MagiCAD for AutoCAD

Release notes for version 2020 UR-2

25/02/2020

MagiCAD
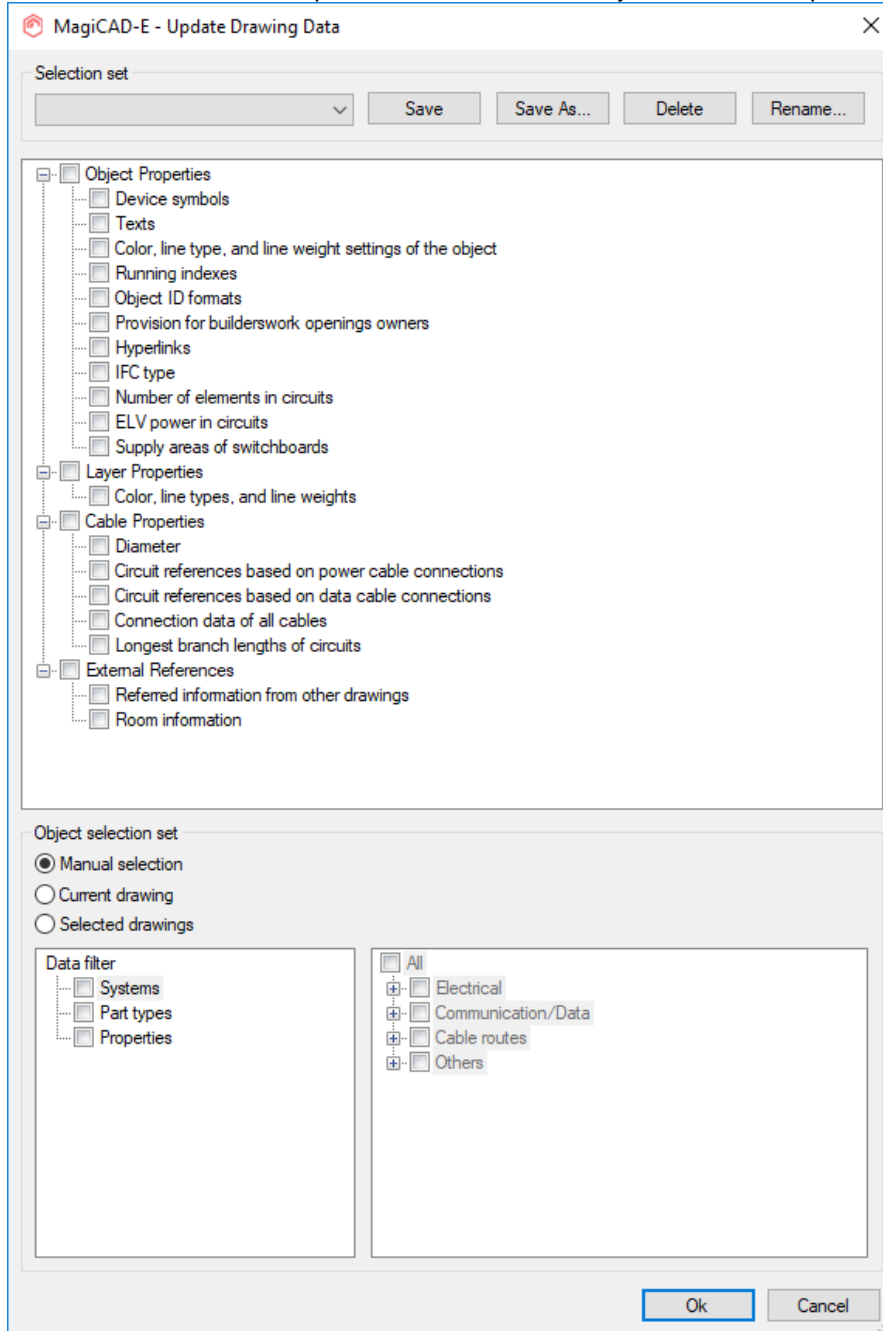
Content

1 New features 2020 UR-2

1.1 Common features

**Default selections are no longer set in the Update drawing data function**
Now default selections aren't set like in previous versions, when starting the program, this to make sure that the users don't update information that they don't want to update:

The IFC can now be saved as an IFCZIP to have the file zipped at the same time it is exported

You can now select to get the IFC files zipped at the same time as creating the IFC using the IFC export function.

The option below becomes available when you choose to export to separate files. This exported file is considerably smaller than an unzipped IFC, and the IFC-viewer does then unzip this file upon opening it.
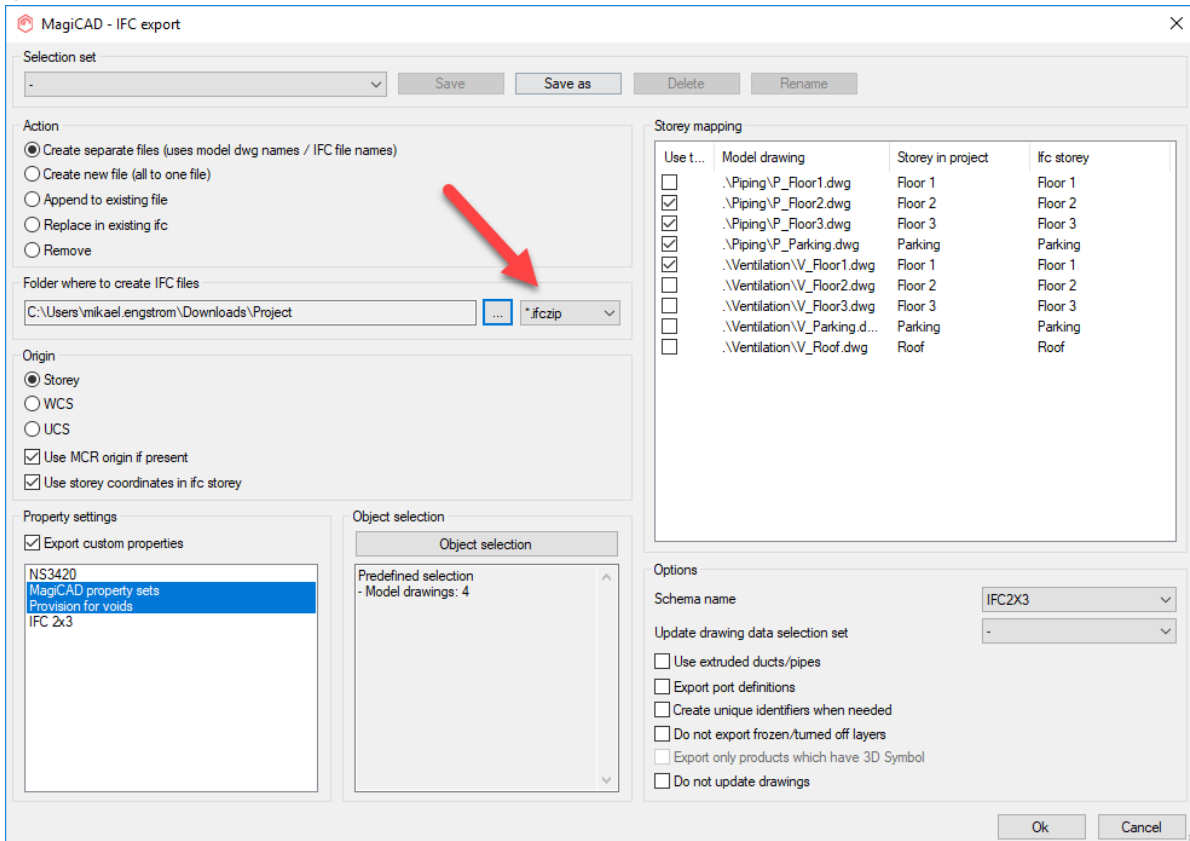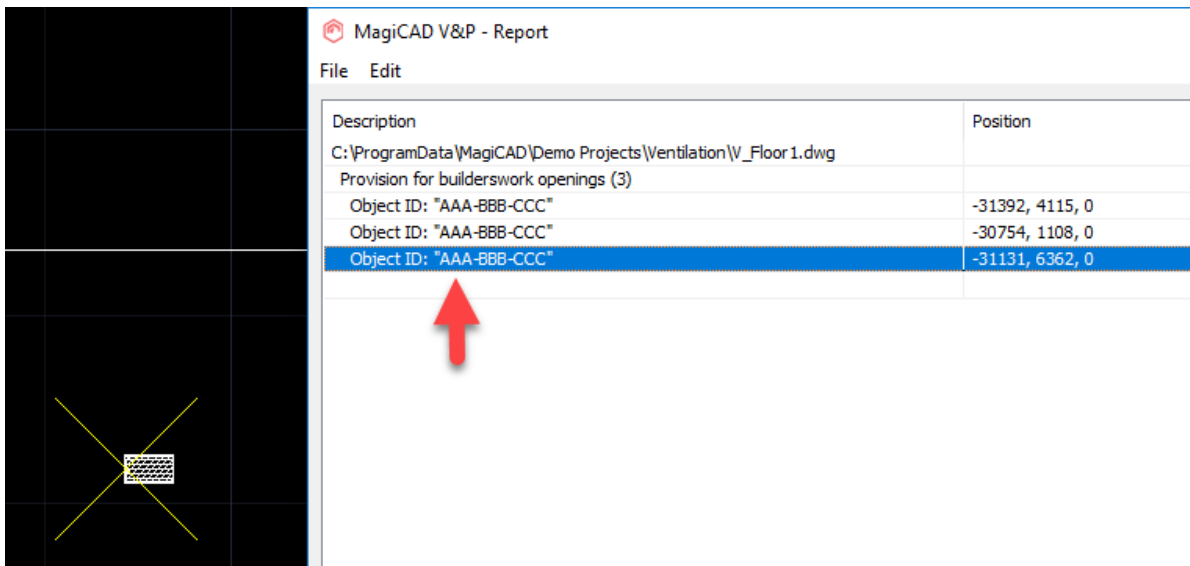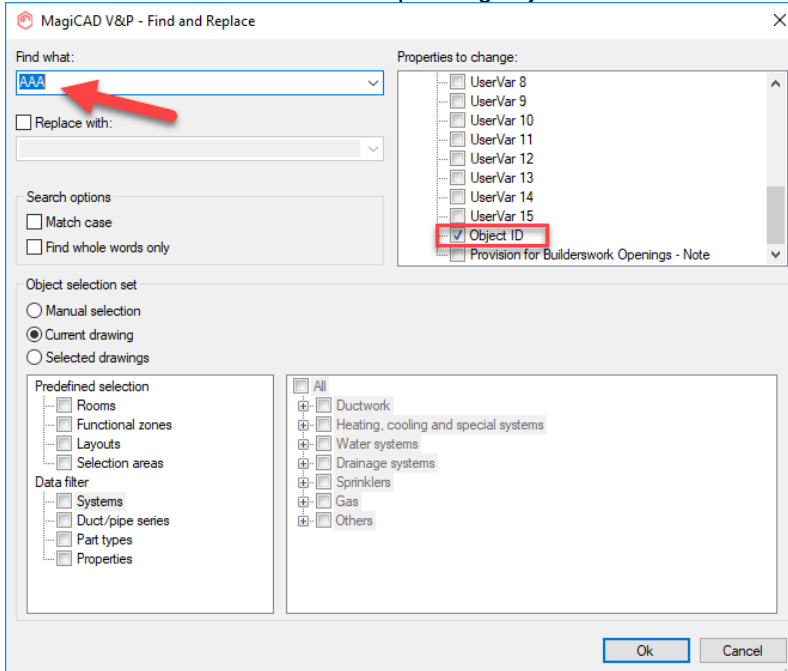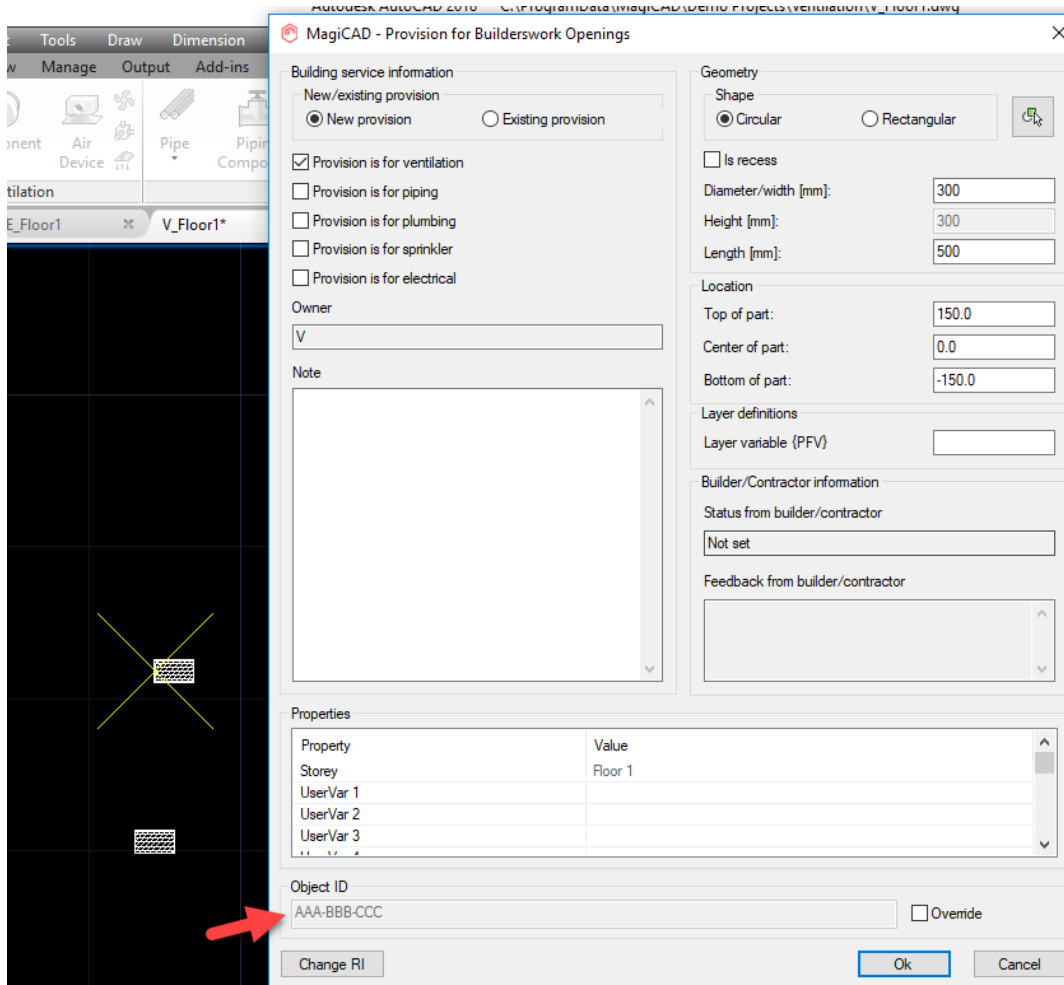

