

Tilke GmbH

German Architecture Firm Saves Time and Money, Expands Business With Multicolour 3D Printing

- **Tilke GmbH** – Leading designer of Formula 1 circuits and on-site facilities.
- **Challenge** – Time and cost to build accurate models and faithful representations of motor racing circuits.
- **Solution** – 3D printing with the Spectrum Z™510 colour 3D printer.
- **Results** –
 - Architects can present clients with an entire model of a proposed F1 complex.
 - Designers output 3D models in hours, not days for a lot less money.
 - Ability to print large models, build multiple models simultaneously and incorporate colour details, enables Tilke to pitch projects in new areas.
 - Architects and clients can better evaluate the look, feel, and style of designs.
 - Spectrum Z510 transformed the way Tilke explores ideas and presents to clients.

“As well as improving our model making process, the Spectrum Z510 has allowed us to pitch for projects in new areas. We can also produce concepts much more quickly and to a higher standard of finish. The machine has changed the way we explore ideas and how we present to clients.”

– Bettina Noppeney
Architect
Tilke GmbH



3D model of a Formula 1 racing complex printed on a Spectrum Z510.

Using 3D printing technology from 3D Systems, a German architecture firm famous for building state-of-the-art Formula 1 race circuits around the world can now create precision 3D colour models of new building concepts and proposed track layouts, which include the topography of the development site.

The Lie of the Land

Tilke GmbH was founded by Hermann Tilke; a one-time racing driver with a background in civil engineering, and his Partner Peter Wahl. Twenty-four years later Tilke employs more than 200 people and has overseas offices in Mexico, Singapore, Abu Dhabi and Bahrain. Today, the company’s expertise is in demand by clients also wishing to build unique sports facilities and clubs, including owners of private racetracks, golf courses and equestrian centres.

Fifty years ago motor races were typically staged on disused aerodromes or closed stretches of public roads. These days motor sport is an international business, especially Formula 1 where countries and cities compete to host one of only 18 or so races held annually around the world. Those aspirants who are granted the opportunity often commission

stunning new circuits to ‘wow’ visitors and to impress the global media.

Challenge

Modern F1 motor racing circuits are akin to small cities. Many have hotels, bars and restaurants, shopping areas and hospitality and media amenities, not to mention the usual facilities necessary to accommodate the F1 ‘circus’ and its fans.

To make matters more complicated for the designers, the topography of a typical race circuit can be anything but flat, with hills, crests and drops all intended to make the track more challenging for the drivers and the race more spectacular for the audience. Building accurate models of a proposed new circuit, including faithful representations of the site, has, until now, been extremely time consuming and very expensive.

Solution

Since 1994, architectural and engineering firm Tilke GmbH has been the leading designer of Formula 1 circuits and on-site facilities. At one of its two offices in Aachen, Germany, the company uses a 3D Systems Spectrum Z510 to



3DSYSTEMS™



Clients can actually pick up and review 3D printed models to better understand the look, feel, and style of the designs.

“When a client can see a model in 3D – and is able to physically pick up buildings, see how they are positioned relative to one another and how they fit into the landscape – the effect is much more impressive.”

– Franz Schleibach
Tilke GmbH

build precision 3D colour models of proposed F1 circuits. One of the architects working at the conceptual stage of new projects is Bettina Noppeney.

“Before we had the Spectrum Z510, topography was very difficult to model, as were complex building structures and details,” she says. “Now, using images, we are able to print 3D colour models of the track and its surrounding area. We can also print finely detailed 3D models of the many buildings we design, which make up the circuit complex.”

The Spectrum Z510 3D printer is ideally suited to the office environment. It eliminates nearly all of the hazards, waste, noise, and disposal issues that are associated with typical rapid prototyping systems and is a compact machine, which needs little space to operate.

Results

The man responsible for running the company’s Spectrum Z510 is Franz Schleibach. Working with the firm’s architects and engineers he provides 3D models of everything from structural components and electro-mechanical assemblies to large-scale composite layouts of a proposed site.

“Using the Spectrum Z510 we can present the client with an entire model of a proposed F1 complex. Before we invested in the 3D Systems machine, we had to show the concept in 2D. When a client can see a model in 3D - and is able to physically pick up buildings, see how

they are positioned relative to one another and how they fit into the landscape - the effect is much more impressive.”

“Even on the large, hand-made models we often need decorative details or extra elements to enhance our presentation,” says Mr. Schleibach. “For example, we can find objects online, which we can download as 3D CAD files and print using the printer.” The Spectrum Z510 allows designers to output models in hours, not days, and build multiple models at the same time by stacking and nesting parts. “The result is that it takes a lot less time and money to build a large model, plus we are able to incorporate colour details.”

3D models and product prototypes are about communication, and nothing communicates better than colour, which vividly renders architectural designs and landscapes. The Spectrum Z510 allows firms like Tilke to produce realistic colour models without paint and to better evaluate the look, feel, and style of designs.

“As well as improving our model making process, the Spectrum Z510 has allowed us to pitch for projects in new areas,” says Frau Noppeney. “We can also produce concepts much more quickly and to higher standards of finish. The machine has changed the way we explore ideas and how we present to clients.



Krefelder Strasse 147
52070 Aachen
Germany
www.tilke-ac.de



333 Three D Systems Circle
Rock Hill, SC 29730 USA
Telephone +1 (803) 326-3948
moreinfo@3dsystems.com

Warranty/Disclaimer: The performance characteristics of these products may vary according to product application, operating conditions, material combined with, or with end use. 3D Systems makes no warranties of any type, express or implied, including, but not limited to, the warranties of merchantability or fitness for a particular use.

© 2012 by 3D Systems, Inc. All rights reserved. Specifications subject to change without notice. The 3D Systems logo and stylized text are trademarks and 3D Systems and ZPrinter are registered trademarks of 3D Systems, Inc.

Issue Date January 2012

www.printin3d.com