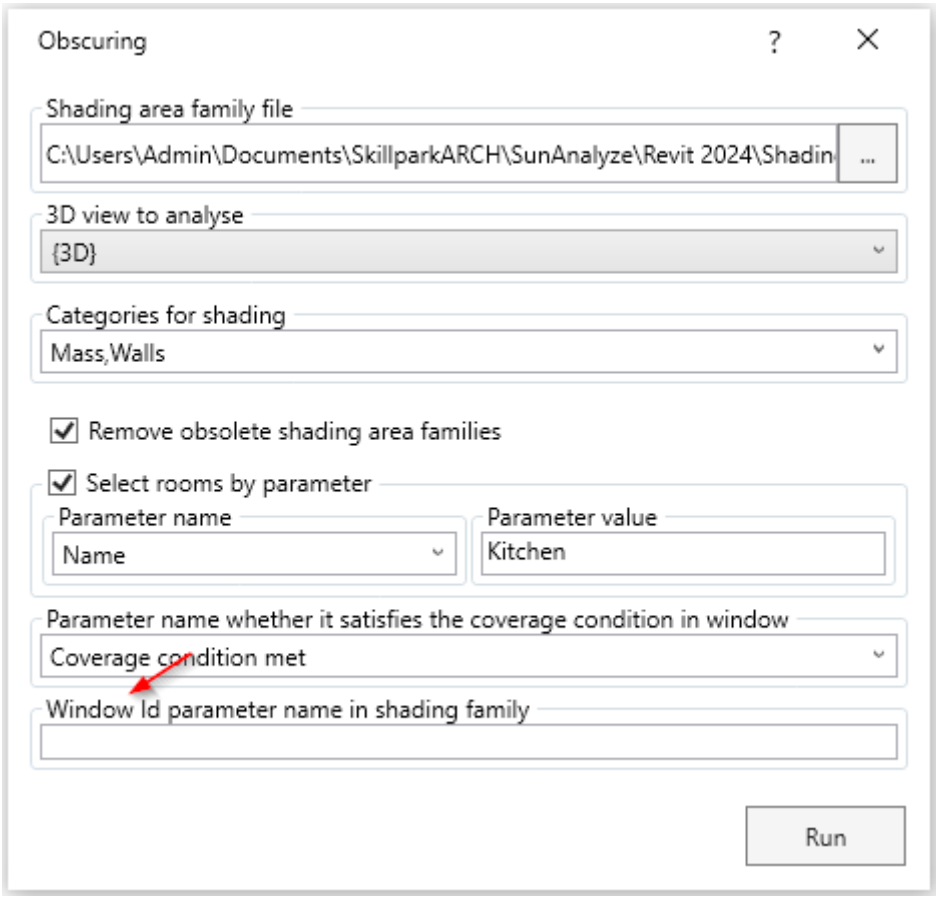
5. Optional: You can select rooms for analysis based on the value of a chosen parameter. To do this, activate the *Select rooms by parameter* checkbox, choose the parameter name from the *Parameter name* dropdown list (from the Rooms category), then enter the specific value in the *Parameter value* field to filter the rooms.



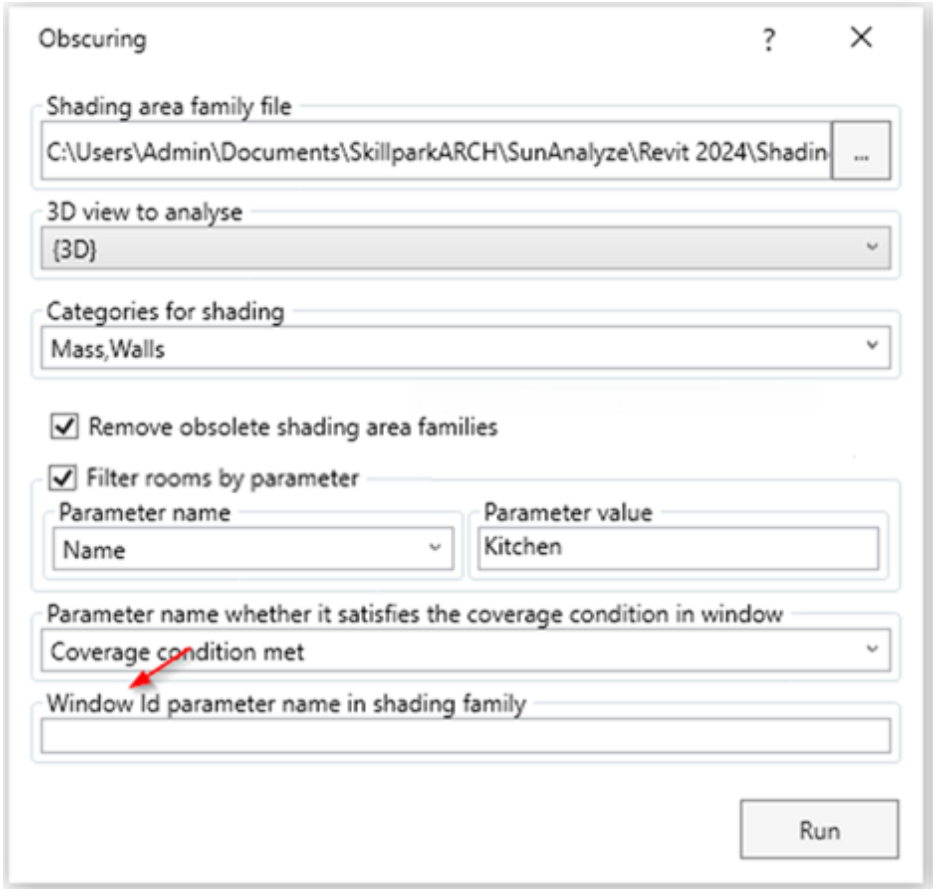
6. Optional: In the *Parameter name whether it satisfies the coverage condition in window* dropdown, select the name of the parameter where the tool will save the analysis results. If the project parameter has not been created yet, enter the name of a new parameter, and the tool will create one with the required properties.



7. In the *Window ID parameter name in shading family* field, enter the name of the parameter from the loaded shading family.



