# **MagiCAD for Revit**

Release notes for version 2024 UR-2

01/02/2024





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# **1** New features

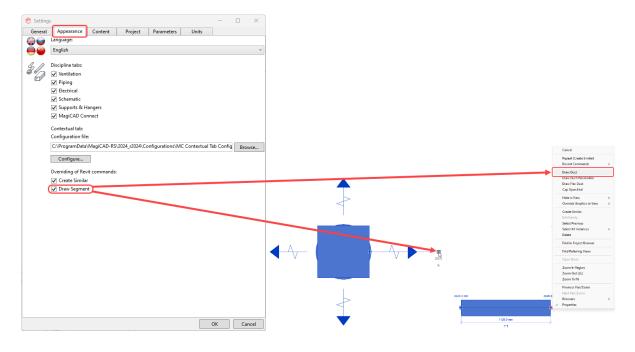
#### 1.1 Common

#### **Performance improvements**

Performance optimizations has been made to provide better user experience. Piping sizing and balancing calculation time are now reduced up to 70%. As a part of a smaller performance update, "Project Wizard"-tool level management has no longer downtime which occured after accepting table values.

#### **Override Revit-commands improvement**

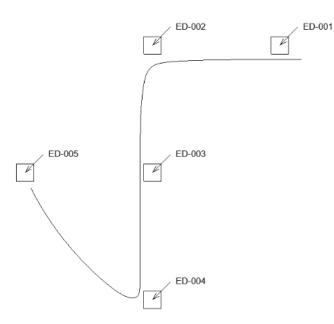
MagiCAD segment drawing can be now started from the device connectors and segment connectors as well when "Draw segment" override is selected in MagiCAD settings dialog. Properties are inherited from the connector.





#### Running Index with predefined spline option

Support for using predefined spline as a numbering guide with "Running index"-tool. User can now draw a spline and numbering will follow the spline from the beginning to the end.



#### Batch manager improvement

Batch manager has new trigger commands for Reactive processes. New commands are "Export to DWG", "Export to PDF" (Not available in Revit 2021) and "Export Electrical Network" (Export Network).

Batch Manager - C:\ProgramData\MagiCAD-RS\2024_r2024	$\operatorname{Configurations} MC$ Batch Manager Configuration.xml $\times$
Batch processes Reactive processes	
Processes	
Export to DWG - Triggered before exporting DWG from a p	roject.
Export to PDF - Triggered before exporting PDF from a proj	
Print - Triggered before printing from a project.	
Save - Triggered before saving a project.*	
Save as - Triggered before saving a project.*	
Export Electrical Network - Triagered before everyting Mr (*)Does not apply when the project is closing.	IniCAD's Event Electrical Network
Edit: Export to DWG Filter text	
Available items	Selected items
BOM	Update parameters
U Update and IFC	
Update before save	
~	×
Process	Options:
	Browse
Save	Close & run Close



#### e-Klimax export improvement

Exporting functionality of e-Klimax has been improved. Instead of having hard coded position name, it is now possible to give prefix or use MC Part Number as a position name. The created position name is also shown in the model side for the elements in new parameter "MC eKlimax Position name".

Export to eKlimax		_		×
Operation				
Export and mark object	s as exported to eKlimax			
<ul> <li>Remove mark saying ex</li> </ul>	ported to eKlimax			
Range				
Preselected objects	<ul> <li>Select objects</li> </ul>	O Network		
<ul> <li>System</li> </ul>	⊖ Branch			
Export options				
Position name prefix:	SWA			
Use MC Part Number a	is position name			
Target file:				
			Browse	
		ОК	Cancel	

# Edit provision improvement

Edit provision can now be used to edit provision shape.

🙆 Edit Provision			×
Size and type			_
Edit size and type			
) Circular		O Horizontal	
<ul> <li>Rectangular</li> </ul>		O Vertical	
Recess			
Diameter/width:		500	mm
Height:		300	mm
Length:		400	mm
Properties			
	OK	Car	ncel



# **1.2 Common/IFC related**

# Properties arrangement in Property set manager

It is now possible to rearrange the list with selected properties in the Property Set manager for both Property sets and Quantity sets. This does not affect how the IFC viewers show the properties, as they have their own individual rules for how the properties are shown, but this will help the MagiCAD users in getting an overview of the selected properties.

