



# MagiCAD for AutoCAD

Release notes for version 2022

21/05/2021

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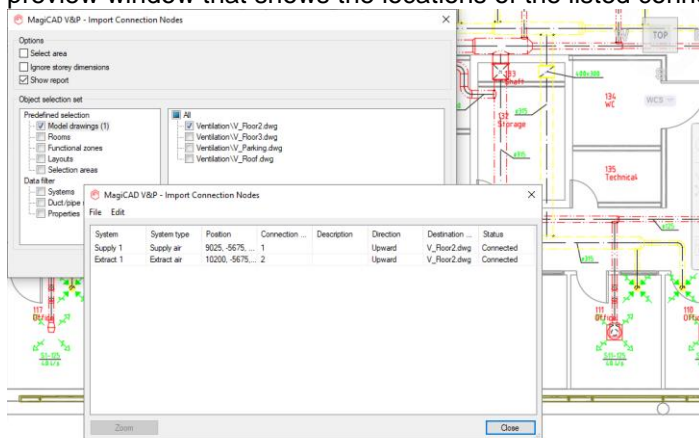
# 1 New features

## 1.1 Common

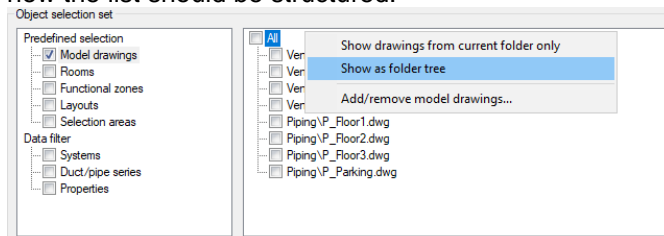
### MagiCAD supports AutoCAD 2022 and Navisworks 2022

#### Updated Connection Node feature

The updated Connection Node feature offers better flexibility and overview in connection node handling. The object selection set for connection nodes has new filtering options that make it easier to select a specific set of objects when connecting and disconnecting nodes. A new report option provides an easy overview of connected and disconnected nodes and the report also includes a preview window that shows the locations of the listed connection nodes in the drawing.

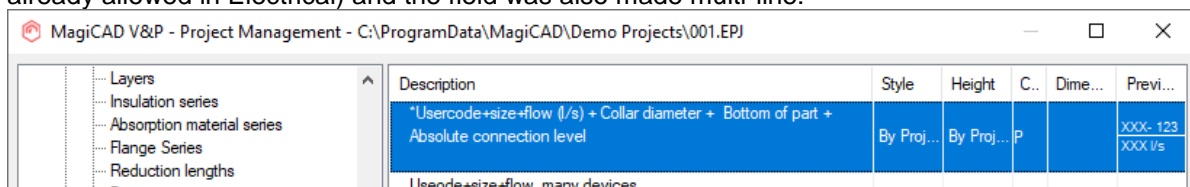


Note that you can right click in the model drawing list and select which drawings you want to see and how the list should be structured:



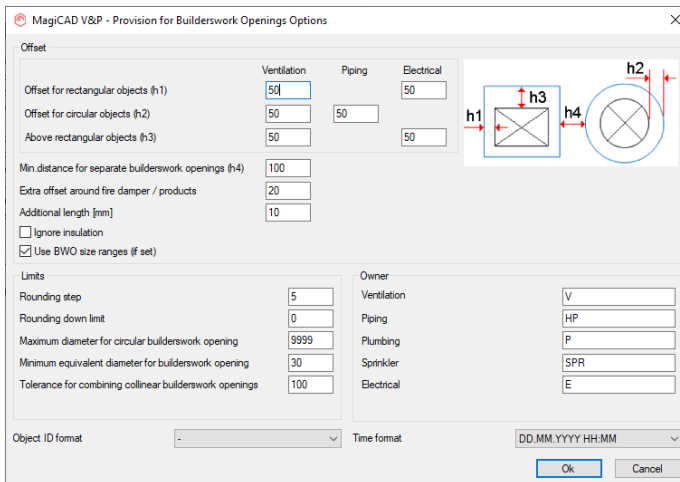
#### Dimension text's Description has been updated

The dimension text's description text was increased from 31 to 100 characters in V&P (long texts were already allowed in Electrical) and the field was also made multi-line:



## Discipline-specific default offsets for provisions

Discipline-specific default offsets for provisions can now be set. This makes it easier to create accurate provisions for ventilation, piping, and electrical segments within the same project. The additional length for provisions can also be adjusted if needed. Provisions now also include an automatic time stamp for when they have been created and edited, making it easier to keep track of possible updates.



**MagiCAD V&P - Provision for Builderswork Openings Options**

**Offset**

	Ventilation	Piping	Electrical
Offset for rectangular objects (h1)	50		50
Offset for circular objects (h2)	50	50	
Above rectangular objects (h3)	50		50
Min distance for separate builderswork openings (h4)	100		
Extra offset around fire damper / products	20		
Additional length [mm]	10		

☐ Ignore insulation  
☒ Use BWO size ranges (if set)

**Limits**

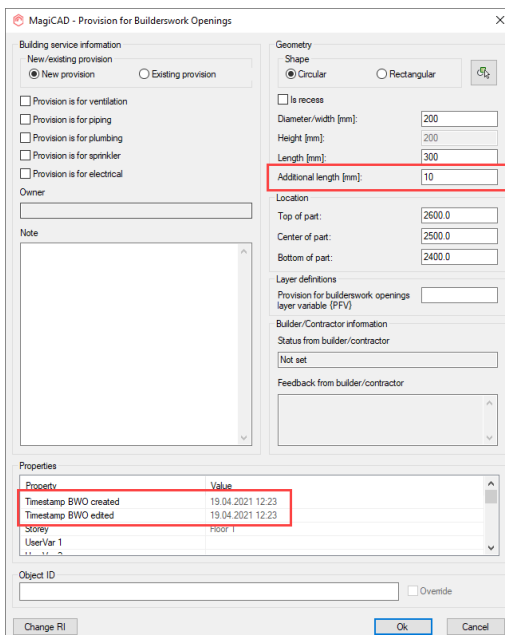
Rounding step	5
Rounding down limit	0
Maximum diameter for circular builderswork opening	9999
Minimum equivalent diameter for builderswork opening	30
Tolerance for combining collinear builderswork openings	100

**Owner**

Ventilation	V
Piping	HP
Plumbing	P
Sprinkler	SPR
Electrical	E

Object ID format: - Time format: DD.MM.YYYY HH:MM

Ok Cancel



**MagiCAD - Provision for Builderswork Openings**

**Building service information**

New/existing provision  
☒ New provision ☐ Existing provision

☐ Provision is for ventilation  
☐ Provision is for piping  
☐ Provision is for plumbing  
☐ Provision is for sprinkler  
☐ Provision is for electrical

**Owner**

Note

**Geometry**

Shape  
☒ Circular ☐ Rectangular

☐ Is recess

Diameter/width [mm]	200
Height [mm]	200
Length [mm]	300
Additional length [mm]	10

**Location**

Top of part:	2600.0
Center of part:	2500.0
Bottom of part:	2400.0

**Layer definitions**

Provision for builderswork openings layer variable (PFV)

