



MagiCAD for Revit

Release notes for version 2023

03/06/2022

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1 New features

1.1 Common

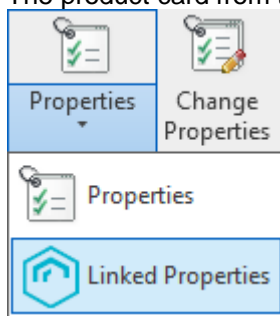
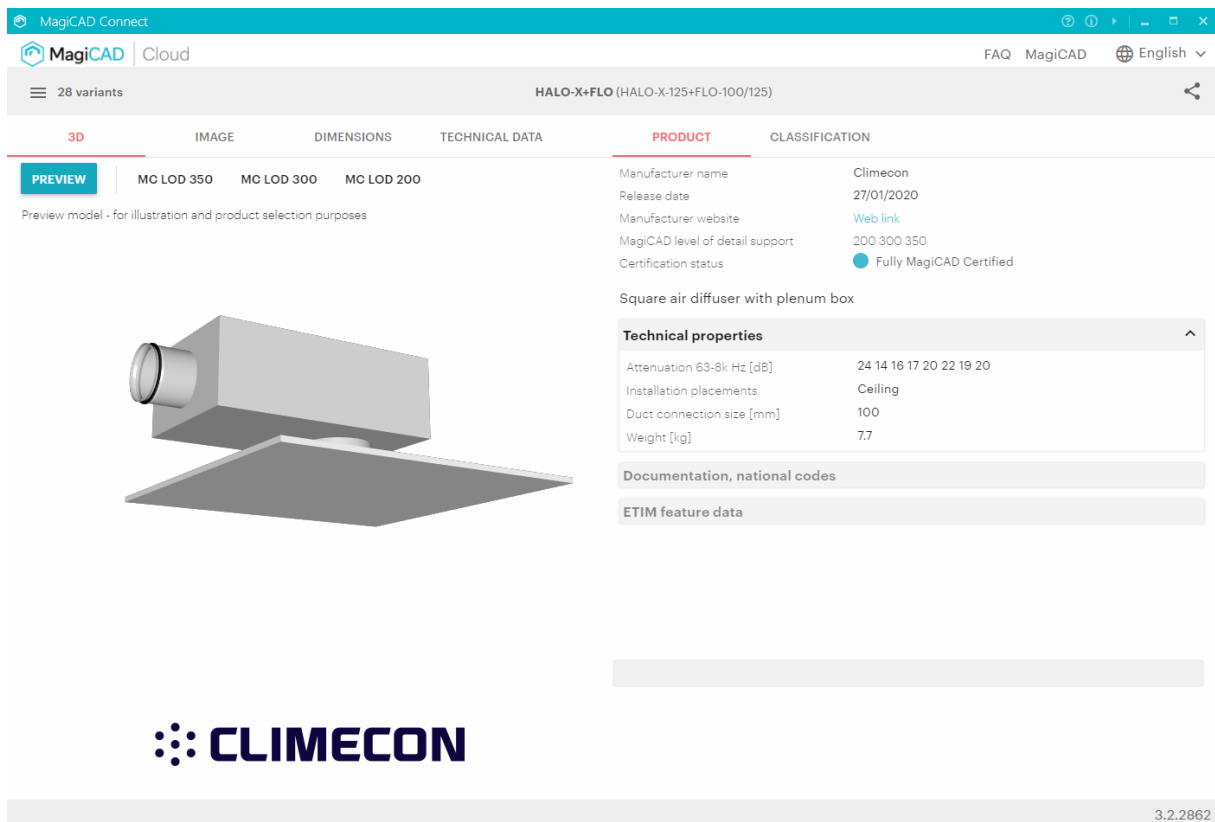
Added a new shared parameter for Installation description and update it to instances

Added a new shared parameter "MC Installation Code Description"

All features that add or modify "MC Installation Code" now work with this parameter.

Use Cloud page as an alternative to product properties

The product card from the cloud can be opened for the products properties.

MagiCAD Connect

MagiCAD Cloud

FAQ MagiCAD English

28 variants

HALO-X+FLO (HALO-X-125+FLO-100/125)

3D IMAGE DIMENSIONS TECHNICAL DATA **PRODUCT** CLASSIFICATION

PREVIEW MC LOD 350 MC LOD 300 MC LOD 200

Preview model - for illustration and product selection purposes

Square air diffuser with plenum box

Technical properties

Attenuation 63-8k Hz [dB]	24 14 16 17 20 22 19 20
Installation placements	Ceiling
Duct connection size [mm]	100
Weight [kg]	7.7

Documentation, national codes

ETIM feature data

CLIMECON

3.2.2862







Support for ETIM classification codes and parameters

ETIM is an international classification standard for technical products. It provides a structure for technical products and ensures uniformity in shared product information. MagiCAD Cloud product library includes products with ETIM classification information as part of the product data. Provided and defined by the product manufacturer.

Purpose of this functionality is to act as tool to inject ETIM group and class information to the type properties of the product. It fetches the required data from MagiCAD Cloud and adds parameters, to the Revit family.

Hosting Provisions to the Level/Storey instead of the segment host

If the current project contains levels with "Building Story" parameter set, those levels are used to define the levels of the provisions. If no such levels are present, the old approach is used. The old approach got its level information from the hosted floor plan of the duct. This lead to incorrect results if the provision was placed for the vertical duct.

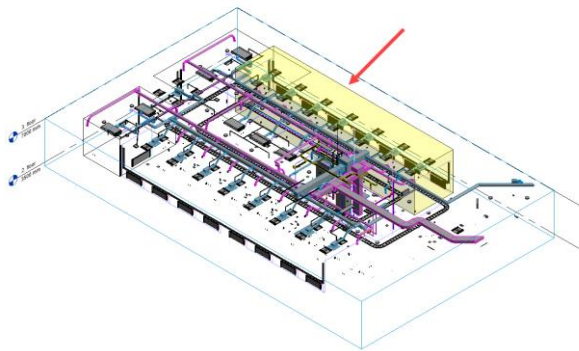
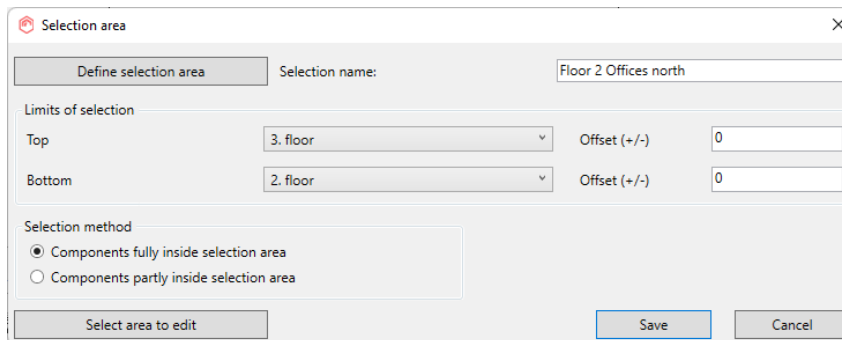
Levels (1)   Edit Type	
Constraints 	
Elevation	-4500.0 mm
Story Above	Default
Dimensions 	
Computation Height	0.0 mm
Extents 	
Scope Box	None
Identity Data 	
Name	Parking
Structural	<input type="checkbox"/>
Building Story	<input checked="" type="checkbox"/>

Provisions are assigned the level based on the elevation of the top point of the provision's bounding box in the main project's coordinate system, and using the same approach as other MagiCAD for Revit features are using.

In the old projects, the levels are updated according to the new logic.

Selection areas for BOM

You can now define and name selection areas for Bill of Materials. Mark an area in your model and select which floors will be included with top and bottom limits. The saved selection areas are available in range definitions when you create a Bill of Materials. Selection method specifies if objects are to be included when they are fully or partly inside the area.



Sort order selection for Legend tool

It is now possible to set a sorting order for each column; ascending or descending, for the parameters that have been selected to the legend report template.

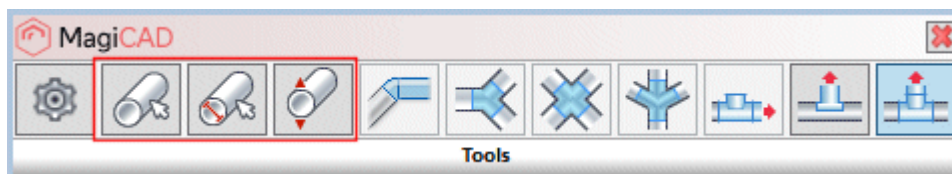
Added Inherit Size, Reference and Riser into the floating toolbar

Draw function toolbars have been improved with new quick tools.

"Select reference segment" to inherit all options

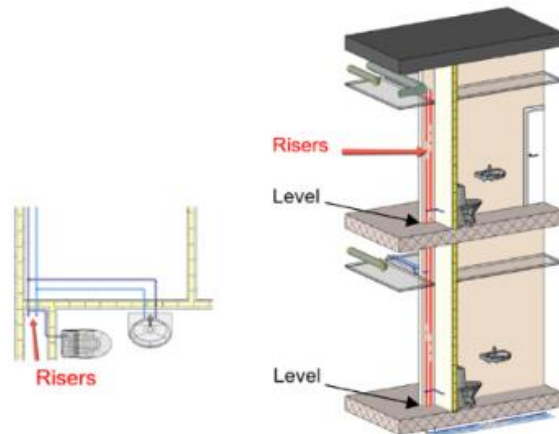
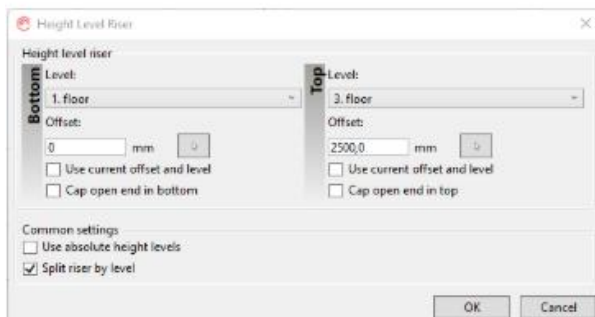
"Pick Size" to inherit segment size

"Install Riser" to create single risers. See more about riser tool below.