neral				
oplies to:	Отуре	Instance		
operty set name:	MagiCAD Pset_AirT	erminal		
escription:	MagiCAD's own pro	perty set for air terminals		
rt types				
ilter text				
IFC- part type			Native part type	
IfcDuctSegmentType			Duct segment	
IfcDamperType			Air flow damper	
IfcDamperType			Fire damper	
1fcDuctSilencerType			Silencer	
1fcFanType			Air handling equipment	
#cBuildingElementProxy			Other duct component	
] IfcFlowControllerType			Other duct component	
If cFlowControllerType If cFilterType			Other duct component	
IfcFlowControllerType IfcFilterType				
forFlowControllerType     JoFiterType     Check all     Check none			Other duct component	
#CFlowControllerType     #CFlowControllerType     #CFlowControllerType     #ChiterType     Check all     Check none allable properties			Other duct component	Source
#GFlowControllerType     #GFlowController		Selected properties	Other duct component	Source Description
If-flowControllerType     If-filerType     If-filerType     Check all     Check none     allable properties     Iter text     Constraints		Selected properties	Other duct component	
GrBoxControllerType     JGHerype     Gheck all     Check none allable properties     Constraints     Constraints     Constraints		Selected properties Name Description	IFC property If: Text	Description
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Brokewcartotlertype     Brokek all     Check all     Check none     lable properties     late toot     construction     Data     Dimensions     Betrical     Chrusting		Selected properties Name Description User Code Manufacturer NationalCode Productivariable1	IFC property fcToat fcToat fcToat fcToat fcToat fcToat fcToat	Description MC User Code Manufacturer MC National Code MC Product Variable 1
Sriflerryge     Sriflerry		Selected properties Name Description User Code Manufacturer NationalCode Productvariable1 Productvariable2	IFC property If Tot If	Description MC User Code Manufacturer MC National Code MC Product Variable 1 MC Product Variable 2
dr3orcocentralertype     dr3orcocentralertype     dr3orcocentralertype     dr3orcocentralertype     dr3orcocentrale     dr3orcocentrale     construction     construction     Dente     drade     denterrale     de		Selected properties Name Description User Code Mandracturer NationalCode Productivariable 1 Productivariable 2 Productivariable 3	PC property FC property R Trait R Tr	Description Mc User Code Manufacturer Mc National Code Mc Product Variable 1 MC Product Variable 2 Mc Product Variable 3
for-fore-controller type     for-fore-controller type     controller     con		Selected properties Name Description User Code Manufacturer NationalCode NationalCode NationalCode Productivariable Productivariable Productivariable	PC property R: Test R: Test	Description MC User Code Manufacturer MC National Code MC Product Variable 1 MC Product Variable 3 MC Product Variable 3
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#### IFC-Export use native units improvement

"Use native units" caused that all ifc property types were changed to ifcText. Now if "Use native units" is selected in IFC Export, the following measures are not converted anymore to IfcText: IfcBoolean, IfcComplexNumber, IfcIdentifier, IfcInteger, IfcLabel, IfcLogical, IfcParameterValue, IfcReal.



# **1.3 Ventilation and Piping**

#### Elevation change indication for under 90-degree pipe bends

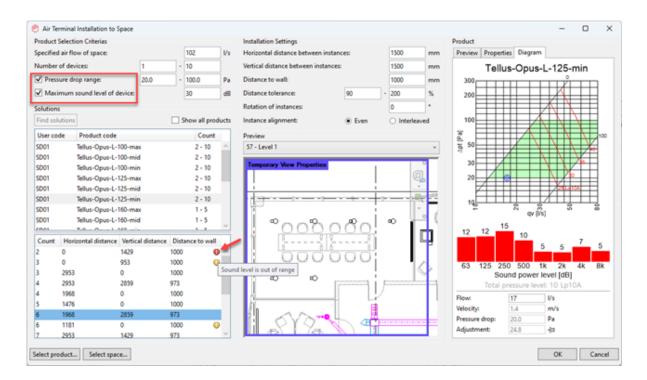
New feature for adding half circle symbols to pipe bends if the elevation drop is done below 90-degree bends. This is to better indicate where the elevation drop starts, since it cannot be otherwise seen if the Floor Plan detail level is "Medium" or "Coarse".

