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Abstract:

Petrographic analyses allow the identification, cleaning and repair of masonry building materials comprising iconic and historic structures. These may be churches, mansions, monuments, fountains, schools/colleges, and bridges designed by renowned architects.

Many historic structures are constructed of natural stone, brick, terracotta, cast stone, concrete blocks, either with or without mortar, or placed concrete. Microscopic examination of these materials allows the composition to be precisely identified so that it can be matched or replicated for repairs or additions. If the material deteriorated, the cause of the deterioration can be identified so that similar future deterioration might be prevented.

Examples of the application of petrographic analysis to restoration include:

- 1) Matching of J. J. Earley Studios exposed aggregate concrete at the Marine Corps Memorial (Iwo Jima Memorial), VA,
- 2) Identification of weathering mechanisms for deteriorated carved sandstone in the loggia of the H. H. Richardson-designed Oakes Ames Memorial Hall in North Easton, MA,
- 3) Reasons for deterioration of black brick at the “immigrant photographer’s”, John Jacob Riis building at the Gateway National Recreation Center, NY,
- 4) Matching of weathering-exposed aggregate concrete of the Art Deco bridges along the “Highway of the Future” Merritt Parkway in CT, and,
- 5) Matching of deliberately exposed siliceous pea gravel concrete at the iconic high-rise Peachtree Center, Atlanta.