عنوان مقاله:

Bond Improvement in Cementitious Mortars Reinforced with Continuous Carbon Filaments

محل انتشار:

دومین کنفرانس بین المللی مقاوم سازی لرزه ای (سال: 1388)

تعداد صفحات اصل مقاله: 10

نویسندگان:

Ivanic - *Faculty of Civil Engineering, University of Maribor, Smetanova ۱۷, ۲۰۰۰ Maribor, Slovenia*

Lubej - *Faculty of Civil Engineering, University of Maribor, Smetanova ۱۷, ۲۰۰۰ Maribor, Slovenia*

Radosavljevic - *School of Construction Management and Engineerig, Whiteknights, PO BOX ۲۱۷, Reading,Berkshire RG۶ ۶AH, United Kingdom*

خلاصه مقاله:

Among various parameters that influence the properties of the composite, the bond between the cementitious matrix and the fibres is the most important one. This paper investigates the influence of admixtures silica fume, superplasticizer and air entraining agent on the improvement of the bond between bundled carbon filaments andcementitious mortars. An overall microstructural analysis has shown that the addition of silica fume strengthen the interfacial transition zone by both the reduction of its porosity and the consumption of CH crystals. The addition of superplasticizer increased the workability of fresh mortars, but the bond improvement was insignificant. The application of the air entraining agent caused the formation of air bubbles inside the mortar matrix. Air bubbles formed in the vicinity of the multifilament yarn were found to provide mechanical anchoring for fibres leading to significant increase in interface friction. Fibre-bundle pullout tests were carried out to confirm the effectiveness of the admixtures to improve the interface bonding. Based on the resulting load-displacement curves, air entraining agent was found to be most effective in enhancing the bonding characteristics of the cementitious composite

کلمات کلیدی:

carbon fibres, cementitious composites, bond properties