**Builder/Contractor information**

Status from builder/contractor

Not set

Feedback from builder/contractor

**Properties**

Property	Value
Timestamp BWO created	19.04.2021 12:23
Timestamp BWO edited	19.04.2021 12:23
Storey	Floor 1
User/Var 1	

Object ID

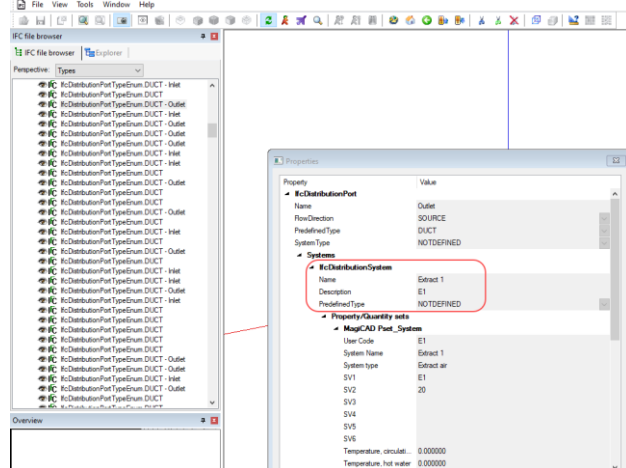
Change RI Ok Cancel

The time stamp is updated if any information in the dialog is changed, or the provision is moved.

## IFC

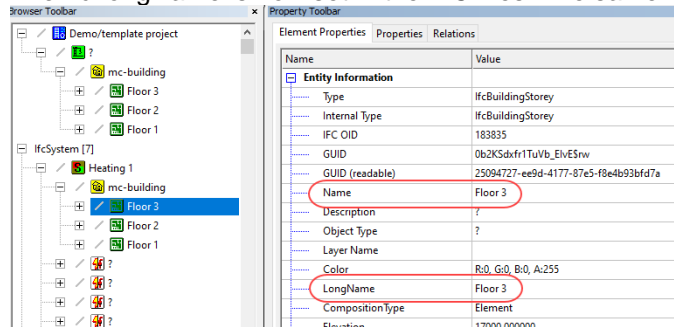
### IFC distribution ports now support System Type and Name

Now the distribution ports inherit the system from the objects.



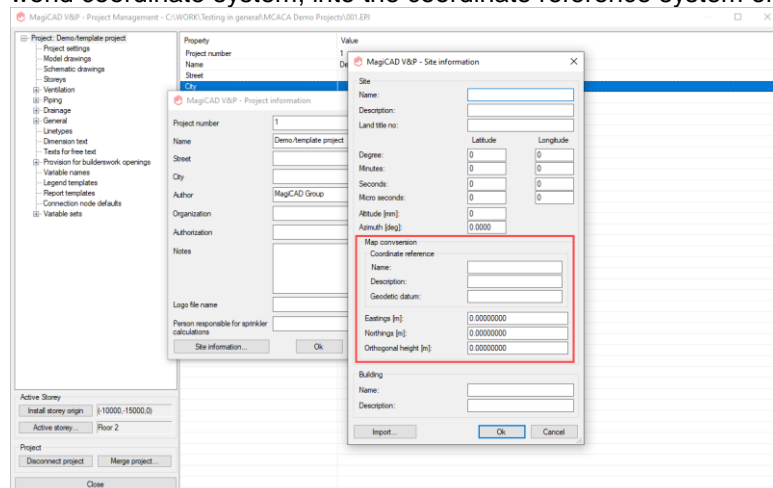
### IfcLongName to IfcBuildingStorey

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



### IfcMapConversion support

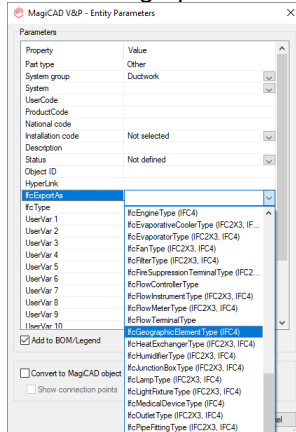
The map conversion deals with transforming the local engineering coordinate system, often called world coordinate system, into the coordinate reference system of the underlying map.



## Support for IfcGeographicElement

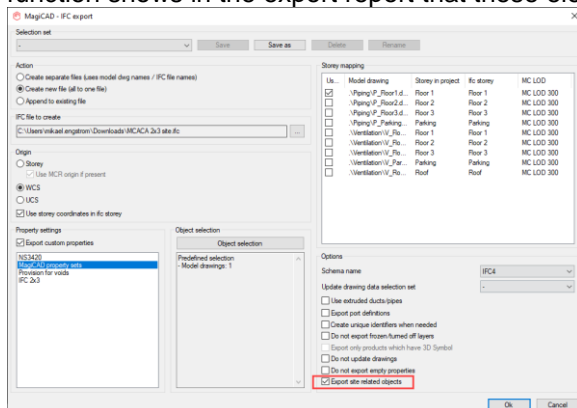
Geographic elements can be exported now, like trees and plants, in accordance with IFC4.

The IfcGeographicElement belongs to the site which is the "owner" of these elements.



## Site topology in IFC Export

Related to the task above, the created geographic elements can be exported in IFC4. In IFC2x3 the function shows in the export report that these elements aren't exported:



IfcSite objects are set directly to IfcSite in IFC2x3 (same way as in earlier version) and as IfcTypeGeographicElementType/TERRAIN in IFC4.

## IFC4 Objects local placement from storey to spaces

We did earlier have the relation of the object directly to the storey and not to the space. This has now been changed so that the relation is from the object to the space and then from the space to the storey.

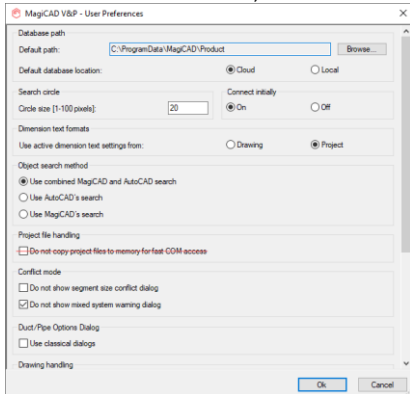
This will not be visible to the users in the IFC Viewers, and this will look just like before, and is only an improvement in how we write the information to the .ifc-file.

## 1.2 Ventilation and Piping

### MagiCAD for AutoCAD V&P slowness issues resolved

We have now implemented improvements to speed up the process of working with a project which is located on a server.

