

MagiCAD
For Revit MEP

"MagiCAD for Revit's calculation, sizing and balancing functions for heating, cooling and ventilation systems had positive effects on the overall design quality during the project."

Lars Vegsund, Norconsult, Norway
Project name: Forde town hall



Northern Europe's leading BIM software for MEP design

MagiCAD is the leading Building Information Modelling (BIM) software for HVAC, piping and electrical design in Northern Europe, and one of the most widely used BIM solutions in and China. MagiCAD has a proven track record from thousands of its field in Europe projects worldwide with more than 20,000 licenses in use in over 50 countries.

MagiCAD enables Mechanical, Electrical and Plumbing (MEP) design using Europe's largest product model database with over 1,000,000 manufacturer-verified products from more than 200 globally renowned manufacturers. MagiCAD offers localisation for different country-specific standards and is used by companies ranging in size from single offices to global multinationals.

MagiCAD is available for both Revit and AutoCAD technologies making HVAC, piping and electrical design faster and easier, and at the same time enabling new levels of reliability, accuracy and quality.

MAGICAD FOR REVIT OFFERS A COMPLETE MEP DESIGN SOLUTION ON REVIT TECHNOLOGY

MagiCAD for Revit is available in five different modules:

- MagiCAD Ventilation
- MagiCAD Piping
- MagiCAD Electrical
- MagiCAD Sprinkler Designer
- MagiCAD Supports & Hangers

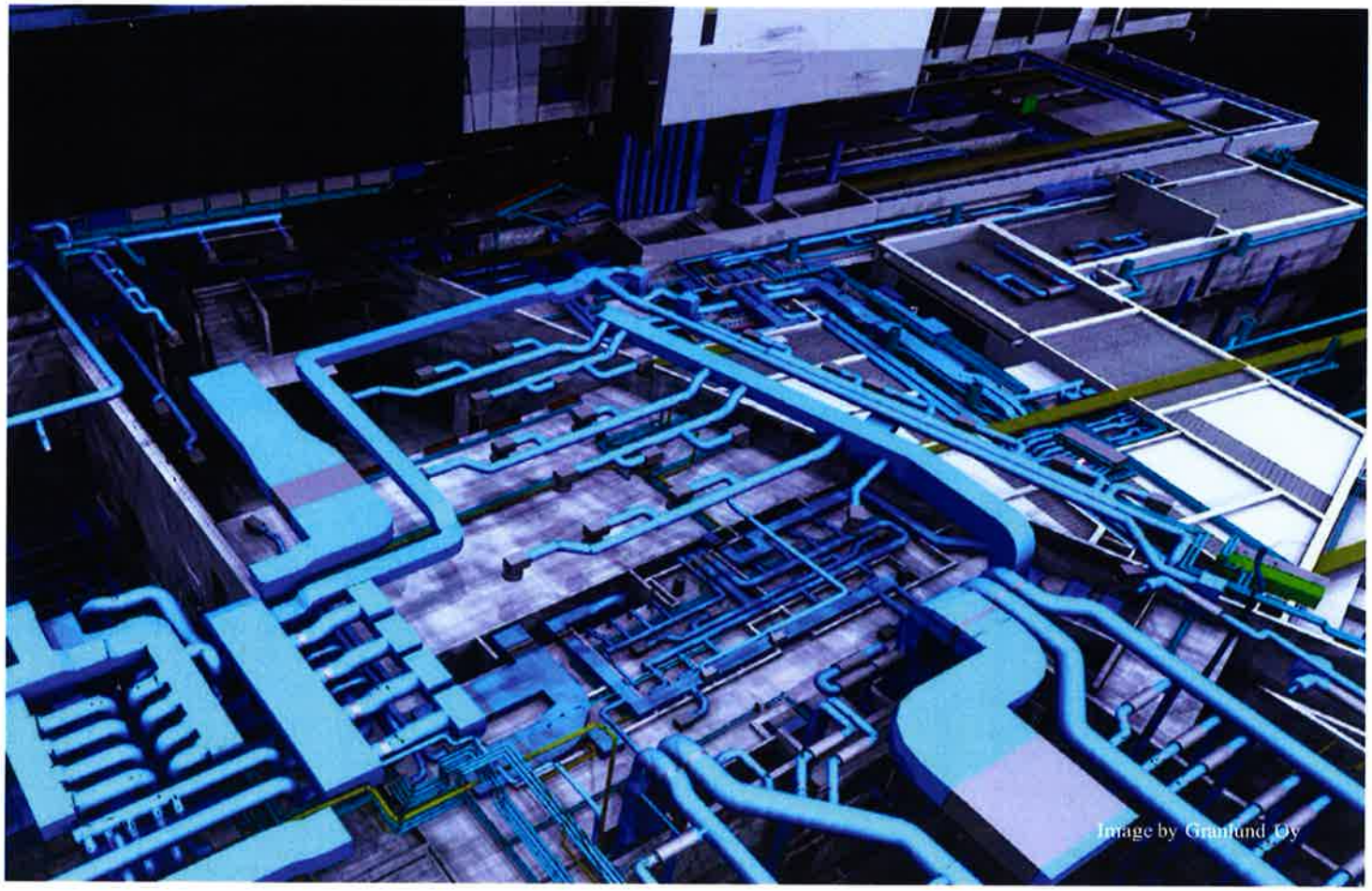
Maximise the benefits of BIM with MagiCAD

MagiCAD enables you to accurately model and test the operation of the building's MEP systems and engineering solutions before the actual construction begins.

