

China's BIM Advancements and Industrialisation of its Building Industry

Bentley Systems today reported respects in which China sets the pace globally for building information modelling (BIM) advancements. This year, the independent juries of the Be Inspired Awards selected nine Chinese projects among 54 finalists, an unprecedented performance. In particular, the Chinese building industry is rapidly applying BIM advancements to achieve the benefits of 'industrialised' processes. Mr. Jiefeng Xu, CEO of CABRTech, the software unit of the China Academy of Building Research, addressed the Conference's Building Forum about the industrialisation of the building industry and CABRTech's adoption of Bentley's BIM platform for its new PKPM-BIM software product.

CABRTech, the leader in Chinese building software, continues to advance 'BIM for Buildings' in China through its new PKPM-BIM software product, developed to meet the specific demands and challenges of the Chinese building industry—including local standards and especially the use of precast building components. CABRTech's PKPM structural software is already the local market standard in China. Significantly, to develop PKPM-BIM for the Chinese market, CABRTech selected Bentley's BIM platform technology and worked closely with Bentley's technical teams from the outset. PKPM-BIM was released this summer and is being widely promoted and successfully adopted to advance 'BIM for Buildings' in China.

For comprehensive project delivery, PKPM-BIM can take advantage of Bentley's ProjectWise collaboration system, which can be delivered with PKPM-BIM. PKPM-BIM can also leverage the interoperability of Bentley's BIM platform for integration across infrastructure disciplines, which is particularly important considering the 'campus scale' of industrialised building projects in China.

Chinese Finalists and Awardees

Finalist in Innovation in Building: Multi-Discipline Design Coordination and Design Simulation for Cultural Sports Center

China Aerospace Construction Group Co., Ltd., working with Chongqing Liansheng Construction Project Management, provided project management and integrated design and construction services for the CNY 720 million Inner Mongolia Ethnic Minorities Cultural Sports Center in Hohhot, China. BIM advancements enabled by AECOSim Building Designer provided 3D project control, multi-discipline design coordination, building optimisation and reduction in project costs. Additionally, design time, errors, material quantity, and rework rates were reduced. In one case, optimisation reduced earthwork from 370,000 to 70,000 cubic metres, saving more than CNY 20 million.

Special Recognition Award Winner for Project Delivery: Collaborative Network Unifies 350 Project Teams for Beijing's Tallest Building

CITIC HEYE Investment Co., Ltd., headquartered in Beijing, is a leader in real estate development, engineering contracting, development, and construction. Working in concert with as many as 350 design, construction, and consultant teams, CITIC HEYE is involved in an ambitious development program in Beijing's central business district that includes nine ultrahigh-rise buildings of more than 200 metres. The crown jewel will be the CITIC Tower (a.k.a., China Zun), at 528 metres the tallest building in Beijing, and the first structure over 500 metres to be built in an area with 8-degree seismic fortification intensity. The project team is using dual internal and external ProjectWise platforms to ensure timely synchronisation of project data and documents across the collaborative network, helping to deliver the project 1.4 times faster.

Finalist in Innovation in Utilities and Communications: Mega-substation Inside City Building Meets Energy Needs

Hubei Electric Engineering Corporation (HEEC), a subsidiary of POWERCHINA Limited, specialises in the planning, design, and construction of power generation plants, power grids, substations, and related infrastructure. Its CNY 172 million Miaoshan 220kV Secondary Transformer Substation project was designed to meet Year 2030 energy demands in Wuhan, Hubei province. HEEC laid out and designed the three-story facility, which housed three sets of 240-megavolt ampere transformers and included multiple outgoing lines that took into account the constraints of the dense urban location. HEEC used Bentley AECOSim Building Designer, ProjectWise, Substation, Raceway and Cable Management, and ProStructures to design the substation and facilitate project collaboration. ProjectWise allowed the project team to work in a unified model space, increasing efficiency and helping to solve clashes. Avoiding rework in at least 10 instances saved CNY 2 million. When completed, the substation will optimise the power grid and improve the quality of life for more than 400,000 people.

Finalist in Innovation in Building: Iconic Commercial Tower Leverages Optioneering through BIM Advancements

Morphosis, a North American-based design architect specialising in innovative buildings and urban environments, designed a mixed-use commercial building in Shenzhen using an innovative approach to work and social spaces. With a structural steel skeleton, faceted façade, and offset core configuration, the design of the 350-metre-tall Hanking Center Tower posed substantial challenges for the project team. Morphosis implemented a comprehensive BIM strategy to create a clearinghouse for design data and documentation. The integrated 3D design process, seamless workflow, and cross-platform interoperability enabled unprecedented design exploration and coordination, and iterative modelling expedited the optioneering and rapid prototyping of the building.

Finalist in Innovation in Land Development: Cost Reduction through Process Optimization for Olympics Project

Beijing Shougang International Engineering (BSIET), an international engineering company headquartered in Beijing, provides engineering services for municipal, architectural, and other industries. On behalf of the 2022 Winter Olympic Organising Committee, BSIET is designing and constructing the future Olympics plaza in Shougang, a historic industrial site located in Shijingshan District, Beijing. The project, Xishi Winter Olympics Square Project of Shougang Industrial Area Transformation, consists of legacy facilities in a protected area with strict building requirements. The project team's challenge is to build a plaza that retains the area's original steel factory aesthetic while repurposing buildings with green technology. Using AECOSim Building Designer, Raceway and Cable Management, Descartes, GEOPAK, Map, MicroStation, Navigator, OpenPlant, ProjectWise, ProStructures, PowerCivil, and Pointools has helped BSIET meet rigorous project parameters and optimise many processes.

<https://www.gim-international.com/content/news/china-s-bim-advancements-and-industrialisation-of-its-building-industry>