	Add bend symbols				-			
Pipe Pipe Series Install	Floor plan view							
Product	Filter by view name							
Pipe	Associated Level Level Elevation	View Name	Туре	View template	View scale	Detail Level		
3D Pipe	Level 1 0	Level 1 - Model - 52 - Domestic water	Model - 52 - Domestic water	Model - 52 - Domestic water	1:50	Coarse		
Q	Level 1 0	Level 1 - Model - 53 - Drainage	Model - 53 - Drainage	Model - 53 - Drainage	1:50	Coarse		
Options	Level 1 0	Level 1 - Model - 55 - Heating and Cooling		Model - 55 - Heating and Cooling	1:50	Coarse		
Co options	Level 1 0	Level 1 - Model - 57 - Ventilation	Model - 57 - Ventilation	Model - 57 - Ventilation	1:50	Coarse		
Add Bend Symbols	Show only views on sheets							
	Line Style		Update settings					
	· · · · · · · · · · · · · · · · · · ·	MC Pipe Bend Symbol	Remove all and updat	colocted				
	Line style name:	MC Pipe Bend Symbol						
	Symbol diameter:	Define	<ul> <li>Remove and update set</li> </ul>	elected				
			-					
	Symbol line weights	2	*					
	Pin symbol:	<b>v</b>						
							+2500	+2200
	Note! Saved selections and options will Save	be used when reopened or if executed from	Batch Manager.	Update Current View	poore			

#### Space based generative air terminal selection tool improvements

New options are available when trying to find suitable air terminals with space-based air terminal selection tool. User can now decide whether to include pressure drop or sound levels in the generative search. Filtering has been made less strict in order to get better overview which air terminals are suitable and which are not. This means that list will show more options for air terminals with related warning messages if they do not pass criterias.





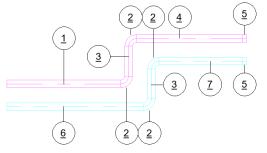
# Change the sizing methods within the calculation report (Piping)

Sizing Method is possible to change in calculation's report dialog for the pipe segments.

Level 1		PIPE	Fe-35	MAGI-FE-15	15	20	
Level 1	44	BRANCH	Fe-35	Set pipe s	ize		
Level 1		PIPE	Fe-35	Set sizing	method	1	
Level 1		BEND-90	Fe-35	Set insula	-		
Level 1		PIPE	Fe-35				
Level 1		BEND-90	Fe-35	Highlight	t in the d	Irawing	

#### **Piping part numbering**

It is now also possible to create part numbers for piping systems. Automatically generated ID can be used and customized according to your needs. Part number can be utilized in the material listing, such as "Bill of Materials" or to create detail drawings of the systems by adding identifiers for the elements.





Sprinkler Calculation Options	- 0	$\times$
Water source pressure diagram	Sprinkler design areas	
3000		
	Sprinkler Area - Basement     Sprinkler 1       Sprinkler Area - Level 1     Sprinkler 1       Sprinkler Area - Street Level     Sprinkler 1	
2500	Sprinkler Area - Level 1 Sprinkler 1	
	Sprinkler Area - Street Level Sprinkler 1	
<u>ह</u> ्व2000		
Image: Second		
ළී 1000		
500		
20 120 80 50 160 120 120 20 20 180 120 120 20		
Flow [l/min]	Calculation standard	
Diagram limits	Standard: EN 12845	~
Min flow: Min pressure:		
0 I/min 0 mbar	Method	
Max flow: Max pressure:	Hazen-Williams     DecentWithout	
2000 I/min 3000 mbar	O Darcy Weisbach Fluid: Water	
Diagram points	vvdtei	
Flow (I/min) Pressure (mbar)	Temperature: 0 °C	~
	Calculation is based on	
200 2700 🔀	Balancing to minimum pressure	
	✓ Show water pressure diagram	
600 2400 <b>X</b>	<ul> <li>Balancing to pump pressure</li> </ul>	
₩ 800 2200 X	O Balancing to feed point pressure 3000 m	nbar
1000 1950 X	Limits	
1200 1600	I lange branches shorter than	mm
1400 1200 X	Wolded pipes starts from size	
1600 700 X		mm
№ 1800 0 X	Warning limit of high velocity: 10,0	m/s
	OK Canc	el

# More points for SPR water supply diagram

There is now possibility to enter up to 20 points to water source diagram.

#### Draw tools floating toolbar improvement

Added possibility to add bend during the drawing function when modelling with ventilation or piping. User can now define some other bend than routing preference would use.



# Better error handling in MCREV, balancing

A new Errors and Warnings tool lists all objects that have been marked with an error or warning during sizing or balancing. The tool also provides additional information and suggests possible corrections.