When designing with MagiCAD, you have all it takes to carry out even the most demanding BIM projects. A functional 3D information model of the entire system offers a more accurate and more comprehensive basis for your work than 2D drawings. BIM makes it possible to check beforehand whether particular real-life components are suitable for the planned installation, both from the perspective of geometrical space requirements as well as from the technical, operational perspective. MagiCAD also enables thorough calculations, check-up procedures, balancing, sections, coordination also with Revit's native clash detection functions, as well as new levels of collaboration between project partners.

LEADING THE WAY IN BIM

With MagiCAD, all modelling is highly automated, fast and accurate. Checking the model and the operation of different systems is easy and reliable. MagiCAD also enables thorough and accurate calculations on all functional and spatial aspects of the building with just a few mouse-clicks. MagiCAD creates a complete, easy-to-manage information model that can be used as an invaluable storage of information throughout the building's lifecycle, from the early conceptual phase, construction, and installation of the building's MEP systems, to facility management and maintenance.



Powerful design capabilities with MagiCAD

REAL PRODUCTS

With MagiCAD, you design with real products from the start. When you need a valve, a radiator, a diffuser or any other installation product, you can select it from Europe's largest database of manufacturer-verified products.

MagiCAD and our online BIM library MagiCloud enable immediate access to over 1,000,000 data-rich MEP products from 200 leading international manufacturers. This number increases steadily, as new products are constantly introduced to the database. If you need to use specific products which are not part of our extensive selection of ready-made products, you can download and install our easy-to-use modelling tool MagiCreate and quickly create the required products yourself.

AUTOMATED DRAWING FUNCTIONS

MagiCAD automates many time-consuming routine tasks in MEP design, including the creation and editing of standard connections, duct and pipe crossings, elevation changes, as well as various more demanding connections and adjustments, such as angle-to-horizontal, pipe-to-radiator, pipe-to-water source and other piping connections, eccentric reductions, etc. MagiCAD enables the drawing of ducts and pipes directly with user-definable and flexibly resizable insulation series.

CALCULATIONS

The MagiCAD 3D product models are modelled from physical products to a high level of detail, with correct dimensions and technical data provided by the manufacturer. Values for pressure loss, sound levels, heating and cooling capacity as well as other data are always present in the model, enabling you to make accurate calculations during design. The combination of MagiCAD and real products ensures that your final design will perform as planned.

PRODUCT SELECTION

MagiCAD offers smart tools for selecting products from the database and adding them to the dataset

with technical data and dimensions. MagiCAD provides a wide range of plugins for connecting manufacturers' own product selection, configuration and sizing software directly with MagiCAD. When a product, such as an air handling unit (AHU), is configured using a plugin, it can be imported into the project in RFA format with dimensions, symbols, connection points and technical data.

BUILDER'S WORK

MagiCAD enables builder's work to be generated automatically based on space requirements around and between ducts, pipes, cable trays, fire dampers, etc., including insulation. For structural engineers and architects, MagiCAD provides a free-of-charge coordination plugin for native Revit MEP for approving and managing the builder's work requests.

BILLS OF MATERIALS

Efficient production of bills of materials (BOM) means more efficient cost management and ordering.

Working with real products enables a faster, more cost-efficient installation process.

IFC CERTIFICATION

MagiCAD is fully compatible with the latest IFC standard. Anyone using MagiCAD can export project models in IFC format one by one or in a batch, with all selected property sets defined.

TEMPLATES

Project templates enable important elements of the project to be defined beforehand. For example, product models and families can be preselected for use, particular calculation methods can be made available, etc. Using MagiCAD's ready-made, market-specific, localised Revit project templates, or preconfiguring them yourself, saves time during the design phase by enabling a more logical design process and helping you avoid mistakes.



Core MagiCAD functions

All discipline-specific MagiCAD applications come with a shared layer of productivity-enhancing MagiCAD functions.

MagiCAD Ventilation, Piping, Electrical, Sprinkler Designer and Supports & Hangers each provide the user with comprehensive discipline-specific design and calculation tools combined with the following core MagiCAD functions.

Features and functions

- Builder's Work drawings generated automatically, enabling seamless coordination with structural engineers
- Ducts, pipes and cable trays can be divided into commercially available standard lengths
- Native Revit RFA compatibility in addition to the MagiCAD database of over 1,000,000 products
- Tools to export data in spreadsheet format, search and edit values, calculate with formulas and import the data into MagiCAD
- BCF (BIM Collaboration Format) Manager with BCFzip format
- Comprehensive Find & Replace functions
- Bills of Materials (BOM) and reporting function
- IFC Export & Property Set Manager
- Automatically generated, customisable legend tables for drawings
- Clean-up and project delivery tool for Revit models
- Running index for numbering and identifying objects
- Symbol Manager with user-defined symbols and import from MagiCAD for AutoCAD
- Tag tool for improved annotation
- Description texts and standardised codes can be added to objects and drawings using Description Manager
- Configure layouts, drawing sizes and other properties for printable drawing sheets
- Tool for updating all connected parameters in the dataset after changes
- Option to also use Solar Computer calculations
- Parameter Configuration & Parameter Merge tool
- Node numbering tool
- Utilise manufacturers' own product selection and configuration software via MagiCAD plugins