8. After completing the configuration, click the *Run* button.

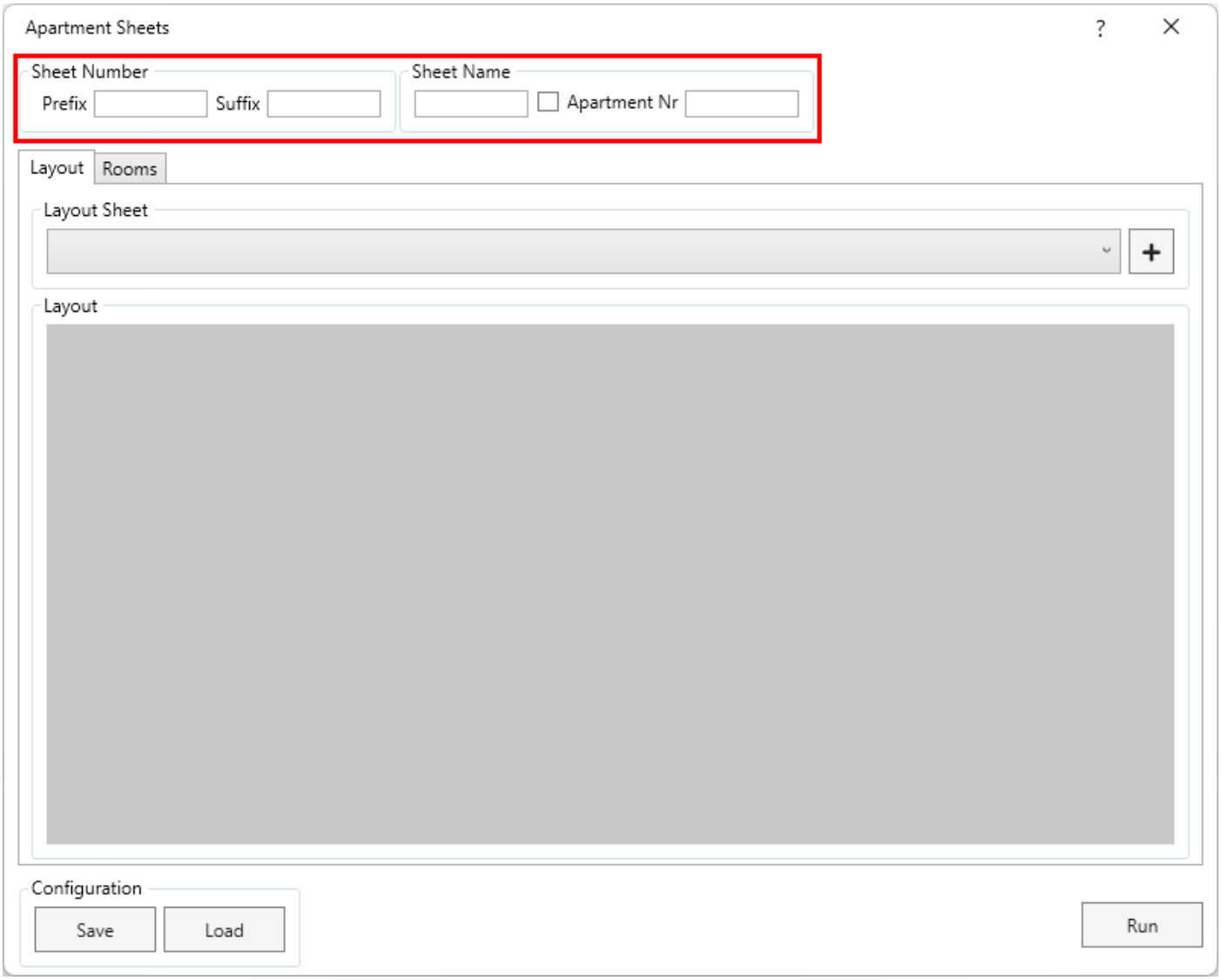


Skillpark ARCH > Register > Apartment Sheets

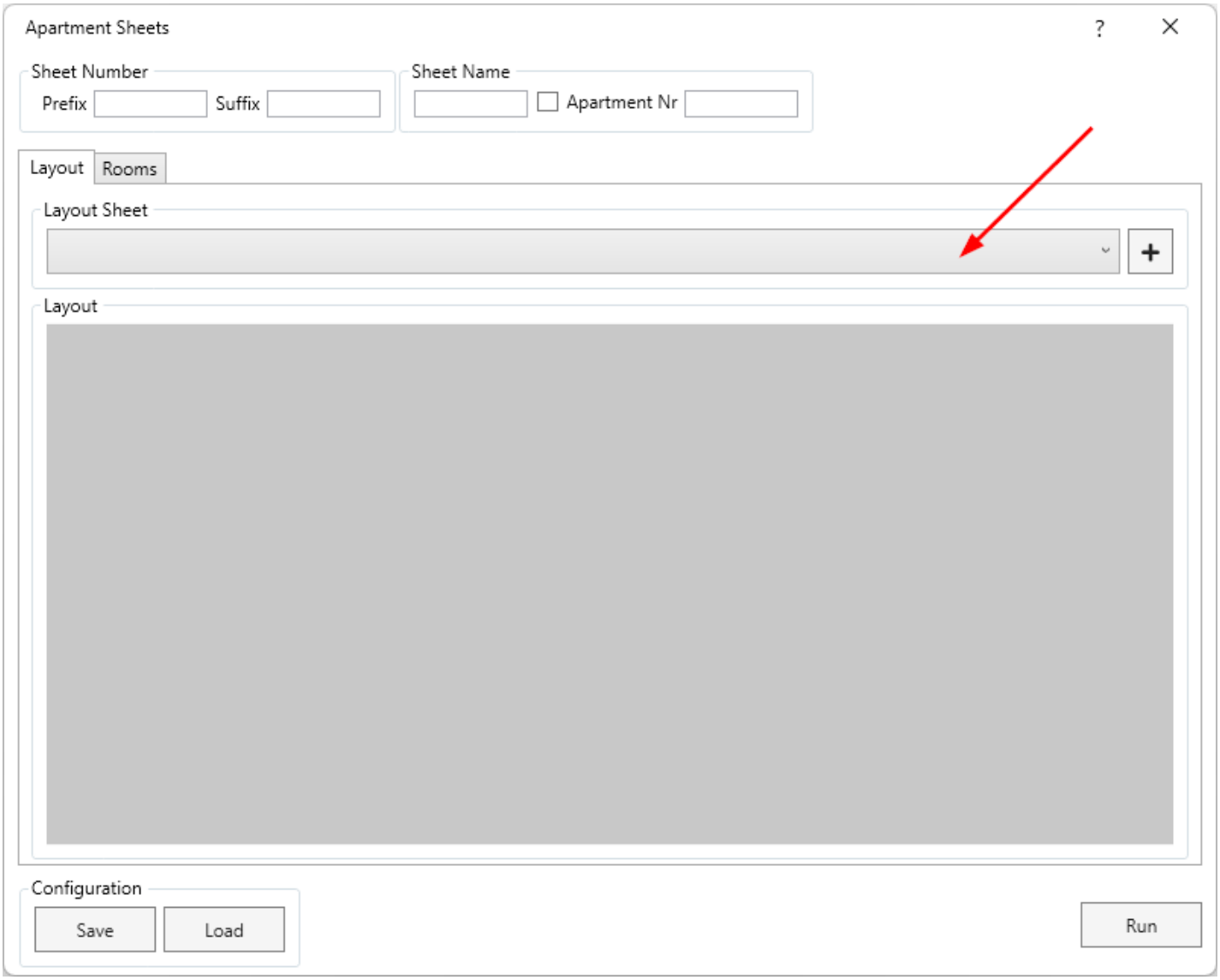
The tool is used to generate apartment sheets according to a layout prepared by the user.

Tool usage scheme:

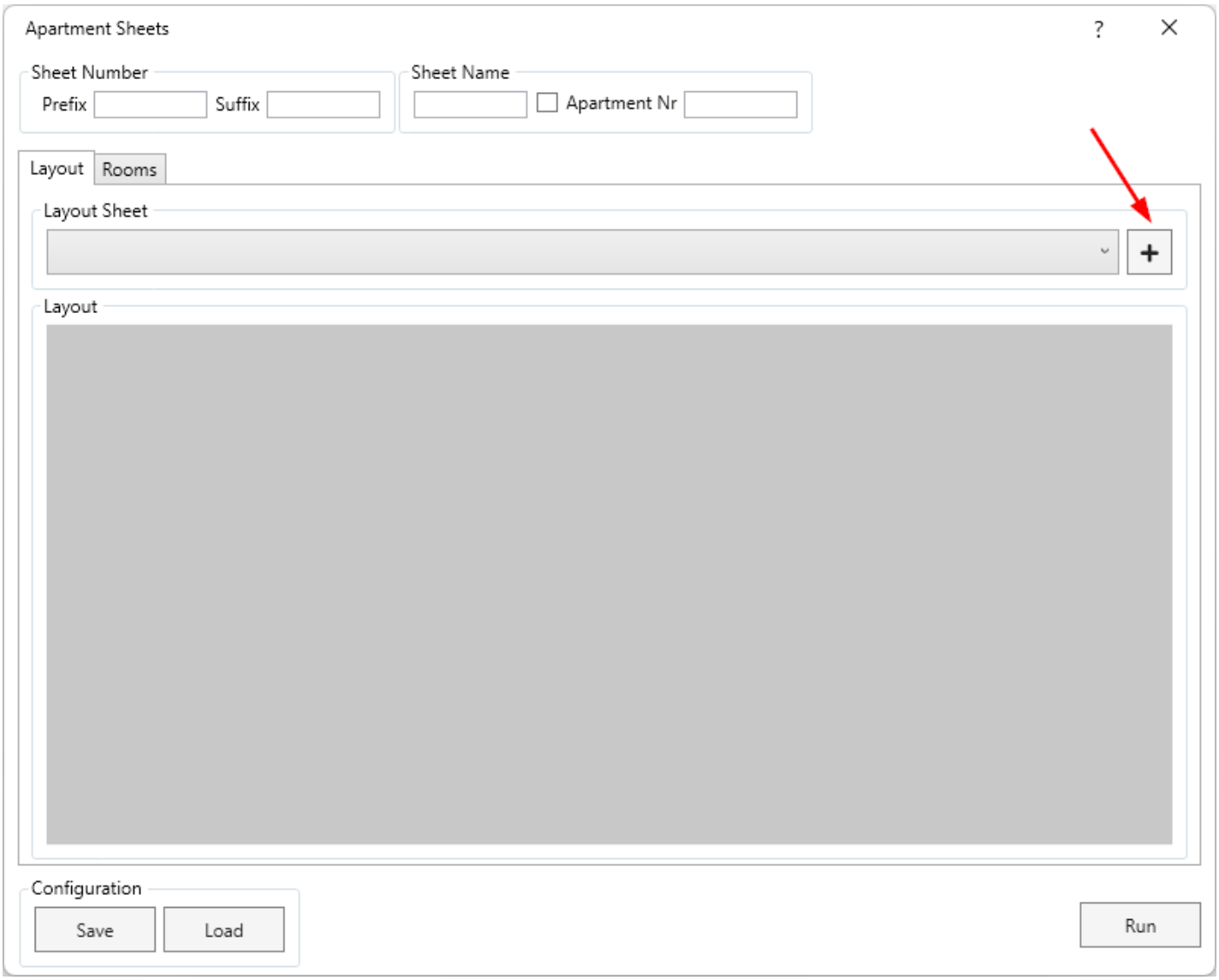
1. Optional: In the *Sheet Number* section, you can enter a *Prefix* and *Suffix* in the text fields. In the *Sheet Name* section, you can also enter a Prefix and Suffix and choose whether or not to include the Apartment Number in the name.