Tool to create risers

A new Height Level Riser tool allows you to quickly and easily create single risers in order to make space reservations into floor plans. You can set top and bottom elevations for the riser manually or select reference segments from the model. Multi storey risers can be split by level and created segments will be assigned to levels, this will help keeping objects in correct levels. The Height Level Riser tool is available in the drawing toolbar for ducts, pipes, conduits and cable trays.



Text alignments and handling in symbols

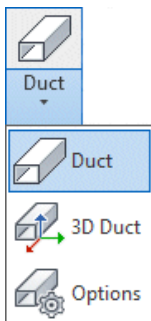
In Revit 2019 and newer, text alignments (horizontal and vertical) and rotations are now taken into account by storing them for user created symbols and also utilising them when converting symbols into Revit from MagiCAD for AutoCAD's symbol databases. NOTE! This affects only the 2D symbols of products.

Support for Italian language in MagiCAD for Revit

Added possibility to select Italian user interface language from the options

Improvement for the segment drawing

Start to draw has been divided into two commands for each discipline: e.g. the "Duct" and "Options". When the duct command is used for the first time, the options dialog is opened, but when the same command is used for the second time, the last used values are used as default and the options dialog is skipped. If you prefer the old way, starting from "Options" works in the similar way as the old "Duct" command and the options dialog is opened first.



In Options dialog changing series, size is attempted to keep the same between series. If the same size cannot be matched, next a bigger size is selected. Size is reset to min size when type is being changed (e.g from round to rectangular).

This change applies to duct, pipe, cable tray and conduit drawing.

Performance improvement of the segment drawing

Segment drawing performance improved. Also "Create similar" performance improved in case that drawing is started from a duct, flexible duct, pipe, flexible pipe, conduit or cable tray.

Clash Settings selection update

"Generic models" changed to be main branch in category selection.

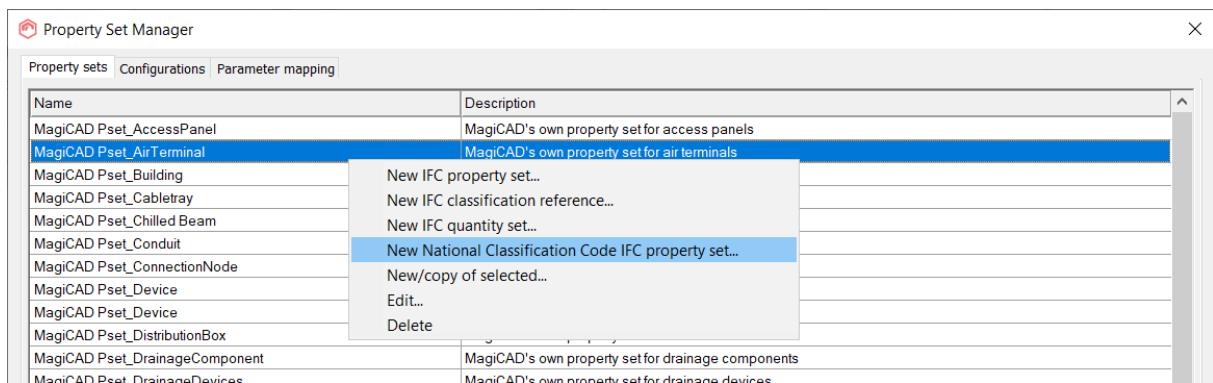
1.2 Common/IFC related

Property sets according to National Classification Codes

An option to add property sets according to the National Classification Codes implemented in MagiCAD for Revit 2022 has been added.

This adds more flexibility to the property sets as this is not only specified by the IFC-types, but the user gets more flexibility to create either their own standards, which can be bound to property sets, or use national classification standards, based on which the property sets can be added.

This is done by creating new property sets using the "New National Classification Code IFC Property set"-option:

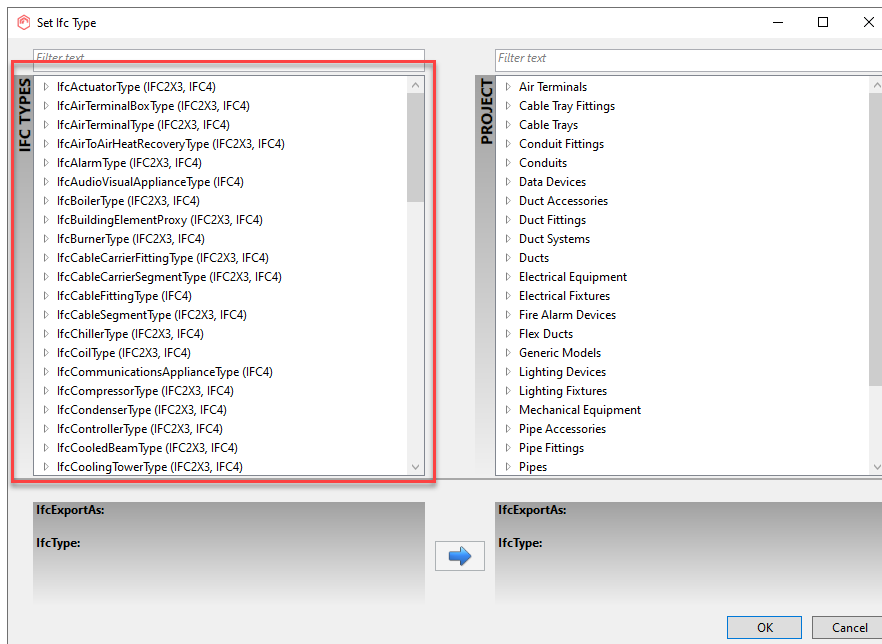


IFC dialog improvements

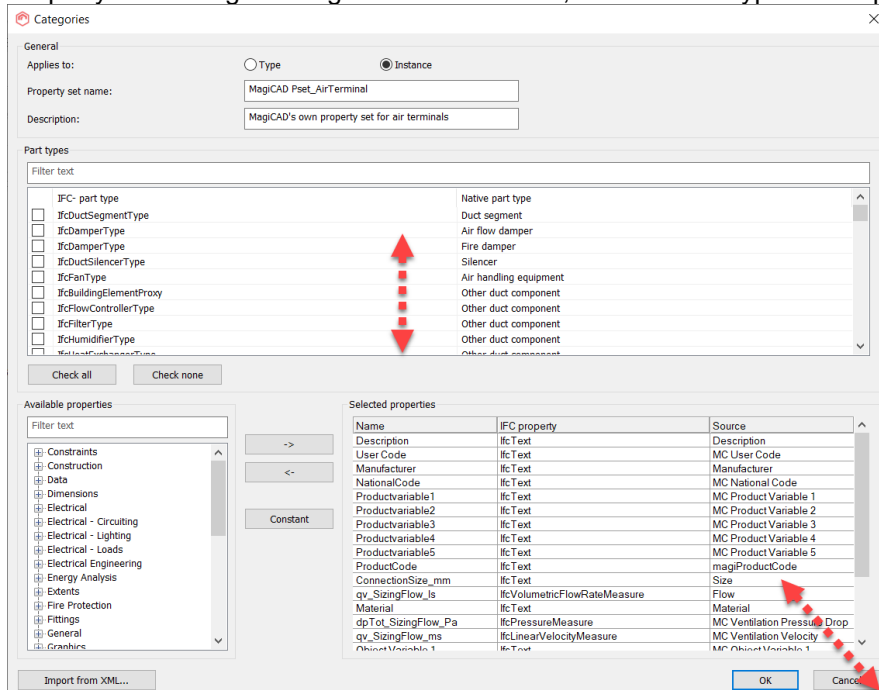
A number of improvements have been implemented for the dialogs to improve the workflow related to the IFC-functions:

The Set IFC Type list is now sorted alphabetically.

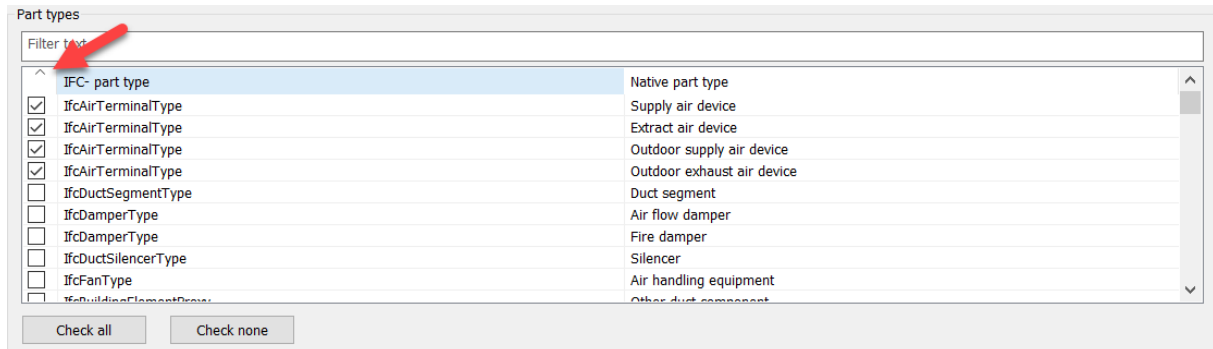
The filter now applies only to the main IFC-type, in the dialog above, so that the subtypes are visible when searching.