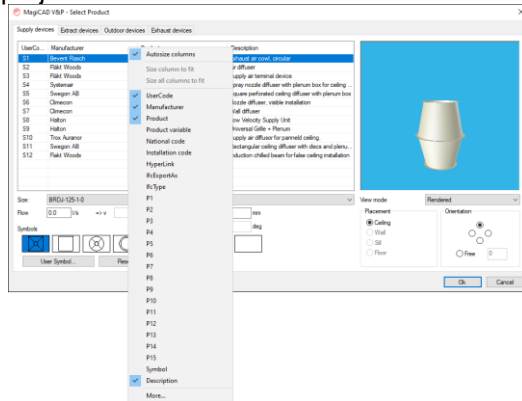
This does also change how the files are handled and the option 'Do not copy project files to memory for fast COM access', in V&P's User Preferences, is no longer needed and is therefore removed:



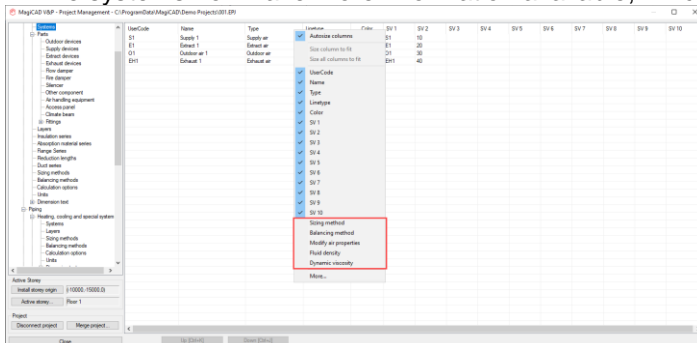
### More information to dialogs

The installation dialogs for products and duct fittings, as well as the dialogs for the systems, now have more information available in columns.

1. In the installation dialogs user can now show any of the information which is available to show in the project:



2. The systems now have more information available, which can be shown in columns in the lists:



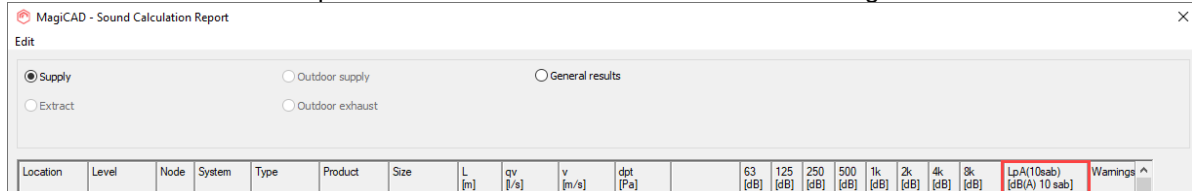
### Legend support for duct and pipes segments and fittings

The Legend did earlier not support neither duct and pipe segments or fittings which was the reason why the selection in the Template dialog for the segments didn't stay put.

Now segments and fittings are supported in Legends as well.

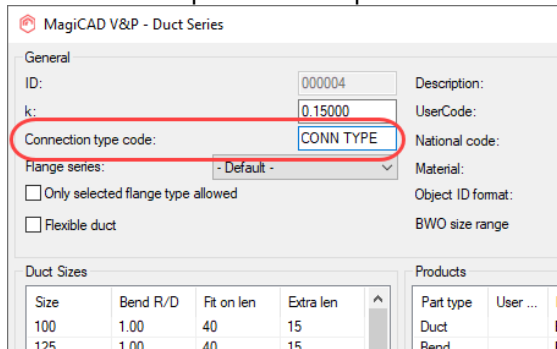
### Sound Calculation Report shows the filter

The Sound Calculation Report does now show which filter is in use settings:



### Duct connection type to IFC

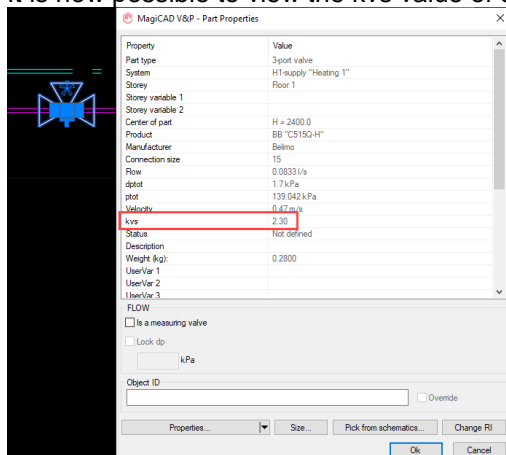
It was possible to add a Connection type code in the duct series, which was used in the project, but earlier it wasn't possible to export it to IFC.



This has now been added to IFC Properties, Dimension texts, Part Property Line, Report and MagiCAD Export

### Added kvs-value for 3-port valves

It is now possible to view the kvs value of 3-port valves:

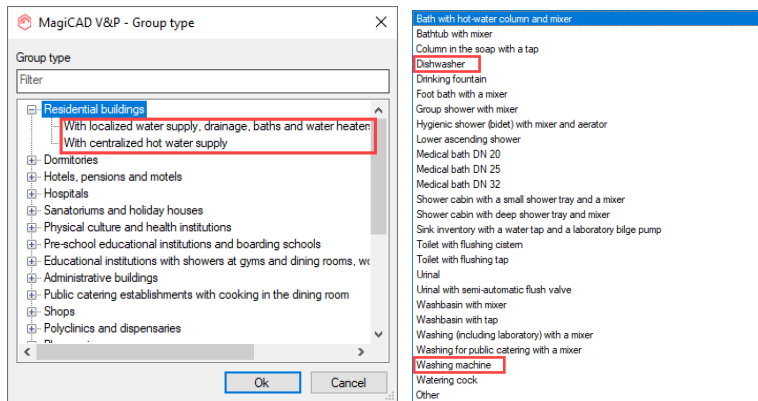


This has also been added to IFC Properties, Dimension texts, Part Property Line, Report and MagiCAD Export.



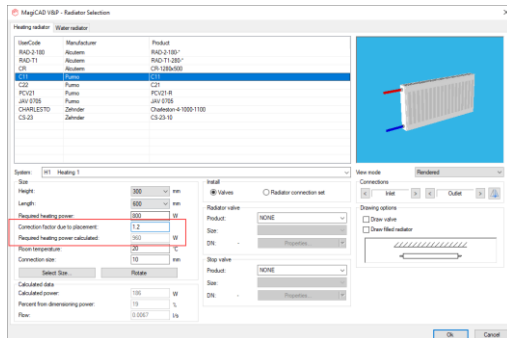
## The Russian domestic calculation standard has been updated

The Groups and devices have been updated according to the updated standards for SP30.13330.2016:



## Support for radiator cover

A correction factor value can now be set to adjust for the placement or covering of the radiator:

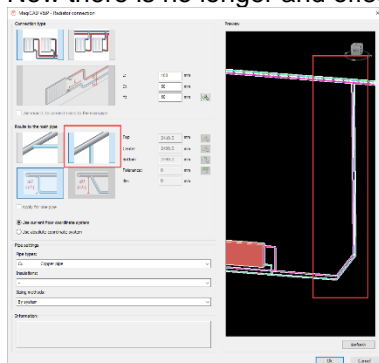


## Improvement to the Radiator connection tool

There is no longer a separation between the pipes when the routing is set down from the main pipes, if the main pipes are side by side, when using the radiator connection tool. (If they are on top of each other, then the separation is still done, so that the riser pipes don't go inside each other.

