

## A walk in the park proves our point

**T**hanks to its location in the low Upper Midwest and its proximity to Lake Michigan, which helps cause temperatures to fluctuate wildly, you'd be hard-pressed to find a harsher freeze/thaw environment for concrete than Chicago. It's such a harsh environment that you'd think precasters would want to air-entrain all exterior concrete, even if it weren't required, just for liability protection.

However, the condition of 70-year-old downtown concrete structures attests to non-air-entrained concrete's durability in non-splash zones. Leo Schlosberg, owner and president of Cary (Ill.) Concrete Products, requested a petrographic analysis of circa 1927 architectural concrete at Grant Park as his company prepared to do some renovation work there in the mid-1990s. The analysis revealed that the non-air-

entrained exposed-aggregate concrete New York producer Benedict Stone used to cast walkway railings and entryway columns has a probable water-cement ratio of 0.40 and about 760 pounds of cement per yard.

Last summer, we took Schlosberg back to Grant Park to visually examine several hundred of the 1920s railing balusters and entryway columns. In the rare cases where balusters are deteriorating, the lower railings invariably reveal cracks from structural stresses, most likely due to settlement. (The park, located on what used to be the bottom of Lake Michigan, now sits on lake fill.) "Once stress cracks the concrete, water gets in and damages it," notes Schlosberg. When we examined the entryway column panels, any cracking we found was limited strict-

ly to corners, again probably due to stresses from settlement. A couple of panels had popouts and a couple of inches of exposed rebar, but the cover was less than 1 inch thick in all cases.

The unblemished surfaces of both the balusters and the entryway columns support the belief that architects need not automatically specify air entrainment for exterior precast concrete.

— Don Talend



Leo Schlosberg, Cary Concrete Products: Rare cases of deterioration at Grant Park did not originate from freeze/thaw damage.