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Investigation of Water Absorption and Compressive Strength of Resin Coated Mortar

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Abstract : Nowadays various advanced techniques are used to enhance the performance of materials in the field of construction engineering. Structures exposed to an aggressive, humid and hostile environment are experiencing severe negative impacts which lead to premature failure. Polyester resin is one of the advanced material used for improving performance of structural materials especially for repair/ refurbish purpose of structures and protection from contaminated environmental effect/ hazards. This study investigated the aptness of the polyester resin as coating agent on the mortar and assessed its performance in an ambient environment of Pakistan. Cubical specimens of mortar were fabricated. These specimens were tested for water absorption and compressive strength after one day and sixty days. These tests were performed under different exposure conditions (ambient environment and submerged in water). The specimens were coated with one, two and three layers and results were compared to control (no/ zero resin layer) specimens. Test results indicated that there is a significant decrease in water absorption of mortar coated with resin when compared to controlled specimens. The compressive strength test results revealed that resin coated specimen had higher strength when compared to controlled specimens. The results suggested that resin is a promising material and can be used effectively in structures which are exposed to high temperatures. The study would be helpful in improving performance of the structural material in a hazardous environment.

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