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Calculation	Device Distributi	Level	All				÷			
63	Connection Box	Part class name	All	IIA						
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Sizing		Warning		1						
in string		Elements (1)								
∑Dp Pressur	re Drop Calculation	Level	Product	System type	Warnings					
S Balanci	ing	Level 1	Heating radiator Planar 8 21-316_15 (3876746)	Heating return Heating supply	Not in balance.					
C Extend	ed Flow Analysis									
Space S	Sound Calculation	<ul> <li>Warning exp</li> </ul>	lanation							

# Calculation report improvement: Print all systems

Ventilation and piping calculation reports now allow you to print all connected systems into the same file with a new Print all... function. Previously, the systems had to be printed separately, which was time-consuming and made review of the calculation results more difficult.

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#### Close dampers from the advanced flow analysis' report

It is now possible to close/restore the flow dampers directly in the extended flow calculation report for ventilation systems. When a damper is closed, there is no flow through it and the damper acts as a cap. This allows you to simulate networks with and without extensions.

H	Highlight	model													
Product properties															
F	low dam	nper ad	justmer	nt											
			·												
1	gnore in	balanc	ing												
0	Close this	damn	er av =	0											
```	ciose uni	aump	ci q* -	č											
DUCT	Circ I	MAGID-C1-	100	0,5		36	41	1,5	0,2	0.43	26,7	25,4			
SUPPLY	1	UMI-R-10	100			36	41	1,5	26,5		26,5		17	115	
DUCT	Circ I	MAGID-C1-	315	0,7							149,6	149,6			
FLOWDAM		MIN-MAX-3	315								149,6				Damper closed
DUCT	Circ		315	0,5							149,6	149,6			
T-BRANCH	Circ I	MAGIT-CC1	315/100								149,6				
DUCT	Circ I	MAGID-C1-	100	0,5							149,6	149,6			
BEND-45	Circ I	MAGIB-C1-	100								149,6				
DEIND-40	Circ I	MAGID-C1-	100	0,6							149,6	149,6			
											149.6				
DUCT		MAGIB-C1-	100							 					
DUCT BEND-45	Circ I	MAGIB-C1- MAGID-C1-		0.1							149,6	149,6			
DUCT BEND-45 DUCT DUCT	Circ I Circ I		100	0.1							149,6 149,6	149,6 149,6			

#### Possibility to inspect a sprinkler calculation report despite "high pressure drop" warning

If there was too high pressure drop, >1 000 000 mBar, somewhere in a sprinkler network, MagiCAD gave a warning "high pressure drop". The calculation was cancelled and a warning report was generated. It could be difficult to know where the problem lies if the warning only points to the root. Calculation will not cancel anymore in case the pressure drop is over 1 000 000 mBar.



#### **1.4 Electrical**

#### "Keep readable" checkbox for texts/labels in converted symbols

Previously texts and labels in converted symbols were always kept readable. Now you can choose whether they are kept or not.

2D Symbol		厂 - <b>円1</b> -	-
S	elect	Updat	te to project
dx2d:	0.0	dy2d:	0.0
🗌 Adjust wi	re to the edge of th	ne symbol	
2D RFA Cre	eation		
O Size by s	scale	○ Fixed si	ze
Scale factor	-	_	1.00
🗹 Keep te	xts/labels readable		

# Possibility to assign subcategories for converted symbols

You can now define subcategory names used for the lines in converted symbols. The visibility and color can then be controlled via the subcategories in the project.

P5	Object Styles Model Objects Annotation Objects Filter list: cahow all>	-	Objects Imported Ob	jects	
Select Update to project	Category	Line Weight Projection	Line Color	Line	
dx2d: 0.0 dy2d: 0.0	Generic Annotations	2	Black	Solid	
Adjust wire to the edge of the symbol	BlockArea	1	Cyan	Solid	
2D RFA Creation	Centerline	2	Black	Centre	
	E_SOCKETS	1	Magenta	Solid	
Size by scale     O Pixed size     Scale factor     1.00	F1 2111		100 at 1	6.64	
Keep texts/abels readable Subcategory: E_SOCIETS	Visibility/Graphic Overrides for Floc Model Categories Annotation Categories Show annotation categories in the Filter list: <a href="https://www.show.al">www.show.al</a>	ories Analytical M		orted Categories Filters Revit Links	5
	Vis	ibility	-	Projection/Surface Lines	Halftone
	Generic Annotations				
	BlockArea				
	Centerline				
	- R E_SOCKETS		-		

NOTE! Does not and cannot affect labels, texts or filled regions. Only lines are and can be affected.



#### Update system and installation codes from dataset to instances

With Update Parameters, you can now update (default) installation codes and system codes from the dataset to the instance parameters of objects.

		_		×
			0	~
Range	Selections			
Pre-selected objects	Selection file:			
Project				
O Current view	Save Save As		Load.	
·		L		
Parameters and symbols				
Check all Deselect All				
Ventilation (0)         Piping (0)         Electrical (2)         Schematics (0)				
