MagiCAD for Revit

Release notes for version 2024 UR-1

16/10/2023

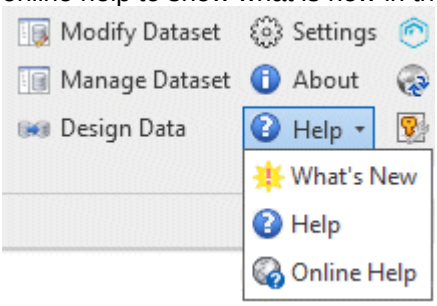
MagiCAD

Content

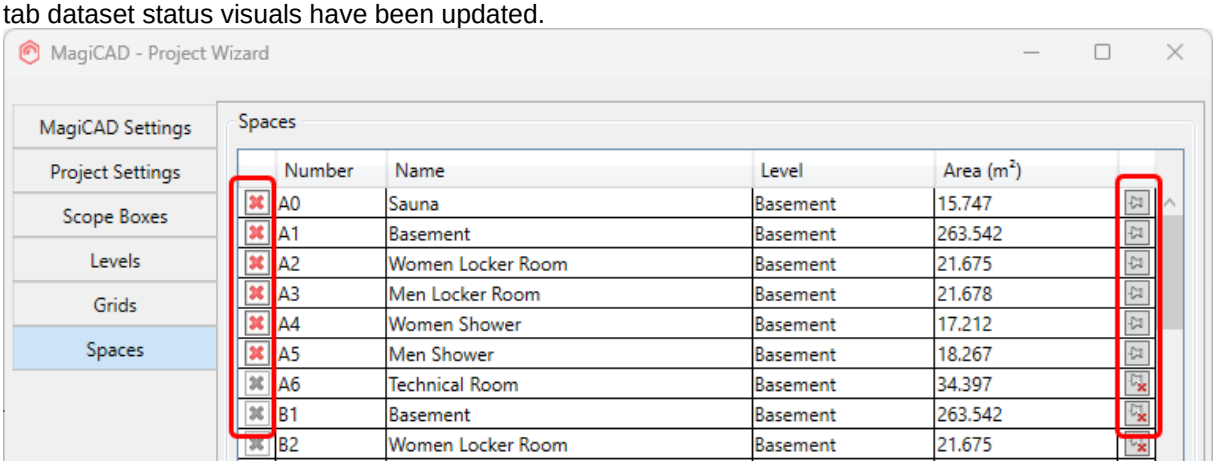
1 New features

1.1 Common

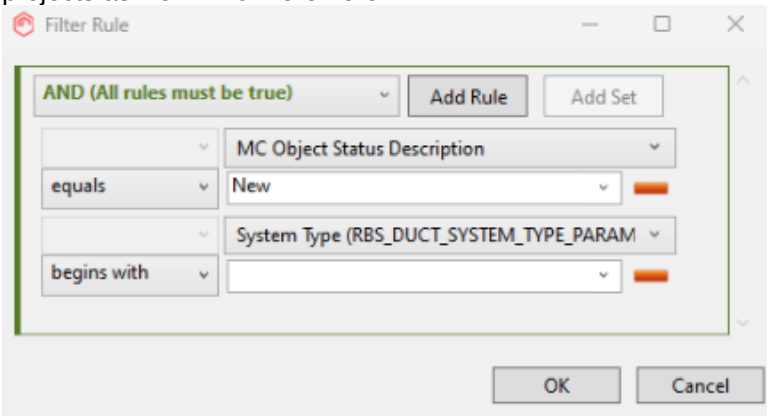
What's new button for MagiCAD for Revit
Added What's New command to Help in MagiCAD Common ribbon. This will open information from online help to show what is new in the current version.



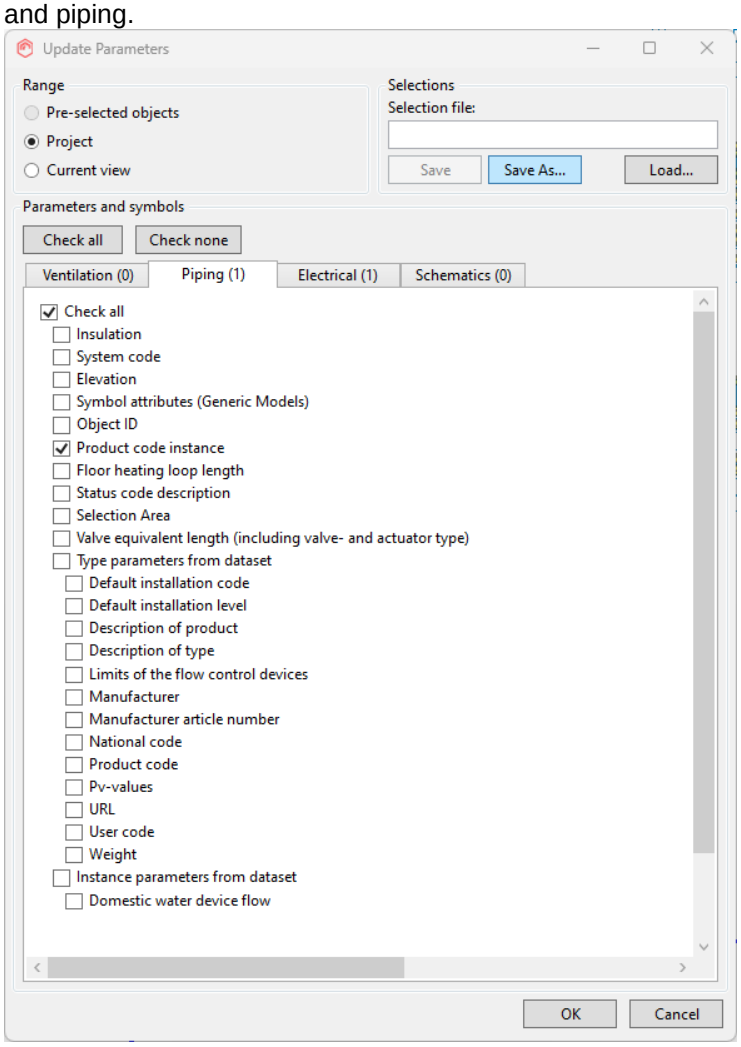
Project wizard improvements
The usability of the Project Wizard tool has been improved with multiple small additions. You can now easily control the pinning status of elements and remove spaces from the project, as well as open a new view when creating elements manually if suitable view is not already active. In MagiCAD settings tab dataset status visuals have been updated.



Selection set and parameter filtering added to Running Index
Now it is possible to use parameter filters to create more detailed elements selections for running index schemes. The ready made selection can be saved into selection sets and loaded into other projects as well. Find more here.



Update Product Code Instance with Update Parameters
It is now possible to fill "Product code instance" parameter value with update parameters for electrical and piping.

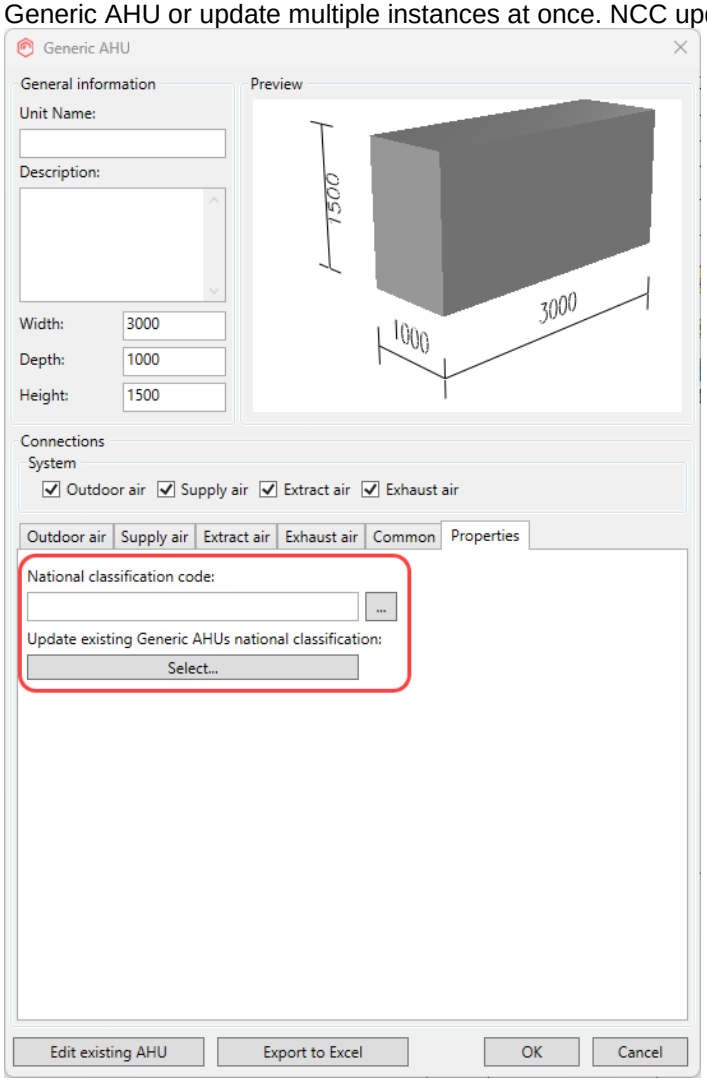


Update selection area to BWO instances
Selection area code will now be updated for BWO instances as well when "Selection Area" is selected in any of the following disciplines: Ventilation, Piping, Electrical.

Support for 64-bit Revit Element ID
In Revit 2024 Autodesk changes the Element ID from 32-bit integer to 64-bit integer. This caused some MagiCAD tools to fail on Revit 2024 in cases the element ID was bigger than the max value of 32-bit integer.
MagiCAD now fully supports 64-bit element ID's.

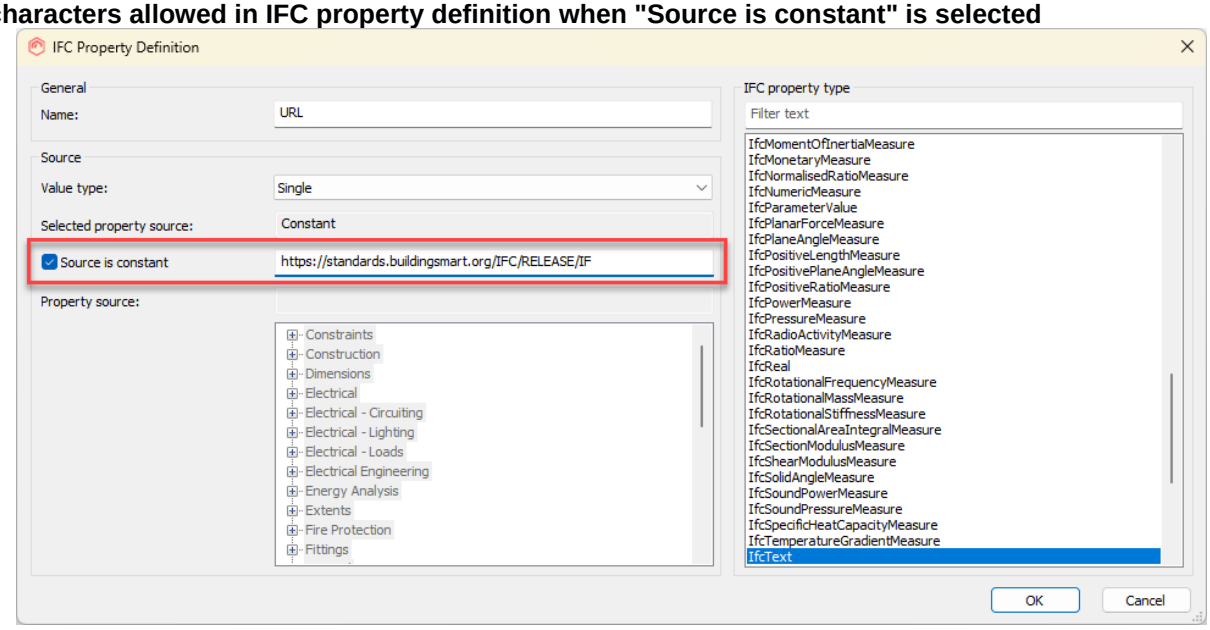
UNC paths to MagiCAD settings
File paths to configuration files, dataset folders, cable definitions, symbols and databases can now use UNC paths instead of or in addition to mapped drive.
Universal naming convention (UNC) are used to access network resources instead of using a mapped drive.
The UNC defines the path to a shared network folder is using the format: \\server-name\shared-resource-pathname.
The server is the computer where the shared folder is stored, and the share name is the name given to the shared folder when the share was set up.