Otherwise you can also select the "ifczip" when selecting "Create a new file" and selecting where to save it.
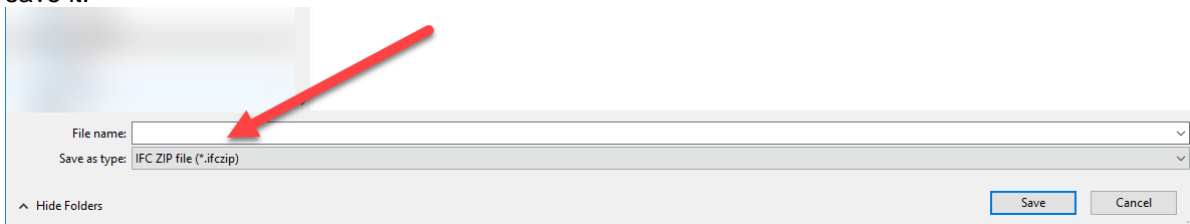
Find & Replace Text has been improved to find automatic object IDs
Object IDs that were automatic (greyed out and locked) weren't found by the Find & Replace function.
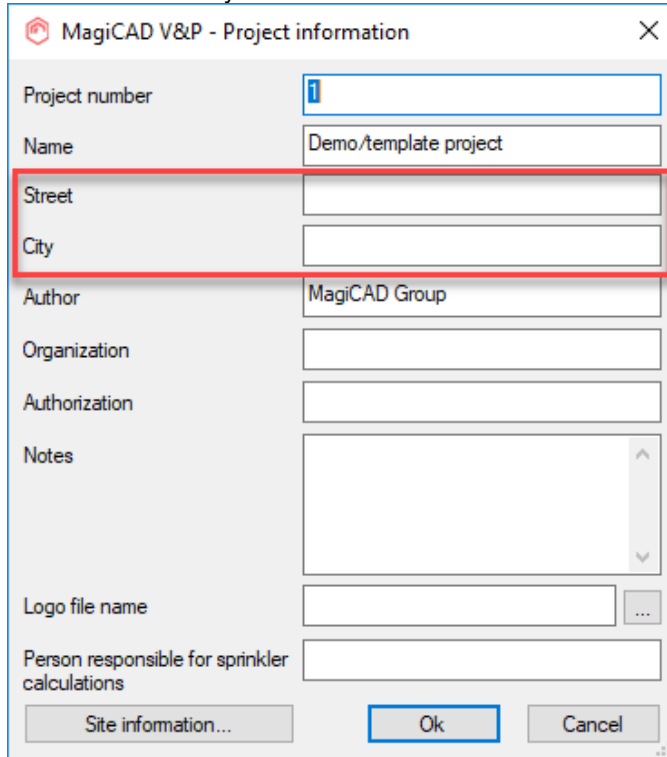Now it works and finds the corresponding objects:

IfcUnitaryEquipmentType has been added to the IfcExportAs-list

IfcUnitaryEquipmentType has been added to the IfcExportAs-list and can be set to the devices in the project in the product information.

Building address is now exported to the IFC file using MagiCAD's IFC Export

The Street and City information is now available in the IFC after the IFC export:

This is shown to the right in BIMCollab Zoom.

Please note that different IFC-viewers have different places and ways to display this information.

Now it is possible to export Project, Site, Building and Storey property sets
A large number of new properties have been added to the property set for the IFC export:

Project
Project number
Project name
Author
Organization
Authorization
Azimuth
Project note
Person responsible for sprinkler calculation (HPV only)

Site
Site name
Site description
Land title number
Latitude
Longitude
Altitude

Building
Building name
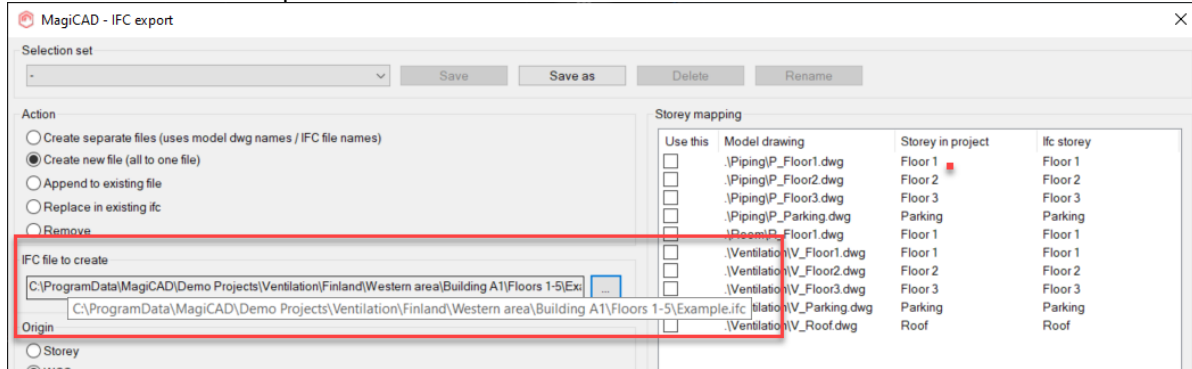Building description
Street
City

Storey
Storey name
Storey variables
Storey note (HPV only)

A tooltip has been added to show the path of the saved file in the IFC Export

In some cases the paths are long and the whole path cannot be shown in the field. Now a tooltip helps the user see the whole path.

1.2 Ventilation and Piping

You can now change the length of integrated pipe reductions

The length of the integrated reductions can now be set using MagiCAD's Change Property function:
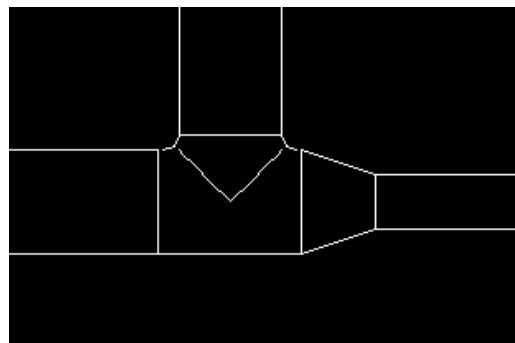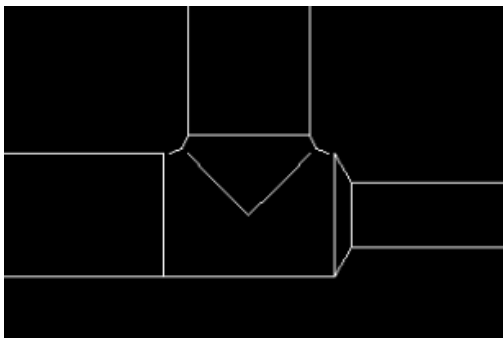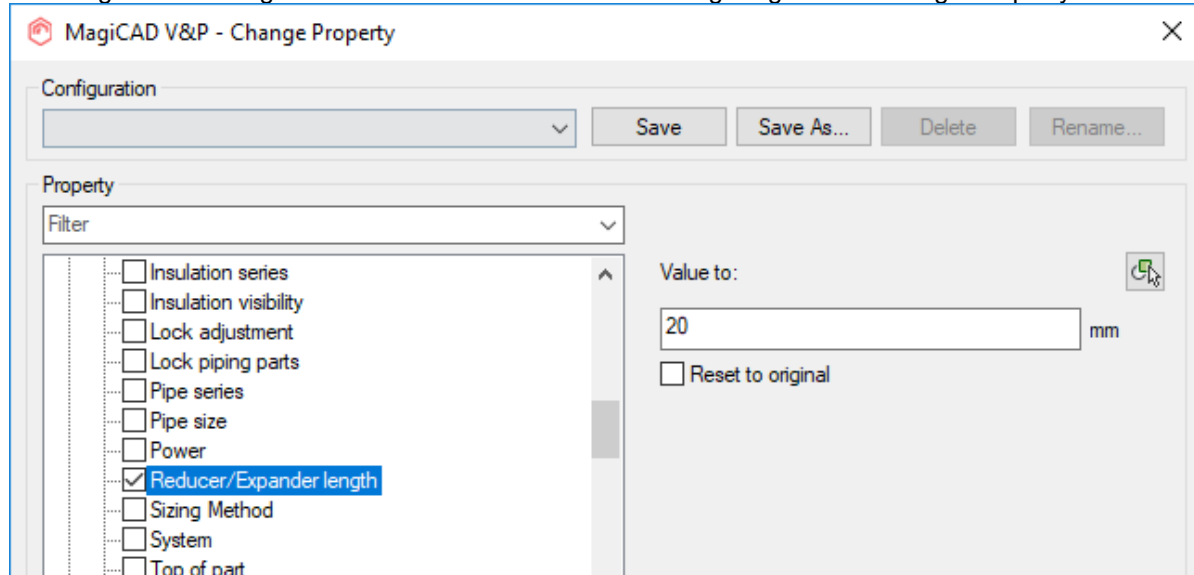
Risers can now be used in all situations

Now the pipes don't go on top of each other when changing the Z-elevation like before. Now the pipes are logically drawn next to each other:

Product specific default values can now be set for radiators, domestic water devices and drainage devices to help in the installation in the drawing

Product specific values can be set in the product selection in the project for the following device types:

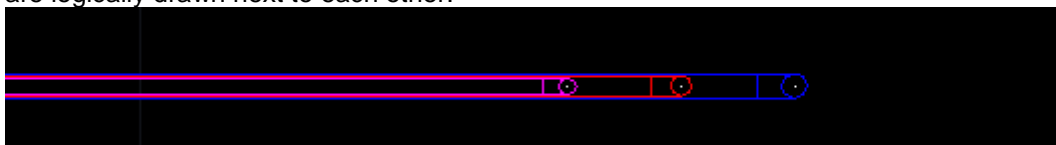|	
Heating and hot water radiators	Required heating power (W)
	Connection size (mm)
	Radiator valve
	Valve size
Domestic water devices	Installation level (mm)
	The distance between devices (mm)
	The distance between water- and drainage devices (if one is installec
Drainage devices	Installation level (mm)
	Flow (l/s)

Previously default values from the database were used in the installation dialogs, but now the users can set these in the project according to the needs of their project to help them save time when installing the devices.
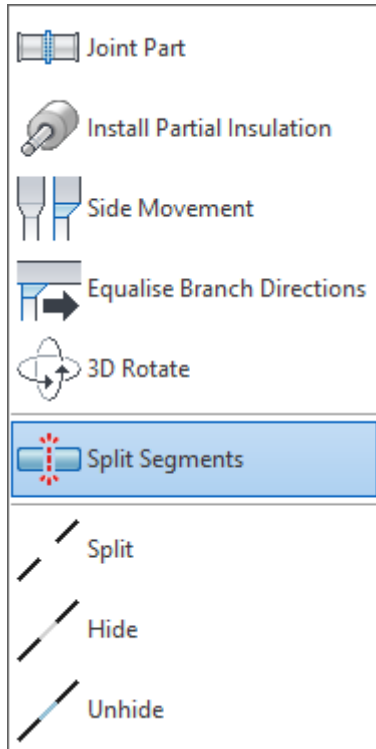
These can be set in the product information dialog of these device types:
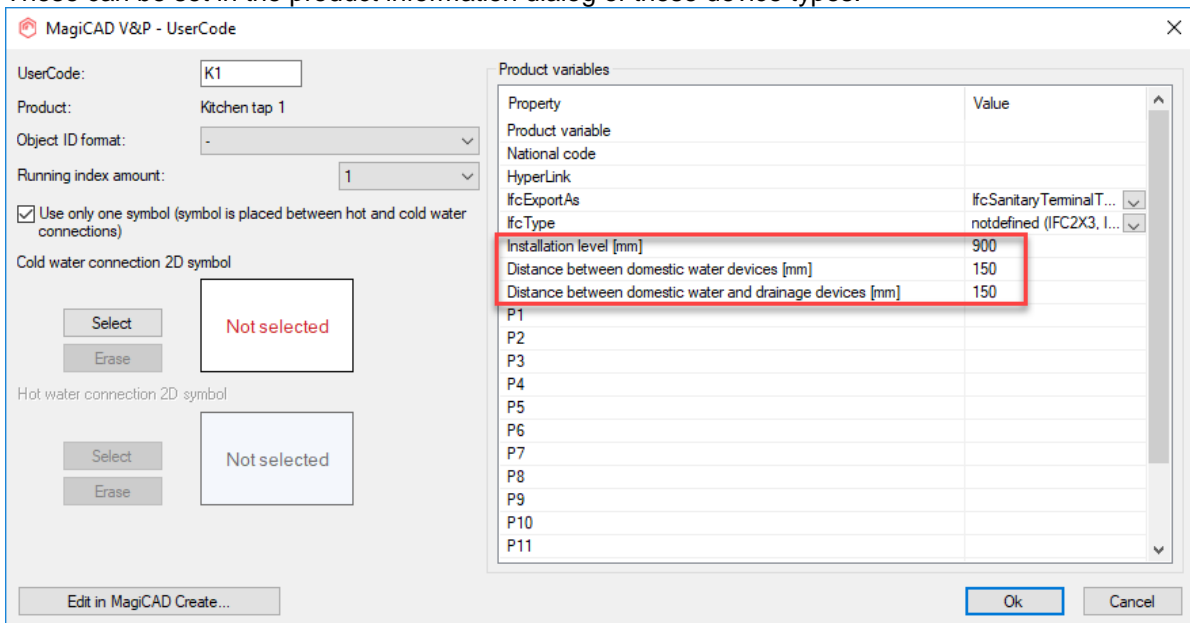
A new Split Segments function has been implemented

Now you can automatically split the ducts and pipes with the new "Split Segments"-function.

In V&P this function is found under "Modify":

Note: An important change for Ventilation is that the joint parts now only show the "Extra length" in the drawing and not "Extra length" + 2x "Fit on length".