Previously there was an offset in all of these cases:

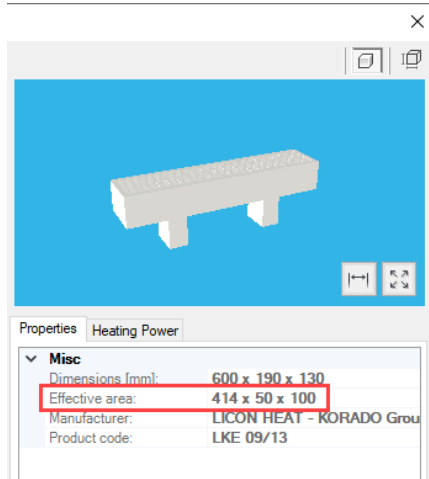
Now there is no longer an offset between these pipes:



We did also fix an issue related to joint parts being created in straight pipes connected to the radiators. Now the function no longer creates those joint parts if they aren't needed.

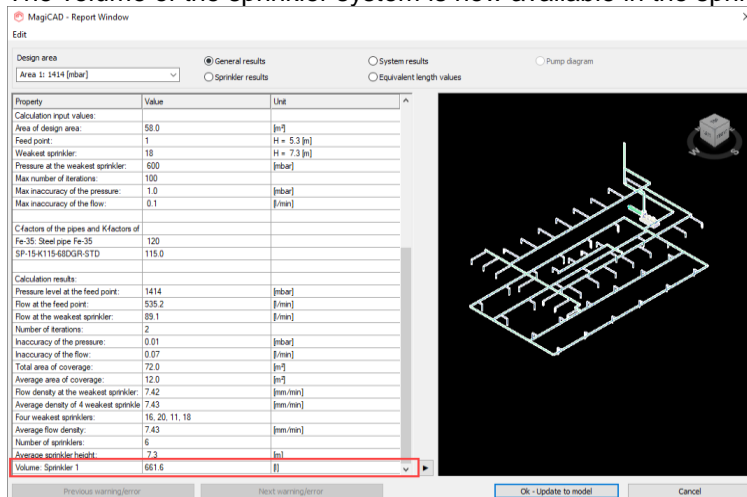
### Effective area for radiators

MagiCAD now takes the effective area of radiators into account when calculating the power. The radiators where the power is calculated according to the effective area have the property "Effective area":



### Volume of the sprinkler system in the report

The volume of the sprinkler system is now available in the sprinkler report:

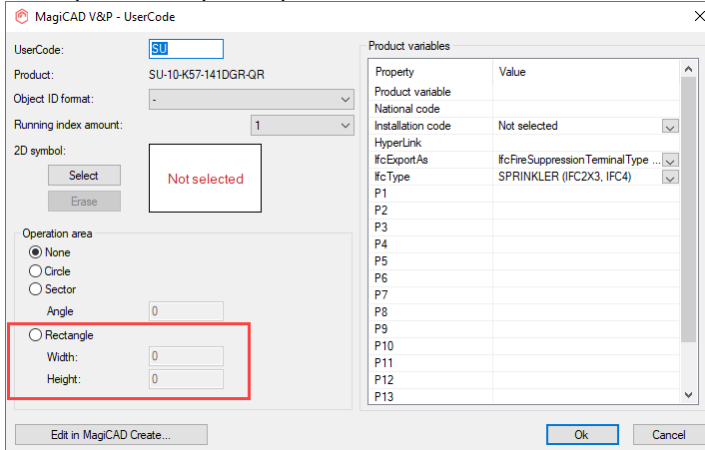


Note that MagiCAD allows multiple systems in the same network, but each of them get their individual volumes calculated:

Average sprinkler height:	12.5	[m]
Volume: Sprinkler 1	531.1	[l]
Volume: Sprinkler 2	2.9	[l]

## Square Operation Area for Sprinklers

And option for square sprinkler areas has been added to the sprinkler devices:



The screenshot shows the 'MagiCAD V&P - UserCode' dialog box. The 'Operation area' section on the left has the 'Rectangle' radio button selected and highlighted with a red rectangle. The 'Width' and 'Height' input fields are also visible. The 'Product variables' table on the right lists various properties and their values.

Property	Value
Product variable	
National code	
Installation code	Not selected
HyperLink	
IfcExportAs	IfcFireSuppressionTerminalType ...
IfcType	SPRINKLER (IFC2X3, IFC4)
P1	
P2	
P3	
P4	
P5	
P6	
P7	
P8	
P9	
P10	
P11	
P12	
P13	

## 1.3 Electrical

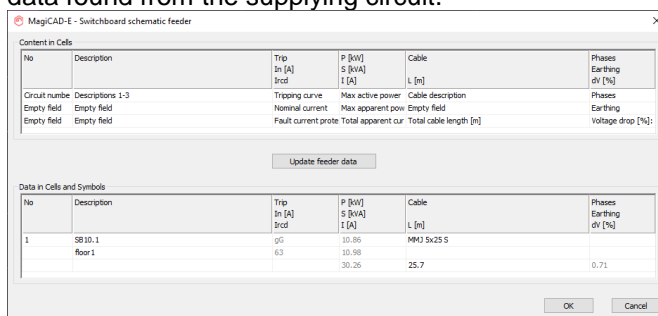
### Feeder blocks in switchboard schematics

Now it is possible to create a feeder block into a switchboard schematic dwg that can update data automatically from the circuit that is supplying the switchboard.

When adding the feeder block, MagiCAD only asks where to add it and it will automatically get the data from the plan drawing.

You can define the information that is shown in the top part of its editing dialog. Topics are shown from the schematic dwg but you can define what is shown in each row in each cell.

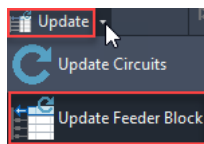
In the bottom part of the dialog you can see the information that is written to the cells in the switchboard schematic and with "Update feeder data" you can update the cell values to match the data found from the supplying circuit.



No	Description	Trip In [A] I [A]	P [kW] S [kVA] I [A]	Cable L [m]	Phases Earthing dV [%]
Circuit number	Descriptions 1-3	Tripping curve	Max active power	Cable description	Phases
Empty field	Empty field	Nominal current	Max apparent pow	Empty field	Earthing
Empty field	Empty field	Fault current prote	Total apparent cur	Total cable length [m]	Voltage drop [%]

No	Description	Trip In [A] I [A]	P [kW] S [kVA] I [A]	Cable L [m]	Phases Earthing dV [%]
1	SB 10.1	gG	10.86	MKJ 5x25 S	
	Floor 1	63	10.98		
			10.26	25.7	0.71



With the new "Update Feeder Block" button you don't need to use the "Edit feeder block" function to keep the schematic up to date. The button will automatically find and update the selected data from the supplying circuit.

The place from where the supplying circuit is searched can be defined in Preferences.

### Supply areas of hosts

Supply areas of hosts are now calculated from host areas to host devices in a similar way as from switchboard areas to switchboards.

You can mark if a host area is summarized to the referred host device or not.

