Effect of Plastering Layer on Corrosion Resistances of Reinforced Concrete Beams

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Abstract

Reinforced concrete structures are subjected to deterioration due to many factors such as corrosion of reinforcing steel. Ultimate strengths of structural elements can be greatly affected by these deteriorating factors. There are numerous methods and techniques used to protect these structural elements. The mortar layer (Plastering) is considered the first defense line against all the deteriorating factors. The main goal of this research is to investigate to what extent the plastering layer can protect reinforced concrete beams against corrosion. The aim of the experimental program is to study the effect of plastering layer on corrosion resistance of reinforced concrete beams. Four reinforced concrete beams (100Ĭ200Ĭ1100 mms) and four Lollypop specimens (cylinders 100Ĭ200 mms) were tested and described as follows: Å A beam and a lollypop specimen without any plastering layer (control). Å A beam and a lollypop specimen with traditional plastering layer (cement + sand + water). Å A beam and a lollypop specimen with modified plastering (traditional plastering + waterproof admixtures). Å A beam and a lollypop specimen with painted and modified plastering layer (traditional plastering + waterproof admixtures + external waterproof paint). These eight specimens were subjected to corrosion using accelerated corrosion technique, after that the four beams were tested in flexure under three point load arrangement while the four lollypops were used to calculate the total mass loss due to accelerated corrosion. The test results were used to figure out the effect of plastering layer on corrosion resistance of RC beams.

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