Termo Técnica Quin

Customer Success Story

Autodesk® Revit® MEP

BIM with Autodesk Revit MEP has definitely helped make us more competitive. Our clients are confident that they are getting a higher-quality design, delivered faster.

—Sergio Quintanilla Scott
Director General
Termo Técnica Quin

Gain Competitive Advantage

Termo Técnica Quin uses BIM with Autodesk Revit MEP to improve quality and help reduce installation costs.

Rendering of the Zambrano Hellion Medical Center. Image courtesy of Termo Técnica Quin.

The Firm

The Mexican firm Termo Técnica Quin (TTQ) specializes in the design, manufacturing, and installation of industrial air-conditioning systems. Founded in 1971, the firm has more than 70 employees and is located in Monterrey, Nuevo Leon. TTQ provides solutions for a variety of project types, including hospitals, shopping malls, office and apartment buildings, manufacturing facilities, auditoriums, and stadiums.

TTQ adopted building information modeling (BIM) and Autodesk® Revit® MEP software in 2008, initially to enhance collaboration with an architectural firm on one of its projects. "We have used AutoCAD® software since 1988 and had been considering BIM for several years," says Sergio Quintanilla Scott, TTQ's director general. "We decided to move to BIM when one of our clients asked us to use Revit MEP on its project to match the design platform of the project architect." The transition was a success, and a year later, TTQ has completed 15 BIM projects based on the Autodesk® Revit® platform and TTQ uses Revit MEP on the bulk of its projects.

The Challenge

One of the firm's most recent Revit MEP projects is a US$150 million medical facility for the Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM). The Zambrano Hellion Medical Center will integrate research, teaching, and patient treatment and include general hospital and emergency treatment facilities, physician offices, and laboratories as well as specialized cardiology and oncology centers. The first phase features a 45,000-square-meter five-story hospital building and a two-story underground parking garage. The total air-conditioned area of the project is more than 61,000 square meters, and the anticipated cost of the 3,200 TR (tons of refrigeration) air-conditioning system is US$12 million.

The Solution

TTQ used Autodesk Revit MEP for the design and documentation of this project. In just six months, one designer completed the entire design and produced more than 125 drawings—an estimated 75 percent increase in productivity over traditional drawing-based methods.

Autodesk®

Complete health care projects faster and produce higher-quality designs with BIM.

Increase Project Coordination

To minimize coordination errors, TTQ wanted to utilize the architect's digital design model—but the architect used traditional 2D design methods. TTQ contacted the architecture department at ITESM and enlisted students trained in Autodesk® Revit® Architecture software. These students created a Revit Architecture model from the architect's 2D drawings, which TTQ then used for cross-discipline project coordination and clash detection.

"The architect's reflected ceiling and lighting designs dictate the location of our diffusers," explains Quintanilla. "With a Revit-based 3D architectural model, it was easier for us to identify and resolve potential interferences before they impacted our installation." The software automatically coordinated design changes throughout the documentation set, enabling TTQ to respond to changes without having to manually update drawings.

Improve Design Visualization

"By seeing our design in 3D, we got instant feedback and made better design decisions," says Quintanilla. Revit MEP also helped TTQ communicate better with its client. "At an important project review with ITESM's construction group, we used Revit MEP to present our design virtually," recalls Quintanilla. "The rest of the discipline presentations used traditional 2D drawings. Afterward, ITESM commented that our presentation—compared to the other disciplines—was like watching an HD plasma television versus a cathode ray tube set. We not only increased their understanding of our design but also their confidence in our engineering."

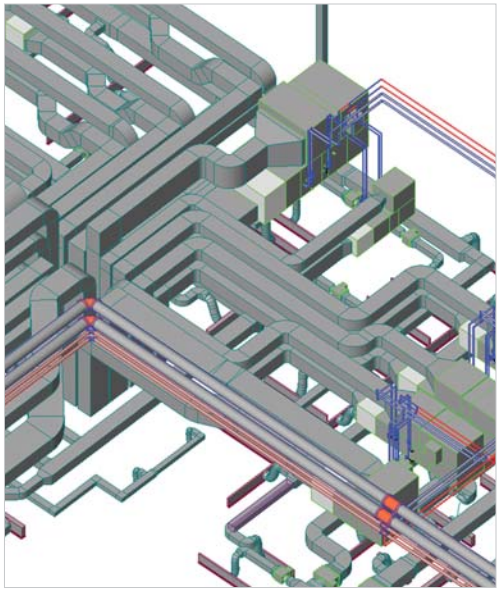
Generate More Accurate Quantities

The facility's air-conditioning system includes almost 400,000 kg and 12,000 pieces of ductwork; 14,000 linear meters of piping with more than 11,000 piping components; more than 2,000 grilles and diffusers; and close to 300 air-handling units and fan coils. "Imagine having to calculate those quantities by hand," says Quintanilla. "With Revit MEP software, the quantity takeoffs were calculated automatically—giving us more accurate numbers for all the ductwork, piping, grilles, equipment, and even insulation." And when there was a design change, the software automatically recalculated the quantities without burdening TTQ's design effort.

The Result

"When the construction is finished, I expect at least a 15 percent reduction in change orders on this project, due to avoidance of interferences and improved design representation," says Quintanilla. "We had more accurate information to generate material purchase orders. We created better installation drawings and more of them. And our customer will have more precise as-built drawings to support its operation and maintenance."

TTQ moved to Revit MEP software to exploit opportunities for working with Revit-based architectural firms. In addition, the firm has improved the quality of its designs and increased its efficiency, which translates into installation savings for its customers.



Revit MEP model of hospital MEP systems. Image courtesy of Termo Técnica Quin.

To learn more about BIM with Autodesk Revit MEP software, visit www.autodesk.com/bim and www.autodesk.com/revitmep.

For more information on TTQ, visit www.ttq.com.mx.

Site context. Image courtesy of Termo Técnica Quin.

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