Property set manager dialog is now stretchable, with the Part types list expanding:



The selection in the Part types list is now sortable, so that it is easier to get an overview of what has been selected:

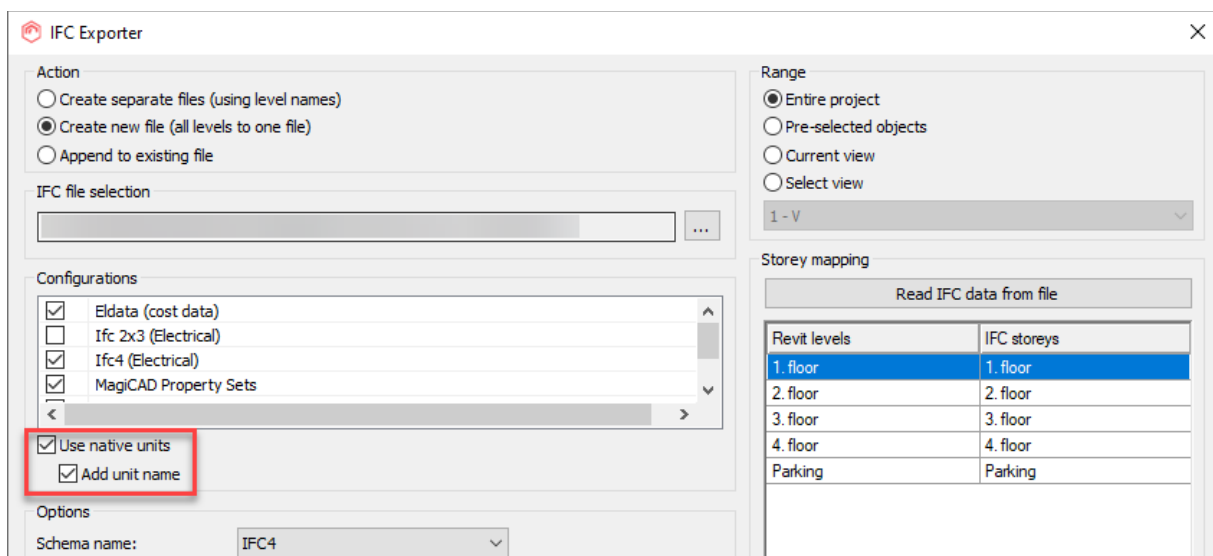


Using native units when exporting Property Sets

The units which are used in IFC files are set to a certain default unit in the IFC-file according to the rules of the IFC-standard.

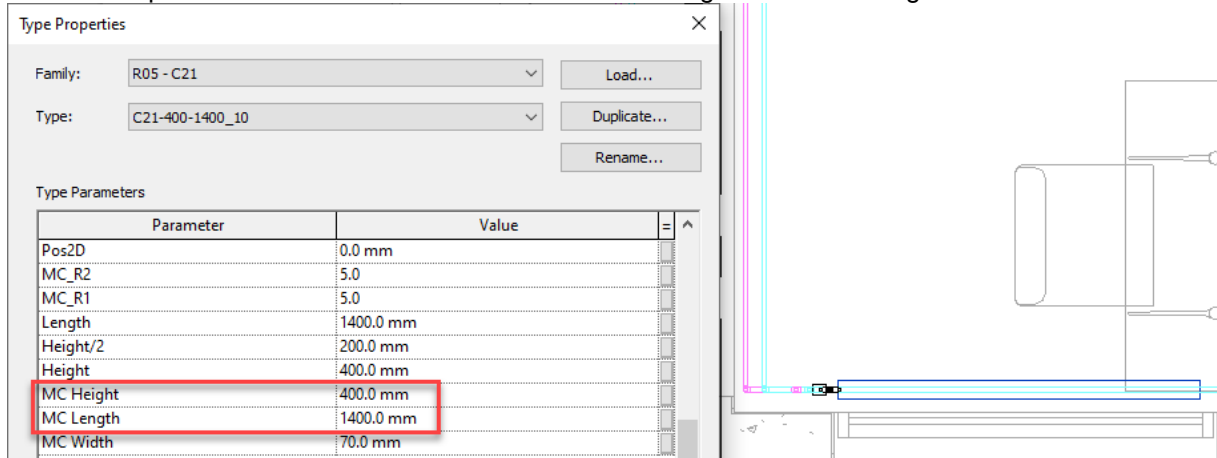
This has however caused issues for users when not all IFC-viewers have good settings to change these units, and the units are also often the same for all disciplines, instead of for example pressure losses with kPa in water systems and Pa in ventilation systems.

We have now added options for the users to set the numerical units to be locked to what is shown in Revit:

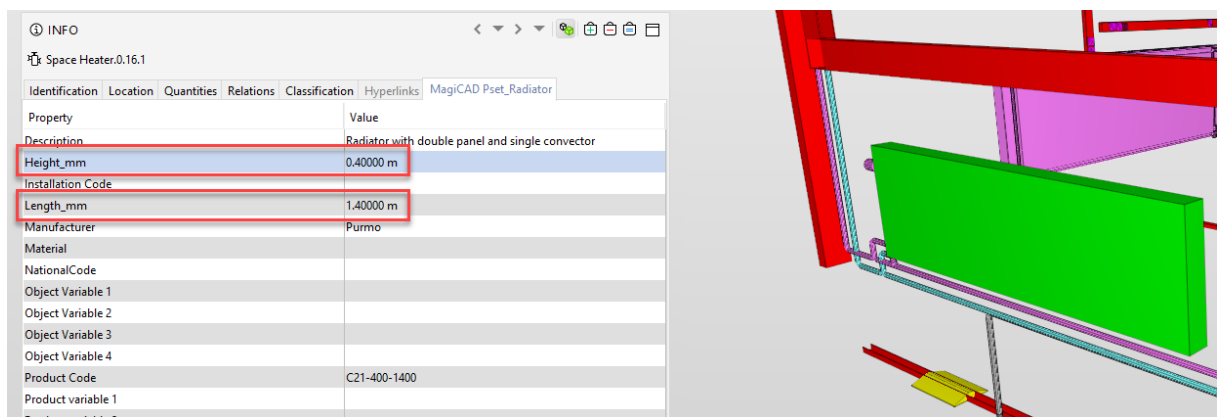


In other words if 'Use native units' is set, then all properties (except IfcLabel) are exported as IfcText. This means that the numerical values are written as text values, as they are, to the IFC and are no longer affected by the settings of the IFC-viewer.

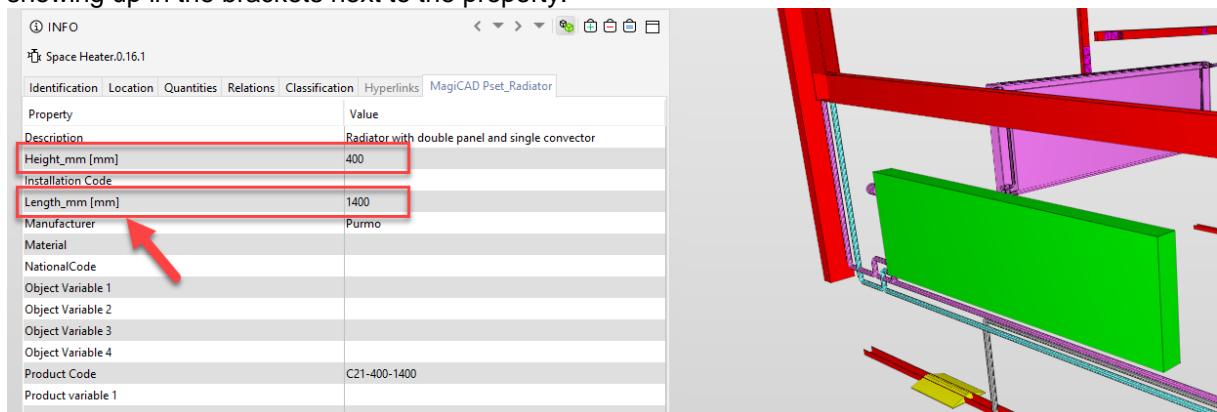
As an example here can be seen where we have the settings in Revit for lengths as millimeters:



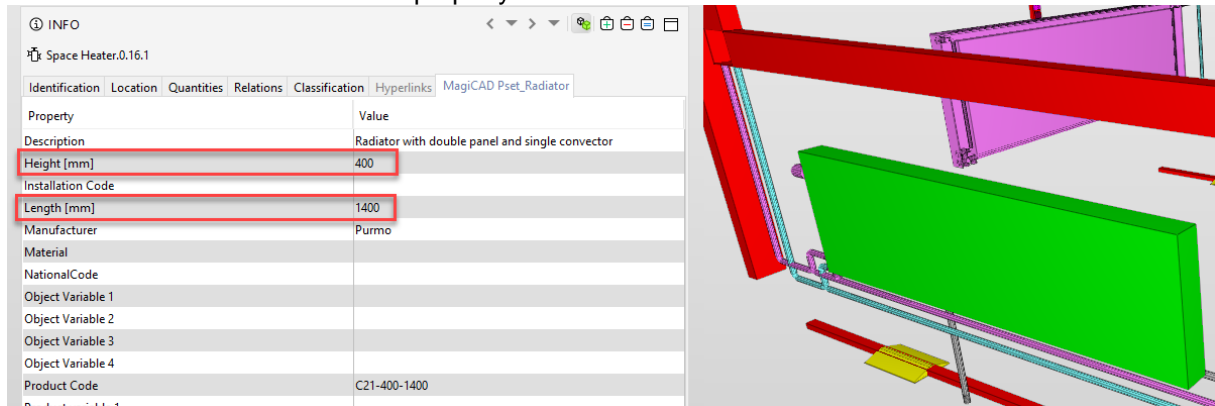
But the IFC-viewer's setting is set as meters. And in case it isn't possible to change a setting in the IFC viewer, then there is no possibility to show the unit in another way.