MagiCAD Ventilation

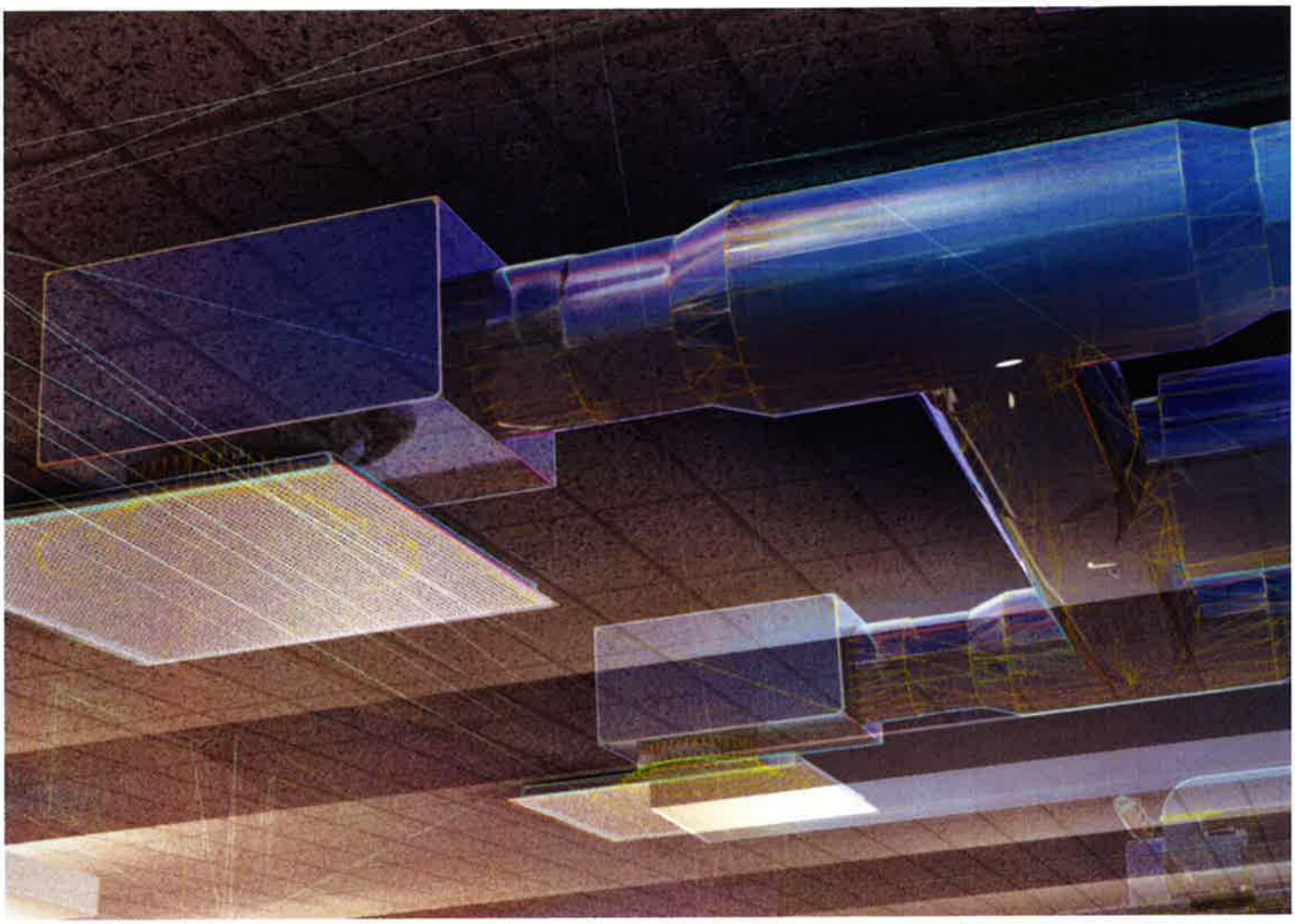
MagiCAD Ventilation is a complete BIM solution for ventilation design and calculations.

