MagiCAD for Revit

Release notes for version 2022

21/05/2021

MagiCAD

Content

1   New features

1.1   Common

MagiCAD supports Revit 2022

Set & Manage Classifications
The purpose of this feature is to provide a method for creating a user defined classification system (to support different local classification standards) with supplementary properties attached.
It includes the possible to assign the classifications codes to the objects while selecting products to the dataset and later on installing them to the model.
Finally, the classification codes with the attached properties can be exported with MagiCAD's IFC Export.

BPS Import - new option to import results based on the combination of space number and name
In the previous versions, *BPS Import* has worked based on the unique id numbers, generated during the *BPS Export*, and matching surface areas for each space. The result being that both Revit project and the BPS calculation model in 3rd party simulation software should always be up-to-date and in sync with each other.

To ease up the workflow and make it less strict to have both models always in sync, there is a new option added to *BPS Import* in this version. Depending on the preferred workflow, mapping the spaces in the Revit project with the spaces in the imported IFC file can be done only based on the combination of space number and name. Selecting this option will omit the surface area checking as well. In addition there is also an option to map the spaces manually in case of mismatches in the space number and name.

Possibility to split a legend
Sometimes the legend made with MagiCAD's legend tool can be very long. The new version supports splitting if the legend by allowing to define a maximum length for the legend.
When the length is exceeded, the legend is automatically split. This is supported both within the same legend and into multiple legends.

Setting for tolerance value in dataset for round provision becoming rectangular in angled pipe/duct/etc.
Round provisions should change to rectangular if the angle between the pipe/duct/etc. and the line perpendicular to wall in same location is bigger than the tolerance value.
A new setting for the tolerance angle for defining whether to create a round or a rectangular provision has been added to the dataset and BWO configuration user interface.

Improvements to angle to horizontal tool

The first improvement is the possibility to select the direction of the pipe/duct/cable tray/conduit when drawing is continued from the end of an element.

This can be done by selecting the following options from the user interface.

☑ Continue drawing

☑ Create angle to horizontal to the end point / side direction

Previously the direction was the same as the direction of a previous element (1). For the round element, the bend is rotated (2) and for the rectangular elements a bend is added (3).

The second improvement is the possibility to use "Angle to horizontal" directly from the end of element, without being forced to draw a small piece first.

Settings for working according to absolute height level

To enable the possibility to choose whether to use height level according to current floor plan or the absolute height level, the user interface has been changed so that
in all the places where the height is asked, an option to use absolute height level has been added.

Improved size ranges for the Provisions for Builderswork Openings

This version supports a possibility to define separate offsets below and above an object. The previous version made the values equal.

The configuration files have been renamed

The names of the default configuration have been changed to be more consistent

| Old name	New name
paramConf.xml	MC Parameter Merge Configuration.xml
parameterMapConf.xml	MC Parameter Map Configuration.xml
MagicadSettings.xml	MC IFC Property Set Configuration.xml
Update elevation of everything.xml	MC Example Update all elevations.xml

The material names in the material browser have been changed

maMaintenanceZone is now MC_Mat_maintenance_Zone

matClearanceZone is now MC_Mat_Clearance_Zone

Segment Adjustment

Segment adjustment command (MagiCAD Detailing) is now available from MagiCAD ribbon
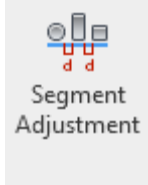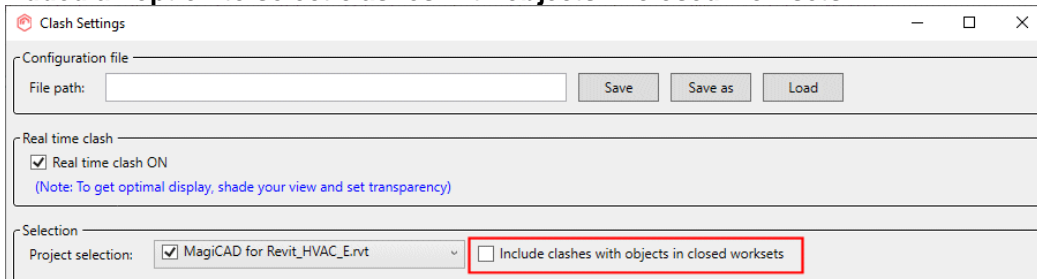
Ribbon text and icon updates

The arrow direction have been changed from the left icons to the right icons. This applies to all export/import icons.