2. In the *Layout* tab, select a *Layout Sheet* from the drop-down list available in the project.

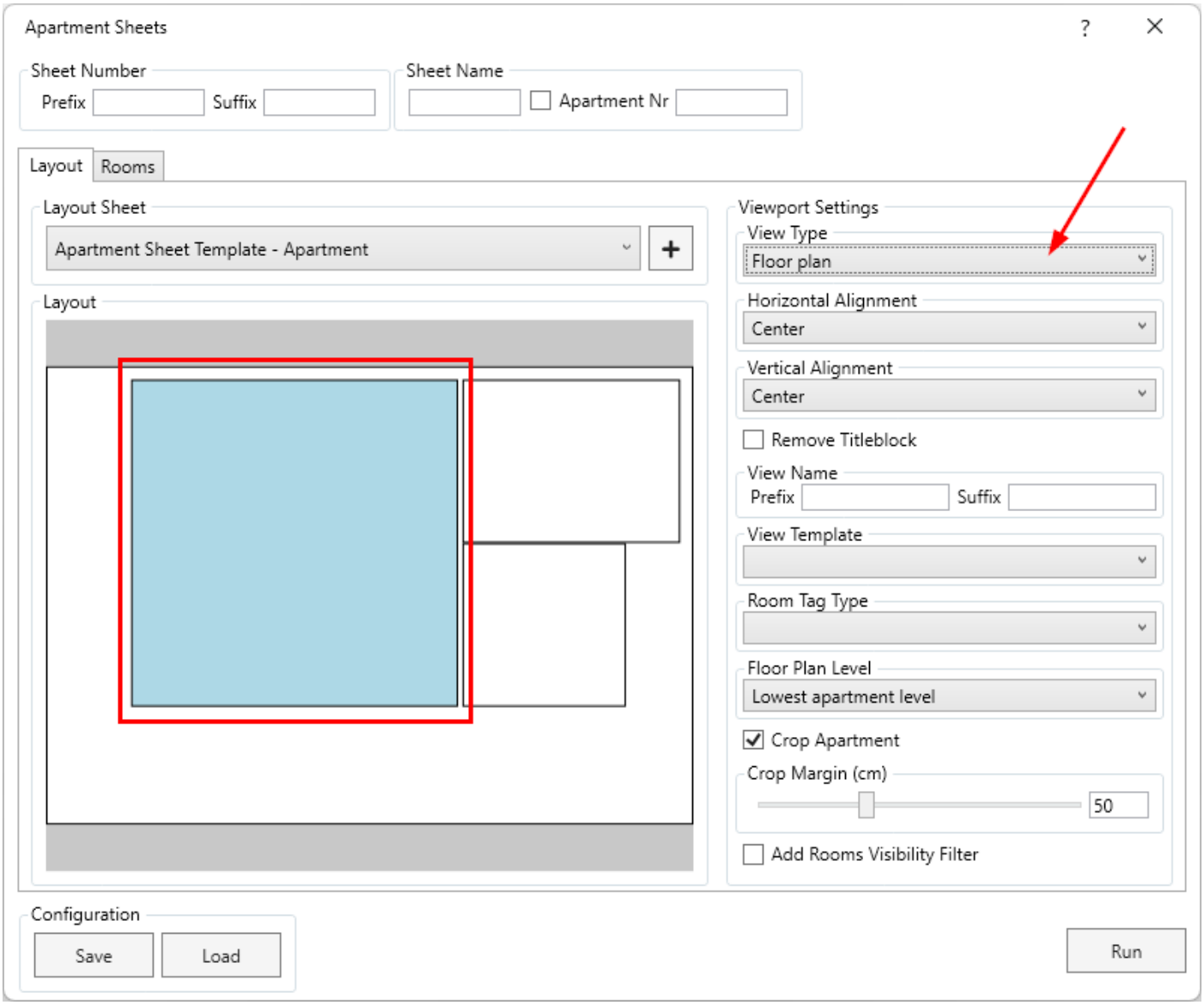


After clicking [+], the tool will load the default sheet.



3. The user should adjust the default sheet to their needs or create a new sheet that will be used by the tool to generate apartment sheets. The tool uses *Title Block* category families to place individual elements of the apartment sheet.
   The default sheet consists of the following elements:
   - Title Block family, which defines the sheet size, optionally: may contain information about the name and number of the sheet and data retrieved from project parameters.
   - Auxiliary title block families, used to place views and schedules on the sheet with the help of the tool. It is recommended that the sizes of the auxiliary title block families are set to be larger than the largest apartment floor plan / building floor plan / schedule.
   - Families of fixed elements and legends, i.e., elements that always have the same size and are placed in the same locations on the sheet, e.g., a north arrow family, a scale family.

4. Select one of the *auxiliary title blocks* on the sheet. Then, in the *Viewport Settings* section, choose the *View Type* from the drop-down list.



Available actions when *Floor Plan* view type is selected:

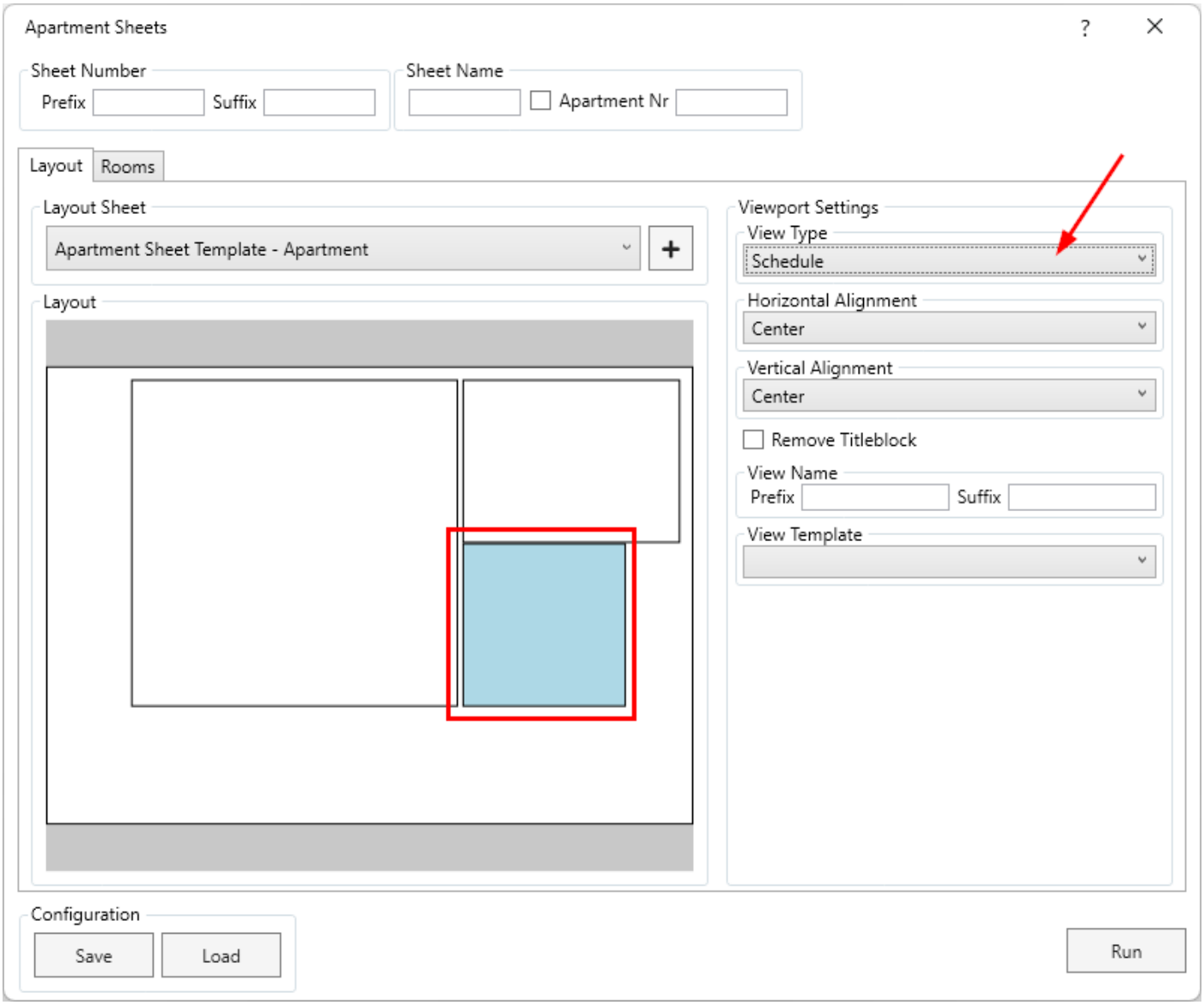
- *Horizontal Alignment* – horizontal alignment of the view to the left, center, or right side
- *Vertical Alignment* – vertical alignment of the view to the top, center, or bottom of the page
- *Remove Titleblock* – remove the frame of the auxiliary title block from the sheet
- *View Name: Prefix; Suffix* – add prefix and/or suffix to the view name. In a situation where more than one floor plan is to appear on the sheet, e.g., apartment floor plan and floor level plan, you must fill in the prefix or suffix to ensure that the generated sheets have unique names.
- *View Template* – the view template that will be applied to the view placed on the sheet; the user must prepare view templates they wish to use before running the tool
- *Room Tag Type* – the type of room tags in the view on the sheet
- *Floor Plan Level* – the level of the plan used on the sheet:
    - for single-level apartments, you must select Lowest apartment level

- for multi-level apartments, you must select Lowest apartment level for the first level, +1 for the second level, ...

