Research Paper

Study on Components of Straw Filler Concrete using Orthogonal Experiment.

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Abstract
Study on the use of agricultural residues in the production of construction materials is important in reducing construction costs, while minimizing environmental impacts. By using the orthogonal experimental design method and the experimental method in laboratory for determining slump of the concrete mix, compressive strength and volumetric mass of concrete, this paper shows the designing method of concrete component using straw fillers (straw filler concrete - straw concrete). Also, this study analyzes and assesses the influence of three factors: cement content, water content and straw content on basic features of designed concrete such as slump, volume and compressive strength, thereby determines the reasonable content of the components. Experimental results showed that, straw padded concrete meets the basic performance criteria for lightweight concrete when designed with reasonable components and the effect of these three factors on the basic features of straw concrete is very pronounced. Reasonable values of cement content, water content and straw content used to produce straw concrete mixture are: 14.6%; 10% and 2.04% respectively.
Keywords: Light weight concrete; Straw filler concrete; Agricultural by-product; Orthogonal Experiments.