



## **Effect of Presaturation and Seawater on Strength and Durability of Lightweight Concrete**

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**Abstract:** The internal curing is provided, usually, by the use of some proprietary fine aggregates which provide sufficient water from within to promote the ongoing hydration of cement and hence result in a relatively high performance concrete. Two concretes, one total lightweight concrete (TLWC) and the second sand lightweight concrete (SLWC) of 28 day cube strength of approximately 40 MPa (5800 psi) were designed. A total of six mixes were cast out of these two concretes, 4 – TLWC's and 2 – SLWC's. The variation in the mixes was due to moisture condition of the aggregates and the use of seawater in mixing and curing of the concretes. The effect of these variations on the cube compressive strength, water permeability, sulphate and chloride content, depth of carbonation and shrinkage of these six concretes was studied. The presaturation of the lightweight aggregates (LWA's) used do not seem to have improved the compressive strength, and water permeability of these concretes. The drying shrinkage strains of the concrete using presaturated aggregates decreased considerably. The application of seawater in making and curing these LWC's increased the compressive strength by about 15%.

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