

Arup

Customer Success Story

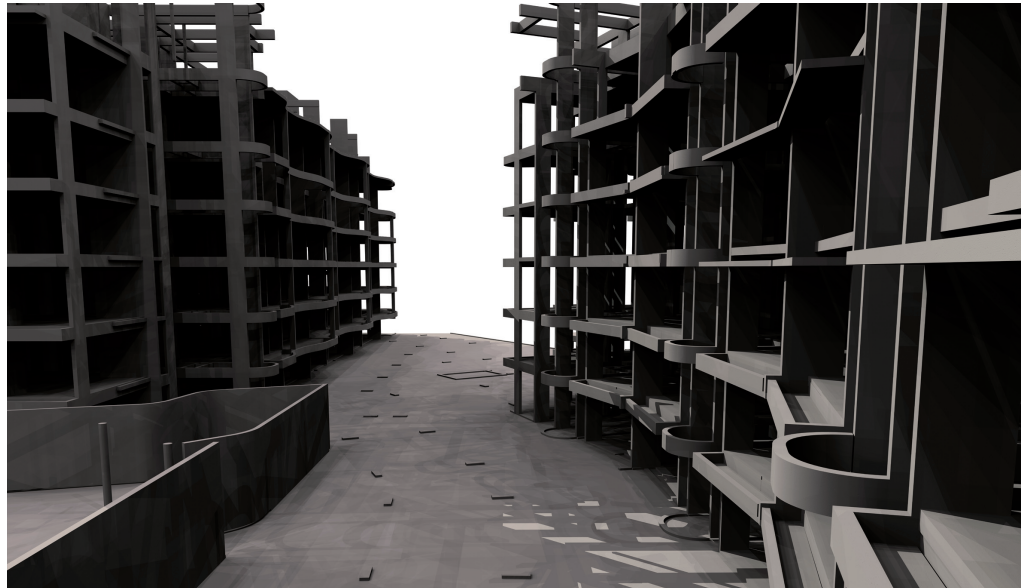
Revit® Structure

Since turning to Revit Structure, we can produce input for the architects to use, in a much shorter period than was possible before. The ability to effect change in such an intelligent manner has made a big difference in the way we work.

—Christopher Pynn
CAD Manager
Arup Singapore

Model a better world.

Revit® Structure software helps to enhance Arup's design processes and paves the way for an innovative, integrated design practice.



Rendering courtesy Arup and Ho Bee Group

The Firm

Arup is a leading global design and business consulting firm, providing world-class engineering design, planning, project management, and consulting services in all areas of the built environment. Formed in 1946, Arup has almost 10,000 employees working in 92 offices, in more than 37 countries; at any one time, the firm has more than 10,000 projects running concurrently. Offering an innovative and fully integrated approach, Arup's talented design professionals bring a full complement of skill and knowledge to any given design. Arup is the creative force behind some of the world's most innovative and sustainable designs, such as the Sydney Opera House; National Beijing Aquatics Centre; Central China Television Building in Beijing; the world's first sustainable city, Dongtan in Shanghai; and Marina Bay Sands in Singapore, to name a few.

The Challenge

To date, Arup has used building information modeling (BIM) with Revit Structure software to deliver construction documentation in a more cost-effective manner. "Revit Structure offers us the ability to do BIM, over and above other packages," says Christopher Pynn, Arup's CAD manager in Singapore. "We have driven 3D documentation for years, and taking this to another level is important to us." The challenge now is to find ways to add even more value to projects by taking full advantage of the underlying potential of BIM in the fourth and fifth dimensions, that is, timelining and costing. In addition, the firm wants to use the BIM process to improve coordination among the disciplines. "If we can build a model that presents our structural solution and also helps the architect and our MEP team with aesthetic choices or airflow calculations, then we know we're contributing positively to the overall design process," says Pynn.

Autodesk®

On a recent project, a single designer produced documentation that ordinarily would have required three people.

