

## Applications

### End-to-end high-tech: Digital Dimensional Stone on the Cutting-Edge from Start to Finish

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Most people might consider a conversation about cement board to be pretty dull. That is, unless that conversation is with Douglas Creed, President of Digital Dimensional Stone ([www.digistone.com](http://www.digistone.com)). The three-year old Fort Mill, SC.-based Company has made cement board fascinating through innovative technology, superior artwork and creative uses of high-tech equipment from other industries.



Digital Dimensional Stone's (DDS) core product is a uniquely manufactured, highly specialized cement board panel that features an extensively fabricated finish to make it appear as if it were a highly desirable decorative dimensional stone, such as marble, granite or limestone.

The completely unique product is created through an advanced fabricating process. In its most basic form, the process consists of two key steps: image creation and image transfer.

First, a high-resolution digital image of natural marble (or another decorative stone) is created on a transfer sheet with special dyes. The digital images are usually created in a common graphics program like Adobe® Photoshop. Then, through a dye-sublimation printing process using heat and pressure, the image is embedded to a depth of 7 mils into a specially coated cement board made by Certainteed™. The dyes in the digital image cross-link with the dyes used to coat the cement board to create the realistic stone appearance. The result is a beautiful, enduring and very realistic surface.

"The images we create will really fool you," said Creed. "It's a real treat to watch visitors in a building that features our product run their hand over the reception desk, expecting to feel real marble but getting a high-gloss, high-polish piece of cement instead."

### **It starts with art**

"Art is a big deal for us," says Creed. "We know that in order to get a realistic-looking finished product, our digital images have to be top notch, so we take great pride in creating beautiful art."

Creed continued, "We create our digital art in two ways. First, we can outsource the image to an offset printer that creates a plate for us. Though it can be expensive, this method is useful when we're doing a high-volume job, or creating a design that we might use again."

"The second option is printing the image in-house on our custom-built, 54-inch wide ink-jet printer from the Roland Company," said Creed. "It is one of only three printers in the United States of this size and gives us a high-quality, in-house alternative for creating our stone images."

To complement its printing capabilities; DDS employs a 4-foot x 6-foot press manufactured by the George Knight Company. "We selected this press because it can accommodate the largest printed image that an offset printer can create," noted Creed. "It is a significant financial investment, and quite unusual for our application but it has worked extremely well and we couldn't be happier with it."

"The bottom line was that in order to really compete in both the commercial and residential arenas, we need to be able to make pieces 20-inches wide by 72-inches long," said Creed. "The combination of our printing and press equipment achieves this, and makes us very competitive."

DDS has completed several high-profile projects with this unique equipment combination. "We've done two projects for IBM and recently, for Dana Corporation, we created the registration and telephone desks, as well as corporate signage."

These are only a few of the applications where DDS's work can be found. Lobbies, wainscots, interior wall panels, fireplace surrounds, elevator cabs, reception areas, bathtub surrounds, murals, general art, corporate identity, front and back walls, tabletops/furniture and feature walls also boast the company's handiwork.

### **Behind the scenes**

Customers can easily admire the stunning results of DDS's image creation and image transfer processes, but rarely are exposed to a critical part of the process that nearly put DDS out of business; namely cutting the cement board.

Cement board is very difficult to cut with a traditional saw. It creates a tremendous amount of dust and dirt and chews up both the saw teeth and the cement board. In fact, so much of the board is chipped and wasted that, at times, it makes the entire process unprofitable.

"After we completed a dozen jobs, we realized that we weren't making any money with all of the wasted materials resulting from cutting the boards with a saw," said Creed. "We also weren't getting the quality cuts that were required on some of our more detailed projects. The bottom line was that we had to find a better way to cut the cement boards or the business was in trouble."

Like most things, DDS wanted a sophisticated, reliable high-tech solution. KMT Waterjet Waterjet Systems, in partnership with its certified Florence, SC-based OEM ESAB, had just what they were looking for.

"Cutting the cement boards with waterjet results in a 98% reduction in the amount of associated dust and dirt," noted Creed. "The amount of material saved by switching to waterjet is immense, as there is almost no wasted material. In addition, cutting the cement board with waterjet is more than five times faster than conventional methods - like saw cutting."

"When we were cutting a piece of cement board with a saw, it felt like a job would never get finished," joked Creed. "Now, cutting with KMT Waterjet's waterjet equipment, it seems like we're almost finished the job at the same time we're starting it!"

IR supplies the components for the entire cutting head assembly of the DDS waterjet system. A KMT Waterjet Streamline S-30 high-pressure intensifier (with a 30 hp waterjet pump) powers the system.

"Even with all of the technologies that go into fabricating our cement boards, we simply couldn't make our product as well or as profitably without the IR powered waterjet system. It's simply amazing," noted Creed.