BUILDING A SKY-HIGH CASE FOR 3D PRINTING

Architectural Modeling Firm Builds Scale Model of Stunning Abu Dhabi Edifice with 3D Printing

"The [Dimension 3D] printer has given us the ability to create unorthodox shapes to an exacting degree of accuracy. There have been projects that we simply could not have completed without it."

— Josh Coulas,
Peter McCann Architectural Models Inc.

Masdar Headquarters, Masdar City, UAE.

After building designs have been conceptualized and before ground is broken, real estate developers often transform their two-dimensional blueprints into three-dimensional scale models.

For Toronto-based architectural modeling firm, Peter McCann Architectural Models Inc. (PMAMI), replicating some of the world's tallest and most notable buildings on a one-hundredth scale prior to construction is all in a day's work.

From balsa wood and knives to rapid prototyping, the tools used to create such intricate models have come a long way in the firm's thirty-year history. Can you imagine carving an Abu Dhabi edifice model eight feet in diameter out of balsa wood?

The Challenge

By nature, architectural modeling requires high-level craftsmanship and attention to detail. "Even for our skilled craftsmen and women, amorphic shapes always present the biggest challenge; they are the most difficult to model by hand to the level of precision our type of work demands," says Josh Coulas, manager for PMAMI.

Prior to purchasing the Dimension 3D Printer, PMAMI steered clear of 3D printing technology because it was not yet capable of producing a product to their standards. Instead, the firm used CNC machines or created parts by hand.

However, when chosen to construct the architectural model for Masdar Headquarters, the search began for a tool that would meet the project's standards requirements and time constraints.

The Solution

Turned off by "pushy vendors" with "inadequate products," Coulas was impressed when he discovered Dimension. "We did our homework," he says. "The Dimension reseller Cimetrix was great to work with, and their printer presented a huge advantage by using ABS plastic over the more conventional powder."

The high resolution and strong outputs of ABS plastic are "crucial," says Coulas. "For our work, we need to have the ability to fuse pieces together, which ABS allows us to do."

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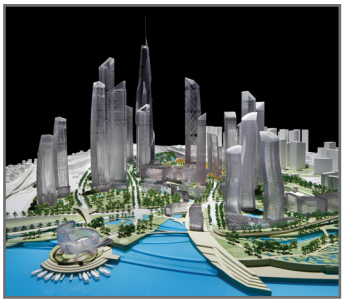
AppliCAD

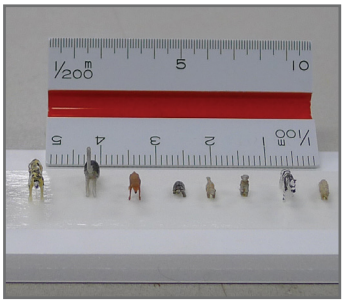
Now we can produce the finest details of even the most complex designs. We recently completed a complex model of a safari zoo that required modeling realistic topography and animals. We could not have done this project without the Objet 3D Printer."

Compared to the previous CNC method, model turnaround time has been reduced by 30 percent for simpler designs and 50 percent for more complex designs. So Modelzium can now deliver complete architectural models during the early stages of the design process and follow up quickly with multiple model iterations. "Our new 3D printing capabilities provide us with a competitive edge," Yang Ho concludes.



Modelzium builds architectural models with an Object Eden350 3D printer

Objet 3D printer was instrumental in winning project to design safari zoo



The ability to produce highly detailed models a provides competitive edge.

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