The texts have also been changed to indicate the direction better e.g. "Spread Sheet Export" to "Export to Spreadsheet"
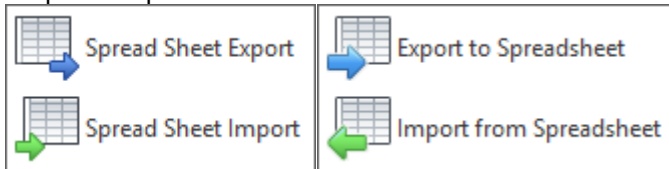
Added an option to select clashes with objects in closed worksets

Automatic zooming has been disabled in BCF & clash reports

Disabled "Show all elements" in the topic when the topic changes. This has been done because view change takes such a long time in big projects.

"*Show all elements"* works as earlier in case the elements have been added to the report with BCF-manager's view point functionality, and 3D camera position has been saved to the BCF-file.

Note: This works only 3D view .

Improvements to clash detection

Live Clash Detection - Supports showing clashes in the section view

Live Clash Detection - Supports clash detection with Fabrication Insulation.

Include new components automatically in clash checking

When the Real-time clash is selected, the installed component or category will be selected automatically to the clash settings according to the following rules.

If a discipline (e.g. Ventilation) is fully or partly selected, then a new inserted category (e.g. Air Terminals) is automatically selected.

If a category (e.g. Air Terminals) is fully selected or partly selected, then new inserted family is automatically selected.

1.2 Common/IFC related

Site topology in IFC Export
It is now possible to export the site geometry from MagiCAD. Planted elements like trees are only exported if the site is set to be exported.

IFC distribution ports now support System Type and Name
Now ports are added to the same system as host object and linked only to one system

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

Support for PredefinedType/USERDEFINED/ObjectType in IFC4
If the IFC type is USERDEFINED, then the type's "object type" is set to value from the "Type comments"-property.

IFC4 Objects local placement from storey to spaces
We earlier had 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.

IFC distribution port support for electrical connectors has been added
The electrical connectors are exported to the IFC with the Name and direction of the flow as given in the connecctor's "Connector description" with the structure Name;Flow direction (the flow direction is In, Out or Bidirectional)
The circuit information is taken from what is set in the projects and then in the parameters.

Port naming for duct- and pipes segments and fittings
Distribution ports in segments and fittings are now named and the names can also be changed by the user.

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.

Added support for MASSDESITYUNIT
Now MASSDENSITYUNIT is exported in accordance with the standard.

Support for port numbering
In accordance with IFC 4 RV 1.2 version/schema we now support port numbering

IFC4 User defined type
The user defined type can be set for the products.

1.3 Ventilation and Piping

Generic distribution box

MagiCAD has no distribution boxes, but only as manufacturer specific boxes. With this feature generic distribution boxes can be installed to the duct system.

Production model improvement

This tasks is about better management of female and male connections (connector gender types) and the need for more fitting types when gender can be managed.

Support for adding pre-defined pipe series to the dataset

Defining pipe and drainage series for a project can be a tedious and error-prone task. It is not enough that the selected fittings are suitable for the modelling work, you need to also verify that they are compatible to be mounted together on-site.

To help you with this task, MagiCAD now includes a collection of pre-configured pipe and drainage series that are ready for use in your projects. The series include a set of fittings in compatible sizes for a piping or drainage system. You can select the pipe and drainage series from MagiCAD Cloud and the pipe series data is automatically added to the MagiCAD dataset.

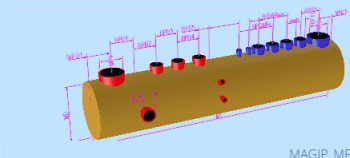**Enable selections of fittings per size range**

The latest version of MagiCAD provides a way to set the minimum and maximum size for the fittings. The given values are transferred to Revit's routing preferences and used in the calculation of the pipe sizing.

Header pipe / Manifold configurator

Large header pipes can now be configured by using MagiCAD Create and later use them as manifolds in MagiCAD. The number of pipes, their sizes, position and the rotation are fully configurable.
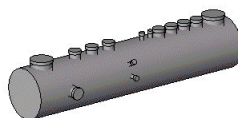

Read pressure drop and flow data from Plugin AHUs pipe connectors

Support for to connect and calculate the heaters and coolers of the air handling unit which are imported by plugin to Revit can now be done.

There can be multiple heaters/coolers in the AHU and they are correctly used in MagiCAD calculations.

