

COMPANY

McCarthy Building Companies

LOCATION

Phoenix, Arizona

SOFTWARE

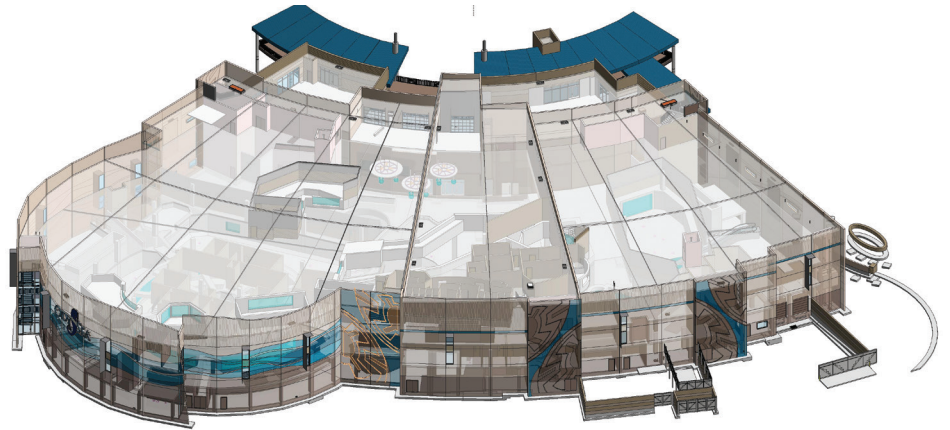
**Autodesk® A360 Collaboration for Revit®
Autodesk® Revit®**

Collaboration for Revit has totally changed how we work on a project. Our people can work on multiple projects regardless of location...sharing ideas, expertise, and feedback to divide and conquer, giving us much greater project flexibility and nimble delivery.

—**Enrique Sarmiento**
VDC Manager
McCarthy Building Companies

Concrete collaboration

McCarthy uses Collaboration for Revit to coordinate concrete structures in a new aquarium



The project

When it opens in 2016, the OdySea Aquarium in Scottsdale, Arizona will be the largest aquarium in the southwestern United States. The 200,000 square-foot, three-level facility will contain 12,300 cubic yards of concrete and two million pounds of structural steel. The aquarium will feature over 60 concrete tanks holding one and a half million gallons of water. The tanks' life support systems include approximately 300 pumps and 42,000 feet of piping. Visitors will move to each level via acrylic tunnels through the tanks, allowing them to view aquatic wildlife all around them. In addition, the aquarium will feature a 'Sea *TREK*' experience where guests can walk underwater through one of the largest tanks wearing a special helmet.

McCarthy Building Companies is the project's general contractor and is self-performing the aquarium's cast-in-place concrete construction, as well as the project's mechanical, plumbing, and HVAC. McCarthy used virtual design & construction (VDC) processes and Autodesk® Revit® software to model the concrete and generate concrete lift drawings (shop drawings that detail each individual concrete pour). During the project's design phase, McCarthy also used Revit preconstruction project coordination.

The challenge

"The tanks and the aquarium walls all have curved shapes and many of the tanks intersect each other," explains Enrique Sarmiento, McCarthy's VDC Manager for its Southwest Region office. The building's circular shape and corresponding radius structural grid with no perpendicular walls contributed to the structure's complexity. "In addition, the tank hosting the Sea *TREK* experience requires heavy reinforcement to support the feature." This complex, congested physical layout required close collaboration and coordination with all the trades. "Each lift drawing has to detail every sleeve, penetration, blockout, embed, anchor bolt, water-stop, acrylic and pour joint to the level of detail needed for construction," says Sarmiento. "This means we need to coordinate with the structural design team, as well as any trade that affects the concrete."

The project's structural engineering firm—Caruso Turley Scott (CTS) located in Tempe, Arizona—also used the Revit design platform, which made cross-discipline coordination easier. But to accurately plan for the concrete pours and generate lifts drawings, while successfully meeting the aquarium's tight construction schedule for its grand opening, McCarthy needed to collaborate with CTS as if they were in the same office, on the same network, using a centralized Revit project model.

In addition, the McCarthy team members were only able to work on the project when they were physically at the Phoenix office. This resulted in project silos, with the VDC staff unable to meaningfully contribute to other projects outside the office without physically traveling there.