But now the user can also export this information as it is seen in Revit, with the "Add unit name" showing up in the brackets next to the property:



In this case could the name of the property be edited to allow the unit name to indicate the unit:

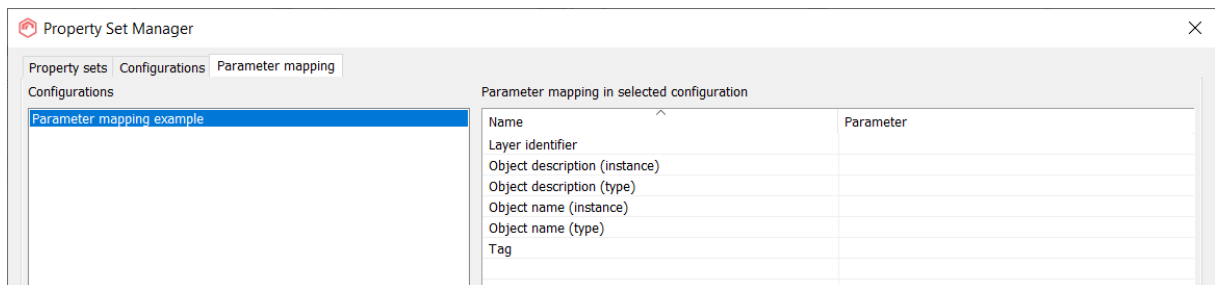


Mapping for native IFC parameters

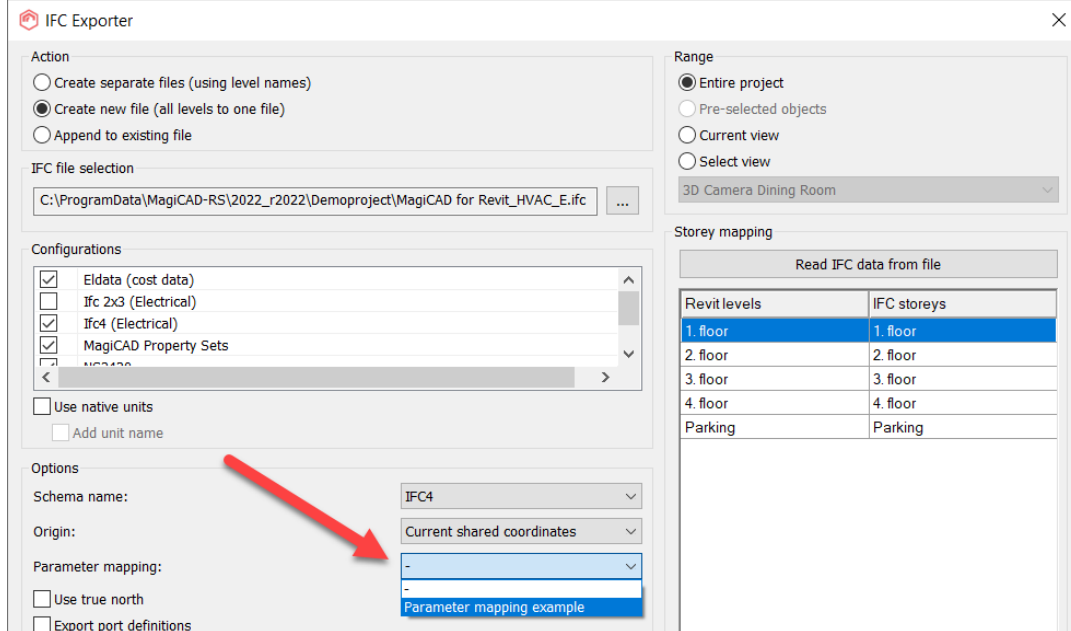
The native IFC parameters which now can be mapped to are:

- Layer identifier
- Object description (instance)
- Object description (type)
- Object name (instance)
- Object name (type)
- Tag

Can now be mapped using the Property Set Manager:



If a Parameter mapping has been created, then it can be selected in the IFC Export dialog:



Note: Parameter mapping overrides "Parameter map" settings in "Advanced options" of IFC Export dialog.

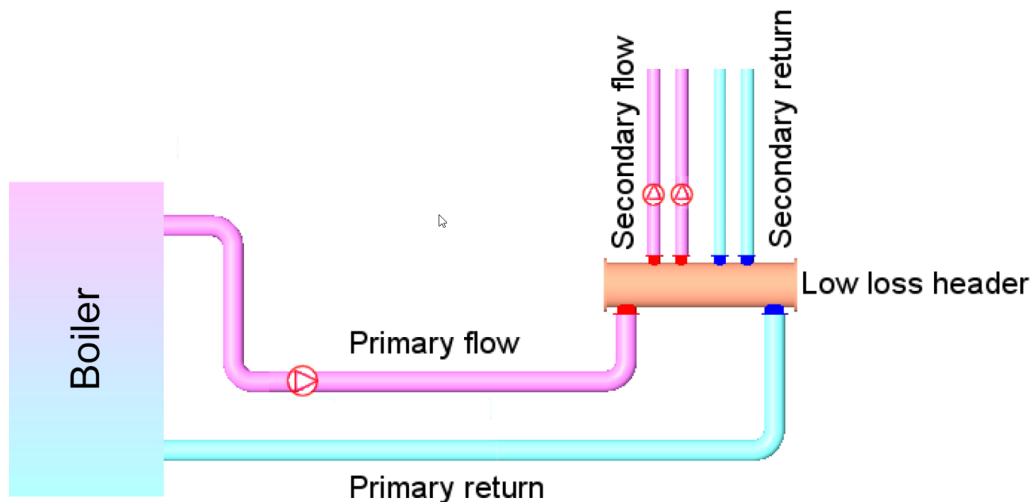
The parameters available from earlier in that dialog are:

- Layer identifier
- Object name (instance)
- Object name (type)

1.3 Ventilation and Piping

Improved calculations for the low loss headers

Calculation of the large low loss header pipes has been implemented. Secondary and primary circuits are calculated separately assuming that there is a pump in each circuit. There can also be two or more heating plants on the primary side of the header.



Calculation of the potable water network has been improved when using French DTU standard

Certain building types, like hotels, are using different simultaneity factor when the dimensioning flow is calculated. Simultaneity is multiplied by 1.25. The building type can now be selected when DTU is used.

Possibility to set power directly to a manifold, MCREV

You can now manually add flow, power and pressure drop values to a 2-way manifold. This allows you to easily add manufacturer provided technical data for a manifold, without creating heating loops. Manual values can be set in product installation phase. "Use manual given values" checkbox needs to be selected before manual values are available.

Property		Value
Identity Data		
Installation Code		
Status		
Mechanical		
Volume		0 L
Header pipe		<input type="checkbox"/>
Use manual given values		<input checked="" type="checkbox"/>
<input type="checkbox"/> Temperature difference		5.0 °C
Given piping power		0 W
Given pressure Drop		0 kPa

Continuous flow for the sewer calculation

Standard EN 12056-2 defines the concept of the continuous flow in the drainage network. MagiCAD now support the usage of the continuous flow.

In the calculation, the continuous flow is added to the flow rate without any reduction.

$$\dot{V}_{\text{WW}} = K \cdot \sqrt{\sum DU}$$

$$Q_{\text{tot}} = V_{\text{ww}} + Q_{\text{cont}}$$

Sizing calculation for hydrants according to the UNI 10779

In case there are fire hydrants connected to the sprinkler network, the size of the pipes connecting to the fire hydrant is the connection size of the fire hydrant.

In case there are more than one fire hydrants connected, the minimum size is as follows

Dimensione minima delle diramazioni

Elementi alimentati	Diametro nominale diramazione
due o più attacchi DN 25	≥32 mm
due o più idranti DN 45	≥50 mm
due o più idranti DN 70	≥80 mm

