

Water Seepage through Shotcrete or Gunite Pool Shell

Monday, May 17, 2010

TO: INTERESTED PARTIES

Subject: Permeability of Shotcrete or Gunite used in Swimming Pool Construction

This is in response to requests received by Pool Engineering, Inc. for information on the in-place permeability of gunite or shotcrete utilized for Swimming Pool Construction.



During the construction of swimming pools (and prior to plastering), it is not uncommon for water to seep through the shotcrete or gunite shell into the pool's interior. Pool Engineering, Inc. has been asked if this seepage, prior to the application of the pool's surface finish, is an indication of unsatisfactory shotcrete or gunite, and if seepage will detract from the structural integrity of the pool.

Gunite or shotcrete is the structural element in swimming pool construction and is not intended to be the water sealing media. The sealing of the pool is accomplished by the application of a water resistant lining to the shotcrete or gunite surface usually immediately prior to filling the pool. This water resistant lining is typically a plaster made with Portland Cement and special aggregates. This same material is also used to provide a tight seal around plumbing and light fixtures as well as other penetrations.

Seepage occurs because shotcrete or gunite is not a totally homogeneous material and variations in cement content and density are not uncommon throughout the pool structure. The American Concrete Institute, in their publication 506.4R-94 Guide for the Evaluation of Shotcrete, states in Section 5.2.3.2 "There is little experience or published work on the permeability testing of shotcrete. Specifications for concrete permeability levels are not extensively used." Further in Section 5.2.3.3, it is stated "At this time, it is not appropriate to recommend permeability limits for shotcrete."

Experience with hundreds of thousands of in-ground shotcrete & gunite swimming pools has demonstrated that water seepage through the shotcrete or gunite shell during construction has not caused any deterioration of the structural integrity of the pool.

Hopefully, this clarifies the issue of water seepage through the shotcrete & gunite shell. If you require any additional information, or if I can be of any further assistance, please call me at (714) 630-6100.

Thank you!
Ron Lacher, P.E.

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