GLAZED AND CONFUSED:
Exposing the Mysteries of Glazed Architectural Terra Cotta

Abstract

“Glazed and Confused,” is a compilation of two investigative studies. The first is a chronological annotated bibliography of physical property experimentations interspersed with key historical moments pertaining specifically to glazed architectural terracotta. The second is an experimental model created for architectural conservation, to be utilized prior to conservative treatments. This thesis began with wanting to test the commercially available repair and patching mortars employed during terracotta repair, hoping to discover which performed most similar to glazed terracotta. However, after speaking with several practicing conservators within the United States, it quickly became apparent there was a lack of knowledge surrounding the basic physical properties and behaviors of architectural terracotta.

It is impossible to judge a repair system using unknowns as criterion, consequently the topic was shifted to discovery of previously established properties, the procedures used to procure this information, when theses experimentations were completed and why. Using the ascertained historical information a research program was developed specifically focused towards architectural conservation, with the goal of creating a program of examination with the findings aiding in the choice of conservation treatments. The model included five laboratories: visual analysis, petrographic analysis, cross-section inspection, water vapor transmission and inverted cup water vapor transmission.

The historic documentation research exposed a wealth of material testing programs done and presented through The American Ceramic Society, The National Terra Cotta Society and The National Bureau of Standards, all of which dissipated by 1961, when the last document was produced. There are currently no required testing programs for manufactures of glazed architectural terracotta in the United States, and consequently no required specifications for material performance.

The materials testing program was employed on six historic terracotta blocks fabricated between 1910 and 1921, revealing that any defect in the glaze fit, such as crawling and/or crazing results in an increased rate of water vapor transmission. The microscopic examinations divulged information pertaining to the varying vitrification levels of the glaze and body. The petrography and cross-section analysis proved that crazing of a glaze can continue into the body of the block and also that crawling exposes the body to exterior elements, in addition the cross sections showed that every specimen had a glaze layer thickness of 200 µm, suggesting mechanical application methods.

Full Title: “Glazed and Confused: Exposing the Mysteries of Glazed Architectural Terra Cotta.”

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