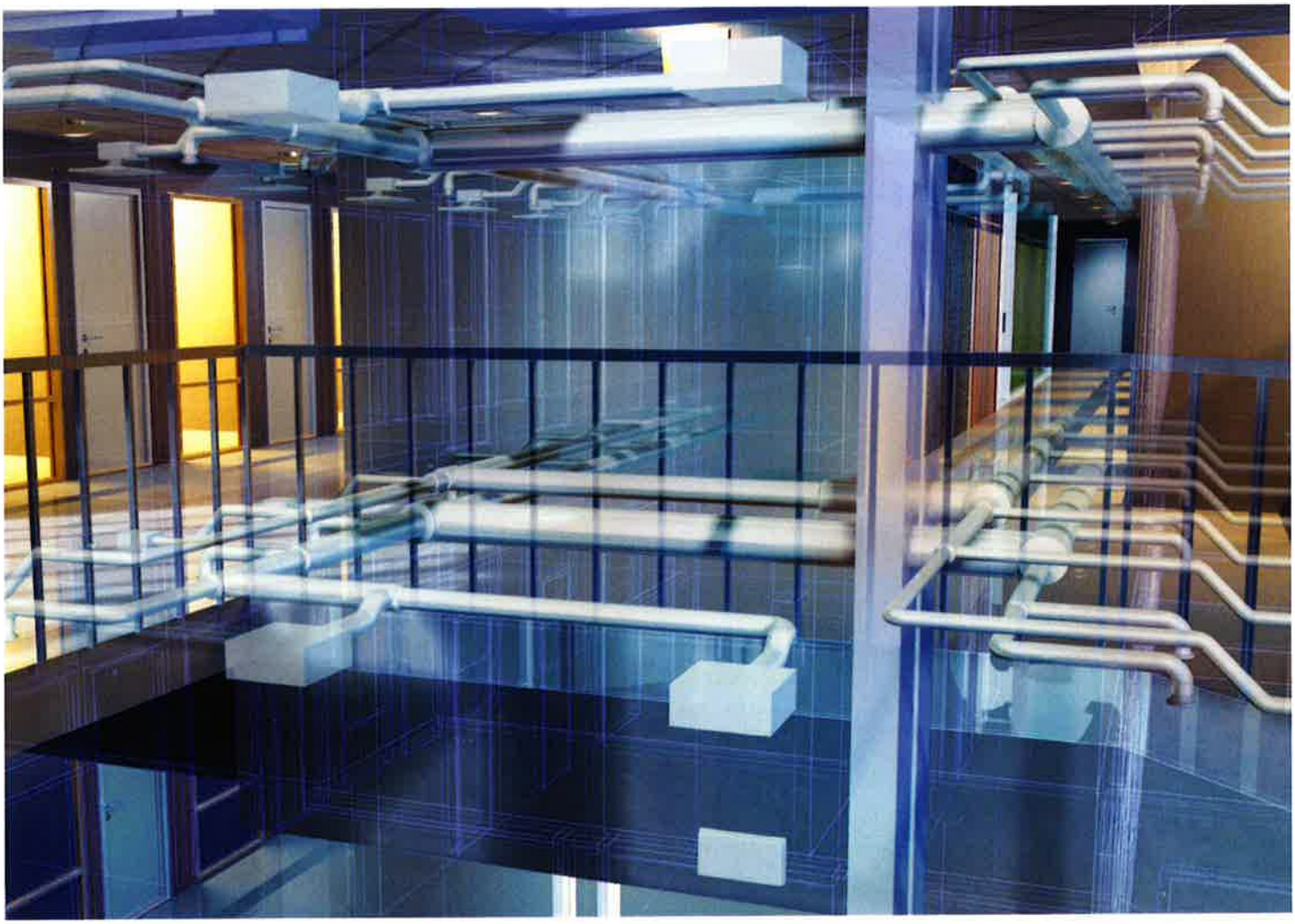
Ensuring clean healthy air indoors is one of the most challenging tasks in modern buildings. Requirements on energy conservation and air quality tend to contradict with one another. MagiCAD enables you to create the optimal ventilation solution for each building and provides many clever functions that cut down on routine work.

With MagiCAD's automated design tools, even demanding duct routing solutions are easy to make. MagiCAD Ventilation also offers a large selection of built-in calculations, such as flow summation, sizing, balancing, sound calculation, quantity take-off and bills of materials. MagiCAD Ventilation fully integrates with Revit MEP software.

Features and functions

- Localised project templates
- Quick configuration of duct drawing preferences
- Productivity-enhancing routing and crossing tools
- Easy, fast and accurate product selection and installation
- Automatic duct sizing calculations
- Automatic duct insulation with thickness settings and efficient clash detection and coordination
- Data-rich manufacturer-verified 3D products from Europe's largest MEP product library
- Flow data analysis
- System pressure drop calculations based on industry standards
- Duct system balancing based on sensors, fan pressure and minimum pressure
- System and space sound level calculations
- Manufacturer-specific preset values and damper positions can be balanced and displayed
- Index runs calculated based on balancing data





MagiCAD Piping

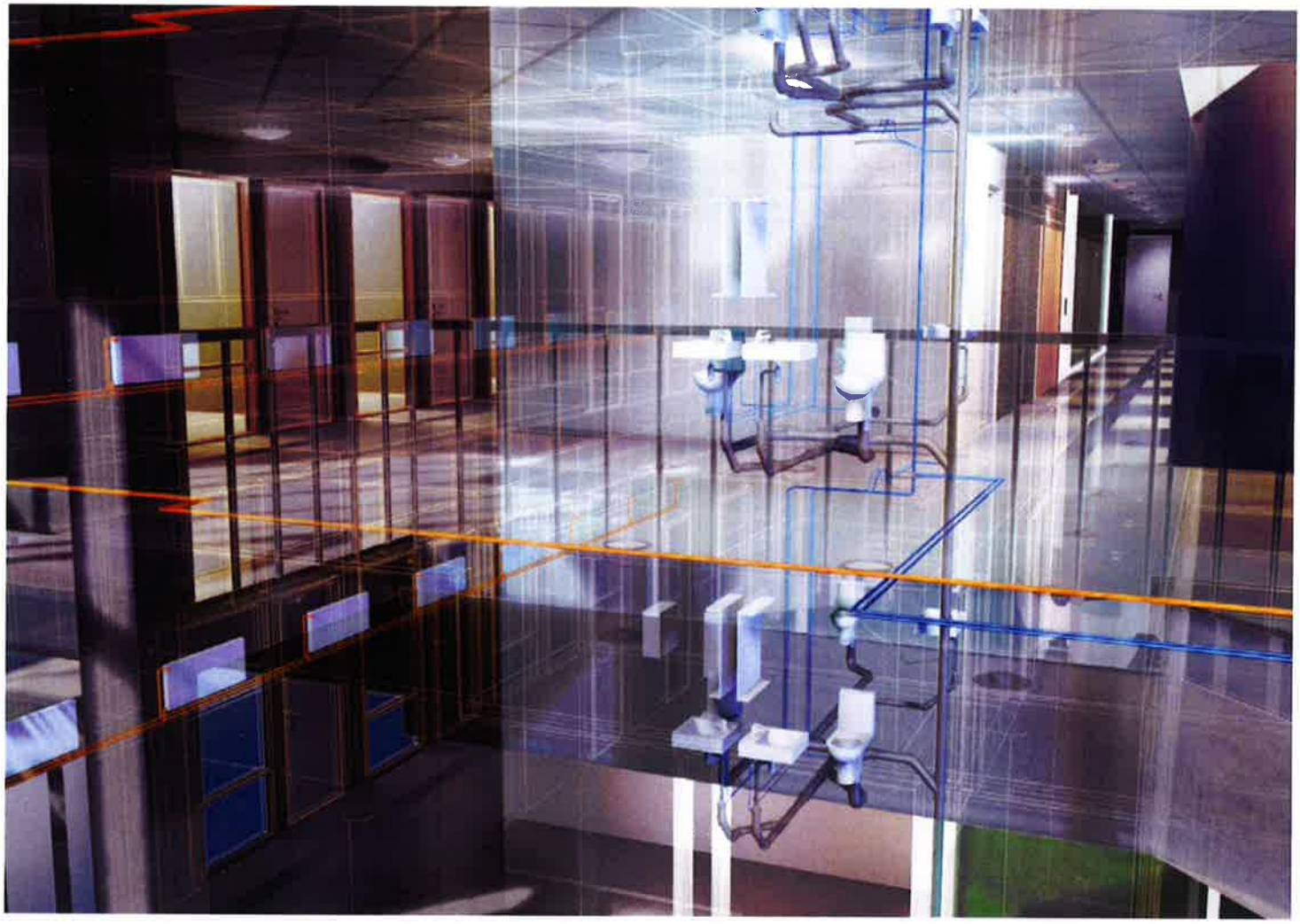
MagiCAD Piping offers a complete BIM solution for the design and calculation of heating, cooling and water systems, including drainage, sprinkler and specialist systems.

