



## CCG gets Formcrete on track with vacuum infusion

Established in 1985, Formcrete Fiberglass Products does a brisk business in the United States and beyond. To meet an even greater range of customer needs, owner Scott Sutcliffe asked CCG for assistance in adding vacuum infusion to the company's molding techniques.

Formcrete Fiberglass Products is a trusted name in fiberglass composites. The company has around 450 customers throughout North America, many of whom have been active for over twenty years. Among Formcrete's products are hole-forming devices, pipe-shaping rings and locomotive door assemblies, produced through resin transfer and chop spray / open contact molding.

Now Formcrete has added yet another technique to its portfolio. In March 2012, a CCG team under the leadership of Belle Blanding spent a week at the Seminole, Oklahoma factory. Its task was to train a select group of Formcrete employees in the process of vacuum infusion. Railcar sidewalls, roofs and hatches, all of which utilize *PET* foam core from Diab, were the products in focus for the week. Prior to the training, Formcrete had sent the part designs to CCG, who had analyzed them using flow simulation. As a part of the work, tests of laminate permeability had been performed using samples of Formcrete's specified laminate and resin. When the CCG team arrived at the Formcrete factory, it found not only an eager crew with intelligent questions, but also a clean and conducive workshop. All of the molds had been well fabricated, and all of the necessary tools were in excellent condition.

Over the course of the training, the CCG team led the Formcrete employees through a combination of theoretical presentations and hands-on infusion work. The first days were

spent exploring basic techniques, from the process of laying up a mold to the effects of working with and without flow medium. After starting with a test mold, the group moved on to manufacture a full-scale railcar sidewall, learning how core pieces can be staggered to avoid “racetrack” seams that run to the edge of the part.

Toward the end of the week, the group was working with manifold design and more complex forms, including forms with areas to be cut out. In addition, the CCG team provided guidance in troubleshooting and the repair of sandwich composites. As a troubleshooting exercise, the resin for a test part was intentionally allowed to prematurely gel, giving the Formcrete crew a chance to repair a partially infused component and complete its infusion.

By the time the CCG team departed on Friday, the Formcrete employees were demonstrating a strong grasp of vacuum infusion – in practice as well as in theory. In the months since they have continued to deepen their understanding, and they have also spread their knowledge to their coworkers. Moreover, they have carried out the infusion process without a single part failure to date.

According to Formcrete owner Scott Sutcliffe, this is smoothest and most economical adaptation of a new technique in the company’s 30-year history. He attributes the success to the preparatory efforts of the CCG team, which took into account the entire manufacturing scope and not just the infusion process itself. For a fraction of the cost of learning the technique independently, CCG has helped Formcrete greatly enhance its customer offering. [www.formcrete.com](http://www.formcrete.com)