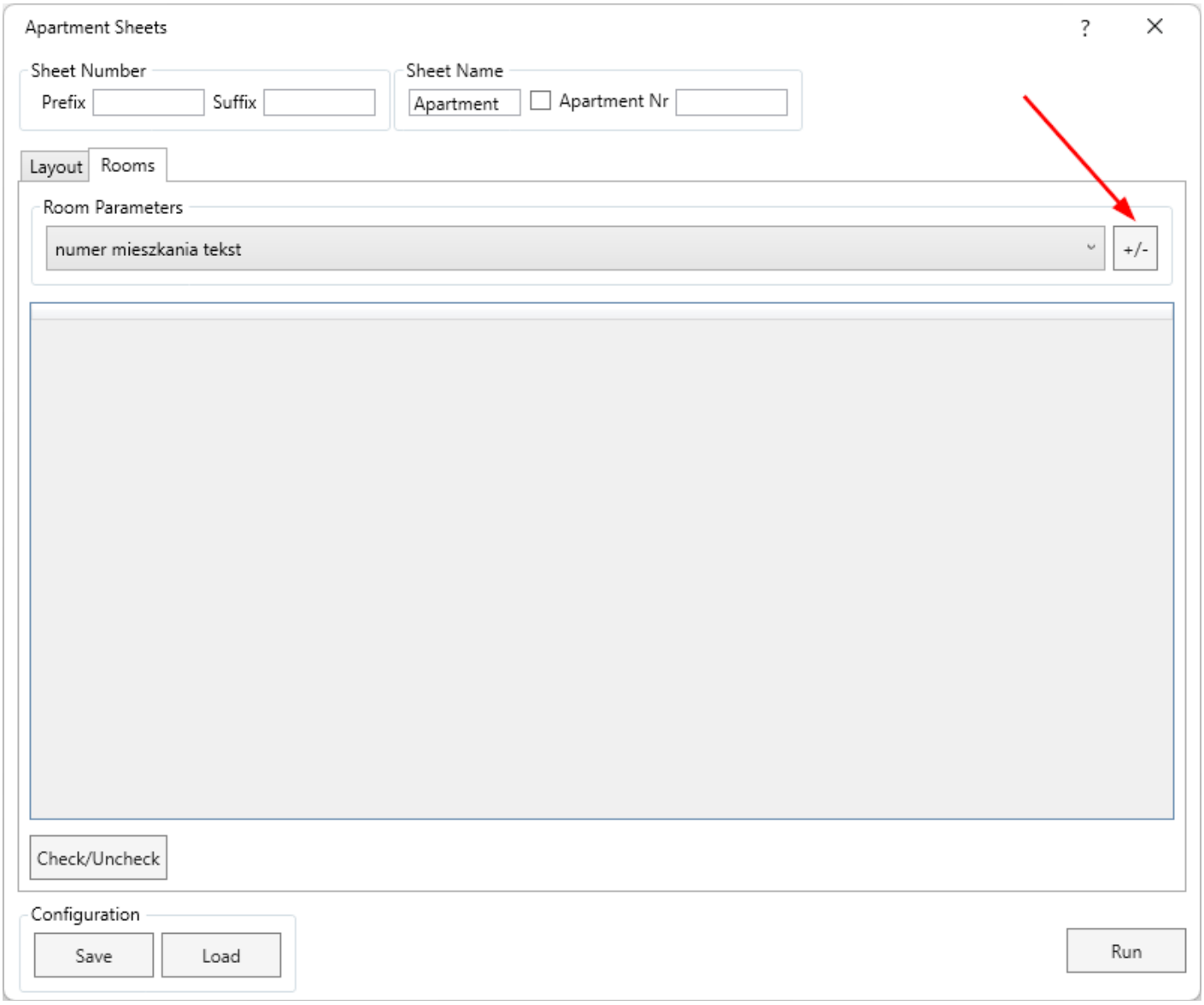
- *Crop Apartment* – an option dedicated to the apartment floor plan, allowing the view to show a single apartment with a crop margin. It is recommended that the Crop Margin (cm) option has a value greater than or equal to the thickness of the internal walls of the apartment
- *Add Room Visibility Filter* – an option dedicated to the floor plan view, allowing a view filter to be added that highlights the selected apartment on the floor plan using color.

Available actions when *Schedule* view type is selected:

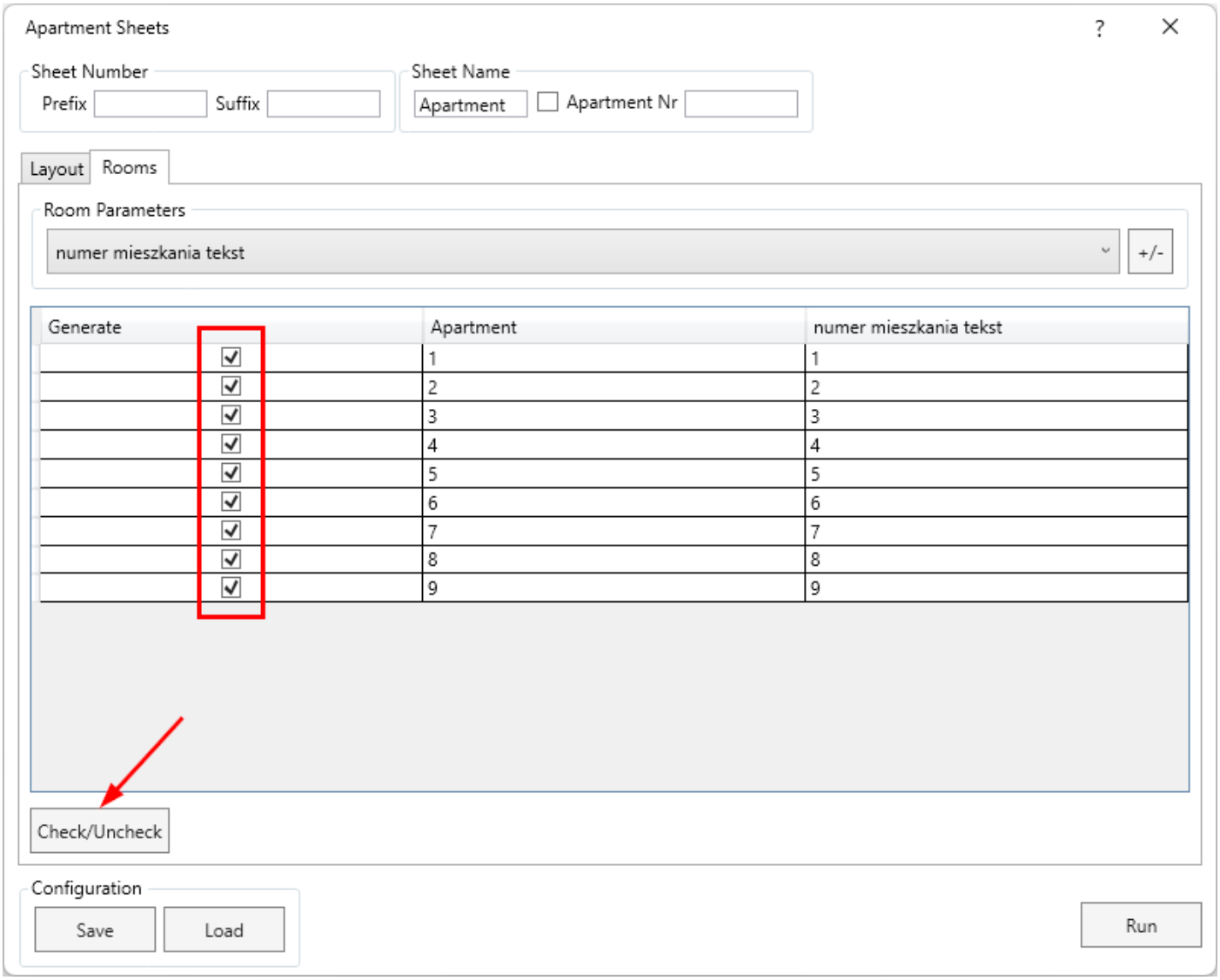
- *Horizontal Alignment* – horizontal alignment of the schedule to the left, center, or right side
- *Vertical Alignment* – vertical alignment of the schedule to the top, center, or bottom of the page
- *Remove Titleblock* – remove the frame of the auxiliary title block from the sheet
- *View Name: Prefix; Suffix* – add prefix and/or suffix to the view name
- *View Template* – the schedule template that will be applied to the schedule placed on the sheet; the user must prepare schedule templates they wish to use before running the tool



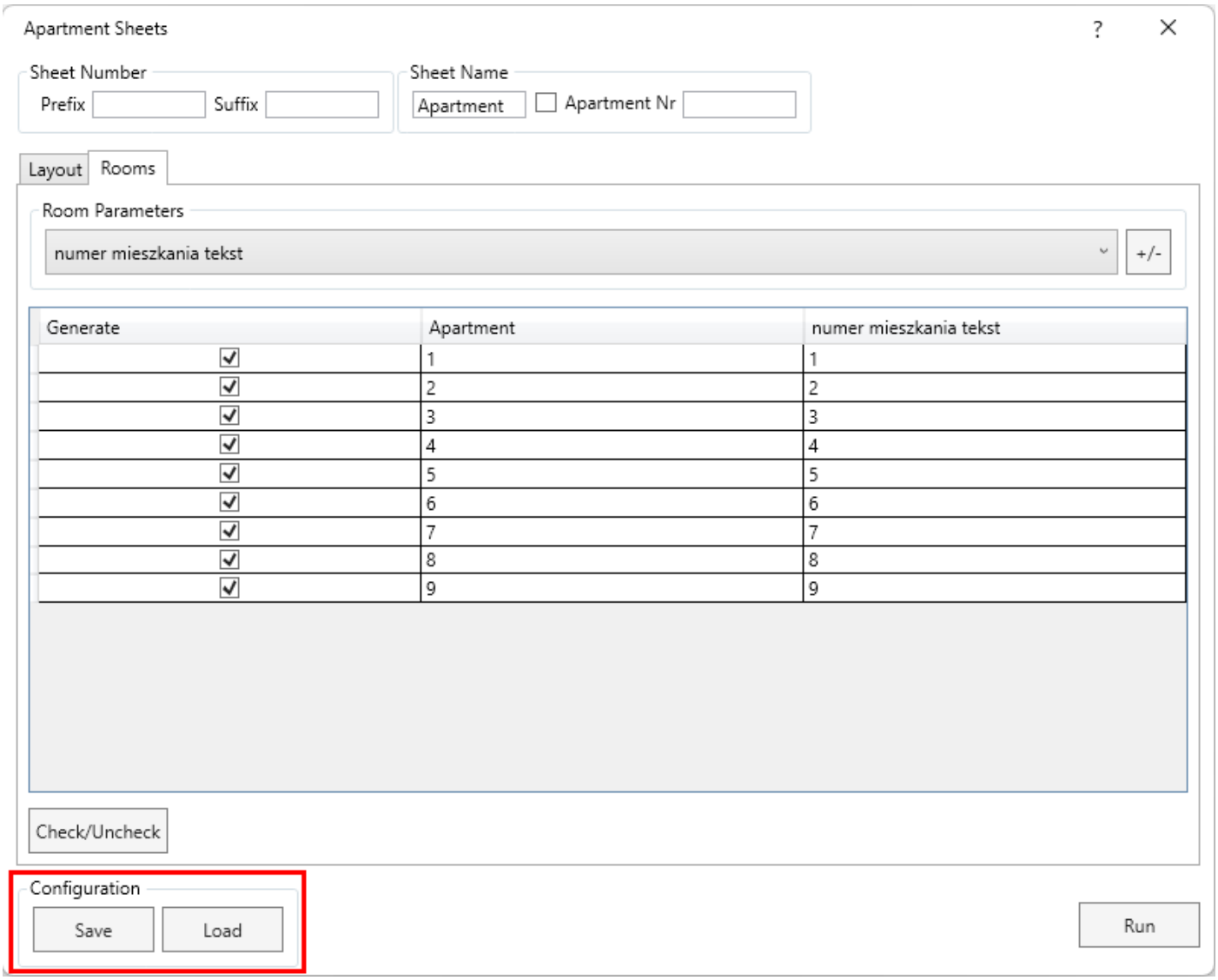
5. In the *Rooms* tab, from the dropdown list, you must select *Room Parameters* (data type: Text). Based on the selected parameters and their order of addition, rooms will be grouped into apartments. In the *Create* column, by checking or unchecking the checkbox, you must select apartments for which apartment sheets will be prepared. In the *Apartment* column is the apartment name composed of the values of the selected parameters. The following columns show the names and values of the selected parameters. To add/remove parameters, click the button. +/-.



