

PCI Plant Quality Talk

Quality Enhancement Committee



SERIES 1, ISSUE 1 – ACCELERATED CURING

Accelerated curing is advantageous when early strength gain is important or when additional heat is required to sustain the hydration reaction. Accelerated curing may reduce costs and save time to better meet precast concrete production demands and finished product quality. The best way to implement accelerated curing is by adding heat to the precast concrete component while reducing water evaporation through the use of steam, mist, or product tarps.

Common Issues

- If the precast concrete members are not fully covered during accelerated curing, there will be uneven heat distribution and therefore uneven strength gain.
- If the concrete heats up too fast, it may not gain the intended 28-day compressive strength.
- If heated too fast or at a very high temperature, the long-term durability of the concrete will suffer (see information on delayed ettringite formation).

Best Practices

- Fully cover production beds.
- Store compressive strength test cylinders with the pieces.
- Do not exceed 104°F before the concrete has achieved initial set (see QC for initial set time of each mixture).
- After initial set, the internal concrete temperature may ramp up 34°F per hour.
- The maximum internal concrete temperature should be 158°F for straight cement mixtures and 180°F with the proper use of SCMs (Supplementary Cementitious Materials).
- Cool-down should not be more than 50°F per day or 5°F per hour.

Note: Please complete this form and return to the Quality Control Manager. All crew members should be observant and report to their foreman anything out of the ordinary on a project. *See something, say something.*

NOTES

ATTENDEE SIGNATURES

DATE

PRESENTER