



MagiCAD for Revit

Release notes for version 2023 UR-1

21/11/2022

Content

| | | |
|----------|-----------------------------|-----------|
| 1 | NEW FEATURES..... | 3 |
| 1.1 | Common..... | 3 |
| 1.2 | Common/IFC related..... | 7 |
| 1.3 | Ventilation and Piping..... | 8 |
| 1.4 | Electrical..... | 13 |
| 1.5 | Schematics..... | 17 |
| 2 | RESOLVED ISSUES..... | 17 |
| 2.1 | Common..... | 18 |
| 2.2 | IFC-related..... | 20 |
| 2.3 | Ventilation and Piping..... | 21 |
| 2.4 | Electrical..... | 22 |
| 2.5 | Schematics..... | 22 |

1 New features

1.1 Common

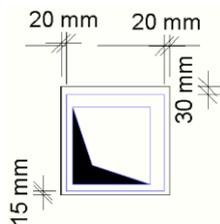
Improvement to the provision for builderswork opening

There are cases when the objects shape is different from its connector's shape. E.g. a fire damper for circular ducts is actually a square or rectangular shape.

Earlier MagiCAD version used the shape of the connectors to define the shape and the offset for the collisions and provisions for buildersworks openings.

Now the shape of the collision/provision is used to define the offset.

This improvement enables the possibility to define different offset to each side of the square/rectangular object.



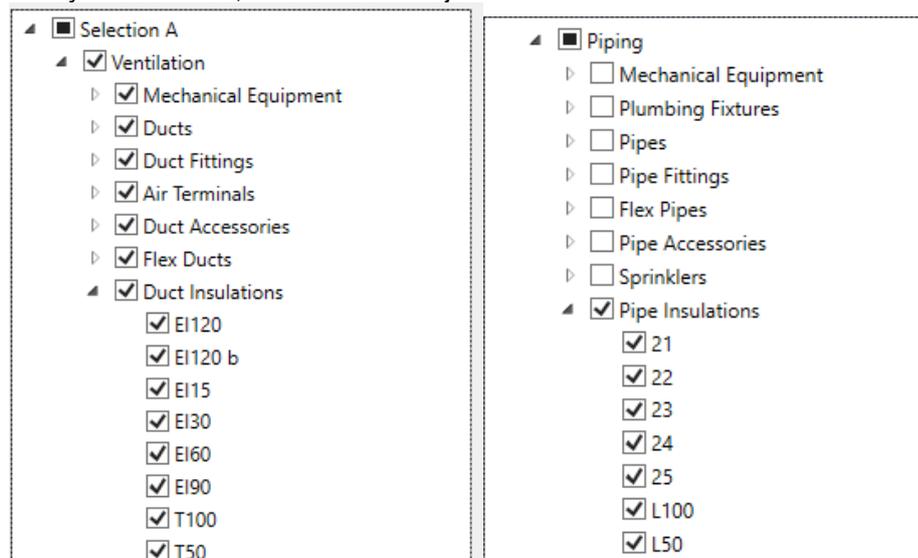
Text alignment in legends

Texts are now vertically aligned to the middle within cells in Revit 2019 and later.

Settings for excluding insulation from Clash checking

Both the ventilation and piping disciplines has now an option for selecting insulation objects for clash checking.

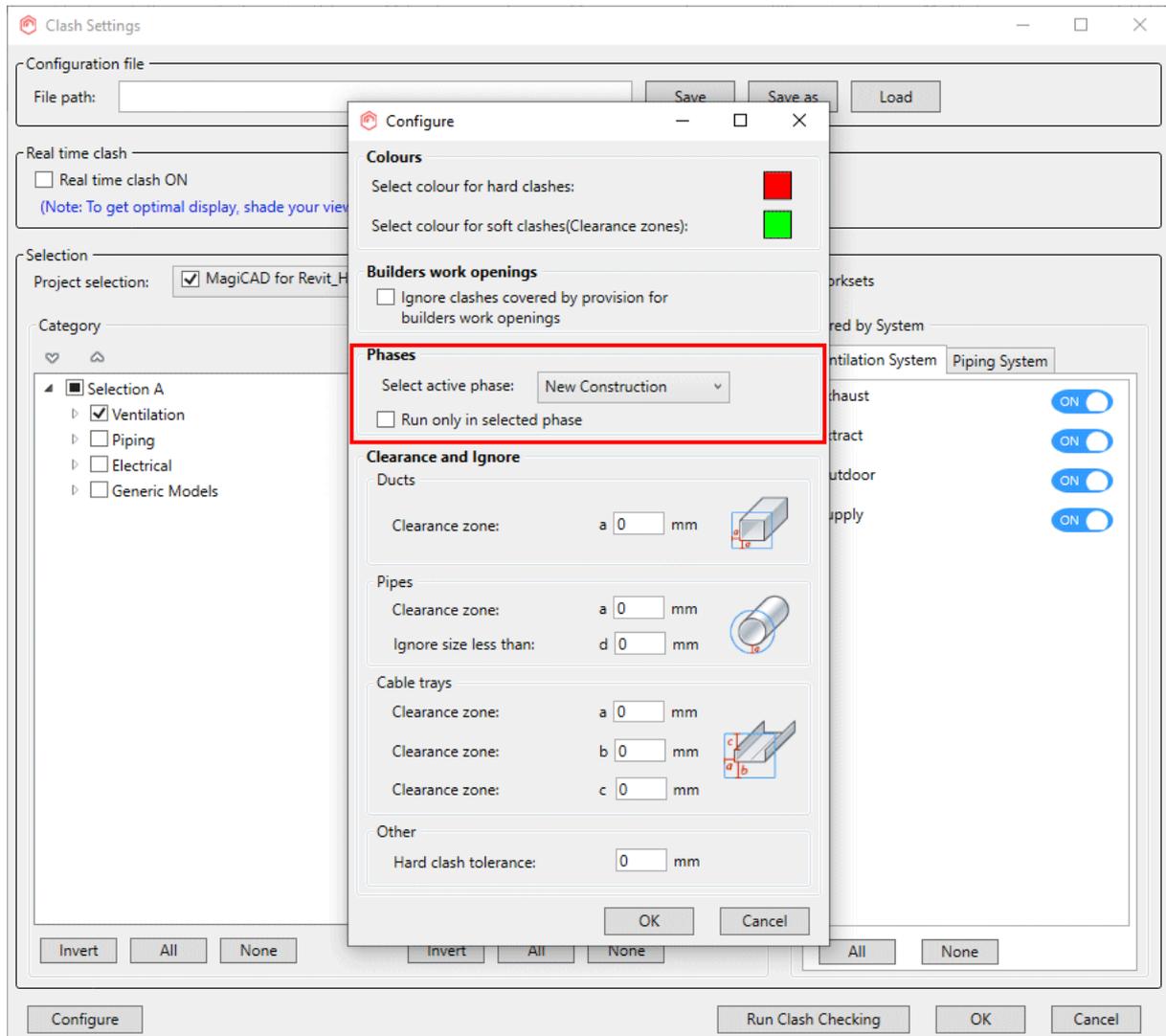
If they are selected, the insulation objects are considered in the clash checking.