This so that the lengths of the individual segments are calculated correctly:

Duct Sizes

Size	Bend R/D	Fit on len	Extra len
160	1.00	40	15
200	1.00	40	15
250	1.00	60	15
315	1.00	60	15
400	1.00	80	15
500	1.00	80	15
630	1.00	80	15
800	1.00	100	15
1000	1.00	100	15
1250	1.00	120	15

New vs Old:

Connection sizes for ducts and pipes of climate beams, fancoil units and pumps are now exported to the IFC-file

Connection sizes of pumps, chilled beams and fan coils are now exported.
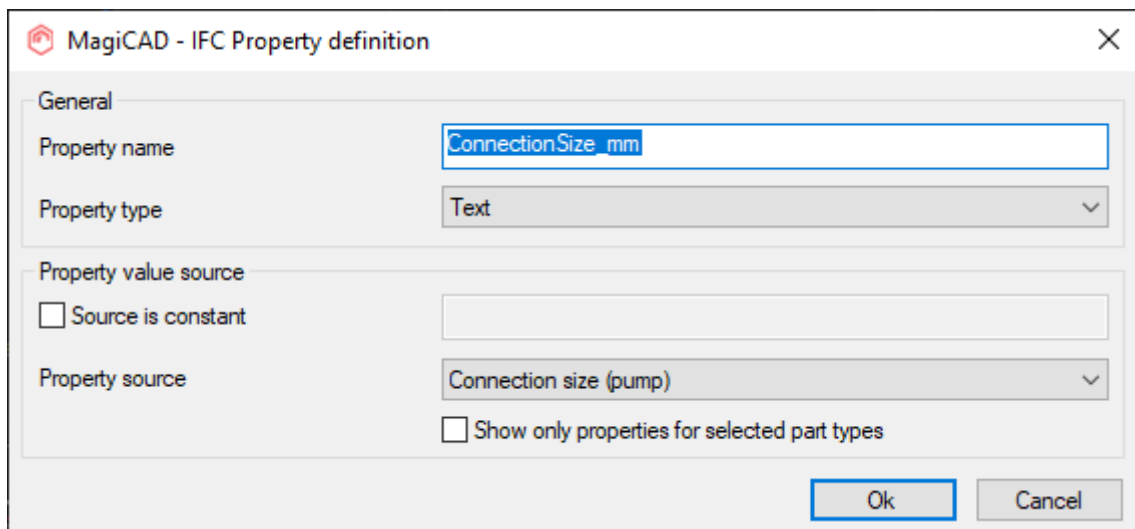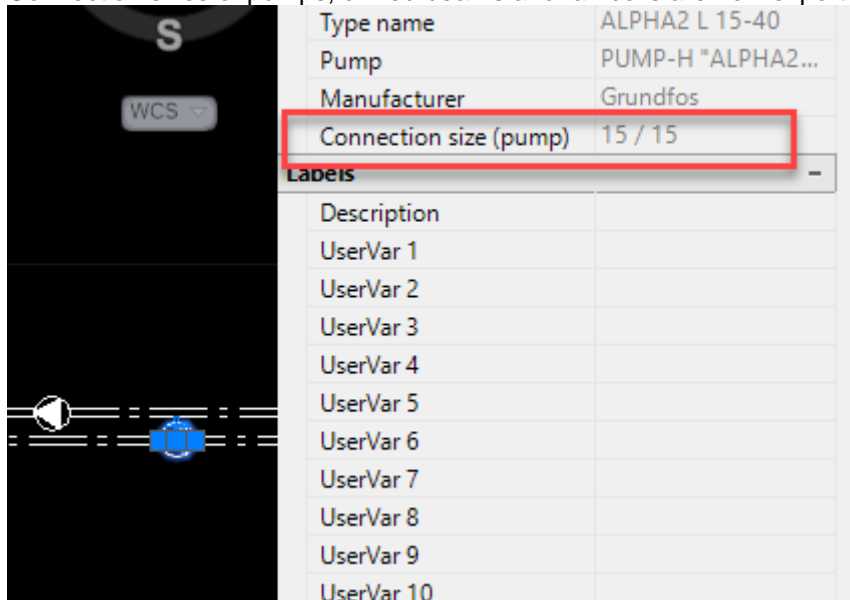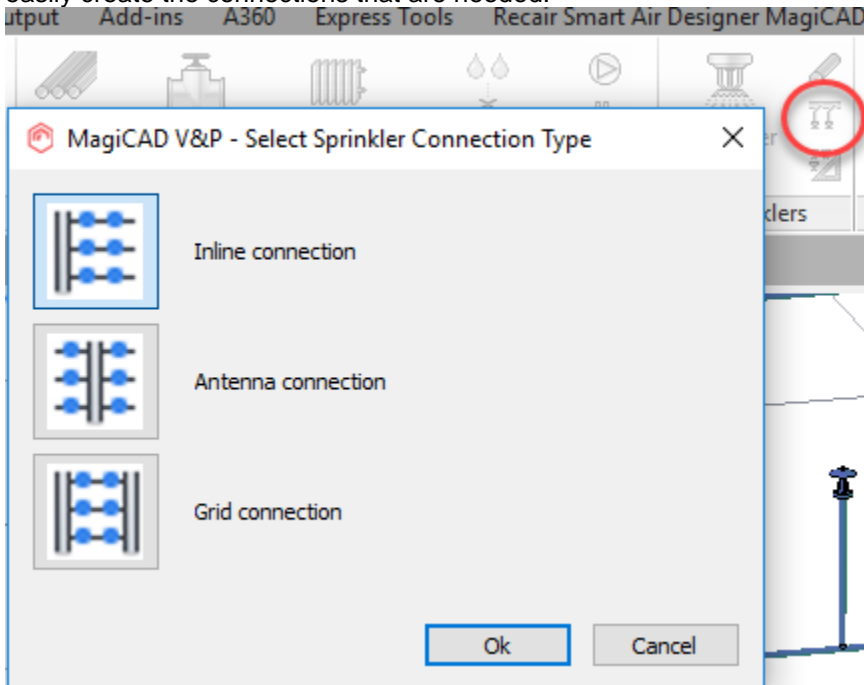
Multiple sprinkler heads can now be connected more efficiently and with a range of setups

It is now possible to connect the sprinklers with a more advanced sprinkler connection tool to more easily create the connections that are needed.

Improved crossing tool for multiple pipes, ducts and cable trays

Now you can select multiple segments at the same time to be modified using the crossing tool, instead of doing it one segment at a time.
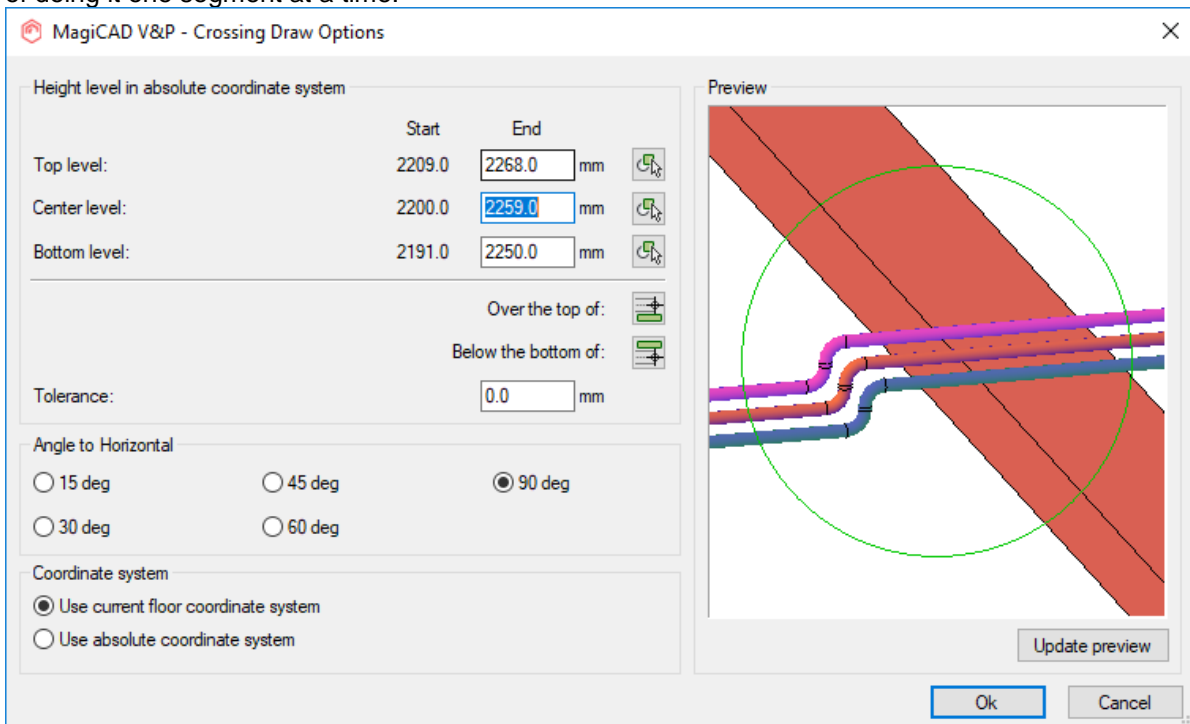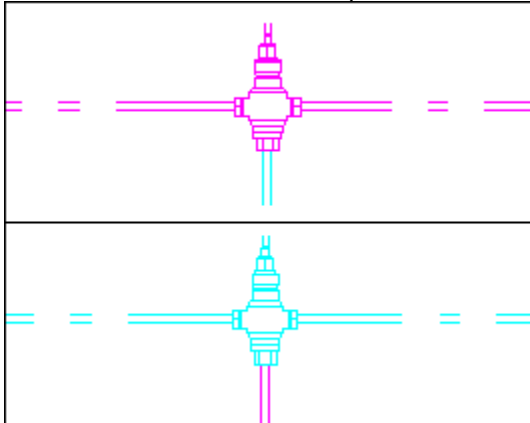
We have added 3-port valves to MagiCAD for AutoCAD

Now the user can use 3-port valves in their project in the heating and cooling systems.

Note that the size is "locked" for the installed valve, so the size doesn't change with the sizing function.

Connection "1" and "2" are a pair and the 3rd connection is always then of the opposite supply/return:
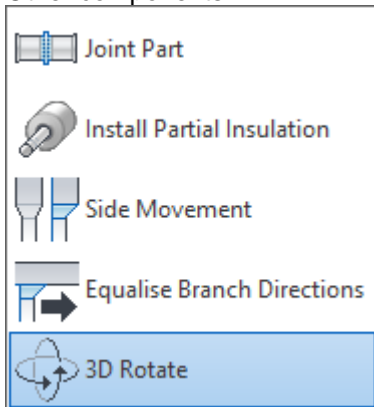

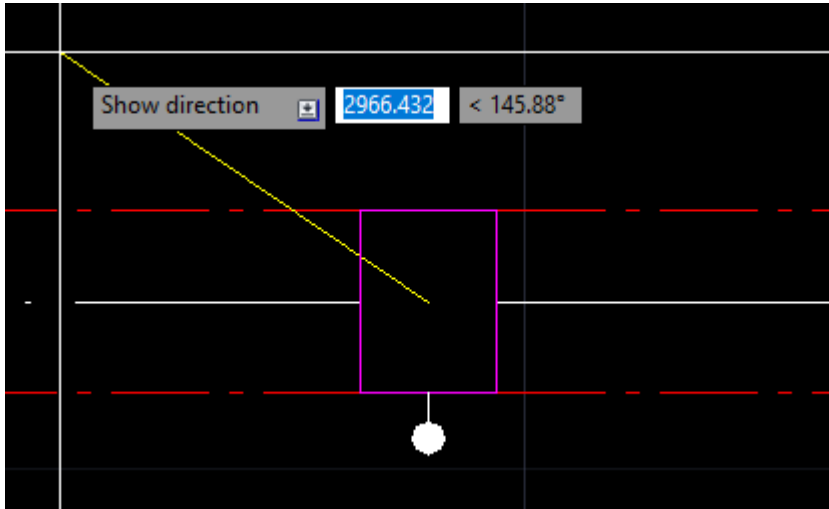**Rotation of the actuator symbol using 3D rotate is now possible**

The actuator symbol can now be rotated separately when using 3D rotate. This is implemented for the device types that have actuator symbols in MagiCAD for AutoCAD in Ventilation:

Flow dampers

Fire dampers

Other components

New settings for the selection of air density and viscosity for ventilation systems have been added

The density 1.2 kg/m3 and dynamic viscosity 18.13 *10^-6 Pa*s were hardcoded in the program, but this did not suit all design situations, for example for high altitude buildings or smoke evacuation systems.

Now you can select to use your own values instead of the default values.
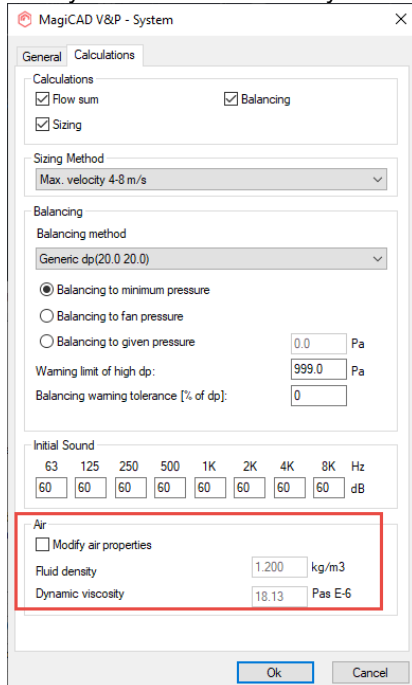
Note: The checkbox is only to protect the given values from accidental change.

When you check it, the fields become editable, but after you save changes and re-enter the dialog, the checkbox is unchecked again. This is by design.

