



Gunite/Shot-crete Process

TDS 138

Gunite and shot-crete are common terms used to describe mixtures of portland cement and sand which are applied to vertical surfaces and to damaged concrete structures for repairs and rehabilitation.

The process consists of applying portland cement and sand that is mixed together and blown onto the surface. The equipment consists of mixers for blending cement and sand with or without the addition of a small quantity of water. At the nozzle or the exit port for the mixture, water is introduced to make a slump mortar.

This process is used to apply concrete to tunnel linings, to build contoured swimming pools and to apply coatings to damaged vertical concrete columns and building structures. Application is usually made with a minimum of 1" (25mm) and may go up to 3" (75mm). For swimming pools, up to as much as 6" (150mm) may be applied.

The cement mixture or, more correctly, the mortar mixture (since the mix contains no large aggregate), is applied in a semidry state with sufficient moisture to develop a strong mortar mixture. Applications must be made at least 1" (25 mm) in thickness to ensure that sufficient moisture will remain in the mixture and develop adequate cure or strength.

During the process of blowing or applying the sand/cement mixture on surfaces, approximately 25% of the sand "rebounds" from the surface and drops to the ground. Therefore, gunite or shot-crete mixtures are prepared as lean mixtures (1:4 or 1:5) because with the 25% "rebound" of sand, the mixture remaining on the surface will be approximately 1:3 or 1:4 portland cement/sand. The "rebound" of the sand particles results in the loss of 25% of the mix and the additional labor of removing this from the base of the work.

3701 Mortar Admix and 8510 Bonding Admix have been successfully used as additives to gunite and shot-crete mixes. The addition of a LATICRETE® Admix provides a more plastic mix with better adhesion. A LATICRETE Admix also reduces the sand rebound since it provides better adhesion to the sand particles. Therefore, gunite mixtures made with a LATICRETE Admix are prepared in the proper cement/sand ratio of 1:3 or 1:4.

Moreover, LATICRETE Mortars cure in very thin sections. This means that gunite made with a LATICRETE Admix can be applied as a thin coating 1/4-1/2" (6-12mm) thick and will cure to full strength.

There will be an overall reduction in time, labor and material coats as well as an improvement in adhesion and strength.

Technical Data Sheets are subject to change without notice. For latest revision, check our website at www.laticrete.com
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LATICRETE INTERNATIONAL, INC. ▪ 1 LATICRETE Park North ▪ Bethany, CT 06524-3423 USA
800.243.4788 ▪ support@laticrete.com ▪ www.laticrete.com

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