



MagiCAD for AutoCAD

Release notes for version 2022 UR-1

19/10/2021

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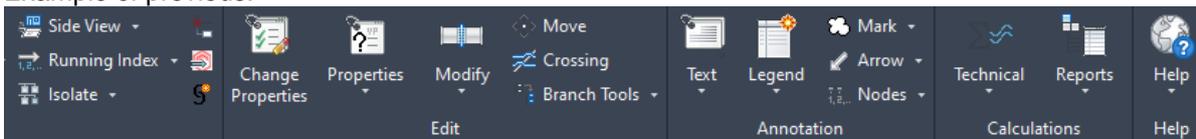
1 New features

1.1 Common

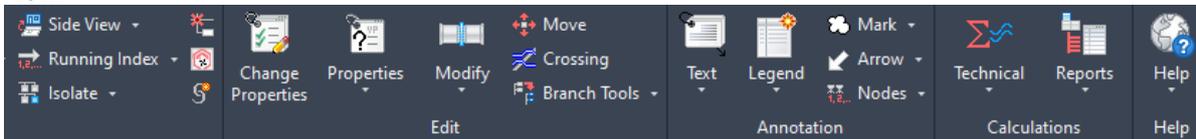
Improved MagiCAD icons for AutoCAD's dark theme

The colors of many icons have been improved to be better visible when AutoCAD's settings are set to the dark theme.

Example of previous:



Now:



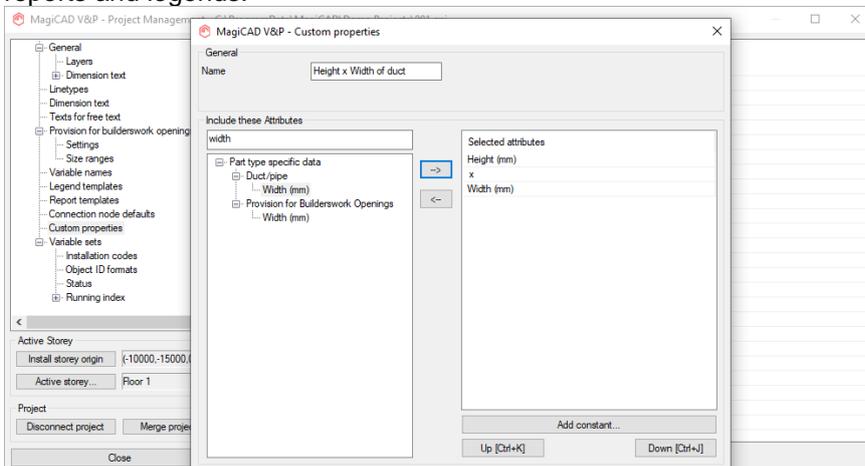
"Search Products"-button to access MagiCAD Cloud has been added to the ribbons

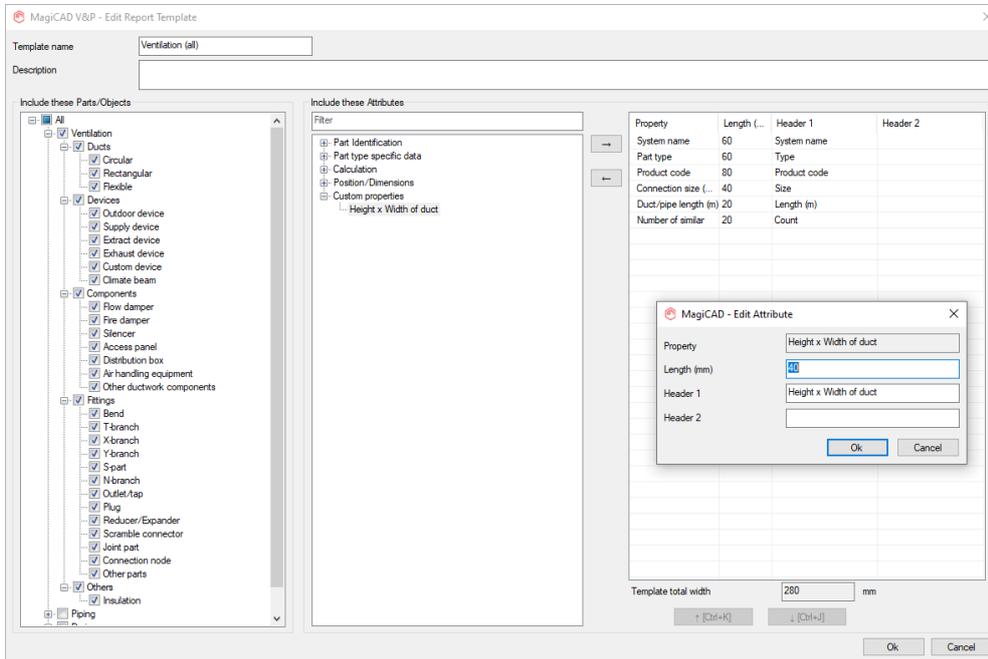
A search button to access MagiCAD Cloud has been added to the ribbons in MagiCAD V&P and Electrical:



New custom properties

We have added the possibility to create custom properties, using which the user can combine multiple parameters and include text to for example use as prefixes and suffixes, which can then be used in reports and legends:

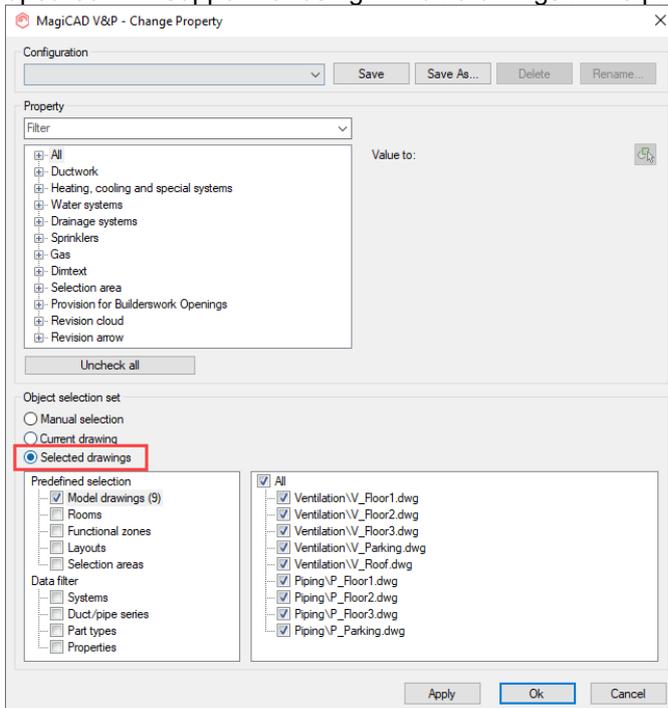




See more details in the V&P and Electrical user manuals.

Change Properties improved to allow the updating of Selected drawings

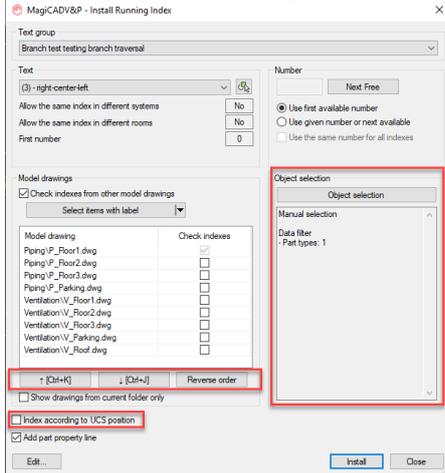
Earlier it was only possible to use Change Properties within the active drawing, but that has now been updated with support for using it in all drawings in the project:



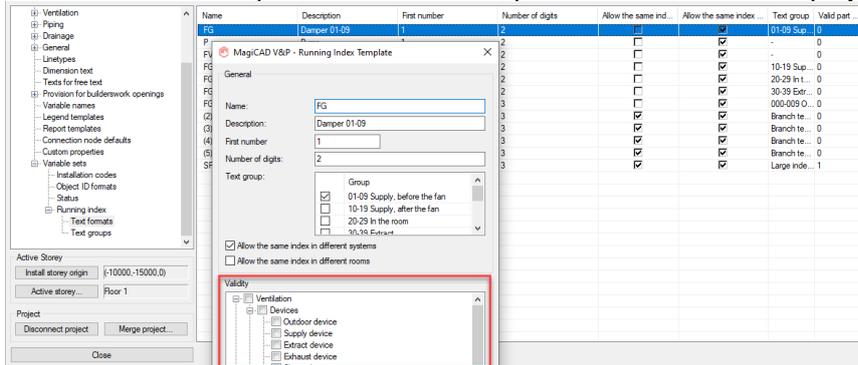
Automatic Running Index

It is now possible to use automatic indexing both as Manual selection as well as setting the option for the drawings, using Object selection.