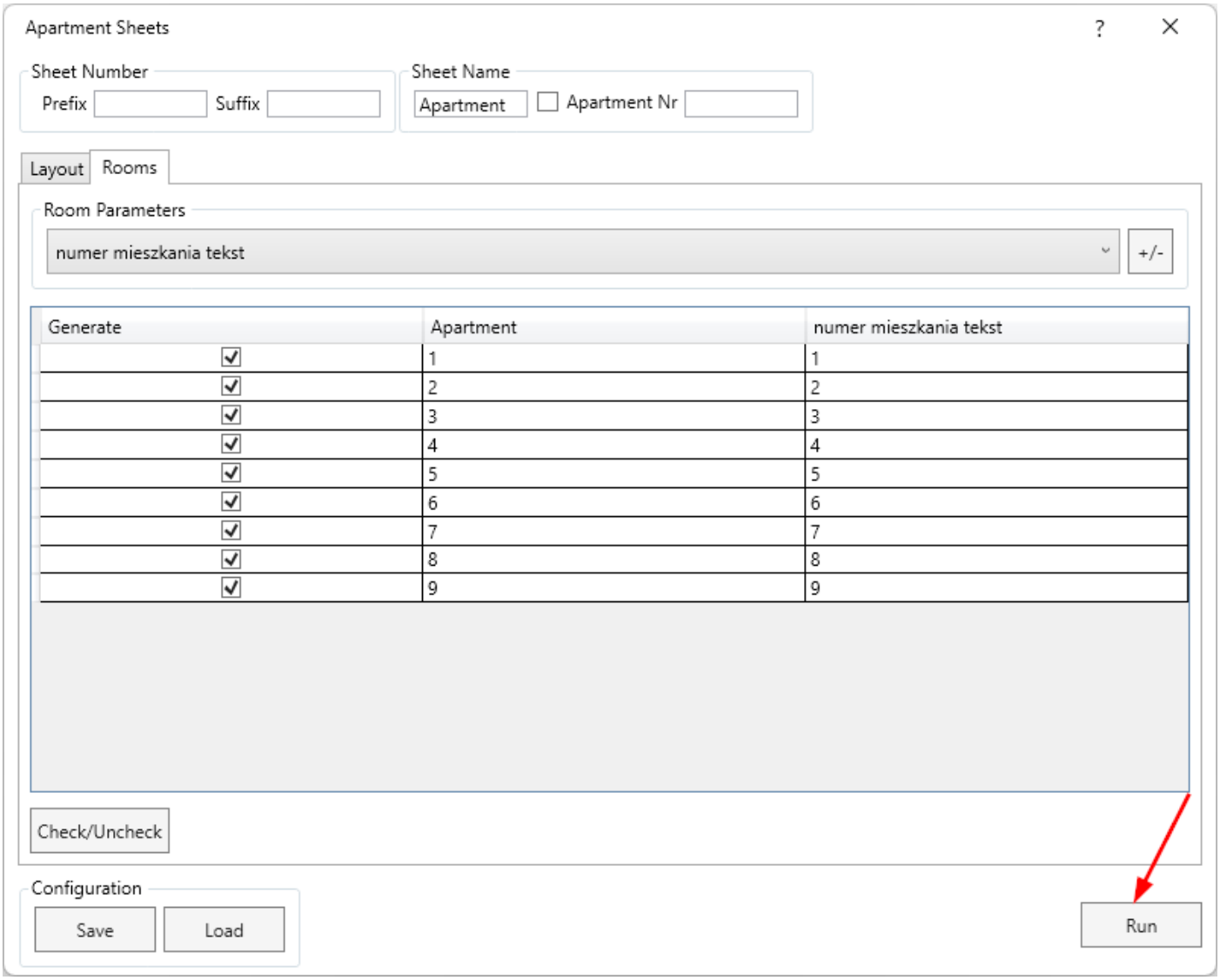
The *Check/Uncheck* button is used to select or unselect all available rows.



6. Optional**:** In the *Configuration Settings* section, there is an option to save the current configuration to an external file by pressing the *Save* button and to load a configuration file by clicking the *Load* button.



