MagiCAD for AutoCAD

Release notes for version 2023

23/05/2022

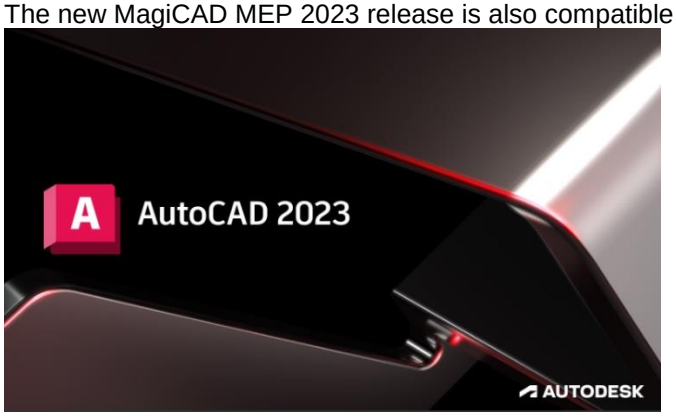
MagiCAD

Content

1 New features

1.1 Common

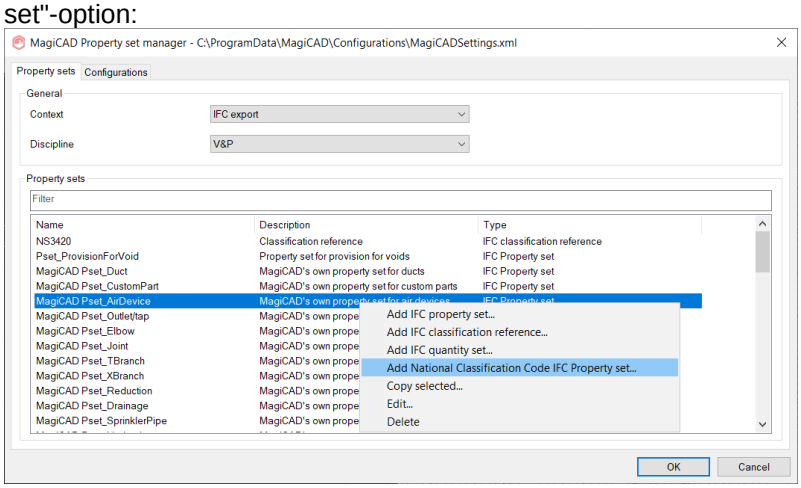
MagiCAD supports AutoCAD 2023, Windows 11 and Navisworks 2023
MagiCAD MEP 2023 is compatible with the new Autodesk AutoCAD 2023, as well as with the previous four AutoCAD versions 2019-2022, including the verticals AutoCAD MEP and AutoCAD Architecture. The new MagiCAD MEP 2023 release is also compatible with Microsoft Windows 11.



Support for Navisworks 2023 has also been included.

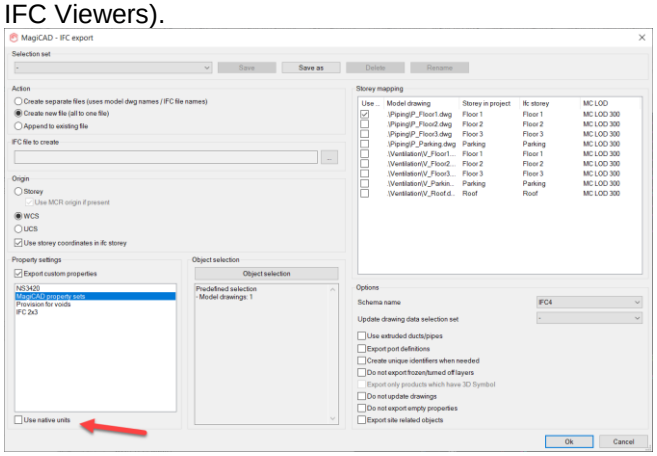
Property sets according to National Classification Codes
An option to add property sets according to the National Classification Codes implemented in MagiCAD for AutoCAD 2022 UR-2 has been added.
This adds more flexibility to the property sets as this is not only specified by the ifc-types, but the user 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 "Add National Classification Code IFC Property set"-option:



Using native units when exporting Property sets

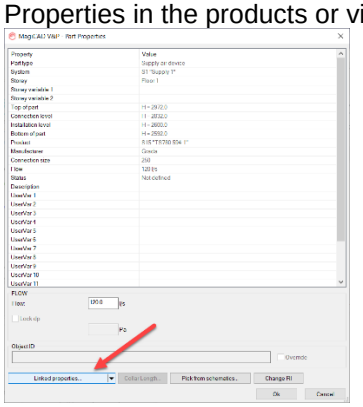
Now it is possible to set the values to use the native units from MagiCAD when creating an IFC file. This means that the values from the property sets are turned into IfcText-types to maintain the value set. This as the values of the numerical types otherwise use the default values set in the IFC-file (which can be seen from the first lines in the IFC-file when opening it as a text file, as well as in some IFC Viewers).

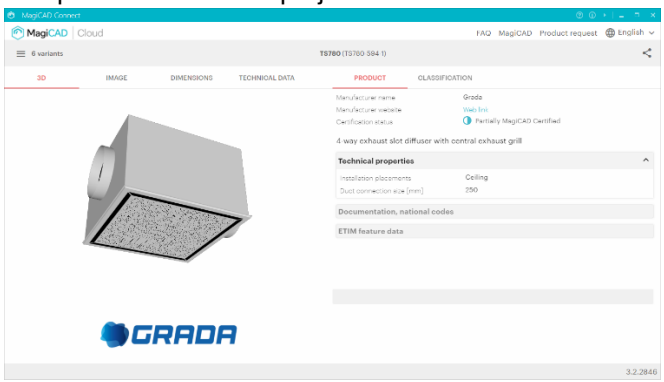


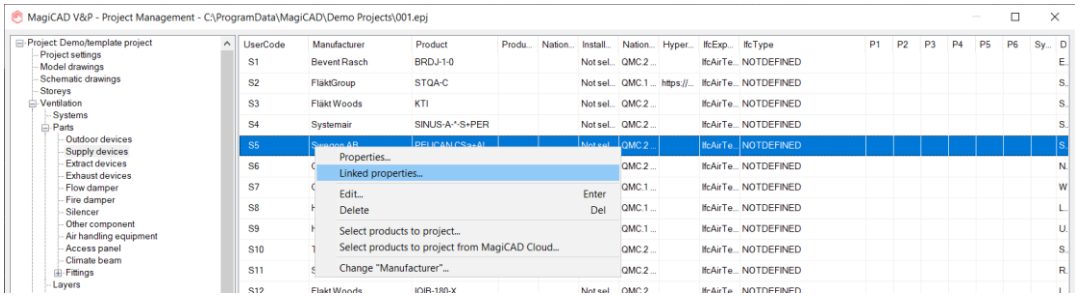
If 'Use native units' is set, then all properties (except IfcLabel) are exported as IfcText.

MagiCAD Linked properties

MagiCAD Cloud does often contain additional information about the products, like ETIM data and links to the manufacturer's homepage, and it is now possible to access these properties directly via Part Properties in the products or via the products list in the project:







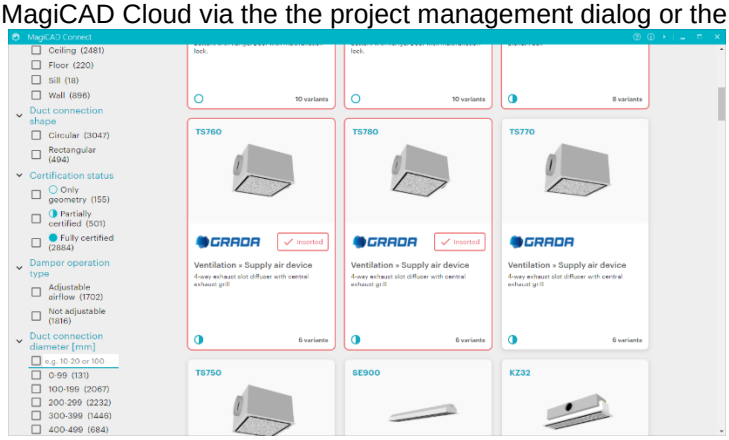
If the product is not available in the Cloud, due to for example being an outdated product, then the "Linked properties"-button won't open to the Cloud and instead the normal properties dialog will be shown.

The reason the Linked properties aren't shown could be:

- The product does no longer exist in MagiCAD's database.
- The product is an electrical product which has been selected to the project before the 2023 release, in which case the electrical products didn't have the needed data connection created, when inserted to the project, to connect to the Cloud via a feature like this. The electrical products need to be reselected to the project in case this feature is needed.
- The product has been created using MagiCAD Create and is therefore not an official product available in the database.
- The product is actually an AutoCAD Object which has been turned into a MagiCAD Object using MagiCAD's "Set MagiCAD data to AutoCAD Object"-function.