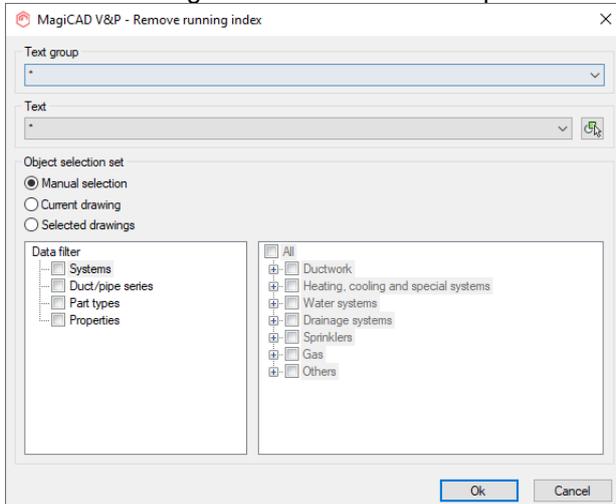
If multiple drawings are selected in the object selection, can the order of them also be set.



In V&P it is now also possible to select the parts in the format in the project:

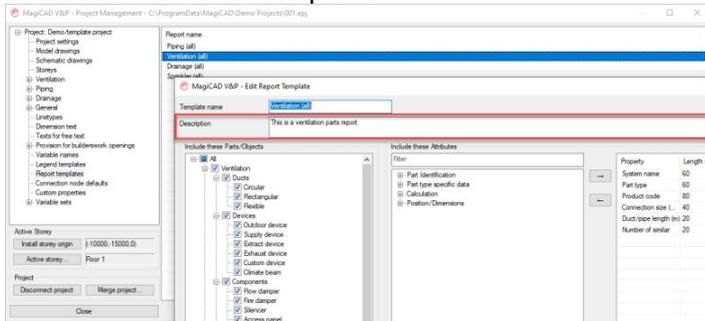


Remove running index has also been improved with object selection options:

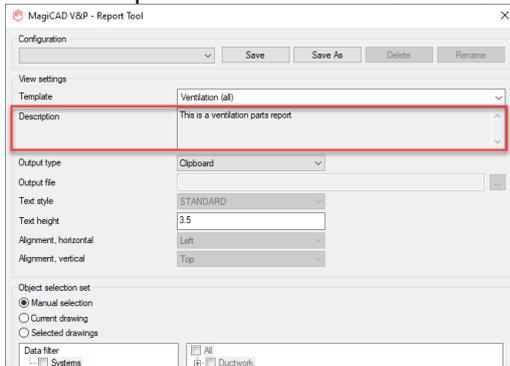


Description field for the report templates

A template-description can now be set in the report template to make it easier to add additional information about the template:



This description is also seen when selecting the report template, when creating a report:



IFC Export process improvement

This improvement will make the IFC Export and IFC Batch Export not open the drawings, which will speed up the export process.

IFC ConversionBasedUnit support

Degrees are also supported now in the IFC-file.

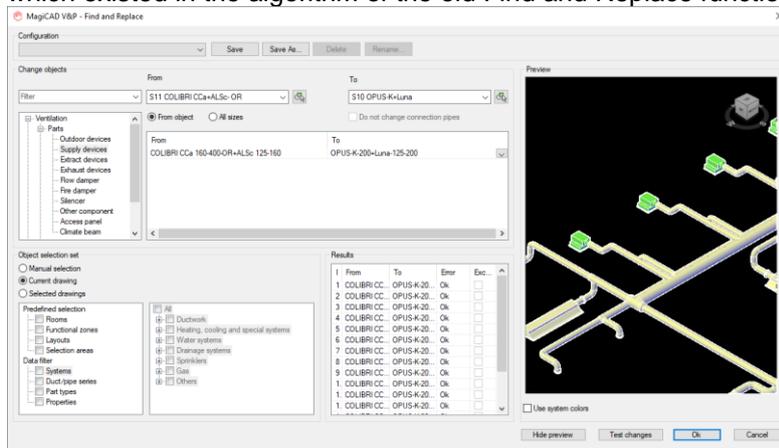
1.2 Ventilation and Piping

Updated Find and Replace function

A new Find and Replace function has been introduced. It has new features for getting an overview of the changes and drainage components, other valves and access panels can also be changed.

There is also the possibility to change valves from one category to another, under the "All valves" option.

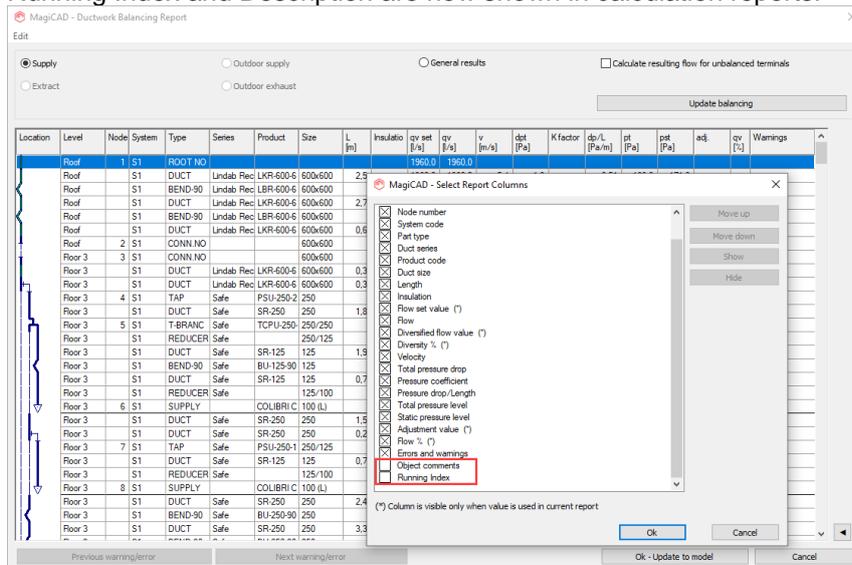
New improvements for handling changes have also been introduced as well as correcting issues which existed in the algorithm of the old Find and Replace function.



The old version can still be accessed using the "FNR"-command, but this function will not be maintained.

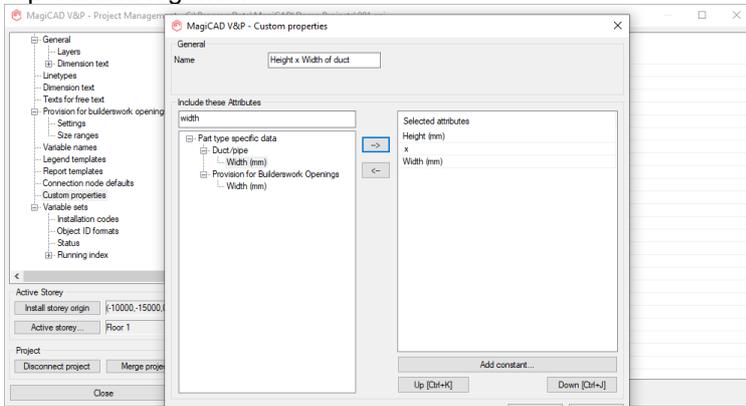
Running Index and Description in calculation reports

Running Index and Description are now shown in calculation reports:



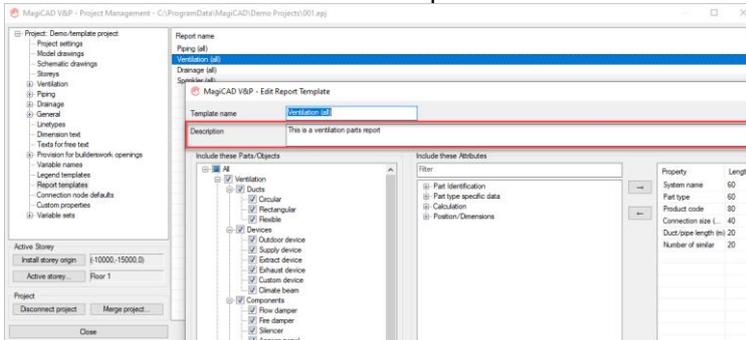
New custom properties

We have added the possibility to create custom properties, using which the user can combine multiple parameters and include text to for example use as prefixes and suffixes, which can then be used in reports and legends:

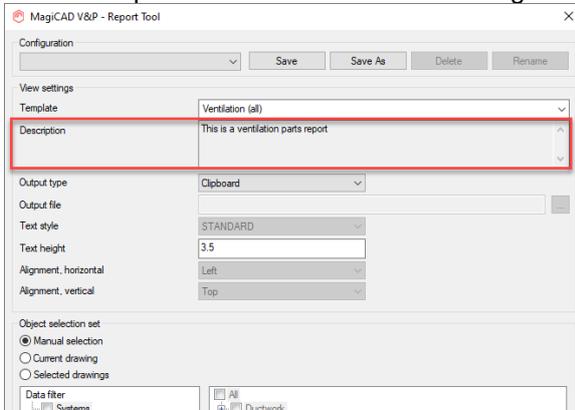


Description field for the report templates

A template-description can now be set in the legend and report template to make it easier to add additional information about the template:



This description is also seen when selecting the template, when creating a legend or a report:

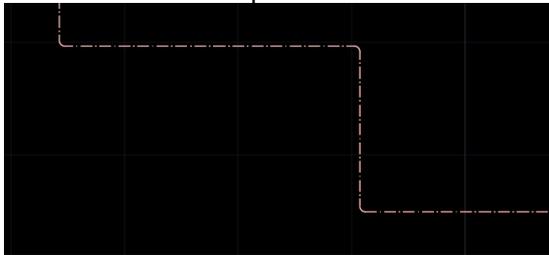


Show insulation in 1D on fittings

Earlier didn't the insulation show up on duct and pipe fittings in 1D:

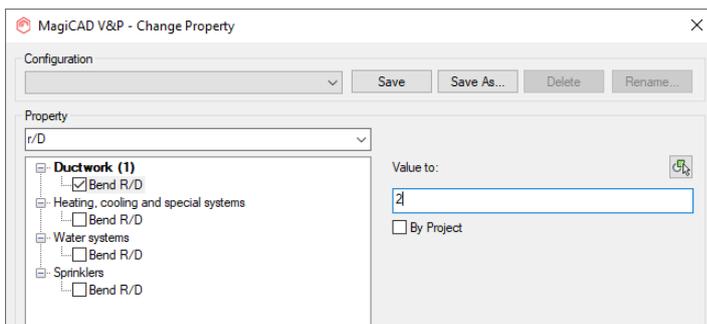
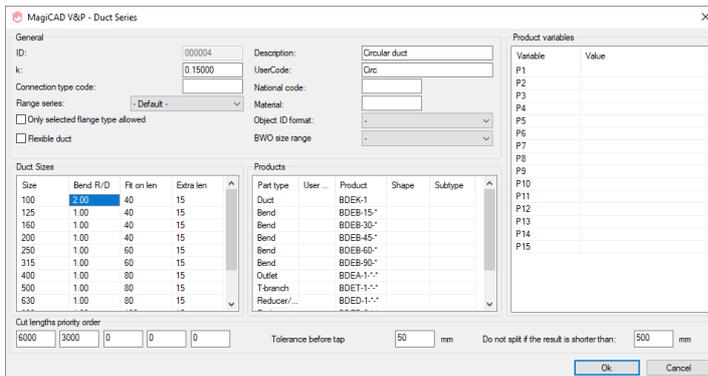


This has now been updated to include them as well:



MagiCAD now uses the given r/D value for ducts, which is set in the project or updated using Change Properties

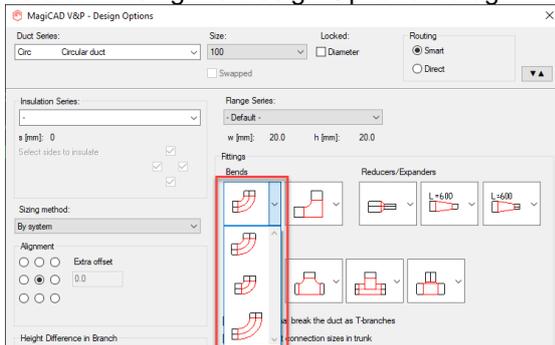
MagiCAD's pressure drop calculations now takes the given r/D value of bends into account. r/D can be set either in the project for the duct series or by using "Change Properties".



In earlier versions the given r/D was used only to draw the bends, but the value was not used in the pressure drop calculations. Instead of given r/D, MagiCAD used fixed values according to the bend type selected in the “Design options” dialog

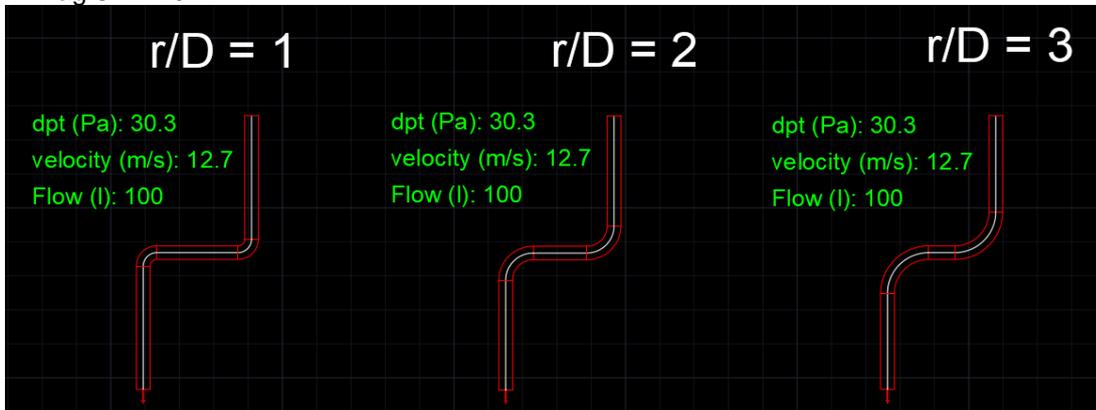
Earlier did MagiCAD only use the values for
Short r/D = 0.6
Medium r/D = 1
Long = 1.5

as drawn using the Design Options dialog:

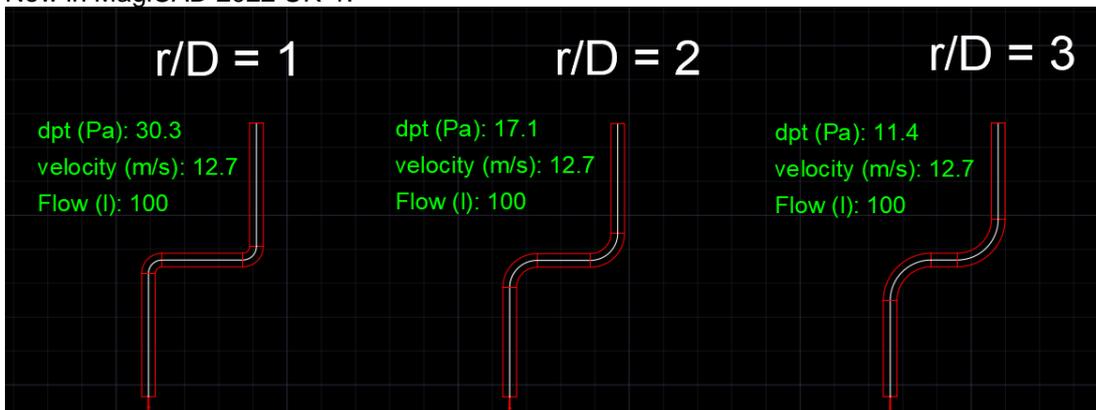


An example of some ducts using Change Properties to change the r/D value in the drawing. Note the dpt value:

In MagiCAD 2022:



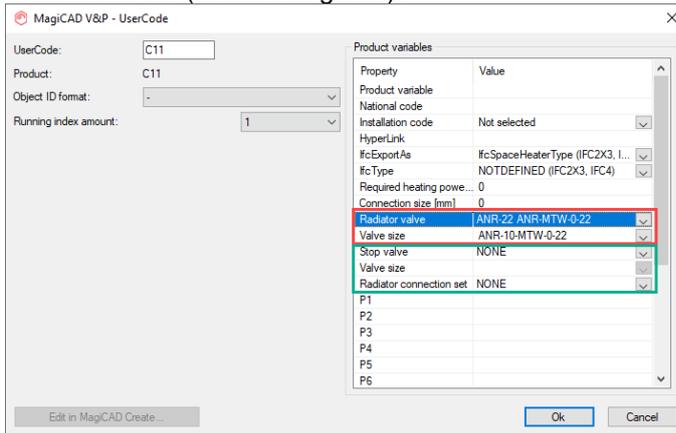
Now in MagiCAD 2022 UR-1:



Improved pre-selected options for radiators and additional corrections

The selected radiator valve in the product variables list, in the UserCode dialog in the project, for heating radiators did no longer work (marked in red) in the radiator installation dialog after the radiator connection sets were implemented. The selected valve was not updated to the radiator installation dialog as it should have been.