National Classification Code for Generic AHU
Added possibility to give National Classification Code for Generic AHU. User may give NCC for new Generic AHU or update multiple instances at once. NCC updating works also with "Edit existing AHU".



1.2 Common/IFC related

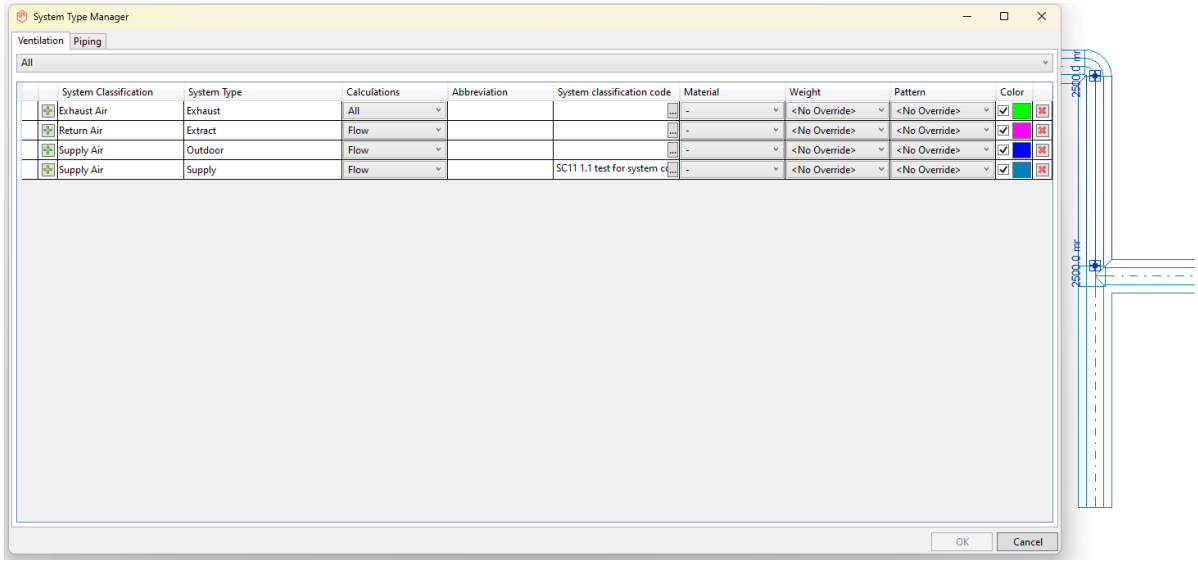
More characters allowed in IFC property definition when "Source is constant" is selected



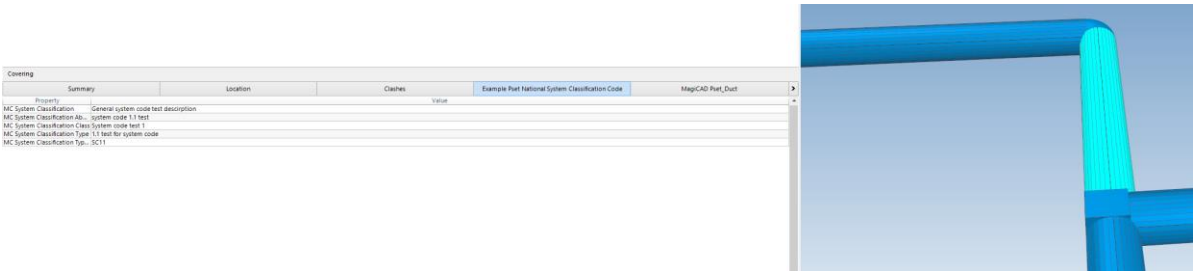
Removed limitation for number of characters in IFC Property Definition dialog. Earlier the length was limited to 50 characters.

System classification has been added to insulation

System classification has been added to insulation. *In IFC2x3 also IfcSystem has been added to insulation.*

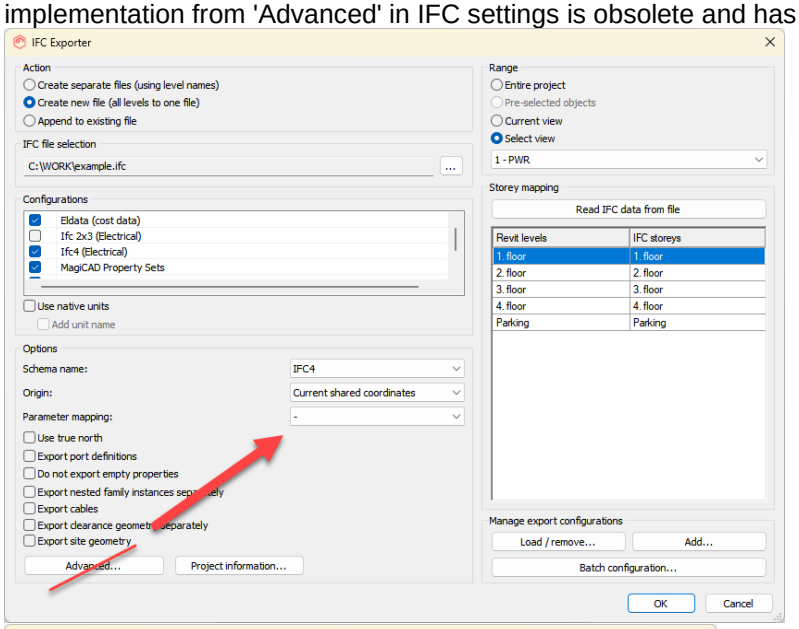


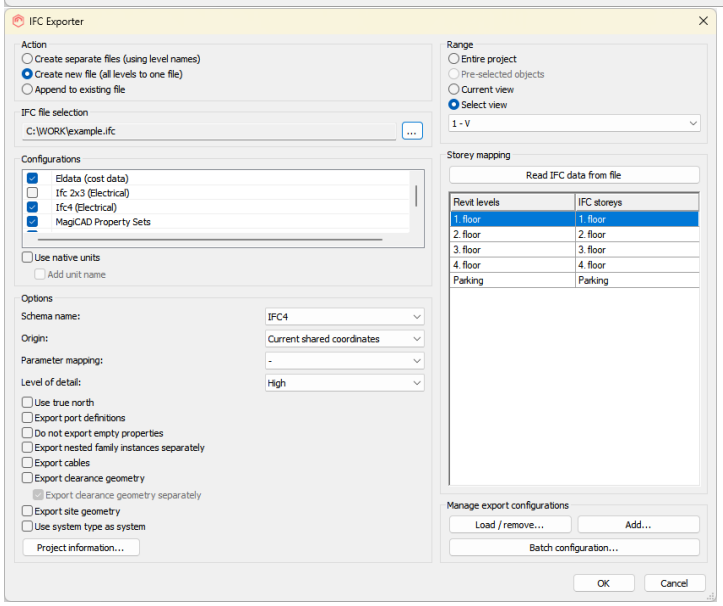
Can be seen here that the System Classification added above is also available in the insulation in the IFC:



Removed redundant parameter mapping from IFC options

Because of the new parameter mapping functionality in the IFC Export function the old implementation from 'Advanced' in IFC settings is obsolete and has been removed.





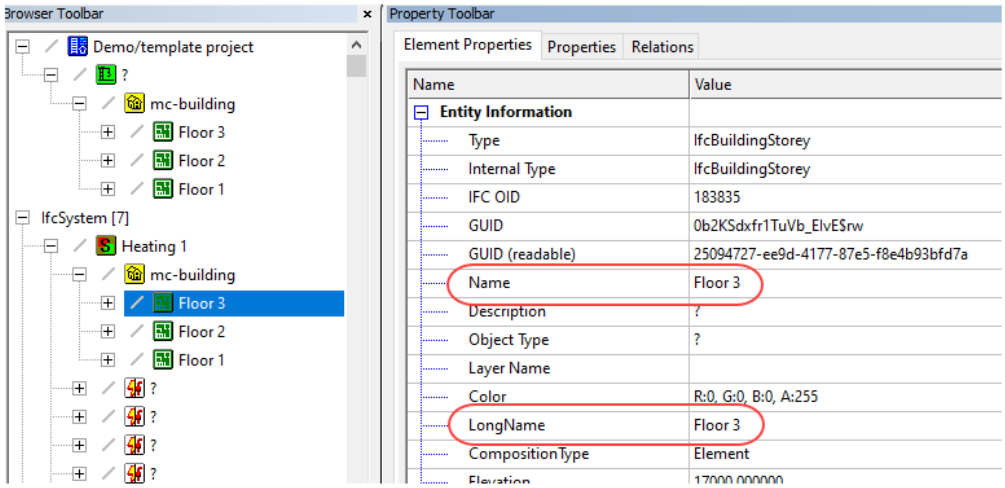
fcName and IfcLongName can now be mapped separately to the IFC file

IfcName and IfcLongName can now be mapped to the IFC file. Earlier this information was written from the same parameter to both:

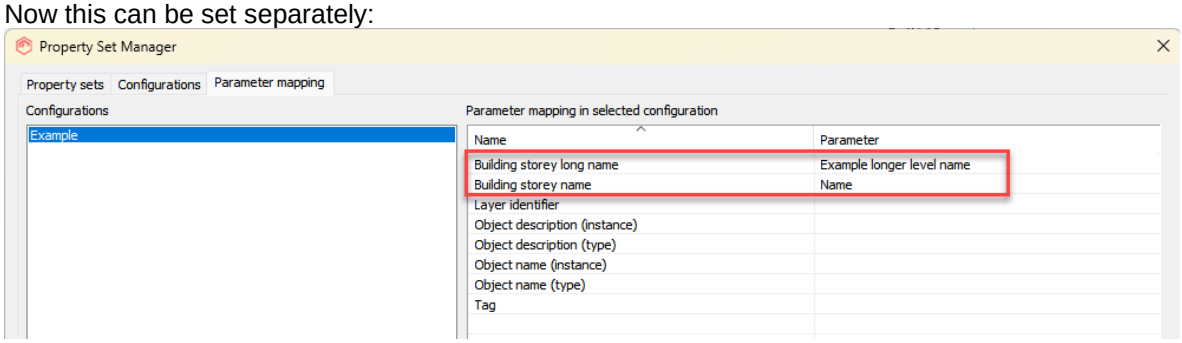
IfcLongName to IfcBuildingStorey

The IfcLongName is now set in the IFC files. The same name is used as for the storey

