

Dynamic Properties of Recycled Concrete Aggregate from Resonant Column Tests

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Abstract : Depleting of natural resources is forcing the man to look for alternative construction materials. One of them is recycled concrete aggregates (RCA). RCA from the demolition of buildings and crushed to proper gradation can be a very good replacement for natural unbound granular aggregates, gravels or sands. Physical and the mechanical properties of RCA are well known in the field of basic civil engineering applications, but to proper roads and railways design dynamic characteristic is need as well. To know maximum shear modulus (GMAX) and the minimum damping ratio (DMIN) of the RCA dynamic loads in resonant column apparatus need to be performed. The paper will contain literature review about alternative construction materials and dynamic laboratory research technique. The article will focus on dynamic properties of RCA, but early studies conducted by the authors on physical and mechanical properties of this material also will be presented. The authors will show maximum shear modulus and minimum damping ratio. Shear modulus and damping ratio degradation curves will be shown as well. From exhibited results conclusion will be drawn at the end of the article.

Keywords : recycled concrete aggregate, shear modulus, damping ratio, resonant column

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