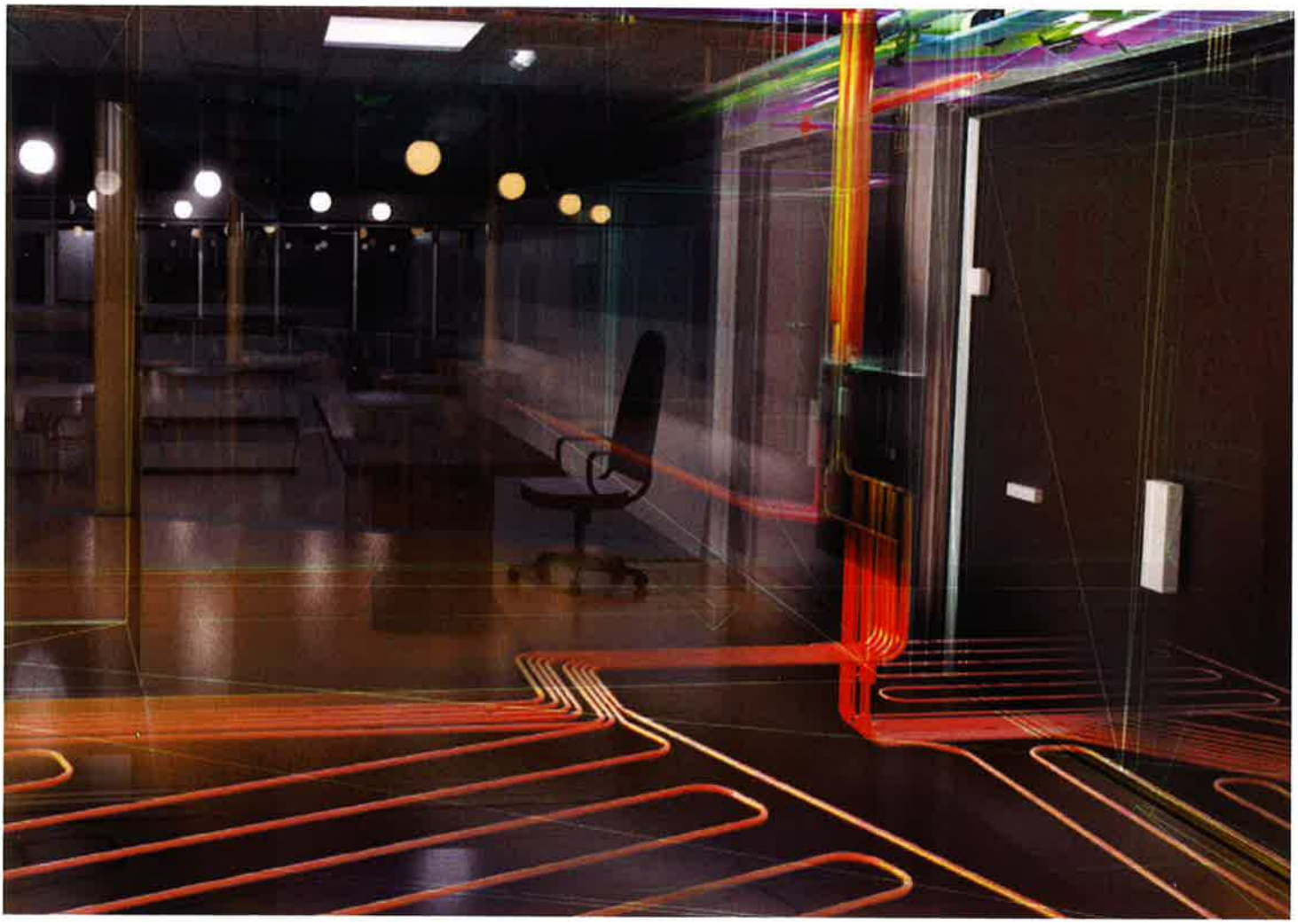
MagiCAD Piping contains a number of functions which save you time when you design. With MagiCAD, you do not need to model every piece of pipe yourself. MagiCAD enables automatic connection to devices, such as radiators, fan coil units, water devices and drainage points.

