ALTERNATIVES CONSTRUCTION MATERIALS TO APPROVE CONCRETE CHARACTERISTICS

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Abstract:

Determining building materials and their types and determining their effect on concrete properties is consistent with the technical and design variables of buildings. From this point of view, the research came to include theoretical studies and empirical tests for some materials, focusing on the aggregate as a basic material involved in the formation of concrete.

The first part includes the introduction, research problem, assumptions, importance and purpose of the research. As for the second part, it was to conduct practical experiments by designing different concrete mixtures in the mixing ratios and the type of aggregate, until results were reached regarding the resistance of the concrete that was produced as a result of the difference in densities between ordinary aggregate concrete and lightweight aggregate concrete. Through that, for example, the lightweight aggregate with an age of (7) days and a mixing ratio of (1: 2: 4) gave strength to the models used (19.58) Mpa, and for the same mixing ratio and at an age of (28) days, it gave durability (22.83) Mpa. When the mixing ratio was changed to (1: 1.5: 3), it was (25.74) MPa and (32.34) MPa at the age of (7) days and (28) days, respectively. These results give an accurate indication that the aggregate is light in weight with similarity to the ordinary aggregate in obtaining concrete with a bearing strength within the approved specifications without guaranteeing the environmental treatments and the resulting loads.