MagiCAD Cloud shows what products are available in the project

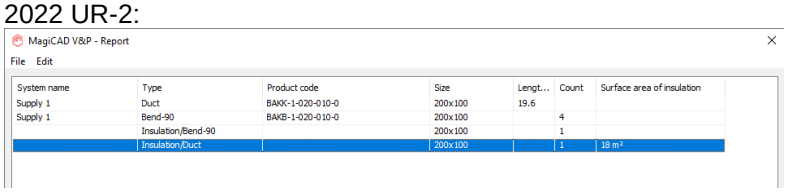
MagiCAD Cloud does now show what products are already available in the project, when opening MagiCAD Cloud via the the project management dialog or the product installation dialog:



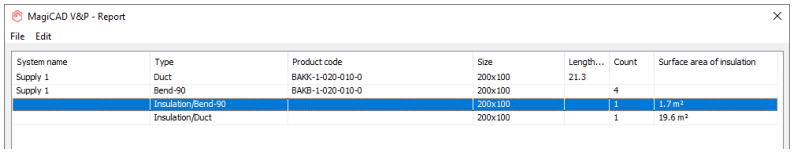
1.2 Ventilation and Piping

Calculate the area of the insulation for fittings
The insulation area of the fittings in both ducts and pipes is now calculated

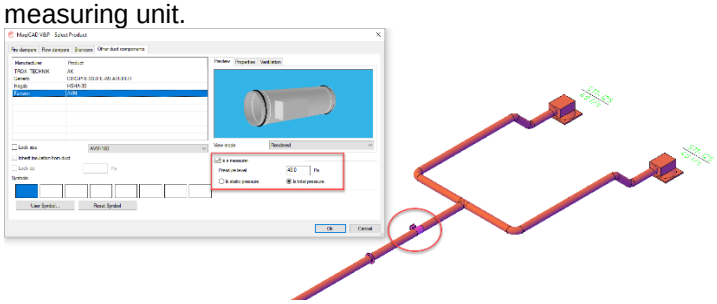
2022 UR-2:



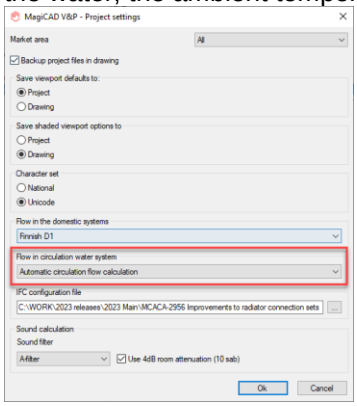
2023:



Support for measuring units to serve constant pressure dampers in ventilation
The purpose is to support constant pressure dampers in ventilation calculations. The constant pressure dampers uses a sensor placed downstream in the network to maintain a pre-set static or total pressure in the network. Any product in the "Other duct components"-category can be a measuring unit.



Heat loss calculation in domestic water
It is now possible to set the domestic water system to be sized according to the heat losses.
By setting the option in the Project settings window the calculation will instead use the temperatures of the water, the ambient temperature and the pipe and insulation material to calculate the pipe sizes:

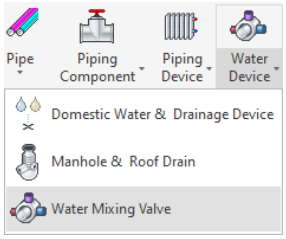


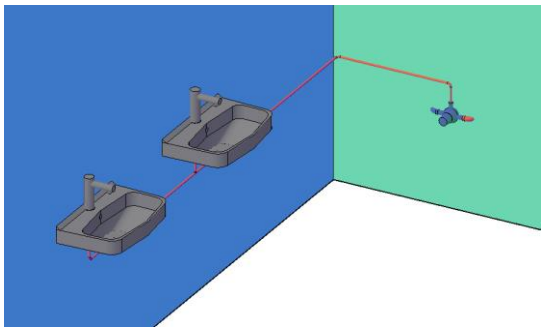
Note: The support is only for return joints and not water radiators.

Water mixing valves for domestic water systems

Water mixing valves are now available in MagiCAD for AutoCAD as a new product category. They are used in domestic water networks for mixing cold and hot water in order to ensure a safe water temperature, for example, in showers.

The addition of water mixing valves means that it is now possible to model an entire domestic water network in detail from the boiler to the last shower head.

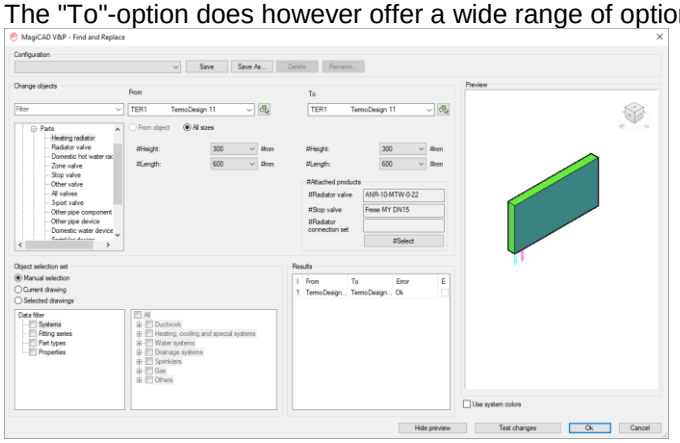


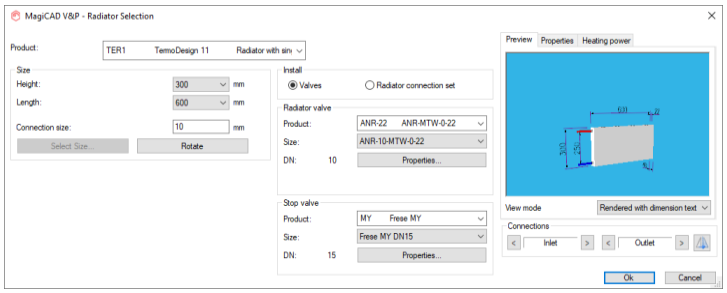


Radiator connection set and related Find & Replace improvements

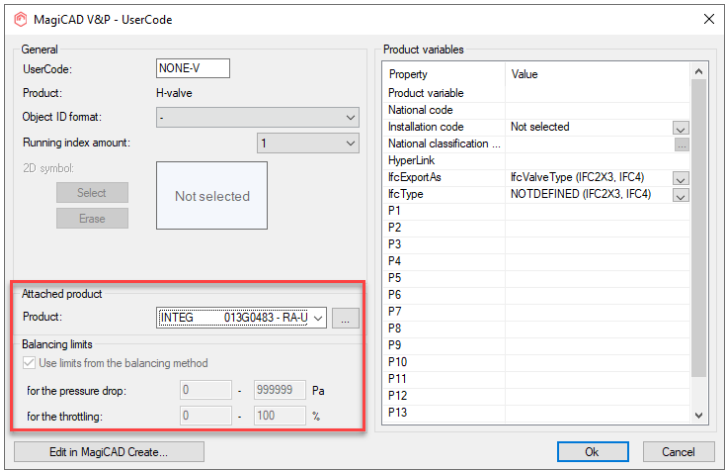
Find and replace now works for radiators, their valves and the radiator connection set. Please note that the "From"-option does not offer further filtering options, like setting a specific radiator with a specific valve only to be replaced. This is difficult to handle in the program and to be more straightforward the radiator and everything included is changed from one unit, based on the selected radiator.

The "To"-option does however offer a wide range of options:





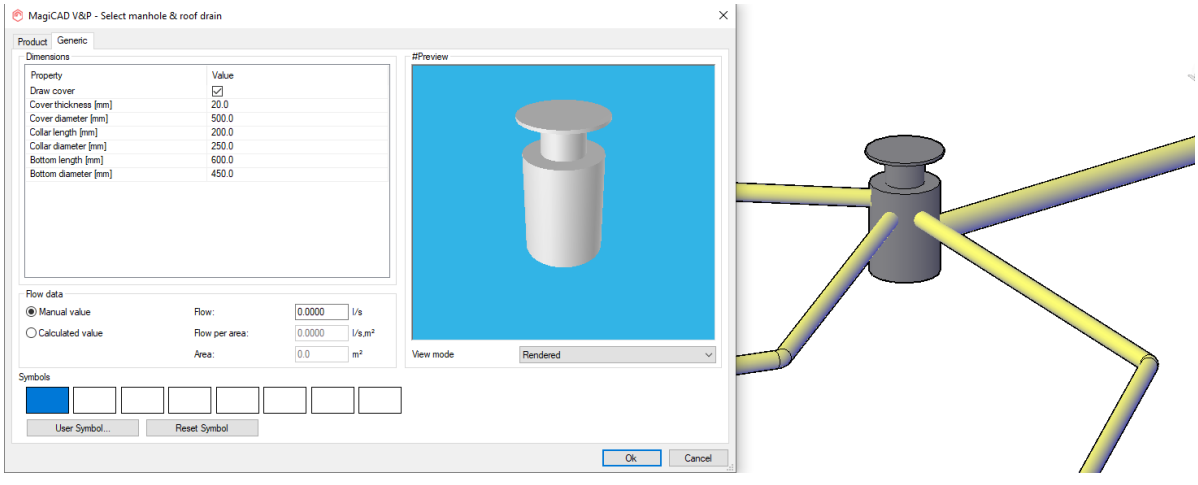
To be more logical and utilize the data in from the product with the data, the balancing limits are now read from the attached valve, if the radiator connection set is of a type without data, so the options are disabled:



