Stantec

Customer Success Story

Revit® MEP
Revit® Architecture
Revit® Structure
AutoCAD®
AutoCAD® Civil 3D®
Autodesk® VIZ
Autodesk® Buzzsaw®

"Since adopting the Revit platform we've seen much more effective interaction among the disciplines during the design process—and significantly better coordination."

—Stanis Smith
Senior Vice President
Stantec

Intuitive. Smart. Connected.

Stantec improves project coordination and collaboration with Revit® MEP, Revit® Architecture, and Revit® Structure software products.

The Firm

Founded as a one-person engineering consulting business in 1954, Stantec has grown to become a world leader in the delivery of sustainable and innovative solutions to both public- and private-sector clients. Working from more than 100 locations throughout North America and the Caribbean, the firm's 6,500 engineers, architects, and other employees provide a wide range of services, including planning; mechanical, electrical, and plumbing (MEP) engineering; architectural design; surveying; and project management. Over the years, the firm has won numerous honors, including, most recently, an international award from the American Society of Heating, Refrigerating, and Air-Conditioning Engineers.

Multiple Disciplines, One Platform.

In July 2006, Stantec adopted Revit® MEP building information modeling (BIM) software, an intuitive design tool that works the way mechanical, electrical, and plumbing engineers think. "We adopted Revit MEP primarily because it suits our approach to integrated design," says Stanis Smith, Senior Vice President at Stantec. Using the new software, MEP engineers can now collaborate effectively with the firm's structural engineers and architects, who recently implemented Revit® Structure and Revit® Architecture software.

A Shared Digital Model

All of the Revit applications are all built on common software platform, enabling the integration of key building disciplines in a shared building information model and allowing more effective communicate and collaboration between all participants in the project delivery. "By working with shared Revit Architecture, Revit MEP, and Revit Structure models on our projects – the architects, engineers, and external consultants all have a clear, up-to-date vision of the project and we can all make better decisions faster," says Bill Moore, Stantec's Practice Technology Coordinator.

The Challenge

One of those projects was the Westin Kelowna Hotel in British Columbia, Canada. "It's quite a large project—almost 250,000 square feet," says Mikko Leppanen, one of the architects responsible for helping to spearhead Revit implementation at the firm's Vancouver office. "It's a 227-room, 20-story hotel that includes commercial retail units, a restaurant, a fitness room, commercial kitchens, a ballroom, and an outdoor pool." The site also has an adjoining three-story parking garage.

Autodesk®

Historic Location

"That makes it one of the larger, and more complex buildings to be located in the city of Kelowna," says Leppanen. "And because the building is located in a historic part of the city, the design of the hotel had to fit into the existing historical context."

The Solution

To perform the initial architectural work on the Westin project, Stantec used AutoCAD® software. "Then, in spring of 2006, Stantec initiated a pilot project for implementation of the Revit platform," says Leppanen. "While continuing to use AutoCAD, the design team began to create a parallel building information model with Revit Architecture. Within a few months, the transition from AutoCAD to Revit Architecture was complete and the design team proceeded into late design development and working drawings completely in Revit."

Collaborate More Effectively

Revit Structure greatly simplified collaboration with the external structural engineer on the Westin project. "The consultants at Glotman Simpson were very well versed in the use of Revit Structure," says Leppanen. "That made collaboration easy."

Bypass 2D-Related Problems

Later in the project, Stantec brought its own mechanical and electrical teams on board. "Revit MEP facilitated collaboration among all the teams on a single, fully coordinated parametric model, enabling us to deliver integrated solutions that bypassed the problems inherent in drawing-based technologies," says Smith.

Achieve Outstanding Coordination with Parametric Change Management

"Revit is simply fantastic from a coordination point of view," says Leppanen. "We were able to rely on a link between the architectural and structural models that enabled either team to make design changes with reasonable confidence that the other team's model would be automatically updated."

Stantec also saw improvements in coordination on the 82,300-square-foot renovation and expansion of the Edmonton Art Gallery. "That was the first major project we undertook in Edmonton using Revit MEP," says Clark. "We're adding two floors onto the existing building and including some spectacular new architectural features."

Easily Model Vital Systems

The team used Revit MEP to model the gallery's state-of-the-art mechanical and electrical systems, including ductwork, visible storm water piping, and central plant equipment. The software was particularly valuable in helping the engineers quickly and precisely coordinate new duct and equipment locations throughout the gallery's complex existing areas.