7. After the configuration is complete, press the *Run* button.

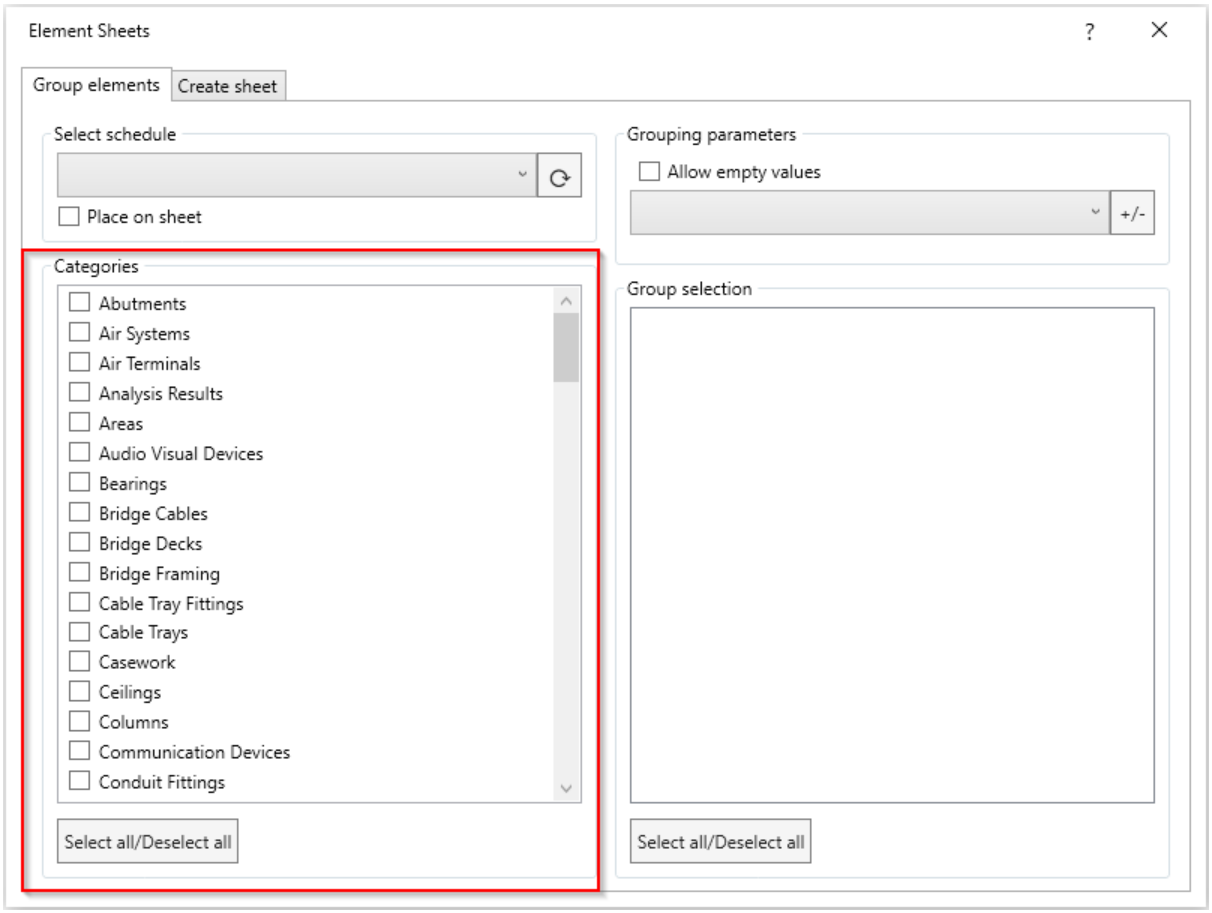


Skillpark ARCH > Register > Element Sheets

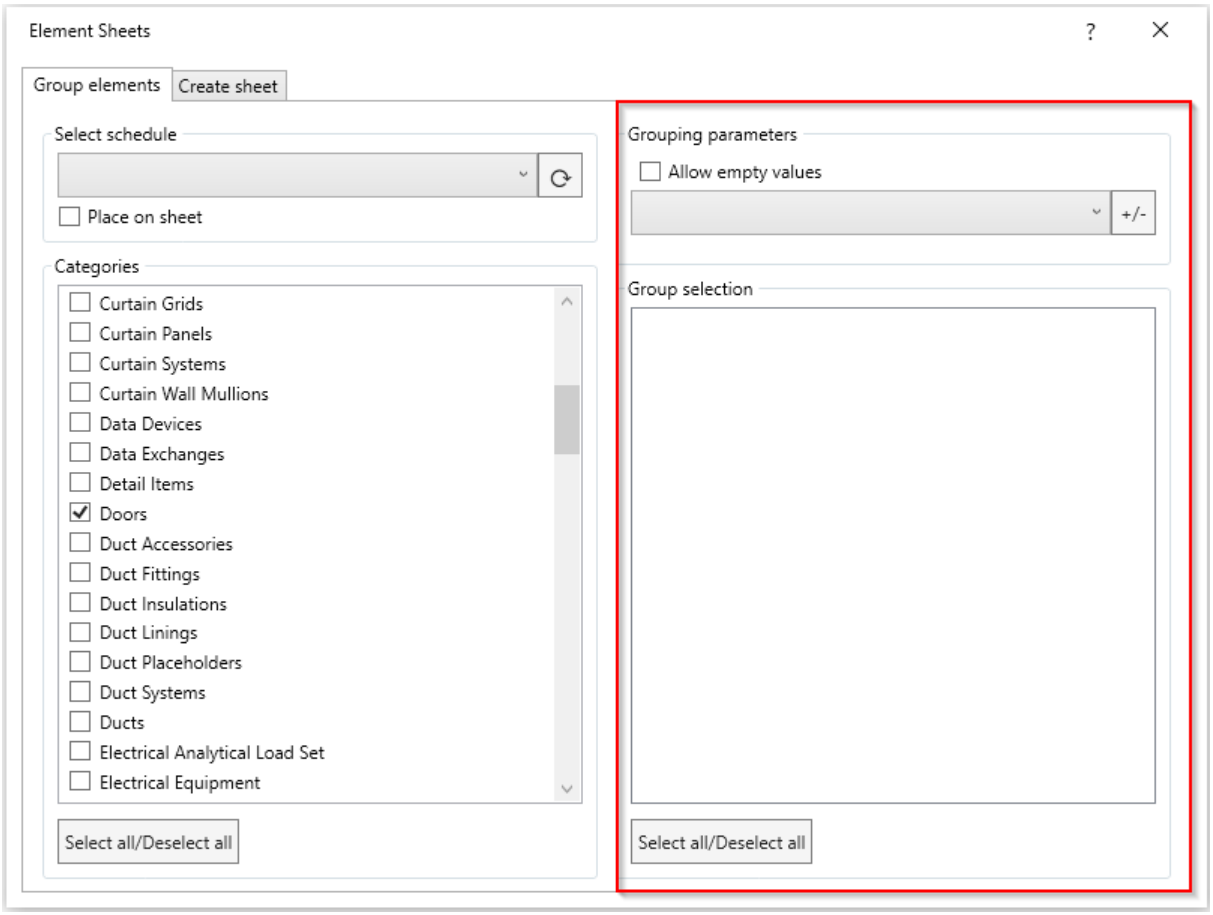
This tool is used to generate sheets containing views of selected model components.

Tool usage scheme:

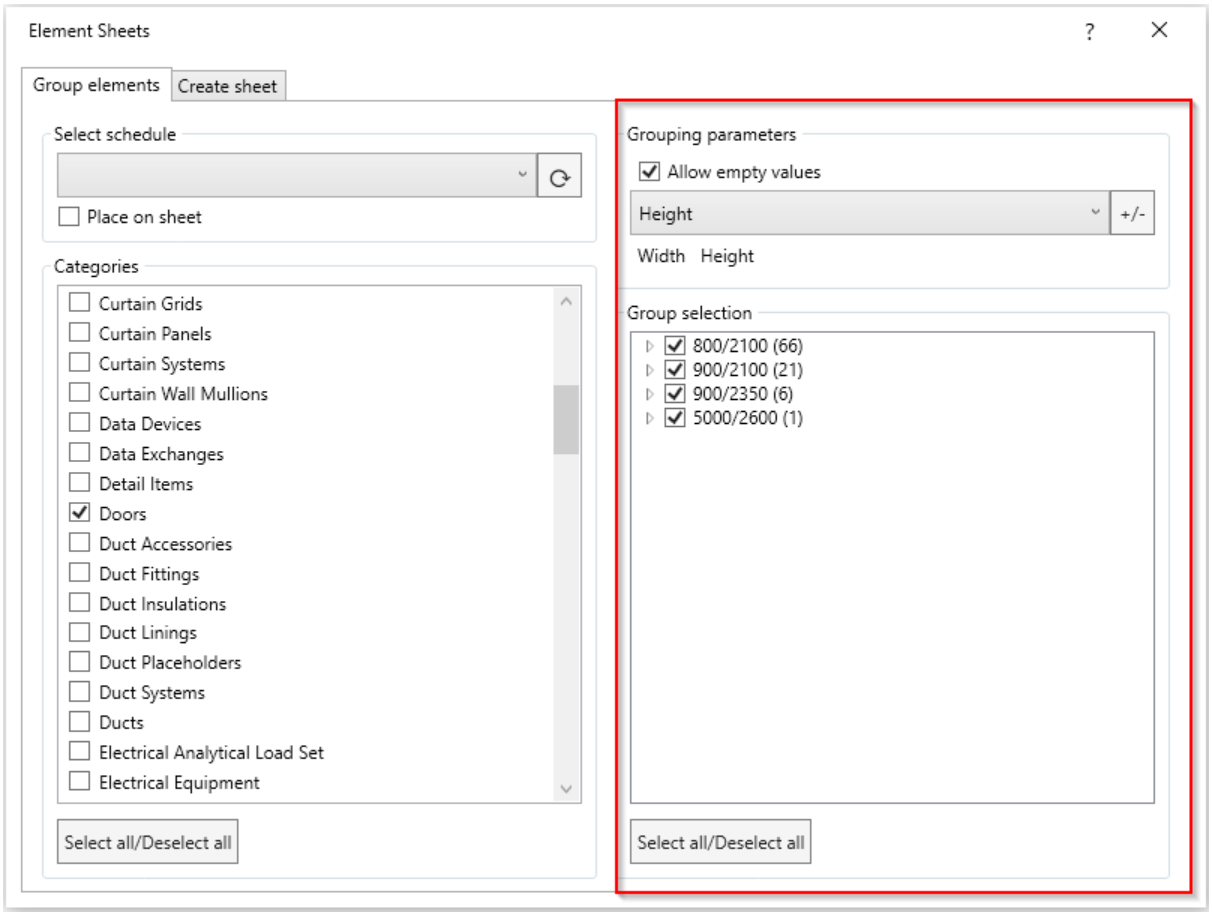
1. The first method for selecting elements that will appear on the sheet is manual selection. In the *Group elements* tab, you need to select the categories from which model elements will be included on the sheet.



The right side of the dialog window is used for grouping data based on selected parameters. Select parameters from the drop-down list and use the +/- button to add or remove them.

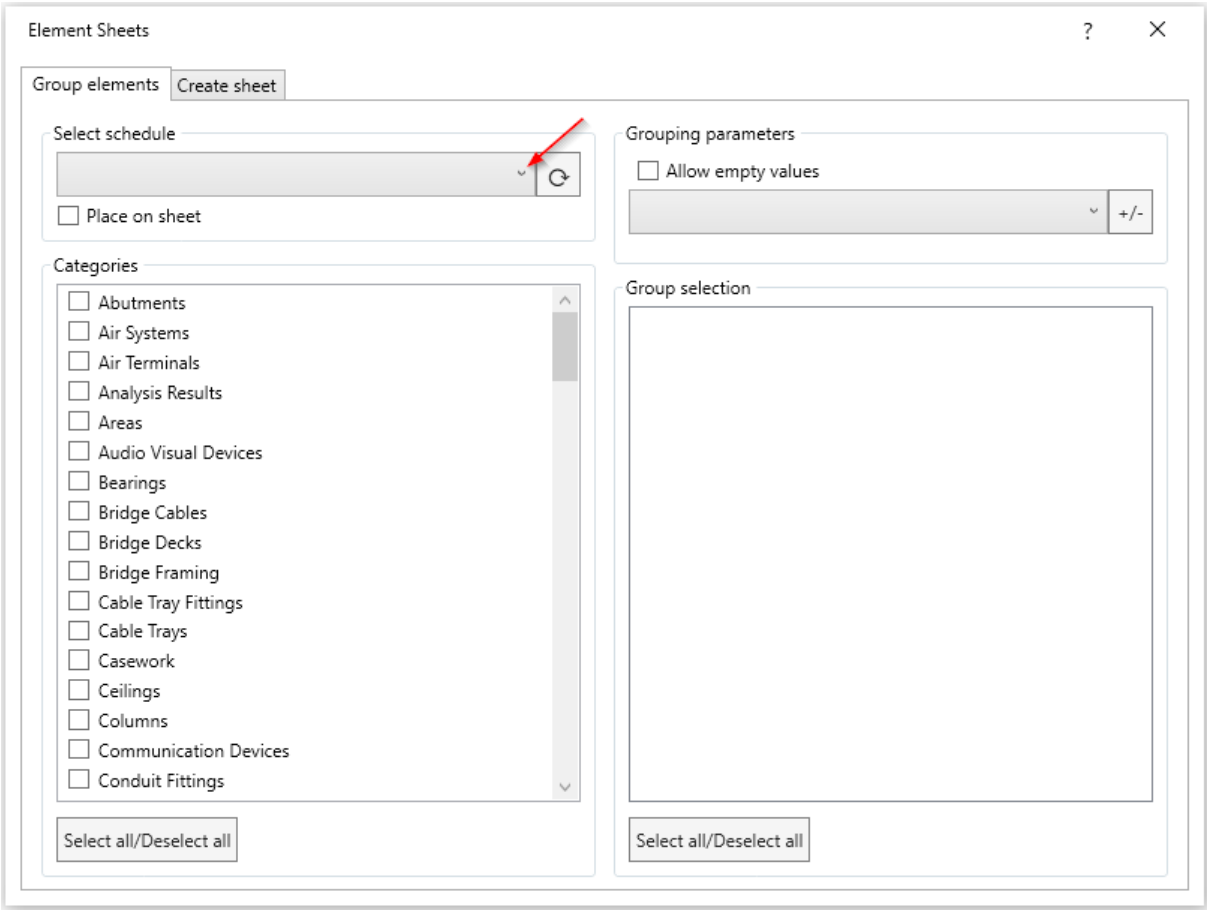


In the *Grouping parameters* field, the grouped element values appear, separated by a "/" character. In parentheses, the number of elements in the group is shown. When a group is expanded, the family name, type name, and the ID number of the selected element are displayed. Groups can be selected or deselected.