Generic manhole

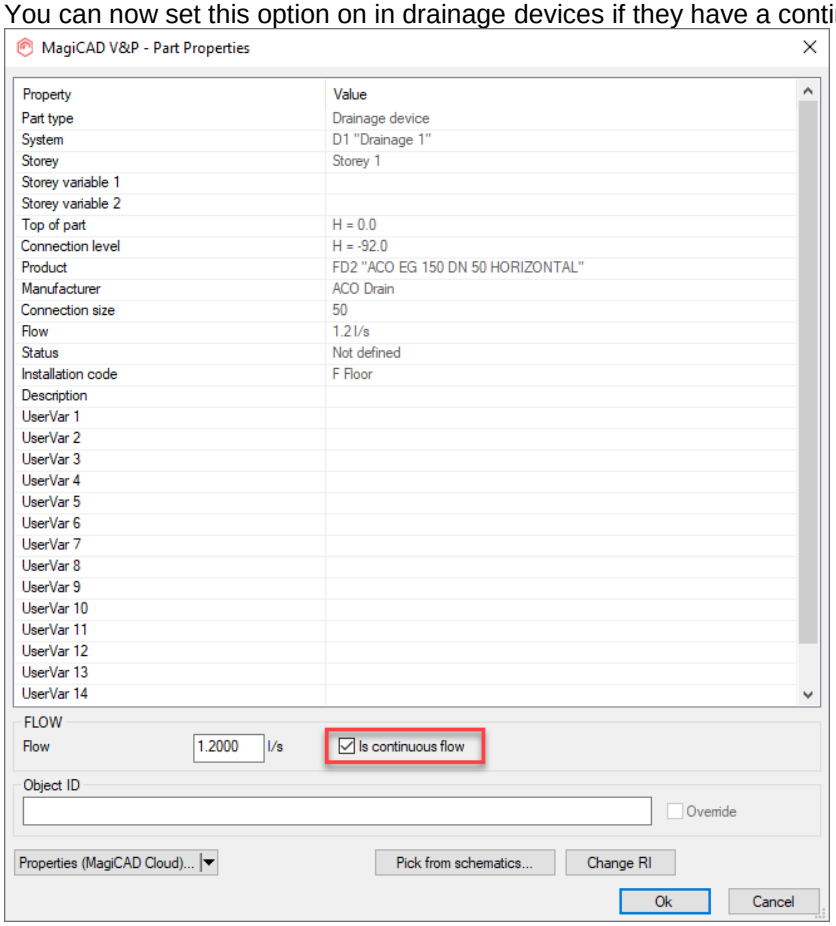
It is now possible to create generic manholes, which allow to connect drainage pipes more freely to a manhole.

The generic manhole function allows the user to modify the dimensions as they wish and the drainage pipes can be flexibly connected to the manhole, which allows for faster and easier design of drainage networks.

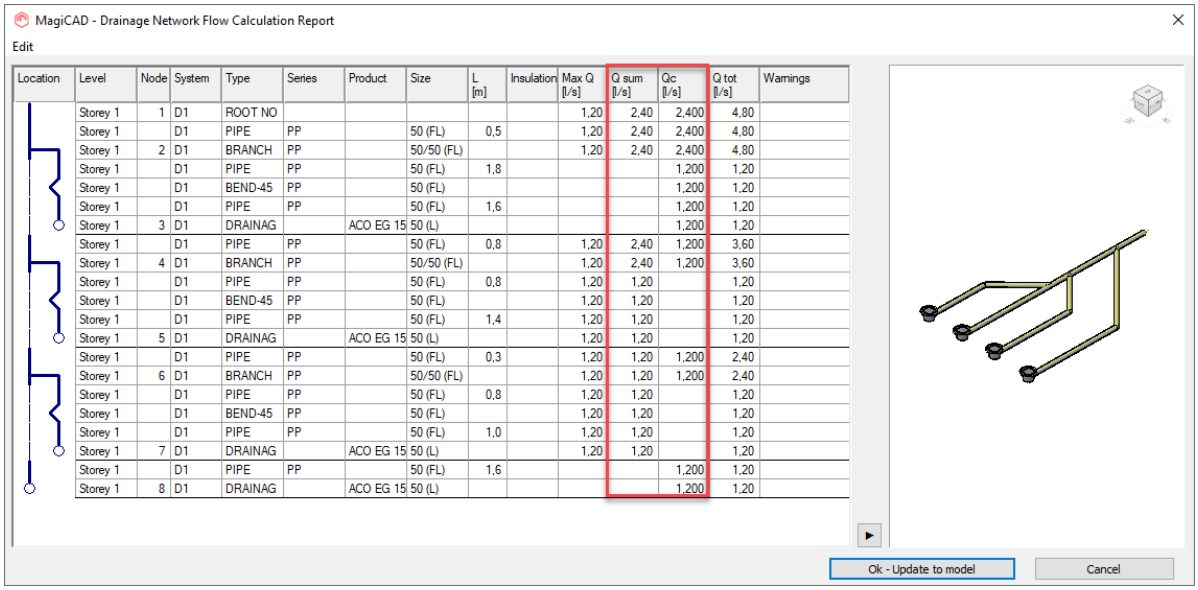


Constant flow for the sewer flow summation

You can now set this option on in drainage devices if they have a continuous flow:



When a system with both the continuous and normal flow is calculated, two new columns are visible. Qsum-column shows the sum of the normal flows, and a Qc-column shows the sum of the continuous flows:



Location	Level	Node	System	Type	Series	Product	Size	L [m]	Insulation	Max Q [l/s]	Q sum [l/s]	Qc [l/s]	Q tot [l/s]	Warnings
	Storey 1	1	D1	ROOT NO						1,20	2,40	2,400	4,80	
	Storey 1		D1	PIPE	PP		50 (FL)	0,5		1,20	2,40	2,400	4,80	
	Storey 1	2	D1	BRANCH	PP		50/50 (FL)			1,20	2,40	2,400	4,80	
	Storey 1		D1	PIPE	PP		50 (FL)	1,8				1,200	1,20	
	Storey 1		D1	BEND-45	PP		50 (FL)					1,200	1,20	
	Storey 1		D1	PIPE	PP		50 (FL)	1,6				1,200	1,20	
	Storey 1	3	D1	DRAINAG		ACO EG 15	50 (L)					1,200	1,20	
	Storey 1		D1	PIPE	PP		50 (FL)	0,8		1,20	2,40	1,200	3,60	
	Storey 1	4	D1	BRANCH	PP		50/50 (FL)			1,20	2,40	1,200	3,60	
	Storey 1		D1	PIPE	PP		50 (FL)	0,8		1,20	1,20		1,20	
	Storey 1		D1	BEND-45	PP		50 (FL)			1,20	1,20		1,20	
	Storey 1		D1	PIPE	PP		50 (FL)	1,4		1,20	1,20		1,20	
	Storey 1	5	D1	DRAINAG		ACO EG 15	50 (L)			1,20	1,20		1,20	
	Storey 1		D1	PIPE	PP		50 (FL)	0,3		1,20	1,20	1,200	2,40	
	Storey 1	6	D1	BRANCH	PP		50/50 (FL)			1,20	1,20	1,200	2,40	
	Storey 1		D1	PIPE	PP		50 (FL)	0,8		1,20	1,20		1,20	
	Storey 1		D1	BEND-45	PP		50 (FL)			1,20	1,20		1,20	
	Storey 1		D1	PIPE	PP		50 (FL)	1,0		1,20	1,20		1,20	
	Storey 1	7	D1	DRAINAG		ACO EG 15	50 (L)			1,20	1,20		1,20	
	Storey 1		D1	PIPE	PP		50 (FL)	1,6				1,200	1,20	
	Storey 1	8	D1	DRAINAG		ACO EG 15	50 (L)					1,200	1,20	

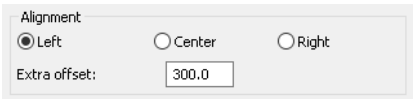
1.3 Electrical

National classification codes - stage 2
National classification codes were missing from LED-stripes, lighting tracks, cables/E, cables/C,D,BA, conduits and combination boxes. Now they also can be assigned with one.

Layer codes of Connection nodes
Previously connection nodes of LED-stripes and cable packets didn't inherit layer codes from the segments they were connected to. Now they do. Also dimension texts of cable packet connection nodes now get product variables shown correctly.

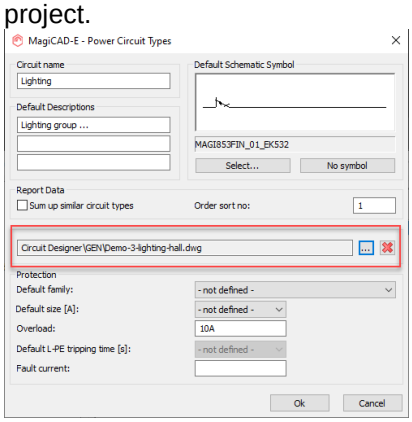
Connections to Master DWG improvement
Previously the Connections to Master DWG wasn't able to copy circuit symbols properly in case they were referencing to a switchboard/host located in the same drawing. Now switchboard and host references of circuits are maintained properly.