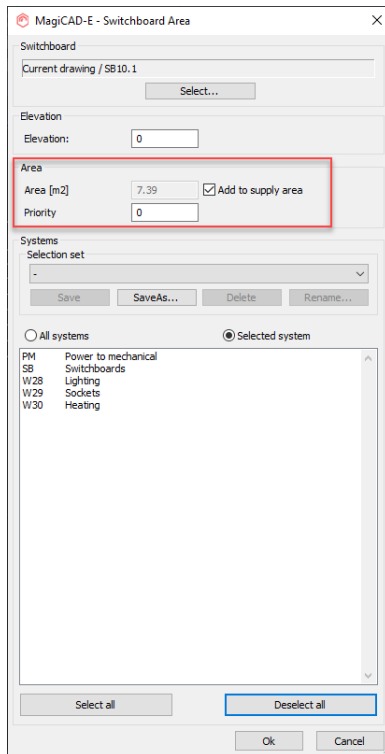
New properties have been added to Hosts where all marked areas are summarized:

Part properties: "Supply area"

Properties palette: "Supply area of host [m2]"

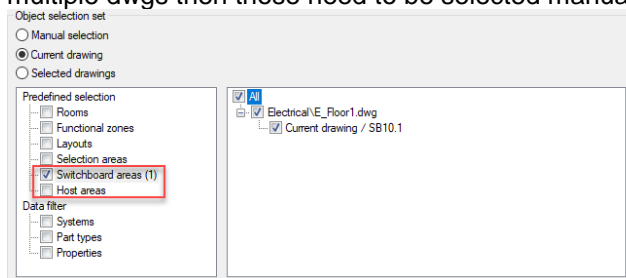
Switchboard and host supply areas are now available for dimension texts, reports and IFC property sets.

In the Update DWG function, selecting "Supply areas" will update the supply areas of both switchboards and hosts.



### Switchboard and host areas to Object Selection

In the Object Selection functionality, which is used in many places throughout the software, switchboard areas and host areas are now available among the predefined selection options. Areas are separated by the drawings they are located in, so if a switchboard or host has areas in multiple dwgs then those need to be selected manually under every dwg.



### Connection data of cables

In Part Properties, Bill of Materials and Reports, cables' Connected 1/2 order is changed so that a switchboard/host code is shown in Connected 1 if a cable has a circuit symbol object in its other end.

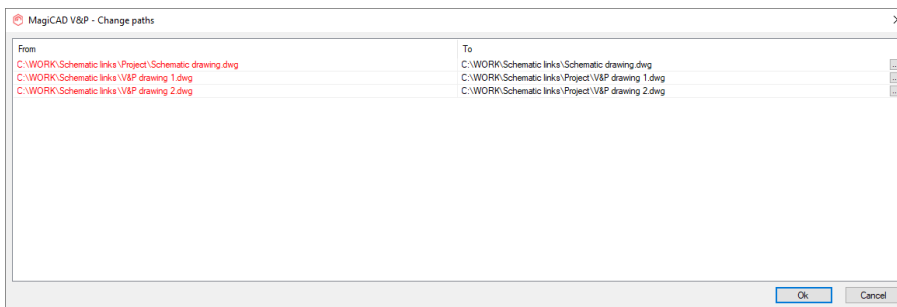
### Enhancements to Switchboard Management

In Switchboard Management you can now multi-edit "Manually given power values" checkbox and also all power values for switchboards which have manually given power values active.

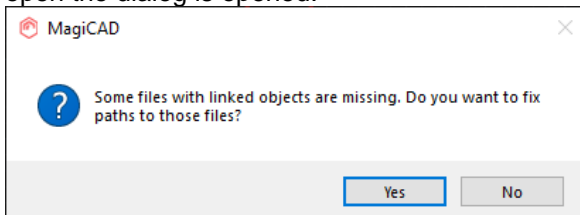
## 1.4 Schematics

### Improved link handling

We added a new Change Paths function using which the user can correct broken links



In case MagiCAD Schematics notices that there is an issue with the links, it will give a warning and open the dialog is opened.



## 2 Resolved issues

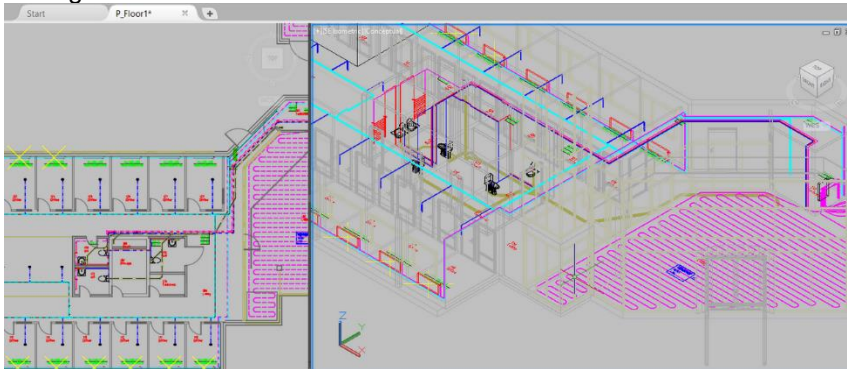
### 2.1 Common

#### Balancing turned Xref into wireframe

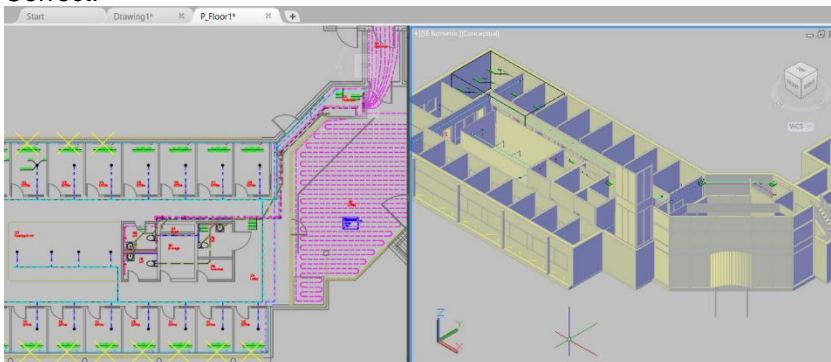
Sometimes the Xref turned into Wireframe. This happened in functions with the preview window, like balancing.

This has now been fixed.

Wrong:

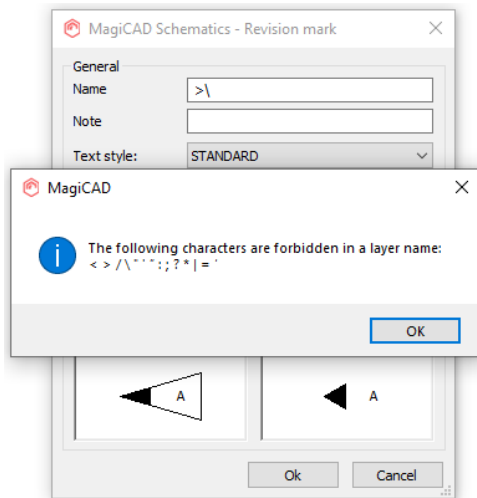


Correct:



#### Illegal characters were allowed in some dialogs in MagiCAD, and the root selection did not work properly in the Room project dialog

The storey variable variable in MagiCAD Room, as well as the layer, revision mark and cloud names don't allow the user to enter illegal characters anymore.



In addition were there some minor improvements to the MagiCAD Room project dialog tree, when editing the storey name. Now the selection no longer jumps to the root when finishing the editing.

