

Complex Pools—My Perspective

by Skip Phillips

As a watershape designer and contractor, we have had the benefit of international accolades for years from both the pool and spa trade and consumer editorial press. However, I think what is missing in most of that recognition is the realization that the complex projects we work on require a team approach. The owner, general contractor, structural engineer, architect, and our firm all play a role in the conversations regarding

the expense and the details to create a complex watershape. When it comes to execution, the trades that actually build the individual components have to be at the top of their game. I've developed a team of professionals that work on our San Diego County projects that are held to a very high standard and that is reflected in the profile of this pool and spa in Del Mar, CA.

The challenge was to build a pool and spa over the top of a carport. Independent of the waterproofing, mechanical, and deflection of the structure issues, we also had a "line of sight" problem. This meant that when the owner looked at his pool form his deck, the rooflines would be in view. While we had always planned on a "water in transit" or vanishing edge detail, we decided to elevate the pool and overflow the entire perimeter approximately 3 in. (75 mm) higher than the deck. This water level is 7 in. (178 mm) higher than a more traditional coping and water line relationship. In addition to curing the sight issue, we were able to create additional desired depth in the pool. I would add that all the other control elevations were fixed, that is, the home threshold, carport floor and ceiling height, and the structural roof slab.

In this application, the general contractor created a waterproof "box" and condensation drain with the top of the box low enough for us to cantilever our gutter and trunk lines over the top. All of our plumbing lines extended over the top of the box on the house side, and then extended to the potable water surge tank and systems below. Interestingly, one of the provisions for the



The structural box that will support the pool and spa is installed. The top of the box is approximately 2 in. (50 mm) lower than the top of the pool finish elevation



The box is then waterproofed and a condensation drain is installed in the deep end



The steel and plumbing for the pool, spa, and perimeter are completed after the upper pool forms are installed

The completed shotcrete shell is then ready for waterproofing and veneers



This view reflects the support structure and integrated upper pool wall at completion. The deep end of the pool is located behind the double doors and the shallow end rests on the carport

equipment room from the building departments was to ensure that room could not be used for a habitable space. To that end, the pool deep end is on that side and the equipment room floor is raised so there is only 5 ft (1.5 m) clearance in the equipment room. After the additional forming were complete, the reinforcing steel and plumbing were installed.

The concrete installation was by Petra Shotcrete, who does all of our shotcrete applications. As usual, there was the good-natured banter I have grown accustomed to with my various subcontractors. One of the guys said he wanted to break my pencils to ensure I wouldn't draw any more difficult projects! After shooting and curing the shell, the vessel was waterproofed, the stone veneers and elevation set, and the Pebble Tec interior veneer installed.

We left the stone for the overflow 1/4 in. (6 mm) proud of the Pebble Tec to allow for future elevation adjustment.





Side view reflecting the surrounding trees with a close-up view of the vanishing edge gutter and elevation

In this case, our finish edge tolerance was $\pm 1/16$ in. (1.6 mm) and, prior to the addition of water, was perfectly level. After loading the pool by filling it with water, the column end of the pool deflected lightly about $1/16$ in. (1.6 mm), so a cup grinder was used to bring the perimeter within tolerance. We used a new style pool pump by Pentair that uses a variable frequency drive motor, allowing us to adjust the impeller speed to create exactly the flow needed to flood the entire pool rim with a minimum of pump or gutter noise.

This project, like all of the difficult watershapes we participate in, used skilled shotcrete applicators as a core component of our execution team. Without them, very few of these vessels would be built.



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View from the house of the complicated vessel