

Printing the future in Minturn

From models to gadgets, local company LGM specializes in 3-D printing

By Scott N. Miller
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MINTURN — Charles Overy's career started with a laser cutter and a notebook full of ideas. Now, an old laundromat in Minturn is headquarters for a high-tech company that uses 3-D printers to make everything from architectural models to game pieces and gadgets.

Overy is the founder of LGM Architectural Visualization. The company's main business is producing super-accurate architectural models. If you saw the models for the Solaris project in Vail, you've seen the company's work. LGM also has clients all over the country and the world.

While architectural models are as old as the business, for the past 10 years or so, LGM has specialized in the next phase of model-making. Instead of using plastic foam and knives, LGM uses printers. Reading sophisticated software developed in part by Overy, the printers use a combination of specialized powder and hardening resin.

Once a print job starts, the printer lays down layer after layer of powder, with the resin — and color, if needed. After a few hours, a block of powder rises from the printer. After the loose powder is brushed or blown off, a model emerges, showing detail down to individual boards on deck railings, or stonework along foundations.

The technology for 3-D printing has existed for some time, but Overy and his company have taken the idea to a new level. Overy helped create software that's the equivalent of shrink-wrapping a computer drawing with data. The printer then uses that wrapping to send information to the printer. The bottoms are hollow, since the powder and resin are expensive.

Starting with a laser

But this high-tech reality had humble beginnings.

In the early 1990s Overy gave up his job at Lockheed-Martin — where he helped design space weapons — to come teach skiing in Vail.

Not long after moving to the valley, Overy got a good deal on a laser cutter, then started thinking about ways to make some money with the thing.

"I had a notebook full of ideas — none of them really worked out," he said. "Architectural models was the last idea."

But in the mid-1990s Cordillera was starting to develop, and architects wanted models. That led to a pretty good business in the model-making business. But those models take a lot of time. A good-sized model can take one person a solid two weeks to complete. That's why Overy got into the 3-D printing business early on.

With printing, it can take between a few days and just more than a week to complete a model. That saves time, and money.

And, while printed models aren't cheap, they're certainly less expensive than hand-cut items.



ABOVE: LGM Architectural Visualization founder Charles Overy holds a model made by his company on the 3-D printers behind him at his Minturn office.



LEFT: LGM Architectural Visualization specializes in 3-D models made out of a layered plaster composite.

On the Web
www.lgm3d.com

"We bid on a project in Mexico, dollar-for-dollar, against a local company and we won the bid," Overy said.

But models are just one part of LGM's business. That's why Jason Beighauer has been there since 1998.

"Every day's different," Beighauer said. "You never know what you're going to get."

On a recent Wednesday, LGM's pair of printers were working on completely different things. One was a model of a home for a developer in Maryland. The other was working on some gadgets that looked sort of like bent, colored dog tags.

Beighauer wasn't entirely sure what the gadgets were — something that happens pretty frequently.

"We'll get an order and we'll fill it," he said.

More than models

While models and gadgets are pretty good business these days, there's a lot more to 3-D printing.

In the shop, Overy has a bronze model of a home. It was made the same way LGM's other models were, only by a company that uses metal powder. And, Overy said, different powders and hardening materials have a chance to revolutionize more than one industry.

Now, 3-D printing and computer modeling is being used to make medical parts, particularly for people who have suffered traumatic injuries. Using the right software and printer materials, it's possible to make, say, a replacement jawbone that will eventually fuse into a recipient's bone structure.

Other materials are being used to create flight-rated spare parts for aircraft, something that could be handy at a remote airfield or an aircraft carrier.

Overy's particularly excited about the prospects of 3-D printing for the developing world.

"If you have a \$1,000 'maker bot' hooked to a laptop, you can make a part you need anywhere," Overy said. "It could even be solar-powered."

And the types of things that can be made are just about limitless. LGM's shop is filled with models of things from homes to terrain to bearings to a four-legged "Star Wars" troop transport. Materials range from the plaster-like powder of the standard models to metal to something that looks like soap.

Overy has helped the business as a whole thanks to a connection with Google, providing "CADspan" plug-in for the company's "SketchUp" software.

And, while real estate is still in the doldrums, Overy said he's making connections with other people in other businesses. There's a man in Avon who has an aircraft-related business, and LGM has produced models and prototypes for a Singletree resident who helped design a blowout preventer for last year's oil spill in the Gulf of Mexico.

"You get to meet some really interesting people," Overy said.

And it's all happening in Minturn.

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