A new Batch Report and Script Command have been added

To automate the output of reports it is now possible to use a Batch Report function or a script command to export them.
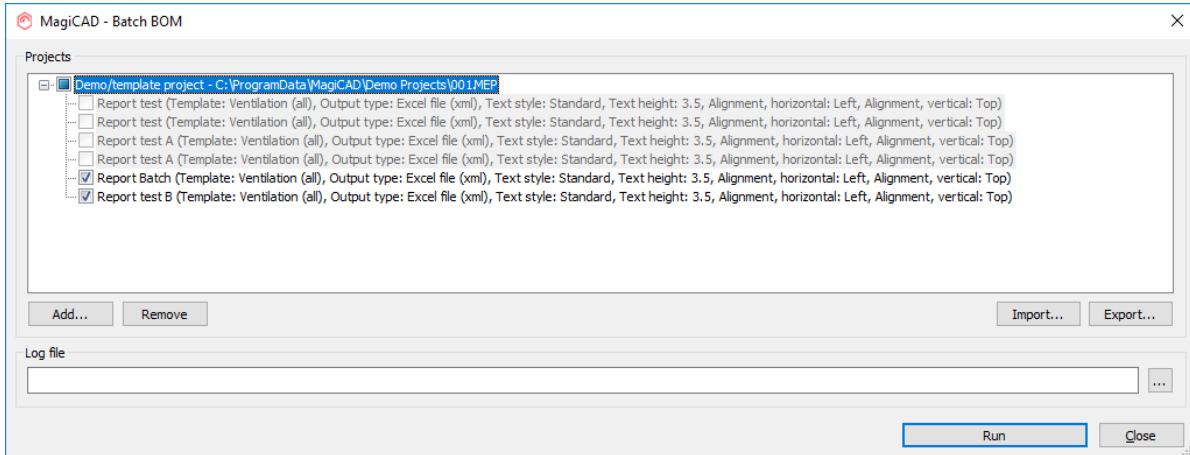
The path for the output file can be set in the Report Tool as before, and the whole configuration can be saved as a selection set
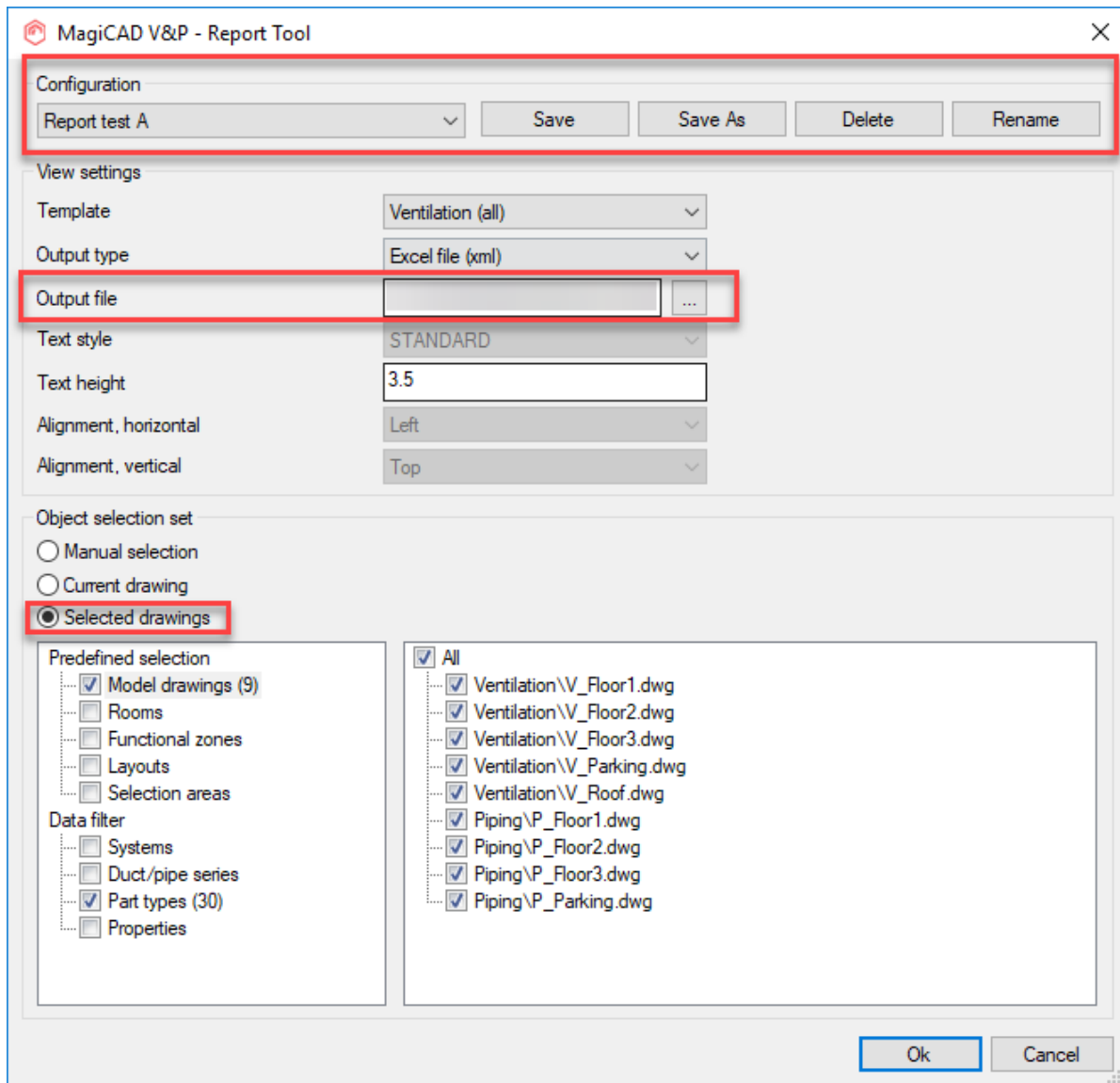
Finally, the selection set can be used in a script command (-BOM) for running the report into the specified file.
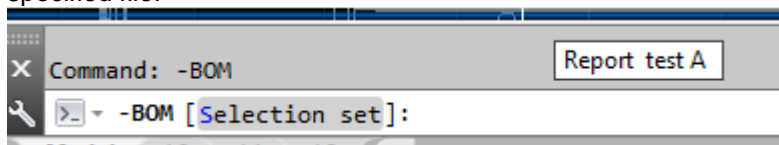
And in the same way selected to be exported in a new Batch Report function. Selection set".

Connection node "None"-types now have the option for the user to set the volume of the connected system, for heating, cooling and domestic water systems

The connection node "None"-type does now have the option to set the volume of the system, for heating, cooling and domestic water systems one want to simulate that the pipes have been connected to.
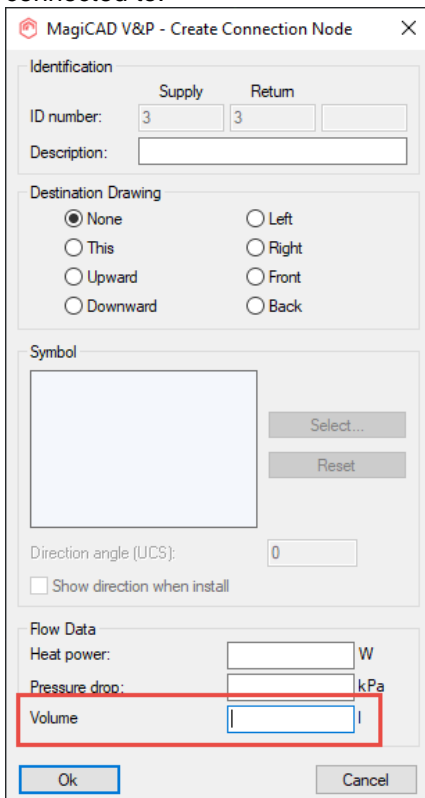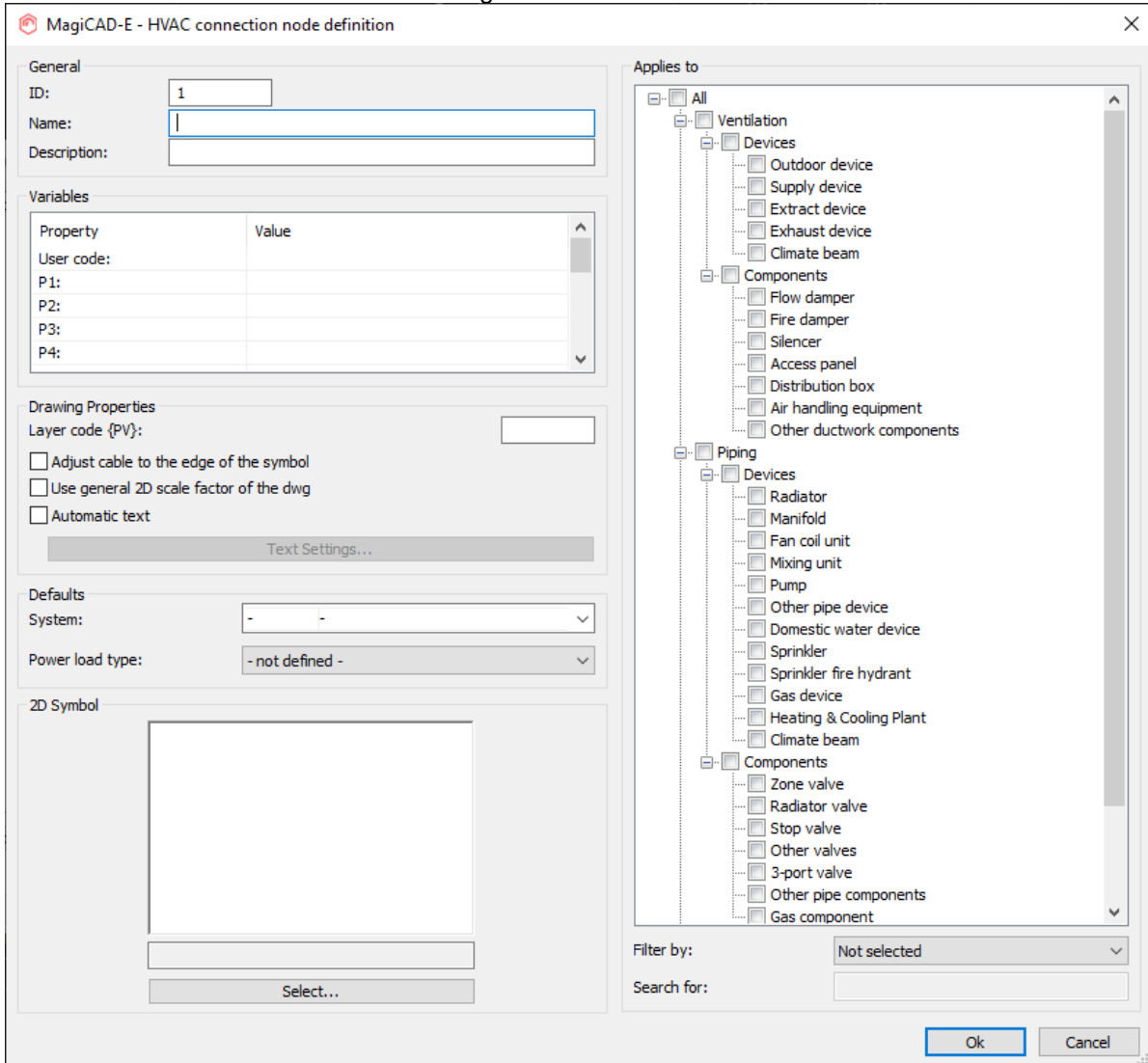
1.3 Electrical

Connection nodes between HVAC and Electrical

With this function users can generate connection nodes between HVAC and electrical which are used to transfer data to electrical drawings.

In the project, users can make own definitions about which kind of 2D symbols will be generated for which kind of HVAC devices in the drawings.

When running the function, MagiCAD asks you whether to find electrical data, communications data or both from the HVAC devices found from xref drawings.

A report dialogue is opened where all nodes and needs for nodes are shown, and if there are some changes in existing nodes, they are also reported there, and the user is given the possibility to update the information to the current electrical drawing.

Supporting conduit connectors in e/c/d/ba products

Support for conduit connectors for devices has been done.

Conduits can be drawn to and from devices that have conduit connectors. There is a grip point for each conduit connector of a device.
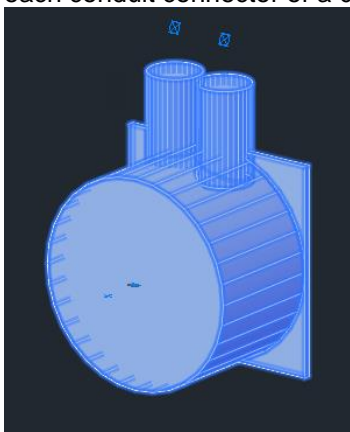
Active Power supports high power values

Active power supports values up to 999 999 999 W (about 1 GW)

Active power saved also as double type (able to store 16 digits)

Option to select default value for Move device symbol

Possibility to select default value for "Move device symbol" has been added to User preferences. Selected value is always used when starting the "Move device symbol" function.
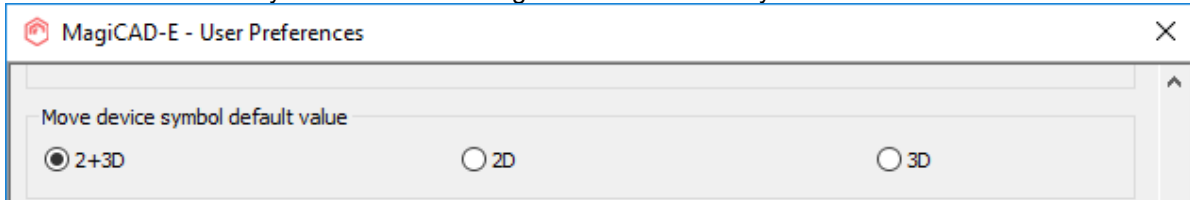
Default selections are no longer set in the Update drawing data function

Now default selections aren't set like in previous versions, when starting the program, this to make sure that the users don't update information that they don't want to update:
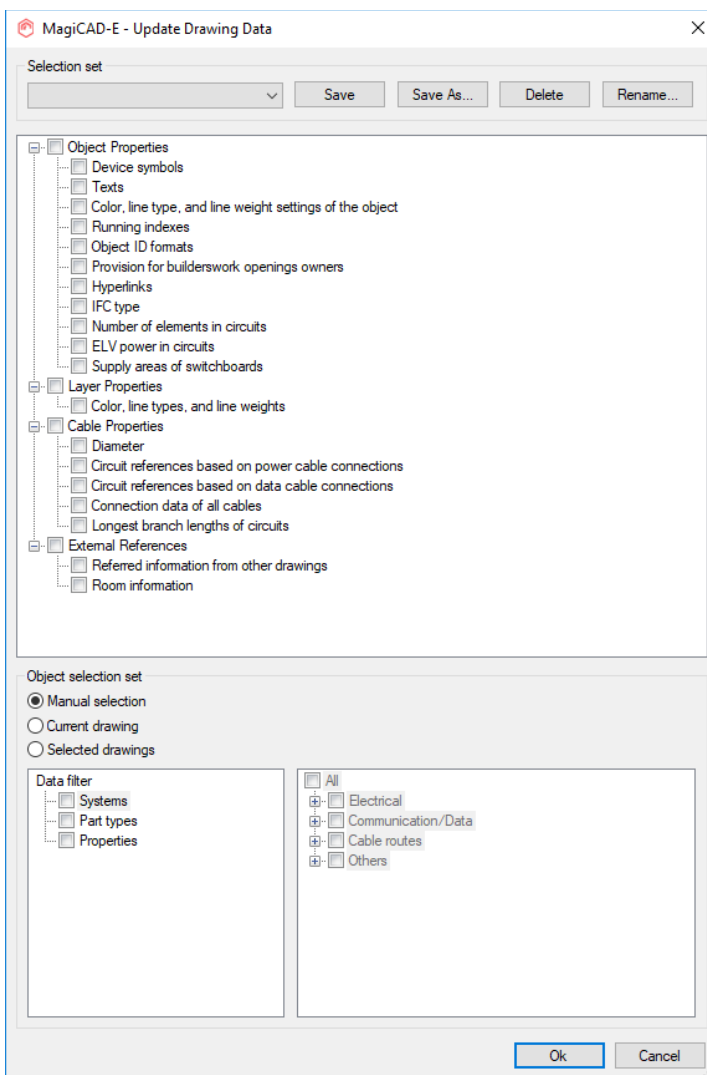
Split Segments

Now you can automatically split cable trays, LED-stripes and lightning tracks with a new "Split Segments" -function, just like in MagiCAD for Revit. The used cut lengths are set in product definitions.

The function is found under the "Modify" dropdown list:
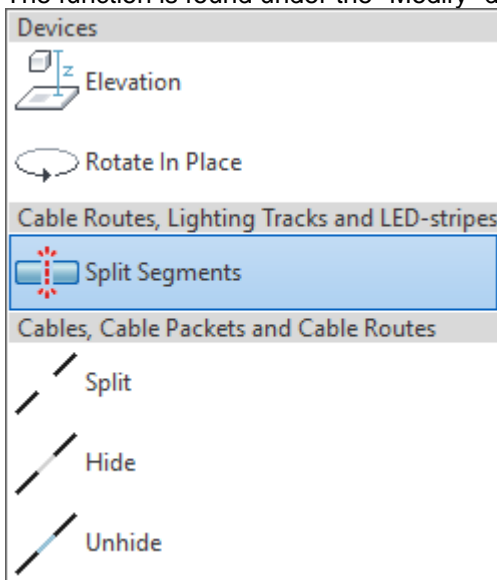
Find & Replace Text has been improved to find automatic object IDs

Object IDs that were automatic (greyed out and locked) weren't found by the Find & Replace function previously.