Possibility to enter pressure/water flow values for the water source

The new version of MagiCAD supports pressure level/water flow curve for the water source. The P/Q curve can be freely defined by the user. No object needs to be installed in the network to use P/Q curve of the water source when calculating the network, which means that this can also be used to quickly simulate the pump without actually installing it.
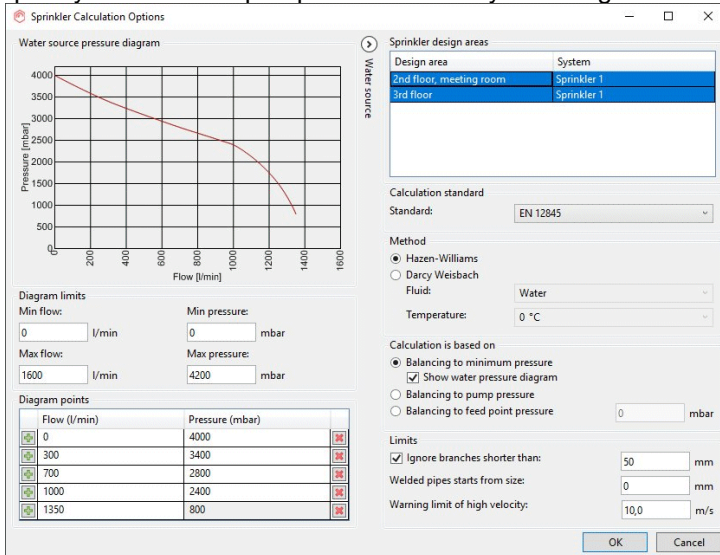

Better connection tools for sprinkler

The previous version of MagiCAD could not connect the sprinklers when they were higher than the pipe where the connections was being made and the selected connection type was "Shortest path" This connection works now.
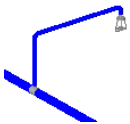
Sprinkler calculation now understands flexible pipe connection directly to a rigid pipe

Earlier version of MagiCAD could not calculate a system where a flexible pipe was directly connected to a rigid pipe. This was because Revit connects these two pipe types directly to each other without any fitting between them (joint part, reduction, ...)
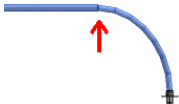
To separate these two pipes in the calculation MagiCAD now creates a virtual node between the rigid and flexible pipes and with this change the calculation problem is solved.

Setting sprinkler distances according to VDS standard

Earlier version MagiCAD used half of the row height/column width as distances to the walls. Now it is possible to separately set the distances to the walls.

Volume of the sprinkler system

The volume of the sprinkler system is now shown in the report.

User definable value for temperature difference in Italian circulation flow calculation UNI 9182:2014

The earlier version of MagiCAD was using fixed temperature difference dT=2° by default. In the new version the user can define value for dT, 2° being the default.

Russian domestic calculation standard has been updated

Two new device typed have been added: Dishwasher and washing machine.

The groups inside "Residential buildings" have changed. The old groups are below on the left and the new groups are on the right. The old groups are automatically changed like shown below.

Possibility to make a combined drainage product

It is possible to combine Drainage device with a Drainage component like a water trap with a washbasin.

New routing options for drainage connection

Added new route options for the user interface.

1.4   Electrical

Updated calculation engine

The international calculation engine has been updated.

New features of the calculation engine are installation methods and cable insulation. Insulation types can be set for wire types in the Wire Type Management and reference methods can be assigned for installation codes in the dataset.

Errors related to minimum LV and MV source starting values have been fixed.

It is now possible to use under 20 000 A values in Short-Circuit Max Three-phase parameter and under 250 000 kVA in Source Sk3max parameter.

Localised calculation engines

Three new localised calculation engines have been made available: Finnish, Swedish and Spanish. Also, the German engine has been updated.

However, the French engine has been removed. The old French engine can still be used with earlier versions of MagiCAD.

Installation methods available in calculations

Now it is possible to define installation methods for installation codes in the dataset which are then utilised in calculations. Installation methods and references are from the standard IEC 60364-5-52. Installation codes defined to circuits will be taken into calculations with their selected installation method and reference method. The methods can be defined also from the calculation dialogue directly. Updating the Installation code in a circuit will also update it to the circuit's parameters.

You can also define how many trays are nearby and how many additional touching circuits there are in the current cable's worst installation point.

Cable insulation is now selectable in Wire Type Management and in Electrical Calculations

Now it is possible to define the cable insulation for each cable type in a project. The defined insulation is then automatically selected from the wire type to the electrical calculations.