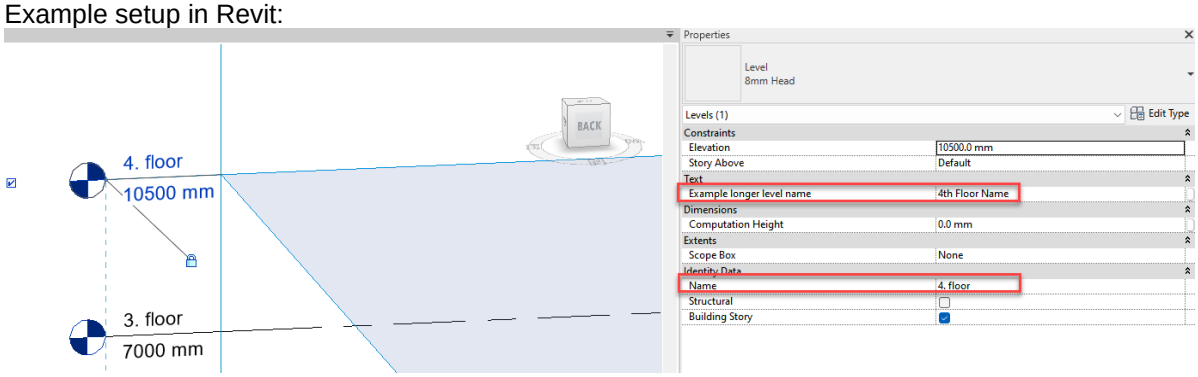
As seen in FZK Viewer



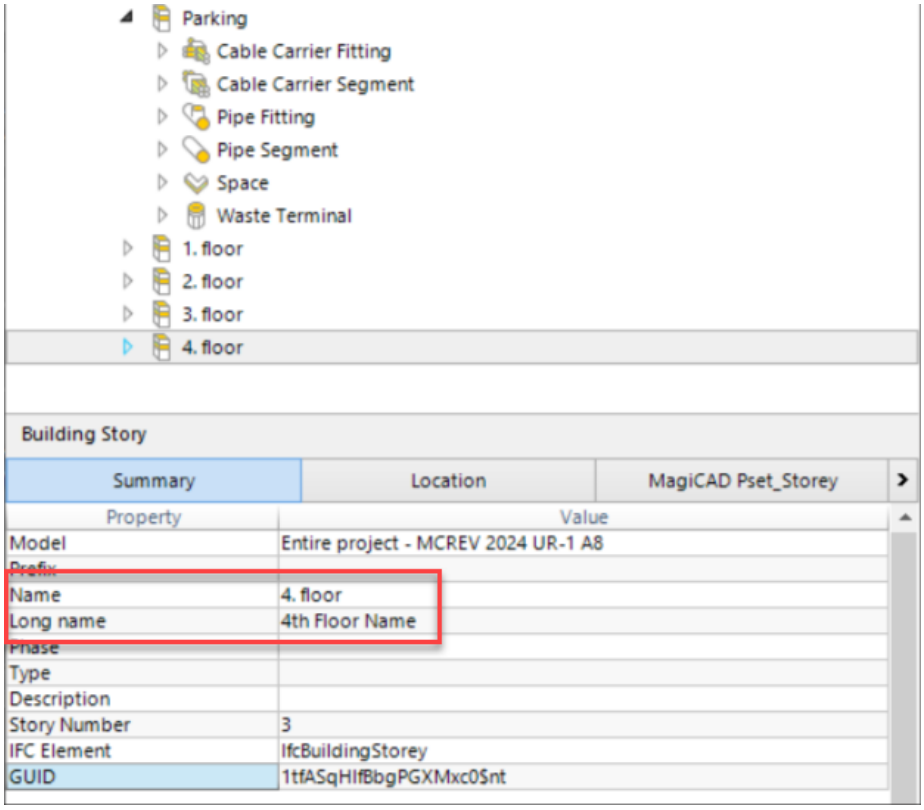
Now this can be set separately:



Example setup in Revit:



As seen in BIMcollab ZOOM:



IFC export now checks write access of the folder

Now the file is checked for write access before IFC Export is started. This to avoid any issues caused by the folder not being accessible for the function.

External geometry in some Revit families were not exported to the IFC file

Some objects' external geometry wasn't exported. This was due to MagiCAD's IFC Export didn't export mesh geometry.
This has been improved and does now work with mesh geometry.

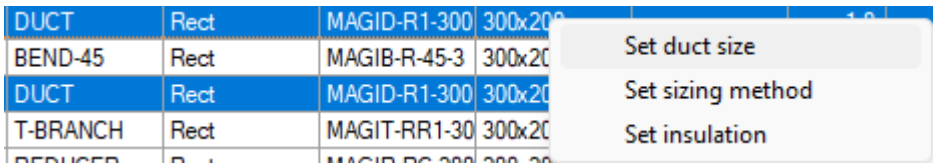
IFC Export nested families separately improvement

Earlier the host object was exported as a whole togther with the sub-objects when the nested families were exported separately, sort of as a unified "duplicate" of it all, which led to collisions in the collision checks of IFC viewers.
Now only the sub-objects are exported when nested families are exported separately, to avoid these collisions due to duplicates.

1.3 Ventilation and Piping

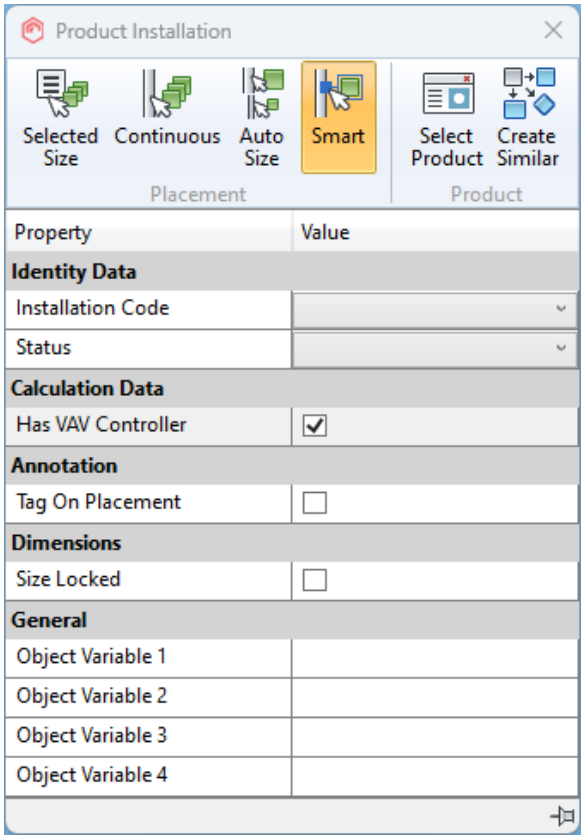
New parameters added to segment and insulation series
Segment series (duct, pipe, cable tray and conduit) and insulation series now include separate properties for material code and material name to enable more detailed definition.
There are also new options specifically for insulation series. Coating material code and coating material name can now be defined separately and there is a new property for insulation class. If an identical user code is set for different insulation series, an additional insulation user code can be used to differentiate between them. All of the insulation properties are inherited to host elements for tagging purposes.

Change the sizing methods within the calculation report
Sizing Method is possible to change in calculation's report dialog for duct segments. This feature works currently only for Ventilation.

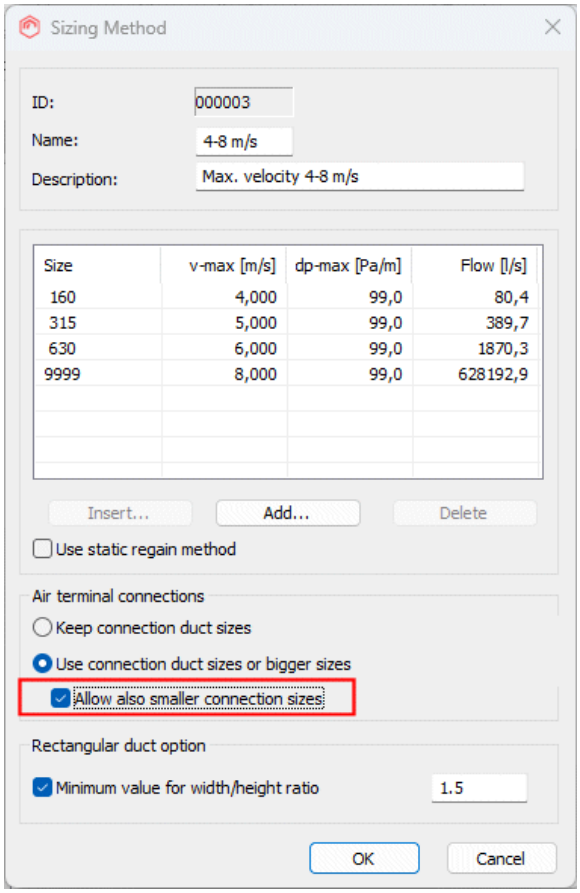


When the sizing method is selected, it is locked for the selected duct segments in the same way as it is locked if "Change proeprties" is used.

Continuation of VAV calculations
It is now possible to define flow dampers to be VAV controllers. If a flow damper is defined as a VAV damper, the adjustment of the air terminals remain the same with all the calculated schedules/zones. The adjustment is done with a VAV damper.



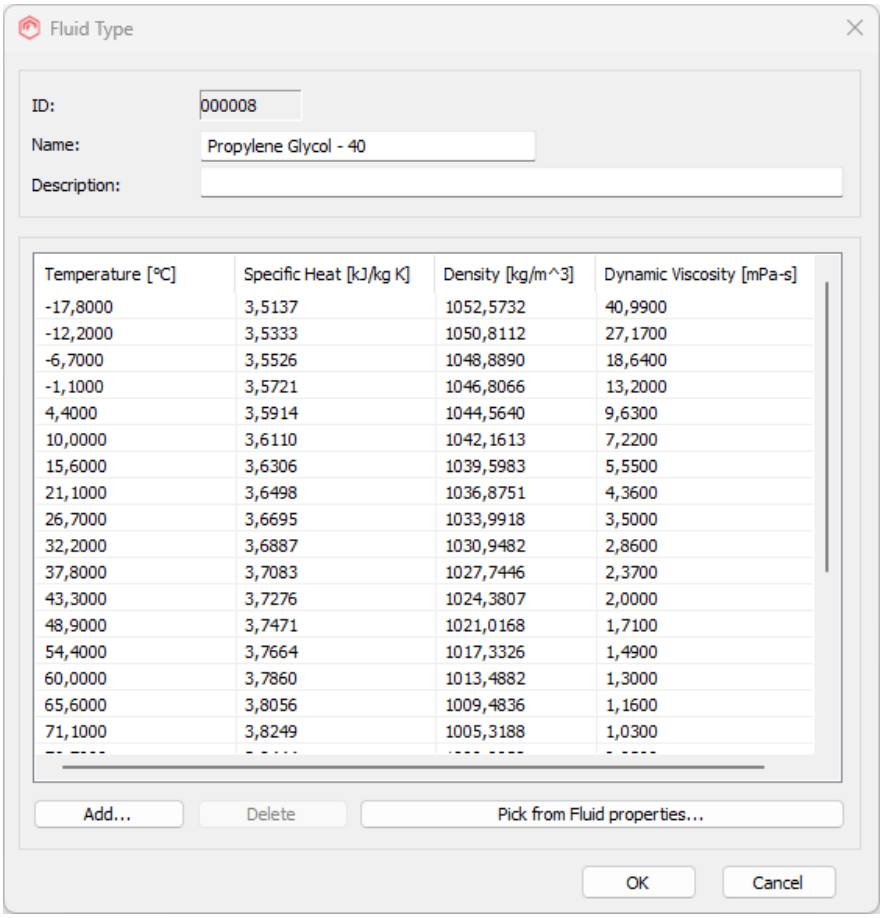
Ventilation sizing supporting smaller dimensions than the connector of the object
Added possibility to use smaller duct size than duct connections in the sizing methods.