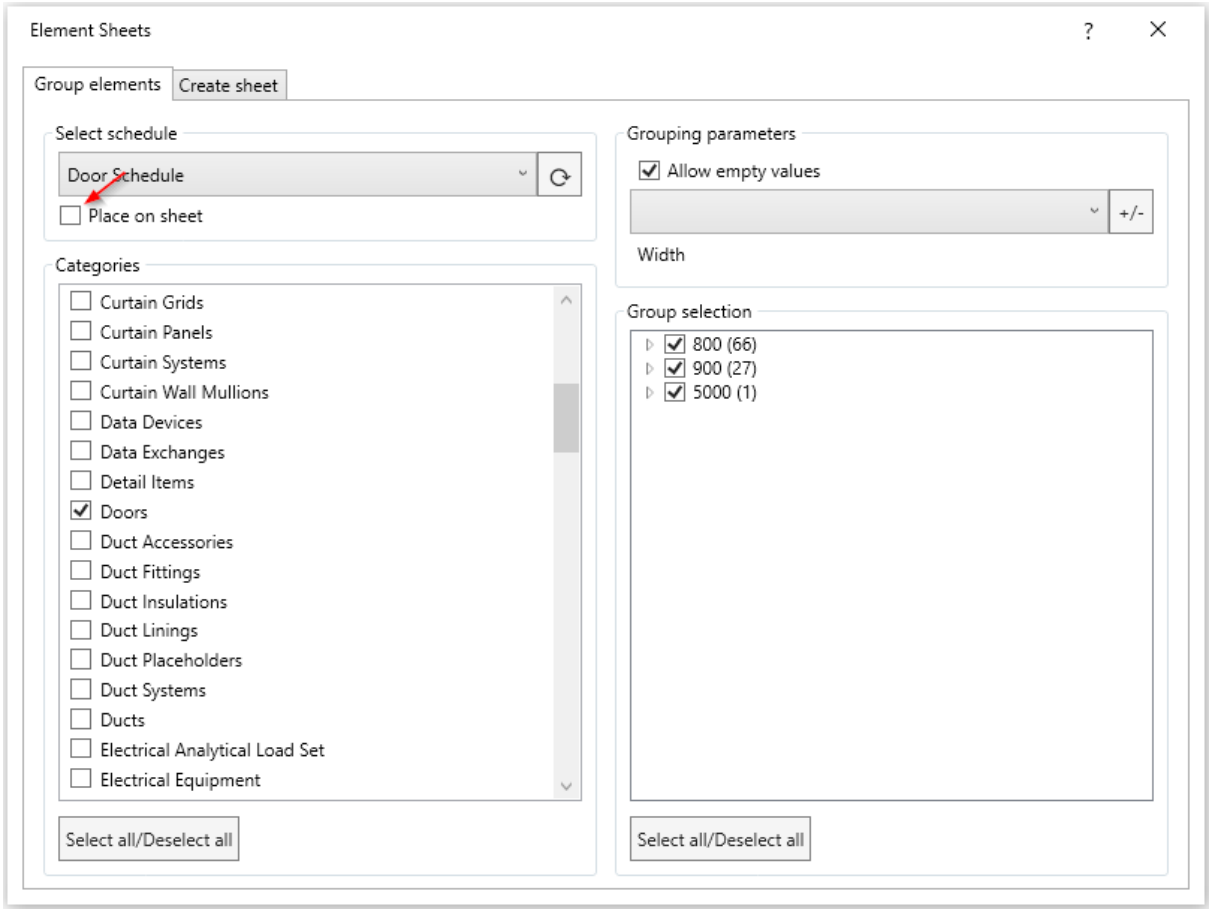


When the *Allow empty values* option is active, the tool takes into account elements that have empty values in the selected parameters. Otherwise, elements with empty values are excluded.

The second method for selecting elements to appear on the sheet is by schedule selection. In the *Grouping parameters* tab, choose a schedule from the dropdown list that includes the model elements to be added to the sheet.



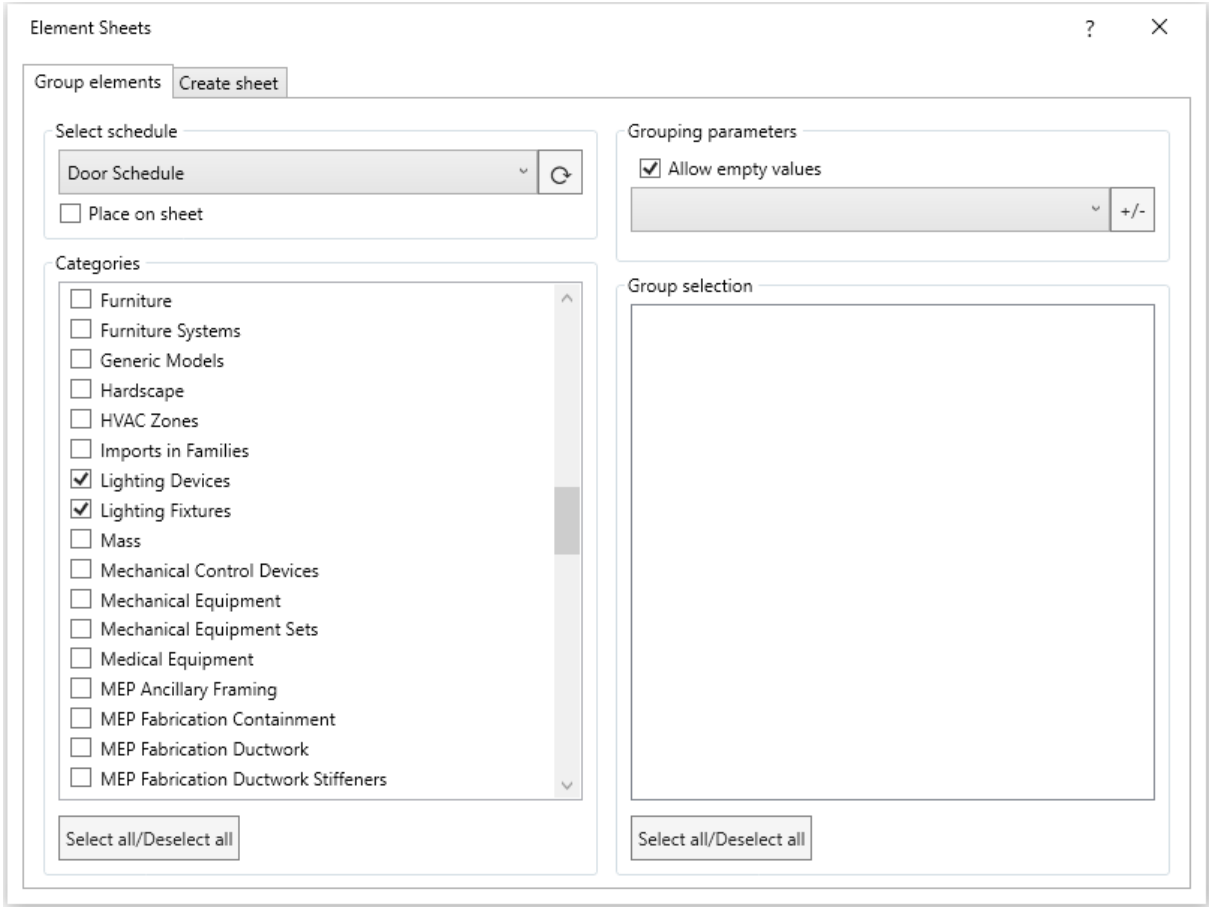
If the *Place on sheet* option is active, the selected schedule will be placed on the sheet.



The tool inherits grouping applied earlier in the schedule. However, just like with manual selection, additional grouping parameters can be added or removed with the button 