The Solution

Arup's offices in Singapore have been using Revit Structure software in all their condominium design work. "Since turning to Revit Structure, we can produce input for the architects to use, in a much shorter period than was possible before," says Pynn. "The ability to effect change in such an intelligent manner has made a big difference in the way we work."

With more than 10 years of experience in the 3D documentation of projects in Australasia, Arup has been quick to realize the benefits of Revit Structure. Implementation began in the Sydney office on two very different projects: a post-tensioned concrete frame for a retirement village, followed by a large and complicated steel-framed extension to a casino. Arup has now applied the Revit Structure BIM workflow to an impressive list of projects up to AU\$500 million in value, including shopping centers, train stations, offices, archive stores, as well as schemes for airports and hospitals.

Get More Done with Fewer Resources

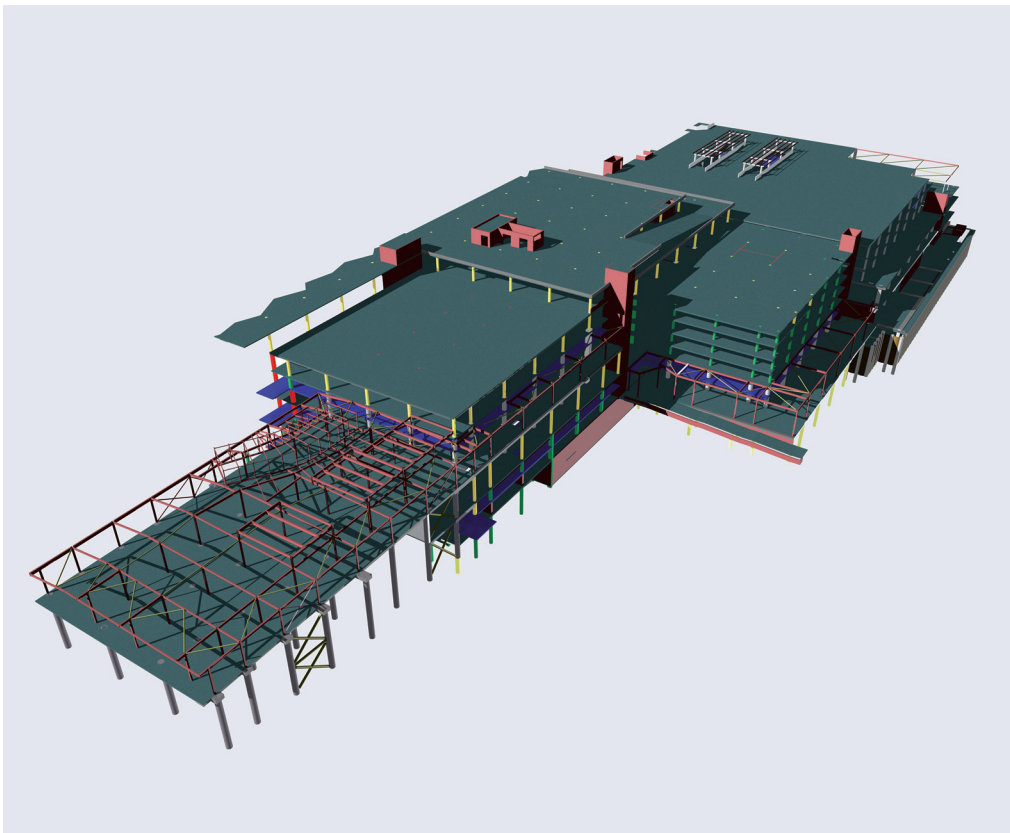
The software's intuitive interface helps reduce the number of people required on a project. On a recent condominium project in Singapore, for example, a single designer was able to produce documentation that ordinarily would have required three people. "When we need more resources, we use the multiuser approach through workset sharing," says Pynn.