This has now been fixed and we have also added the option to pre-select a stop valve and radiator connection set (marked in green):



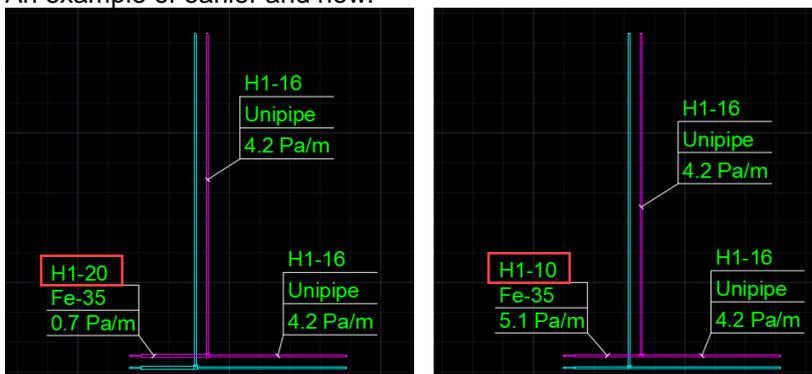
Improved sizing when using different pipe in the same network

The pipe sizing of MagiCAD works so that it selects the pipe size according to the inside diameter of the pipes. It also doesn't select a smaller pipe size when the pipes are sized towards the root. This rule follows the DN-size of the pipe. Because different materials have different DN-sizes and also different wall thickness, this method may have unnecessarily selected too big pipe sizes when the material changed at tee.

E.g. if a plastic pipe DN-28 whose inside diameter is 20 is connected to a tee and the root pipe is Fe-35. Then the root pipe size was selected as size DN-32, whose inside diameter is 37.4. In this case a smaller Fe-35 would probably be big enough to keep the dp/m or velocity in the limits defined in the sizing methods.

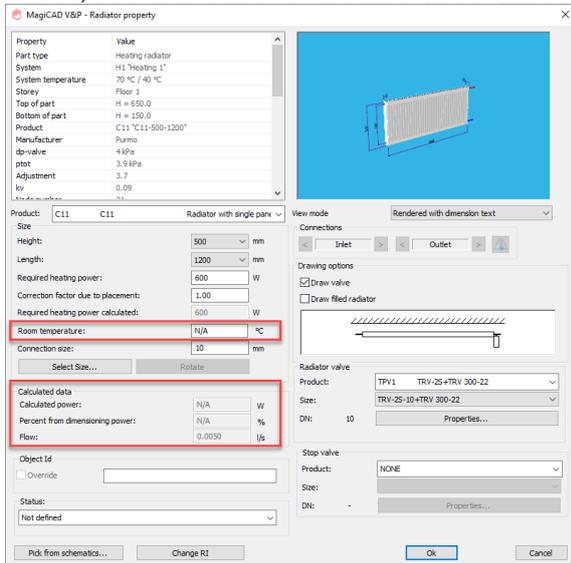
To avoid this, MagiCAD now resets the minimum DN-size if more than one material is connected to a tee. This means that the smallest available pipe size is selected.

An example of earlier and now:



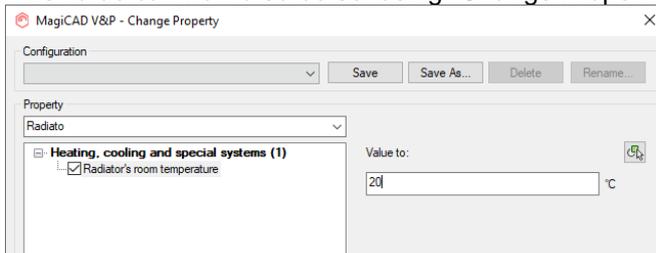
Calculated data added to Part Properties of radiators

Calculated data, which otherwise has been available only in the radiator installation dialog, is now available in the Part Properties dialog of the radiators as well. "Room temperature" has also been added, as it is needed to calculate these values individually for the radiators now:



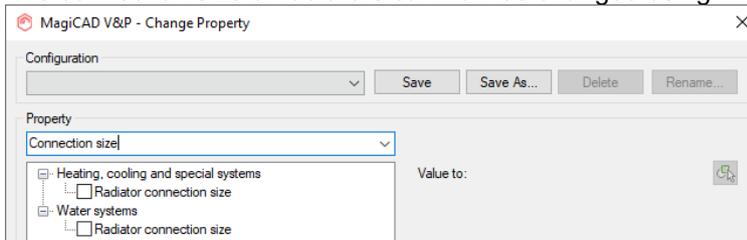
Please note that if you open an old project that the Room temperature is "N/A" (or Not Available), which of course also affects the calculated data. This is because they haven't had the value set to them earlier, even if the user has been able to use that value to check in the installation dialog, that the radiator is of the proper size and properties for their application.

This value can now also be set using "Change Properties":



Change radiator connection size via Change property

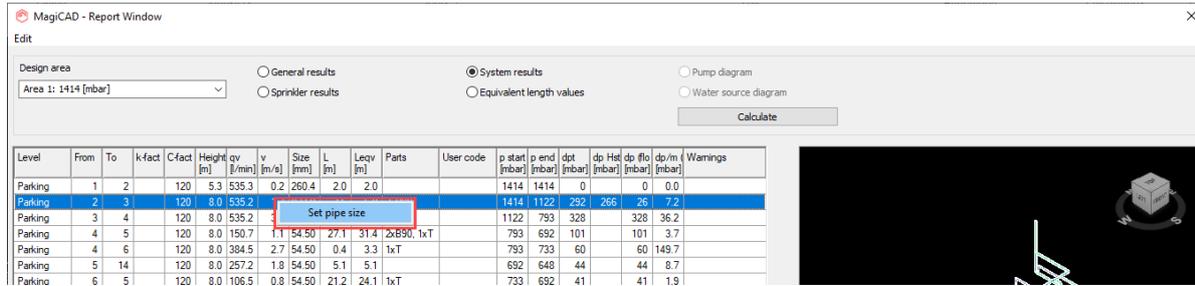
The connection size of radiators can now be changed using the Change Property function:



Change the pipe size in the sprinklers system's System results window

Added a possibility to change the pipe size and recalculate from the system results report.

By right clicking line in the system report, you can set the pipe size. After that press recalculate to get the results with the new pipe sizes



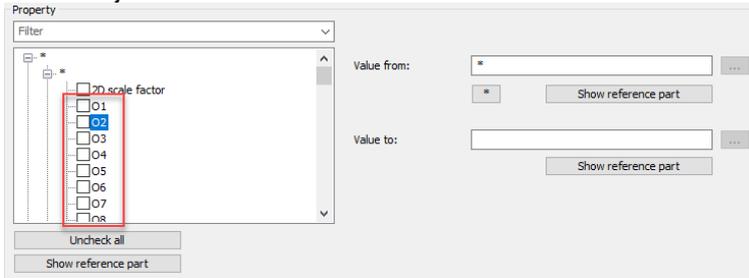
The screenshot shows the 'MagiCAD - Report Window' interface. At the top, there are radio buttons for 'General results', 'System results' (selected), 'Sprinkler results', and 'Equivalent length values'. Below these is a 'Design area' dropdown set to 'Area 1: 1414 [mbar]' and a 'Calculate' button. The main part of the window is a table with the following columns: Level, From, To, k-fact, C-fact, Height [m], qv [l/min], v [m/s], Size [mm], L [m], Leqv [m], Parts, User code, p start [mbar], p end [mbar], dpt [mbar], dp [mbar], dp H [mbar], dp f [mbar], dp/m [mbar], and Warnings. The table contains data for 'Parking' levels 1 through 6. A red box highlights the 'Size' column for the second row (Level 2), where a context menu is open with the option 'Set pipe size' selected.