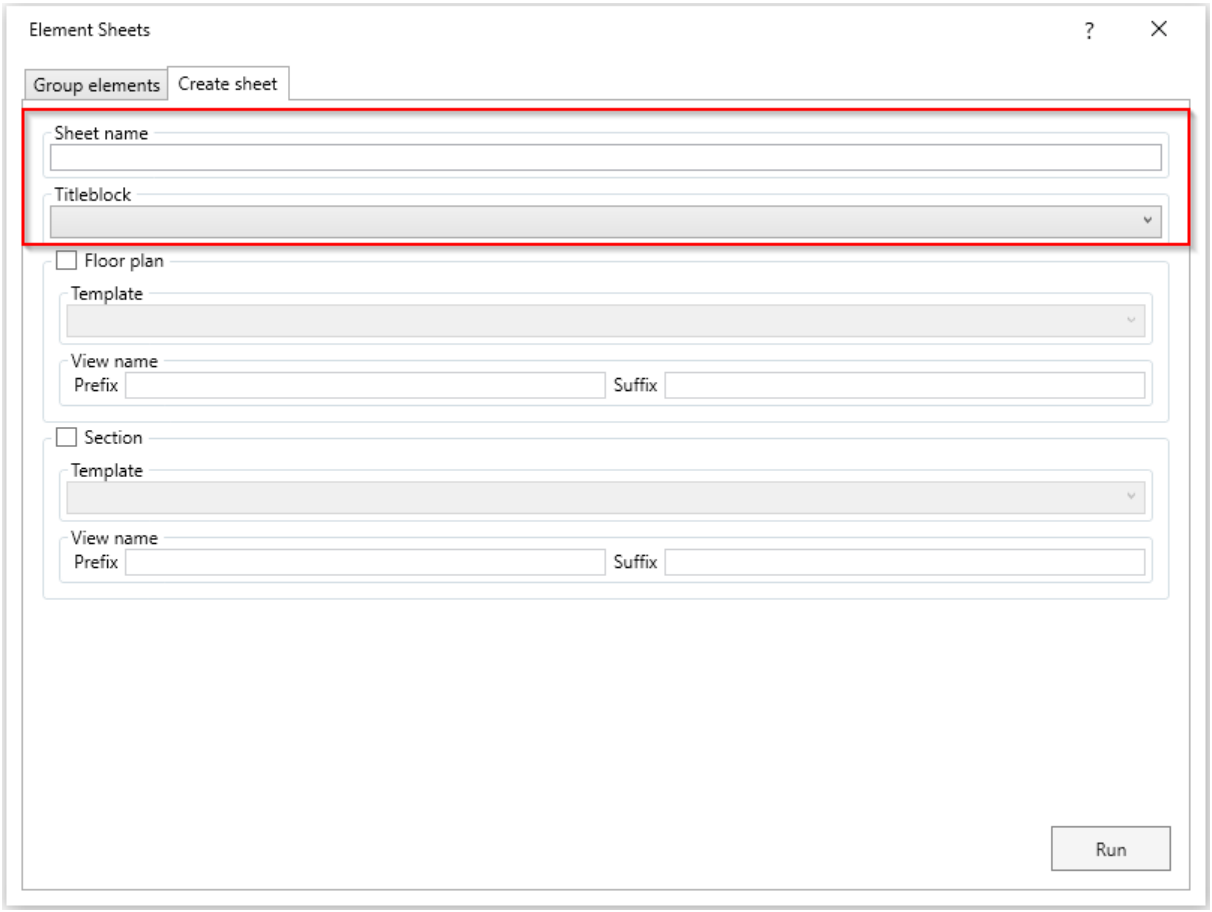
.

Both selection methods can be used together.

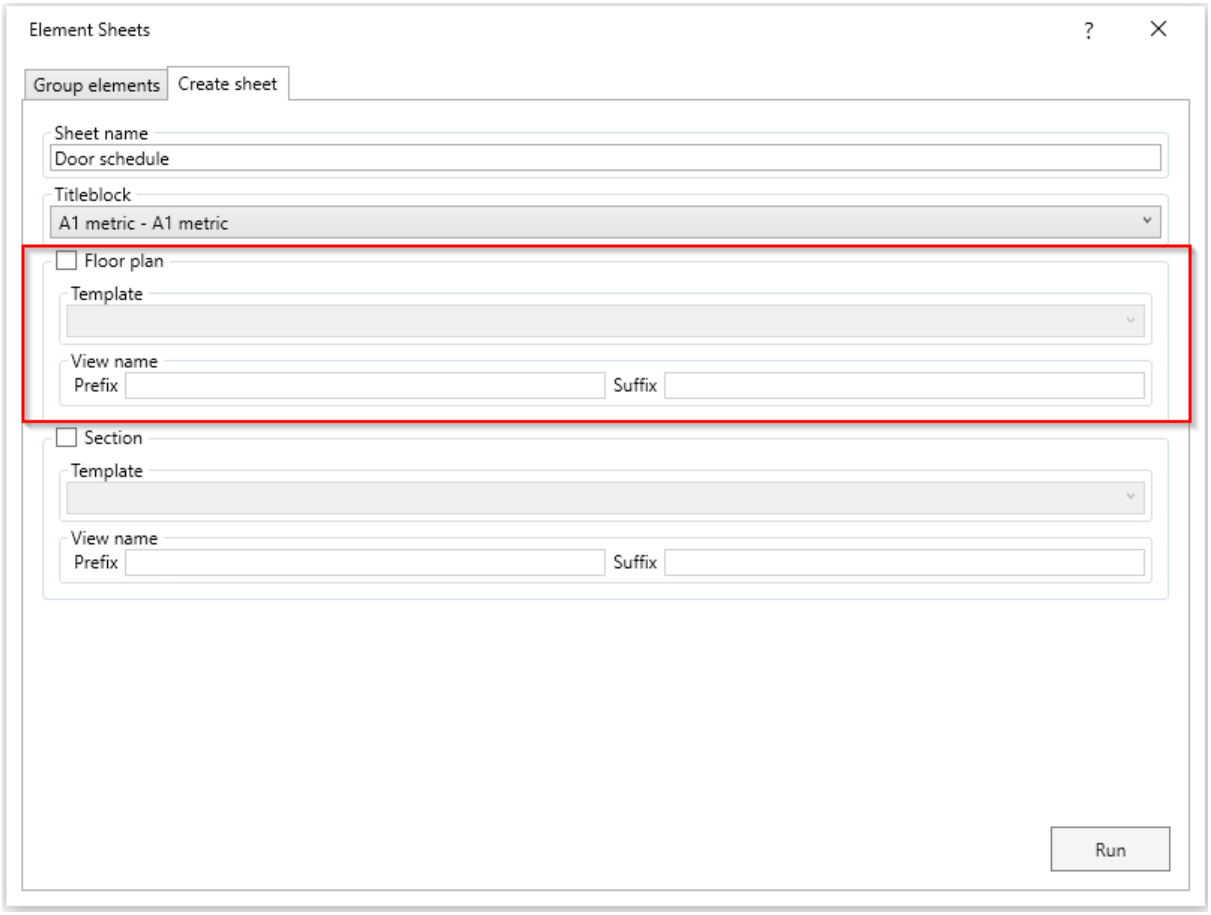


The reset buton  resets all settings; the category from the schedule and its grouping remain active.

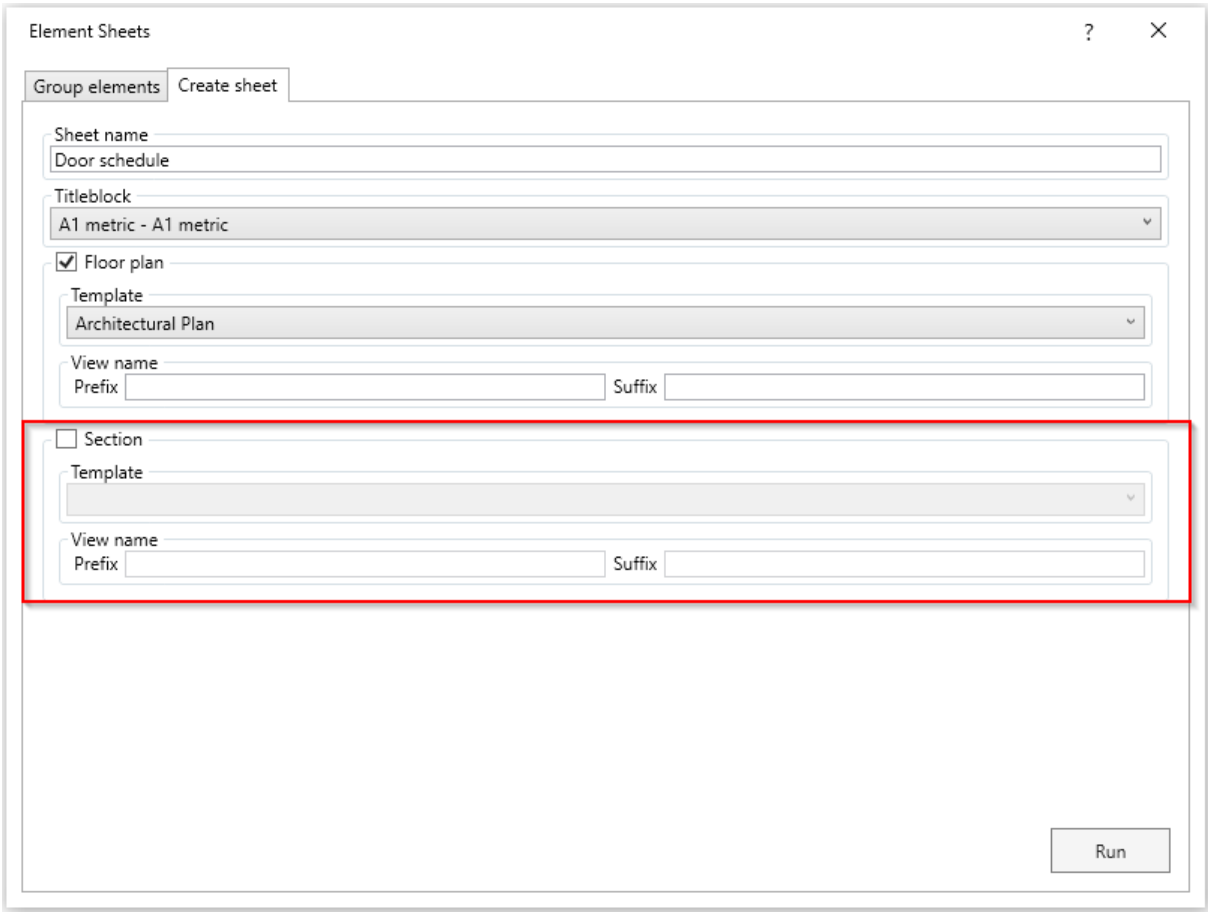
2. In the *Create sheet* tab, enter the name of the sheet and choose a drawing title block from the dropdown list onto which the previously selected model components will be placed.



If the *Floor plan* checkbox is selected, you must specify a template for the view and optionally enter a prefix or suffix for the view name.



If the *Section* checkbox is selected, you must also specify a template and optionally enter a prefix or suffix for the view name.



After completing the configuration, press the *Run* button.