✓ Check all				
Elevation				
Symbol attributes (Generic Models)				
Border Arrow				
Object ID				
Product code instance				
Total ELV system power				
Total number of connections				
Assembly data				
Status code description				
Selection Area				
Cable and circuit data				
Installation and reference method				
Circuit numbers and IDs				
Cable packets				
Supply cable lengths				
Wire data				
Longest branch lengths				
Type parameters from dataset				
Active power Exe class	Pv-values			
Attenuation values	Running index amount			
Cos Phi IP class				
Default installation code	User code			
Default installation level Manufacturer	Voltage			
Default operation area Manufacturer article nu	ımber 🗌 Weight			
Default system National code	Wire adjustment (to the edge of the	symbol)		
Description of product Number of connections	5			
Description of type Number of poles				
ELV system power Product code				
✓ Instance parameters from dataset				
✓ Installation code				
✓ System				
	OF		Canc	.el



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#### Wire connection enhancements

Now if multiple elements are on top of each other and you try to connect a wire to one of them, a dialogue will pop up and ask to which element you want to connect the wire.

Select Element

Data socket: 7204087 <sub>(2818585)</sub> User code: 06 Level: Level 1 Offset: 700 mm

Electrical socket: Recessed socket horizontal-2-100x82x17 (2818519) User code: 05 Level: Level 1 Offset: 200 mm

OK Cancel		
		Cancel



# 1.5 Schematics

#### Function for updating automatic riser diagrams

Now it is possible to update previously generated riser diagrams with a new Update Diagram function. When running it in a schematic view, it will check the model by using the same settings which the schematic was created with. All changes are then listed in a dialogue.

🙆 Update Schema	tic		-		×
Totals Changed elements Unchanged element Errors: 0 Changed elements					
Panel	Revit circuit number	Element	Action		
		MCX3050FIN_01_5003	B Delete		
FP	6	SMOKE DETECTOR	Insert		
FP	6	Fire alarm	Insert		
FP	6	Circuit6	Update		
Update all element	s		Accept changes	Reject ch	anges

From the dialogue, you can insert new objects which don't exist yet in the schematic and links will be created to the elements in the model. You can also update circuits if automatic device groups have been used in the schematic. When doing so, new elements of the same type will be added to the device groups to which they belong, and elements which have been deleted or moved to other circuits will be removed from the device groups. In addition, you can delete elements from the schematic if they have been removed from the model.

NOTE! Schematics created with MagiCAD 2024 UR-1 or newer have settings saved to the view which is required for the update to work.



# 2 Resolved issues

#### 2.1 Common

#### **Batch Manager UI-corrections**

"Process"-text removed from "Batch Processes"-tab. "Command" and "Incomplete" -texts removed from "Reactive processes"-tab. This change was made to show only relevant text in each tab.

#### Letter placement bug with GBR schematic symbol

One GBR schematic symbol had letter "E" which was not placed correctly in the symbol.

#### Active workset issues when drawing segments

In some scenarios selected workset was not used when using pipe, duct or cable tray drawing tools.

#### 2.2 IFC-related

# IFC Batch Export from ACC / BIM360 (Cloud) did not work for some users if worksets were defined in batch export dialog or .xml

IFC Batch Export didn't work from ACC / BIM360 (Cloud) if worksets were defined in batch export dialog or .xml. This occured with users who didn't have adiministrator rights.

#### It is now possible to export clearance geometry again in IFC2x3

The option to export clearance geometry is now available again in IFC2x3, as it didn't work in 2024 UR-1.

Action ) Create separate files (using level names) ) Create new file (all levels to one file) ) Append to existing file		Range Entire project Pre-selected objec Current view Select view	cts
FC file selection			
C:\ProgramData\MagiCAD-RS\Demoproject_Me	echanical.ifc	3D - Starting View	
onfigurations		Storey mapping	
Eldata (cost data)		R	ead IFC data from file
Ifc 2x3 (Electrical) Ifc4 (Electrical)		Revit levels	IFC storeys
MagiCAD Property Sets		Basement	Basement
		Level 1	Level 1
Use native units		Level 2	Level 2
Add unit name		Roof	Roof
Add unit name		Street level	Street level
ptions			
chema name:	IFC2X3	~	
rigin:	Current shared coordinates	~	
arameter mapping:	-	~	
evel of detail:	Low	~	
Use true north			
Export port definitions			
Do not export empty properties			
Export nested family instances separately			
Export cables			