Due o più idranti = Two or more fire hydrants

Diametro nominale diramazione = minimum pipe size

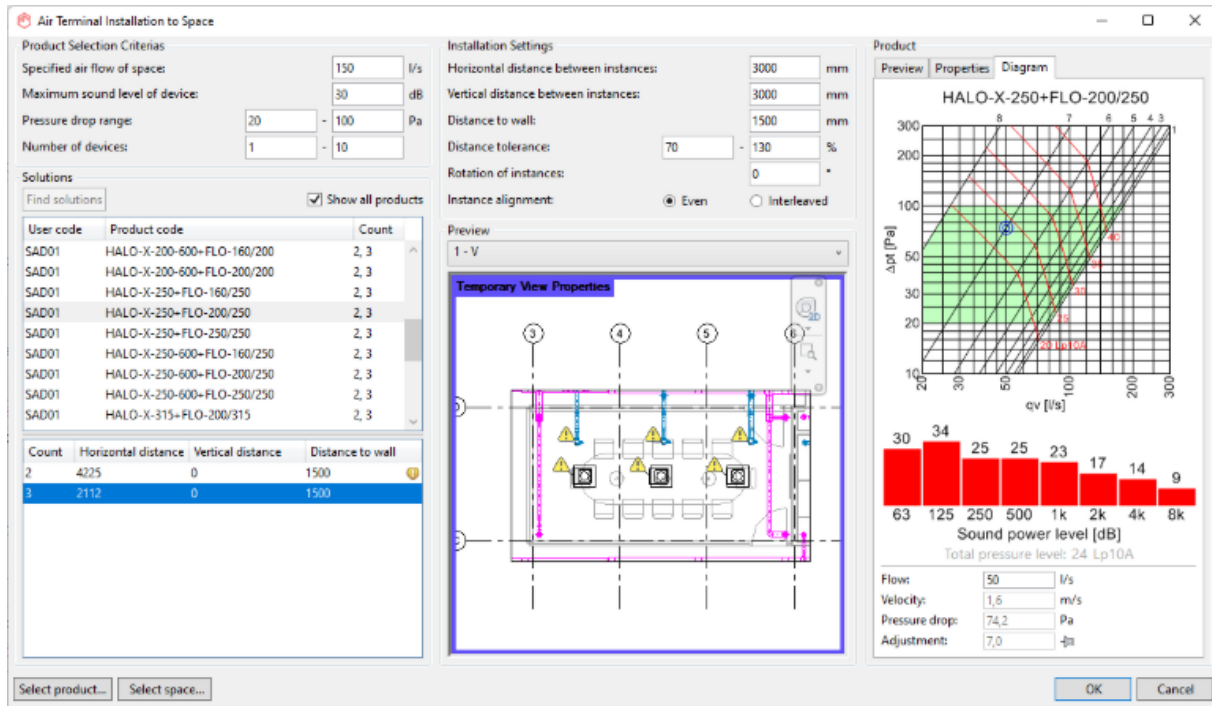
Added also a column to the report which shows the amount of each DN size sprinklers. This helps to verify that sizing has selected a correct pipe size.

The standard does not define a minimum size for two or more hydrants which have different sizes, e.g. one size DN25 and one size DN45

The three sizes above are the only sizes which are allowed for the fire hydrants according to UNI 10779. If some other size is used, a warning "Connection size" is shown.

Utilizing space data when installing air terminals

MagiCAD MEP 2023 introduces a new generative tool for space-based selection and installation of air terminals. You can simply define selection criteria and installation settings and the tool calculates the best available product and layout combinations for the selected space. You can then evaluate the different options and either install a suitable combination or modify the requirements further if needed. There are three different installation options—Space, Space with Rotation, and Space with Ceiling—to accommodate different room shapes and mounting types.



Product Selection Criteria

Specified air flow of space: 150 l/s

Maximum sound level of device: 30 dB

Pressure drop range: 20 - 100 Pa

Number of devices: 1 - 10

Installation Settings

Horizontal distance between instances: 3000 mm

Vertical distance between instances: 3000 mm

Distance to wall: 1500 mm

Distance tolerance: 70 - 130 %

Rotation of instances: 0

Instance alignment: ☒ Even ☐ Interleaved

Solutions

Find solutions ☒ Show all products

User code	Product code	Count
SAD01	HALO-X-200-600-FLO-160/200	2, 3
SAD01	HALO-X-200-600-FLO-200/200	2, 3
SAD01	HALO-X-250-FLO-160/250	2, 3
SAD01	HALO-X-250-FLO-200/250	2, 3
SAD01	HALO-X-250-600-FLO-160/250	2, 3
SAD01	HALO-X-250-600-FLO-200/250	2, 3
SAD01	HALO-X-250-600-FLO-250/250	2, 3
SAD01	HALO-X-315-FLO-200/315	2, 3

Count | Horizontal distance | Vertical distance | Distance to wall

2	4225	0	1500
3	2112	0	1500

Product

HALO-X-250+FLO-200/250

Δp [Pa] vs. qv [l/s] graph showing operating range.

Sound power level [dB] vs. Frequency [Hz] bar chart.

Total pressure level: 24 Lp10A

Flow: 50 l/s
Velocity: 1,6 m/s
Pressure drop: 74,2 Pa
Adjustment: 7,0 -Pa

Sprinkler standards to alphabetical order in the UI

Arranged sprinkler calculation standards to alphabetical order

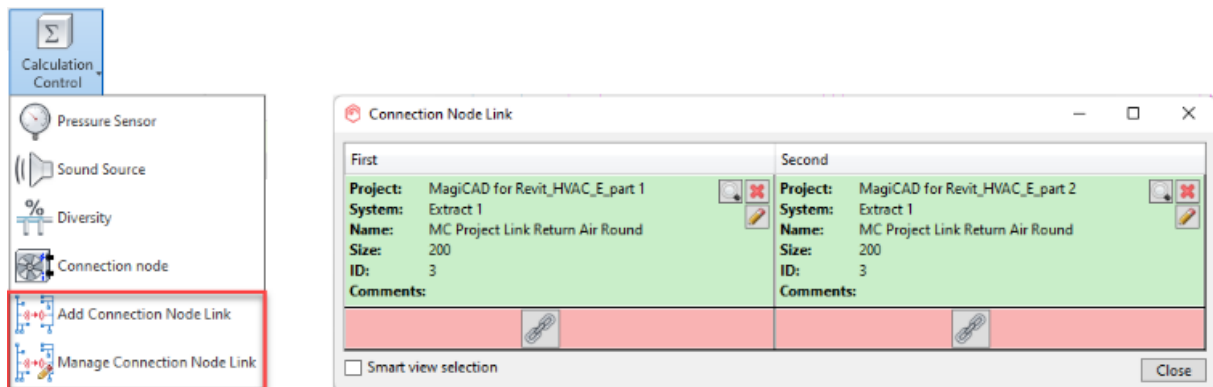
Connection nodes between models

In large Revit projects, models are often divided into multiple smaller files to resolve performance issues. However, since MEP systems often run through many, or all, of the separate model files, this approach prevents running calculations for complete MEP systems.

Connection nodes between models allow you to link systems in separate model files for calculation purposes. There are two methods for adding the connection nodes, manual and automatic. In manual linking you can select the ducts that you want to link in each file. In automatic linking, a linked duct node is automatically imported into the same location in the corresponding model, and you can continue drawing the system from it.

Connection nodes between models was released earlier as a beta version and it is now officially released in MagiCAD MEP 2023 with the following additions:
Models do not need to be open for sizing or balancing calculation. A new Calculate this model only selection allows you to perform the calculation using previously calculated values for connection nodes linking to other models.

Possibility to add an ID number and comments to connection nodes

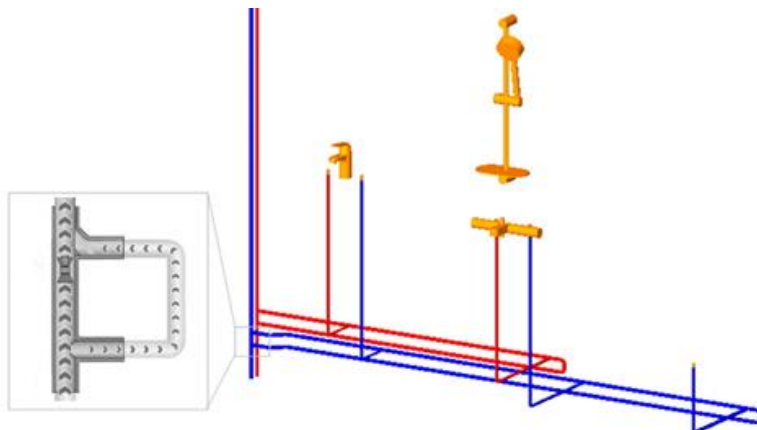


CIBSE SVA Logo

Added CIBSE SVA logo to "Sizing Options" and "Pressure Drop Calculation Options" dialogs in ventilation when Cibse standard is used in calculation.

Support for Venturi Valves

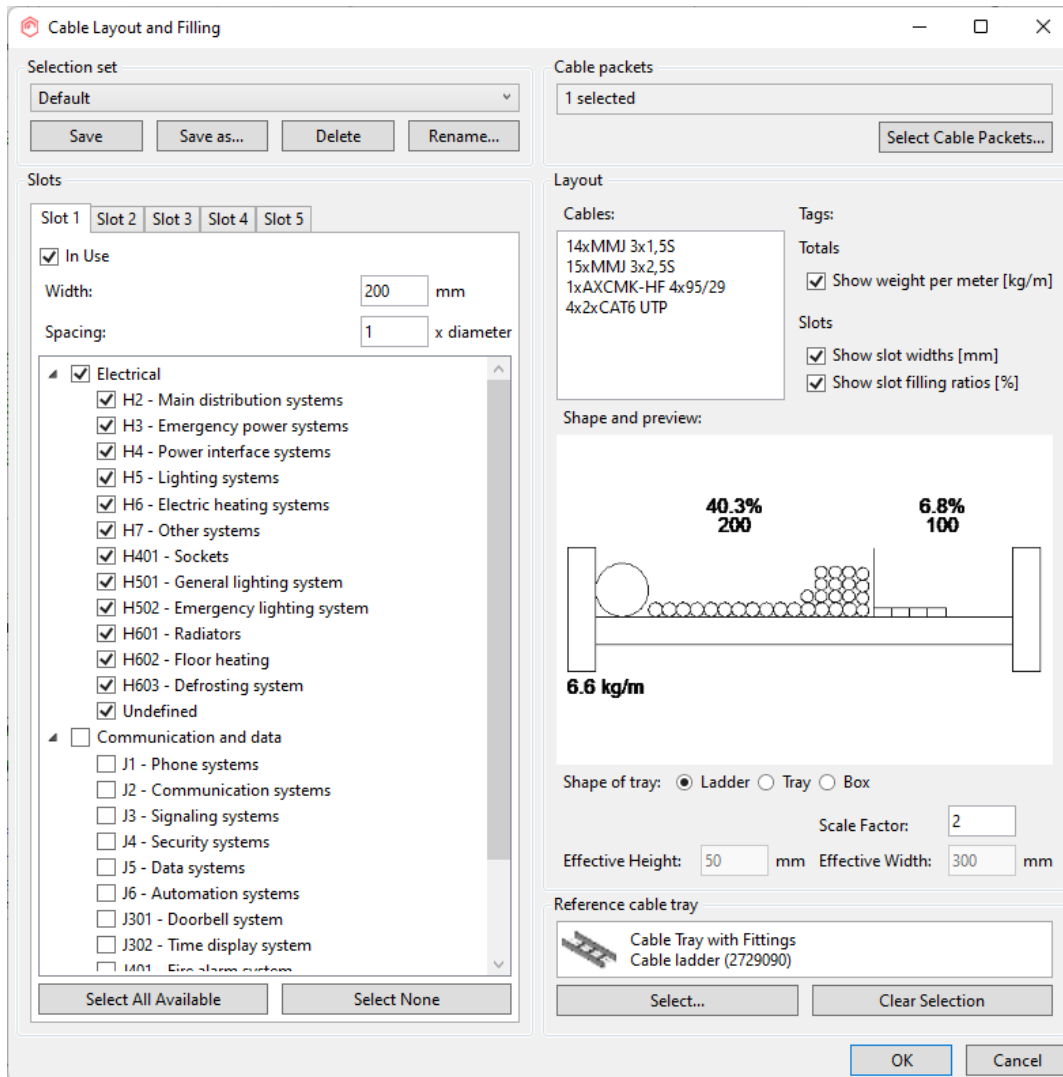
MagiCAD MEP 2023 now supports the installation and calculation with Venturi valves (flow dividers). Venturi valves ensure a certain amount of water flow in domestic water system loops even when an individual tap in the loop is not used. This helps to maintain the hygiene level of the water by preventing water stagnation at tap points.



