



UNIVERSITY OF  
CAMBRIDGE

Department of Engineering

## CONSTRUCTION ENGINEERING MASTERS DISSERTATION ABSTRACT

### **Magnesium oxide as a solution to aesthetical cracks in precast concrete.**

Modern construction techniques using precast reinforced concrete façade panels can face criticism on account of undesirable cracking.

Several projects across the UK have used precast panels as part of structural or non-structural façades. Numerous panels have revealed hairline cracks, which become exaggerated when wet as water highlights this issue.

This has become a concern for clients in terms of structural and architectural integrity. This might lead to a reluctance to select precast over 'traditional' methods of construction, and become an issue for those companies looking to change the future of construction by using precast or offsite manufacturing techniques.

Cracking in reinforced concrete is a problem as this could lead to reinforcement corrosion. Indeed, the very basis of reinforced concrete design is that concrete has no significant tensile strength and that sufficient reinforcement must be provided to control crack widths.

This thesis will cover the addition of magnesium oxide into a precast concrete façade mix to study if this can prevent these cracks. Such research is still in its infancy and has not yet been integrated into precast construction.

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