

Benoy Architects

Customer Success Story

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A notable building begins with a concept. Our concept took shape as a 3D model that guided the whole project through construction. Autodesk solutions helped us develop the concept and drive the project to completion efficiently.

—Mike Lewis
Middle East Director
Benoy

Inspired by speed.

Aided by the innovative use of design technology from Autodesk, Benoy created the iconic Ferrari World Abu Dhabi.



Project Summary

Since its opening in November 2010, the Ferrari World Abu Dhabi theme park in the United Arab Emirates, has offered motorsports fans an experience as distinctive as a Ferrari Formula 1 automobile. Among the numerous high-octane attractions it offers, Ferrari World Abu Dhabi features the world's fastest roller coaster, with a top speed of 240 kilometers per hour. Even the building that houses the park amazes visitors. A bright red, curving roof covers the park and embodies the automaker's history of producing iconic cars. The team at Benoy, the international, award-winning firm of architects, master planners and interior designers, designed the roof, taking inspiration from the side profile of the Ferrari GT. To help capture and refine their conceptual ideas for the building, the architects used Autodesk® 3ds Max® Design and AutoCAD® Architecture software. Autodesk 3ds Max Design and AutoCAD Architecture software helped Benoy to:

- Develop an innovative building concept in 3D
- Link the conceptual design process with construction documentation production
- Streamline collaboration across a large project team using the DWG™ file format
- Win stakeholder support for a unique building concept by creating compelling visualizations

The Challenge

Benoy, a British company, is a world leader in retail and mixed-use architecture and has a prestigious and truly global client base. Competition is fierce for high-profile projects like Ferrari World Abu Dhabi. With other international firms bringing their best ideas to the table, Benoy needs to stand out for its ability to deliver great designs—on time and on budget. On the Ferrari World Abu Dhabi project, Benoy faced an added pressure: The firm had to design a building that would excite visitors and exemplify the Ferrari name.

“We wanted the design to be both significant and dynamic,” says Mike Lewis, Middle East Director for Benoy. “Our client, Aldar Properties of Abu Dhabi, was excited by our initial ideas for using a curving roof form that looked good from every angle. Of course, the design had to be as buildable as it was striking. The pressure was on, and we looked to our design tools to help us deliver a great concept.”

Streamline collaboration with multidisciplinary teams.

When looking at a Ferrari GT from the side, the viewer sees curving forms that come together as a harmonious—and aerodynamic—whole. To capture that in the roof of Ferrari World Abu Dhabi, Benoy decided to use Autodesk 3ds Max Design software, which helped the design team to model curving forms in a near-photorealistic 3D environment.

“We were excited to begin playing with the roof as a 3D model,” says Lewis. “But a 3D form is a picture—not a structure. First, we decided to tie our idea to architectural standards and the constraints of the site with the help of AutoCAD Architecture software.”

Using AutoCAD Architecture software, Benoy’s design team laid out a site plan that integrated portions of Abu Dhabi’s Formula 1 racetrack. They then set the basic geometry for the building. Linking the model to the project geometry in AutoCAD Architecture, Benoy began to create the form of the roof in 3ds Max Design software. The designers explored how the number of sides would impact the curve. They played with six-, eight-, and 12-sided versions, finally focusing their efforts on a multisided building emblazoned with the Ferrari logo.

Lewis describes the resulting design: “Our concept for the building is dominated by a curving roof that reaches out like a six-pointed star. It is 45 meters tall at the highest point and 700 meters long, enclosing 86,000 square meters. Not only reminiscent of the curving form of a sports car, the building rises from the ground like a red sand dune. The building is appropriate to both its motorsports theme and desert location.”

Winning a Tough Audience

Benoy’s design needed to capture the imagination—and support—of two critical stakeholders: the client and the decision makers at Ferrari. In preparation

for the presentation of their ideas, the designers at Benoy added structural and material details to the AutoCAD Architecture design. They uploaded the more detailed building design into 3ds Max Design software, and blended the roof model with the rest of the building. After adding near-photorealistic color and textures to the model, Benoy was ready to present the design.

“There’s no comparison between presenting a 3D model and 2D drawings to a client,” says Lewis. “The client can better understand the experience of a building by visualizing it in 3D. In the case of Ferrari World Abu Dhabi, the 3D concept model captured our clients’ imagination right away. Decision makers at Ferrari were just as enthusiastic.”

Racing to Completion

Benoy’s designers began developing the construction documentation in collaboration with structural, civil, and mechanical engineers. Benoy used AutoCAD Architecture and AutoCAD® software to develop the architectural documents, and the engineers used other AutoCAD-based software for their portions of the design, streamlining collaboration.

As the construction documentation neared completion, the team used Autodesk® Navisworks® Manage software to aggregate the various design files into a single model. The Navisworks model made it easier to check for interferences and communicate design intent to the contractor.

“A 3D model is a great communication tool, but builders need clear 2D construction documentation, too,” says Lewis. “It’s just another level of detail. AutoCAD Architecture makes it easy to produce both in tandem. And Autodesk Navisworks software helps to bring everyone’s contributions together into a more coordinated whole.”



The Result

Since opening, thousands of motorsports fans and thrill-seekers have visited Ferrari World Abu Dhabi, making the world’s largest indoor theme park a success. “Visitors come for the rides and attractions, but the building is a crucial part of the overall experience,” says Lewis. “A notable building begins with a concept. Our concept took shape as a 3D model that guided the whole project through construction. Autodesk solutions helped us develop the concept and drive the project to completion efficiently. Even the largest, most elaborate projects come together more smoothly when you use the right tool at the right time.”

Learn More

Accelerate your design process with help from AutoCAD-based solutions from Autodesk. Visit www.autodesk.com/autocadarchitecture to learn more.



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