Improvements for Connections to Mechanical
The validity list in the dataset has been changed, it is now using "Category" and "Part class" for finding object types. The node types defined with older versions are automatically converted to this new category system.

In the Manage Connections to Mechanical Objects dialogue you can now zoom to the HVAC object in a selected view and see more information from the host object when using the Show button. You can also use the right click menu to access the same buttons seen in the top of the dialogue. In addition, if an existing connection node is changed to another type of node with the Select button, all previously connected tags and wires will be kept connected to the node.

When selecting a connection node type for a found connector, you can now also create a new one directly from the dialogue. Previously you were able to define a node type only in the dataset.

Symbol conversion improvements
A scale factor is now definable for each 2D symbol which is directly converted from a symbol database, meaning all symbols which don't use a ready-made family. This factor is used to scale the symbol's size when creating or updating it.

The default modelling scale for plan drawing symbols is/has been 1:50. This equals for scale factor 1. So if a symbol is modelled e.g. in 1:100 scale, a scale factor of 0.5 will downsize it properly to have the correct size in the model.

With all schematic symbols the modelling scale is/has been 1:1, which means the direct size on paper. This equals for scale factor 1. If you need to make some symbol bigger or smaller, assign a corresponding factor.

Support for scaled symbols is applied to both Symbol Organiser and Legend tool.

Side offset improvements for wire drawing
When drawing wires with side offsets, you can now create corners for the wire route simply by selecting additional route points before connecting to the next device. This allows you to easily adjust wire routes to go around objects and to follow different types of corners. In addition, when you connect a wire with a side offset to a cable packet, the offset of the wire is maintained.

1.5 Schematics

No new features for schematics

2 Resolved issues

2.1 Common

Conversion from numeric values to string values
In some cases the conversion was not done correctly. This depended on the regional settings and usage of comma/dot as a decimal separator.
This could have caused problems e.g. in back box installation and Symbol Organiser.
This works correctly now.

Angle to horizontal, crossing tool and other modelling tools referencing steel beams
MagiCAD did not read the reference values correctly from the linked projects when trying to get the elevation from objects in the linked project.
This has now been corrected.

"Combine collinear provisions" does not take "Ignore smaller circular objects than" setting into account
Automatic builderswork opening takes now into account "Ignore circular objects smaller than" setting when combining collinear provisions.

Merge parameters is missing flexible duct and pipe categories
Merge parameter configuration validity tree now includes also flexible duct and pipe categories

Connecting to internal dataset during product selection from Cloud, loses the product
When cloud connect plugin is used to pick a product into the project, and there's no active dataset, product storing to dataset fails if internal dataset is being connected.
This has now been corrected.

Improvements to MagiCAD Create Similar
The following errors have been corrected or improved:
- Fixed a bug where attached radiator coupling and sewer component choose wrong connection size in product installation.
- Further improvement where product selection dialogue will reflect the system selection of a product installation
- Air flow is set according to installation value
- The components weren't always created with the correct size. This error occurred only for certain products
- *"unhandled exception"* error in a situation where the product loading was cancelled but the object was used thus causing MagiCAD to use an invalid family symbol
- Product list was empty if source was changed.
- When product selection is opened after create similar, MagiCAD preselects the same product that was being installed.
- Create similar could fail if target product was installed during the same installation session.

F1-help button didn't work for some functions in MCREV
Corrected an error where online help wasn't properly shown for some drop down buttons under the stacked buttons panel.

Scrollbar was missing in segment drawing system list
Scrollbar was missing in the system list of the draw duct dialogue
This error is corrected.

2.2 IFC-related

Removed "Remove" and "Replace" IFC Export actions
There were some restrictions to how well these features worked and they have therefore been removed, as the need for them was seen as minimal.

IFC export fails while trying to export cable trays
Cable trays were not always exported to IFC.

Expansion tank get no system reference while exporting IFC
Now tank (IfcFlowStorageDevice) is added to system when exporting.

Clearance geometry IFC export fails in some cases
Clearance geometry was not always exported.
Corrected

Material names fixed
The material names for maintenance zones and clearance zones have been updated from MaMaintenanceZone and matClearanceZone to MC_Mat_Maintenave_Zone and MC_Mat_Clearance_Zone

Parameters under project information couldn't be selected to property sets
The parameters that are available under Project Information was not available for the property set in MagiCAD's IFC Export. This has now been fixed.

