China Construction Design International (CCDI)

Customer Success Story

Autodesk® Revit® Architecture
Autodesk® Revit® Structure
Autodesk® Revit® MEP
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Autodesk® Ecotect® Analysis

Because BIM data can extend into building management and maintenance all the way to a building's final decommissioning, we can calculate costs over a 20-year or greater period—making BIM a truly worthwhile investment.

—Gao Yong
Deputy General Manager
CCDI

Multidisciplinary design made easier.

CCDI uses Autodesk BIM solutions to help manage workflows and speed project completion on the Tianjin Port project.

The City of Tianjin, China. Image courtesy of CCDI Group.

Project Summary

With more than 2,000 employees and offices throughout the People's Republic of China, China Construction Design International (CCDI) is one of Asia's leading multidisciplinary design firms. Established in 1994, CCDI has delivered comprehensive, fully integrated architectural, engineering, and construction solutions on some of the most high-profile projects in the world, including the Beijing National Aquatics Center, site of the 2008 Summer Olympics swimming competitions. A key component of the firm's success is its commitment to a variety of Autodesk building information modeling (BIM) solutions, including software based on the Autodesk® Revit® platform, Autodesk® Navisworks® software, and Autodesk® Ecotect® Analysis software—all adopted after a rigorous, multiyear selection process. Ultimately, CCDI standardized on Autodesk BIM solutions because they possessed three vital characteristics: full multidisciplinary capabilities, ease of use, and strong R&D and technical support. "The Revit family of products met these three requirements in a balanced way," says Guo Jun, information center manager at CCDI.

The Challenge

One of the firm's most recent projects is the international cruise terminal at the Dongjiang Port Zone in Tianjin, the sixth-largest urban area in China. In the first phase of development, CCDI is tasked with designing two large-scale international cruise berths as well as a passenger terminal with a capacity of 500,000 passengers per year. The completed facility will also include space for port administration, shipping agencies, insurance firms, restaurants, and hotels. Future phases will include a five-star hotel, exhibition centers, and extensive commercial facilities.

The 700,000-square-meter project presented CCDI with several major challenges. Designed to mimic the undulating motion of silk fabrics rippling in the ocean breeze, the structure is extremely complex and difficult to model—with a wave-shaped roof, irregular glass-curtain walls, and structural steel members with multiple angles of inclination. The project's sheer size and aggressive schedule greatly magnified these challenges.

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Using Autodesk Revit–based software, CCDI completed initial modeling for several crucial systems in only nine days.

The Solution

Using traditional 2D design approaches, such a project would have been very difficult for CCDI to complete on schedule. However, using Autodesk Revit–based software, CCDI was able to complete initial modeling for several crucial systems—architectural, structural, water supply, HVAC, and electrical—in nine days. "Providing the owner with specialized construction plans took only two additional months," says Kuang Jiazhi, Beijing Region technical department manager for CCDI. "For such a complex project, such efficiency was extremely high."

CCDI utilized Autodesk BIM solutions throughout the entire project—from conceptual design and design development through construction documentation and coordination. CCDI utilized BIM for a variety of tasks, including design, simulated population flow analyses, sunlight studies, collision detection, and quantity takeoffs.

Autodesk BIM solutions also proved helpful in improving relationships with the project owner and construction team. "When we were at the construction coordination stage, we demonstrated the immersive 3D visualization model to the owner and the construction unit," says Kuang Jiazhi. "They found it quite enlightening."

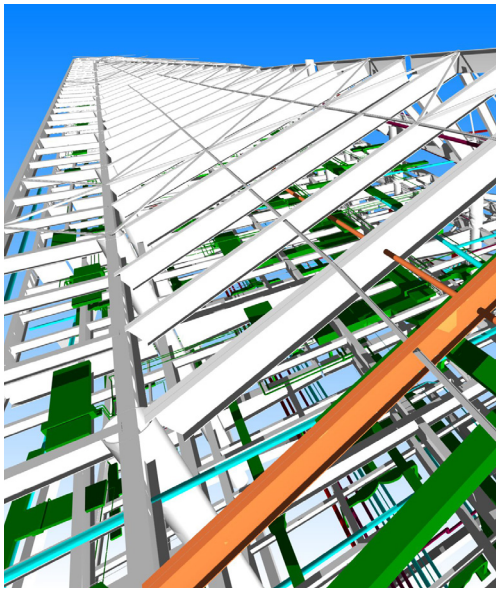
Autodesk BIM solutions helped enable the project team to turn a highly complex design into a physical reality. Using the Revit model, the specialist engineers more quickly received feedback about the complex spatial relations that existed among building components, helping them to design with higher levels of accuracy, precision, and coordination. "Without BIM, a building of this complexity would have remained a utopian fantasy," says Wang Xin, project architect and architectural specialist in charge of the project.

The Result

Based on the success of Autodesk BIM solutions on the Tianjin Port and other projects, including a large hotel in the city of Sanya, CCDI plans to continue its investment in BIM. "Our goal is to give our customers better service and value," says Gao Yong, deputy general manager at CCDI.

CCDI also discovered the enormous potential BIM holds for practicing sustainable design. Before adopting BIM, CCDI often had to devote valuable time to reworking errors caused by lack of coordination—wasting manpower, materials, and energy. Autodesk BIM solutions helped CCDI to significantly reduce coordination errors, leading to faster project completion, fewer last-minute design changes, and greener projects. "Moreover, because BIM data can extend into building management and maintenance all the way to a building's final decommissioning, we can calculate costs over a 20-year or greater period—making BIM a truly worthwhile investment," says Gao Yong.

For more information, visit **www.autodesk.com/bim** and **www.autodesk.com/green**.



Structural and electrical modeling for the Tianjin Port. Image courtesy of CCDI Group.

High-resolution rendering of the Tianjin Port. Image courtesy of CCDI Group.

The biggest advantage of Revit-based software is its ability to help integrate previously separate efforts into a single, smooth workflow. That feature alone has gained the support of many CCDI project managers. We plan to promote its use as much as possible.

—Liu Ziyu
Chief Designer, Sanya Hotel Project
CCDI Beijing Region

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