1.4 Electrical

Evaluating cable tray fillings

With the new Cable Layout function and the help of cable packets, you can now evaluate cable tray fillings in your projects. When starting the Cable Layout function, it asks you to select the cable packet(s) from which cables are gathered for the filling evaluation, and finally opens the following dialogue. In the dialogue you decide how the layout symbol, used for the filling evaluation, is generated.

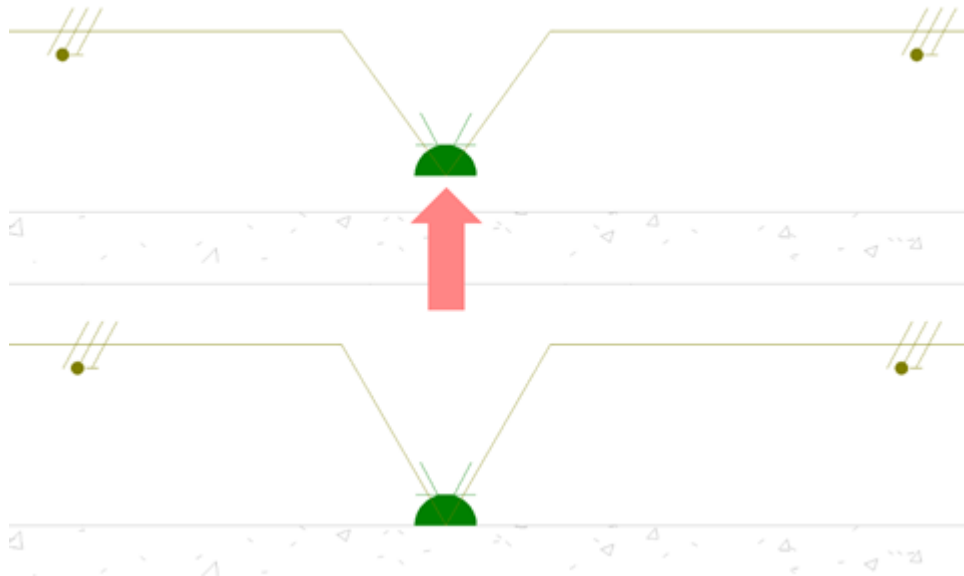


After clicking ok, you need to place the layout somewhere in your model. This can be a floor plan view or a section view. NOTE! In order to place it into a section view, there needs to be a workplane available and set active before you switch to the section view and start creating the cable layout object. The workplane also has to be in the same orientation as the section's view direction. This can be done by creating it in the plan view where you created the section line as well.

NOTE! In order to get the function working properly, cables need to have their dimensions and weight defined in the Wire Type Management function. Also, circuits should contain system codes so that you can divide the cables into different slots based on their systems if/when needed. However, the "undefined" system can be used in case system codes are not available. Systems are/can be set when drawing wires or when using the Set Circuit Properties function.

Stretch wires when using Symbol Organiser or Find&Replace

When using the Symbol Organiser or Find&Replace function, all connected wire ends are moved with the affected 2D symbols.



1.5 Schematics

Line alignment tool for schematic drawings

Align lines in a schematic drawing according to a selected reference line. This allows you to easily produce clear and readable schematics with minimal editing work. Simply select a horizontal or vertical reference line, and then select the lines to be aligned. All existing line and symbol connections are preserved for the aligned lines.

2 Resolved issues

2.1 Common

Param Configuration - Element system parameters didn't show all parameters

Parameter provider has been corrected and all the parameters should now be visible.

Unexpected error or Revit crash if MC Parameter Map Configuration.xml folder does not exist

The error causing the crash is now corrected.

A directory is also attempted to be created if it doesn't exist

Improvements to the speed of "Map parameter" and Merge parameter"

"Map parameter" window loads faster and "Merge parameter" generates parameters faster.

Exception in product installation with custom user symbol

There has been a problem with the custom families and symbols when a non English version of Revit has been used.

MagiCAD families are created from user's own Revit family by adding symbols. When this family has later installed, an unexpected error was shown.

This was caused because MagiCAD was using English filter "Ref. Level" for finding elements.

This is now corrected and this works on all language versions of Revit.

Errors when installing a fitting during curve drawing

- The curve drawing didn't continue correctly when a X-branch was installed to a curve and the view had been zoomed out too much.
- There was a fatal issue related to the fitting installation in curve drawing. A Revit API command was called incorrectly and sometimes it could cause whole Revit crash.
- When segment drawing was continued after fitting creation there was a delay of 1 seconds before the user could move the mouse.

All these are now corrected.

3rd party family can't be created when used from dataset

Installing some 3rd party Revit families are interrupted with an error message when they are installed from the dataset.

This is corrected by supporting Mesh objects in 3rd party nested RFAs.

Unexpected error when starting command

Corrected an error which was caused by the conflict of the views.

E.g. In project 1, Plan view is active, then a schedule view is opened in project 2 and "Modify dataset" is activated.

Delete button was not always activated in the size list

When a size is deleted from the pipe/duct/conduit or cable tray series, the cursor was placed on the remaining size, but delete button was not always enabled.

Now the delete button is always enabled when the cursor is placed on some size.

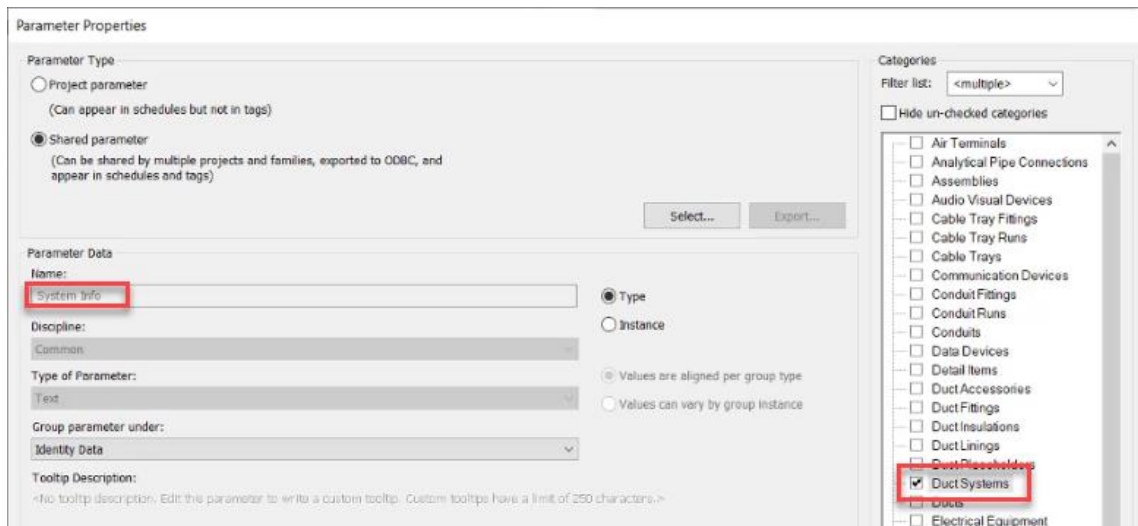
Symbol groups in USR database

Previously, at least switchboard schematic symbols converted from the USR database of MagiCAD for AutoCAD did not show up because of missing groups in MagiCAD for Revit. Now there is a MAGIX_USR.MCS symbol database provided with MagiCAD for Revit which contains the same default groups as you have in MagiCAD for AutoCAD.