### Dialogs did not remember their last position

When the "Free Text" dialog in MagiCAD V&P and Circuit Designer as well as the "Circuit Info" and "Corner Properties" dialogs in Electrical were moved to a new position, this new position was not remembered by the program and the dialogs were opened at their original positions. Now these dialogs remember the previous position they were at when they were closed and will open there.

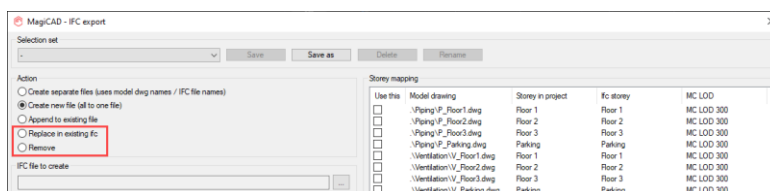
### Issue with reference offsets from Floor offset area using UCS

The wrong reference height was taken when using the UCS instead of the WCS, when the object was placed in a floor offset area, This has now been fixed and the correct reference height is always used.

## IFC

### "Replace in existing ifc" and "Remove" have been removed from the IFC export

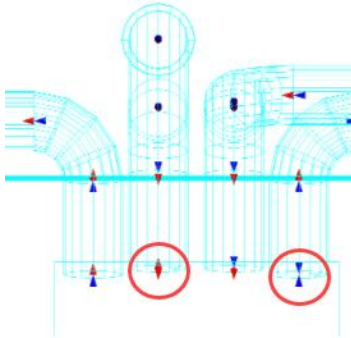
There were some restrictions to how well this feature worked and has therefore been removed, as the need for it was seen as minimal.





### Port directions in IFC Export

The port directions were in some cases wrong in the IFC Export. This has now been fixed.



### Issues with IFC export origin in MagiCAD Electrical

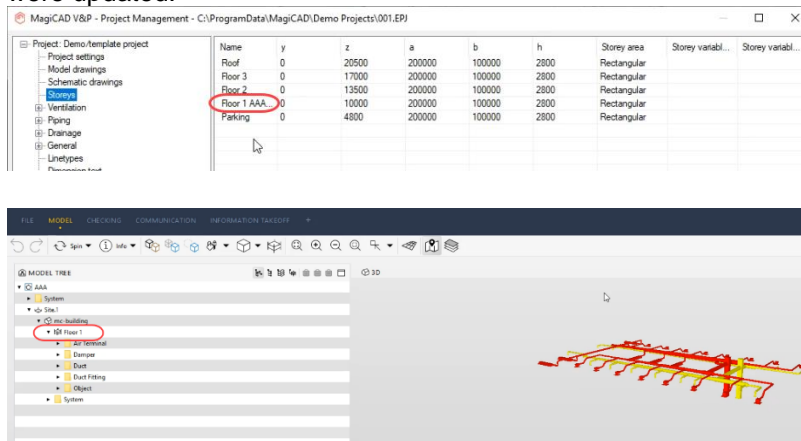
It was not possible to use the UCS or WCS origins when exporting IFCs in MagiCAD Electrical, as it used the MagiCAD Room Storey origin. This has now been fixed and the selection options have also been slightly reorganized in both MagiCAD Electrical and V&P.

## 2.2 Ventilaion and Piping

### The edited floor name was not updated to the IFC file when using IFC batch export

If you created a Batch Export configuration/selection set for the IFC files and edited the floor names afterwards in the project, the edited story names were not updated and exported to the IFC file and instead the old names were shown.

You had to create a new Batch Export, or even run a normal IFC Export in between, before the names were updated.

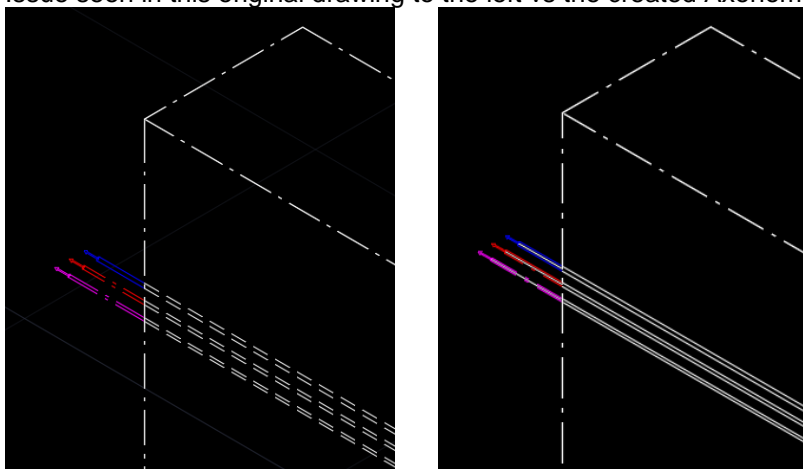


Now when loading a selection set for "Create separate files" or "Create new file" action, the IFC storey name is updated with the one set for the drawing.

### Color and linetype of hidden objects in axonometric drawings

Automatic hide with dashed linetype setting created continuous hidden lines in axonometric drawings. With invisible setting parts were invisible as they should.

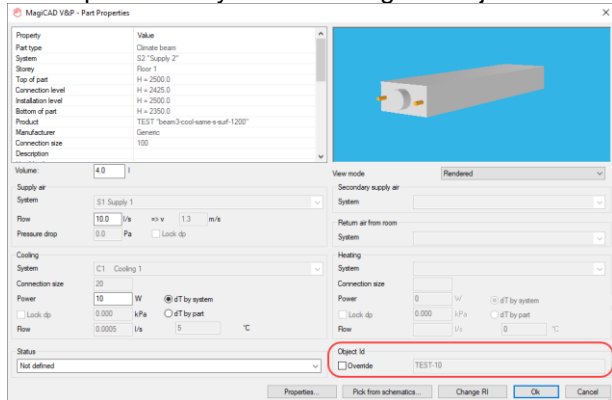
Issue seen in this original drawing to the left vs the created Axonometric drawing to the right:



This has been fixed and the Axonometric drawing has the same settings as in the original drawing.

## Report showed the wrong object ID for overridden values

The report did only show the original Object ID and not the overridden value.



Now this has been fixed and the correct Object ID value, which is shown in the dialog, is also shown in the Report.

## Report was not shown

A bug caused the calculation report to not show in some cases when running calculations.

This has now been fixed and the calculation report is shown as it should.