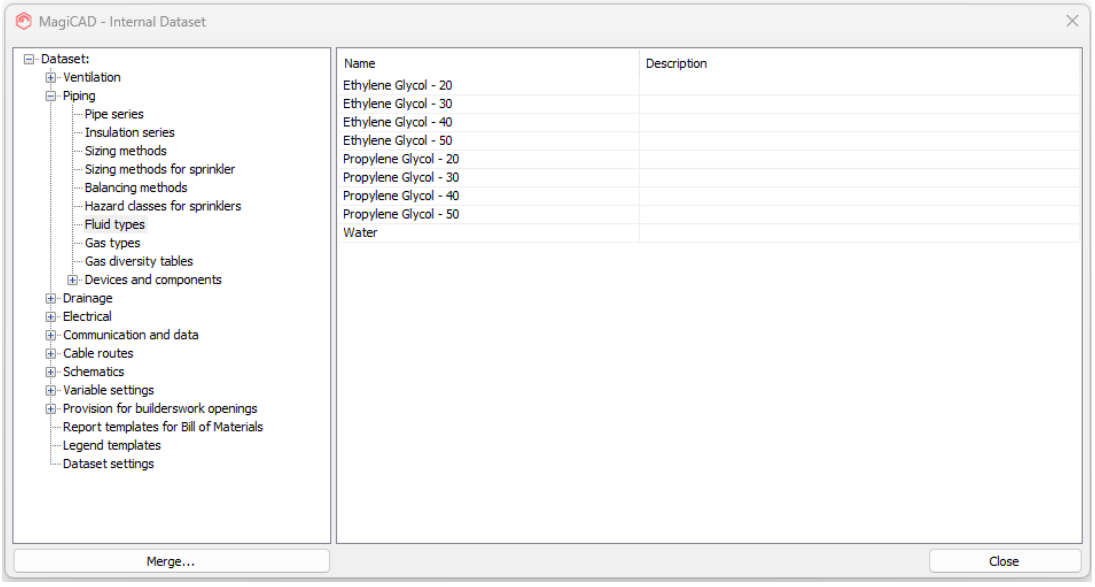


In the previous versions of MagiCAD, there was only check box "Keep connection sizes". If it was checked, MagiCAD used air terminal's connection size to the connecting ducts. If it was not checked, MagiCAD might have selected bigger connection size if the velocity in the connecting duct was exceeded. The new dialog has more options

Keep connection duct sizes:	The size of the connecting duct is the same as the connector size of the air terminal
Use connection size or bigger size	The size of the connecting size is the same as bigger as the connector size of the air terminal. Bigger size will be used in case the velocity is exceeded with the air terminal connection size.
Allow also smaller connection size	The connector size of the air terminal doesn't affect to the duct size in any way. The size selection is done purely according to the velocity in the sizing methods.

Fluid types added to dataset
Managing the different fluids that are used for heat transfer is now much easier. New functions in the MagiCAD dataset allow you to manage fluids and bring in fluids directly from an online fluid library with MagiCAD Connect tool. Available fluid database utilizes Coolprop (www.coolprop.org) fluid library. The addition of fluid management in the dataset means that the previously used specific heat capacity tool is no longer needed and has been removed.





Change properties does not recognize flex pipes
Flex pipe is now supported by the change properties when changing following parameter values: Installation code, Insulation, Lock Status, Sizing Method, Status.

Added date and time to each page of the all reports
Added date on each page, top right, the date is shown in each discipline, sprinkler/heating/ventilation/drainage

Highlight in the drawing for sprinkler calculation report
Sprinkler network report works now in the same way as other network reports. User can choose a line in the report and the corresponding node interval is highlighted in the Revit project
By clicking a pipe in the network the corresponding line is selected in the report. This works only for shown pipes, not for the fittings and sprinklers.

Connection node for sprinkler networks
Connection nodes can now be used also for the sprinkler systems. The connection nodes can be used both for sprinkler pipe sizing and sprinkler pressure loss calculations
More information here

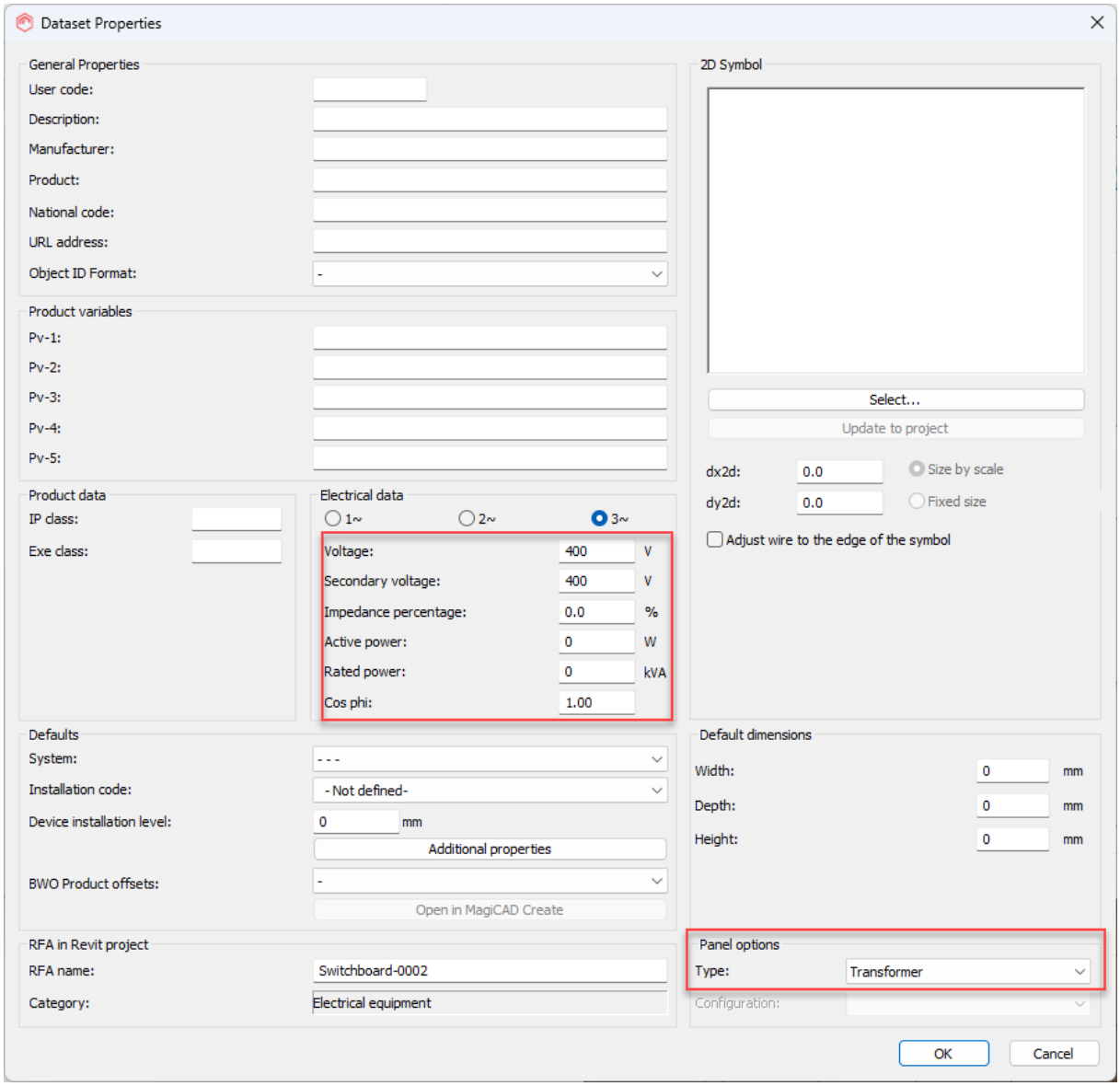
Change properties - Tee to Tap for piping
Support for piping changing taps to tees and vice versa with "Change properties".

Removing support for Solar Computer interface from MagiCAD
MagiCAD no longer support interface to Solar Computer software.

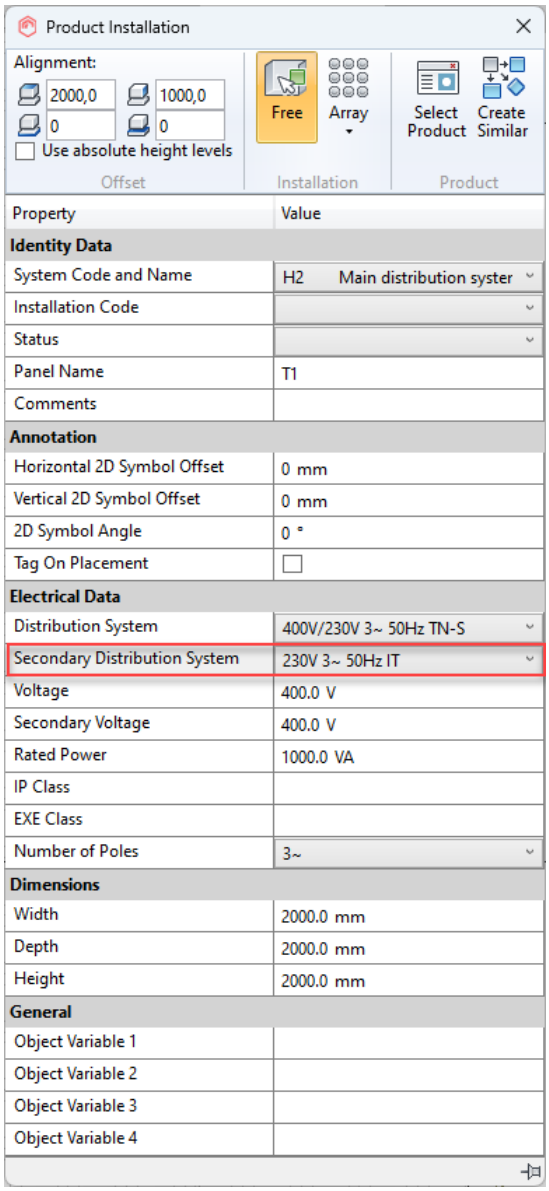
1.4 Electrical

Supporting transformers in MC Electrical Export/Import tool

In the dataset, when you create a new transformer (= switchboard with "Transformer" as it type) you can define secondary voltage, impedance percentage and rated power for it.



When installing a transformer to the project, you can select a Secondary Distribution system in the installation dialog.

