Development of High Durability Concrete Using Fly Ash for RC structures with High Chloride-induced Corrosion Hazards

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**Abstract**

In Taiwan, patch repair is the most common method to repair the corroded RC members, but the statutes or requirements for the material of the patch repair are not sufficient. Fly ash is a scrap in thermal power generation. Fines of fly ash are a source of respiratory disease; therefore, disposal of fly ash is an important issue in environmental protection. However, this harmful material is a very beneficial material to civil construction. Its pozzolanic properties provide good durability and achieve economic benefits in the construction without sacrificing its intensity.

In this research, mainly investigate the effect of fly ash on the mortar/concrete in repairing corroded RC members, using different mortar/concrete specimens with various fly ash replacement percentages in the test. First, set experiments to get the compressive strength, tensile strength, bonding strength, and the rate of dry shrinkage and water absorption. And then propose the guidelines for the application of the fly ash mortar/concrete in the patch repair according to the experiment data.

The results compared with the Japanese standard, it have already confirmed that basic properties of fly ash concrete or mortar meet the required performances for patching repair materials.

**Keywords:**