Extra offset selection in electrical
Now you can use the left and right alignment options with an offset from the alignment line to the edge of the segment when drawing cable trays, conduits, lighting tracks and LED- stripes. This way you can e.g. show the wall line which needs to be followed but have the segment drawn to a certain offset from it.

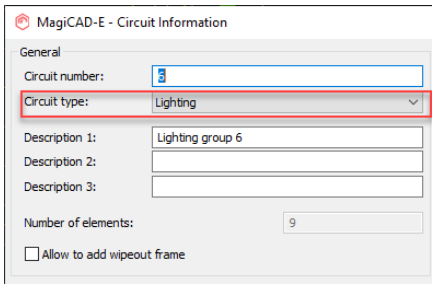


Vertical cable tray bends in reports
Now vertical cable tray bends are separated in reports/BOM from horizontal ones. In addition, inside and outside bends are separated from each other.

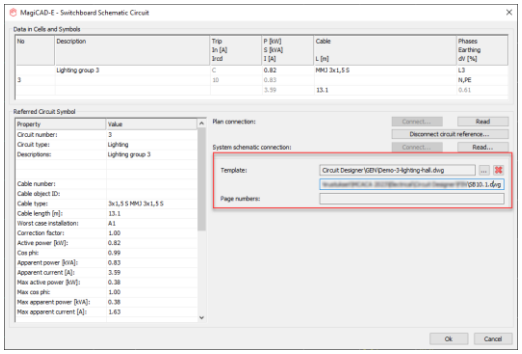
Connection between Circuit Designer and Electrical
Now you can define a template Circuit Designer drawing for each circuit type in a MagiCAD Electrical project.



When using such circuit types in power circuits and creating switchboard schematic drawings from them, the circuit schematic templates are automatically stored/imported to the circuits in the drawings.

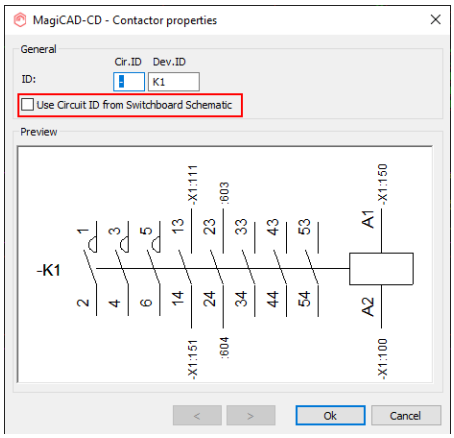


The templates can also be manually changed/assigned in switchboard schematics with the Edit Circuit function.



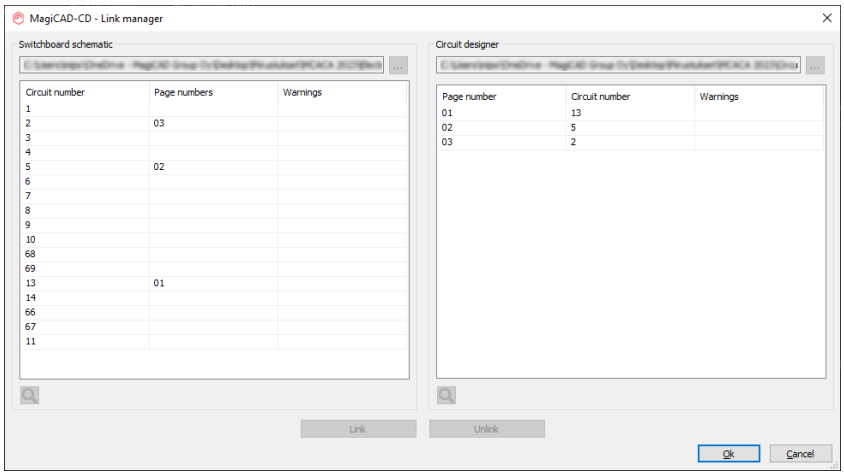
After this it is possible to create a new Circuit Designer drawing from a switchboard schematic by utilising the predefined templates stored into the circuits in the single line diagram.

If in a Circuit Designer template drawing you had the "Use Circuit ID from Switchboard Schematic" tickbox active for a mother part, it will get the Circuit ID from the circuit number defined in the switchboard schematic drawing.



Note! Connected child parts cannot have "Use Circuit ID from Switchboard Schematic" active since they get their Circuit ID from the mother part.

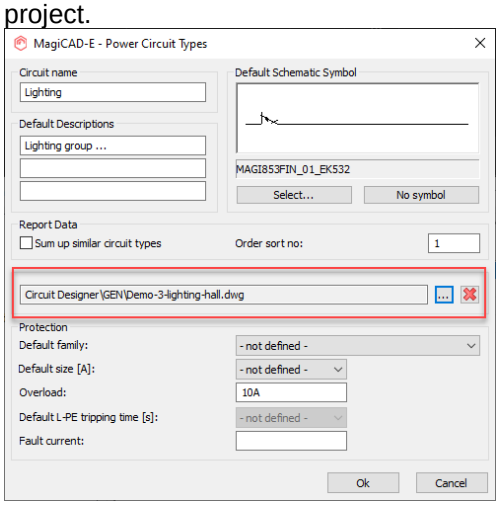
Circuit numbers are linked between the switchboard schematic and the circuit schematic drawings. They can be automatically updated to the circuit schematic pages, and from there to mother parts and their child parts. You can manage your links between a switchboard schematic and a circuit schematic from both of the drawings with a new Link Manager function.



1.4 Circuit designer

Connection between Circuit Designer and Electrical

Now you can define a template Circuit Designer drawing for each circuit type in a MagiCAD Electrical project.



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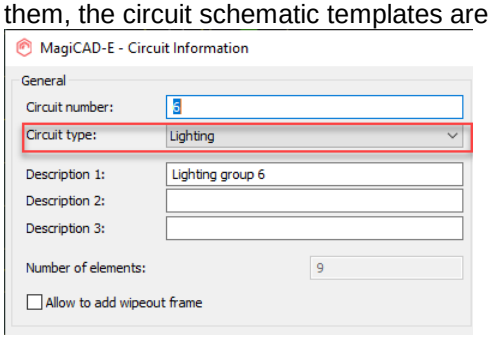
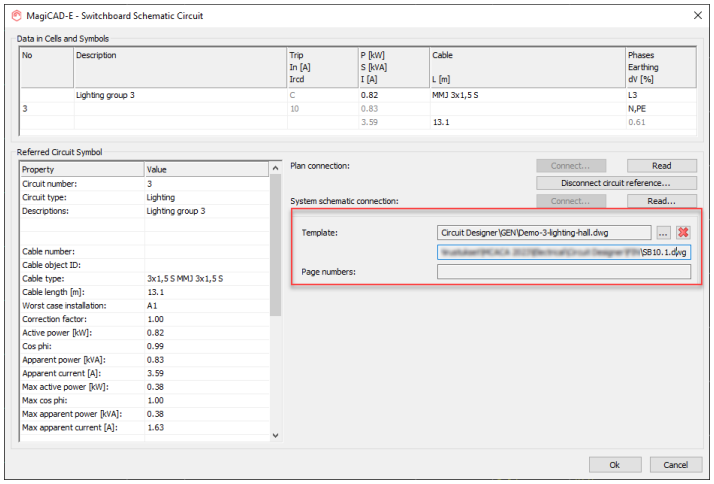


The templates can also be manually changed/assigned in switchboard schematics with the Edit Circuit function.



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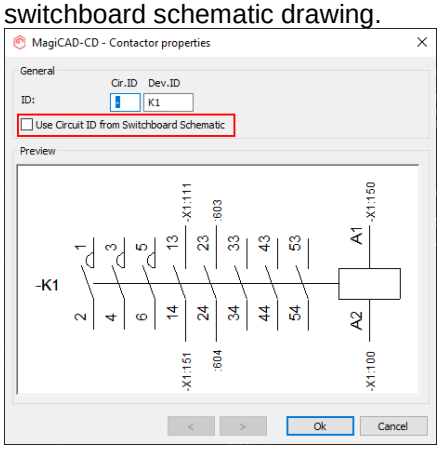