Level	From	To	k-fact	C-fact	Height [m]	qv [l/min]	v [m/s]	Size [mm]	L [m]	Leqv [m]	Parts	User code	p start [mbar]	p end [mbar]	dpt [mbar]	dp [mbar]	dp H [mbar]	dp f [mbar]	dp/m [mbar]	Warnings
Parking	1	2		120	5.3	535.3	0.2	260.4	2.0	2.0			1414	1414	0			0	0.0	
Parking	2	3		120	8.0	535.2							1414	1122	292	266	26	7.2		
Parking	3	4		120	8.0	535.2							1122	793	328		328	36.2		
Parking	4	5		120	8.0	384.5	1.1	54.50	27.1	31.4	2x690, 1xT		793	692	101		101	3.7		
Parking	4	6		120	8.0	384.5	2.7	54.50	0.4	3.3	1xT		793	733	60		60	149.7		
Parking	5	14		120	8.0	257.2	1.8	54.50	5.1	5.1			692	648	44		44	8.7		
Parking	6	5		120	8.0	106.5	0.8	54.50	21.2	24.1	1xT		733	692	41		41	1.9		

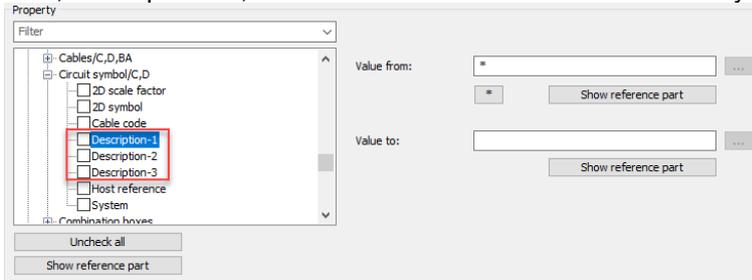
1.3 Electrical

New attributes added to Change Properties

Attributes O1-15 and status have been added to Change Properties under the asterisk (*) so those can be changed to all devices, all electrical devices, all communication/data devices and/or all cable routes objects at the same time.

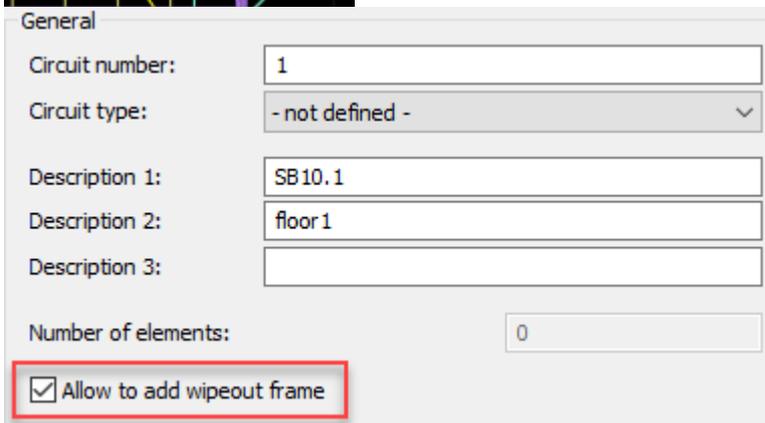
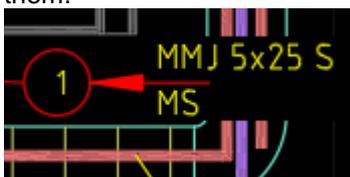


Also, Descriptions 1, 2 and 3 have been added under circuit symbols.



Wipeout frames added for circuit symbols

Now it is possible to add wipeout frames for circuit symbols, both power and data. With wipeout frames you can hide objects under the circuit symbols so that you can clearly see what is written to them.



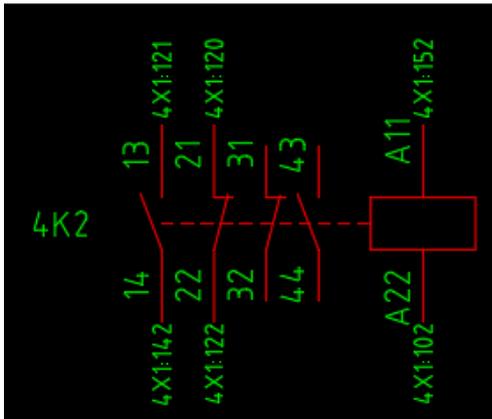
You can also use Change Properties for checking / unchecking the checkbox.

1.4 Circuit Designer

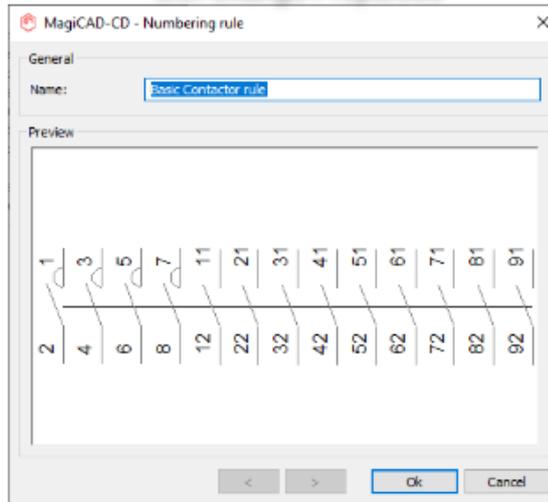
Improvement for numbering rules in Change Properties

When changing numbering rules for contactors with Change Properties, if something is not defined in the new numbering rule then undefined parts will maintain their existing IDs

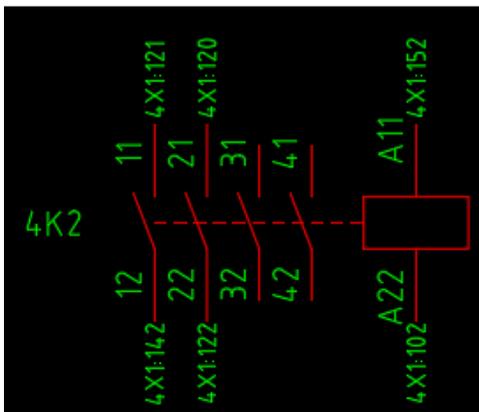
Starting situation



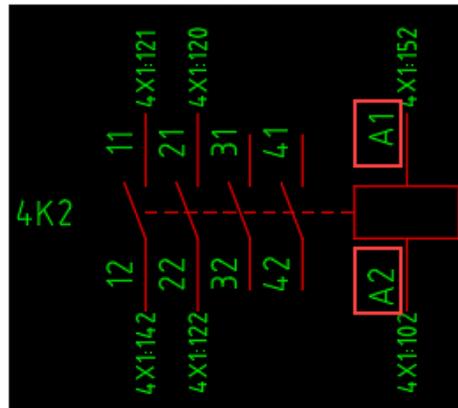
Numbering rule used with Change Properties



Current end result



Old end result



1.5 Room

Editing functions were slow in MagiCAD Room

In large projects the editing functions were really slow in some cases, with for example the "Edit Storey"-function taking a several minutes to process before opening.

Improvements have been made speed up this process cutting the processing time significantly, although it still take minutes in some cases.

A new command has also been added, MAGIRCALL / MRCA, which calculates all information in the entire project. This way can the user make sure that all information is updated. It is recommended that this command is used instead of "Automatic calculations" which is set in the project settings, especially in large projects, as the "Automatic calculations"-options might cause slowness in the project

2 Resolved issues

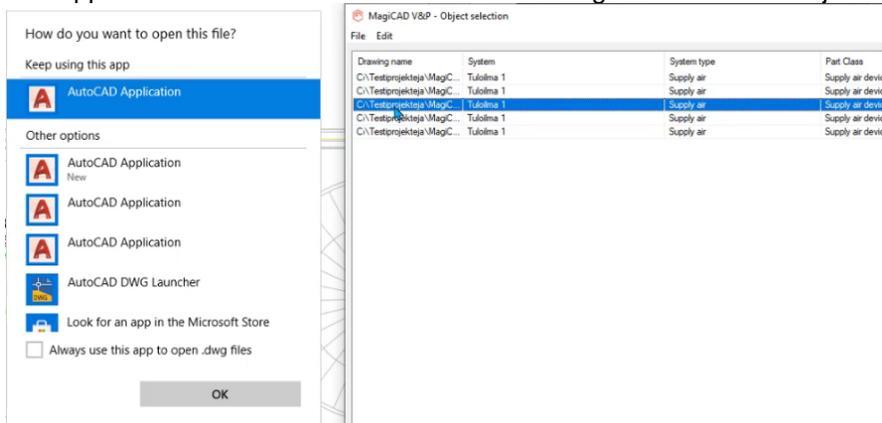
2.1 Common

Unnecessary warning message

Fixed an issue where the user received an unnecessary warning "Project data has been modified and will be reloaded" when this actually wasn't the case.