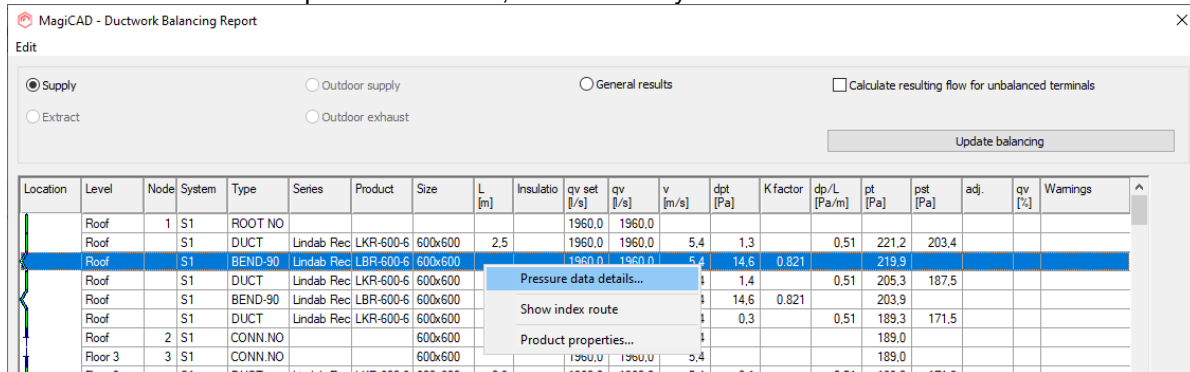
## Showing size of a provision from an object

When creating provisions and showing the object, the nominal diameter of the pipes was used by the function and not Dout. The automatic function worked correctly.

Now this has been fixed and the manual function uses Dout and does also handle the rounding of the provisions correctly.

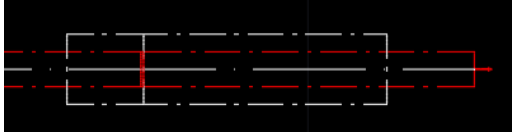
## Pressure data details in duct system's balancing report

The "Pressure data details" option wasn't available for ducts systems in the balancing report. This has now been fixed and the option is available, like in other systems:

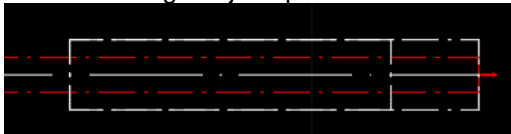


### Erasing Joint extended the insulation too far

If you removed the joint part from a segment with partial insulation, the insulation was extended in different ways:



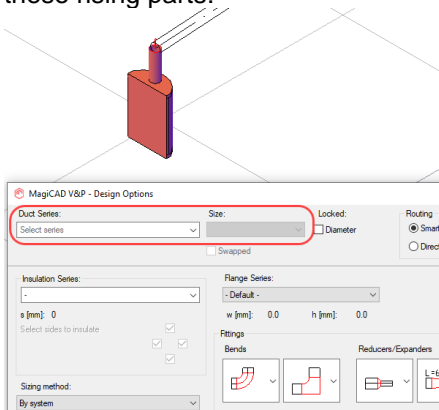
After removing the joint part:



This has now been fixed and the insulation stays where it was before erasing the joint part.

### "No duct series" - error

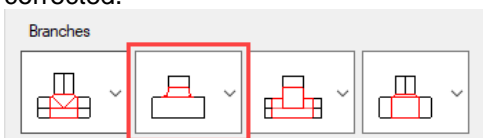
It was possible to draw in the Z-direction, even if no duct or pipe series had been selected, which caused errors later on in the calculations when the functions couldn't identify the duct or pipe series of these rising parts:



This has been fixed and drawing in the Z-direction is not allowed unless a duct series has been selected.

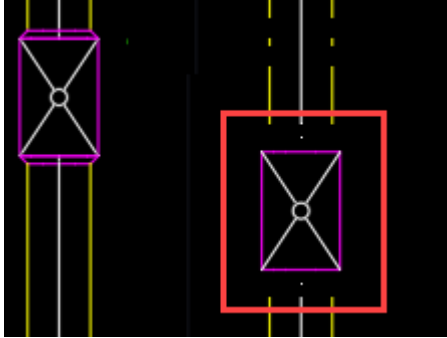
### Insulation missing in some square duct branch fittings

For some rectangular-rectangular T-branches the insulation wasn't shown and this has now been corrected.



### Integrated reductions damaged when changing the MC LOD-level

In some cases integrated reductions were damaged when the drawing's MC LOD-level was changed. This has now been fixed.



### T-branch changed its size when moving / running CHECKPARTS command

We fixed a special case where the T-branch changed its size when moved from another branch or when the user ran the CHECKPARTS-command.

*(The CHECKPARTS-command is an older command for fixing different issues in the drawing)*

### Access panels at the end of the duct did not change its size when running the sizing function

Fixed the sizing of access panels at the end of the duct. Earlier when sizing was used the size did not change.

Access panels now follow the size of the connected duct. If an exact match isn't available, the closest suitable size is used

### Flow damper 2D symbol

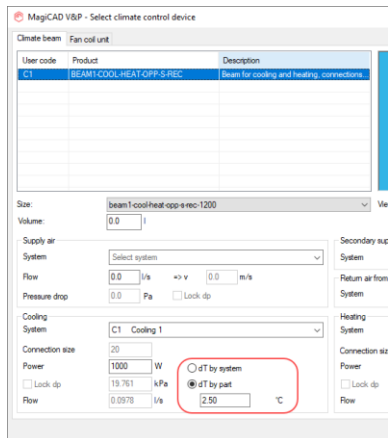
The flow damper's 2D symbol was not shown correctly for some flow damper products with certain shapes. This has now been fixed.

### dT by part field didn't support decimals

When setting the value for dT by part, the value was rounded and no decimal values were shown.

While the calculations were correct, the value shown was not precise enough.

We have now updated the function and the number of decimals is set according to what is set in the project:

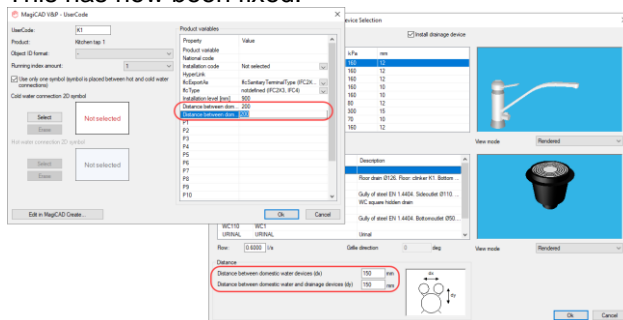


Note that even when adding a decimal value, which is then rounded, or changing the setting in the project, the calculation is done according to the value that was originally set by the user.

### Default distance values reset

When selecting a water device, the distance values in the installation dialog were not always set according to the values defined in project.

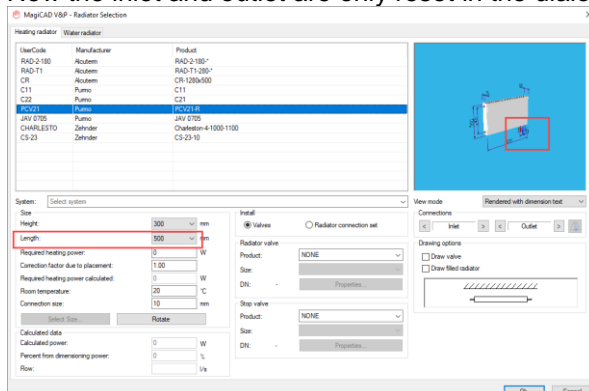
This has now been fixed.



### Pipe inlet and outlet were reset in radiators when the length was changed

The inlet and outlet were reset in radiators when the length was changed, which made the selection of radiator connection sets more difficult as the user had to adjust the inlet and outlet again.

