

## Waterjets Bring Ceramic Marine Designs to Life

### Use of Abrasive Waterjets Give Artist Flexibility in Creating Tile Ceramic Designs for Aquarium Exhibit at Tampa International Airport

When officials of the Florida Aquarium sought out ways to promote their world-class facility, the Tampa International Airport seemed the logical location in which to enact an exhibit. To carry out the task, officials contacted the Hillsborough County Aviation Authority.

The project goal was to showcase the Florida Aquarium to thousands passing through the airport's gates every day, giving them a sneak preview of the world-class aquarium in downtown Tampa. The Hillsborough County Aviation Authority chose the design firm of Kelly Taafe Design, Inc., of Tampa, Florida for the project, with [Request Information](#) and [Printable Format](#) foot long tank featuring marine life from the aquarium, and a ceramic mural that would house the tank's mechanical equipment.

After researching the project and what it might entail, KTD concluded that the exhibit would also be a good opportunity to showcase a public art program.

"The goals for the project ended up being two-fold," says Tony Jen, design director at KTD. "We started with the aquarium project but also ended up putting together what would be a public art exhibit, too."

In deciding which artists would be selected for the project, KTD put out a call for artists to submit their design mock-ups, from which a committee would select two artists to work on two areas of the airport.

"We were looking for a unique ceramic design in which to house the tank's mechanical equipment," says Jen. "So the artists submitting designs needed to be able to make their art unique and stand out from the norm."

#### The Challenge to Create a Unique Design

When artist E. Joe McCarthy decided to answer the call to submit his design proposal, he knew he wanted to create something unique. He chose to submit a prototype of a ceramic tile marine design. For help creating his unique tile designs, McCarthy contacted Water Wizard, a waterjet subdivision of Upper Valley Carpet Center, in New Hampshire. Upper Valley had recently purchased the Flying Bridge abrasive waterjet cutting system with 4' x 8' work envelope, 7X pump, and PASER® 3 from Flow International Corporation, Kent, Washington. Since that time, the company has used the waterjet machine to cut stone and tile for numerous architectural-related projects and other designs. Recognizing the artistic design potential of the abrasive waterjet technology, the company began working with several artists who contacted Water Wizard about using the waterjet to produce work out of ceramic tile and other materials.

Abrasive waterjet cutting uses water pressurized to 60,000 pounds per square inch (psi), with a garnet abrasive entrained in the jet stream. The water is forced through a precision orifice 0.014 inch in diameter. The water and abrasive mixture quickly and precisely cut materials such as stone and tile with an accuracy of up to +/- 0.003 of an inch.

McCarthy, who had first met Scott Christiano of Water Wizard through a referral, came up with the idea of cutting fish out of a single color of tile and inlaying that design into another color. And, he knew that waterjet cutting would be the best option to bring his design ideas to life.

"I'd seen waterjets at tile shows in the past, but never connected how they could meet my own needs until a specific project came up," says McCarthy. "I wanted to incorporate texture into my designs and I knew that the flexibility of the waterjets would give me that ability."

McCarthy presented several samples to experiment with, and was very impressed with how accurate the waterjets cut his designs, and how affordable the waterjet process was.

"Once I realized how many different designs and shapes I could cut - and how affordable it was to use the waterjet to cut them - I thought this could be fun," says McCarthy.

KTD and the aviation authority's art committee were impressed with McCarthy's proposal and awarded him the contract to complete the 3' x 60' ceramic mural that would enclose the tank's mechanical equipment in the airport's red side baggage claim area.

The project challenge would lie in cutting and fitting together more than 1,200 tiles out of ceramic, terracotta, and porcelain tiles, and dividing the designs into 24 panels. There were three design elements that needed to be cut: an ocean, coral reefs, and marine life featuring fish, sea horses, and turtles. But, Water Wizard knew from past experience that the versatility of the waterjet would enable them to cut these designs.

"The waterjet was the only way to cut this project in a timely manner, considering all the flowing shapes of the design," says Christiano.

McCarthy was very excited by the flexibility the waterjets gave him in creating his designs. "Using other cutting methods, such as a wet saw, I would not have been able to complete this job," says McCarthy. "The versatility of the waterjets allowed me to create real artsy-type designs that helped land me the project in the first place. This was a very fun project that I probably would not have been able to complete had it not been for the waterjets."

Overall, the project took 10 months to complete, and took just two weeks to cut. The aquarium was officially completed and opened for public viewing in June 1999 to rave reviews.

"This was a very successful project," says Jen. "Not only does the Florida Aquarium benefit from the exposure of their facilities in the airport, but the public also has some extraordinary art to view, as well as colorful sea life to enjoy. This is a perfect addition to the overall design for Tampa International Airport."

The project also proved to McCarthy that the only limit to what he could create for future projects is his imagination.

"Many artists seem to have a specific look to their work," says McCarthy. "But the waterjets give me the ability to be creative and achieve a variety of looks. I love the flexibility of the waterjets and will be bidding future jobs with the waterjets in mind."