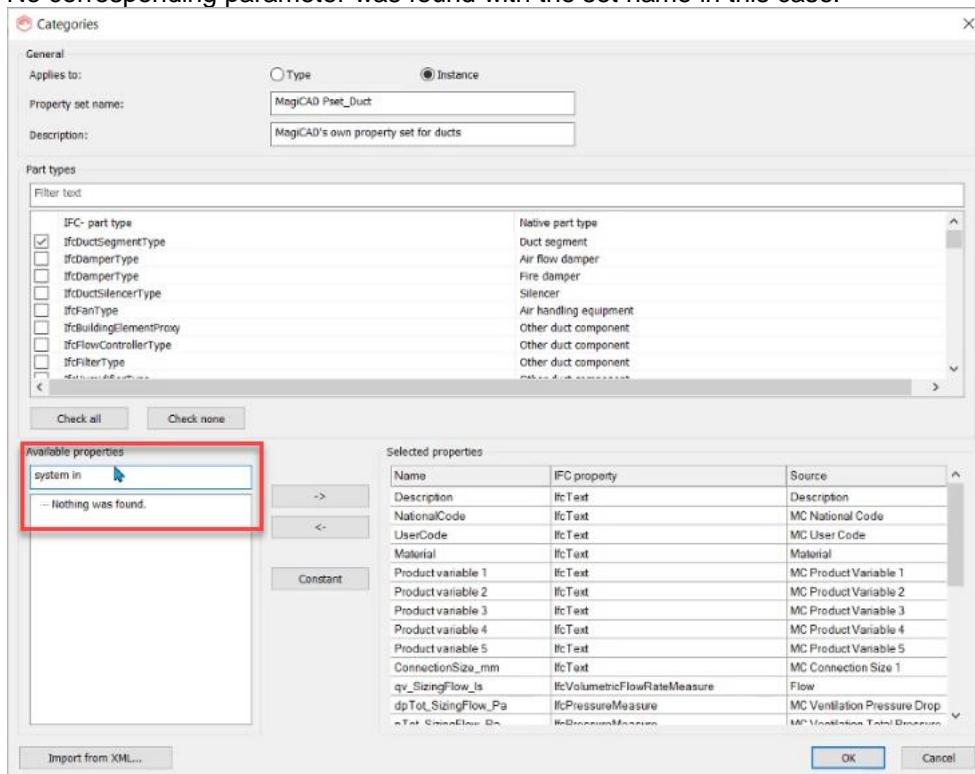
2.2 IFC-related

Parameters which were only assigned to duct- or pipe systems couldn't be selected to Property sets

If a parameter was assigned to only a duct- or pipe system, then this parameter could not be selected to a Property set:



No corresponding parameter was found with the set name in this case:

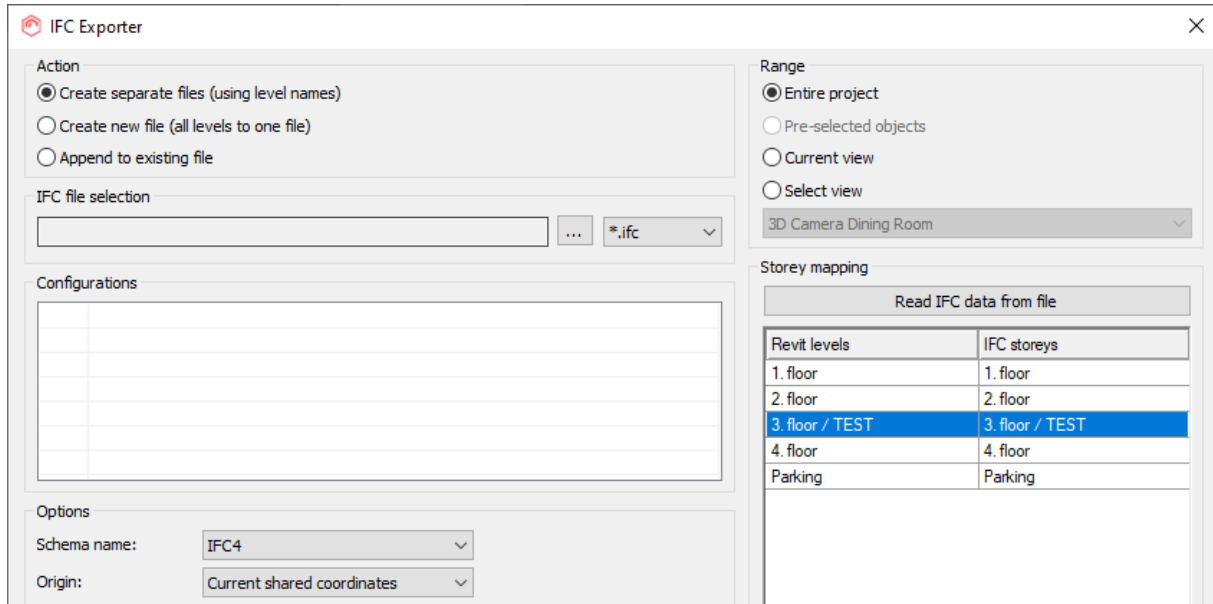


Name	IFC property	Source
Description	ItcText	Description
NationalCode	ItcText	MC National Code
UserCode	ItcText	MC User Code
Material	ItcText	Material
Product variable 1	ItcText	MC Product Variable 1
Product variable 2	ItcText	MC Product Variable 2
Product variable 3	ItcText	MC Product Variable 3
Product variable 4	ItcText	MC Product Variable 4
Product variable 5	ItcText	MC Product Variable 5
ConnectionSize_mm	ItcText	MC Connection Size 1
qv_SizingFlow_Is	ItcVolumetricFlowRateMeasure	Flow
dpTot_SizingFlow_Pa	ItcPressureMeasure	MC Ventilation Pressure Drop
dpTot_SizingFlow_Pa	ItcPressureMeasure	MC Ventilation Total Pressure

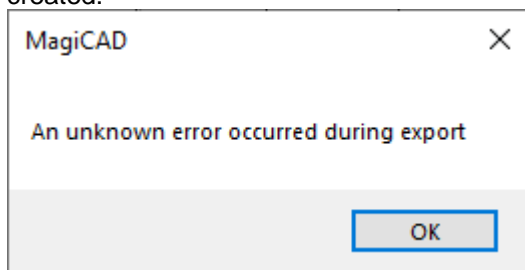
Now these parameters can be selected to property sets.

Creating separate ifc files with level name failed if the level's name had a forwardslash (/)

It is possible to use "/" in the name of a level, but MagiCAD's IFC export did not manage to handle this character:



The program threw an error "An unknown error occurred during export" and an empty folder was created:



Name	Date modified	Type	Size
3. floor	10.2.2022 16:27	File folder	
1. floor.ifc	10.2.2022 16:27	IFC File	2 977 KB
2. floor.ifc	10.2.2022 16:27	IFC File	225 KB

Now MagiCAD's IFC Export removes any invalid characters and the export is successful in these cases as well:

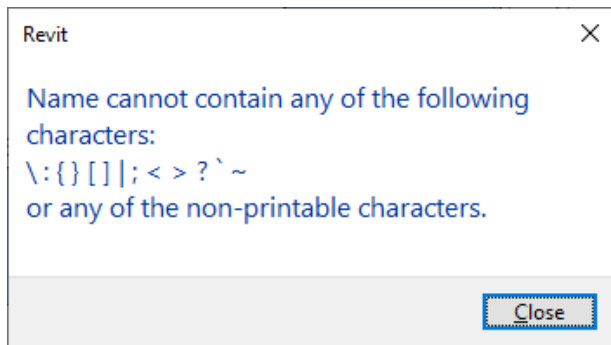
Name	Date modified	Type	Size
1. floor.ifc	10.2.2022 16:24	IFC File	11 760 KB
2. floor.ifc	10.2.2022 16:25	IFC File	6 301 KB
3. floor TEST.ifc	10.2.2022 16:25	IFC File	3 894 KB
4. floor.ifc	10.2.2022 16:25	IFC File	7 KB
Parking.ifc	10.2.2022 16:25	IFC File	1 134 KB

Note:

The invalid characters MagiCAD removes are:

\/:*?"'<>|

It was however not possible to use most of these in the names in Revit earlier either, and only the forward slash led to this issue in this case:



2.3 Ventilation and Piping

No elevation parameters in the T-branches

Elevation parameters are updated also to the branches.

Sprinkler calculation does not write node numbers unless set pipe is used

This error occurred only in version 2022 UR-2 and was related to changing the pipe size in the calculation report.

When a sprinkler system was updated from the report, no node numbers were updated unless the user had changed the pipes sizes in the report.

Now the node numbers are set/updated to the project when "OK - Update to model" is clicked in the report.

Ventilation Index run not displaying in the view or in the calculation report

This happened on the network when an air handling unit was connected to more than one system types. The index run was set only to one random system type.

Index run works correctly now for all connected systems.

Unexpected error when a 3rd party sprinkler was installed

An unexpected error happened with some 3rd party sprinklers when they are installed.

This was caused because MagiCAD was missing of handling of the elements which are visible only in 3D view.

The error is corrected.

Ventilation branch sizing, side connector doesn't get sized if the shape changes

If a duct connected to a side port of a branch has different shape than the branch itself (rectangular/round), the side connector is not sized.

This may lead to result where the height of the branch body and the side connector are different.

Then later in the calculation, the branch type is not recognized and "Product not available" warning is given to the branch.

This is now corrected.

Valve tool: 3rd party valve family causes an exception if size data was missing from dataset

Valve installation to radiator fails with a Revit error if a 3rd party valve family does not have pipe sizes in dataset. The problem appeared in radiator installation and valve tool.

Even though valve sizes can be added by using MagiCAD Create, no error message was given by MagiCAD if the sizes were not added.