MagiCAD also provides comprehensive sizing and balancing calculations with a few mouse clicks, a tool for selecting suitable radiators and localised domestic water sizing calculations. MagiCAD Piping fully integrates with Revit MEP software.

Features and functions

- Localised project templates
- Quick configuration of pipe drawing preferences
- Productivity-enhancing routing and crossing tools
- Easy, fast and accurate product selection and installation
- Automatic pipe sizing calculations
- Flow data analysis and visualisation of the most significant flow route
- Data-rich manufacturer-verified 3D products from Europe's largest MEP product library
- Preset values, damper positions and Kv values can be balanced and displayed
- Pressure drop calculations (even with differential pressure valves)





MagiCAD Electrical

MagiCAD Electrical offers a complete BIM solution for the design and calculation of electrical, lighting, telecommunication and data systems.

MagiCAD Electrical provides you with access to MagiCAD's product libraries containing a wide range of electrical products with correct geometries and technical data. MagiCAD enables lighting calculations through DIALux, automated cable routing, switchboard schematics and advanced circuiting functions in synchronisation with drawings. MagiCAD Electrical fully integrates with Revit MEP software.

Features and functions

- Localised project templates
- Quick configuration of cable tray and conduit drawing preferences
- Productivity-enhancing routing and crossing tools
- Easy, fast and accurate product selection and installation
- Data export to DIALux lighting calculation software and import of results back into MagiCAD
- Electrical 3D models placed in the correct position while controlling the placement of the 2D symbols for the electrical drawings with Symbol Organiser
- Switchboard schematics can be synchronised with the Revit model
- Circuit schedules of switchboards and main units can be created and updated automatically
- All power, telecom and data connections handled intelligently through circuits
- Power calculations for circuits and switchboards
- Products connected to circuits, circuit lists and schedules all provide access to relevant circuit information
- Standard symbols, 2D engineering symbols or custom symbols imported from MagiCAD for AutoCAD





MagiCAD Sprinkler Designer

MagiCAD Sprinkler Designer combines powerful drawing capabilities with the intelligence of a built-in sprinkler calculation engine.

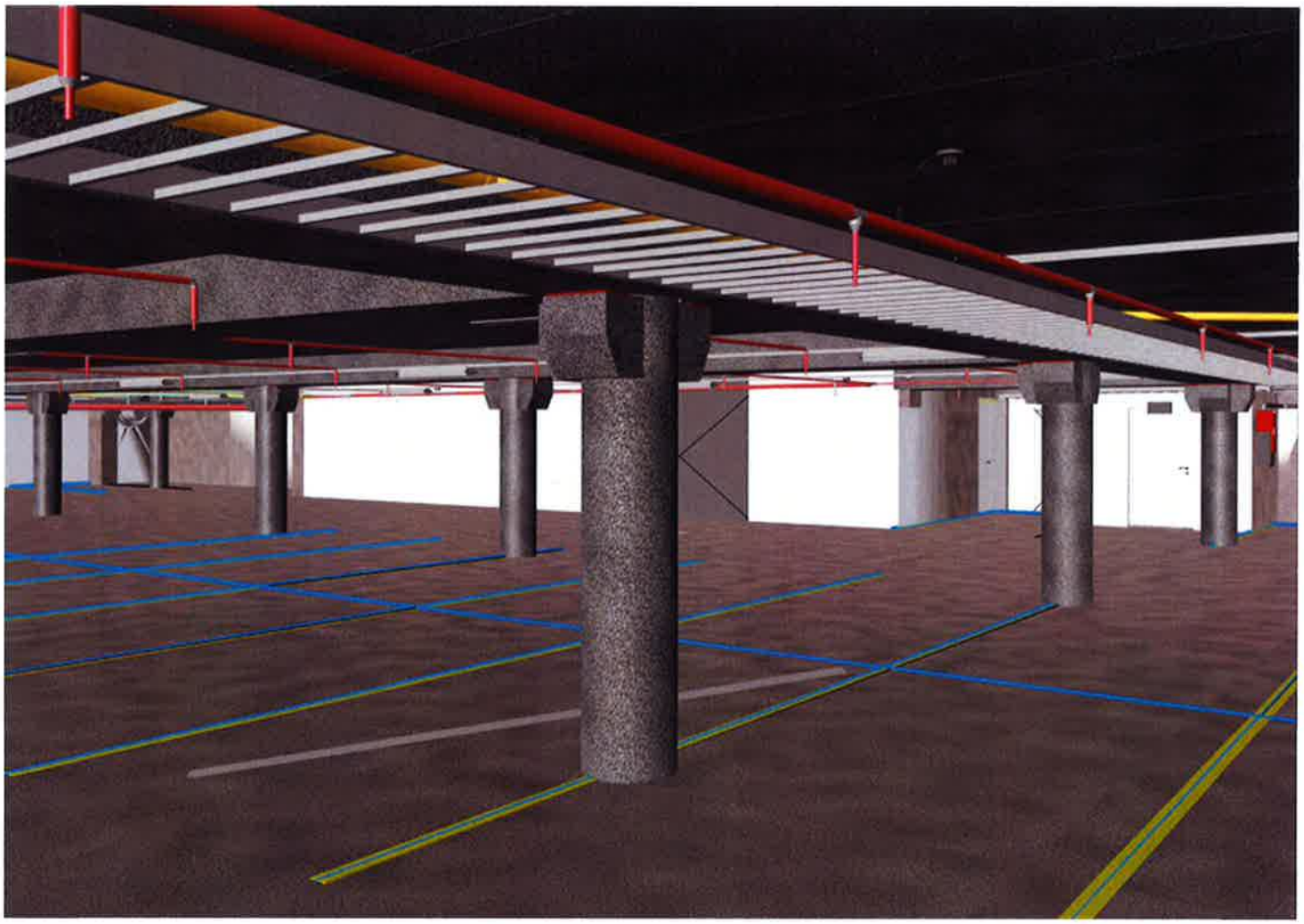
With MagiCAD Sprinkler Designer, you can perform standards-compliant sprinkler system design and calculations faster, easier and with higher accuracy and quality. MagiCAD Sprinkler Designer fully integrates with Revit MEP software.