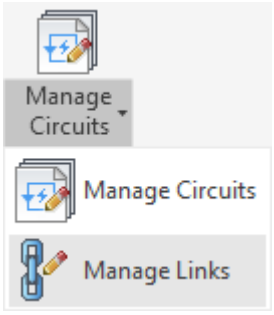


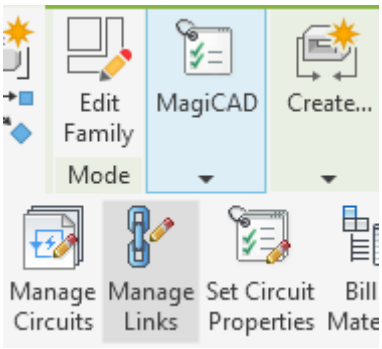
When exporting the electrical network, now transformers are taken into account in the export. From the transformers, the following information is exported:
Impedance Percentage
Primary Voltage
Rated Power
Secondary Voltage

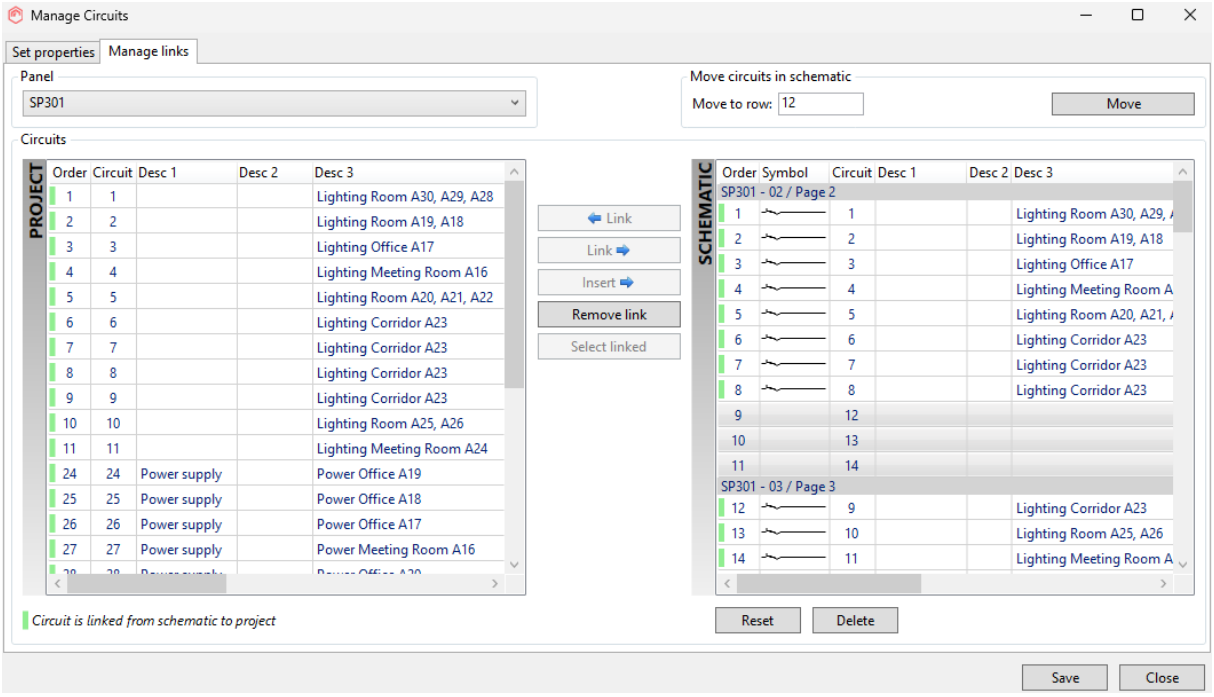
Maintain instance parameter values when updating symbols to project
When 2D symbol is updated to project from dataset, values are maintained for instance parameters used in 2D symbols labels.
Revit may show performance warnings for 2D symbols which contain complicated geometry or labels with parameters. Those warnings should be now hidden when 2D symbols are updated.

Improvements to switchboard schematics
The switchboard schematic features have been massively improved. Now you can use a whole "model sheet" for creating and editing a switchboard schematic, and finally utilize a new Crate Printouts function for generating the individual sheets used for printing out the schematic. In addition, many useful editing functions have been implemented for making it easier to do modifications in the "model sheet".

Manage links
Manage links button can now be added to contextual tab which opens Manage circuits dialog with Manage links tab open.





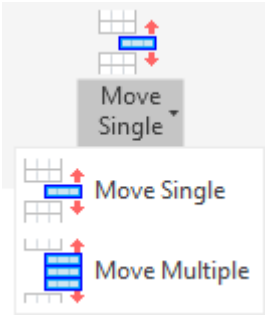


You can also save the current changes now with the new "Save" button without closing the dialogue.

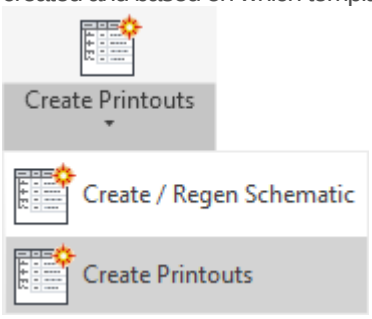
New parameter support
New parameters that are now supported in the Schematic blocks and Schematic symbols:

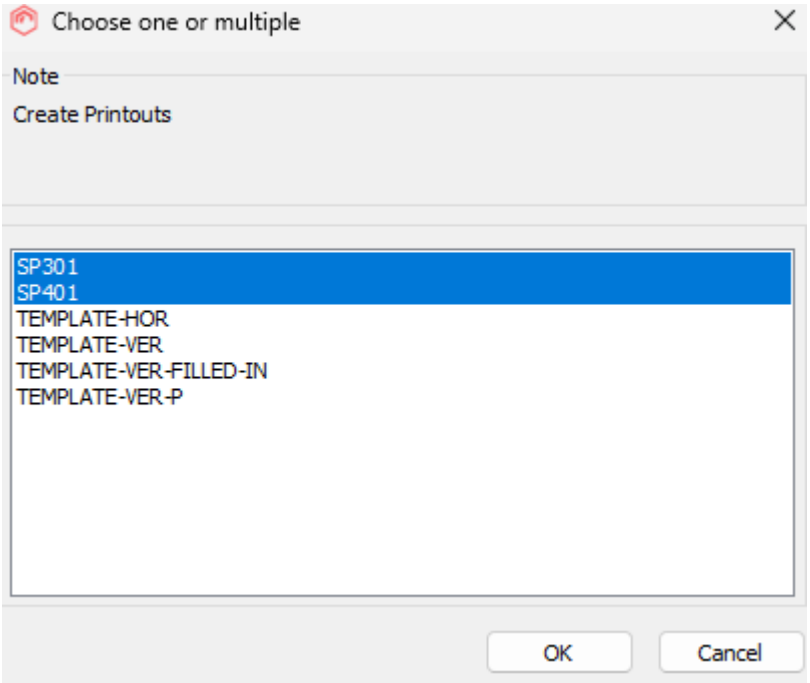
- "ML" to map MC Max Cable Length parameter
- "PN" to map MC Protective Device Description parameter
- "AD" to map with circuit MC Cable Description
- "PD" to map wiretype (previously this was "AD")
- "CN" as the MC Number of Cables

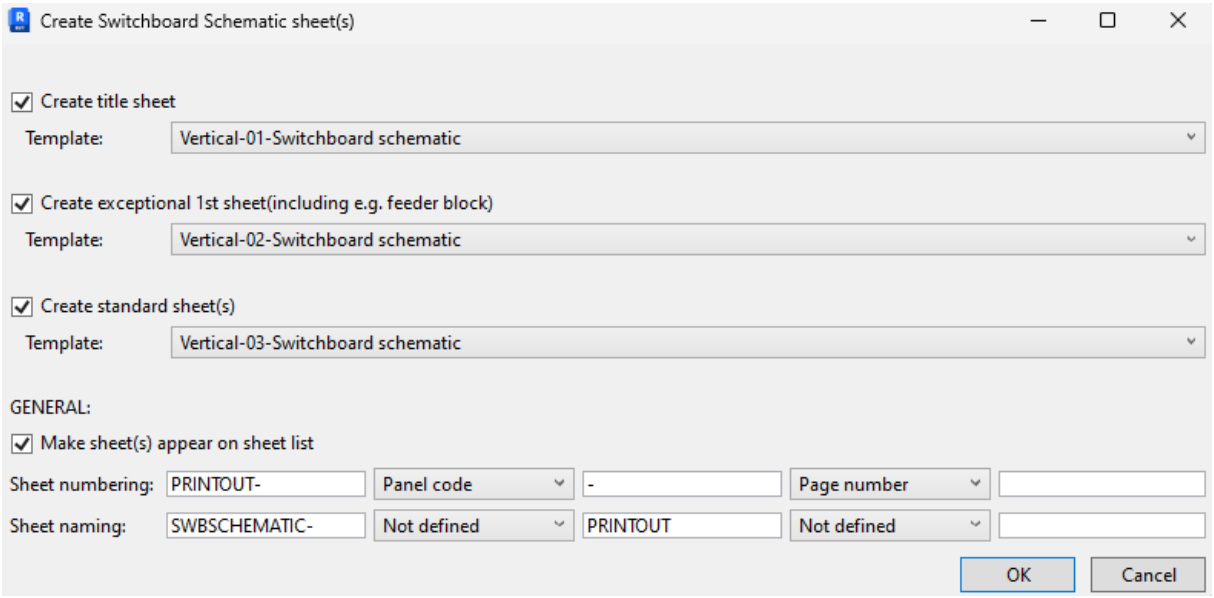
Move circuit
Move circuit function will allow user to move schematic rows, circuits, in a sheet view allowing better handling of the schematic. Also Move multiple circuits function has been added to move group of circuits at the same time.

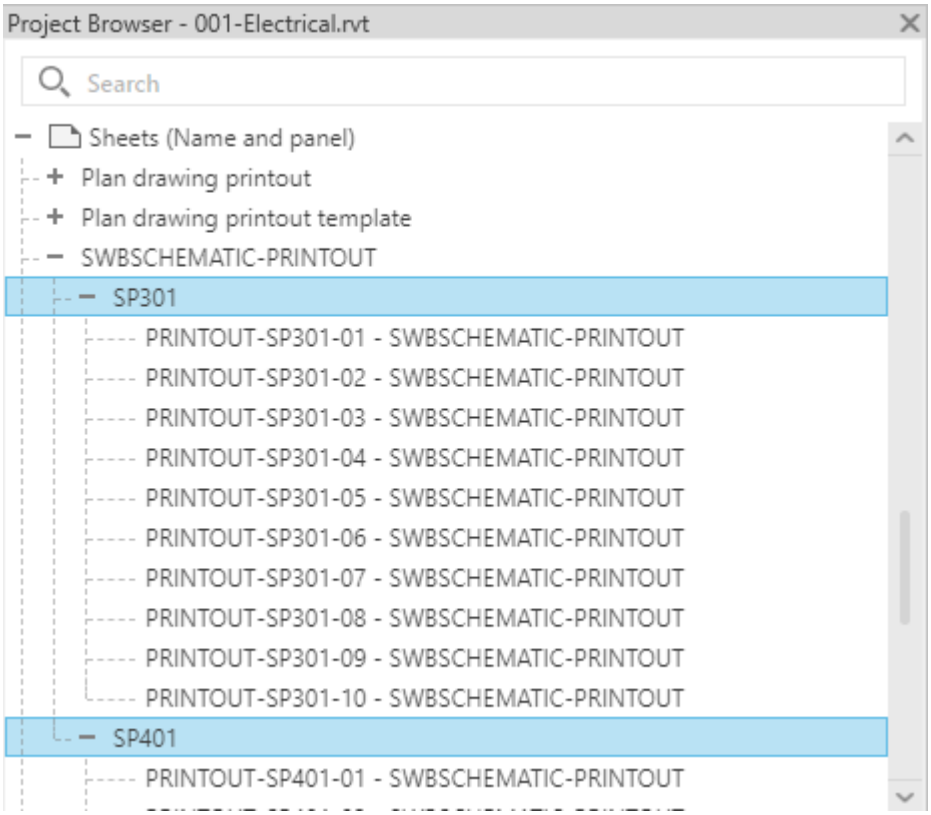


Create/use model and printout sheets
Now you can handle a switchboard schematic as a single "model sheet" where the schematic is generated and edited. Afterwards you can create printout sheets from it with the new "Create Printouts" function. When starting it, you have to select the panels from which to create printouts and in the opened dialogue what kind of sheets are created and based on which templates.

