

# Outstanding Shotcrete Project Award Winner

## 2005 Outstanding Architectural Project:

# Terra Lago Bridge

by Laurel Mellett

**E**arly in 2004, Gary Williams of SunCal Companies contacted Commercial Shotcrete, Inc. (CSI), to assist him with the design of a bridge for a project his organization was developing in Indio, CA, called Terra Lago. CSI had previously built arch structures for Williams on other projects, most recently on a project, also in Indio, called Shadow Hills, when Williams was the regional manager for the Del Webb division of Pulte Homes. Based on the long-standing, positive working relationship and the high level of performance, quality, and workmanship delivered by CSI, Williams had the confidence to bring some ideas he had to the table. Keith Bradford of the CSI Arch Division and Williams began the planning and design process, which ultimately took

4 months. The product of their effort is a beautiful landmark bridge that is the focal point of the Terra Lago master planned community.

Terra Lago is a 365-acre development with approximately 1500 homes and time-shares to be built by a select group of five homebuilders. The 20-acre private lake that CSI's bridge spans is a central lifestyle component of the master plan for this community, with boat docks, a recreation center, including resort-style swimming pools, and areas for leisure. The neighboring Landmark Golf Club, the former home of the Skins Game Golf Tournament, is also intertwined into the lifestyle of the community. When Williams contacted CSI, he wanted the bridge to reflect the theme of Terra Lago and usher all residents and visitors into the community.

Because the bridge would have boat traffic under it, a conventional stone veneer face for the parapet and wingwalls was not an option, although the look and feel of a stone veneer was desired. The hazard from stones coming loose and falling onto occupied boats below was an unacceptable risk. It was decided that an alternative using a standard formliner, common in conventional cast-in-place applications, was the way to proceed. Although not commonly used in shotcrete applications, Bradford assured Williams of the satisfactory results based on his prior experience using formliners. After reviewing the many different patterns available, a dry-stacked stone pattern PVC liner, as provided by Fitzgerald Formliners, was selected. SunCal subsequently awarded CSI a contract for the structural design and construction of the bridge in July 2004.

Placing shotcrete against a formliner and achieving an architectural quality finish would present a challenge even for the most qualified of shotcrete personnel. Conventional wisdom most likely would be that the use of shotcrete in this case wouldn't provide satisfactory architectural results, let alone be a viable structural alternative to conventional cast-in-place concrete. But as the finished product shows, it can be accomplished. Due to CSI's meticulous planning, stringent



*Stemwall and arch forms*



*Arch ready for shotcrete*

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in-house quality control, and careful execution of the shotcrete construction process, the double exterior wall surfaces required less than 2 days of labor for cosmetic patching. The interior arch surfaces required no patching prior to painting. The exterior wall formed surfaces were hand painted to match the colors found throughout the project.

Another unique feature of this bridge is that, from the wingwall footings and floors to the beam along the top of the walls, it was entirely constructed with shotcrete. This project is so unique that it received an Outstanding Shotcrete Project Award in the Architectural category by ASA and will be submitted for a 2006 Portland Cement Association (PCA) Concrete Bridge Award. CSI has previously received a PCA award for another arch bridge at the Corte Bella development in Sun City, AZ.

Once the bridge was painted in December 2004, it was ready for backfill. Bradford and Williams were able to achieve the look they desired by using the flexibility of shotcrete in a unique application. For the grand opening in March 2006, a gondolier was hired to give gondola rides around the lake and under the bridge. Many were amazed to discover that the walls of the bridge weren't actually real hand-placed stone. Most people in the industry would not expect these results from using the shotcrete process. At first sight, hardly anyone believes that it is, in fact, a shotcrete project. This project proves that, with proper planning and execution, a striking and impressive structure can be built successfully with shotcrete.



*Waterproofing*



*Terra Lago Bridge*

## Outstanding Architectural Project

*Project Name*  
Terra Lago

*Project Location*  
Indio, CA

*Shotcrete Contractor*  
Commerical Shotcrete, Inc.

*General Contractor*  
SunCal Companies

*Project Owner*  
Indio Land Ventures

*Architect/Engineer*  
Wright Engineers

*Material Supplier*  
Associated Ready Mix



**Laurel Mellett** grew up in the shotcrete industry, starting her career by helping in the day-to-day operations of the family shotcrete business. She worked in the shotcrete business

while attending Arizona State University, where she received 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, Mellett has focused her career in the arena of internal consulting and operations management. She is Operations Director for The Fisher Group, which consists of Commercial Shotcrete, Inc.; Fisher Shotcrete, Inc.; and a land development firm, High Plains Land LLC. Mellett also participates in many ASA committees and ACI Committee 506, Shotcreting.