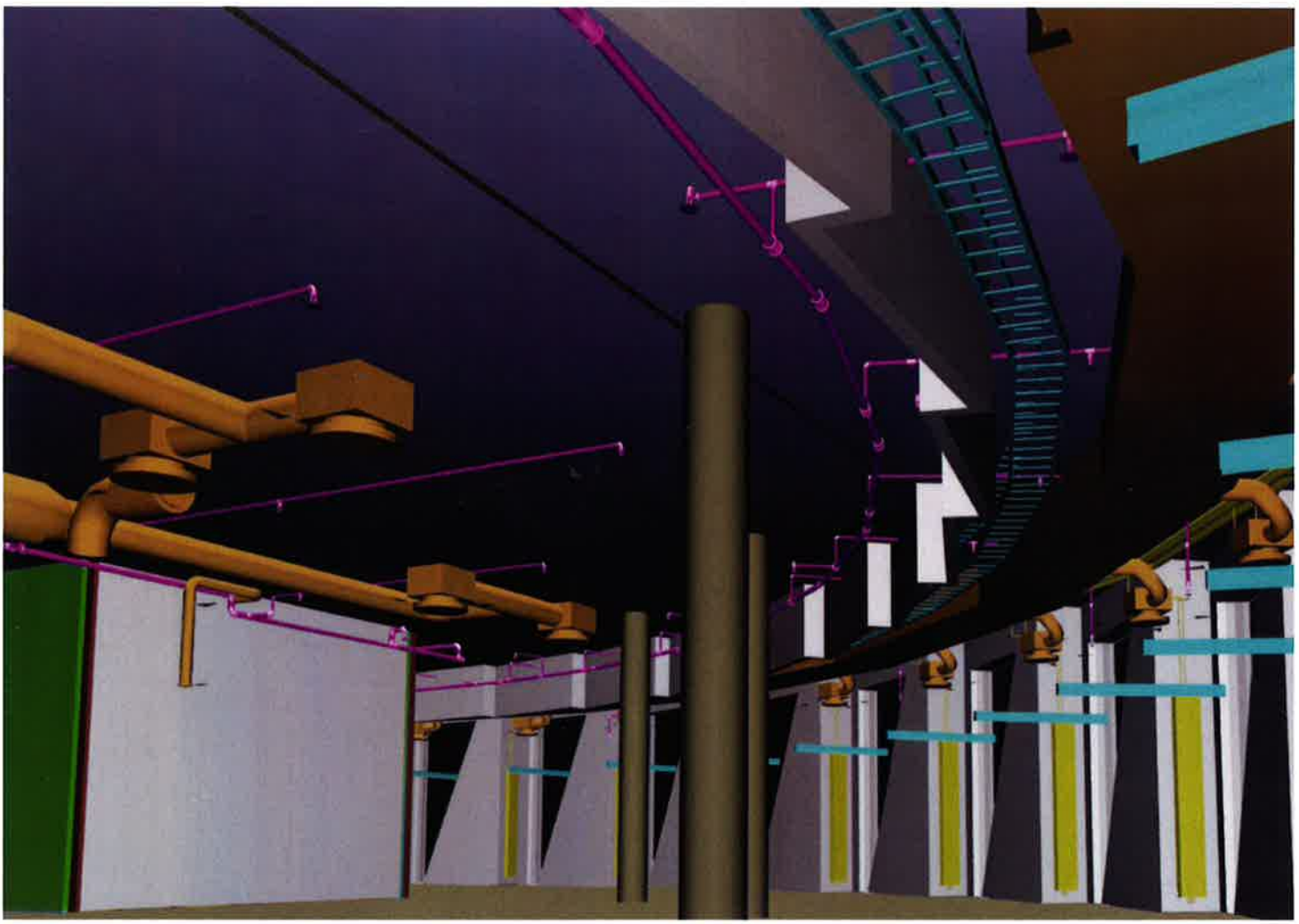
MagiCAD Sprinkler Designer enables you to design a complete sprinkler network: you can draw sprinkler pipes and components, install sprinkler heads, define sprinkler coverage areas and perform functional calculations on the entire sprinkler network.

MagiCAD Sprinkler Designer uses the metric system and supports all the relevant sprinkler standards, including EN 12845, BS 9251:2014, NFPA 13, CEA 4001 and UNI 10779 standards.