Deliver Better Documentation

"Our documentation gets better all the time," says John Hainsworth, virtual construction coordinator at Arup Sydney. "By using simple features like color, 3D sections, sequencing, and scheduling on the sheet, we enhance the presentation of our design, which is often the culmination of the entire team's efforts. The quality of the documentation gives the clients confidence that we've thought their project through properly. Now we can offer much more than just drawings."

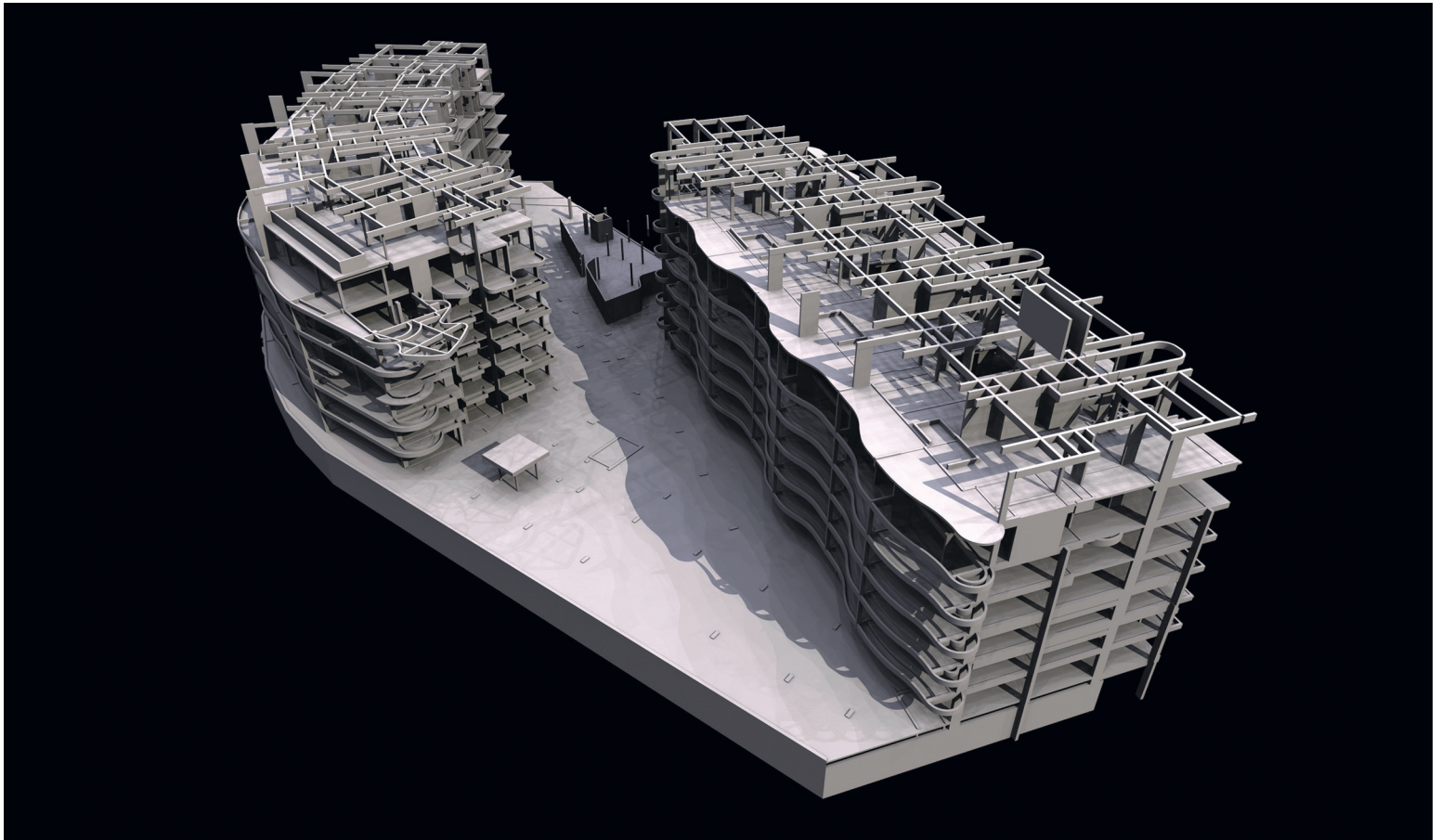
A fully coordinated Revit Structure model will house the data based on what we need to make informed decisions today, and will also promote the transparency needed for coordination and collaboration in the future.