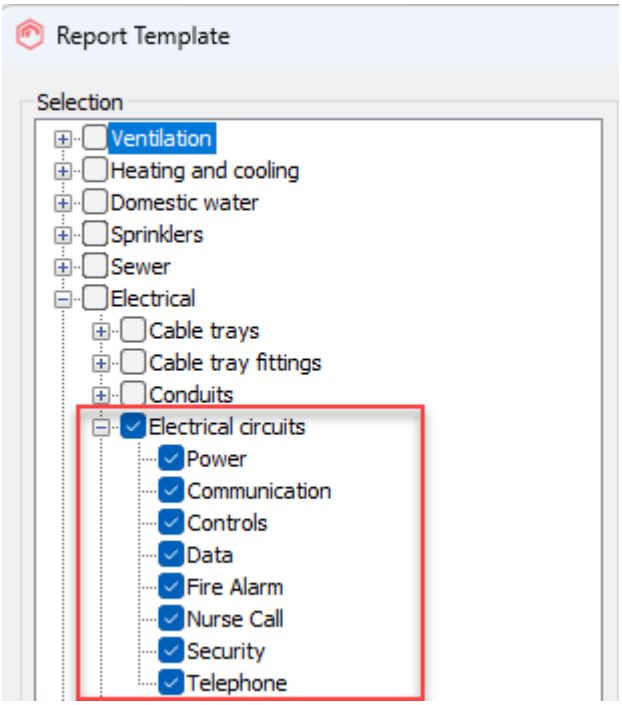








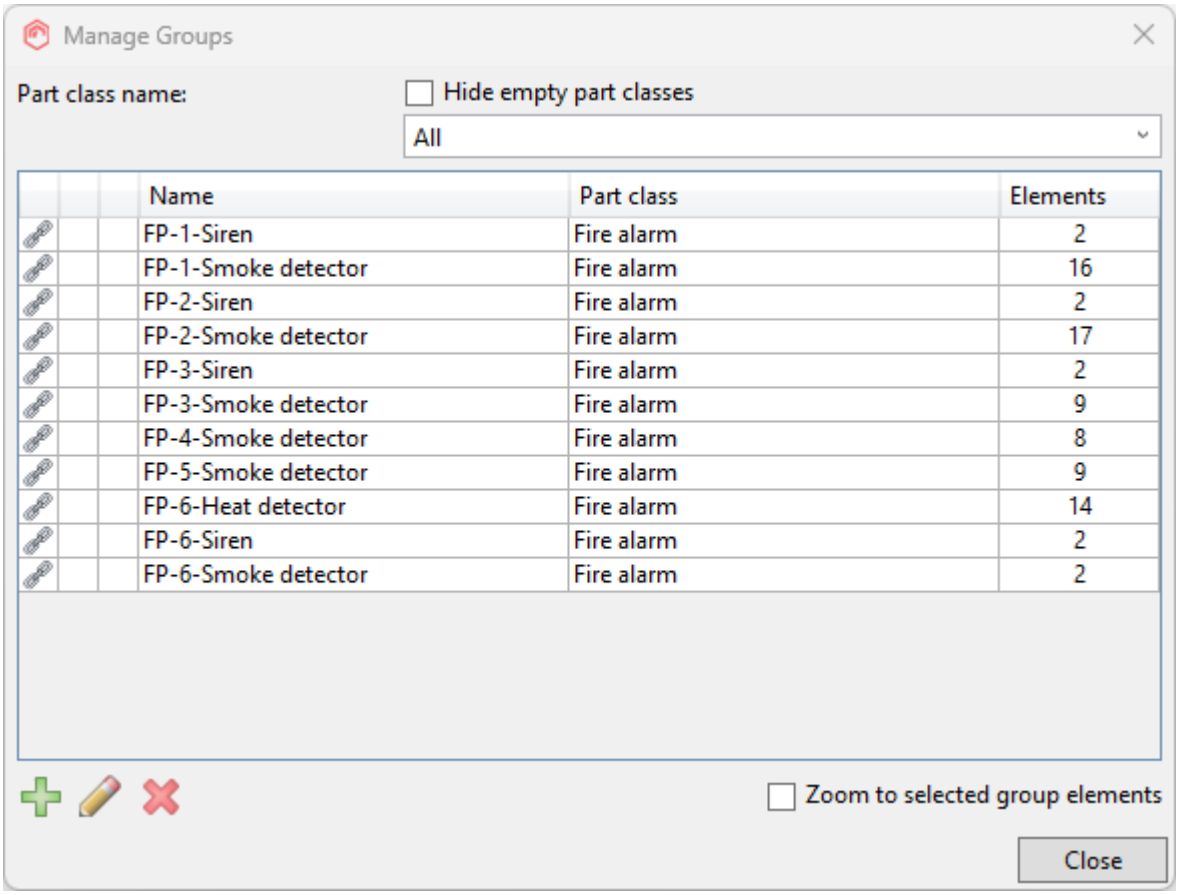
Improvements for reports
Now it is possible to take circuit information into Bill of Materials. In report template you can define which type of circuit will be the source of information for the selected parameters in BoM.



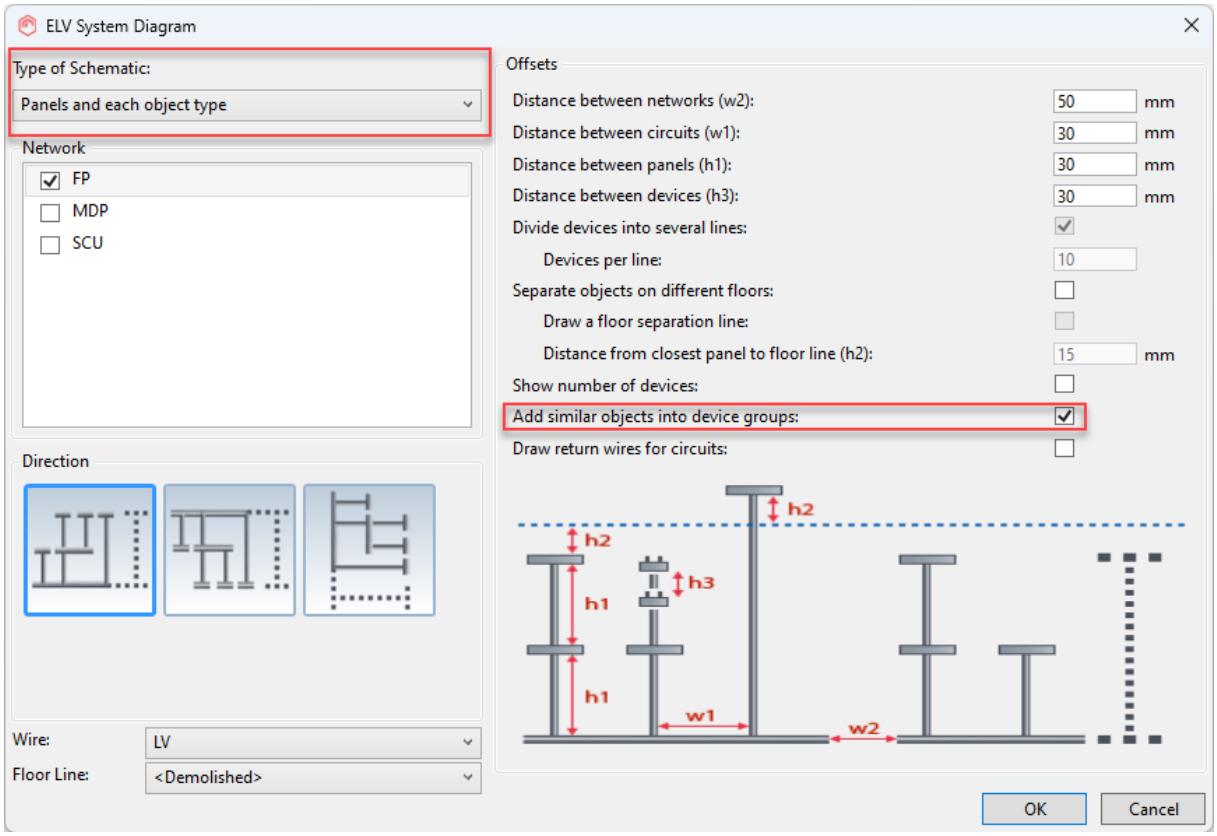
Improvements to riser diagrams
There are many improvements done to MagiCAD Schematics. Please see the topics below for more information.

1.5 Schematics

Automatic device group creation, also adding it to ELV riser
New function "Create & Update device group" which will create a device group from similar devices which are in the same electrical circuit.
First you need to select device(s)/circuit(s) and then run the function. From the circuits where selected elements belonged, device groups are made automatically from every device type and all similar devices in the same circuit will be added to those groups.
Groups created by this function will be named with following rule: Panel - Circuit number - Device description

