

## COMPANY

**HPI HIMMEN Ingenieurgesellschaft  
mbH & Co. KG**

## LOCATION

**Cologne, Germany**

## SOFTWARE

**Autodesk® Building Design Suite Premium  
Autodesk® AutoCAD®**

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—**Jürgen Drolshagen**  
managing partner at HPI Himmen  
engineering company

# BIM drives success for leading MEP design firm HPI Himmen

The design firm HPI Himmen is taking important steps toward a comprehensive BIM-workflow with Autodesk and liNear solutions.

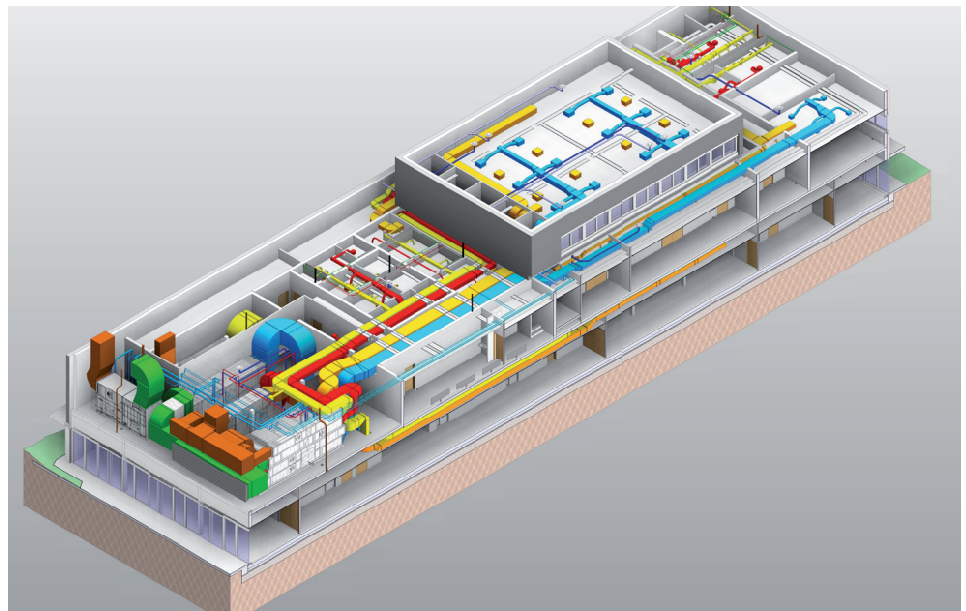


Image courtesy of HPI HIMMEN Ingenieurgesellschaft mbH & Co. KG

When designing and constructing buildings, it all comes down to ensuring the various components are optimally coordinated. According to the Building Information Modelling (BIM) approach, HVAC (Heating, Ventilation and Air Conditioning) engineers must provide their models in such a way that they can be integrated with design data from others on the project team. Often, this means providing designs in 3D and calculating services based on the latest design in 2D as well as 3D. The software manufacturers Autodesk® and liNear support engineers with software solutions that enable a BIM-compatible workflow. That way, all project participants have a better overview of the current status, can coordinate changes more easily and detect and correct errors faster and more effectively, which in turn can help increase a company’s competitiveness.

## New possibilities through BIM and 3D-Modeling

The innovative company, HPI Himmen, has recognised these advantages. The building services engineering firm has been designing heating, plumbing, electrical and air-conditioning systems for special constructions such as hospitals and industrial buildings for over 40 years. The 40-strong team has been working with Autodesk and liNear solutions since 2000. For several years, the HVAC engineers have employed Autodesk® AutoCAD® and the liNear solutions, including Desktop, Analyse, Building and Design 3D. A year ago, the company expanded their use of Autodesk software to include the Autodesk® Building Design Suite Premium, which includes Autodesk® Revit® software. In addition to supporting AutoCAD, liNear

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Analyse also supports calculations directly from Revit models without external interfaces. "We have always been very satisfied with AutoCAD and liNear Desktop, because they offer consistent and technically sophisticated design and editing tools in the field of 2D and 3D that make the work easier", reports Jürgen Drolshagen, managing partner at HPI Himmen engineering company. "But Revit opens up various additional possibilities in the 3D area and BIM. With the use of Revit we can create 3D models, which the architects, unfortunately, rarely provide. Through 3D visualisations, many elements become clearer and our contractors have a better idea of the project's current state due to viewing the model." The decision to adopt Revit was largely driven by an employee who already had a positive experience with the software. "In the recent past, we've been asked whether we use Revit on international projects", Drolshagen adds. "We're able to affirm this question now and it gives us an advantage in the international market."