The solution

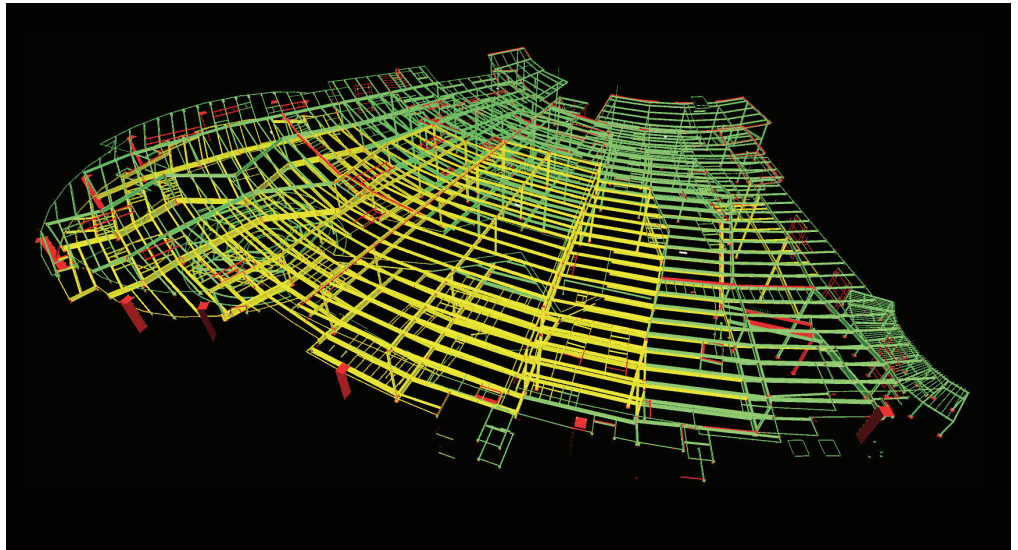
At the beginning of the project, McCarthy routinely imported structural and trade models into Revit to generate its concrete models and lift drawings. But midway through the project, Autodesk released Autodesk® A360 Collaboration for Revit®—a cloud-based service that gives project teams access to a centralized *shared* Revit project file in the cloud. So to streamline VD&C processes on the OdySea Aquarium, the project teams using Revit transitioned to Collaboration for Revit.

“We could share ideas and communicate changes very quickly and efficiently with Collaboration for Revit, helping us meet our client’s aggressive schedule,” says Sarmiento. “Our VDC engineers could instantly see any design changes made by CTS, making it very easy to coordinate the concrete design and our lift drawings.”

Collaboration for Revit also provides the ability to access a Revit central model from anywhere—at home, on the road, or from another office. “Collaboration for Revit has totally changed how we work on a project,” says Sarmiento. “Our people can work on multiple projects regardless of location...sharing ideas, expertise, and feedback to divide and conquer, giving us much greater project flexibility and nimble delivery.”

Instant communication

The team also made good use of the Communicator feature within Collaboration for Revit, which provides real-time chat functionality with other project members as well as an awareness of model changes. On the OdySea project as well as subsequent projects, Communicator has enabled the team to virtually interact with each other—asking and answering question on the fly, and increasing overall project communication. “Collaboration for Revit is the ultimate communication tool,” says Sarmiento. “It enhances the flow of information in a way we’ve never experienced before and helps us get the job done faster. For example, on this project we reduced our turnaround time for models and drawings by more than 35 percent.”



Steel structure for OdySea Aquarium in Scottsdale, Arizona

The result

With Collaboration for Revit, the project team worked together so efficiently that the project’s permit drawings were as coordinated as a final construction documentation set. “Our permit drawings were essentially as-builts,” says Sarmiento. “We were able to work out all construction issues virtually, before we even broke ground.”

In addition to helping McCarthy successfully deliver the OdySea project, the software is also changing the dynamics of its VD&C group. “I’m always trying to cross-train the group—getting them involved in new and different projects that will challenge them and expand their knowledge,” says Sarmiento. “Collaboration for Revit enables them to collaborate on a larger variety of projects, which has definitely improved the comradery of our team.”

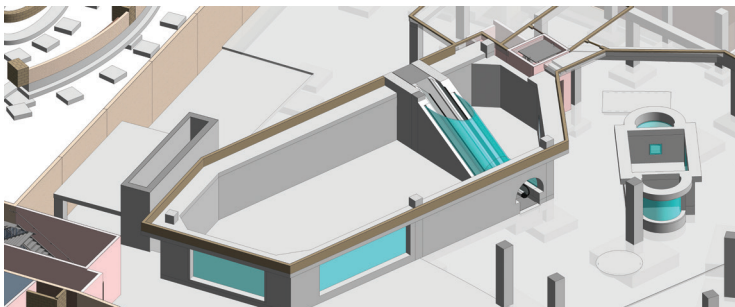
For more information, visit www.autodesk.com/products/collaboration-for-revit



Tilt panel wave pattern at OdySea Aquarium

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Rendering of tank and escalator at OdySea Aquarium