Clash checking with removed phases

User can now define in which phase collision check is done. A dropdown list displays all phases in the Revit project, by default the last phase will be used.

If you wants to use this feature, "Run only in selected phase" must be checked.

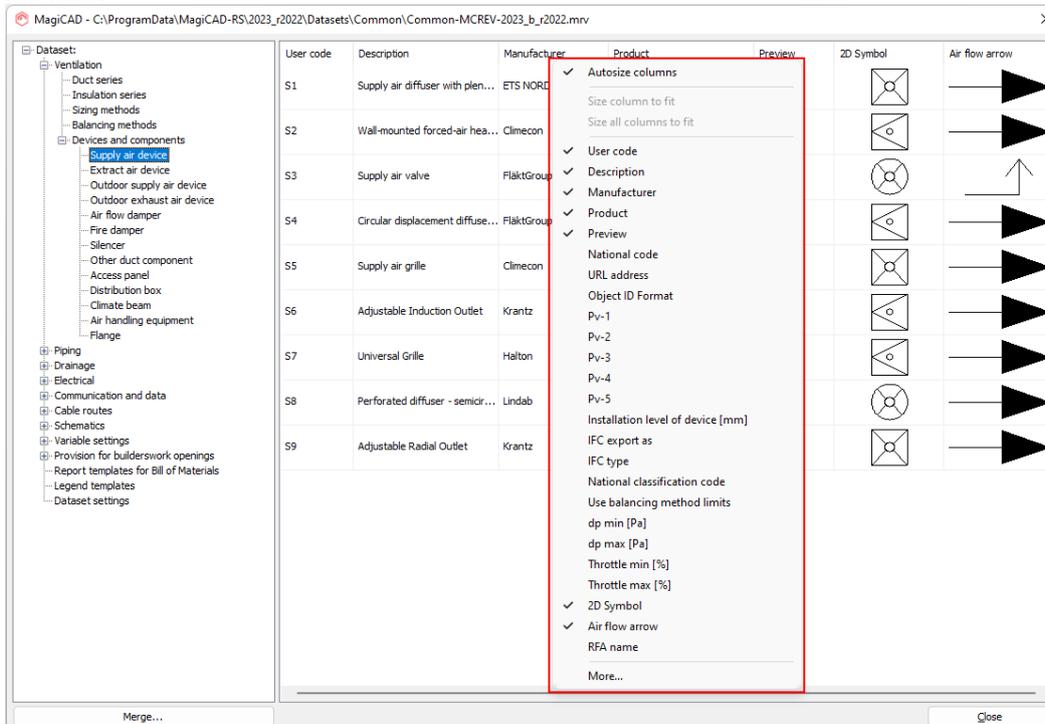


Clearance analysis to recognize objects Revits demolished phase

Clearance analysis has been changed so that it doesn't handle objects which are in phase "Demolished".

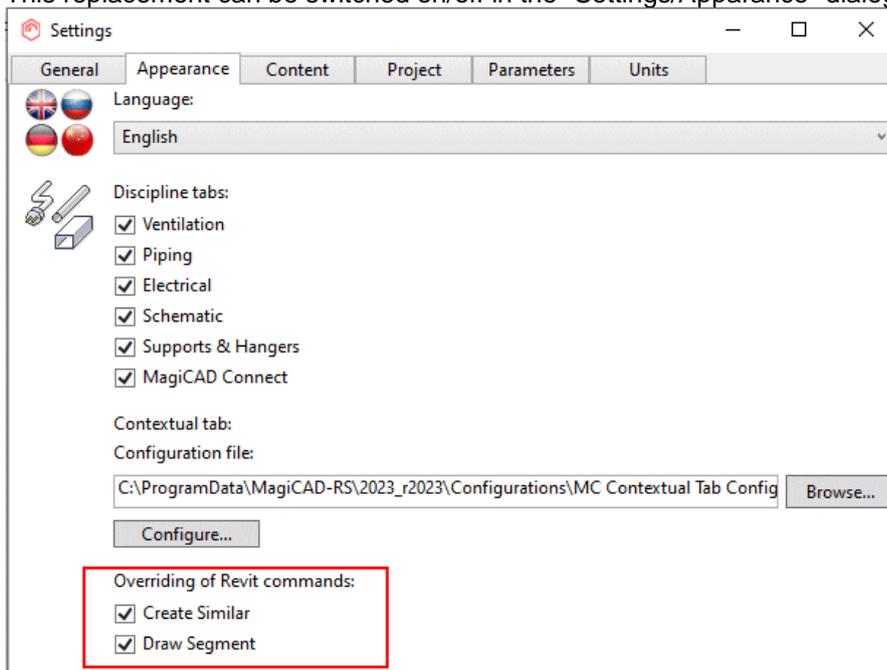
Improved dataset editing

Modify Dataset dialog has been updated with customization options. User can now select which properties to display in the dataset listing and many of the properties can be modified directly from the list view.



Override Revits "Segment draw" and "Create similar" commands

MagiCAD commands can be used instead of Revit's segment drawing and "Create similar" commands. This replacement can be switched on/off in the "Settings/Appearance" dialog.

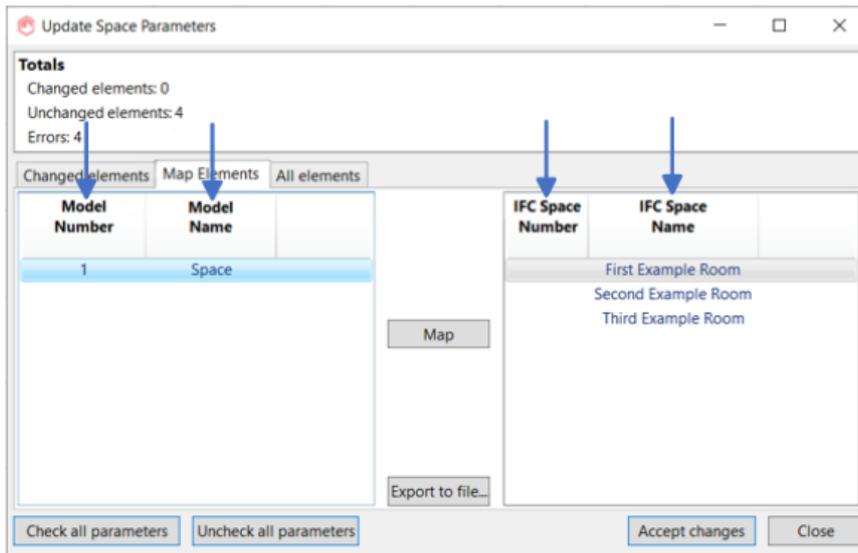


Means to easily filter or view manual or automatic provisions

"MC Automatic Provision" parameter has been added to distinguish automatic and manual provisions. It is set to "Yes" for automatic and "No" for manual.

