



# The Growing Market for Shotcrete in Skatepark Construction

by Howard L. Robbins and Laurel Boroski

**H**ow many times have we seen kids (including some our own) riding skateboards and BMX bikes around the neighborhood? Jumping off walls and homemade ramps is great fun. It is easy to understand the joys and thrills of this sometimes painful pastime. In fact, many municipalities are recognizing the need for facilities dedicated to skaters because skaters are using many public plazas and other common areas. Today, the demand for dedicated skating areas is gaining momentum as interest in this activity grows and comes into conflict with public safety concerns.

Shotcrete is proving to be the construction material of choice for these new facilities. The benefits of shotcrete are numerous. Shotcrete can be applied to vertical surfaces and unusual shapes. It can be cut and finished to conform to any type of design and can be finished to very exacting specifications and tolerances. Surfaces in these facilities must be built for maximum performance and safety.

Over the past 3 years, over 1000 skateparks and BMX parks have been constructed throughout the U.S. Almost twice as many are in various stages of planning and development with the vast majority of the parks being constructed with a combination of shotcrete and concrete. Because of the unique nature of each project,

there is no formula for estimating a standard cost. In fact, costs can vary because of market volatility in the price of steel or fuel. Site specific conditions can drastically affect the construction costs of each park. Many cities project a budget of approximately \$300,000 for a skatepark but quite often they find that the first design is more costly than the budgeted amount.

The skill and experience of the shotcrete contractor are perhaps the most critical elements to the ultimate success or failure of a skatepark project. Some contractors, unfamiliar with the subtleties of skateboarding, have constructed projects that are all but unusable due to finish imperfections that might seem minimal in other projects but are detrimental in skatepark facilities. Seemingly minor surface finish flaws can have a material impact on usability. A skateboarder's contact with the concrete is through very hard wheels made of plastic or urethane. As one navigates through the course, often at speeds in excess of 20 mph, finish flaws can mean the difference between remaining on the board or falling. Understanding the desires and requirements of the facility user is what distinguishes the competent contractor from his competitor.

The design process for skatepark facilities is comprised of three stages:

- Stage 1 begins with the design or design-build team meeting with the owner's representatives. Design, budget, and schedule considerations are discussed, as well as site-specific details such as how the park will interact with other site amenities;
- Stage 2 commences with preliminary design approvals. Construction drawings and specifications are started. Locations and dimensions of all construction elements are plotted including the reinforcing steel details for the shotcrete. These details are then presented to the owner's representatives for review and approval; and
- In Stage 3, the project goes out for bid. Proposals are reviewed to ensure they are responsive. Following contract award, ongoing inspection is provided to ensure that the contractor is building the park to the design and finish specifications.

In October 2003, Commercial Shotcrete, Inc. (CSI), began constructing the 38,000 ft<sup>2</sup> Rio Vista Skatepark in Peoria, Arizona. The Rio Vista facility consists of two bowls, one that is a replica of an 8 ft-deep pool complete with "old school" pool coping, steps, and rounded hips. The other bowl has a bit more modern entrance to accommodate more novice users and consists of modern coping and has a greater depth. Other elements include a pyramid, concrete picnic table, and handrails for skateboarders and inline skaters. This project was completed in March 2004 and, due to its long awaited arrival, the municipality not only had a public grand opening but also held a private launch of the skatepark for city officials and all the park construction participants. This idea of grand opening events for newly constructed skateparks is becoming more common as municipalities respond to the great demand from their residents and feel a sense of community pride in the final product.

The construction of a skatepark is comparable to filming a movie; although you see an end result that is consistent from beginning to end, each segment wasn't necessarily shot in successive order. The construction of the Rio Vista Skatepark began with the forming of all structures such as walls within the park that can be skated on and then moved to flatwork areas. Slopes were soon to follow with transitions and radius curves being left for last along with the two bowls. This particular sequence was the result of timing of the work performed by the general contractor and the time-consuming placement of coping found throughout the park. This coping is critical to the usability of the park and must be carefully placed before shotcrete is applied. The bowls were constructed last for excavation detail purposes. It is important to note that sequencing is critical and varies from park to park.

The passion for skateboarding was already alive and well in the design and construction crews. CSI,



*Trowel finishing a radius section at the skatepark*



*Shooting a vertical wall section*



*Finishing multiple wall sections after shotcrete application*



*Views of the skatepark on grand opening day*

however, had to educate the general contractor (GC), Valley Rain Construction, Inc., in the nuances of skatepark construction. Thankfully, the GC took advantage of the experience of CSI personnel and was very responsive to these special details, working hard to accommodate special needs while keeping the opening of the park on schedule. Good communication is vital and the constant flow of information helped to make the construction of this skatepark a success.

Skateparks are very demanding projects; not only does the finish need to be precise, it is important to have slopes of varying degrees of difficulty to make the experience entertaining for participants of all skill levels. The designers of the Rio Vista Park had this in mind as there are many street plaza elements, along with two bowls, to allow even a novice to use and enjoy this park. Site Design Group (SDG) of Tempe, Arizona, Rio Vista Park Project Designer, is especially proud of the fact that it designs from the perspective of the skater, as all SDG designers are seasoned skaters as well.

Commercial Shotcrete, Inc. also recognizes that having skaters involved in the building process from concept to end result is imperative to the ultimate usability of the skatepark. It was crucial for the craftsmen to have skating experience to optimize every radius, curve, and detail. This emphasis on the constructor/skater component is seen in the end result. The CSI crew consists of individuals who have been skating and shotcreting since the 1970s, including several who were professional or semiprofessional skaters and BMXers. The CSI skatepark crew has been involved in close to 30 parks over the tenure of their careers, including the X-Games course and the Louisville Extreme, the largest skatepark in the world.

As skateparks become more common elements of municipal recreation facilities, it is important to note that the shotcrete contractor should be viewed as not only the constructor but also as a consultant to the owner, designer, and GC. In our experience, we have found many design firms do not have sufficient experience with this specialty, resulting in design errors and/or unrealistic budget estimates. Often we find ourselves being the mediator between the owner's dreams and the realities of the construction process, all the while keeping budget constraints in mind. The best advice we can give an owner is to make sure the designer is qualified, experienced, and can provide a reasonable budget estimate prior to the actual bidding process.

When the Rio Vista Park project was completed, the City of Peoria received a new skatepark for its community that kids and adults alike can enjoy while testing their skills. This facility is a

testament to the skills of the crews that performed the work. The high quality of the construction has produced a park that will be enjoyed for many years. This park is yet another showcase for

shotcrete. The task of creating a variety of unusual shapes with demanding finish requirements makes shotcrete the material of choice for this type of project.



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**Laurel Boroski** grew up in the shotcrete industry, starting her career by helping in day-to-day operations of the family shotcrete business. She worked in the shotcreting business while attending Arizona State University where she received dual degrees—a bachelor's in both marketing and management and an International Business Certificate. While participating in a University Exchange Program, she also received a Diploma of Management Studies from the University of Bradford in West Yorkshire, England. Using her experience and education, Boroski has focused her career in the arena of internal consulting and operations management. She is Operations Manager for The Fisher Group, which consists of Commercial Shotcrete, Inc.; Fisher Shotcrete, Inc.; and a land development firm, HighPlains Land LLC. Boroski also participates in many ASA committees, including ACI Committee 506, Shotcreting.