

EXPERIMENTAL STUDY ON FOAM CONCRETE

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ABSTRACT

Foam concrete is a type of aerated lightweight concrete; foam concrete does not contain coarse aggregate and can be regarded as an aerated mortar. Foam concrete is produced when pre-formed foam is added to slurry, the function of foam is to create air voids in cement-based slurry. Foam is generated separately by using foam generator; the foaming agent is diluted with water and aerated to create the foam. The cement paste or slurry set around the foam bubbles and when the foam begins to degenerate, the paste has sufficient strength to maintain its shape around the air voids. The foam concrete mixture becomes too stiff with lower content, causing bubbles to break, whereas the mixture becomes too thin to hold the bubbles with high water content, leading to the separation of bubbles from the mixture, water-cement (w/c) ratio usually ranges from 0.4–1.25. Foam concrete can be designed to have any density within the dry density range of 300–1850 kg/m³. In this investigation two foam concrete mixtures are produced with and without sand and attempts have been made for selecting the proportions of foam concrete mix for the target plastic density of 1900 kg/m³. 18 cube specimens are prepared and tested for mixtures, then their physical (Density) as well as specific structural (Compressive Strength) properties were investigated, Specific Strength and Percentage Strength gain for foamed concrete is compared with normal weight concrete and the results are reported.

KEYWORDS: Foam Concrete, Light Weight Concrete, Density, Strength, Specific Strength