BPS Import - sorting added by clicking the header in the "Map Element" tab

Possibility to sort the columns in the "Map Elements" tab has been added.



"Tag Tool Override" is disabled during "Reload Latest" command

Tag Tool override is disabled during "Reload Latest" command in Revit 2021 and newer. This is because with a certain workflow a wrong tag was selected

1.2 Common/IFC related

Support IFC batch export for Construction Cloud projects

Support for IFC Batch Export for Construction Cloud projects has been added. The IFC Batch Export can be used like in normal cases, but the XML file "MC IFC Batch Export Configuration.xml" in C:\ProgramData\MagiCAD-RS\20XX_r20XX\Configurations must be modified in a different way for the export to function for the Construction Cloud project.

Instead of in normal cases, for example:

```
<?xml version="1.0" encoding="utf-8"?>
<IFCBatchExport>
  <!-- Define the full path of the projects that are going to be exported. -->
  <Project Path="C:\Path\ProjectName_1.rvt"/>
</IFCBatchExport>
```

It need to be set up with project GUIDs for the Construction Cloud projects:

```
<?xml version="1.0" encoding="utf-8"?>
<IFCBatchExport>
  <!-- Define the full path of the projects that are going to be exported. -->
  <Project Region="US" ModelGuid="f4b64609-389e-419b-81b7-2c61daf94d81"
  ProjectGuid="ec8ac81b-7806-43ba-a8be-4b72f0ac7659"/></IFCBatchExport>
```

There is a 'Revit Lookup'-addin available online with which the Model and Project GUIDs can be found.

Example XML definitions:

Revit 2022 and newer

```
<Project Region="US" ModelGuid="f4b64609-389e-419b-81b7-2c61daf94d81"
ProjectGuid="ec8ac81b-7806-43ba-a8be-4b72f0ac7659"/>
```

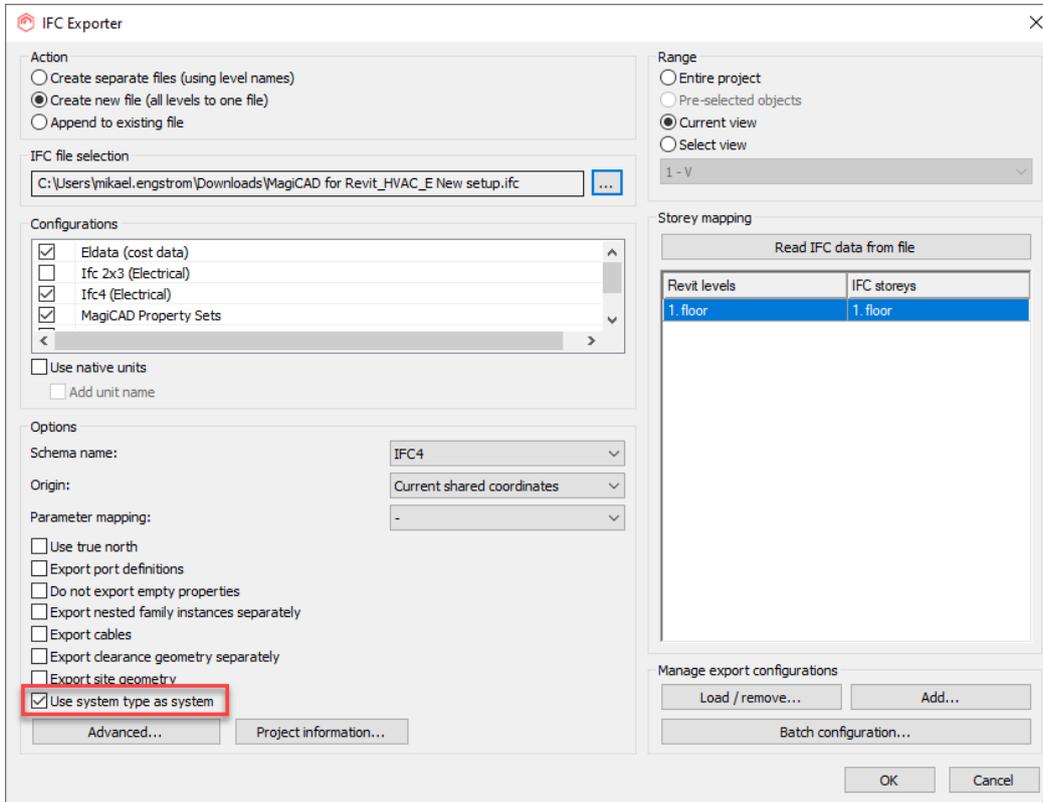
Revit 2021 and older

```
<Project ModelGuid="f4b64609-389e-419b-81b7-2c61daf94d81" ProjectGuid="ec8ac81b-7806-43ba-
a8be-4b72f0ac7659"/>
```

Additional instructions in IFC Batch Export.

System/SystemType selection when exporting IFC

It is now possible to export the Ventilation and Piping systems according to the main system, instead of the individual sub-systems:

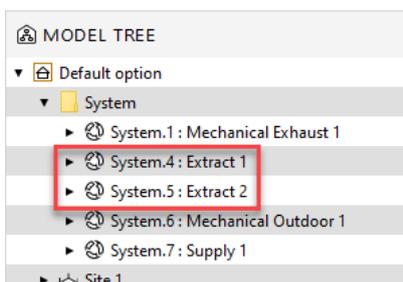


Main systems in green and sub-systems in red, example of the supply and extract:

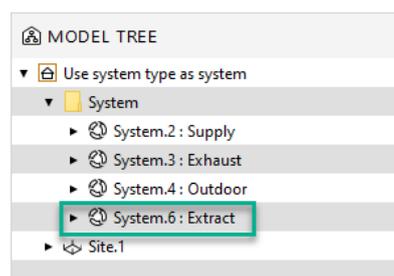
| Systems | Flow | Size | Space |
|-------------------------|------|-------|-------|
| Unassigned (18 items) | | | |
| Mechanical (5 systems) | | | |
| Exhaust | | | |
| Extract | | | |
| Extract 1 | | 24... | |
| Extract 2 | | 75... | |
| Outdoor | | | |
| Supply | | | |
| Piping (22 systems) | | | |
| Electrical (99 systems) | | | |

Examples shown in Solibri:

Without the option set, this is set as usual:

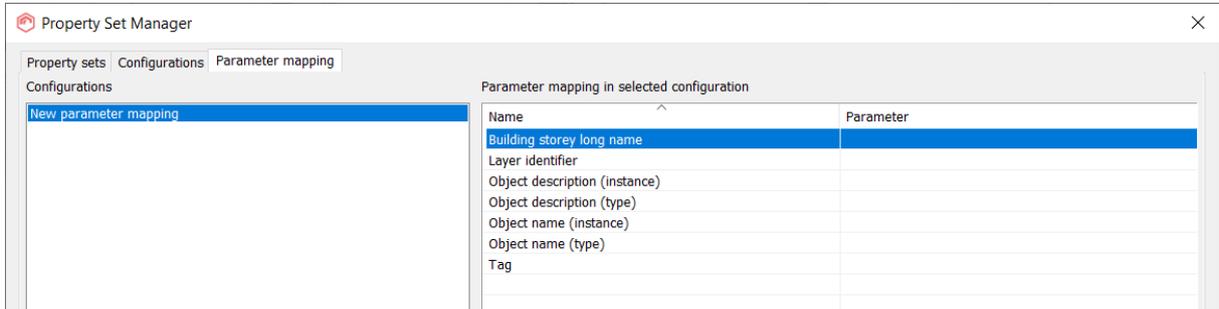


With the option selected:



