

Peter Basso Associates Inc.

Customer Success Story

AutoCAD® MEP

AutoCAD MEP enables engineers at Peter Basso Associates Inc. to quickly and accurately create construction documents that are much more valuable than traditional 2D drawings.

—Dustin Tiemeyer
Design Technology Manager
Peter Basso Associates Inc.

Better design with AutoCAD MEP.

With AutoCAD® MEP software, Peter Basso Associates is improving MEP designs as well as drawing productivity—resulting in higher-quality, more “buildable” projects.



Project Summary

Founded in 1990, Peter Basso Associates (PBA) is a 100-percent employee-owned mechanical and electrical engineering firm. The highly qualified professionals who work there not only specialize in delivering an array of engineering and design services, they also have a vested interest in the successful outcome of their projects. The firm, headquartered in Troy, Michigan, has a staff of over 100 that provides engineering and energy management services, as well as communication technologies design, and lighting design services to its education, health care, corporate, and government clients.

“As owners and employees, we all have a strong interest in delivering the highest-quality projects possible,” remarks Dan Englehart, PBA’s COO. That’s why the firm began using AutoCAD MEP software in 2004. “As project complexity grows and timelines shrink, we needed a program to provide us a ‘do it once, do it right’ approach,” states Englehart.

The Challenge

One of PBA’s most recent projects designed with AutoCAD MEP software—one of the largest projects in the firm’s history—is the expansion of Trenton, Michigan’s Oakwood Southshore Medical Center. The 150,000-square-foot project consists of a new five-story (plus a basement) facility, including

space for five operating rooms, dozens of exam rooms, over 100 patient rooms, and specialized diagnostic procedure rooms.

The project posed several major challenges; it required a high number of unique systems, and design space was limited due to a reduced floor-to-floor height as well as a structure that occupied the locations normally reserved for mechanical, electrical, plumbing (MEP) systems (within shafts and around the building shell, for example).

Improved Drawing Production

PBA used AutoCAD MEP software to design all of the building’s ductwork, piping, plumbing, lighting, and power systems, as well as its many medical gas systems. “Using annotations linked to the designed objects, we reduced design time while achieving a well-documented solution,” reports Dustin Tiemeyer, design technology manager for PBA. Linetypes, colors, and drawing layers were always in sync, providing consistent plotted output. Duct and pipe sizes were always accurate, system abbreviations were clear, and drafting tasks were reduced by automatic hidden lines and gaps. “AutoCAD MEP enables our engineers to quickly and accurately create construction documents that are much more valuable than traditional 2D drawings,” remarks Tiemeyer.

Autodesk®

Custom Components

Nearly all of the design components used in the project were out-of-the-box content from AutoCAD MEP software. But when custom parts such as special air handling units or unique pieces of medical equipment were required, PBA's designers used the content creation capabilities and the MvPart conversion tools in AutoCAD MEP. Once those components were created they were easy to modify—much easier than in a traditional drafting environment. And with the data scheduling tools in AutoCAD MEP software, the custom components were easily quantified as well.

Improved Coordination

“One of the major benefits of AutoCAD MEP was the improved coordination with the architectural and structural designs,” remarks Jim Paul, project principal for the Southshore Medical Center. “By using DWG files from the extended design team, we could better coordinate our design and significantly reduce the number of design interferences.”

PBA leveraged the architectural and structural design models (created with AutoCAD® Architecture and Revit® Structure software respectively) to coordinate their own design. “Our HVAC engineers used AutoCAD MEP to successfully position the building's ductwork around the structural steel,” says Tiemeyer, “and to route the complex medical gas piping systems in the limited ‘above ceiling’ space—making sure it didn't collide with the building's engineering, structural, and architectural components.” In addition, the architect used light locations from PBA's design model to help create reflected ceiling plans, saving the team from the usual coordination checking between the architect's reflected ceiling plan and the engineer's lighting plan.

The visual clash detection within AutoCAD MEP software and the ability to work in any model view—plan, section, isometric—enabled PBA to spend more time on design and less time worrying about coordination errors. “Furthermore, the ability to automatically generate sections and isometric views let us provide much more detail than usual with little additional effort,” remarks Tiemeyer.

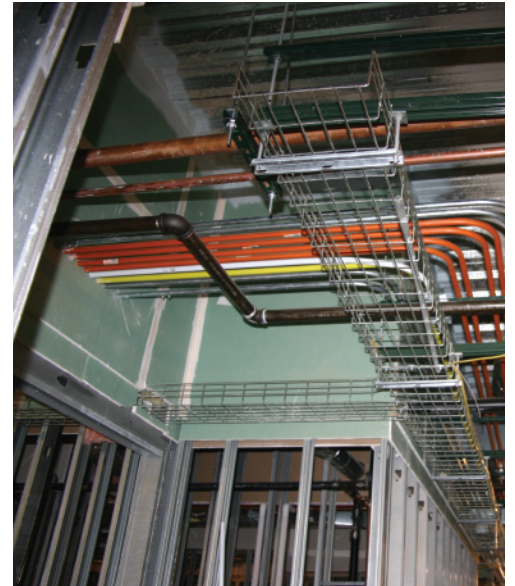
“Buildable” Designs

By leveraging models from the extended design team, large coordination issues were found and corrected early—problems that most likely would have been missed with traditional design tools. For example, the model provided by the steel fabricator contained bracing that appeared as simple linework. Although the bracing encroached on the building's HVAC systems, PBA designers could easily see the problem and fix it before construction. In addition, processing RFIs was faster because the construction administration team could quickly determine sizes, distances and clearances from the model, allowing them to respond earlier and keep construction under way all of which resulted in a higher-quality, more “buildable” design project for PBA.

The Result

AutoCAD MEP software enables the engineers and designers at Peter Basso Associates Inc. to improve coordination, create high-quality construction documents, and provide a greater value to their clients. Or, as Englehart puts it, “AutoCAD MEP helps our already great engineers be even greater.”

To learn more about AutoCAD MEP software, visit www.autodesk.com/autocadmep.



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Project Principal on Southshore Medical Center
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