Coordinates were shown incorrectly in the IFC project information dialog
The coordinates were shown incorrectly in the IFC project information dialog. This has now been fixed.

2.3 Ventilation and Piping

Sometimes it was impossible to select insulation
In rare cases it was not possible to select the insulation when change properties was used.

MagiCAD drawing tool duplicates insulations in draw settings
Opening "Settings" from the drawing toolbar showed the insulations twice temporarily in the drawing dialogue.

Active product changed when editing it in product installation
This nuisance happened in case the user selected a product from *"Install product"* dialogue and then opened *"Dataset properties"* dialogue.
After returning from *"Dataset properties"*, the active product was changed to some random product.

Fan coil unit dialogue behaving strangely

Fan Coil Units: When clicking the selection in the category ribbon, the data panel at the bottom was turned on and off.

The inconsistent behavior of the ribbon buttons has been corrected.

Error in the radiator coupling selection when the coupling was selected for multiple radiators at the same time

When the user tried to select a coupling for multiple radiators at the same time, MagiCAD should have allowed the selection of a coupling only if it was suitable for each radiator.

In earlier versions it was possible to select an incorrect coupling when multiple radiators were selected. This error has been corrected.

The pipe size is wrong if it a new size is added to the dataset and changed in the routing preferences

Corrected the pipe drawing with the biggest size size of the series when a new biggest size is added to the dataset and then updated to the project.

Earlier version never used this new biggest size in the pipe drawing.

This error is corrected in the current version and the new biggest size is used.

Creating floor heating loops by drawing a rectangle always used project north as orientation

Showing the floor heating area by drawing a rectangle works now also in the views which are rotated to true north.

Fire hydrants without pressure drop information in calculation

Domestic water: In case the fire hydrant is modeled without pressure drop information or a third party fire hydrant misses the pressure drop information,

MagiCAD showed 100% flow for such devices without any warnings. Now a warning has been added to the report.

Sprinkler network calculation of system where there are only fire hydrants

In case the sprinkler system contains only fire hydrants there were two errors in the report

- Average density of four weakest sprinkler was incorrect due to division by zero.
- Four weakest sprinkler has node number -1

These are now corrected.

Duct sizes were not always shown correctly when new sizes are added to duct series.

When new sizes are added to rectangular duct series, they are showing in correct order in the *"Duct series"* dialogue but incorrectly in *"Duct drawing dialogue"*

New sizes are now shown correctly everywhere

Unexpected error when installing fan

When a "Smart" option was used to install a fan which doesn't have connectors inline, the installation ended with an "Unexpected error" message.

Now smart installation is allowed only in cases when the connectors are inline.

**The access panel (cleaning cover) and the end of the duct does not change size in sizing**

Corrected sizing of the cleaning cover so that its size changes when the duct size changes.

Duct series creation: dimensions of the fittings are not accurate enough

The accuracy of dimensions of the fittings has been increased to avoid some rounding errors which happened earlier.

Strange drainage pipe connection

In rare cases the drainage connection was made incorrectly,
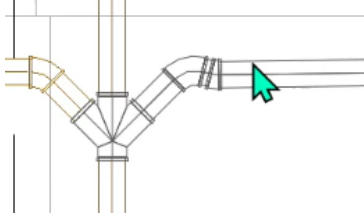
This error has been corrected by improving the routing tools ability to connect only with one bend Improved also connection without any bends.

2.4 Electrical

Parameter value setting failed with some windows regional settings

Value setting of double parameters failed in some MagiCAD's functionalities with some regional settings of Windows.

At least the German settings have "." by default as the digit grouping symbol

The following functionalities had this problem: Schematic installation, Update additional properties from dataset, electrical calculation.

This is now corrected.

Luminaire with suspension fails to create

If the MagiCAD shared parameter file was not selected active in the project, installing a luminaire with suspension length failed. This issue has now been fixed.

Additional properties were not working with switchboards

Fixed a bug where additional parameter values were not always set correctly when installing a product for the first time (e.g. switchboards) in case the additional parameters were type parameters.

Unnecessary EP label coming into some switchboard schematic symbols

Removed an extra EP label from templates which caused the issue.

Back box installed to wrong direction with some products

With some socket products the back box was installed into wrong direction. This is now fixed.

2.5 Schematics

Fatal error when removing broken links

Corrected an error which happened if the user was fast and clicked the *"delete"* option quickly after each other

Symbol Update to Project adds incorrect size masking regions

Masking regions are now added with the correct size.