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3D Printing at a Desktop Near You

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Best wishes,
Susan Smith, Managing Editor

Industry News

3D Printing at a Desktop Near You

By Susan Smith

In the past three years, 3D printing has found its way into the AEC space, offering a more efficient way to produce physical models of buildings and parts of buildings for that marketplace. Originally designed for the MCAD market, 3D printing is now a permanent resident in AEC firms whose clients want a physical representation of their building, either in the design stages or after the building has been completed – as something to display under glass in the lobby or atrium.

What has evolved in 3D printing over the years are models that can now fit on the desktop, are easy to use and are environmentally friendly enough to not impinge on the space around them with unused powders and toxic emissions.

This article will discuss three desktop 3D printers geared for the AEC market today: the ZPrinter 350 from Z Corporation, uPrint by Dimension, and V-Flash Desktop Modeler by 3D Systems Corporation.

ZPrinter 350

The ZPrinter 350 monochrome 3D printer is the latest in an automated series that ZCorp debuted a couple of years ago, touted as a fully functional automated solution for 3D printing. The new printer has all the automation their models have had in the past – including snap-in cartridge loading, automated material loading, intuitive control panel, automated recycling of used build material, and self monitoring.

Joe Titlow, product manager, said that 80 percent of the automation that is on their higher end 450 and 650 systems has been ported to this entry level product. The build speed is approximately the same as that of the high end systems at about .8 vertical inches per hour, “which means that you can create a building several inches tall in just a few hours,” Titlow pointed out. The reason for a new monochrome 3D printer from the company that put color 3D printing on the map is that monochrome is used a great deal in architectural models, and is a less expensive process than color, plus users do not have to assign color as they do with color 3D printers.



[Click to Enlarge]
ZCorp's ZPrinter 350

The build size is 8 inches x 10" x 8 inches deep. "We think it's pretty important to offer a prebuilt size, because if you shrink the build size, the product becomes a lot less usable," said Titlow. "We've looked at the usage patterns of customers and understand the size of the things they like to print. Most of them take advantage of the full size of the platforms that we have at this size range."

As with the ZPrinter 450, the 350 has 300 x 400 dpi resolution which has proven itself for producing the features and details of high resolution printing. The ZPrinter 350 also features office safe build materials, dust control, noise control, and no liquid waste, making it a true office solution that can reside next to the workstation in a home office or large architectural firm.

The materials used non-toxic powders and binders, namely, ZCorp's latest material called ZP 150. "All the unused powder is completely recycled and used in the system," said Titlow. This is a clear contrast

from the types of systems which build supports, which must be cut away and tossed out after the project, according to Titlow. Sometimes support material can comprise 50-70% of the volume of the part, not only is that not cost effective but it is wasteful.

"We have a new water cure finishing process so parts that come off our machine can be finished in any number of ways, which means when the parts come off our machine they're simply blown off to remove all that loose powder that acts as support and then it can just be misted with a water solution which is actually just water and Epsom salts," Titlow explained. "The saline solution is just sprayed onto the model, completely friendly, you don't even need to wear gloves. It's very inexpensive, as it's tap water and Epsom salts that you can pick up at your local grocery store or can get from us."

Titlow said that some of their customers use 3D printing to make numerous iterations of a design in the early design stages so they will have a sense of the physical model beforehand. Also some engineering construction firms have adopted the technology for communication purposes so they can build a model during the various stages of completion to help explain to subcontractors and other stakeholders what is involved in the project.

AEC customers use a mixture of color and monochrome, said Titlow. Early in the design process they are more concerned with form and shape than individual material selection so monochrome is preferred. Color becomes more desirable to add realism to a finished model, as it can create distinction between surfaces.

The product retails for US \$25,900.

<http://www.zcorp.com>