

# Driven to Design

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Craig Hall has been driving off-road vehicles since before he had a driver's license. He cut his teeth on Baja Bugs—original Volkswagen Beetles modified to drive in deserts and on beaches—in high school. Now, at 40, he designs parts for professional off-road vehicles built by premier manufacturers such as [LaFortune Race Cars](#), [Camburg Engineering](#), [TSCO Racing](#) and [Alumi Craft Race Cars](#).

Hall, who is based in San Diego, was working at [R&I Industries](#), a metal fabrication company, when he became involved in off-road racing through a friend and started helping out at races in the pits.

As he became more involved in racing, his role at R&I Industries evolved in that direction too. He started with a role in the shop and then began drawing a few vehicle parts with AutoCAD. He started playing around with [Solid Edge](#) from Siemens PLM Software when the computer he was using had the software installed on it. He continued down a design path, and when he left R&I Industries after 18 years to start his own company, [Hall Designs](#), about 90 percent of his work was designing parts for racing vehicles.



*Craig Hall has built a career designing parts for off-road racing vehicles with Solid Edge. (Images courtesy of Craig Hall, Hall Designs.)*

Today, **Hall focuses exclusively on design work** and uses the newest version of Solid Edge to create his models. He spends most of his time drawing parts for the unlimited class of off-road vehicles. Trucks and buggies in this class cost hundreds of thousands of dollars. Depending on the vehicle and budget, there are often opportunities to create a full CAD design.

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He loves the challenges that come with designing for such a dynamic industry. “The greatest thing is, with race car stuff, someone always wants better, faster, lighter,” he said. “It allows me to be creative and come up with something new.”

Most of Hall’s designs are based around a specific vehicle and will have particular requirements depending on the class, rules and regulations. But they will always have certain design goals in common. “Because it’s off-road racing, you want the most wheel travel and suspension,” he said.

Hall doesn’t work on body design—the vehicles have fiberglass bodies—but he works with those designers on sheet metal components for the cars. Many of the manufacturers he works with build their cars in house, so he has to design around the limited tools and equipment they have available.

Some customers like to manufacture components themselves, and some work with certain vendors. About 30 percent of the components he works with are outside vendor parts, such as tires, wheels and shock absorbers. Solid Edge allows Hall to easily import parts designed in other CAD programs. He also appreciates the power of Solid Edge's synchronous technology, which allows him to directly edit a vendor's CAD file. "It's a different approach to design, but for the ability to edit non-native Solid Edge parts, there's nothing like it," he said. "It's a huge time-saver."

Hall said his history working in the industry in a hands-on way has been a benefit to his design career. "I know what can and can't be done."

John Vance, general manager at TSCO Racing, agreed. He's worked with Hall for about 10 years on a variety of projects, from rally cars to trophy trucks. "Craig has a little niche in the industry, with hands-on experience, so that brings a lot of knowledge to the design part of what we do," said Vance. "He is out there in the trenches, building cars himself, so he looks at it from a fabricator's perspective, an engineer's perspective."



*Camburg Engineering's Kinetik Race Trucks are designed in CAD. (Image courtesy of Craig Hall, Hall Designs.)*

Jason Campbell of Camburg Engineering's Kinetik Race Trucks said Hall's experience working with machinery at R&I Industries also gives him important insight when designing. "We worked with other people before Craig, and you couldn't even build what they drew," Campbell said.

In addition, Hall has experience as a driver. "Initially, when we built our car, he was our co-driver for a number of years," said Campbell. "So we could analyze parts as they fatigued, or if we saw issues, we'd decide together how to address them. And we still have that relationship. He understands what's going on."



*Craig Hall doesn't just design parts for off-road racing vehicles—he drives them, too. (Image courtesy of Craig Hall, Hall Designs.)*

Hall has been a driver for several different customers and is proud to have been on the LaFortune racing team in 2012, when they **won the Baja 1000**. Of the 298 cars that started the race, only 174 finished. Hall said it was thrilling to not only drive in a car he designed, but also have it take first place in its class. “It was one of my greatest accomplishments.”

The Southern California off-road racing scene is a close-knit industry, with few freelance designers. “There are probably only six guys that do what I do,” said Hall. “There are only about 20 racecar builders. Everyone knows each other.”

The closeness of this **community** can lead to lasting professional ties. Campbell said his friendship with Hall makes him one of his worst customers—Campbell not only gives him a hard time, he’s also very demanding. But because of their long working relationship, they’ve also built trust. “I trust that he knows the kind of parts we are building and what they’re going to be used for,” Campbell said. He also noticed a difference when Hall upgraded to the newest version of Solid Edge and said Hall can make changes even faster when designing on the fly. “He’s probably one of the quickest, best people I’ve ever worked with. He just gets it.”

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## About the Author



*Lisa Lance is a writer and communications professional living in Baltimore, Maryland. She has been working in the AEC industry for the past six years and holds a Master of Arts in Writing from Johns Hopkins University.*