Conservation of Historic Concrete

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Conservation of Concrete

Development of Architectural Precast
by John J. Earley
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National Historic Preservation Act
(NHPA) of 1966

Between The Years 1913 and 1935
• The Rise and Fall of Cast Stone

• Developments in Late 1930’s
John Earley and Basil Taylor

David W. Taylor Model Testing Basin
Carderock, MD

Model Basin Office Building

Model Basin Drawings

Model Basin Shop Building

- Training of the Dextone Co.,
  New Haven, CT
• Formation of Mo-Sai Associates (1940)
• Mo-Sai Institute (1958)

• Shared Technical Information

Basic Information on Mo-Sai Panels

• Thickness – 2 inches
• Size – 20 to 100 sq. ft.
• Anchor loops – 1 in. wide x 3/3 2 thick galv.
  strap iron hooked at 2 ft. intervals
• Facing and Backing – 1 in. thick each with 5/6 in.
  aggregate
• Compressive Strength – 7500 psi cube strength
• Absorption – less than 5%

Production Process

Production Process (Cont’d)

Production Process (Cont’d)
• Aggregates
• Gap Grading

• 1 part fines to 4 to 7 parts of 2 or more sizes of coarse aggregate
• Aggregate to cement ratio – 4 to 1
• W/C ratio – 0.53
• Color pigment from aggregate
• Backup mixes – 90 lbs. sand; 306 crushed stone

• Mix Proportions

• Surface Texture

To prevent mixtures from intermingling while they were being placed in the mold, it was accomplished -
• Using metal stripping such as is used in terrazzo;
• Using thin strips of wood or composition which are subsequently removed and the groove pointed with a colored mortar;
• By small ribs or fins on the face of plaster molds which leave a small V depression between adjacent areas of color;
• By molding recesses in the face of the concrete and afterwards inlaying the various colored mixtures;
• On panels with relief, the depressions of the mold itself provided separation for the colors.

• Designs and Patterns

• Mo-Sai Panels By The Dextone Co.

• Dixwell Playhouse, Hamden, CT
The creation of quality exposed aggregate architectural components is both an art and a science. For over four decades, Mo-Sai Institute members pooled their technical expertise and craftsmanship to produce a product whose singular beauty and quality enhanced the value of outstanding buildings worldwide. The Mo-Sai members were not only pioneer producers, but industry leaders and innovators. Unfortunately, they were too wrapped up in their attempt to keep information within their organization that they failed to see that the precast industry had acquired similar knowledge and techniques. Mo-Sai faded out of the picture in the mid 1980’s but the sharing of information by Earley Studio laid the foundation for the growth of the architectural precast concrete industry that we enjoy today!