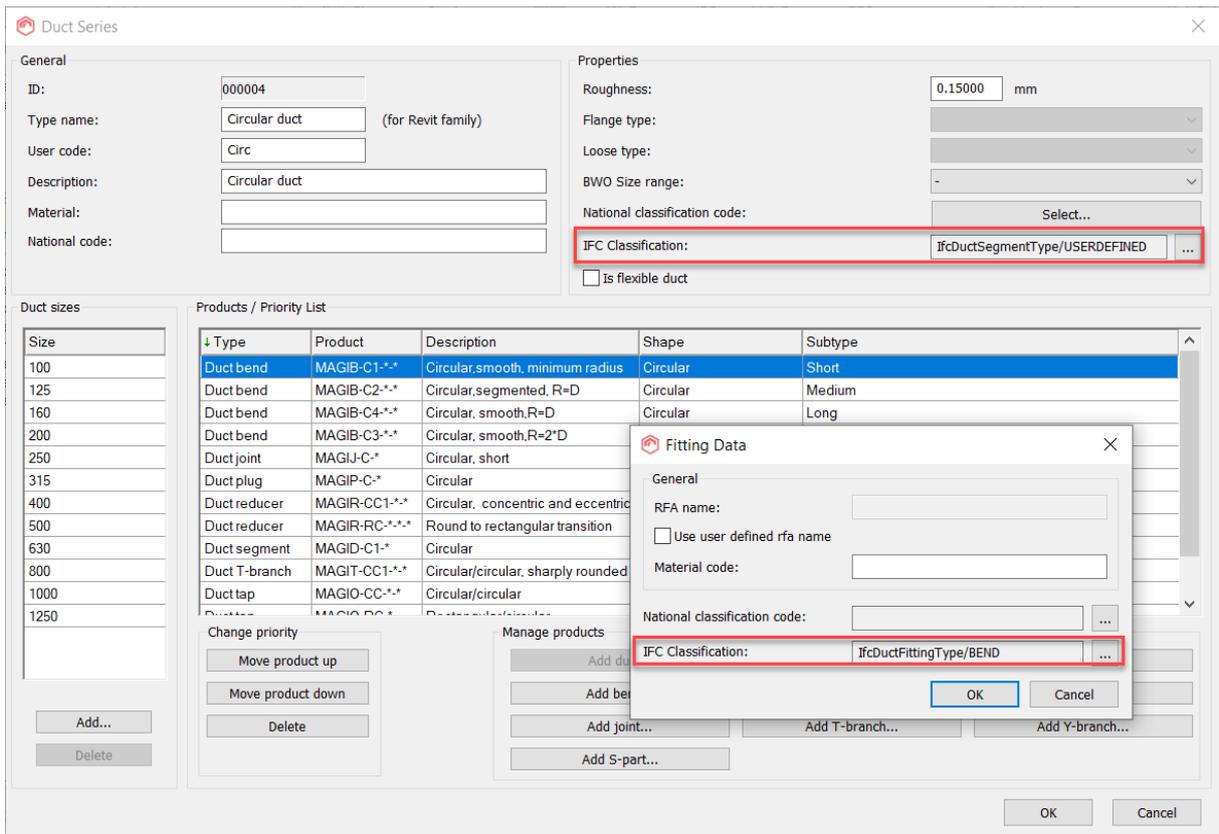
Setting IfcLongName to IfcBuildingStorey in Property Set Manager

"Building storey long name" can now be mapped to property in Property Set Manager.



Setting IFC Type to Duct, Pipe, Cable Tray, Conduit Series

The IFC Classification for the Duct, Pipe, Cable Tray and Conduit series can now be set in the project directly for the segments and fittings, just like the National Classification Codes:



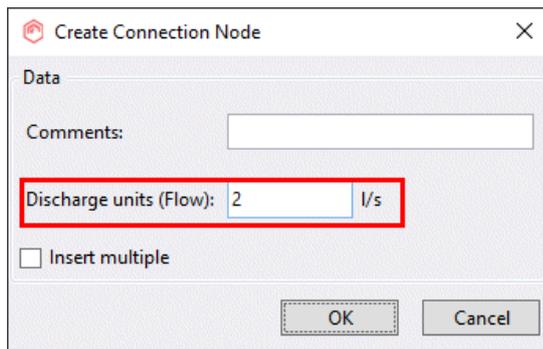
1.3 Ventilation and Piping

UI update for sewer connection node

In various standards, the drainage flow is indicated as "Discharge units". Earlier the text in the dialog has been "Flow".

Even though the discharge unit is the same as the flow, this has confused our users.

For this reason we have changed the text to "Discharge units (Flow)".



Generic AHU function

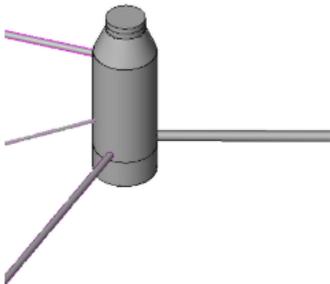
The position of connection point can not be selected so that the duct connections overlap.

When switching shape or size, the default position remain at the same place.

Generic Manhole

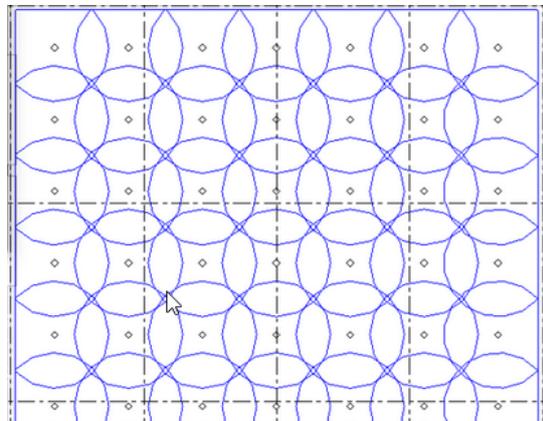
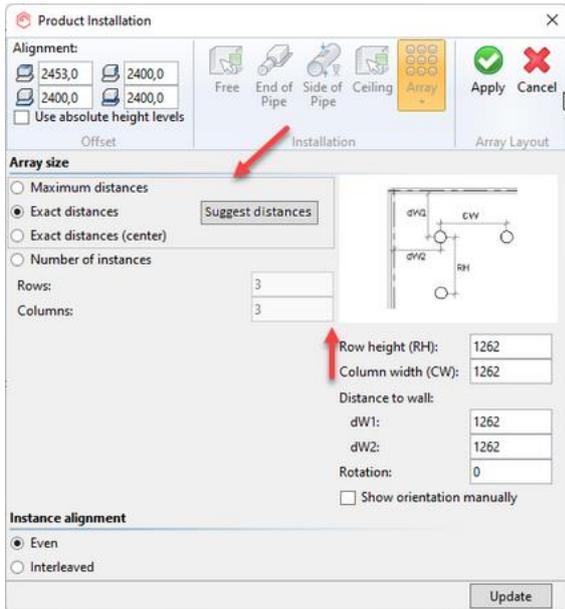
MagiCAD 2023 UR-1 introduces the possibility to create generic manholes for drainage systems. This enables a completely new level of accuracy to outdoor drainage design.