Export dearance geometry Export dearance geometry separately		I	
Export dearance geometry separately		Manage export config	gurations
Use system type as system		Load / remove	Add
_ over of oten tipe an of oten			



# 2.3 Ventilation and Piping

#### "Product not available" given for plug in sizing

"Product not available" was given sometimes for duct series plugs in case a rectangular plug was connected a t-branch which connects to a flexible duct or a round duct.

#### Air flow doesn't remain in VAV schedules

In Zone Schedules air flow changed from minimum to boost if dialog was closed and then reopened.

#### MagiCAD error in Pipe connection tool single pipe installation for water device

"Pipe Connection"-tool gave error if "Apply for a single pipe" option was used for single pipe connection. "Apply for a single pipe"-option is now disabled if "Pipe Connection"-tool is used for single pipe connection.

#### Routing preferences are not set for flexible pipe series

Tap, T-branch and preferred junction type was not set for flexible pipe series.

#### Exception when installing AT in project started with None template

Exception occured when installing air terminal with "None" revit template. Exception should no longer occur.

#### Empty pipes from the dataset cannot be loaded into new project

Empty pipe serie couldn't be inserted into the new project. Exception is corrected and error message is updated with conduit standard element name and id.

#### Disabling 2D symbol selection for bend silencers brought via API

2D-symbol was not disabled in install product when using bend silencer brought via API.

#### "MC flow at Root" and "MC Min Pressure at Root" are not written to the Design Area

"MC flow at Root" and "MC Min pressure at Root" were not written to the Design Area.

#### Piping balancing does not use correct k-factor and product name

Piping balancing were using fittings from routing preferences instead of fittings that are in the model. Balancing will now use modelled products.

#### Preview window does not zoom correctly

Preview window with connection tools was not zooming correctly.

#### Smart move is broken in certain situations

Smart move was not calculating minimum and maximum offset values correctly.

#### Keep connection size does not work in piping sizing methods

"Keep connection pipe sizes" selection was not correct after closing the dialog and opening it again.



#### Ventilation calculation loses adjustment locks

Ventilation balancing and extended flow analysis lost user defined adjustment locks of damper or adjustable air terminals devices if calculation were updated in the report. Adjustment locks are now maintained.

#### Generic Drainage Manhole only accept five numbers to offset

Generic Drainage Manhole had maximum 5 character limit for the offset. This is now changed to be 6.

#### Revit API error with third party substation

Domestic water calculation produced unexpected error with unsupported substation elements. Unexpected error should no longer occur.

#### Generic Manhole absolute level fails

Generic manhole was always installed with relative height level even "Use absolute height levels" was checked in the installation dialog.

# Air Terminal installation space tool "Show all products" does not work with external dataset

Show all products shows now all products also when external dataset is in use.

# 2.4 Electrical

#### Fatal error with cable tray horizontal offset

If a project didn't have any valid dimension types, then MagiCAD functionalities which used dimensions, such as wire, cable tray, duct or pipe drawing, caused a fatal error. Now MagiCAD does not crash anymore when a project doesn't have valid dimensions.

#### Cable packet bounding box issue

Previously, a cable packet which was drawn diagonally had a very large bounding box and many objects could easily be under it so that it was impossible to draw a wire underneath it. The bounding box calculation of cable packets has been corrected now.

#### Cable tray and Conduit series: fitting descriptions

Descriptions were previously not written to cable tray nor conduit fittings from the dataset. Now they are.

#### Splitting of trays which happened during cable tray drawing did not restore data

Now when drawing a cable tray and connecting into an existing segment, a Tee-fitting splits the tray as before, but the data of the existing cable tray segment is retained by saving its data to both of the resulting segments.

#### 2.5 Schematics

#### Starting Map Parameters generates an unexpected error

Starting "Map Parameters" generated an unexpected error when there were invalid parameters in the project. This has been prevented thourgh additional error handling.