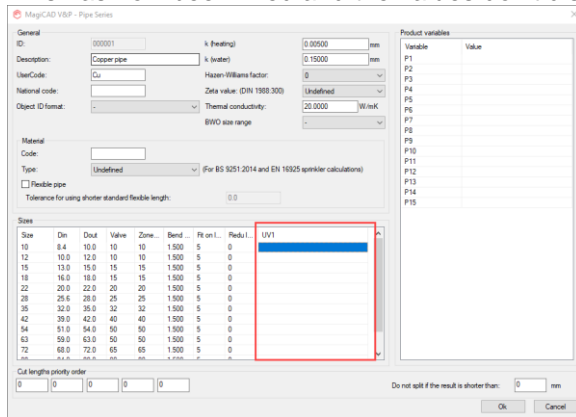
Now the inlet and outlet are only reset in the dialog when another radiator product is selected.



## Userfield1 values for pipe and drainage pipes series disappeared

The values set in earlier projects to the UV1-fields in Pipe and Drainage Pipe series disappeared when opening the project with a newer version.

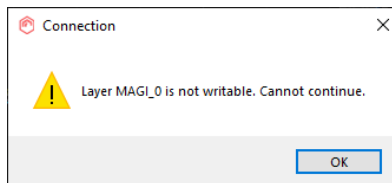
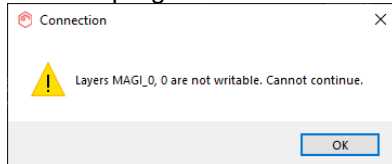
This has now been fixed and the values don't disappear anymore.



## Locked layers when installing Heating & Cooling plants

MagiCAD crashed if the 0 layer and Magi\_0 layer were locked. "This happened because these layers are temporarily used when the program creates the product.

Now the program does instead warn the user:



## Changing the power of connection nodes with Change Properties

It was not possible to change power of connection nodes using Change Properties if connection nodes were selected without selecting attached pipes also.

## Fire hydrants without dp in calculations

No error was shown for fire hydrants which were missing data.

Now an error is shown in these cases:

PIPE	Cu	28	0.0				391.437	
DOMESTIC WAT		25 (L)					391.543	Has not dp data.

### Sprinkler report if only fire hydrants are installed in the network

The report did not work properly in cases where there were only fire hydrants in the network:

Total area of coverage:	0.0
Average area of coverage:	0.0
Flow density at the weakest sprinkler:	0.00
Average density of 4 weakest sprinklers:	-1.1#J
Four weakest sprinklers:	-1.1, 1.1, 1.1, 1.1
Average flow density:	0.00

This has now been fixed:

MagiCAD - Report Window

Edit

Design area:

☒ General results
 ☐ System results
 ☐ Pump diagram

☐ Sprinkler results
 ☐ Equivalent length values
 ☐ Water source diagram

Property	Value	Unit
Calculation input values:		
Area of design area:	8.0	[m <sup>2</sup> ]
Feed point:	1	H = 10.0 [m]
Weakest sprinkler:	-	
Pressure at the weakest sprinkler:	0	[mbar]
Max number of iterations:	100	
Max inaccuracy of the pressure:	1.0	[mbar]
Max inaccuracy of the flow:	0.1	[l/min]
Cfactors of the pipes and Kfactors of the sprinklers:		
Cu: Copper pipe	120	
Calculation results:		
Pressure level at the feed point:	2189	[mbar]
Flow at the feed point:	310.2	[l/min]
Flow at the weakest sprinkler:	0.0	[l/min]
Number of iterations:	2	
Inaccuracy of the pressure:	0.01	[mbar]
Inaccuracy of the flow:	0.08	[l/min]
Total area of coverage:	0.0	[m <sup>2</sup> ]
Average area of coverage:	0.0	[m <sup>2</sup> ]
Flow density at the weakest sprinkler:	0.00	[mm/min]
Average density of 4 weakest sprinklers:	0.00	[mm/min]
Four weakest sprinklers:	-	
Average flow density:	0.00	[mm/min]
Number of sprinklers:	0	
Average sprinkler height:	0.0	[m]
Volume: Sprinkler 2	7.9	[l]

Previous warning/error      Next warning/error      Ok - Update to model      Cancel



## 2.3 Electrical

### **Slowness when opening a drawing**

The amount of times different files were read during drawing file opening has been reduced. This has significantly reduced the time it takes to open a drawing file.

### **Selection area slowness**

If a drawing had a lot of selection areas, it made using other MagiCAD functions slower. We have made optimization in layer handling and update dwg data to make MC faster.

### **User named variables not working in back boxes**

User named variables didn't work with back boxes. Now they are shown as defined.

### **Max apparent current not updated after updating circuit power**

When updating power information between drawings, Max apparent current wasn't updated. Now Max apparent current is updated correctly.

### **Sorting of running indexes in the project**

Sorting of running index groups and formats wasn't working anymore in the project dialog. They can be sorted again from any visible column.

### **Prompt-1, 2 and 3 not working for Cable Packets**

Prompt 1,2 and 3 were not working for cable packets. They were showing other information instead. Now they work again as they should.

### **Problem with column selection for Systems**

Column selection for Systems in Project didn't work when using other AutoCAD than 2021. Now column selection works as it should regardless of the used AutoCAD.

### **Switchboard reference wrong when connecting to a cable packet**

Previously, if a switchboard and a circuit located in different drawings, which also located in different folders, and you connected the circuit to a cable packet which was also connected to the switchboard from its other end, MagiCAD stored the switchboard reference wrong into the circuit. This lead to read errors where MagiCAD seemed to read the switchboard reference from a wrong file path. The issue has now been fixed.

## **2.4 Circuit designer**

### **Partner position texts**

Previously, partner position texts was reset when copying orphan child parts. Now the texts are maintained.

In addition, the partner position texts of regular child parts came to different positions depending on if you had automatic updates on or off. Now they always come to the same position.

### **Text alignment of revision arrows**

Texts in revision arrows were not aligned properly when rotating the arrows. This has now been fixed so that the texts are centred.

### **Dialog positions**

The Part Properties dialog of free texts did not remember its position. Now the position is remembered e.g. when using several displays.

### **Long lines appearing**

In some cases, when running Update DWG in a drawing, some unintentional long lines appeared. The issue has been fixed now.

## **2.5 Room**

### **Architectural IFC file import issues**

If the names of the rooms were very long, the program could in some cases crash when importing the IFC file.

This has now been fixed and crashes from this will not occur.

### **Room create slabs incorrectly**

MagiCAD Room created outer roof and roof slabs automatically even in cases where it should not.

This happened when there were more than one building in the same .mrd and the floor height were different between the buildings.

This issue has now been fixed.

## 2.6 Schematics

### **Schematics dataset causes slowness**

Additional fixes to speed up closing the dataset dialog have been done. Now some slowness should only occur if the project's items' order is changed.

### **Multi-line Note was not visible if it contained too many characters**

The Multi-line Note broke and became invisible if the number of characters exceeded 799. We removed that limit, so in theory can the text be as long as the user needs.