The manholes are typically installed where the drainage pipes meet.



Improved array to sprinkler placement (and smoke detectors etc.)

"Suggest distances" button during array installation is available for fire and smoke detectors
A new option "Suggest distances" has been added to the dialog. When selected, this suggests row and column distances in order to cover the whole area.
This works if the operation area is round. For the smoke detectors, radius 3 is used to calculate the distances



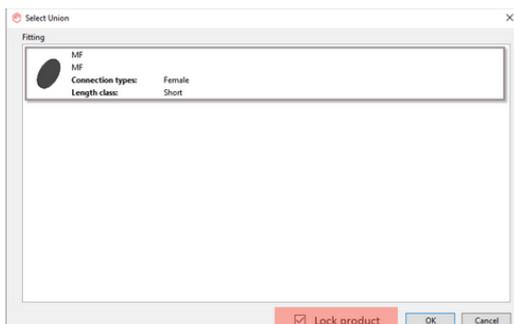
Lock option for Duct to Union

When Production Model Updater is used, the model is updated according to order of product choice in the duct series, and rules for what can be connected and how.

Users have had a wish – when Duct to union feature is used and the union is actively selected – Production Model Updater must not change it afterwards.

This can be done by using Smart Product Lock. Users want this to happen automatically when using Duct to union.

To lock product automatically a selection possibility is added to Duct to union command. This option is by default selected. If this selection is de-selected – MagiCAD works in the same way as previous versions. If the option is selected the product is locked and "Production Model Updater" does not change the union.



Connection nodes between models - piping

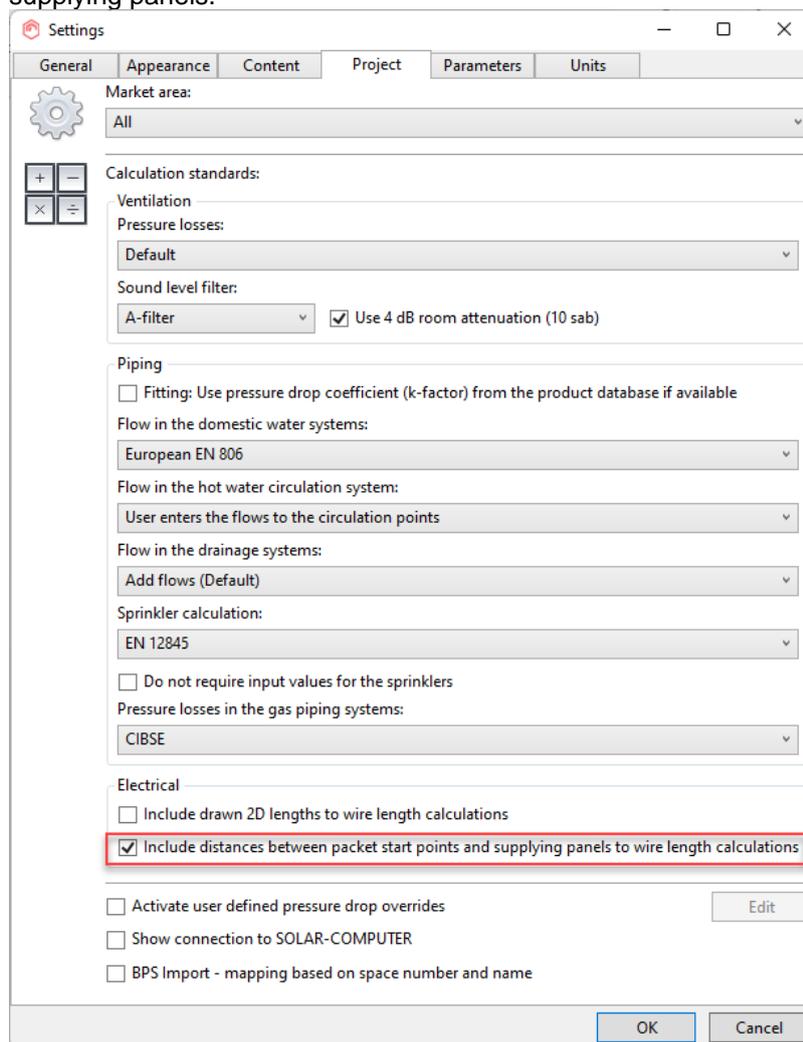
First version added where piping connection node links can be created similar way than ventilation connection node links.

Connection nodes between models allow you to link systems in separate model files for calculation purposes. There are two methods for adding the connection nodes, manual and automatic. In manual linking you can select the pipes that you want to link in each file. In automatic linking, a linked pipe node is automatically imported into the same location in the corresponding model, and you can continue drawing the system from it.

1.4 Electrical

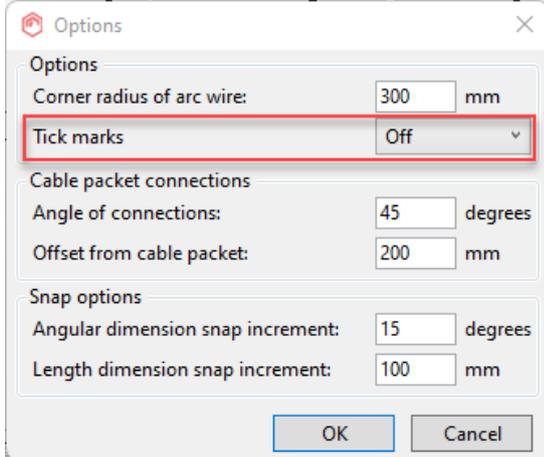
Extended cable length calculations from packet start points to supplying panels

When activating the new setting "Include distances between packet start points and supplying panels to wire length calculations", MagiCAD will calculate the orthogonal distances from cable packet start points to the supplying panels of circuits and add those to the calculated supply cable length values of the circuits. This way you can get more accurate lengths, you can use a single cable packet for several systems/panels and you don't have to model the cable packet start points so close to the supplying panels.



Tick marks selection in the wire drawing tool

A new selection has been added under "Options" in the Wire tool for either showing tick marks automatically as before or having them off as default when you draw new wires.