## Interplay of AutoCAD, Revit and liNear's Desktop, Building and Analyse

The engineers at HPI Himmen work across the board with AutoCAD and liNear Software, which offers analysis tools for heating, ventilation and sanitary facilities. With standard-compliant symbol libraries, scheme generation and 2D as well as 3D design modules they can create circuit and wiring diagrams, floor plans, sections, details and ready-to-order material lists in a very short time. In the ventilation unit, for example, we work on the design based on a 1-line representation, which already provides us with a detailed calculation of the diameter, pressure loss and noise assessment of the installation", explains Drolshagen. "From this, we can generate our bill of materials (BOM). As part of the implementation planning, the liNear solution automatically creates the air duct system as a 3D model based on the calculated dimensions. Possible collisions are detected at an early stage and can thus be avoided." The obtainment of basic data and technical calculations for HPI Himmen, just like the detail and implementation planning, are run from AutoCAD, Revit, liNear Building and Analyse. For all projects, the engineering team receives the floor plans as a specification from the architect – partly in 3D, more often than not in 2D. Regardless of that, it is easier for HVAC designers to imagine fixtures such as ducts or piping systems three-dimensionally, since all air ducts, heating, cooling pipes,

and electric routes must reside in one model. Ever since the engineers at HPI Himmen have worked with liNear and Revit, they have created 3D plans from 2D plans given by architects, which they can use for further designing. According to Drolshagen, this workflow offers a distinct advantage: "With the three-dimensional model, we have a very good overview to tell which ducts and pipes go where and whether they're in the way of each other. We use clash detection for this. As soon as everything has been entered into the program and two lines cross each other, an error message will appear. This is a very helpful tool for us."

The use of Revit not only provides HPI Himmen with a better overview of the project, but also facilitates the cooperation and coordination with other trades. Using the integrated worksharing feature from Revit, various project participants have the opportunity to use the same parametric building modeling environment and save all data in a central file. This way, project collaboration between different trades is optimised and clash detections between architectural, structural and technical elements can be carried out more easily. The engineers at HPI Himmen can also use Revit to help detect and resolve collisions early on, without having to perform tedious correction loops and adjustments, resulting in greater time and cost savings.

## Convince contractors with 3D models

HPI Himmen can see the advantages of using Revit in one of their current projects. At the moment, the engineering company is designing the sanitary, heating, ventilation and cooling technology of a new building for an education and training facility forming part of a Federal Office. Currently, the team is still in the planning process. The construction phase is to start at the beginning of 2015 and will be completed by the end of 2017. The entire project is highly complex, since the contractors aren't used to working three-dimensionally and generally only make use of floor plans. "We need to, for example, provide evidence that there is plenty of space and freedom of movement in the control room, so that you can sufficiently operate the ventilation equipment and technical units", says Drolshagen. "We were able to visually represent this with liNear solutions and Revit in a wonderful 3D model and convince our contractors that everything is perfectly coordinated. This was received very well and fully satisfied our contractors." For several engineers at HPI

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Himmen working with Revit may initially mean working in an unfamiliar environment, but the use of the BIM solution is playing a greater role more and more. The firm believes that the software is already an indispensable tool, and is helping them to increase their competitiveness for the future, and internationally. Drolshagen knows: "Through the use of liNear Building and liNear Analyse in combination with Revit, we have taken an important step towards a comprehensive BIM workflow. Now the quality and precision of our models has already clearly improved, and we also expect a noticeable increase in efficiency, once all the processes have become a second nature."

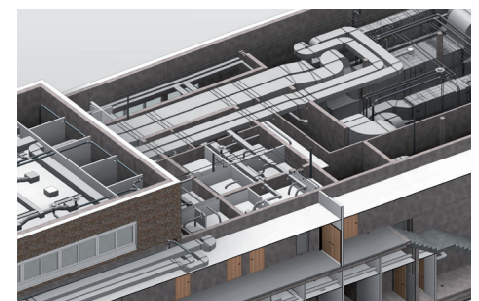


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