O
ver the recent years, the idea of water-
proofing has taken a more prominent role
in the construction of higher-end pools and
other watershapes—and the debate on this topic
seems to be on the increase. Most of us in the pool
industry are at least peripherally aware of a broad
debate as to whether waterproofing should be
used, and in what situations.

From my observation, this issue is due to the
increasing demand and interest in the higher-end
swimming pool—what features can be incorpo-
rated, as well as architectural elements that can
be achieved. Clearly, many pools are no longer
just the typical single body of water with a simple
ceramic waterline tile band and marble plaster
finish. Many forces continue to act on the industry,
such as development of product lines; increased
availability of automation; huge building booms;
information availability; and, most significantly,
proliferation of ideas through houzz.com
and similar websites, along with world travel.

In many ways, the swimming pool industry is
still a young industry. The residential pool
industry in the United States is particularly
“young” in that it has been largely unregulated,
and the barrier to entry has been low. Critically,
architects and landscape architects are particularly
ignorant of swimming pools and how they are
built. Therefore, unregulated pool builders
drive construction practices and techniques. As
competition increases, prices are driven down and
ultimately quality suffers. There is not a natural
checks-and-balances system between the architect
and builder.

Not only are pool builders experimenting with
new materials, products, and techniques but
multinational companies are also marketing their
products to the pool industry and thus are
“experimenting” via the builder’s use. If you put
all of this history and set of factors together, it’s
easy to see how shotcrete installation can suffer
and how “waterproofing” has become appealing.

Of note have been the changes and about-faces
in some manufacturer’s directions for the use of
their product in swimming pool construction
(submerged conditions). If you keep your ear to
the ground, it appears that these changes come
after there has been a large failure, or series of
smaller failures. It has caused the providers to
look more closely at what is happening between
the marriage of their product to the substrate or
other products.

It does not mean that these waterproofing
products do not work per se. What it does point
out is that there is a huge volume of chemically
based products being used in partnership with
other chemicals or cementitious-based products
without years of practical field experience. And,
many times, these products are underlayments for
expensive finish materials, such as tile and stone.

Ultimately, we can divide the use of water-
proofing into two (non-mutually exclusive)
situations. The first occurs when tile (or similar)
is used for the interior finish. The second follows
when a shotcreted pool or vessel is not shot well,
and is not watertight (refer to Fig. 1 and 2).

In the tile industry, waterproofing is an integral
part of the industry standards.1 In fact, two types
of waterproofing are separately referred to as
cementitious and membrane. Even if the pool is
already watertight or even waterproof from a
cementitious standpoint, the waterproof mem-
brane is sometimes still used to act as an anti-fracture
layer for glass or other fragile tiles. It is important
to note that many waterproofing products, applied
to the inside of the pool, do not act as water-
proofing for negative hydrostatic pressure (that
is, water penetrating from outside the pool shell).

It is still widely misunderstood that a plaster
interior finish will act as a “sealing coat” or water-
proofing, which is fundamentally untrue. A
properly shotcreted shell needs to supply the
watertight properties for the pool.

The ASA Pool and Recreational Shotcrete
Committee speaks to watertightness in Position
Statement #4.2 “Watertightness of the shotcrete
material is a crucial durability and serviceability
property of any properly constructed water-
holding shotcrete structure. Shotcrete placement
that allows water to pass through the concrete of
a pool shell is a sign of flawed material or placement techniques. A definition of watertightness is: impermeable to a measurable flow of water.”

When a pool shell is not watertight, sometimes the builder will look to waterproofing materials to overcome the deficiency. This is an unfortunate situation, as the deficiency within that shotcrete structure can cause a failure of the waterproofing material itself. Ultimately, it always comes back to the fact that a watertight vessel is a more stable and accepting substrate for whatever one wants to achieve, and much less prone to problems and future repairs.

References