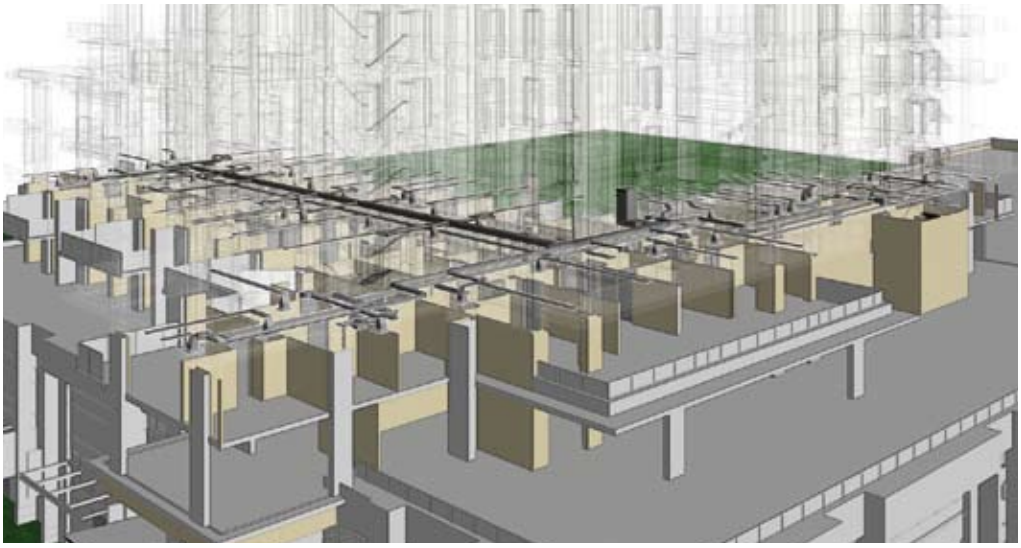
Simplify Complex Design Challenges

"Revit MEP absolutely helped us deal with the difficulties of blending the existing structure—and all of its underlying equipment and pipes—with the new additions," says Mitchell. "It would have been a nightmare without the model. With the Revit MEP model, our understanding of the building is incalculably better. The way it helps us understand how the existing and new structures interrelate, and what impact the changes will have on the building systems is absolutely the greatest advantage it has provided us."

> "Increased competitive advantage has been a significant beneficial by-product of adopting Revit MEP. We plan on implementing the new software on even more projects."
>
> —Stanis Smith
> Senior Vice President
> Stantec

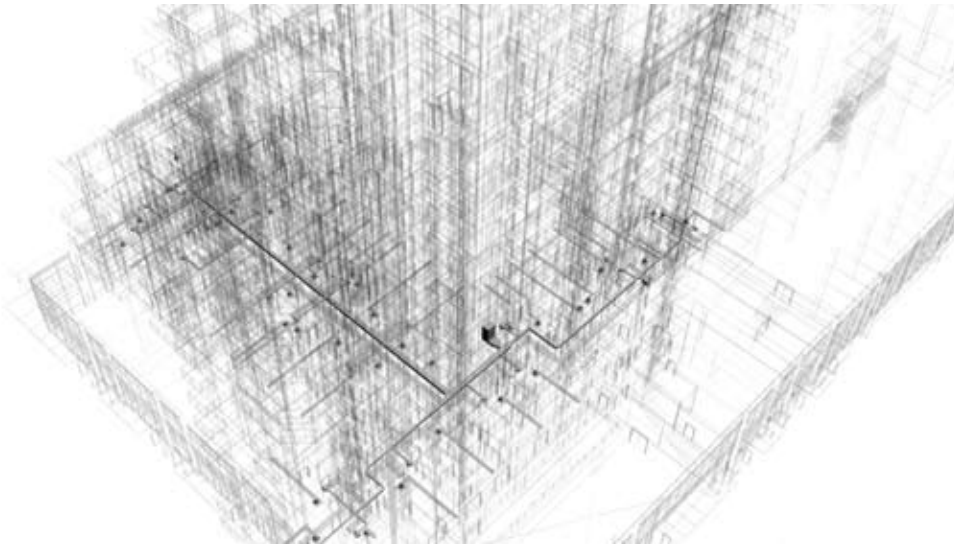
Build Better Working Relationships

A better understanding of the project can also lead to better, more efficient working relationships among the disciplines. "Using the Revit model, we can now cut our own sections," says Clark. "That gives us a much better picture of the building, and also cuts down on the number of requests we have to make for sections from the architects."



Create Stunning Walkthroughs

"And because we used the software to create our own walkthroughs, I feel like I already know the building," adds Clark. "It gives everyone a much better sense of how the end product will actually look to the occupants of the building. That's tremendous, especially because it allows us to show the architects that we're thinking aesthetically about their building—and not just about how the pipes work."



Analyze Earlier and More Effectively

Stantec engineers are particularly excited about the IES <Virtual Environment> plug-in for Revit MEP. "We have a separate group that does a lot of building energy and performance analysis," says Leppanen. "IES <Virtual Environment> is their analysis software of choice." Using the Revit-IES plug-in, engineers can quickly calculate heating and cooling loads from within Revit MEP—without tedious data re-entry. Alternatively, they can import Revit model data directly into IES, and use the IES <Virtual Environment> suite to carry out the full range of sustainable design analyses. "We believe that the Revit-IES plug-in will help us reduce the time it takes to model a project in IES <Virtual Environment>."