Application selection issue when double clicking on object selection report dialog

The application selection was shown when clicking on lines in the Object selection report dialog:



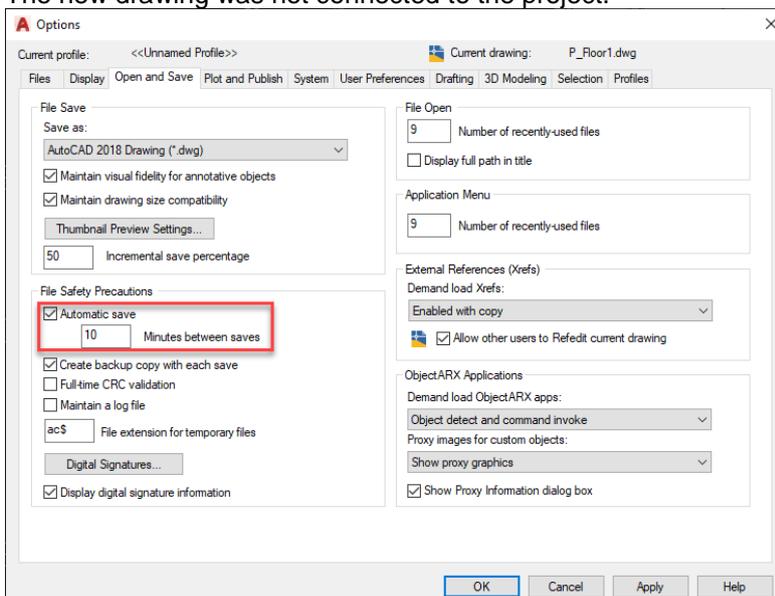
This has now been fixed and the application selection won't be shown.

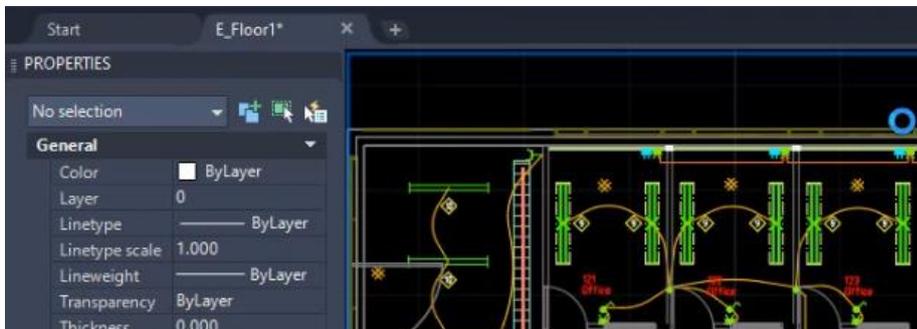
Autosave issue in AutoCAD

When AutoCAD's autosave was enabled and some commands were run in MagiCAD, the program generated a new automatically saved drawing to the Temp-folder.

This took place with commands that update the drawing at the same time.

The new drawing was not connected to the project.





End result after certain commands finished:



Now AutoCAD's autosave is temporarily disabled while some commands run, which update the drawing, so that this does not occur.

% in filename caused AutoCAD to crash

Sometimes a percentage sign in the filename caused a crash. This has now been fixed to remove these occurrences.

Fatal error caused by Connection node report

Fixed an issue related to a fatal error taking place occasionally when importing connection nodes and having the "Show report"-option set.

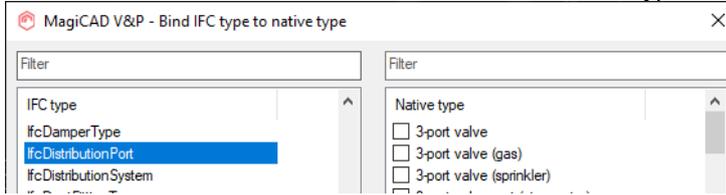
"Cancel"-button in Change properties didn't work as expected

Even when clicking "Cancel" in the Change properties dialog, did the function remember the previous setting. Now that is only done when clicking "OK".

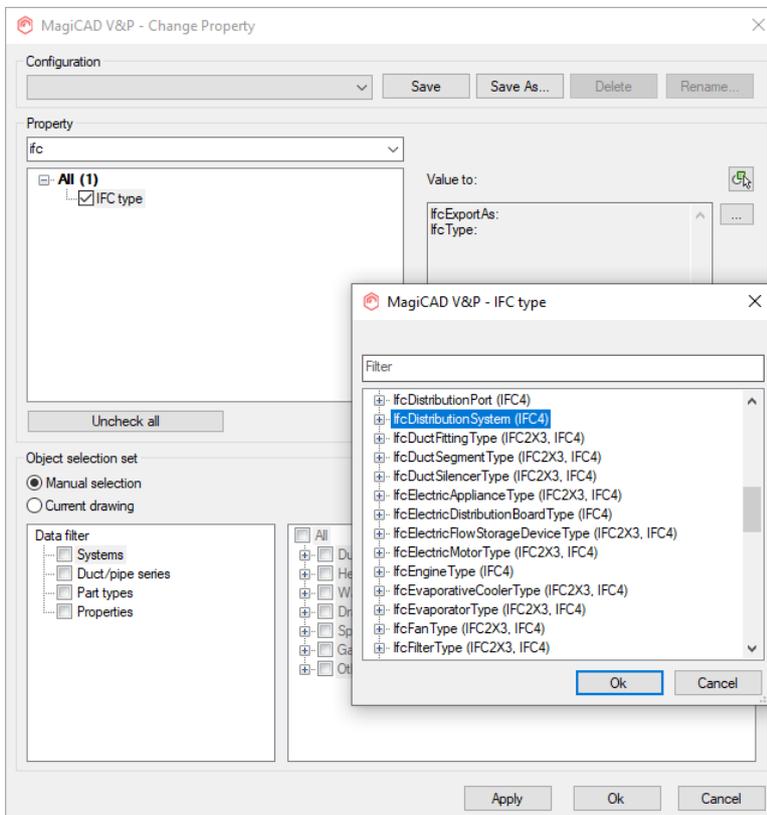
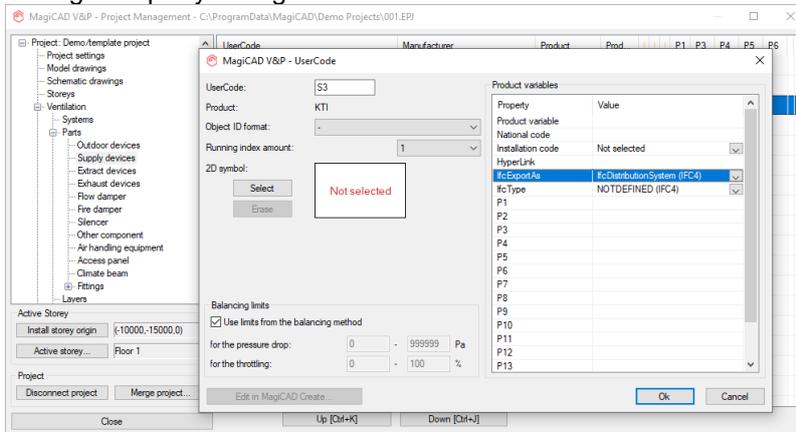
Not all properties were exported in IFC Export

Some of the MagiCAD properties weren't exported properly to IFC. This has now been fixed and the properties are exported correctly.

IfcDistributionPort has been removed from the IfcExportAs-options
IfcDistributionPort has been removed from "Bind IFC type to native type"



And IfcDistributionSystem has been removed from the product information dialog in the project and Change Property dialog:



Running Index attributes for COM interface

New COM attributes (/Part/RunningIndex/IsSystemSpecific and /Part/RunningIndex/IsRoomSpecific) to handle Running Indexes have been added. The full list of available COM attributes is now:

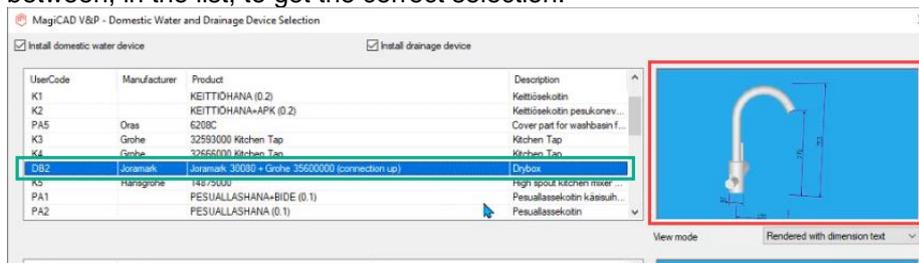
/Part/RunningIndex/TextFormatID
/Part/RunningIndex/Index
/Part/RunningIndex/Index[]
Count(/Part/RunningIndex/Index)
/Part/RunningIndex/Text
/Part/RunningIndex/NRdigits
/Part/RunningIndex/TextGroupID
/Part/RunningIndex/TextGroupText
/Part/RunningIndex/TextGroupDescription
/Part/RunningIndex/Description
/Part/RunningIndex/StartingIndex
/Part/RunningIndex/IsSystemSpecific
/Part/RunningIndex/IsRoomSpecific

2.2 Ventilaion and Piping

Product dialog was not updating correctly

When selecting a new product to the project the active product which was then shown in the installation dialog's preview was the wrong one, so the preview and the list had different products selected.