Features and functions

- Quick and easy positioning of sprinkler heads and components
- Sprinkler connection tools enable e.g. multiple sprinkler heads to be connected to the system with automatic routing
- Automated sprinkler pipe sizing
- Easy modelling of grid networks
- Integrated sprinkler calculations based on EN 12845, BS 9251:2014, NFPA 13, CEA 4001 and UNI 10779 standards
- Calculation of required system pressure based on the hydraulically most remote area
- Weakest sprinkler head automatically identified
- Average density for the 4 weakest sprinkler heads are calculated with the heads automatically identified
- The operating point on the pump curve and the theoretical operating point on the system curve are both displayed
- Calculations can be performed in systems where fire hydrants are connected directly to the sprinkler network
- All data for calculations, quality control and design approvals available in the model
- Equivalent length tables for CPVC, copper and steel in accordance with BS 9251:2014
- Calculations based on the metric system





MagiCAD Supports & Hangers

MagiCAD Supports & Hangers enables easy and efficient design of hanger and support systems for ducts, pipes and cable trays.

With MagiCAD Supports & Hangers, suspension systems can be designed using either generic or manufacturer-specific support and hanger components. You can configure and optimise each hanger or support solution based on the requirements of each particular circumstance, for example based on the need for support from the available structural objects.

When supports and hangers are modelled in a BIM environment together with MEP systems and structural design, it is then possible to perform cost-estimations based on the model and simultaneously save money and time by detecting and eliminating potential problem spots already in the design phase. Interference issues can be discovered through clash detection and analysis of space allocation, improving also the coordination of additional space needs.

MagiCAD Supports & Hangers provides an integrated BIM solution which makes coordination between designers, contractors and building owners seamless and efficient. By integrating supports and hangers to the BIM project workflow and by enabling the selected suspension options to be verified already before the construction phase, it will be possible to greatly reduce the total project delivery time.

MagiCAD Supports & Hangers fully integrates with Revit MEP 2017-2016.

Features and functions

- Highly automated installation functions
- Integrated calculations and automatic adjustment to changes in MEP systems or structural design
- Powerful reporting functions and configurable bills of materials
- Generic and manufacturer-specific support and hanger elements
- Adjust level of detail to optimise system performance: design in low-detail mode and export the model in high-detail mode





References

MagiCAD evolves at a steady pace to be in tune with your demands, now and in the future. More than 20,000 licenses are in use by building services designers in over 50 countries worldwide, including Europe, Russia, China and the Middle East.

Tune Hotel, Shoreditch, London, UK

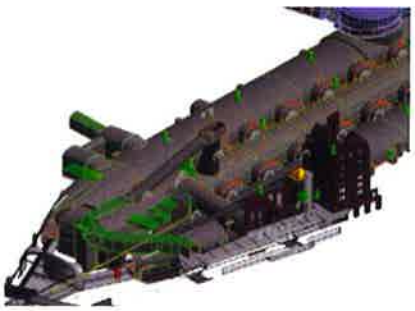


MARK SILCOCK
DERRY LTD
UK

From the beginning of 2015, Derry has used MagiCAD Heating & Piping, MagiCAD Ventilation and MagiCAD Electrical modules with Autodesk Revit MEP.

"MagiCAD's Connection Tools for ventilation, pipework, drainage, and device connections all enable operations that we would struggle to live without. MagiCAD allows faster coordination through improved routing and connection tools, and enables easy display of single line pipework using industry standards for different elevations. These provide a huge advantage over out-of-the-box Revit."

Slussen underground bus terminal, Stockholm, Sweden

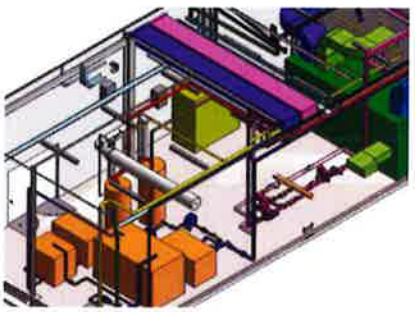


JOEL EKLUND
WSP
SWEDEN

WSP Sweden has carried out the project entirely on Revit technology. The terminal's piping, ventilation, and electrical systems are designed using MagiCAD for Revit with Heating & Piping, Ventilation and Electrical modules.

"What makes the project rather special in terms of design is that it essentially consists of geometry within the bedrock. The model has several different floors and levels, which is why it is beneficial to be able to handle the entire structure and all MEP systems as a single, interconnected whole. Revit technology serves this purpose well because the whole multi-level model can be stored in the same database."

West Herts College, Decorum Campus, Watford, UK



AUDREY DOGBEH
RAMBOLL
UK

The UK Manchester office of Ramboll first started using MagiCAD for Revit modules in early 2012 and began wider adoption in 2013. Today, the Manchester office uses MagiCAD Heating & Piping, MagiCAD Ventilation and MagiCAD Electrical on Autodesk Revit MEP.

"MagiCAD's Builder's Work (Provisions for Voids) tool enables the coordination and approval of openings with the architect. Without MagiCAD, we would have to go through the whole model and check things one at a time and register the size of each opening manually. This makes the project workflow significantly more efficient, one of the latest examples of this being a 4200-square-meter project we did for the West Herts College in Watford."



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ABOUT PROGMAN | Progman specialises in software and services for the building industry. Our popular MagiCAD software, for Revit and AutoCAD, is the number one Building Information Modelling (BIM) solution for Mechanical, Electrical and Piping design in the Nordics, Russia and China with over 20,000 licenses sold in more than 50 countries. In addition, our online BIM library, MagiCloud enables access to over 1,000,000 manufacturer-verified products from more than 200 globally renowned manufacturers. Each product is complete with accurate dimensions and comprehensive technical data.

With more than 30 years of experience in the industry, our team of more than 100 passionate software professionals continues to provide our customers with intelligent solutions that make daily engineering and design easier, faster and more profitable. Progman is a Glodon Group company.

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