

Teaching Techniques

Pool and Spa Professionals Gain Shotcrete Expertise

by Al Rizzo

Seeing is believing. It's also a good way to teach. That's the idea behind a series of scheduled demonstrations slated for the 2001 International Pool & Spa Expo, which will be held in Phoenix, November 27-30. More than just a passive exhibition, this area will offer hands-on instruction covering a variety of pool and spa building and service topics — from putting tiles on a wall to troubleshooting problems.

This year, the demonstration area will feature shotcrete techniques and training. Hands-on instruction, led by experts in the field, will help shotcreters hone their skills and become better at what they do. Shooting concrete isn't as straightforward as it seems — in fact, it's a craft. The training demonstration will cover the different types of shotcreting, as well as various types of equipment and ways of using it. But, most importantly, a field test will allow participants to take a turn at shooting shotcrete themselves.

Carvin DiGiovanni, director of technical and education programs for the National Spa & Pool Institute (NSPI), is quick to point out that the American Shotcrete Association (ASA) has the technical expertise when it comes to the science of shotcrete technology (i.e., properties and performance characteristics). While NSPI doesn't have this expertise, the organization does have the ability to showcase it and inform its members. For years, the NSPI Builders Council has organized demonstrations of hands-on training at the International Expo. Working in conjunction with the ASA and the American Concrete Institute, they are able to enhance the educational program and take it to a higher level. The idea here is to foster a better understanding of structure, the proper use of steel sizing and location, more knowledge about additives and their uses, as well as the increased certification of shotcrete nozzlemen.

Shotcrete is an Integral Part of the Pool Industry

According to the *NSPI Builders Reference Manual*, the most common types of inground pools are shotcrete (dry or wet) and vinyl-lined.

Pneumatically applied concrete, known as shotcrete, offers several advantages. First of all, it allows for complete freedom



Photo 1: Setting main drain in a fictitious pool wall. Rizzo personnel showing Denis Beaupré (in blue hardhat, kneeling) how to set main drain.

of pool size and shape, since it follows any excavated shape. And, the material lends itself to integrated design because steps and spas can be “shot” at the same time the pool is being “shot.” It's quicker, less labor-intensive, and therefore less expensive than building with forms. And, shotcreting also works well on several popular design elements such as vanishing edges and family-friendly beach entries.

The thickness of the shell and the number and size of the rebars can be adjusted to meet any structural requirement. These requirements, of course, vary throughout the country due to type of soil, freeze-thaw, and other weather conditions. But no matter what the conditions, shotcrete offers a very strong way of building a swimming pool.

A shotcrete structure is versatile, sturdy, and readily adaptable from the very smallest to the largest pools. Only imagination and the depth of one's pocket limit the finishes on a shotcrete pool. Options include tile, plaster, fiberglass, and natural stone. Popular pebble finishes — comprised of smooth colored stones gathered from beaches and rivers all over the world — also work well on shotcrete foundations.

Shotcrete Corner

Teaching a Craft

The quality of the shotcrete is highly dependent on the application. The nozzleman's technique for controlling water (in the dry-mix process; air in the wet-mix process), velocity, and direction is most important. Therefore, the quality of the finished product is determined by the experience and expertise of the responsible nozzlemen.

It has always been the goal of the NSPI Builders Council to educate its members.

A wide variety of hands-on training and business courses are available through national and regional NSPI chapters. That's because the more you know, the better you can become at what you do. A builder who understands the design principles behind the structural shell of a pool can make more informed decisions regarding conditions and changes in the field. In addition, soil conditions, type of pool, availability of materials, type of materials, and weather conditions will determine the structural requirements for a specific area.

"With this ASA technology, concrete pool builders can maintain their creative competitiveness with other rival pool types (e.g., vinyl, fiberglass)," DiGiovanni says. And he adds, "The ASA/NSPI relationship will forge a new curriculum to make way for a first-ever certification program to train and certify pool shotcrete nozzlemen."

Practicing for the Demo

While it might be a bit unusual to place concrete and finish tile in a setting such as a convention center, it can be done.

To get the ball rolling (and to test the demonstration idea), Rizzo Construction Pool Co. held an in-house, hands-on



Photo 2: Denis Beaupré instructing Rizzo personnel.

training program similar to what will be offered at the International Expo.

This trial run was educational on many levels — for the people undergoing the training, of course, but also for industry experts and educators interested in promoting shotcrete training specifically for pool and spa professionals.

The Rizzo personnel who attended the classes had been involved in shotcreting for a minimum of three years — and one of the "old-timers" had 25 years of experience.

It was determined during this trial training program that participants ideally would need four to six hours of classroom instruction as well as one to two hours of hands-on experience actually shooting shotcrete.

During the trial run, the shooters were allowed time to shoot a couple yards of shotcrete. While doing so, an instructor critiqued their performance and offered guidance to improve their technique. The shooters worked on forms used to resemble a pool wall, cove, and floor.

Each person, from youngest to oldest, learned how to do their job better. What's more, each of the employees took pride in learning how to improve their craftsmanship.

The program cost around \$9,000 for the instructors, classroom rental, books, labor, and materials. There were some 15 Rizzo Pool employees involved in the process, bringing the cost to \$600 per person. The cost per person could come down drastically, of course, if equipment and concrete were donated and 25 to 30 people were to receive training. That's a number that certainly could be handled in a class of this type.



Photo 3: Professor Denis Beaupré instructs three Rizzo employees shooting simulated pool floor and wall, the proper procedure for shooting floor.

Shotcrete Corner

Doing a Better Job

Meanwhile, people who attend the International Expo demonstration, if they're in the business, will have the chance to learn how to do their jobs better. The tips and techniques they get will elevate these contractors and pool professionals to a better level of work.

“By introducing our members to the science of shotcrete, they will gain a better understanding of how to work with it in ways they never thought of before, thus creating the potential for our concrete-pool builders to design and install more attractive concrete pools,” DiGiovanni says. Better pools built the best way possible — that’s really what it all comes down to.



Al Rizzo, president of Rizzo Construction Pool Co., is a member of the American Shotcrete Association and the American Concrete Institute. A member of the National Spa & Pool Institute (NSPI) since

1958, Mr. Rizzo is chairman of the educational committee for NSPI's Builders Council.

Mr. Rizzo built his first swimming pool in 1955, and he has been in the business of building pools, spas, and water features since 1958. In 1969, he started the Connecticut chapter of NSPI and served as its first president. He still serves on NSPI's board of directors and has served in many capacities for the regional and national boards. He was on the national board of directors for 10 years.

Mr. Rizzo has built almost every type of swimming pool, including package pools, monolithic pools, as well as shotcrete dry and wet.

In the late 1970s, he was responsible for developing the first “service-training manual” for pool and spa professionals, and that manual now is part of a national program. He is chairman and head author of the first Pool Builders Reference Manual, of which 1,000 copies had been published as of October 1999. The second edition will be published in the fall of 2002.

Mr. Rizzo has devoted his life to building the best quality pools available. His pools have won numerous national and regional design awards. Most of his work today is on custom pools for select clientele, but a portion of his business is devoted to commercial projects. At age 67, he says he is still having fun, and has no intention of retiring.