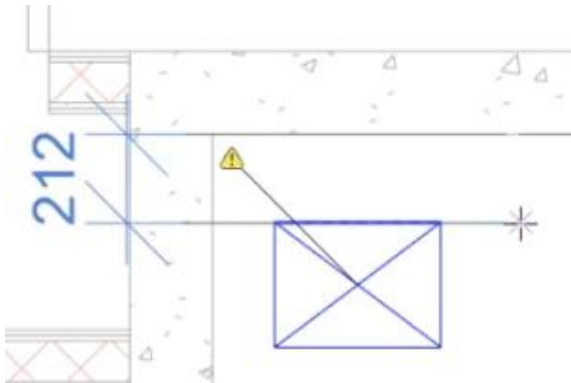
Now an error message is given by MagiCAD.

Also in case the product data is removed from MC valve family, user is notified about it in valve tool and when installing a valve to a radiator.

Horizontal offset alignment with 1 or 2 points gives unexpected error when the reference point is taken from a riser duct/pipe

The error is related to vertical ducts (in plan views) (or any other vertical MEPCurve instance) that is being used as a reference for the offset.

E.g. in case below, an unexpected error was given by Revit.



3-port valve balancing produces different kv-values

When a network with a 3-port valve is balanced, the valve gets randomly 0.0 as kv-value and sometimes a real number. When doing multiple balancing runs, the kv-value changes between 0 and something else. This happens at least with Heating/Cooling networks.

Now the kv-value is set correctly to 3-port valves when balancing is done.

Calculation report shows double pressure drop of water device with branch when one system is calculated

Corrected the dp calculation to the report in case only one system was calculated. This was related to the water points which have more than one connections to different systems.

Error message in the plumbing sizing

Corrected plug sizing so that if there is no pipes in route to the next branch, manifold or other object with more than 2 connections the size is not changed.

The pressure drop is sometimes zero in the branch calculation in ventilation networks

This was a connection node between projects related issue.

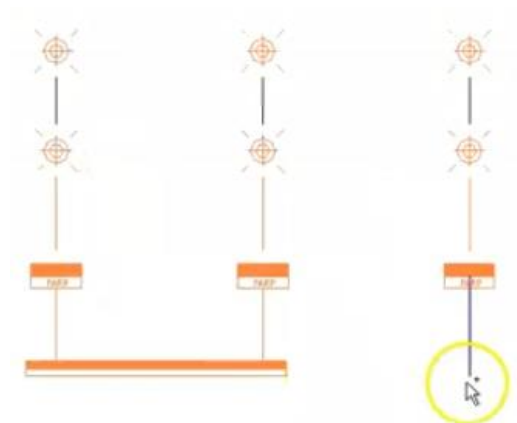
When there was only one duct between the a connection node and the branch, 'MC Ventilation Pressure Drop' parameter was randomly zero the calculation results were updated to the model.

The parameter is now updated correctly in all cases.

2.4 Electrical

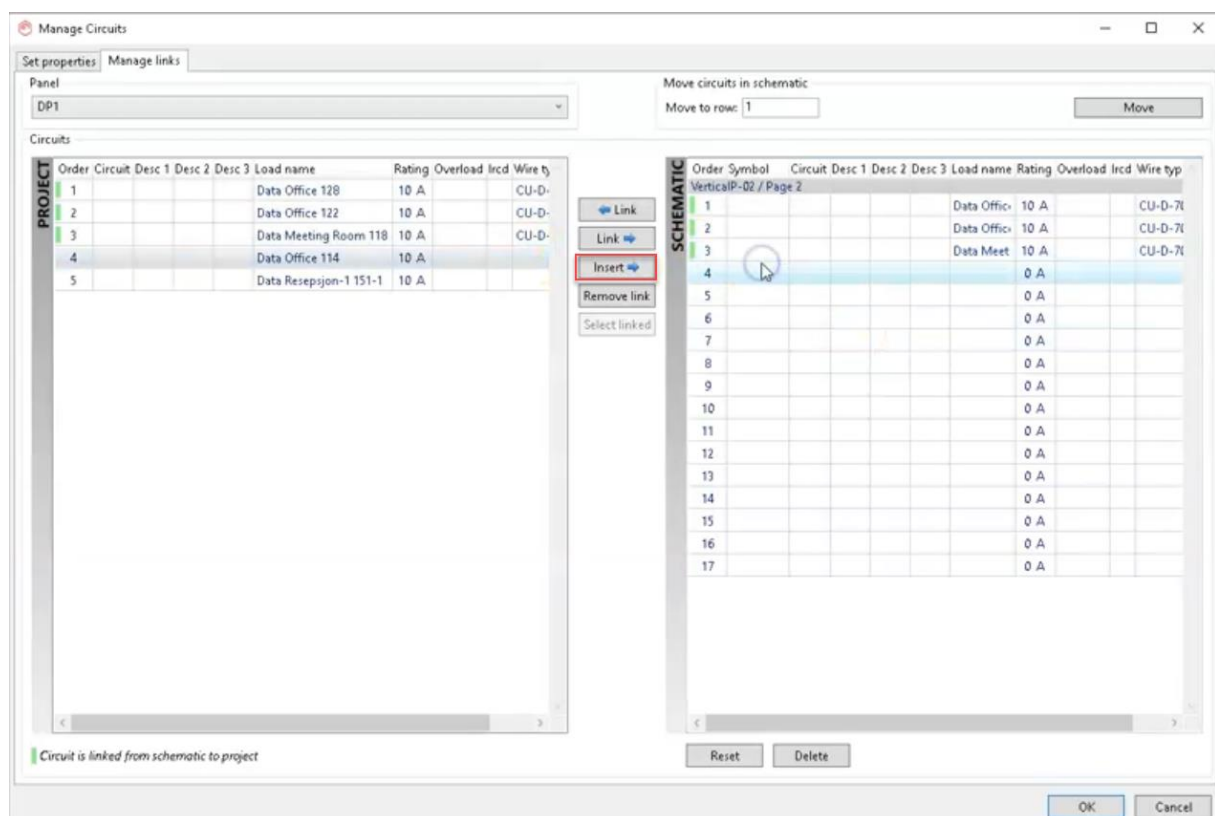
Automatic ELV riser problem with distances

Previously there could be cases where stretchable panel symbols were not stretched correctly because of oversized bounding boxes of sub-panel symbols. These were most often caused by text notes inside the symbols.



Exception and fatal error when trying to link/insert ELV circuits to schematic sheets

When using the "Insert" button for ELV circuits under Manage links, it caused an exception and then a fatal error. The issue is now fixed and no more errors should come.



Already done packet connections lost

When using the Packet Connections function for several circuits in one go, the first connection(s) got canceled in case the next one was tried to be made but got canceled in one of the following scenarios:

The circuit of the selected element already had a connection to a cable packet but you clicked "no" when asked if the old connection should be removed.

The selected element didn't belong to a circuit.

The circuit of the selected element already had a connection but the existing connection was reserved by worksharing so it couldn't be removed.

Now previously made connections are not canceled anymore in case the next one fails for some reason.

Cable tray series in alphabetical order

Previously, cable tray and conduit series were in the order they were created. Now they are in alphabetical order based on their descriptions.

2.5 Schematics

Schematic installation: user symbol (used existing rfa) replace existing symbol

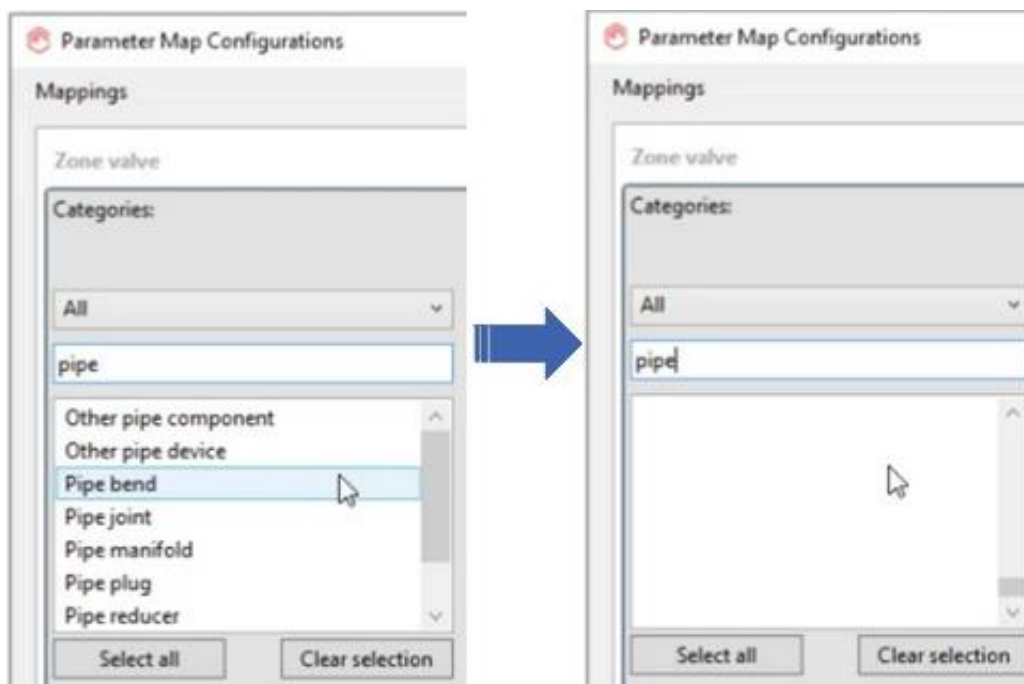
When an existing Schematic symbol in view is opened for creating a new user symbol, the new RFA overwrites the original symbol.

This is corrected.

Weird issue in Schematics when scrolling

When creating a new mapping and the object type (in this case pipe segment) to be mapped is not visible, the list is needed to scroll down.

Instead of scrolling down, the list becomes suddenly empty and scroll bar acts weirdly.



This is now corrected.