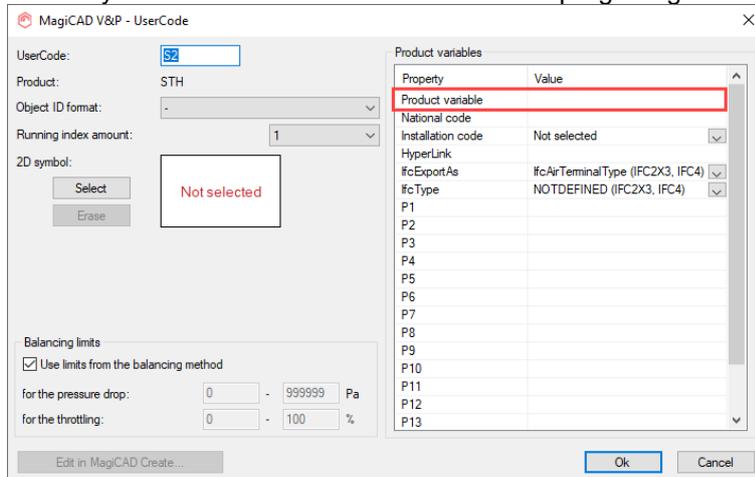
It was also the product, based on what was showing in the preview, which was added to the drawing even if the new product was selected in the list. The user had to select some other product in between, in the list, to get the correct selection.



Now this has been fixed and the correct variable product is updated both for the selection and the preview.

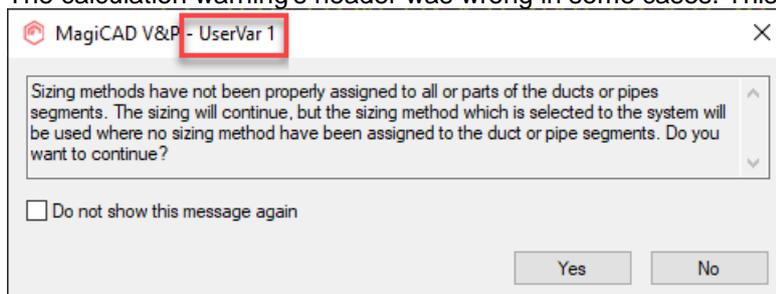
Product variable allowed unsupported characters

The product variable can be used in the layers, and it was possible to add characters that didn't work in the layers. This has now been fixed and the program gives a warning.



Wrong text in error message dialog header when calculating

The calculation warning's header was wrong in some cases. This has now been corrected.



-MAGICAS script command didn't work

Changing the Active Storey of the drawing using the -MAGICAS command did not work correctly and the information was not updated as it should have been. This could for example be seen when running an IFC Export afterwards. This issue has now been fixed.

Xref loading problems when MagiCAD 2022 was in use

Some Xrefs could not be re-loaded in MagiCAD 2022. This has now been fixed.

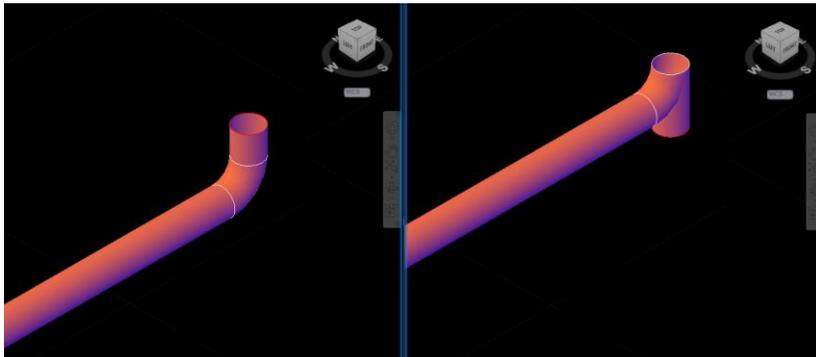
Calculation didn't open the report

The calculation report wasn't opened in some cases, even if it should have, if the user had adjusted the pipe/duct series' sizes.

This has now been fixed and the calculation report always opens when the user has selected it to.

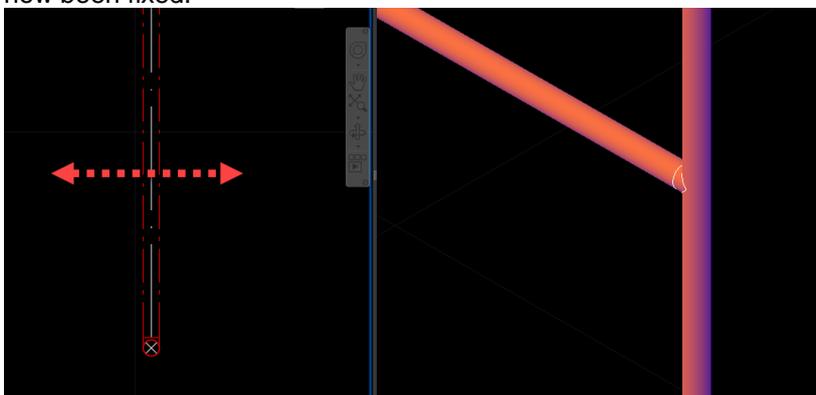
Changing the elevation with node at the end ignored the bend

It was possible to change the elevation like this (end result to the right) when there was a node at the end:



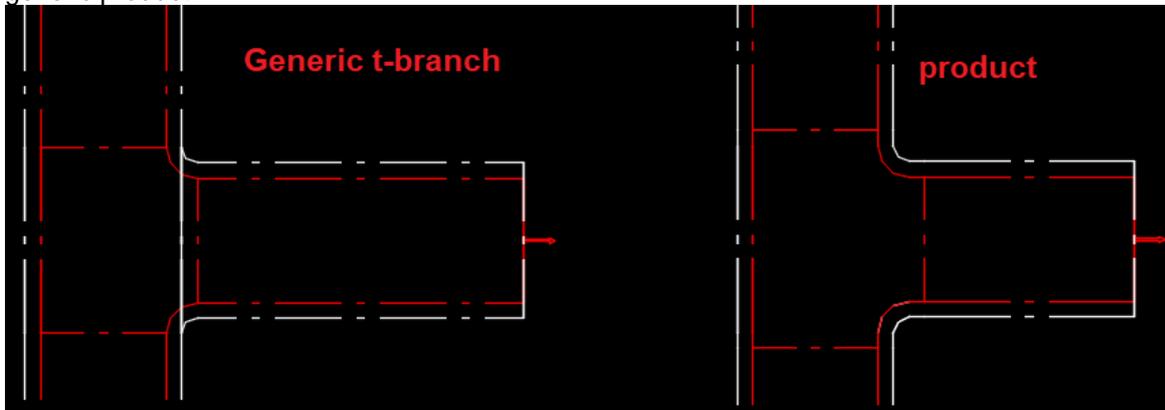
Couldn't move riser with MagiCAD's mode function, when it contained a T-branch

It wasn't possible to move risers which contained a T-branch, even if it worked with outlets. This has now been fixed.



Insulation issue in generic T-branches

The insulation was in some cases drawn in the wrong way in generic products. See the line in the generic product:



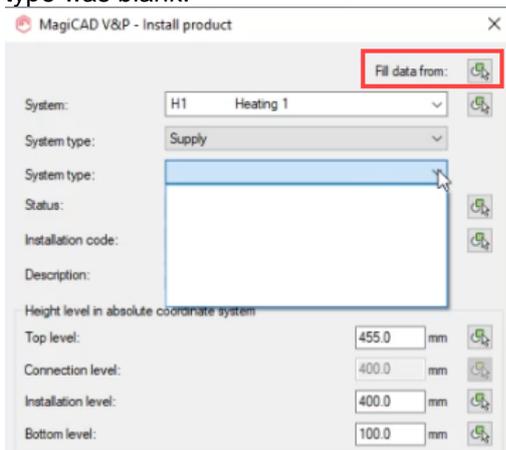
This has now been fixed and the insulation is displayed correctly.

Extended the number of decimals

The decimals for the pipe size in System results in the sprinkler report has also been extended from one to two.