Hide conduits/cable packets

New functions have been added which can be used to hide and unhide parts of conduits/cable packets. Hiding is done in the active view, but there is also a new checkbox parameter (MC Hide Conduit) added for conduit segments which can be used to hide a segment in all desired views via view filters.



When using the "Hide Conduit" function, you need to show two points from a conduit segment and the segment will be hidden in the current view between those points by utilizing special union fittings and splitting the segment into pieces. The function continues as long as you press Esc.

With the "Unhide Conduit" function you need to select a union fitting from either side of a hidden part of a conduit, and that hidden part will get unhidden. You can select several unions for un hiding several hidden segments at the same time. The Unhide Conduit function is also available in the contextual tab. The function itself continues until you press Cancel/Esc. With Finish, you accept the currently selected unions and do the un hiding.



Set bend radius in ATH

Now you can define the used bend radius in the Angle to Horizontal tool.

Angle to horizontal settings

Angle to horizontal

15° 75°
 30° 90°
 45° Free angle:
 60° °

Bend radius

mm

NOTE! The field is naturally disabled in case the tray series has fixed bend radiuses for vertical bends.

Support for BA devices in automatic ELV risers

You can now define schematic symbols for Building Automation devices in the dataset, and the automatic ELV riser function works also with BA devices.

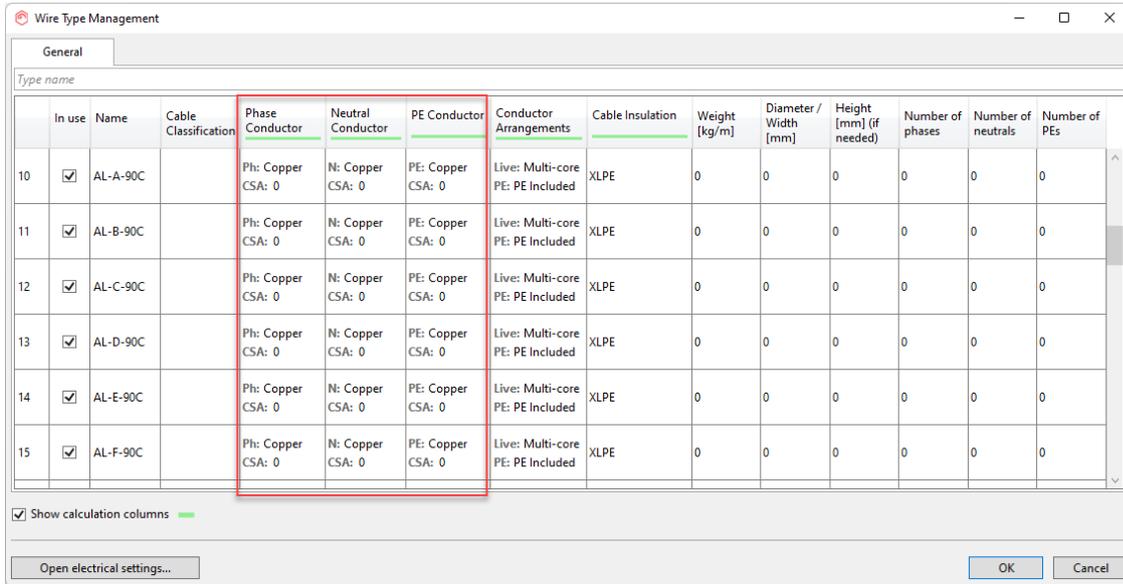
New parameters in the calculation export/import tool

New parameters have been added to the Export/Import Network tool:

- Wire Types:
 - MC Neutral Size
 - MC Neutral Material
- Circuits:
 - MC Neutral Conductor Size
 - MC Neutral Conductor Material
 - MC Neutral Not Used
 - MC PE Wire Type
 - MC PE Cable Insulation
 - MC Protective Device Description

Wire Type Management improvements

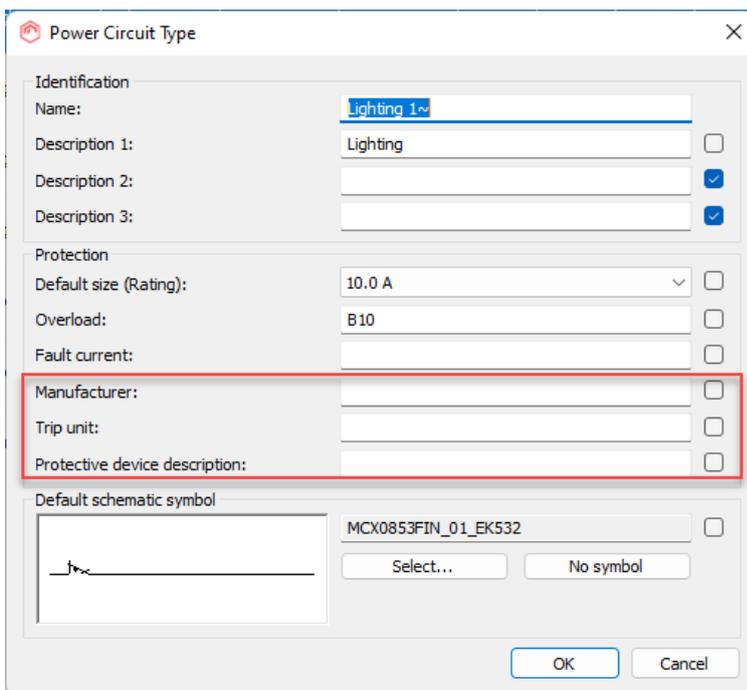
Neutral conductor material and size have been added to the Wire Type Management as new definable properties of a wire type, and the parameter layout has been rearranged to have separate columns for conductor types.



| In use | Name | Cable Classification | Phase Conductor | Neutral Conductor | PE Conductor | Conductor Arrangements | Cable Insulation | Weight [kg/m] | Diameter / Width [mm] | Height [mm] (if needed) | Number of phases | Number of neutrals | Number of PEs |
|-------------------------------------|----------|----------------------|----------------------|---------------------|----------------------|-------------------------------------|------------------|---------------|-----------------------|-------------------------|------------------|--------------------|---------------|
| <input checked="" type="checkbox"/> | AL-A-90C | | Ph: Copper CSA: 0 | N: Copper CSA: 0 | PE: Copper CSA: 0 | Live: Multi-core PE: PE Included | XLPE | 0 | 0 | 0 | 0 | 0 | 0 |
| <input checked="" type="checkbox"/> | AL-B-90C | | Ph: Copper CSA: 0 | N: Copper CSA: 0 | PE: Copper CSA: 0 | Live: Multi-core PE: PE Included | XLPE | 0 | 0 | 0 | 0 | 0 | 0 |
| <input checked="" type="checkbox"/> | AL-C-90C | | Ph: Copper CSA: 0 | N: Copper CSA: 0 | PE: Copper CSA: 0 | Live: Multi-core PE: PE Included | XLPE | 0 | 0 | 0 | 0 | 0 | 0 |
| <input checked="" type="checkbox"/> | AL-D-90C | | Ph: Copper CSA: 0 | N: Copper CSA: 0 | PE: Copper CSA: 0 | Live: Multi-core PE: PE Included | XLPE | 0 | 0 | 0 | 0 | 0 | 0 |
| <input checked="" type="checkbox"/> | AL-E-90C | | Ph: Copper CSA: 0 | N: Copper CSA: 0 | PE: Copper CSA: 0 | Live: Multi-core PE: PE Included | XLPE | 0 | 0 | 0 | 0 | 0 | 0 |
| <input checked="" type="checkbox"/> | AL-F-90C | | Ph: Copper CSA: 0 | N: Copper CSA: 0 | PE: Copper CSA: 0 | Live: Multi-core PE: PE Included | XLPE | 0 | 0 | 0 | 0 | 0 | 0 |

New parameters in Power Circuit Types

Fields for defining manufacturer, trip unit and protective device description have been added to circuit types.