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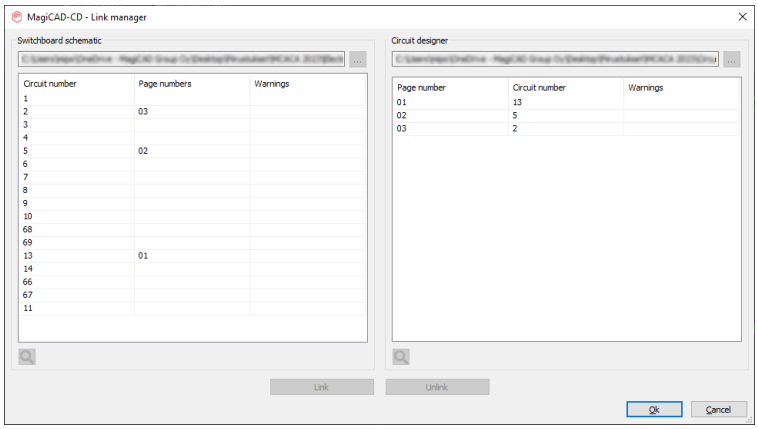
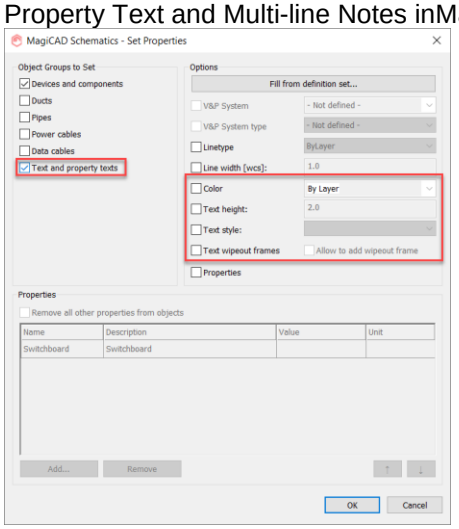


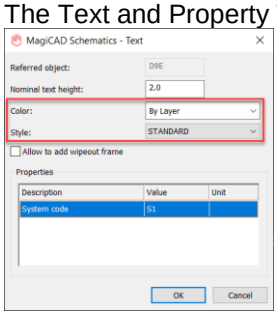
1.5 Schematics

Change properties for text in Schematics

It is now possible to change the color, height, style and wipeout frame settings of the text objects Text, Property Text and Multi-line Notes inMagiCAD Schematics:



The Text and Property Text Objects have also been updated to include color and style:



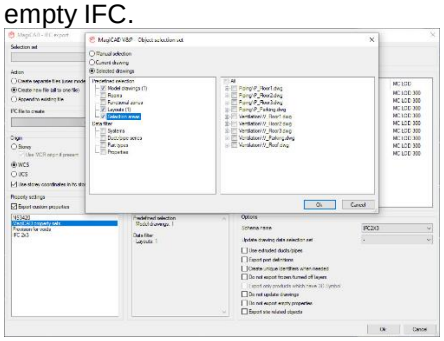
2 Resolved issues

2.1 Common

Slowness in MagiCAD when selecting objects
Selecting objects caused slowness, especially if many objects were selected. This issue has now been fixed by applying some internal changes to how the data is handled, but this does also mean that an earlier improvement no longer works (IFC Export process improvement in 2022 UR-1).

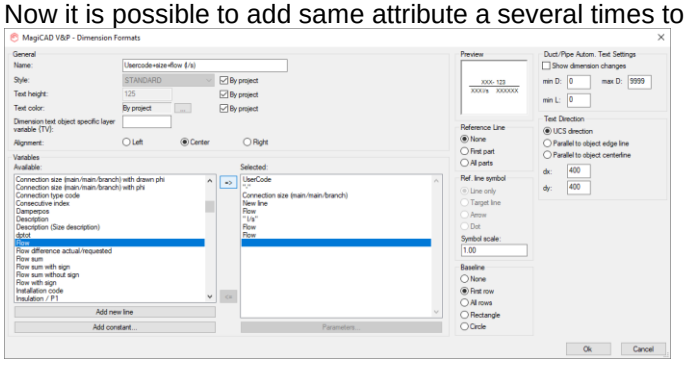
This benefit can be achieved in batch exports if the user makes changes to the registry in "HKEY_CURRENT_USER\SOFTWARE\Progman Oy\MagiCAD" and creates a DWORD value "UseNonComProperties" and sets it to "1".
In that case won't MagiCAD open the drawings during the IFC Batch export process.
Note: Any changes to the registry should be done only by users who are aware of the possible risks involved.

Layout and Selection area options in the IFC's Object selection set created an empty IFC
If you selected selection areas or layouts in the object selection for the IFC Export, the result was an empty IFC.



This has now been fixed and the following selection areas work in their respective disciplines:
"Layouts", (Common)
"Selection areas", (Common)
"Switchboard areas" (MCE),
"Host areas" (MCE).

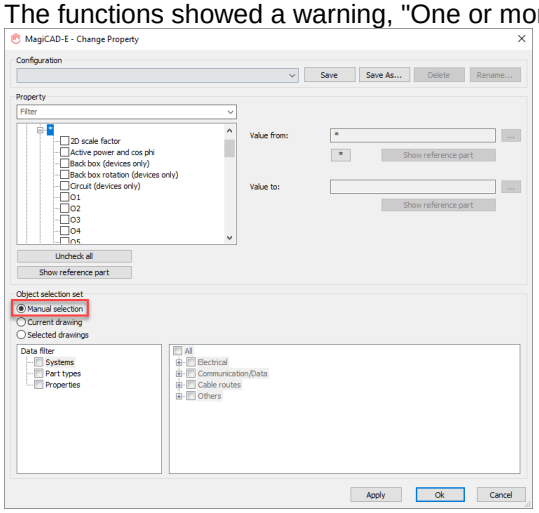
It wasn't possible to add the same attribute to dimension more than once
Now it is possible to add same attribute a several times to dimension texts.



Manual selection issue

The manual selection option did not work if the project had files attached to it which didn't exist with the project file.

The functions showed a warning, "One or more files cannot be opened..." if this option was used.



Revision clouds disappeared if you created them in the Layout-tab

The revision clouds weren't created if they were drawn in the Layout-tabs as they could only be created in the Model-tab (the revision clouds created in the Model-tab did however also show up in the Layout-tabs).

This has been fixed and the revision clouds can now be created when drawn in the Layout-tab as well.

Drawing with selection areas was very slow

Due to how data was handled, the drawing of selection areas did cause slowness, when an XREF or a MagiCAD Room project was attached to the drawing.

This has now been improved to make the function faster.

Objects that were part of the OTHER_OBJECT's layer didn't get a color if IFC

AutoCAD Objects which had been turned into MagiCAD objects were white in the IFC unless they had a status color set to them.

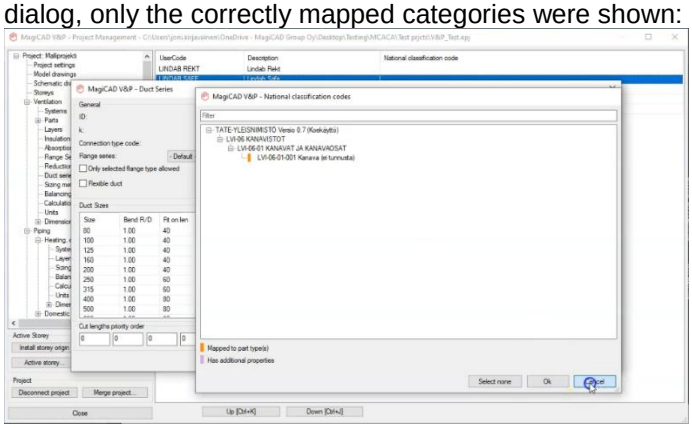
This was due to these objects aren't available in the layer settings.

Now the color of the system is used in case no status color is set to them.

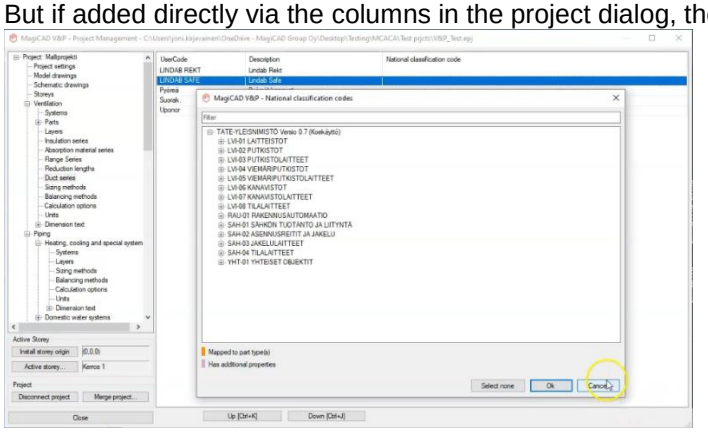
2.2 Ventilaion and Piping

All categories in the National Classification Codes were shown and not only the mapped categories in segments

When adding a National Classification Code to a duct or pipes series via the duct or pipe serie's dialog, only the correctly mapped categories were shown:



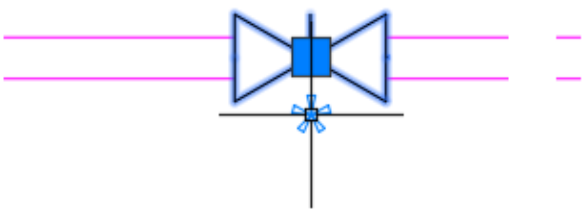
But if added directly via the columns in the project dialog, then all categories were shown:



This has now been fixed so that categories mapped to other device types aren't shown.

Create similar did not work after using Find & Replace

After using Find & Replace there were issues with using create similar on some duct and pipe components.



This has now been fixed and create similar works on the components after using Find & Replace.