Now it works and finds the corresponding objects, but of course does not change the texts.
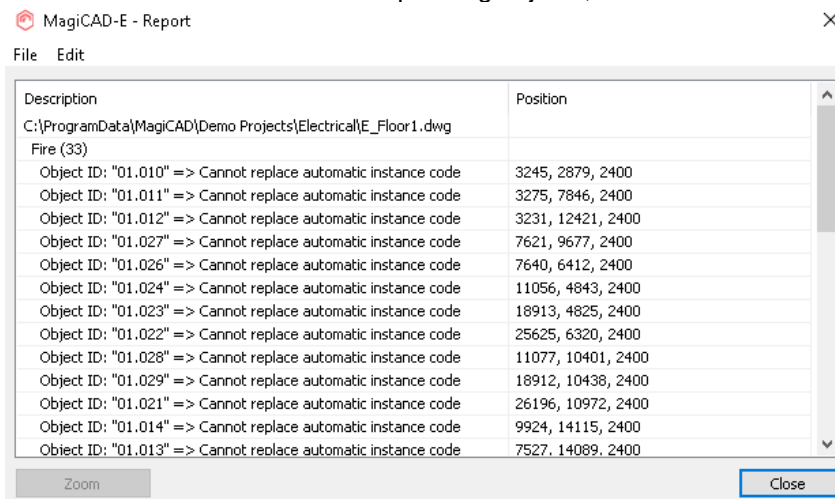
Batch Report and script command

To automate the output of reports it is now possible to use a Batch Report function or a script command to export them.

The path for the output file can be set in the Report Tool as before, and the whole configuration can be saved as a selection set.
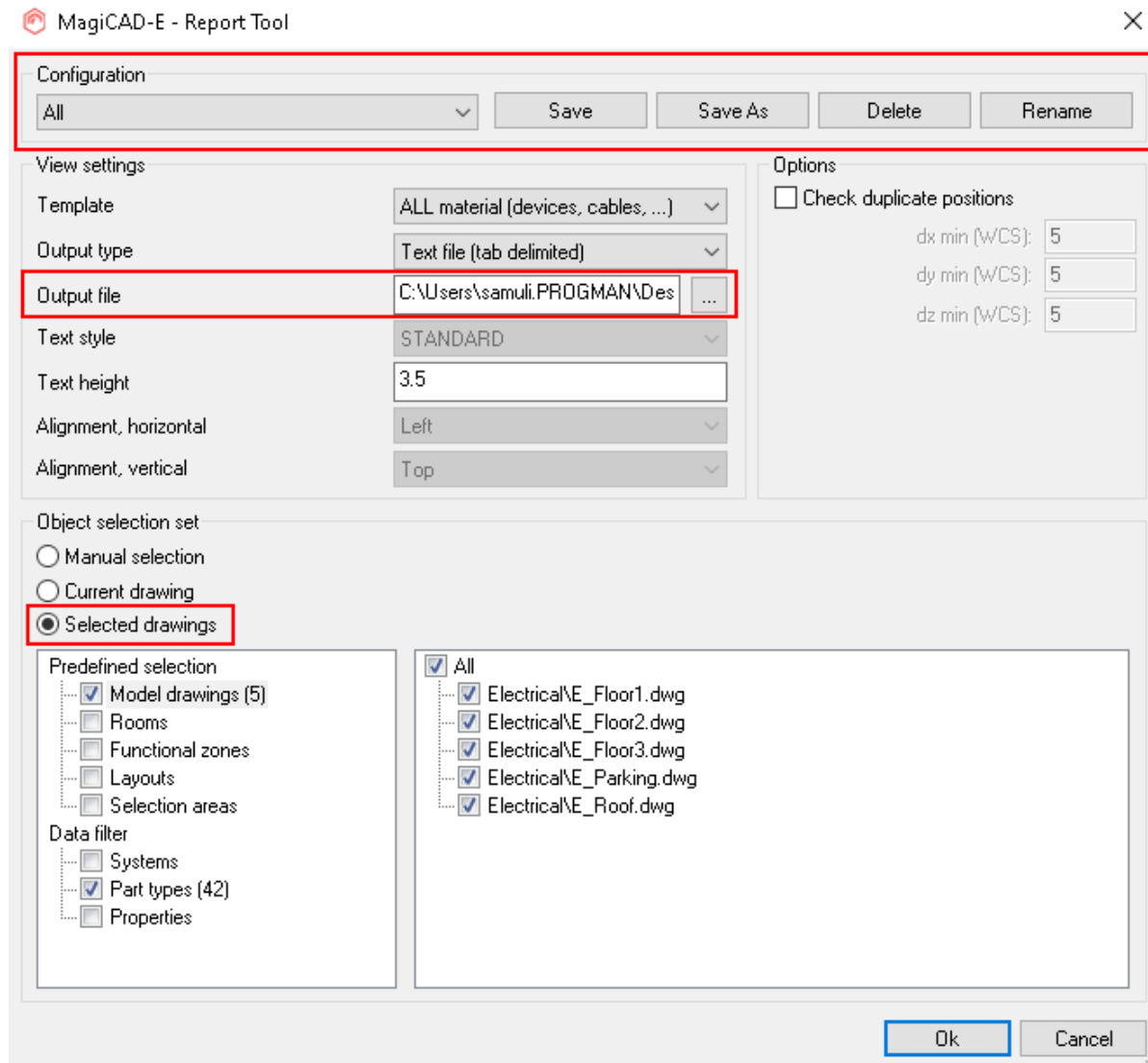
Finally, the selection set can be used in a script command (-MEBOM) for running the report into the specified file.
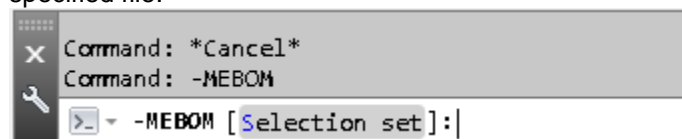
And in the same way selected to be exported in a new Batch Report function.
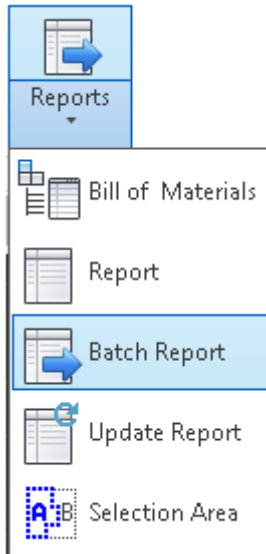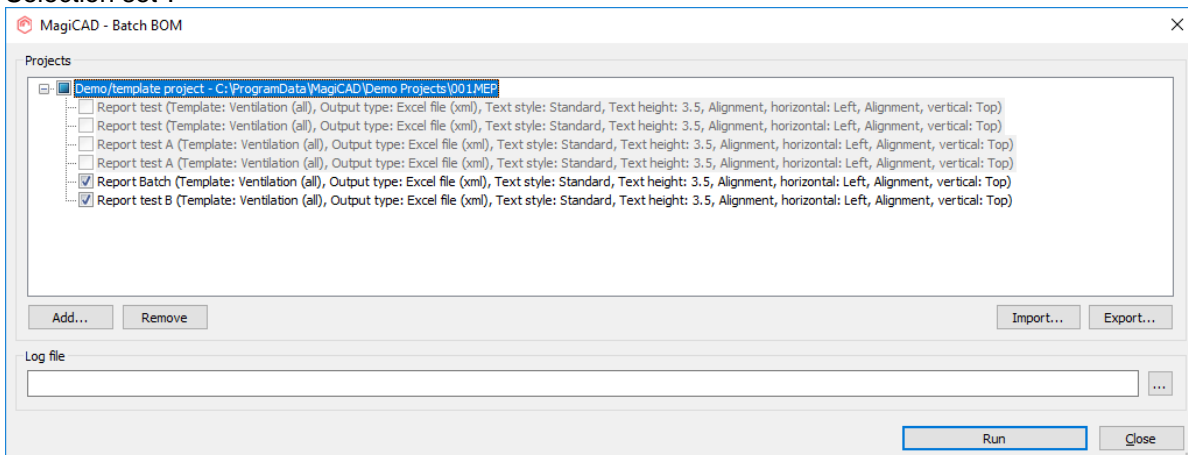
Selection set".

For running reports from several projects and/or selection sets, you can use the -MBBOM command together with a .INI file.

```
Command: -MBBOM

Configuration file: c:\Temp\All_report.ini

Successfully finished.
```

1.4   Circuit designer

No new features in this release.
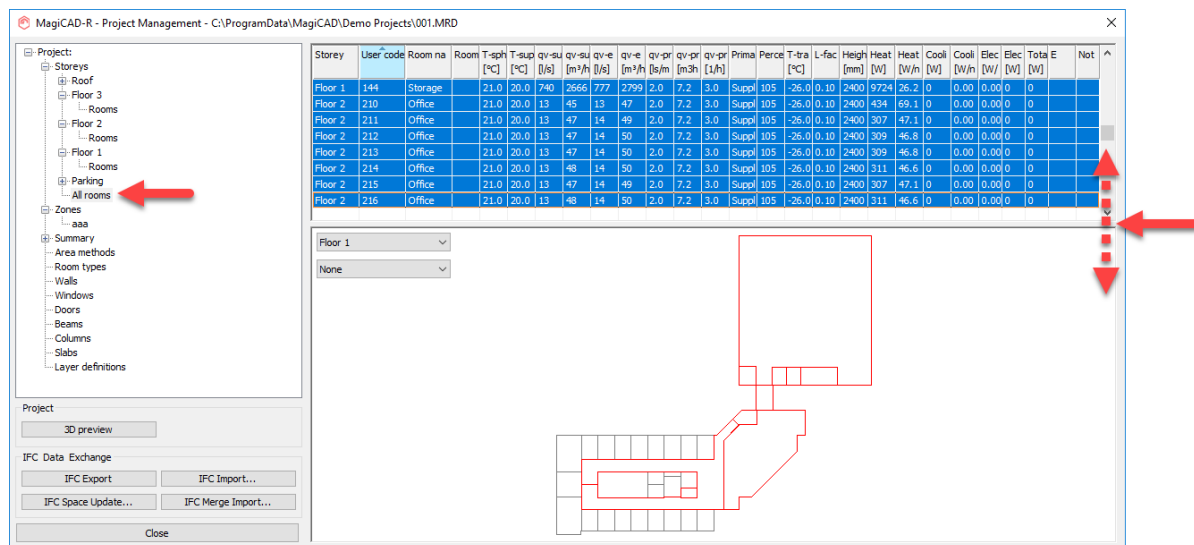
1.5   Room

An "All rooms"-category has been added to MagiCAD Room, as well as sortable columns for all the Room-lists

We have added an "All rooms" category which will help the user get a better overview of the rooms in the project. Now the user can set values for rooms in different floors in the same dialog, instead of setting the values each floor at a time, which will save a lot of time when the rooms are similar in different floors.

The columns in the rooms-lists are also sortable now, which will further help with getting an overview and setting values for the rooms.

The list and previews can also be resized now so that the user can get a better overview of either.

1.6   Schematics

No new features in this version.

2   Resolved issues

2.1   Common

IFC Export error report zoomed to the incorrect place
The issue was that if you ran the IFC Export so that there were failed parts to export and then clicked "Zoom" button for some part the zooming went to the wrong point.
Now the zooming goes to the correct object that is selected by the user in the report.

IFC append made faulty IFC files in certain cases
The issue was that when appending to an IFC the IFC became corrupted and when trying to open it, for example with Solibri model viewer a message was simply shown stating "Reading of IFC model failed". This has now been fixed.

Product variables were not exported to the IFC if they didn't have any value
Product variables were not exported to the IFC if they didn't have any value, but Object variables were exported even without any values.
Now empty product variables are also exported to the IFC.

Now it isn't possible to select long paths in file/folder selection dialogs
It was possible to select long paths in file/folder selection dialogs. Our functionalities don't support those and may cause crashes and this has now been corrected and is no longer possible.
A "long path" is a path with more than 260 symbols.

The Room data in Object ID for provisions was wrong if the storey origin wasn't 0,0,0
The issue shown below:

Vertical provisions had the wrong information for top, center and bottom offsets
The length and heights were not used correctly for the offset calculations in the vertical provisions and therefore the offsets were wrong. This has now been fixed.
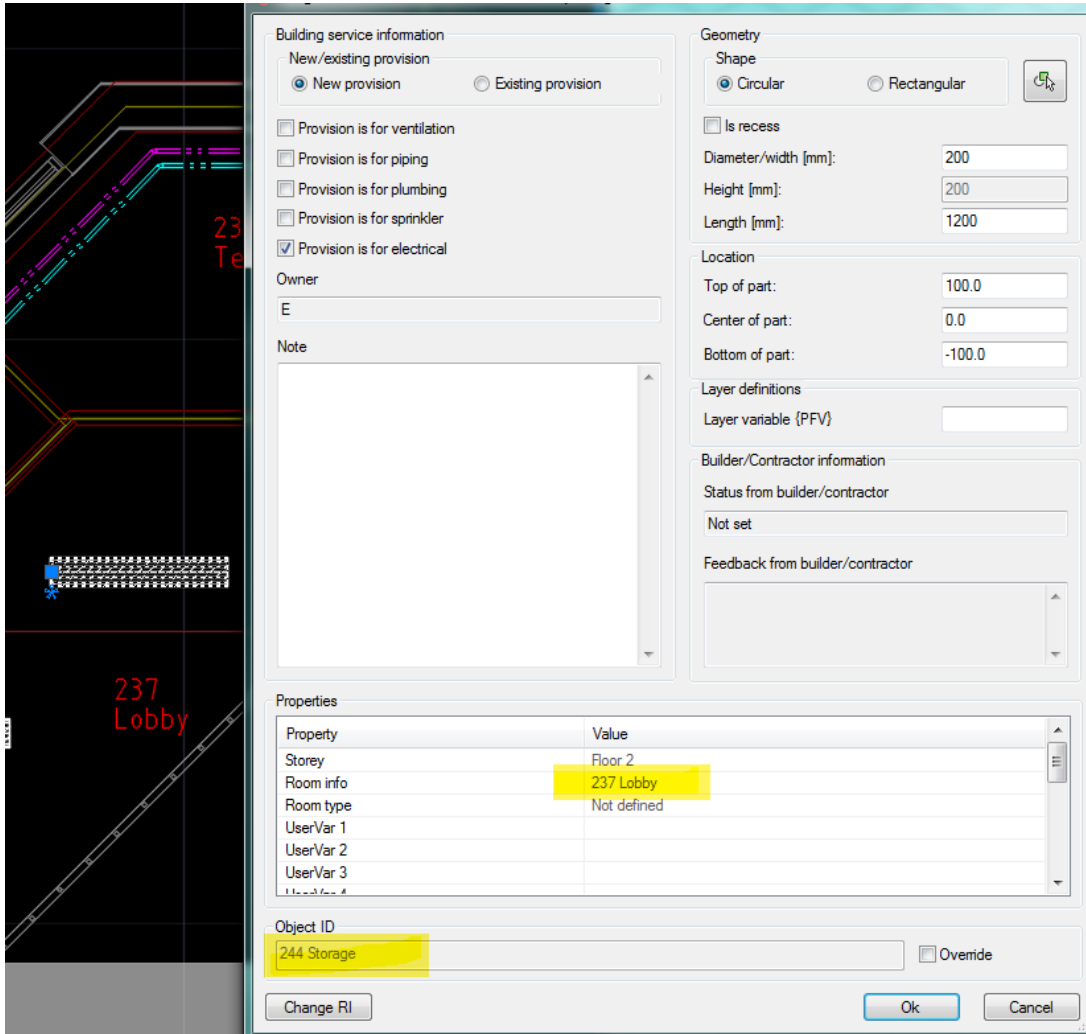
Now the correct information is shown in part properties of the provisions for builderswork openings.