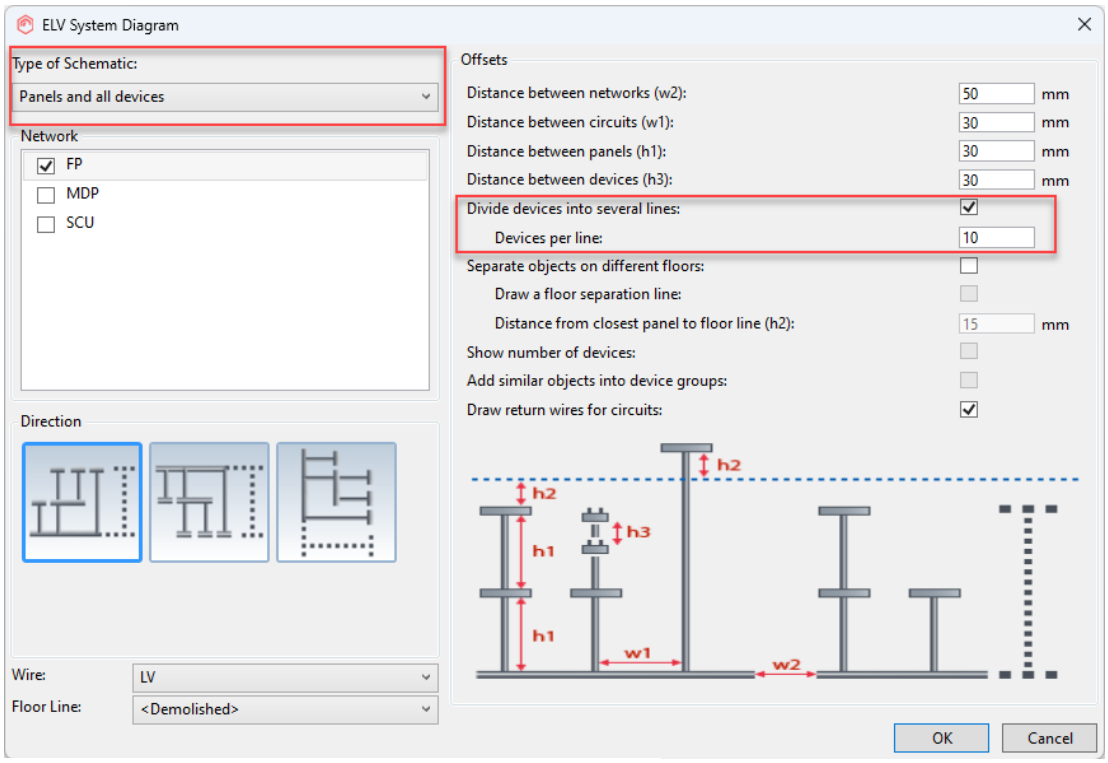


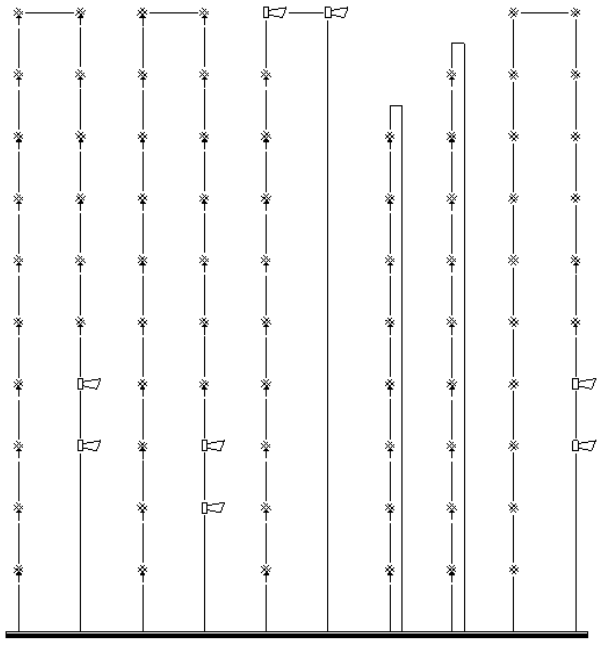
Automatic device group creation in ELV System Diagram
In ELV System Diagram function, when you have "Panels and each object type" you can use an option "Add similar objects into device groups". That setting will use the Create Device Group function for all the circuits in the panels added to the schematic and create links between device groups and symbols in the schematic.



Setting for max number of objects per line in the ELV System Diagram
Now it is possible to divide devices into several lines. When you know that your circuits has a lot of devices, you can manage that they are splittet into several lines instead of a single long line. This can help to make the schematic more compact and easier to read.

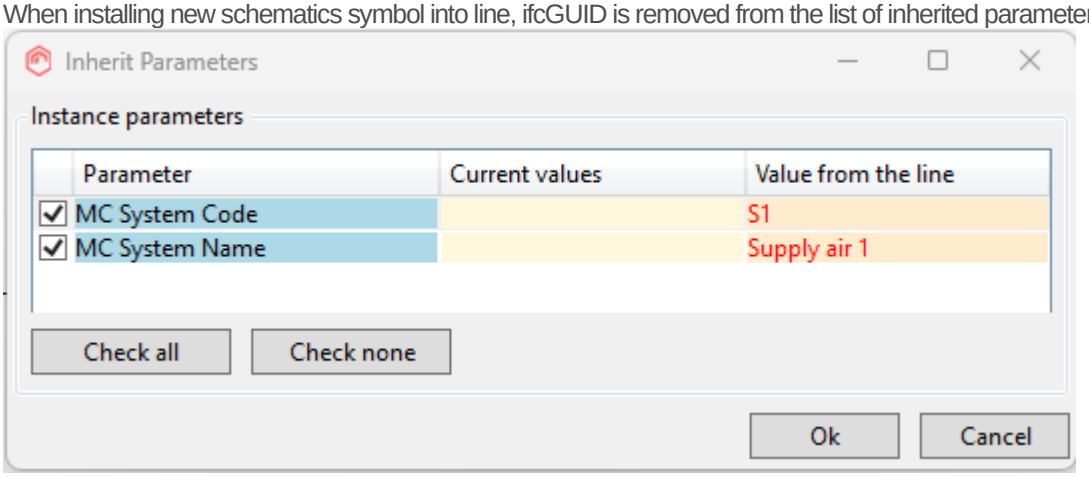
Note! You can only divide devices into several lines when you have "Panels and all devices" selection selected.





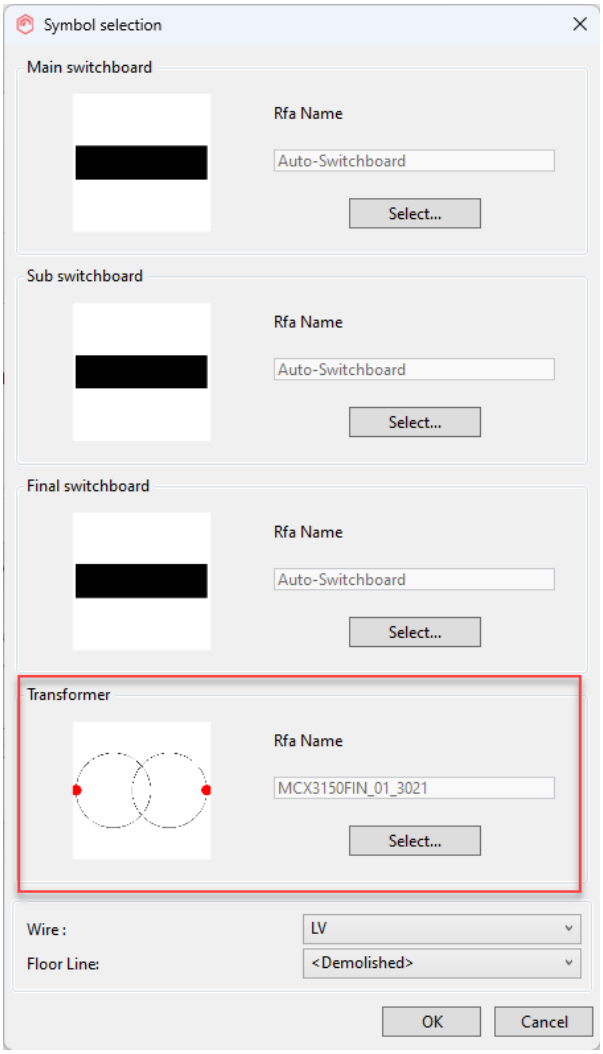
Removed IfcGUID from Inherit Parameters list in Schematics

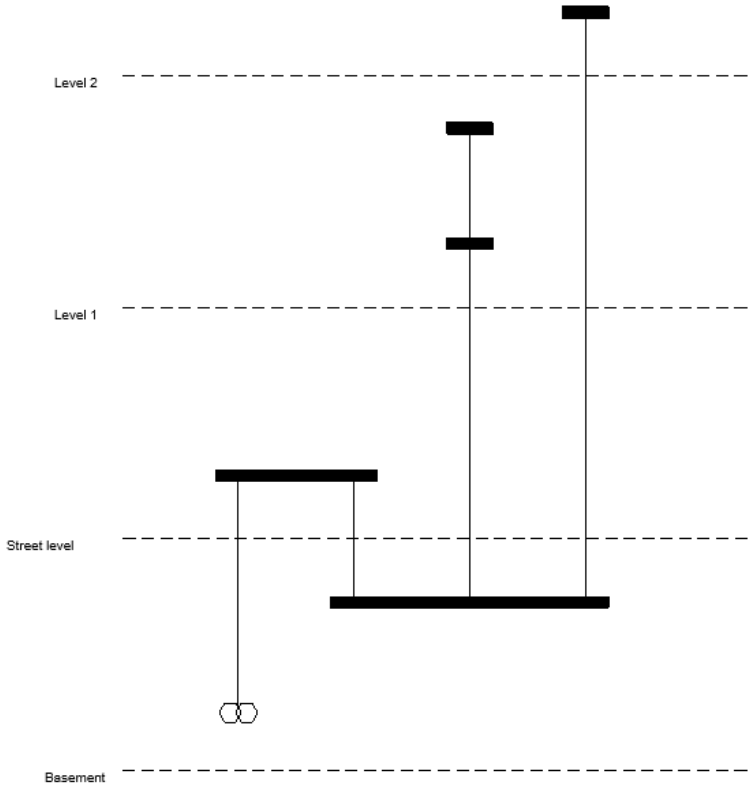
When installing new schematics symbol into line, ifcGUID is removed from the list of inherited parameter values.



Transformers in Main Riser Diagram

Support for transformers has been added to Main Riser Diagram function.
You need to select 2D symbol also for transformers when creating the schematic.





2 Resolved issues

2.1 Common

Create similar does not copy the air device's flow
Non VAV device's flow value was not copied from device when Create Similar was used.

"Add all shared MagiCAD parameters to current project" doesn't add "MC System Code" for systems
"MC System Code" is added to duct and piping system when running "Add all MagiCAD's shared parameters to project"

Error is reported when the integrated support and hanger is continuously arranged
An error "The document is currently modifiable! Close the transaction before calling edit family" was shown in some cases if "Install S&H continuously" was enabled. The error is no more shown.

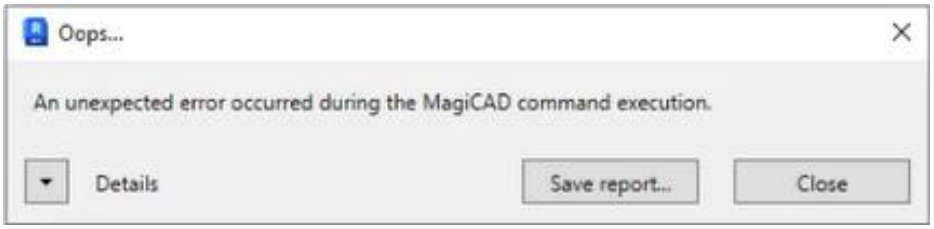
The real time clashes were not shown in views in views where all the objects that are colliding are not visible
MagiCAD now shows the real time clashes if at least one colliding object is in the view.
All the colliding objects are shown.

Branch copy + Mirror causes models which does not actually exist.
Mirroring functionality is now removed from the floating toolbar due to creating invalid product models.

Possibility to open MagiCAD's BCF clash export with other BCF addins in Revit
The camera information has been added to the clash report so that the file can be opened in BIM collaborate BCF manager.

Exception when a certain schematics symbol was installed to the project
Revit threw an exception when a certain schematics symbol was installed to the project. This happened because certain additional parameters were added as the wrong type in the dataset.
This is now corrected.

Revit API error with connection nodes
When mechanical equipments are not visible in view and connection node is created, MagiCAD asks if a view template should be modified to make those objects visible.
If user then selects Cancel Revit error is shown.



Functionality now takes into account the return values so the Revit error doesn't occur anymore.

