



CURING CONCRETE

Concrete is comprised of three primary materials: Portland cement, water and aggregates such as sand and stone. Through a process called hydration, cement and water combine to form a paste that binds the aggregates together. Hydration is crucial because it ultimately determines the strength of the concrete. The process continues well after the concrete has been placed, and allowing moisture to escape too soon will weaken the concrete. Curing is the maintaining of a satisfactory moisture content and temperature in the concrete. Temperature, relative humidity and wind conditions can have a significant impact on hydration.

Why is Curing Important?

- Predictable strength gain
- Improved durability
- Better serviceability and appearance

Important Steps to Take in Curing Concrete

Laboratory tests show that concrete that is allowed to dry out too quickly can lose up to 50% of its potential strength. Properly cured concrete will have a better surface hardness, making it more watertight, and it will also be less subject to crazing, dusting or scaling. To be adequately cured, the concrete surface must be kept continuously wet or sealed to prevent evaporation for at least several days after placement and finishing. Various ways of accomplishing this include:

- **Keeping concrete moist.** Burlap, cotton mats and rugs or straw used with a soaker hose or sprinkler will maintain moisture during the curing process. Sprinkling on a continuous basis is suitable as long as the air temperature is well above freezing. (Cold temperatures will also retard or stop hydration.) Another approach is to actually build a dike around the concrete slab and flood the surface with water. Care must be taken to ensure that the water is not more than 20 degrees cooler than the concrete.
- **Keeping concrete sealed.** The application of concrete sealers such as Lusterseal 150 Water Based, 300 Water Based and Lusterseal 300 Solvent Based will ensure that an adequate amount of moisture is retained during the curing process, allowing hydration to occur. Sealing compounds should be applied about an hour after finishing. Do not apply sealing compounds while there is still surface water on the concrete. Other methods of sealing concrete include covering it with plastic sheets, although this could mar the surface and shouldn't be used if appearances are important. A third alternative - waterproof paper - generally does not mar the surface.

Products Used: Tamms Dissipating Curing Compound; Tamms Luster Seal (UB and Solvent Based).