Explode in the Drawing Cleaning Utility broke the dimension texts of Provisions for Builderswork openings

The information in the dimension texts for provision for voids was gone after using Explode:
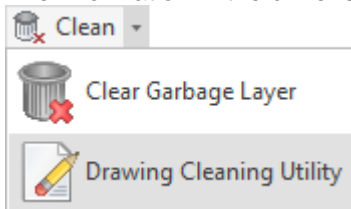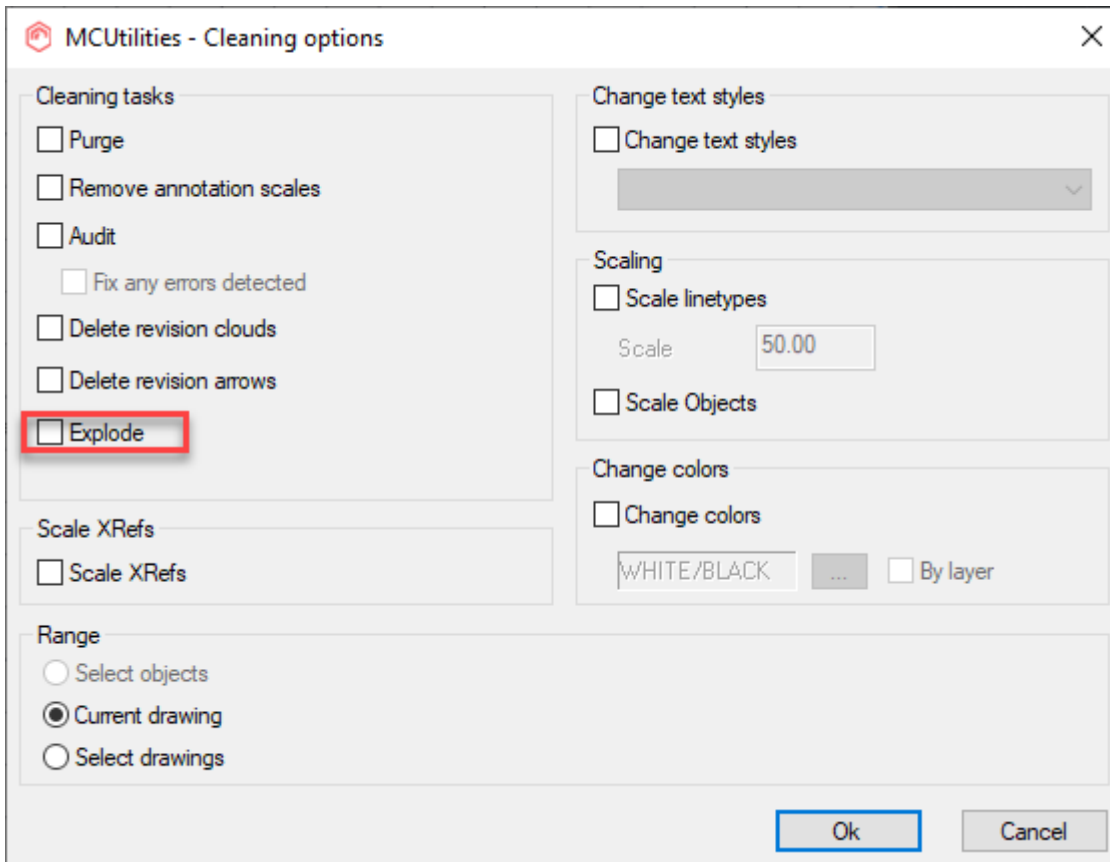
The reason for this was that the provision was exploded first and the information lost, before the dimension text was exploded.

Now the dimension texts are exploded first, before any other objects.

2.2   Ventilaion and Piping

Find & Replace did always set the distance between domestic water devices (dx) to 150 when replacing water devices
This has now been fixed and now water devices keep the set "Distance between domestic water devices" and "Distance between domestic water and drainage devices" for the device in the drawing, when using Find & Replace.

The Issue was that if you had set the distance between water pipes of a tap to be a 100 mm and used find and replace to switch it, new one came with the distance 150 mm.
It still kept the connection and running calculations on the system made the pipes go diagonal.
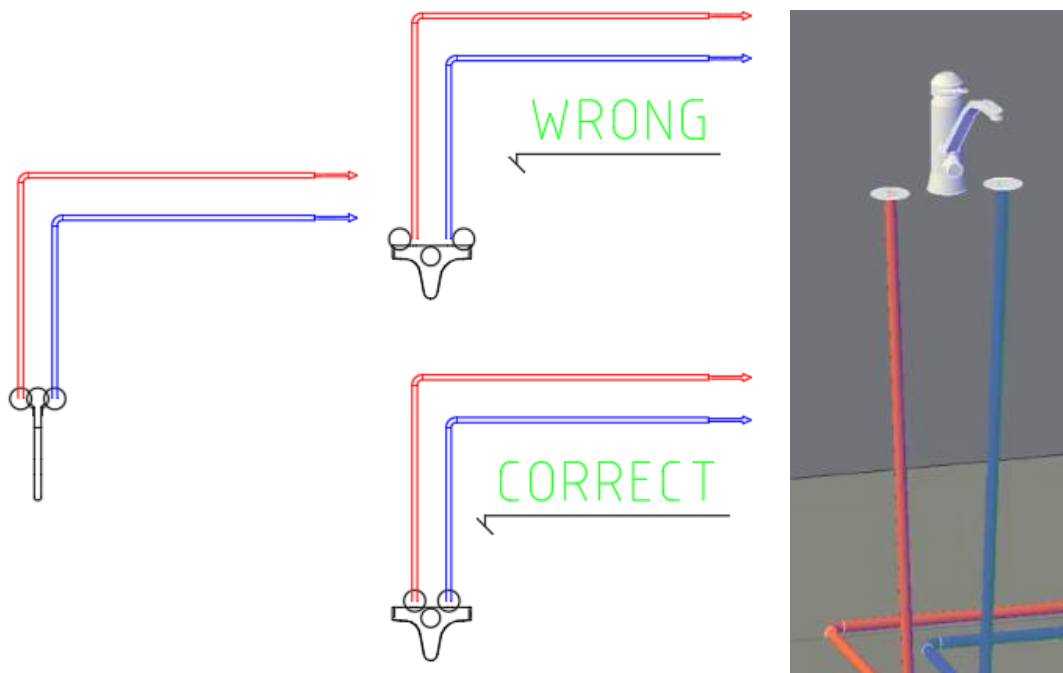
Improved the handling in special cases with connections to air handling devices
If the duct is inverted then it earlier threw a warning, but now the sizing function corrects the issue as well and removes the warning.

If you had a situation like this:

Running the sizing on this part threw an error:

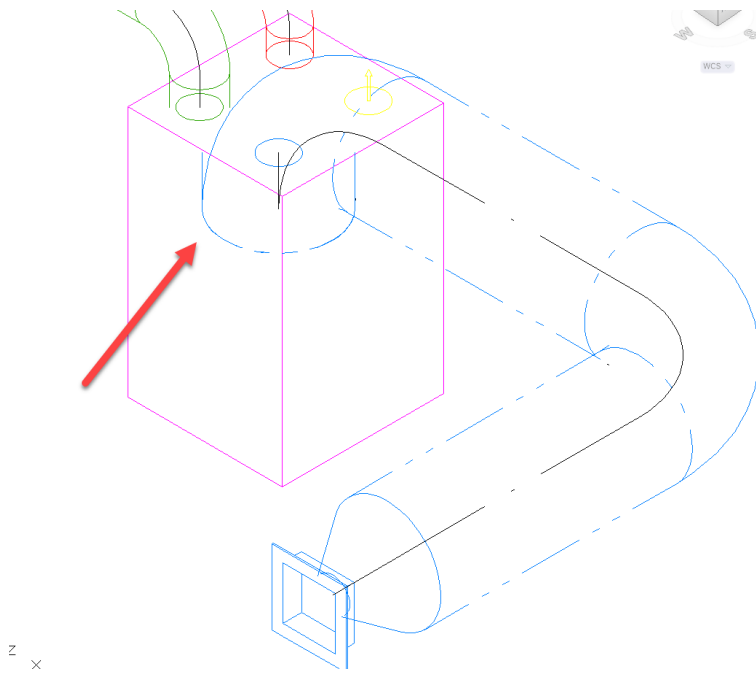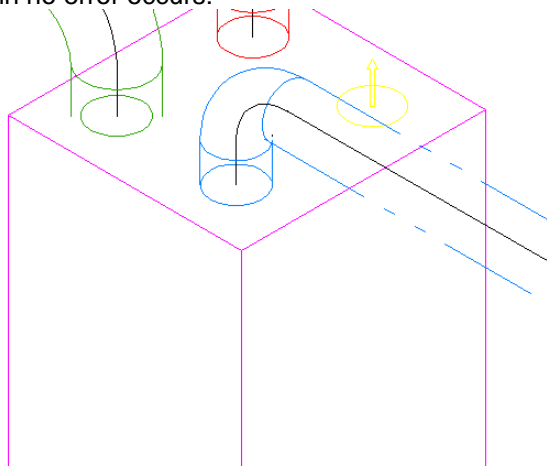| Location	Level	Node	System	Type	Series	Product	Size	Old size	L [m]	Insulation	qv [l/s]	v [m/s]	dp/L [Pa/m]	Sizing method	Warnings
	Parking	3		AHE/AHU		ILOX 129 (L)									
	Parking		O1	DUCT	Circ		125	400	0,1		10,0	0,8	0,11	Max. velocity 4-8 m/s	Position conflicts with neighbor (out of space)
	Parking		O1	BEND-90	Circ		125	400			10,0	0,8			
	Parking		O1	DUCT	Circ		125	400	1,5		10,0	0,8	0,11	Max. velocity 4-8 m/s	
	Parking		O1	BEND-90	Circ		125	400			10,0	0,8			
	Parking		O1	DUCT	Circ		125	400	1,4		10,0	0,8	0,11	Max. velocity 4-8 m/s	
	Parking	2	O1	OUTDOOR		RISV-200-200-125	125 (L)				10,0	0,8			

But now when approving the results, the sizing fixes the issue and when you run the sizing function again no error occurs:

Location	Level	Node	System	Type	Series	Product	Size	Old size	L [m]	Insulation	qv [l/s]	v [m/s]	dp/L [Pa/m]	Sizing method	Warnings
	Parking	3		AHE/AHU		ILOX 129 (L)									
	Parking		O1	DUCT	Circ		125		0,1		10,0	0,8	0,11	Max. velocity 4-8 m/s	
	Parking		O1	BEND-90	Circ		125				10,0	0,8			
	Parking		O1	DUCT	Circ		125		1,5		10,0	0,8	0,11	Max. velocity 4-8 m/s	
	Parking		O1	BEND-90	Circ		125				10,0	0,8			
	Parking		O1	DUCT	Circ		125		1,4		10,0	0,8	0,11	Max. velocity 4-8 m/s	
	Parking	2	O1	OUTDOOR		RISV-200x200-125	125 (L)				10,0	0,8			

Issues with pipe sizes and fire hydrants related to sprinkler systems
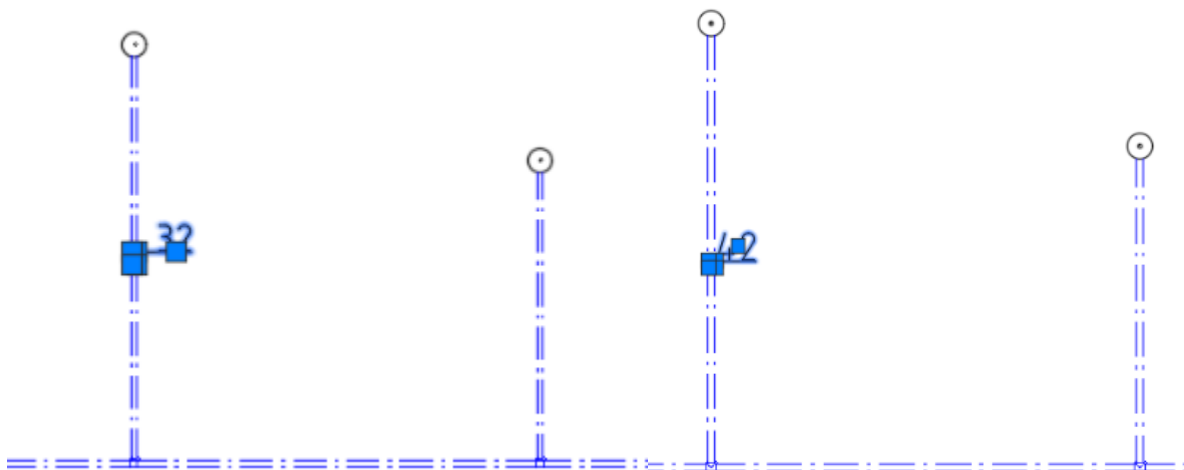 Two issues were sorted out:
1) Issues with sizes of sprinklers to pipe when the size and the Dout were different and
2) fire hydrant couldn't be assign to any design area

1) Fixed a bug where the outer size of the pipe was not the actual outer diameter but the "size" set to that size in the pipe series.
For example if the size was "32" and Dout was 42, the after using sprinkler connection both the "size" of the pipe and the outer pipe diameter were set to 32, although the actual drawn outer size should have been 42:

In this case wrong (left) vs correct (right):

2) We did also fix an issue where the fire hydrant couldn't be assigned to any design area.

Automatic Provision for voids didn't work in a special case
Functional improvement in a very special case (slanting duct/hollow slab) which caused issues, so that this functions better now.