—John Hainsworth
Virtual Construction Coordinator
Arup Sydney



Rendering courtesy Arup

"The transition from 3D CAD toward Revit Structure and BIM gives us the opportunity to offer more," says Hainsworth. "For instance, we've successfully delivered both bidirectional and interactive 4D models for a major redevelopment of a railway station, helping us demonstrate that the team's intent can be built, while maintaining a safe environment for passengers."



Rendering courtesy Arup and Ho Bee Group

Revit Structure was relatively simple to get started with. After sending first-time users to an introductory course, we were producing documents on live projects in a matter of days.

—Christopher Pynn
CAD Manager
Arup Singapore

Improve Coordination and Accuracy

With Revit Structure software, Arup can produce more accurate documents with greater consistency using the power of parametric change management. Any change to the design is automatically updated and coordinated. “The ability of Revit Structure to coordinate all the data stands out as a big benefit and makes it very easy to implement and work with,” says Pynn.

Link to Third-Party Analysis Packages

With a growing number of third-party analysis partners developing Revit links, Arup is able to analyze part or all of the building so results are automatically coordinated back into the design and documentation. Hainsworth explains, “The API in Revit Structure is ripe for exploitation and bidirectional links with analysis products like our own GSA product. We’re trying the analysis links on live projects right now, with impressive results.”

The Result

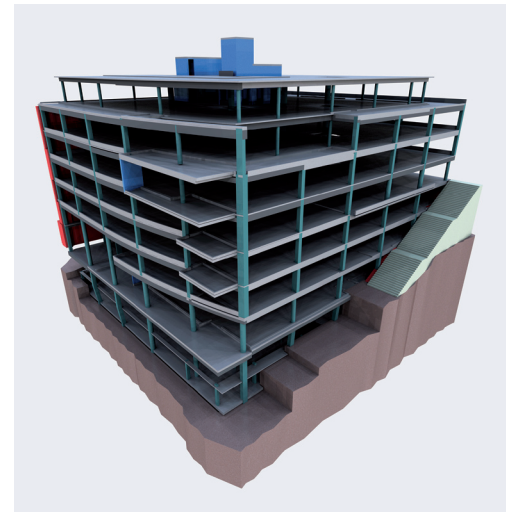
Arup is a wholly independent organization owned in trust on behalf of its staff, with no external shareholders. This independence enables the organization to determine its direction without outside pressure or influence, promoting innovation and pioneering processes. “The use of 3D is something that we have a keen interest in and have used successfully for many years,” says Pynn. “We passionately believe that this is the right approach.”

With the ability of Revit Structure software to effect change in such a rapid and structured manner, Pynn and his team also quickly saw a reduction in time and effort required in this highly competitive market. “It astounds me when I consider what else we can offer in conjunction with the traditional documents, like quantities, costs, timelines, or interactive models,” says Pynn. “I can see our investments paying off well with a bright future ahead.”

Indeed, Arup is committed to a “total design” approach. Founder Ove Arup was ahead of his time when in 1970 he suggested that “the term ‘Total Architecture’ implies that all relevant design decisions have been considered together, and have been integrated into a whole by a well-organized team.” Hainsworth expands on this idea: “A fully coordinated Revit Structure model will house the data based on what we need to make informed decisions today and will also promote the transparency needed for coordination and collaboration in the future.”

Learn More

To learn more about Revit Structure, visit www.autodesk.com/revitstructure.



Rendering courtesy Arup & St. Hilliers

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