Selection in Report Definition in the Bill of Materials dialog is not saved
Changes in Bill of Materials dialog: Report template selection is remembered and Export to spreadsheet and Export to PDF are set on as default

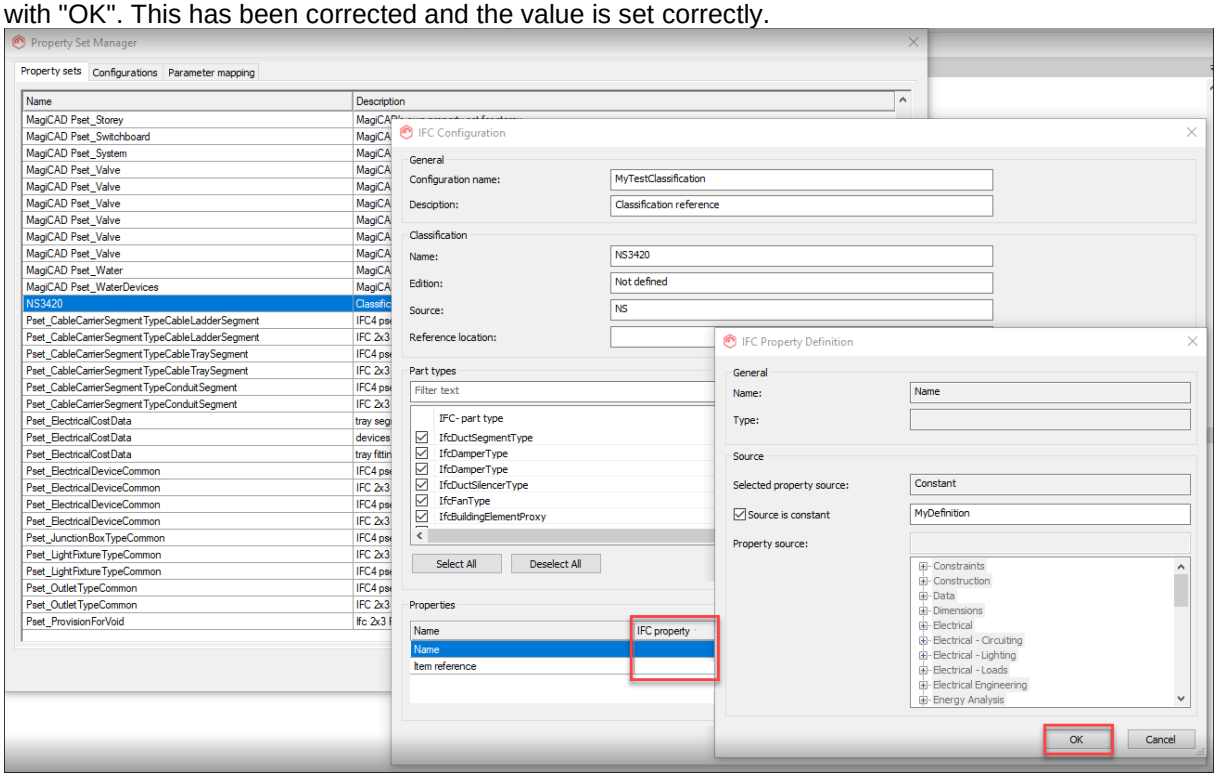
View Manager

- If "Phase Filter" was set to "None" in view template which controls the parameter, it will no longer lead to issues with view manager list.
- Other than Latin alphabets are now also supported as well as special characters for example Ö, Ä, Å and so on.
- When creating floor plans, it will now show level list based on level elevation.

2.2 IFC-related

Running IFC Export caused an exception due to some characters
IFC Export threw an exception due to a special Unicode character which had been used in some projects. Now invalid project characters are removed from file path name.

IFC Classification reference problems due to resetting property
IFC Property type of IFC Classification reference was reset after closing IFC Property Definition dialog with "OK". This has been corrected and the value is set correctly.



IfcDistributionChamber was missing from IFC types
Added support for IfcDistributionChamberElementType.

Extra property sets were appearing for systems
The System, Storey, Project, Site and Building in the IFC got property sets that were defined for objects only (using national classification code IFC property sets).
This has now been fixed so that the property sets are added correctly only to the objects for which they are selected.

Port definitions missing in IFC
Port definition information was missing from IFC2x3 & IFC4. This has been updated and the port definitions are now exported correctly.

Revit error via IFC Export when the object does not exist in current phase
IFC Export threw exception when trying to export demolished instance. Now those objects are properly filtered out.

2.3 Ventilation and Piping

Sprinkler report shows incorrect operation time
When multiple areas were calculated and they had different operation time, the time was printed incorrectly to the report. It was the same for all the design areas.
The suggested tank size was correct.

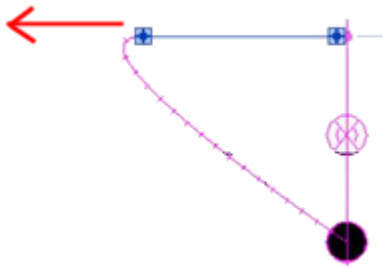
Wrong pressure drop was calculated to pipe segments when simultaneity is used
Pressure drop in domestic water pipes was calculated incorrectly when using simultaneity.
Simultaneity was not saved correctly to the object from the neighbouring object causing pressure drop to be calculated with incorrect flow value.
This is now corrected.

Wrong pressure drop was calculated to taps
Fixed bug where flow from outPort was randomly saved to in ports of tapped pipe pieces.
This caused random dp to tap fittings.

Problems with flexible pipes in the sprinkler report
When there are flex pipes with same length but different size, they were not listed separately
If calculation changed the length of the flexible pipes, its new length is now updated to the project.

Sprinkler sizing crashed when a sprinkler was connected directly to a tee
Calculation tries to read the pipe series from a preceding object assuming that it is a pipe. But since the preceding object is a sprinkler there is no pipe series causing the calculation to fail.

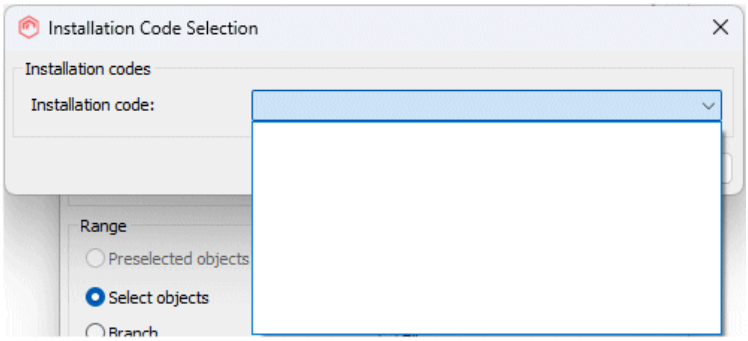
Problem in calculating length of pipe in sprinkler network
There was an error in calculating the length of the flexible sprinkler pipe in the sprinkler calculation. In some cases the calculation of the length gave random results.
This happened in cases where the pipe turned back so much that it's end point went over the start point.
Below the start direction is shown with the red arrow and the end point is the sprinkler marked with black dot.



Sprinkler calculation calculated tees incorrectly
Some tees were left out from the calculation. This is corrected.

Copy to levels issues with element references and automatic connections
Corrected scenarios in which pipes are connected to riser pipe even if they do not intersect.
Plumbing fixtures are now assigned to correct levels and improved the assigned element reference levels to follow the copied branch.

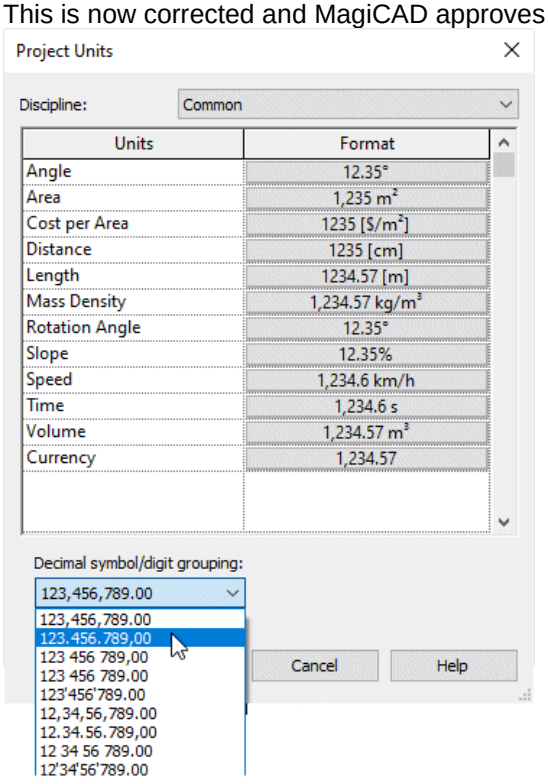
Revit crashes when Change properties is reopened after drainage installation code is changed to blank
When Change Properties is used to drainage and the Installation code is being changed, the code list is blank.
If the function is used anyway, MagiCAD clears the installation code.
When Change Properties is used again, Revit crashes without any error messages.



This is corrected and changing the installation code to the drainage system is supported properly.

Sizing method and installation code lists are empty in 3D duct/pipe drawing dialog
The lists were empty both in the duct system and pipe system drawing.
Both the sizing method and installation code are now shown properly in the dialogs.

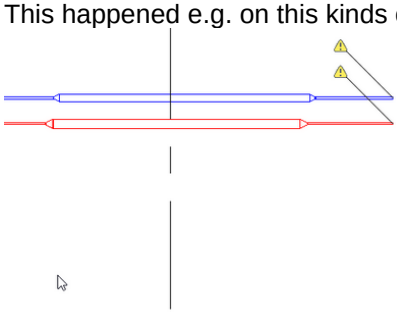
Generic manhole unexpected error
When an existing manhole was updated, an unexpected error happened in Revit.
The error was caused if the comma was used as a decimal separator.
This is now corrected and MagiCAD approves comma as decimal separator.

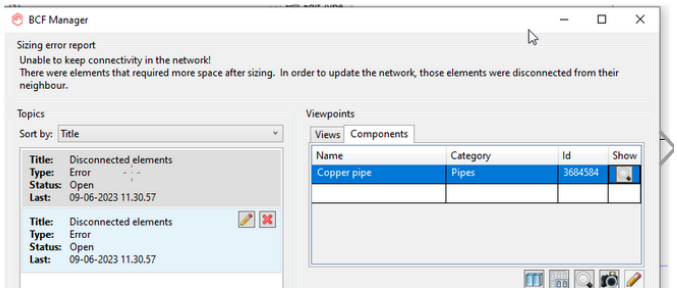


Calculations may crash Revit
Previously the element collection called recursively the same function, which caused memory problem and in some cases memory run out.
This is now corrected by changing the logic how the network is collected.

More checks to network collection
Added error message to heating/cooling (branch range) when different number of devices (e.g. radiators) are found in the return and supply branches.
Earlier calculation just stopped without saying anything

An unnecessary message about an open end was shown sometimes
When e.g. reducers were removed after the sizing was completed, an error about the open ends was sometimes shown in BCF manager.
This error was shown even though these open ends were totally correct, which should stay open.
This happened e.g. on this kinds of networks.





2.4 Electrical

Change properties did not work correctly with cables
If the "value from" was something else than *, it wasn't able to change the installation code of wires.

Maintain label values when changing switchboard schematic symbols
Now "Update circuits" updates symbol attributes of unlinked circuits
Now "Set circuit properties" updates symbol attributes when symbol is changed

2.5 Schematics

No corrections