Power Circuit Type

Identification

Name:

Description 1:

Description 2:

Description 3:

Protection

Default size (Rating):

Overload:

Fault current:

Manufacturer:

Trip unit:

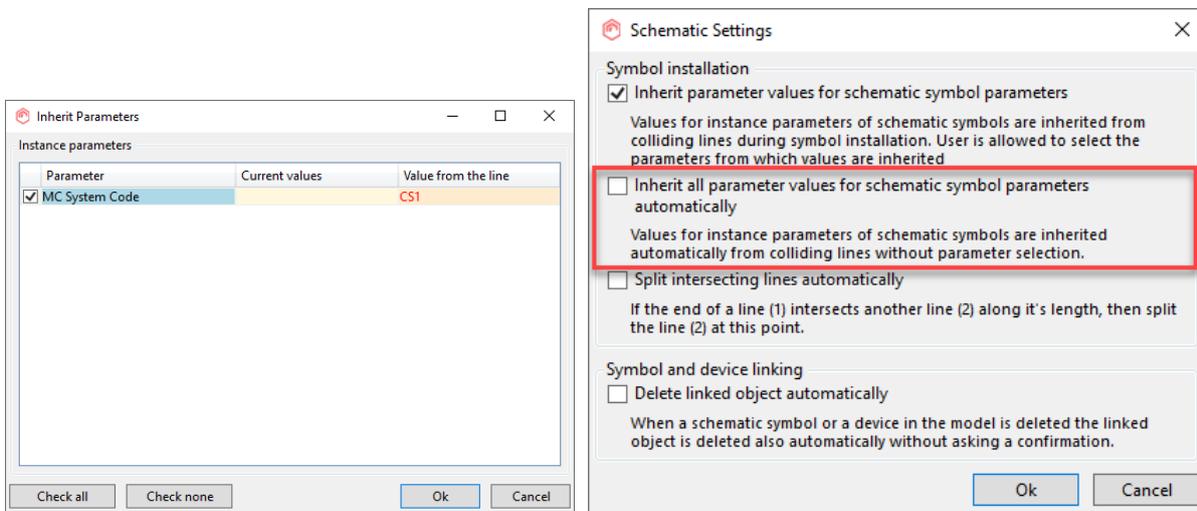
Protective device description:

Default schematic symbol

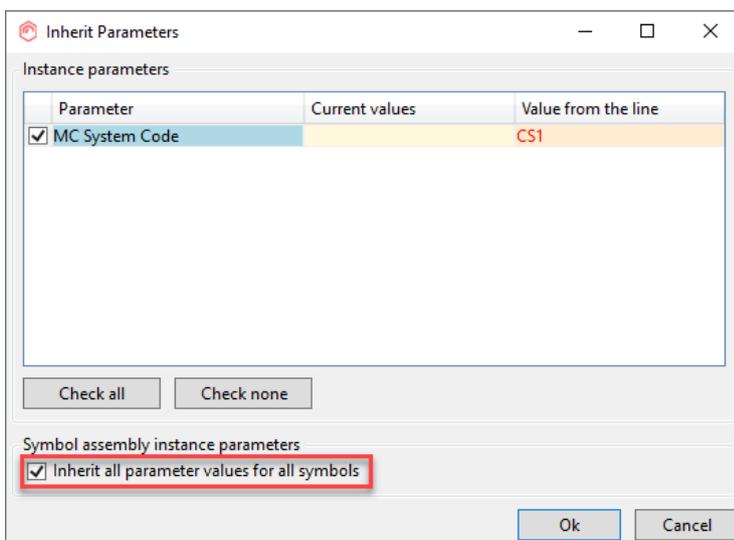
1.5 Schematics

Improvements to usage of schematic assemblies

Symbol assemblies allow users to save repeated combinations from schematic drawings for later use instead of drawing them manually each time. In earlier versions, when installing an assembly, the following dialog opened up for all individual symbols within that assembly, which meant that if the assembly for example had 15 symbols, then the dialog was opened 15 times in case "Inherit all parameter values for schematic symbol parameters" hadn't been selected in settings:



The installation of symbol assemblies has now been streamlined for easier use. Parameter values are inherited by default only for the main symbol in the assembly and you can easily select whether to inherit them for other symbols as well.



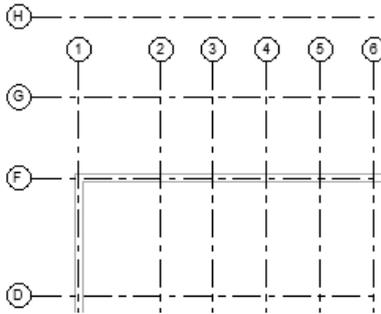
2 Resolved issues

2.1 Common

After collision check, has been slow export to Excel from BCF manager

The more grid lines there were in the project, the slower the export function was.

After the correction, the speed is about substantially faster. In our test the speed was 30 times faster.



Manual provision gets incorrect offset after insulation installation

In some cases manually installed provision for buildersworks opening got slightly incorrect offset.

This was because Revit holds the information in feet and MagiCAD converts the values to mm. There was a small rounding error which caused behaviour

This is now corrected.

All the commands of MagiCAD 2023 for Revit 2020 did not work in some projects

The technical reason is that two parameter types, TimeInterval and Speed, that Revit assumes appeared in Revit 2021 are actually available in Revit 2020.

When the user defines these shared parameters types to Revit 2020 project, all the MagiCAD commands did not work.

It is now possible to use MCREV commands in Revit 2020 when the project contains shared parameters with parameter types TimeInterval and Speed.

Clash visibility with sloped pipes

Clash checking did not mark the clashes with sloped pipes in floor plans. Clashes were still seen in 3D view and the clash checking found those clashes.

The problem was only with the visibility in floor plans.



This is corrected

Bill of material does not recognize elements that belongs to undefined systems

Bill of Material uses different means for electrical and non-electrical elements to check whether an element belongs to an undefined system.

This is now corrected.

- For electrical and tele-data elements, system code is checked (not set -> undefined system)
- For all other elements, system name parameter is checked (not set -> undefined system).

Shared parameter file not accessible

An unexpected error was shown in Revit if the shared parameters file is locked by another application.

