



### HOT WEATHER CONCRETING

Hot weather conditions can result in rapid moisture loss on the surface of recently placed concrete, resulting in plastic shrinkage cracking and accelerated setting time. (See Concrete Tips #8 for more information on plastic shrinkage.) Hot temperatures can also speed up cement hydration and create the potential for cracking in large concrete structures. Although hot weather related problems usually occur in the summer, the combination of low humidity and high winds can also lead to rapid moisture loss, even during winter months, particularly in arid or tropical climates. Generally, high humidity reduces the effects of high temperatures.

#### Why Hot, Dry Weather Causes Problems

- Results in increased water demand and weakened concrete strength.
- Accelerates slump loss and causes a loss of entrained air.
- Shortens setting time, thereby requiring more rapid finishing.

#### What to Do About It

The best way to combat the effects of high temperatures is to prepare for them. Important preventative steps include:

- **Adequate manpower.** It's important that you be able to quickly place, finish and cure the concrete.
- **Advance timing.** Try to schedule the delivery of concrete so that trucks are able to discharge immediately. Also try to avoid placing the concrete during the hottest part of the day. And make sure you have adequate personnel on hand to quickly place and handle the concrete.
- **Cooling tips.** During extreme temperatures, concrete temperature can be lowered by using chilled water or ice as part of the mixing water. It is also advisable to shade or sprinkle water on the aggregate prior to mixing, and to use sunscreens, windbreaks or mist foggers to keep the surface concrete moist if it is placed during times of low humidity and high winds.
- **Finishing.** The concrete should be finished as soon as the sheen has left the surface, and curing should be begin as soon as the finishing process has been completed. Curing should continue for three days and evaporation should be controlled through the use of wet burlap or plastic coverings, or through the application of a liquid membrane-curing compound.
- **Moisten sub-grade.** The sub-grade forms and reinforcement should be moistened prior to placement. Avoid standing water.

**Products Used:** Tamms Cures and Sealer Compounds; Euclid Diamond Clear; Master Builders Confilm.