

# BUILDING A BUSINESS



## 3D Printing Shaves Months Off Architectural Model-Building Time

*“Our Objet 3D Printer is helping us do more with less, spurring innovation in our company and industry.”*

— Piet Meijs, Rietveld Architects

*Rietveld is able to quickly create accurate architectural models using an Objet 3D printer.*

Established in New York City in 1994, Rietveld Architects LLP is known throughout the United States and Europe for its creative commercial and residential spaces. Its international team of architects embraces the latest technologies in such areas as energy savings and individual environmental controls.

The firm's partners, Margaret and Rijk Rietveld, learned about 3D printing from a contact at the National Aeronautics and Space Administration (NASA). They saw in this technology the potential to increase productivity and produce more innovative designs.

During the course of a typical project, Rietveld builds numerous models of increasing detail and scale that help its clients to visualize designs. Like other firms, they traditionally built these models by hand. This task usually required two employees to spend upwards of two months cutting, assembling and finishing components made of cardboard, foam board and Plexiglass. The time and expense to hand craft these complex elements limited the amount of detail in these models, which sometimes made it difficult to demonstrate the merits of the design.

Several years ago, Rietveld decided to explore 3D printing as a means to increase the quality and productivity of model production. “We saw that big changes were coming to the architectural industry and believed that firms that could do more with less and deliver superior models would be more competitive in the new environment,” said Rijk Rietveld.

### **The Objet Eden chosen for detail, accuracy and office friendliness**

Rietveld's leadership was familiar with the available 3D printing technologies and, after in-depth research on eight different systems, selected the Objet Eden350™ 3D Printer. “We were particularly impressed by the ability of this system to quickly produce highly detailed, accurate models with minimal office clean-up,” said Rijk Rietveld. “Some of the other technologies produced brittle models and didn't have the fine detail of the Objet 3D Printer.” According to Piet Meijs, an associate with the firm, the prototyping capabilities offered by the

#### At a Glance

##### Challenges

- Significantly reduce the time and expense required to produce detailed architectural models
- Produce better representations of designs and quickly respond to client feedback to facilitate the decision making process

##### Solution

- Objet Eden350 Printing System

##### Results

- Reduced model creation time from two months of two employees' time to just a few hours of a single employee's time.
- The firm now produces more detailed models, which help clients better visualize final projects. The end result is that the firm is winning more projects.

Objet 3D Printer have helped the firm to secure several new projects. "Frequently during a project, clients request design changes or wonder how particular changes may impact the overall aesthetic," said Meijs. Clients have been impressed by the firm's ability to create and finish models in a matter of hours.

### A unique university building design, brought to life in a 3D model

A compelling demonstration of the power and versatility of the Objet 3D Printer was a project for INHOLLAND University in the Netherlands, which sought to replace a small, existing building with a much larger space for its applied sciences program. The new space required a flexible interior plan that preserved the identities of three distinct entities that were to occupy the building.

Among the components of the building's design were a suspended auditorium within an innovative composite material glass-wall atrium, an open scissor staircase and a self-study area where students could mingle. Using the Objet 3D Printer, Rietveld created detailed models that brought to life a precise representation of the complex functional requirements of the university and the unique design concepts of the Rietveld team. "The enthusiastic response from the university's leadership played out in the extremely collaborative and streamlined approval process," said Meijs. "Hand-made models could not have displayed all of the important details in this project."

### Producing delicate models

Rijk Rietveld noted that the architectural industry has been reluctant to embrace rapid prototyping technology because of concerns over the delicacy of some models produced at extreme scales. "These concerns may be justified with other products but the Objet 3D Printer has given us the technological tools and flexibility to create even the most delicate model components," Meijs said. For example, Rietveld has devised a method to preserve more intricate model components by slightly modifying some design specifications for the prototypes, protecting the fine details while effectively capturing the look, feel and proportion of the structure."

"The name of the game is innovation," Meijs said. "We are constantly striving to better ourselves and better our industry. Our Objet 3D Printer is helping us do just that."



The company previously built architectural models by hand



The Objet Eden was selected because of its ability to produce highly detailed models



Time to produce models has been reduced from months to hours

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