A more descriptive message is now shown in such case.



Unable to save exception report with "Save report"

It was not possible to save the exception report when internal dataset is in use. It was broken when dataset support for BIM360 was added.

Restored the capability to save exception reports when using internal dataset.

Installation code was set incorrectly

In case the installation code group "Pipes and fittings" is selected, the installation code was set to the devices also.

Now the installation code is set only to the selected object group.

Multiple errors involved with "Design data" were corrected

The following errors have been corrected.

- When moving items from project to dataset, the project item overwrites dataset item if it has the same ID as the project item has.
That leads to a situation that there can be too items with the same name in the dataset but the incorrectly overwritten item is missing
- Error message when using design data
There are incorrect sizing method families without any types in the project.
 - Connect to the dataset(mrv)
 - Use Design data to transfer data from dataset(mrv) to the project(rvt) and press ok
 - No exception should be shown after the changes. The design data can be modified successfully
- Cannot create/delete from project via design data
Once a project is using a shared dataset (aka the split cloud -solution), the user is unable to create new data or delete data to/from the current project via Design Data
- The modification of newly create insulation fails
- Dialog resizing
Resizing the design data dialog only enlarged the project side data list size, the size of the data set list remained the same. All data did not necessarily fit to the left side as it should.

2.2 IFC-related

All Revit Zones were not exported with MagiCAD IFC export

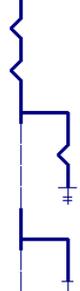
The issue was that when you had one zone that included spaces from different storeys, all spaces were not exported to the IFC when using the Entire project option in MagiCAD IFC export, if the spaces were in different storeys. This was because the zones belong to a certain level, even if they contain spaces from other levels, and were exported together with the spaces from their "main" level, meaning that the spaces from other storeys were left behind.

Now zones are exported correctly and all spaces are included.

2.3 Ventilation and Piping

Domestic water network not calculated in the right way with both DW device and connection nodes

When the calculation was done with Italian UNI standard, the dimensioning flow was calculated using water points only. The connection nodes placed downstream were not calculated in the right way with both water points and connection nodes.

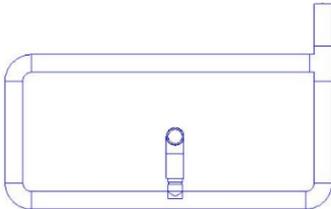
| Posizione | Livello | Nodo | Tipo | Serie | Prodotto | Dimensione | Dimensione Precedente | L [m] | Isolamento | LU | qv dim [l/s] | v (dim) [m/s] | d [f] |
|---|----------|------|---------------|-------|---------------|------------|-----------------------|-------|------------|------|--------------|---------------|-------|
|  | 0 - CS_V | | TUBAZIONE | Cu | MAGI-CU-18 | 18 | 22 | 7.3 | | 9.00 | 0.15 | 0.75 | |
| | 0 - CS_V | | CURVA-90 | Cu | MAGI-CU-B1-18 | 18 | 22 | | | 9.00 | 0.15 | 0.75 | |
| | 0 - CS_V | | TUBAZIONE | Cu | MAGI-CU-18 | 18 | 22 | 3.7 | | 9.00 | 0.15 | 0.75 | |
| | 0 - CS_V | | CURVA-90 | Cu | MAGI-CU-B1-18 | 18 | 22 | | | 9.00 | 0.15 | 0.75 | |
| | 0 - CS_V | | TUBAZIONE | Cu | MAGI-CU-18 | 18 | 22 | 3.9 | | 9.00 | 0.15 | 0.75 | |
| | 0 - CS_V | 1 | RAMO | Cu | MAGI-CU-T1-18 | 18/12 | 22/10 | | | 9.00 | 0.15 | 0.75 | |
| | 0 - CS_V | | TUBAZIONE | Cu | MAGI-CU-12 | 12 | 10 | 3.7 | | 1.50 | 0.15 | 1.91 | |
| | 0 - CS_V | | CURVA-90 | Cu | MAGI-CU-B1-12 | 12 | 10 | | | 1.50 | 0.15 | 1.91 | |
| | 0 - CS_V | | TUBAZIONE | Cu | MAGI-CU-12 | 12 | 10 | 0.5 | | 1.50 | 0.15 | 1.91 | |
| | 0 - CS_V | 2 | DISPOSITIVO P | | | 34762000 | 10 | | | 1.50 | 0.15 | 1.87 | |
| | 0 - CS_V | | TUBAZIONE | Cu | MAGI-CU-18 | 18 | 22 | 3.0 | | 7.50 | 0.38 | 1.87 | |
| | 0 - CS_V | 3 | RAMO | Cu | MAGI-CU-T1-18 | 18/18 | 22/22 | | | 7.50 | 0.38 | 1.87 | |
| | 0 - CS_V | | TUBAZIONE | Cu | MAGI-CU-18 | 18 | 22 | 3.6 | | 1.50 | 0.30 | 1.49 | |
| | 0 - CS_V | 4 | NODO DI CON | | | | 18 | 22 | | 1.50 | 0.30 | 1.49 | |

This is now corrected and the calculation works as it should.

Corrections to sprinkler network containing tappers branches

All the errors below are corrected.

- Sprinkler calculation failed, when there are two tapped branches exactly at the same point of the main pipe.
- Sprinkler report failed in some looped networks with tap connections. Below is the simplest network where the error occurred.



- Sprinkler calculation crashed when data was updated to project if the network contains taps. When the pipe size was changed in the sprinkler calculation report and then the results are updated to project, MagiCAD crashed if there are taps in the network.

Sprinkler calculation can now calculate all the equipment which has one connection e.g an expansion vessel.

Previously the calculation ended to an error message "Unknown component type in the sprinkler network. Equivalent length is not available"

Installing the air terminals into spaces is using fixed unit l/s

When installing the air terminals into spaces the unit for the flow needed on the space is fixed with "l/s" instead the unit set in Revit.

Air flow of space and pressure drop range are now shown in active units.

Incorrect adding of the equivalent length

In some cases one t-branch was left out from the calculation. This is now corrected.

Nursing home option missing from Building type combo box (DIN 1988-300 and DTU)

Nursing home was missing from building type list for domestic water sizing and balancing dialogs when DIN or French DTU standard is used.

Nursing home is added to the list of building types.

2.4 Electrical

Groups in Tags issues

When using Russian Revit template and adding a wire tag into the project, no more warnings are coming while selecting which wire tag is used.

Model text problem with Connection to Mechanical

If a project had independent model texts in it, then Connections to Mechanical gave an error. This has been fixed.

Electrical calculation cos phi value broken in certain cases

Problems related to windows regional settings (decimal separator) fixed.

Electrical data is wrong from dataset installation for some HVAC devices with electrical connector

Electrical data of objects is now obtained correctly while created.

2.5 Schematics

Unexpected error with schematic in drafting view

When drafting view was active and "Add new symbol group" was used, the result is an unexpected error which was caused by a view template bug.

This has now been fixed so that this error no longer occurs in any case.