The Sound calculation of the route didn't use the selected filter in the project settings
When you used just the "Sound Calculation of Route", then the sound filter, which is set in the project's settings, didn't work and nothing was updated according to it.
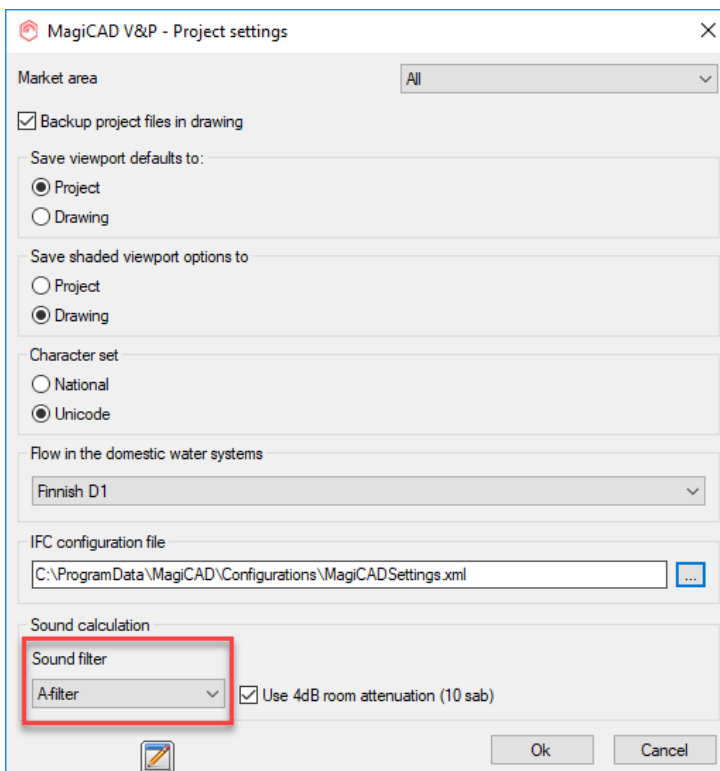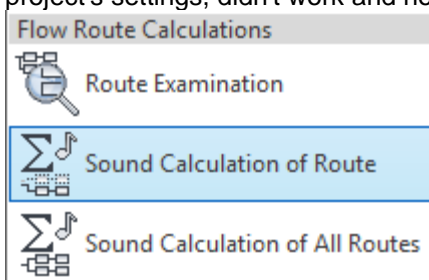
Only when you used "Sound Calculation of All Routes" was the filter correctly used.

It wasn't possible to set values to several insulation series at once

The issue was that this did not update for the "National code" and "Material" like it should:
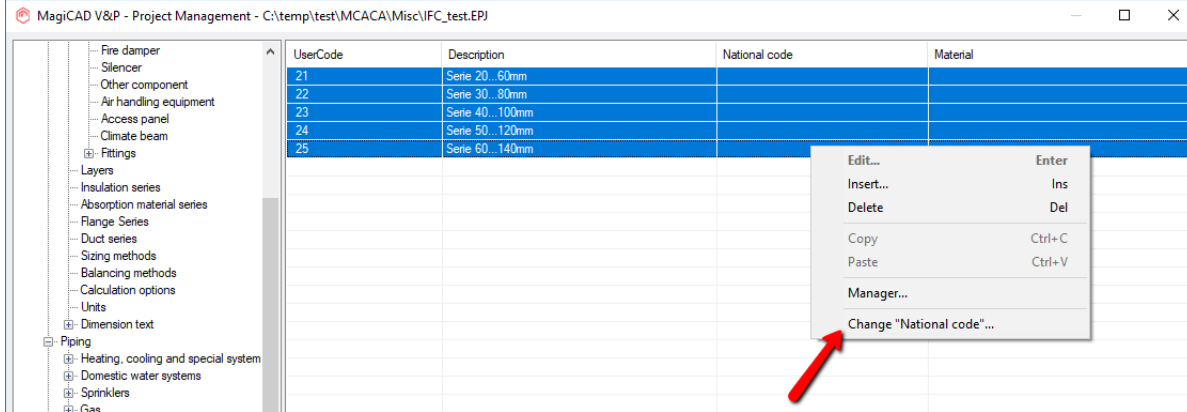
The flow through the radiator can now be used as an IFC property

Now the flow of a radiator can also be exported to an IFC file:

A number of minor piping calculation report bugs have been fixed

A number of bugs have been fixed:

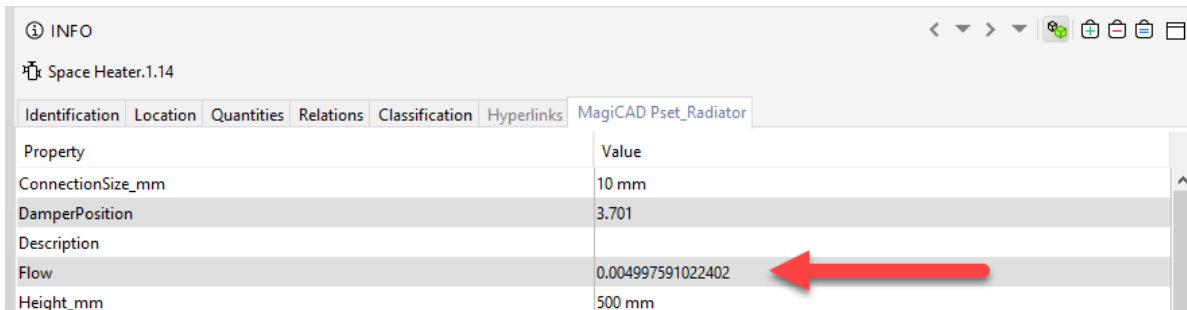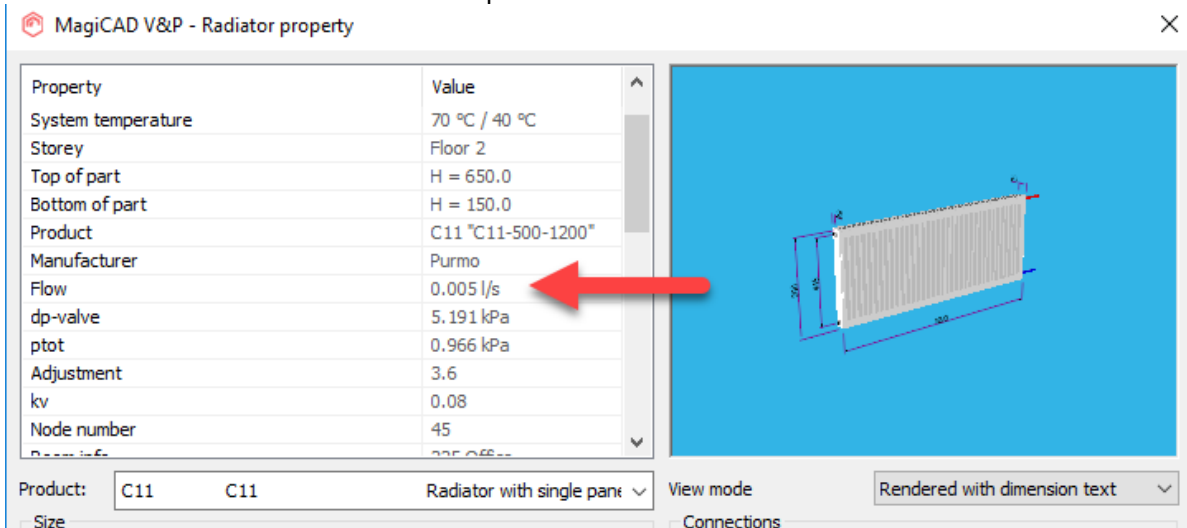After "Update sizing" the view jumped to the hot water supply-side but the button remained selected for the return. This happened in both heating/cooling systems and domestic water systems.

Before:

After:

The view jumped to "All routes" mode if "Update sizing" was pressed in "This route only" mode, in both the domestic water and heating/cooling networks.

The radio buttons were not updated correctly when changing back from "General results". In domestic water network.

The "Update Sizing" button did sometimes move to the side:

When opening the product properties from the calculation report, the diagram didn't show the operation point

When the part properties was opened for the cooling beams and fan coil units, by right clicking and clicking "Product properties" in the calculation reports, then the operation point wasn't shown in the diagram. This has been fixed.
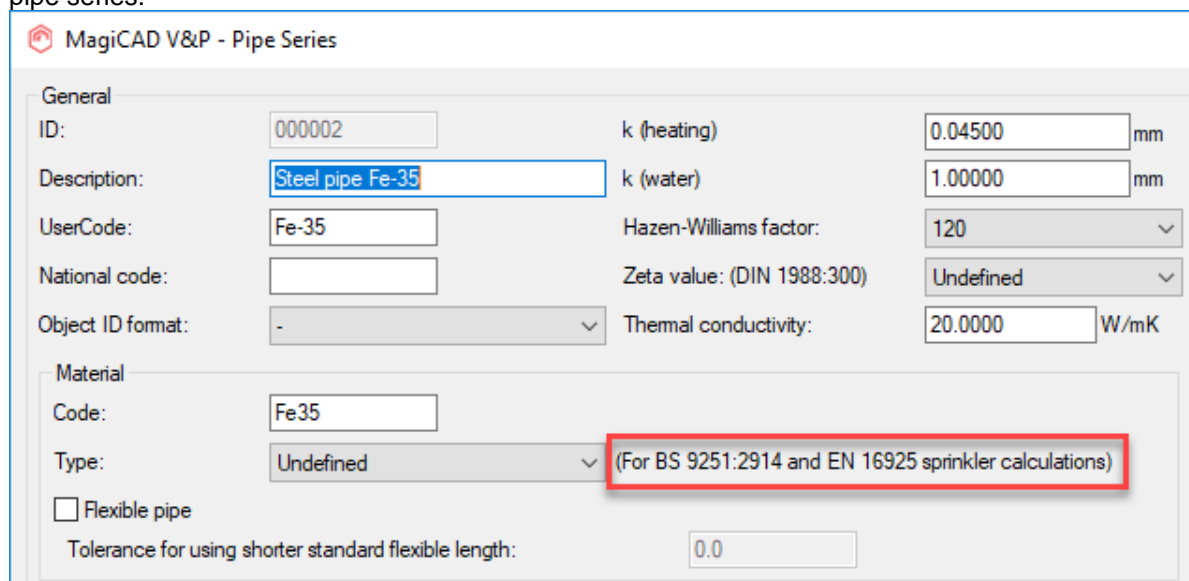
An error for the MagiCAD for Revit application was shown in MagiCAD for AutoCAD

The sprinkler calculation in MagiCAD for AutoCad showed the user a MagiCAD for Revit-error when using a standard that needs the pipe material to be set in the project, if the "Type" had not been set in the pipe series.

Now this error message has been improved to better reflect that the message is for both AutoCAD and Revit.

The pipe series dialog has also been updated to inform the users that the standard EN 16925 does also need the material to be set.

This wasn't mentioned in the previous versions even if that standard needed a material type for the pipe series:

The Variable Description's and National Code's behaviour have been corrected in a number of places

The "Description" variable was a bit confusing in that sense that all these series have it:

Duct series

Duct insulation series

Pipe series

Pipe insulation series

Drainage series

Drainage insulation series

But the "Description" here is not the same variable value as the one in Part Properties, for example. Despite this was it updated from the "Variable names" in the project, although the set value wasn't then the same "Description" seen in reports and IFC Property sets.

Example:
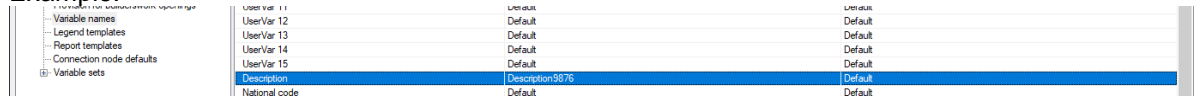
Updated wrongly here as this "Description" is the one combined into the "Product" variable:
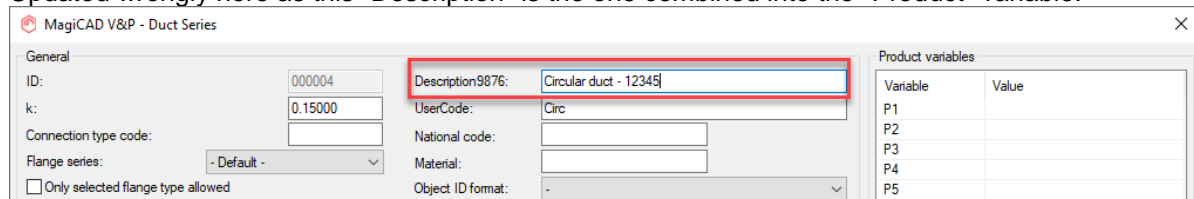
While the "Description" marked with green should have been updated, because it is this variable that is the "Description" in the reports and the IFC Property sets:
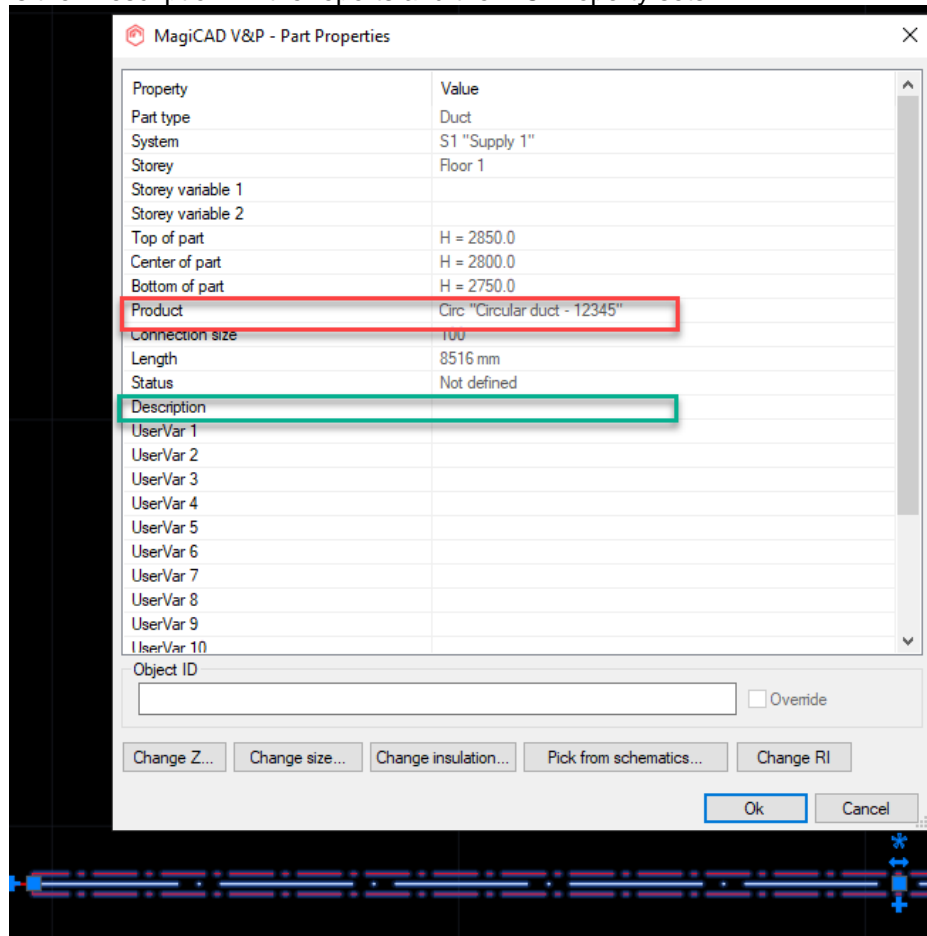
Now this has been fixed so that the "Description" in the above dialogs have been changed to a normal, static "Description" which is not updated from "Variable names".

