THE EFFECTS ON BEHAVIOUR OF LATEX CONCRETE WITH VARIATION OF WATER CEMENT RATIO

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ABSTRACT

The present study inquired into the effects on behaviour of latex concrete with variation of water cement ratio. A grade 30 concrete was designed at varying water cement ratio of 0.3, 0.35, 0.4, 0.45, 0.5, 0.55 and 0.6 and 10 per cent latex was added in the mix.

Latex is considered to comprise 40 per cent water and 60 per cent solid and the water content in latex is included as free water in the water cement ratio. While the solid particles as partial replacement of fine aggregate.

The previous studies have revealed that by using certain amount of latex in concrete the compressive strength is reduced, having an improvement in workability and decreasing in absorptivity.

It has been established that using low water cement ratio in concrete increased the strength of normal concrete moreover improve the strength of latex concrete.

The flexural strength, compressive strength and absorptivity were tested and compared with normal concrete after samples have been cured after 28 days.

1.0 INTRODUCTION

1.1 General

In general, concrete possesses high compressive strength and stiffness with adequate durability under exposure to normal environmental conditions.Two characteristics, however limited its wider use .Concrete inherently is brittle and weak in tension.

Attempts to improve the ductility absorption capacity far beyond the levels of normally processed concrete form one aspect of the current research efforts. Improvement in the ductility of concrete is needed to realize :

i) better resistance against earthquake, blast, impact,and dynamic loading.

ii) better behavior for use as foundation medium in machine foundation.

iii) improved rotational capacity in reinforced concrete structures.

in order to improve ductility, certain amount of latex will be added in concrete.

Five characteristics were determined under this study specifically absorptivity, durability, workability, tensile strength and compressive strength.By using a various cement water ratio to latex concrete,it give us an optimum ratio for the mentioned characteristics.

The amount of latex admixture was 0% (control) and 10% was added in term of cement content by using sand replacement method.Considering that latex