Properties were blank after adding product

The properties in the installation dialog did in some cases go blank:

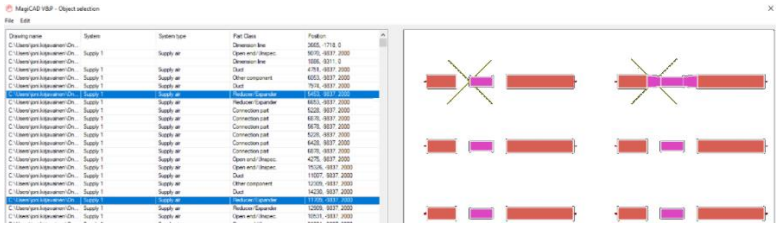
This has been fixed and the values are always visible.

Adding products to the installation dialog mixed up the product list and preview picture

The last product in a sorted installation dialog showed the product information from a newly added product instead of its own data. This has now been fixed so that all products maintain the correct information after sorting and adding products.

Object selection preview issues

Some accessories weren't shown in the preview of the Object Selection function. This has now been fixed.



Viewport option "Follow main viewport" didn't work in V&P

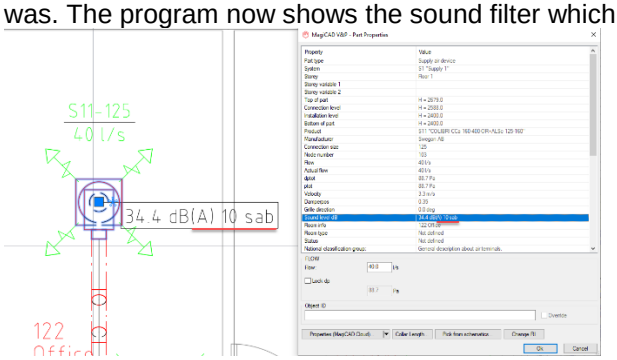
The "Follow main viewport"-option didn't work properly and the settings had to be set for all the viewports individually.
This has now been fixed and the option works again.

COM returned only the 39 first characters of the ProductCode

The full product code was not shown and was trimmed down to 39 characters.
Now "/project/qpdclass[]/part[]/productcode" and "/project/qpdclass[]/part[]/usercode" return values as they are, without trimming.

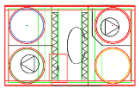
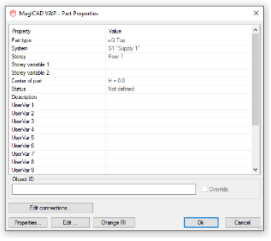
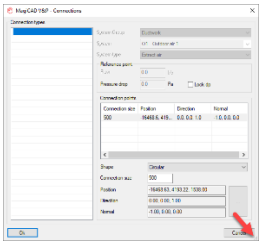
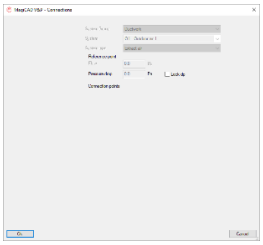
Possibility to present sound calculation with different filtering (dB/dBA/dBC/NR)

Earlier the program only showed the decibel level of the devices, but no indication of what the filter was. The program now shows the sound filter which is in use:



AHU " Edit connections" dialog broke when expanding it

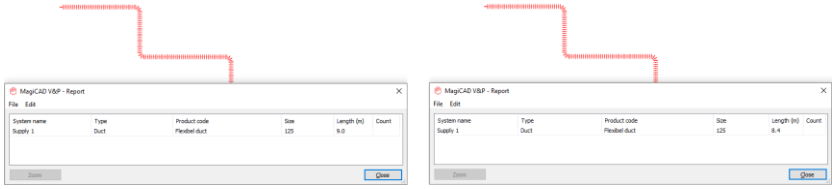
The "Edit connections"-dialog did break (image the furthest to the right) when starting to expand it.
This dialog is available in some Air handling units.
This has now been fixed so that it is working like other dialogs which the user can expand:

Issue with flexible ducts in the report

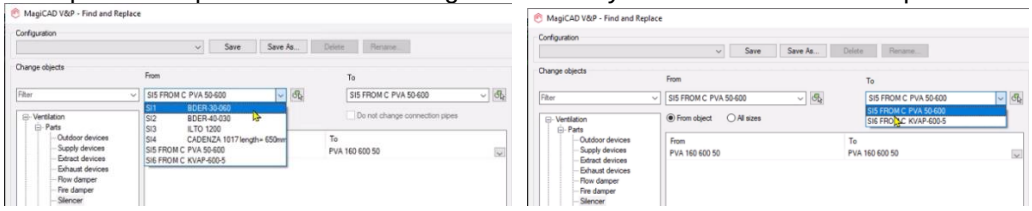
Two issues with the object selection for the reports have been fixed:
Even if only circular ducts were selected in Object Selection filter, then flexible ducts were also selected.
If bends were not selected in Object Selection filter, flexible bends were not selected, even though those should be handled as ducts. Now they are always selected if the flexible duct is selected.

Example of the issue with the flexible duct in the report:
With the bends selected (9.0 m) compared to without (8.4 m).



Find and replace did not show all suitable silencers

Not all suitable silencers were shown in the From/To dropdowns in the Find & Replace dialog. As an example the dropdown menu to the right shows only two of the six available products



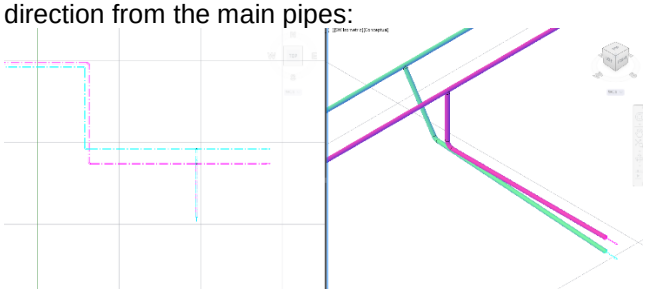
This has now been fixed and the dialog correctly identifies all suitable silencers in the project:

Ventilation Index run was not displaying in view or calculation report

An issue with the index run not showing up when selecting it in the report for a network with an AHU as the calculation engine didn't always find the correct root.
This has now been fixed an the index run can be selected in the report without issues.

If a pipe was first moved manually and then multi-pipe drawing was started from it the angle wasn't drawn correctly on the first attempt

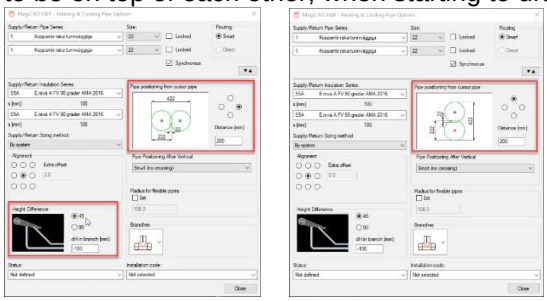
When moving drawn pipes and then starting multi-pipe drawing from them, the function created unwanted angles, which can for example be seen here when attempting to draw down in the Z-direction from the main pipes:



This has now been fixed and the angles are drawn in the correct way.

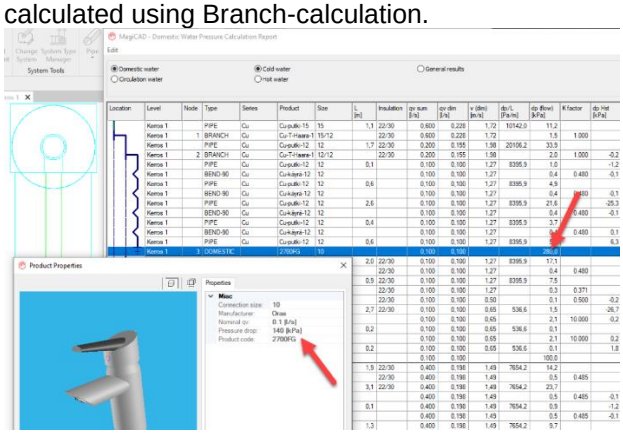
Drawing Supply/Return pipe at same time didn't work with Height Difference

It was no longer possible to draw pipes from main pipes with the pipes going towards the side at different elevations and next to each other. Instead were the settings immediately automatically reset to be on top of each other, when starting to draw:



Calculation report did show double the pressure drop

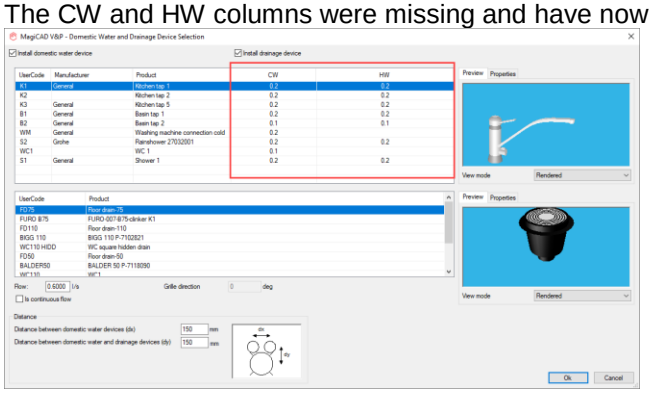
Calculation report did show double the pressure drop per device when only one system was calculated using Branch-calculation.



