

You're a what?

Model maker

by Olivia Crosby

Computers, gas pumps, and MP3 players—these are some of the everyday objects that Duane Martinez builds. But for him, form supersedes function. His objects look real, but they're not.

Duane makes models of new products before they go into production. As a model maker, he turns the ideas of designers and engineers into solid, three-dimensional objects that people can see and touch. "It's a little like magic," Duane says. "We are asked to create things that are entirely new."

Almost everything that is manufactured starts as a model. These models are created from foam or other materials and are used to test and improve designs or to give buyers a first look at new products.

Like most model makers, Duane starts his work when a designer brings him a drawing. It could be as simple as a rough sketch on a napkin or as complicated as a digital blueprint. Either way, Duane uses the drawing to make a simple model out of lightweight foam. Later, when the designers are sure that they like the product's shape, he creates a more realistic model.

Duane starts many models by drawing a three-dimensional picture on a computer using computer-aided design (CAD) software. Then, he programs the coordinates from the picture into automated tools in the shop. These tools follow the specified coordinates, cutting material into parts for the model.

Drawing in three dimensions is central to a model maker's work. "You need to be able to think spatially to look at a two-dimensional drawing and add in the third dimension," says Duane. "Most model makers can see something on paper and know what it will look like if it is flipped over or turned in space."

Duane finishes his models by hand, sculpting them

with woodworking tools, sandpaper, and small dental tools that he has modified for this detail work. "You cut away the extra until you get the shape you want," he says. "But you have to be careful, because you only get one pass at the foam. You can't go back and patch it if you make the wrong cut."

Some designers visit Duane in the shop to consult with him as they finalize the project. "Over time, I get to know the designers' styles," says Duane. "I know what kind of lines they'll want." As designers watch him work, they ask for changes along the way. Duane quickly sculpts several models, and designers choose which one they like best.

The foam stage is over when the designer approves a shape. Then, it's time for Duane to make a better model. He uses a variety of materials—including aluminum, titanium, wood, leather, plastic, rubber, and stone—that match the project's purpose. Some models are photographed for catalogs and press releases and, thus, need perfect exteriors. Other models, such as Duane's gas pump prototype, are built for trade shows. These models are often made with magnets so that they can come apart easily for travel.

The final stage in building models is adding filler and paint. A good paint job goes a long way toward making a model look real. Nearly any look can be simulated, from the glossy look of a sports car to the wood grain of fine furniture. Model makers also add details, such as logos and digital displays. The level of realism needed depends on the model's intended use. A model for a consumer focus group, for example, must be more detailed than a model that does not need to be examined as closely.

Some models have to move and work as well as look good. Those models are among the most exciting to create. "I've always wanted to work in a James Bond lab," Duane says, "so making things with moving parts and

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working buttons is especially fun.” He fits pieces together like a 3-D puzzle, perhaps trying many different approaches before he finds a configuration that works.

Building models takes a steady hand and good eyesight, especially when making something small, such as the play and pause buttons on a CD player.

Being so precise takes time. Duane has worked 36 hours straight to meet a deadline. And modeling happens late in the design process, so model makers often have to make up lost time. Duane has slept on the floor of the shop to finish some projects, catching naps while coats of paint dried. “The passion that I have gives me the adrenaline I need to get a job done,” says Duane. “I want it to look good because a well-made model can really sell a design.”

Another motivation for working long hours is seeing the final product, especially when it’s on the market. “It’s fun to go to the computer store and see all the shapes and sizes of the computer notebooks I worked on,” Duane says, “or to see the gas pump I modeled standing at the convenience store near my house.”

Modeling consumer products is only one part of the model-making profession. Many modelers work on movie sets, building models for special effects. Other model makers create museum displays or one-of-a-kind awards and trophies. Architectural firms also hire model makers to create scaled-down versions of apartment buildings, amusement parks, and other real estate. These models—which usually include tiny cars and people—help investors visualize how a project will look.

Data from the U.S. Bureau of Labor Statistics (BLS) show that there were more than 11,000 model makers employed in May 2004. But that number doesn’t include people who ran their own businesses, and it might include workers who do tasks somewhat differently than the ones described here.

Median annual earnings for metal and plastic model makers were \$44,250, according to BLS data for May 2004, meaning that half of these workers earned more than that amount and half earned less. The highest earning 10 percent made more than \$68,790. The automobile industry paid some of the highest salaries. Wood model makers had median earnings of \$26,910, with the highest paid 10 percent earning more than \$57,230.

There are many different ways to become a model maker. Some people learn model making primarily on

the job. Many others earn an associate degree in model making or industrial design technology. Others earn a bachelor’s degree in fine arts, design, or engineering. Still others complete an apprenticeship or study trades, such as drafting, woodworking, and painting.

Model makers stay current by taking classes, watching experienced workers, and attending conferences, such as those held by the Association of Professional Model Makers.

Duane’s interest in model making began in high school, when he spent hours building model cars. He also took classes in ceramics and other crafts mainly as a hobby. But when he finally discovered professional model making, those classes helped him get his first job.

“There are opportunities out there. You don’t have to be a starving artist,” Duane says. “Growing up, I never knew model making could be a career, and I wish I’d found it sooner. I love it!”

