

Experimental Study on Bond Strength of Masonry by using Cement Mortar with Chemical Admixture

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Abstract : Masonry is a composite material with bricks as a building unit and the mortar as the joining material⁶. So the strength of masonry will depend on the strength of brick and mortar. The main aim of this investigation is to find the influence of various strength properties of mortar on the strength of masonry unit by using two types of bricks. In this investigation, mechanical properties like Tensile bond strength, shear bond strength and flexural bond strength properties of masonry was studied for mortar containing chemical admixture and it was effective compared with conventional mortar for both clay brick and fly ash brick^{1,8}. The test specimens were prepared for various cement-mortar ratios like H1 (1:3), H2 (1:4.5) and M1 (1:6). With this cement-mortar 8% of chemical admixture (styrene butadiene) was added to improve the strength of the mortar. The bond strength of masonry may determine by testing cross couplet brick specimen; shear strength of mortar was determined by triplet brick specimen and flexural strength was determined by stack bonded prism. The effect of different factors such as types of mortar and types of bricks on the strength of masonry was studied. It is observed that the mortar with chemical admixture gives improved strength properties when compared to conventional mortar mix. It is also observed that that the strength properties of masonry are affected by the bond strength of brick units.

Keywords : Mortar, Chemical admixture, tensile bond strength, shear strength, flexural strength.

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