This has now been fixed and the correct pressure loss is shown.

Domestic water device cold and hot water flow were missing

The CW and HW columns were missing and have now been added back.



Radiator connection function reset the elevation of pipe

If the user had changed the elevation of some main pipes that they wanted to connect the radiators to, using MagiCAD's radiator connection function, the pipes reset to their initial height when selecting them with the function.

This has now been fixed and the pipes stay at their set elevation.

Find & Replace issue with radiator's product code

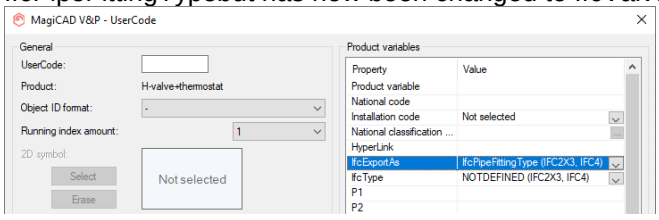
Part of the product code in the dimension text disappeared after replacing radiators using the new Find & Replace function.

This has now been fixed and the product code updates correctly as well.

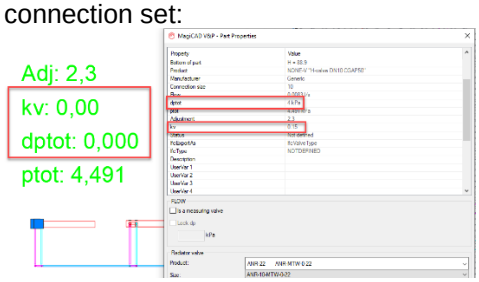
Fixes to radiator connection sets

A number of fixes and improvements have now been done for the radiator connection sets:

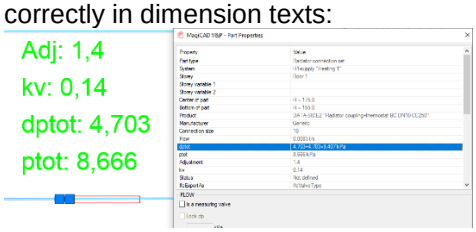
The default IfcExportAs type, when adding a new radiator connection set to the project, was IfcPipeFittingTypebut has now been changed to IfcValveType:



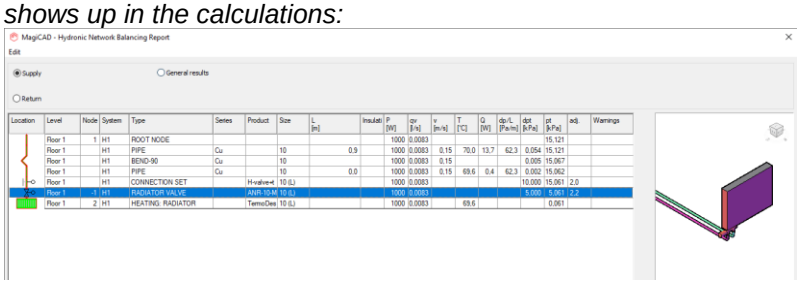
The dptot and kv-value were not shown in the dimension texts for the integrated valve in a radiator connection set:



dptot was summed in Part Properties, if the radiator connection set had data, even if it was shown correctly in dimension texts:

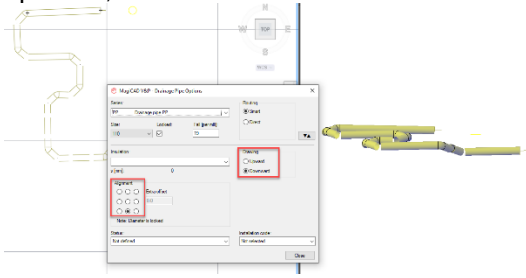


The dptot and kv-value didn't work in IFC Properties for the integrated valve in a radiator connection set.
The kv-value didn't work in Reports
Adding valves didn't work properly as a valve which was previously added to a radiator connection set which was missing data, did also show up for example in the calculations for radiator connection sets which already had their own data (and hence didn't have a separate valve), and also in radiator connection sets which deliberately were installed without a valve:
Below an example of a radiator connection set which already has its own data, but still another valve shows up in the calculations:



Some properties were reset in Part Properties
Some properties, for example kv and dptot, were reset and disappeared from Part Properties when the dialog was opened and closed.
This has now been fixed and the properties stay put.

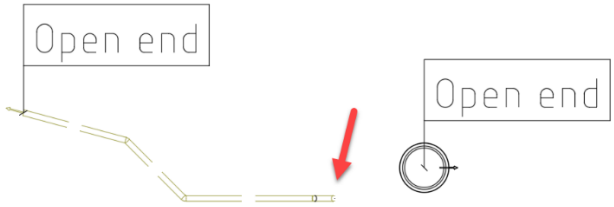
Issue while using an alignment in drainage pipes and drawing
When the alignment-setting was set to something else than center, the drawing of the drainage pipes didn't work correctly, and as can be seen in the image below the whole setup started working itself upwards, even if the selection was "Downward":



This has now been fixed and drawing with alignment ON works properly as well.

Open end not showing up when using part property lines, after having replaced drainage device with unsuitable connectors

If a drainage device was replaced by another one, which didn't have comparable connectors to the replaced one, then the connection did break, which was expected, but an issue occurred where the now open end of the pipe was no longer recognized as an open end, as shown here with the red arrow. It recognized the other open end of the pipe, as well as the device, which here has been moved slightly aside for demonstration purposes:

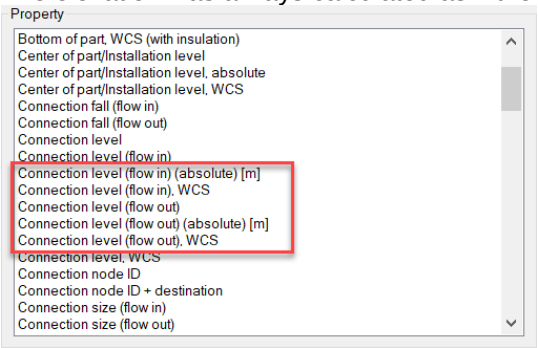


This has now been fixed and open ends of pipes are also recognized correctly in cases like these.

Some Manhole elevation-properties were wrong in Dimension text and Part Property Line

The Dimension text and Part Property Line values shown in the project were not always correct for the property values indicating the elevation in of the connections.

The elevation was always calculated as if the manhole was installed to the connection elevation 0.



This has now been fixed and the elevations are correctly calculated in relation to the elevation the manhole has actually been installed to.

2.3 Electrical

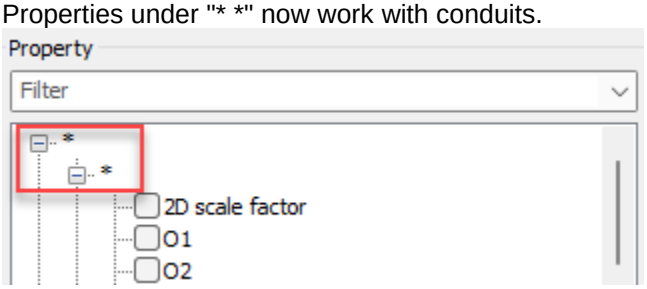
MECHPB froze when using it to a new empty project
Previously, when running the batch process of the Change Project function (MECHPB) to an empty target project, MagiCAD froze totally. The issue has now been fixed.

MCE storey origin/move issue
The Move Origin function in Storey Properties now remembers the previous coordinates. Earlier it reset them to zeros if a MagiCAD Room project was not active, so you had no way of knowing what the previous origin actually was.

Running Index issue in Electrical where LV and ELV devices are in the same network
The beTween option in Insert Running Index didn't work properly anymore when having LV and ELV devices connected to each other with cables. You got only the LV or ELV devices numbered after selecting the corresponding system. Now MagiCAD doesn't ask for the system, and numbers all devices along the path.

Create Switchboard Schematic didn't work properly with switchboard areas
If you had switchboard areas with higher priority inside other switchboard areas with lower priority, the Create Schematic function wasn't able to take the priorities into account properly for circuits which belonged to the areas with higher priority. Previously it added those circuits also to the switchboard schematics of switchboard owning the lower priority areas. The issue has now been fixed and priorities are handled properly.

Change properties didn't work properly with conduits
Properties under "* *" now work with conduits.



Report didn't work properly with combination boxes
Products inside combination box were not shown in report if combination box itself was not selected. This is now fixed.

Grip move didn't work anymore after returning 2Dsymbol/3Dmodel back to the other's location
Moving 2D and 3D symbols to different location and then returning them back together made it unable move the symbol with grip move. Now grip move works also after moving 2D and 3D symbols back together.

Set Properties gave an error in switchboard schematics
When only the header of a switchboard schematic had been made and you tried to use Set Properties to change data of the circuits, an error appeared about not finding some non-existing drawing. This has now been fixed.

MCE used incorrect viewport options in layouts
Fixed an issue with incorrect viewport settings in layouts.

