

COMPANY

SC (SHoP Construction)

LOCATION

Manhattan, New York, United States

SOFTWARE

Autodesk® BIM 360™ Glue
 Autodesk® Revit® Architecture
 Autodesk® Revit® MEP
 Autodesk® Revit® Structure

Autodesk BIM 360 Glue is filling a need in the industry to expedite the VDC process. We are already seeing an increase in the rate of evaluation and decision making. We are establishing more efficient workflows and improving our ability to collaborate; each is required for BIM/VDC to be ultimately successful.

—Jonathan Mallie
 Principal/Managing Director
 SC

A tall order

Autodesk BIM 360 Glue enhances project visualization and collaboration on world's tallest modular building.



Images courtesy of SHoP Architects.

Project summary

SC (SHoP Construction) is a sister company of SHoP Architects, a Manhattan-based firm widely known for innovative designs that blend business and art. Founded in 2007 by SHoP, SC was established to provide a range of services, including virtual design and construction (VDC) services to owners, architects, and contractors. Over the years, Building Information Modeling (BIM) has played a central role in the construction management process at SC, enabling them to create and explore virtual designs before building. Recently, the firm has been able to accelerate and streamline its processes even further by hosting live model data in the cloud with Autodesk® BIM 360™ Glue, one of the Autodesk® BIM 360® cloud-based services.

The 32-story B2 BKLYN residential tower adjacent to the Barclays Center Arena in Brooklyn, New York, is part of a US \$4.9 billion, 22-acre entertainment, business, and residential complex, which includes an 18,000-seat arena for the now-Brooklyn Nets, who are set to move to the new venue in 2012. Once constructed, the 350-unit B2 tower will be the largest modular building in the world.

The challenge

Since the B2 BKLYN tower is, in large part, being assembled in a factory, tolerances are much tighter, requiring that complex engineering details and interdisciplinary coordination be resolved far sooner than in the traditional design process. To address the unique construction requirements of modular, SC is coordinating an information-rich consolidated virtual model of the B2 BKLYN tower—complete with detailed architecture as provided by SHoP Architects, and structure, mechanical, electrical, and plumbing (MEP) systems as provided by Arup, a professional services firm—using Autodesk® Revit® Architecture and Autodesk® Revit® Structure and Autodesk® Revit® MEP software, respectively.

“It’s a 180-degree shift from the traditional process,” says Erik Churchill, project manager at SC. “Usually, you start with a macro and end with the detail. Modular requires that you think the opposite way. You have to really understand how the project is going to fit together. Due to this requirement, the design team has to focus on the details much earlier in the design process—such issues would otherwise be considered further downstream in a conventional project.”

Virtual design collaboration in the cloud

In its role as the project integrator, SC uses Autodesk BIM 360 Glue to coordinate and construct its virtual model in the cloud, giving all project team members access to the most current building information. “Modular requires next-generation collaboration,” states Churchill. “Everyone needs to be working together because the intersection of structure, MEP, architecture, and design details are very unique with a prefabricated building. With Autodesk BIM 360 Glue, the architect can easily reference structural detail and the MEP engineer can easily reference the architectural detail because we are sharing the virtual model back and forth in the cloud.”

The solution

The latest updates to the virtual model are captured using a direct plug-in from Autodesk BIM 360 Glue to the Revit software. The SC team makes those updates available to the entire project team instantly via the cloud. Specific coordination points and clashes on the model are highlighted using the markup feature of Autodesk BIM 360 Glue. Revit users can open and resolve clashes directly in their Revit environment.

“Before we were able to bring our virtual model into the cloud, the process was very linear,” Churchill explains. “A model would be uploaded on Friday. We would synthesize the updates together and release a PDF presentation of the different clashes or issues to discuss at the weekly Wednesday collaboration meeting.” The weekly review meeting is still held. Only now the team is able to collaborate more efficiently prior to that meeting by exchanging hyperlinks of the model in Autodesk BIM 360 Glue in real time.

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—Erik Churchill
Project Manager
SC

Bringing everyone together with the cloud

Bringing BIM to the cloud has enabled SC to significantly streamline a very intensive decision-making process and avoid costly delays. “Enhancing our BIM/VDC process by using the cloud is facilitating real-time resolution of highly detailed and technical issues related to prefabrication and modular construction in a time frame that’s expected for this project,” says Jonathan Mallie, SC’s managing director.

For SC, having the virtual model completely accessible to owners and other project stakeholders makes the difference. “That’s the breakthrough,” says Mallie. “The project team can review the virtual construction in real time, as if they are checking the weather online. They can check the model without hosting the model on their own machines. We are witnessing an increase in the rate of decision making by each of the project team members.”

“We view this project as breaking new ground,” says Churchill. “It changes the whole game. When people see what you are talking about, the reaction and response time is that much faster. Autodesk BIM 360 Glue has allowed us to increase our level of engagement and efficiency. The cloud is providing a more viable opportunity to visualize the design process, which is very important for decision making. It’s been a great augmentation tool that has allowed us to realize a more streamlined, efficient project delivery.”

Adding value post-construction

“As the project integrator, we want to make information accessible to the right person at the right time,” says Churchill. “Autodesk BIM 360 Glue is a great tool for executing that role and bringing accessibility into the design process very early. The management and dissemination of information takes an incredible amount of time, but having our model in the cloud allows us to expedite and efficiently ensure that information gets to the appropriate decision maker, which ultimately leads to fewer changes.”



Images courtesy of SHoP Architects.

“The industry is focused on comprehensive project integration,” he adds. “We think Autodesk BIM 360 Glue is going to help us provide information management services at a higher level. That’s why we are investing.”

Mallie believes that having an easily accessible, cloud-based model will be an important advantage even after the B2 BKLYN tower is completed. “Upon completion of construction, the model will become a living search engine for the building,” he explains. “With the information that’s embedded in the model, facilities management will benefit from comprehensive VDC projects. Cloud applications will help facilitate this evolution.”

The result

Currently, SC is focused on facilitating the successful completion of the B2 BKLYN project. Mallie explains, “Autodesk BIM 360 Glue is filling a need in the industry to expedite the VDC process. We are already seeing an increase in the rate of evaluation and decision making. We are establishing more efficient workflows and improving our ability to collaborate; each is required for BIM/VDC to be ultimately successful.”