Use BIM for Better Decisions

This helps the firm venture into sustainable design in a way that it couldn't easily do before. "The link between the Revit platform and the IES <Virtual Environment> has the potential to provide us with a lot of energy analysis feedback very early in a project," says Leppanen. "This feedback is critical in helping us to make better design decisions early on in the design process—when they have the most impact on the energy and sustainable performance of the building."

Build Sustainable Solutions

The IES plug-in also helps the firm more easily achieve LEED certification. "An important part of our vision is to create solutions that conserve energy and reduce the need for scarce natural resources," says Leppanen. "We have quite a few projects at various levels of LEED certification—from certified Silver to Gold. As a matter of best practice, sustainable design principles inform our projects, regardless of whether or not they will be LEED."

Easily Repurpose Design Data

"One of the many reasons that I really enjoy working in Revit is that it takes very little effort to generate colored diagrams that illustrate information about the building, such as functional diagrams. Generating area calculations is also tremendously easy," says Leppanen. "It's just fantastic. Doing that using traditional design applications would take a huge effort. And when we need more 'photo realistic' images, we can always export data from the model into Autodesk VIZ."

Serve Clients Better

"Our hope is that the Revit platform will let us continue to do the tasks we're already doing—just more effectively," says Leppanen. "In addition, there is the potential for us to offer a whole range of enhanced services that build on the Revit platform. For example, using the Revit model, we could easily provide quantity takeoffs or 3D images that would be very useful to our clients."

Exchange Information Easily

When working with external clients, Stantec engineers share files and information using the Autodesk® Buzzsaw® on-demand collaborative project management solution. "We have quite a large Buzzsaw site," says Moore. "We're using it on several major international projects, where we have to contend with multiple time zones, geographic separation of design teams, and vast amounts of data being manipulated and edited daily. Buzzsaw has virtually eliminated the need for us to ship CDs and DVDs. Not only is it much faster, but it's also helped us cut communications costs tenfold."

AutoCAD Civil 3D Offers a Civil Solution

Other Autodesk products have helped the firm further increase efficiency. For example, several Stantec offices recently began migrating from AutoCAD® Land Desktop software to AutoCAD® Civil 3D® software, a comprehensive product for the design, analysis, and documentation of a wide range of civil engineering project types. "Civil 3D enables us to get things done much faster and more efficiently for our clients," says David Kasha, Practice Technology Coordinator. "For example, we can look at more design alternatives, a lot more quickly, and also make late-stage revisions much faster."

Unify Design Teams

The dynamic civil model at the core of AutoCAD Civil 3D also makes it easy to enforce CAD standards. "For example, if our Toronto office delivers a model to our Calgary office, and it's not quite right—let's say the styles are wrong—all we have to do is drag the correct styles from the Calgary template drawings into the new drawings," says Kasha. "That's a huge benefit to us in terms of worksharing."

The Result

Since adopting Buzzsaw, Civil 3D, and the Revit platform in some of the firm's offices, Stantec has begun to expand implementation of the products across the enterprise. "We absolutely view these products as a potential competitive advantage as we move forward," says Moore. "They're being taken very seriously within our organization. In fact, people in our other offices have begun looking for suitable Revit pilot projects for their own teams, and we also envision the entire company migrating to Civil 3D over the next two years."

Better, More Profitable Projects

"Our Kelowna office is using Revit Structure on projects in conjunction with external architects," says Moore. "Plus, in Regina, we're working on a university project that involves both Revit Structure and Revit Architecture. One of the largest projects currently under way is in Toronto. Our office there is taking on three $100-million-plus health-care facilities—all using Revit Architecture."

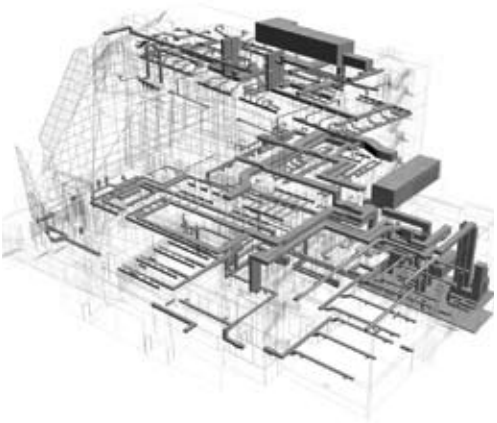
Greater Recognition

Recently, Autodesk honored Stantec with the Revit BIM Experience Award for effective integration of the entire Revit BIM platform—with both in-house multidisciplinary groups and external project team members. The award also recognizes advanced implementation of Revit MEP for improved design coordination, informed design decision making, and integration with analysis applications.

Pacific Alliance Technologies

Pacific Alliance Technologies of Vancouver, British Columbia, provided Stantec with training and implementation services for the Revit platform. "They are very knowledgeable," says Moore. "We'd be hard-pressed to find a question that would stump them."

For additional information about these and other Autodesk products, visit www.autodesk.com/products. To learn more about Stantec, visit www.stantec.com.



"Building information modeling provides so many advantages when working with external architects that we couldn't afford not to investigate Revit MEP."

—Mitchell Clark
Mechanical Engineer
Stantec

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