Unable to select second system type with "Fill data from"

It was not possible to correctly set the systems for a manifold using "Fill data from" unless the manifold used as reference had been installed first, during the same session. The result for the second system type was blank:



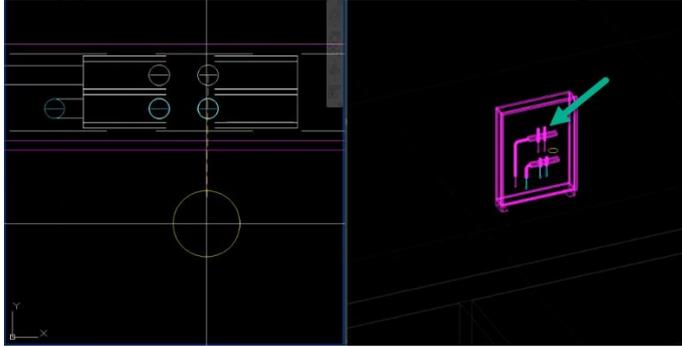
This has now been corrected and the system type is set correctly.

Generic Heating/cooling plants were installed in the wrong direction

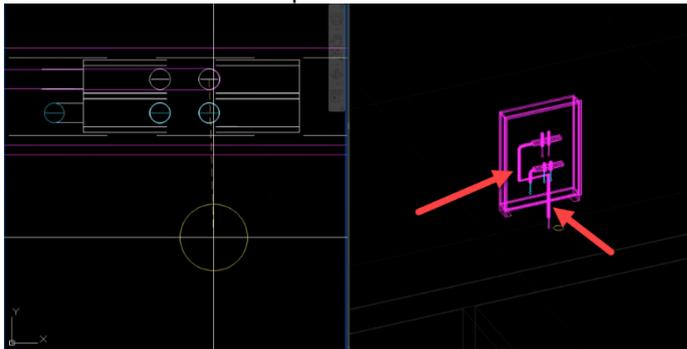
"Generic heating cooling plant" direction was not according to UCS and instead according to the WCS. This meant that when the user had set the viewport to a new UCS and tried to install the product at this angle, it wasn't possible as the product was always at the angle of the WCS. This issue has now been fixed and the direction is now according to the active UCS, if such is in use.

With certain manifolds pipe drawing started from a different connector than the one which was selected

The pipes were sometimes drawn from the wrong connectors:



Issue: It did in this example select the main connector:



This has now been fixed and the pipes are drawn from the correct connectors.

Integrated return valve in calculations

The integrated return valve in radiators is now also taken into account in calculations:

Location	Level	Node	System	Type	Series	Product	Size	L [m]	Insulation [mm]	P [Pa]	Qv [m³/s]	v [m/s]	T [°C]	Q [kW]	ΔP/L [Pa/m]	ΔP [Pa]	ΔP [Pa]	adj.	Warnings
Floor 1	3	H1		ROOT NODE						1000	0.0083							0.000	
Floor 1	H1			PIPE	Cu		10	1.0		1000	0.0083	0.15			62.3	0.061	0.000		
Floor 1	H1			BEND-90	Cu		10			1000	0.0083	0.15				0.005	0.061		
Floor 1	H1			PIPE	Cu		10	2.2		1000	0.0083	0.15			62.3	0.139	0.065		
Floor 1	-1	H1		STOPVALVE	TA 500-10 (L)					1000	0.0083					0.002	0.205		
Floor 1	2	H1		HEATING RADIAT	CZ1-300/6 (10 L)					1000	0.0083						0.207		

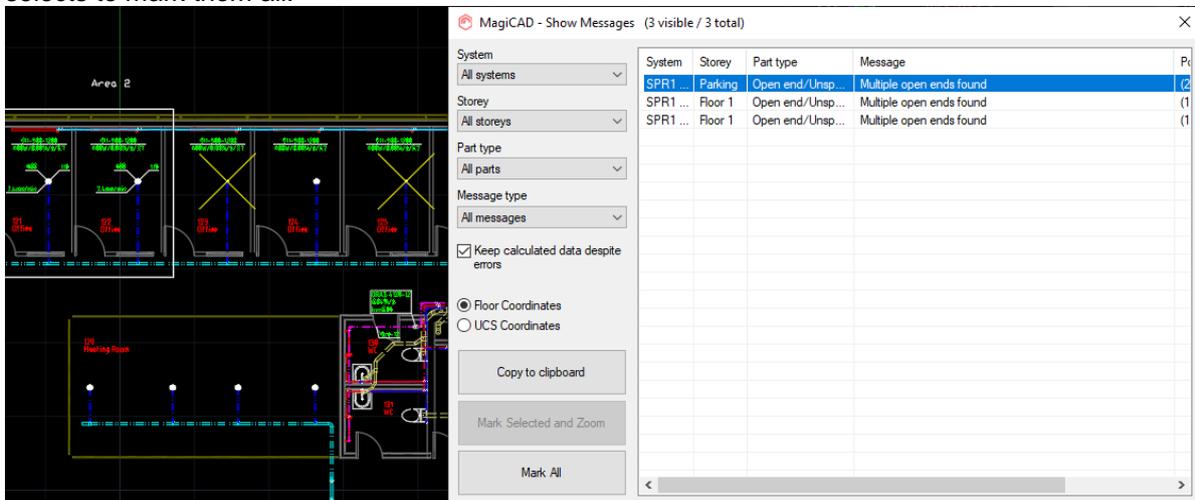
Issues with sewer points related to Find & Replace

The handling of Finding and replacing sewer points and the connections have been improved due to different issues.

These fixes are only available in the new Find and Replace function, as the function as a whole is renewed.

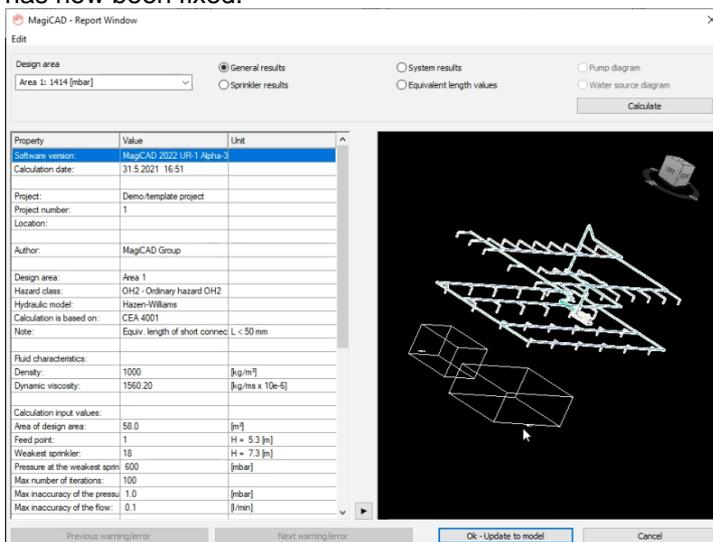
Only one open end was marked from the sprinkler network, even if multiple open ends were found

Previously did the sprinkler calculations error report only mark one of the open ends it found, even if it informed the user that it found multiple open ends. Now it marks all found open ends, if the chooser selects to mark them all.



Sprinkler design area in calculation preview was at the wrong Z-elevation

The sprinkler design areas and floor offset areas weren't at the correct elevation in the preview. This has now been fixed.



2.3 Electrical

Show Connected Objects

"Show Connected Objects" didn't show all connected objects if they had back boxes installed to them and the function was used on a switchboard.

Now all connected objects are shown with this function.

Provision for Builderswork Openings' part selection wasn't showing electrical parts

Provision for Builderswork Openings' part selection now shows also electrical parts.

Connection Nodes not created properly

Fixed an issue where data was not written to the connection node in the external drawing. One had to run the function twice to get them connected properly. This happened with cable packets making some related features working improperly.

Issue with Between function in Running index

Sometimes "Between" selection in Running index installation went to endless loop. This is now fixed.

Feeder block was not working properly

When a supplying circuit was in a different drawing than the switchboard it was supplying, the corresponding feeder block in a switchboard schematics couldn't find the circuit from the model drawings.

Now the location of the supplying circuit doesn't matter.

Configurations in Freeze layers didn't work

Configurations done with MagiCAD 2021 UR-2 or older didn't work with newer MagiCAD versions.

Now also configurations done with older MagiCAD versions work properly.

Combination boxes has problems in Select objects function

When using "Select objects" function and "Show selected items in report" option, Combination boxes didn't appear to the report. Now all selected objects are shown correctly in the report.

2.4 Circuit Designer

Attribute position resets

When moving attributes from a control cable symbol by using the "Move Attribute" function and then using "Part Properties" for that control cable symbol, some attributes changed position after pressing Ok.

Now attributes no longer change position or orientation.

Unsupported characters in layer names

Now layer names are checked for incorrect characters correctly (comma and ` are not allowed).

2.5 Schematics

Creating a new Text format or editing an existing one didn't work

Editing or creating a new text format didn't work. This issue has been fixed.