Drawing with selection areas are very slow
When a drawing which has selection areas drawn have been added to xref, opening layout view took a long time. Now selection areas no longer slow the drawing.

Very slow running index installation when project is on server
When installing running indexes to objects, it took few seconds after each click before you could click another. Now Running Index no longer checks any other drawing if "Check indexes from other models" is not selected and works without any delays.

Fixes to COM function
Adding a luminaire or LED stripe product, MC returned an error. Now adding those products work again.
When adding a new LED stripe product and not defining ID for the product, it always got ID 1. Now it gets the next free ID.
When adding a 2D symbol for a product, an error came. Now adding 2D symbol works properly.

"Image bitmap" in Legend causes error
When using "Image bitmap" in Legend template and you create a legend using that template causes fatal error.
This has been fixed.

2.4 Circuit designer

Adding connection points to terminal block problem
When manually adding connection points to existing terminal block, all the added connection points were linked to the first connection point found from the terminal block. This has been fixed.

2.5 Room

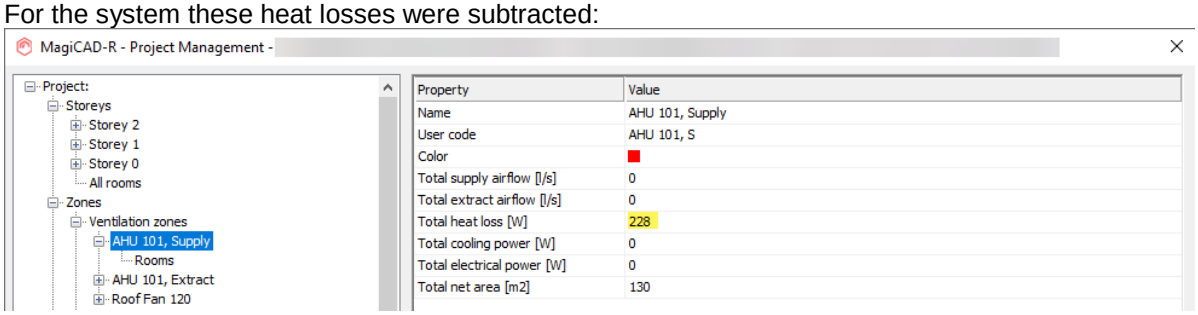
Heat loss analysis worked incorrectly
Running *"Heat loss analysis..."* from room dialog gave different results than after the *"Save, Calculate and Update Texts"* command.
This has now been corrected and *"Heat loss analysis..."* from room dialog now gives the same result as the *"Save, Calculate and Update Texts"* command.

Negative heat loss in XML from Room
The program subtracted the heat losses in the project's system lists, but in the Excel these negative heat values had parenthesis and were as such not summed directly using Excel's SUM-function.

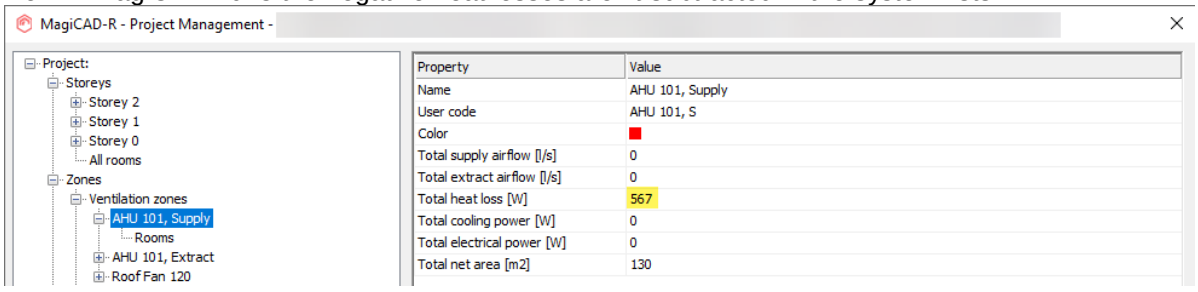
An example with the output summed as it is compared to when the parenthesis have been removed:

U	V
Heat loss [W]	**Heat loss [W]**
92	92
(-339)	-339
60	60
72	72
41	41
46	46
41	41
37	37
133	133
45	45
567	228

For the system these heat losses were subtracted:



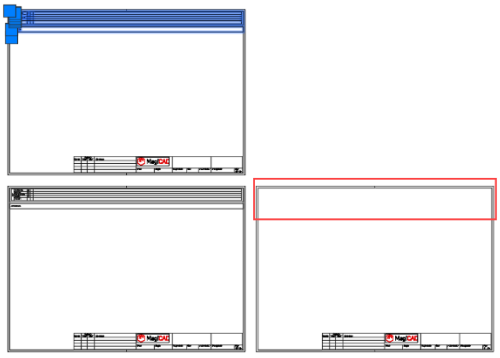
Now in MagiCAD 2023 the negative heat losses aren't subtracted in the system lists:



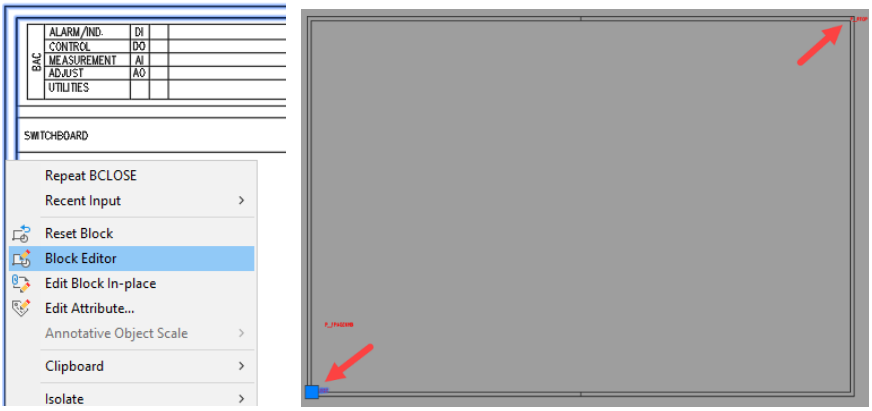
2.6 Schematics

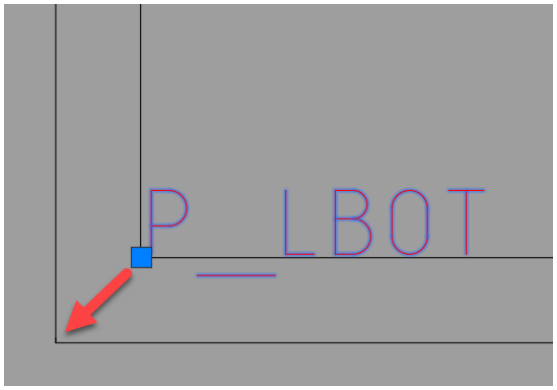
Schematics BA block went to the wrong page

The issue was that when adding new pages next to each other, with BA-blocks, that the newly added pages' BA-blocks weren't added correctly to their respective pages and instead to the drawings furthest to the left:



This issue was seen with BA-blocks where the P_LTOP and P_LBOT points of the frames' template were set at the very boundary, instead of like here within the page's boundaries, so in this example if P_LBOT would have been set down to the left, where the arrow is pointing, then this issue would have occurred:

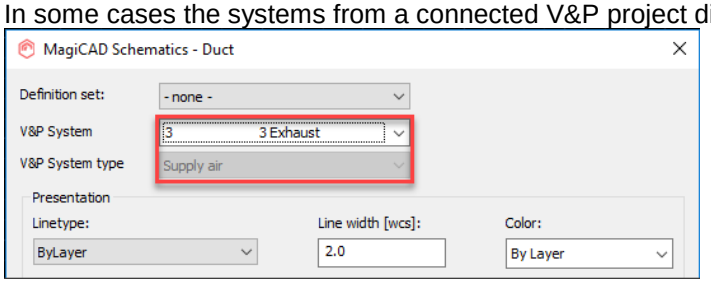




This has now been improved and even if the points are set at the boundaries the blocks are added correctly when adding the pages.

VP System and System type did not always match

In some cases the systems from a connected V&P project did not match their system type:

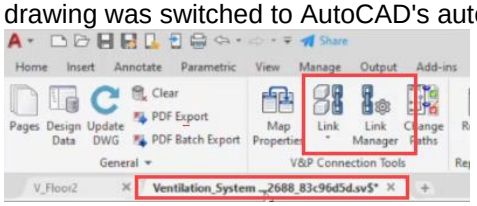


UserCode	Name	Type	Linetype	Color	SV 1	SV 2
1	1 Supply	Supply air			S1	10
2	2 Extract	Extract air			E2	20
3	3 Exhaust	Exhaust air			EH3	30
4	4 Outdoor	Outdoor air			O4	40

This has now been fixed and the systems now correctly match their system type in Schematics.

Schematic file changed to automatic save file after using Link Manager

When linking objects between drawing and then updating the information via Link Manager, the drawing was switched to AutoCAD's automatically saved backup version.



Now we have made sure MagiCAD retrieves the drawing file path name correctly everywhere and does not user the temporary autosave file path.