"Description" in Part Properties is however now correctly connected to the "Variable names".

The "National Code" variable was also not correctly updated from "Variable names" in "Install Any Product" and in "Merge Project" and this has now been fixed as well.

The kv- and dptot parameters were not shown in the Part Properties dialog for valves
The kv- and dptot parameters for valves were removed when opening the Part Properties dialog for a valve, so the user couldn't seen what the values were for these parameters. This has been fixed.

IFCGuid were not generated for the copied objects when using the Copy Branch function
The Copy Branch function didn't generate IFC GUIDs for the copied objects. This has now been fixed.
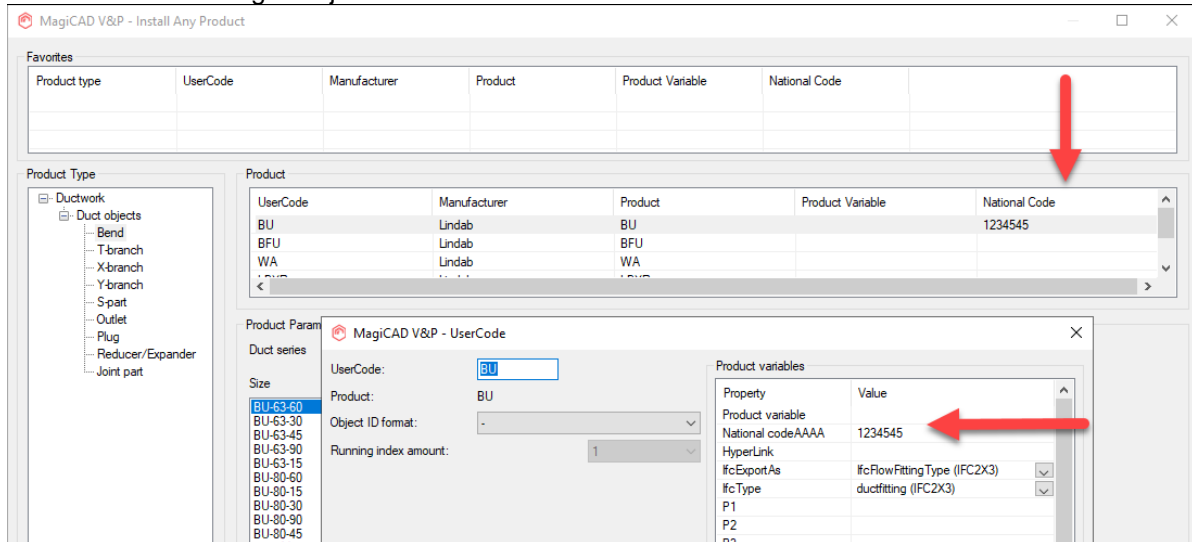
The insulation was not shown in Reports for components and devices
The insulation was not shown in the Report for the components and devices, even if they had insulation. This has now been fixed and the Report now shows insulation for all parts correctly.

"Other valves" issue fixed
We have made an internal change in how the "Other valves" are handled. In MagiCAD for AutoCAD 2020 UR-1 was a bug introduced in how the ports are handled which led to the error "Calculation report cannot be shown because of topology errors". This issue has now been fixed.

2.3 Electrical

Power/data circuit and switchboard references are reset when running update dwg in current dwg only

Switchboard and power circuit references reset for power cables if a previously connected power circuit symbol is not found anymore from the cable network from any model dwg.

Host and tele/data circuit references reset for tele/data cables if a previously connected tele/data circuit symbol is not found anymore from the cable network from any model dwg. If a device belongs to tele/data area, it will remain logically connected to the host device.

Cable markings won't update when drawn

When drawing cable markings which have number (pre-defined or P5) it only shows a line in the cable when the marking have been inserted. Moving the cable or running update DWG will update the marking to be correct.

Now cable markings are correct when they are installed.

PPL dialog shows duplicated O1-O15 properties

Part Property Line dialog shows duplicated O1-O15 properties when System type is "*". Now they are only shown once.

AutoCAD stretch disconnects cable from socket

If cable has been drawn TO eg a switch that has the option of cutting the cable inside of the symbol, the socket will be stretched and the cable will jump back if stretch is by certain length.

If the cable is drawn FROM the switch everything will work as wanted.

Now stretch also works when drawing to a device. Stretch also fixed in Circuit Designer.

IFC Export units are wrong

Make a drawing with different kind of electrical objects in meter scale => 1wcs=1m in Drawing Preferences. Then export the objects into IFC. => The IFC file still has length unit set to mm but exports everything "as drawn" (m) => properties of objects are correct but elevations, lengths etc. of the model are wrong.

Now units are exported correctly.

In provision for builderwork openings, using part properties from mouse second button doesn't work

When you made provision for builderswork opening and try to look at it properties from mouse second button it doesn't work. You just get message that: MagiCAD V&P project is not selected. Double clicking the provision opened part properties.

Now you can also open part properties with right mouse button.

The new connection reports are not able to handle logical connections correctly

Connection Report and Device Connection Report now handle the hierarchy of logically connected systems properly

Show Connected Objects does not show all connected objects

Show Connected Objects shows also objects that have been connected to cable packet via linked cable

Conduits not accepting 0mm 2D width anymore

2D width of conduits can be set to 0mm from Conduit Options and Change Properties.

Property Status is missing from cable routes (*) in change properties

Missing status has been added to change properties.

In 2020 UR-1 Provision for builderswork size doesn't work in dim text in electrical

"Provision for builders work size" property works now properly

More characters needed in the Code field under the Compare Data To Merge dialog.

Merge project was only showing 20 characters in User Code column, now it is showing 128 characters.
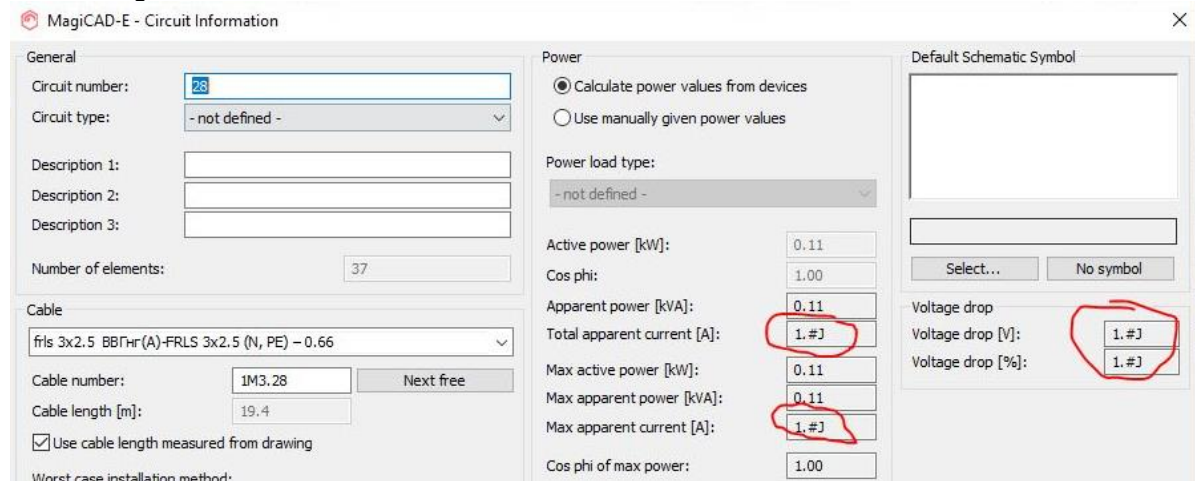
User named variables don't work with P1-P15

Now user named variables work with P1-P15 in product dialog and HVAC connection node definition dialog.

User named variables don't work with Voids

User named variables shown properly in PfV part properties dialog.

Calculated values are showing weird results

If the voltage was 0V in switchboard then the values shown in circuit information were incorrect:

Now if voltage of switchboard is 0 V, then calculations for currents and voltage drops are not done.

Curved cable changes to direct

Fixed minor issues related to scaling but the original problem cannot be fixed. Please see that you have the "replace Z value with current elevation" off when scaling with AutoCAD's SCALE function.
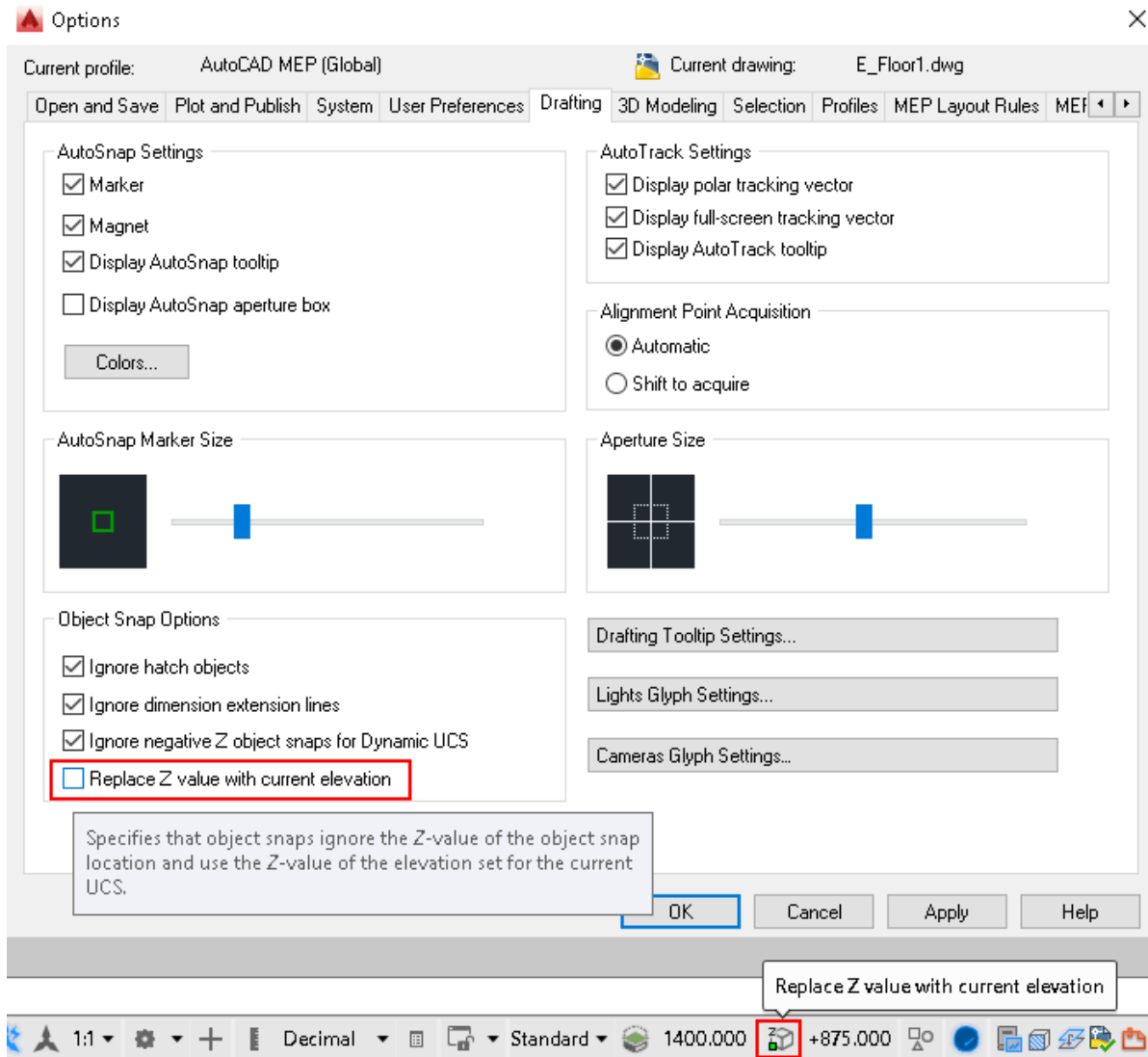
Layer code is not coming to connection nodes

Layer code from cables and cable trays are not coming to connection node's AutoCAD layer. Layer of connection node is now same as the cable/cable tray it was made from.

2.4 Circuit designer
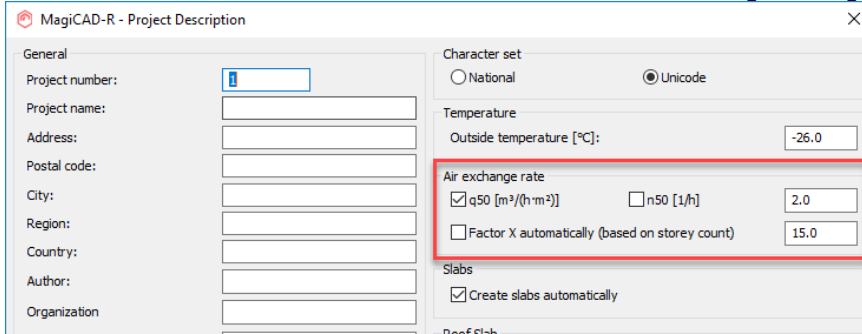
No resolved issues in this release.

2.5 Room

Room Project Description dialog couldn't be closed in certain cases

The Room Project Description dialog couldn't be closed if:

Air exchange rate value is 0 and both q50 and n50 checkboxes in "Air exchange rate" group were unchecked.

Factor X value is less than 0 and all checkboxes in "Air exchange rate" group were unchecked.

"Air exchange rate value/selection has changed, update values to rooms?" message was also shown even when it was not needed.
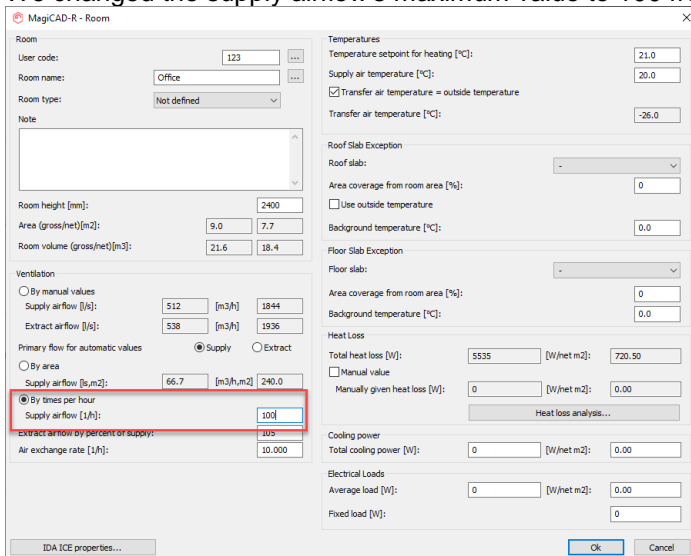
These issues have now been resolved.

Slowness issues with room projects

Fixed a slowness issue when starting a room project.

The supply airflow's maximum value in Room was too small for some use cases

We changed the supply airflow's maximum value to 100 from 20.

2.6   Schematics

Crash when using the toolpalette has been fixed

Crashes did occasionally occur when switching between the device- and group toolpalette. This has now been fixed.