

Study on Brick Aggregate Made Pervious Concrete at Zero Fine Level

Authors : Monjurul Hasan, Golam Kibria, Abdus Salam

Abstract : Pervious concrete is a form of lightweight porous concrete, obtained by eliminating the fine aggregate from the normal concrete mix. The advantages of this type of concrete are lower density, lower cost due to lower cement content, lower thermal conductivity, relatively low drying shrinkage, no segregation and capillary movement of water. In this paper an investigation is made on the mechanical response of the pervious concrete at zero fine level (zero fine concrete) made with local brick aggregate. Effect of aggregate size variation on the strength, void ratio and permeability of the zero fine concrete is studied. Finally, a comparison is also presented between the stone aggregate made pervious concrete and brick aggregate made pervious concrete. In total 75 concrete cylinder were tested for compressive strength, 15 cylinder were tested for void ratio and 15 cylinder were tested for permeability test. Mix proportion (cement: Coarse aggregate) was kept fixed at 1:6 (by weights), where water cement ratio was valued 0.35 for preparing the sample specimens. The brick aggregate size varied among 25mm, 19mm, 12mm. It has been found that the compressive strength decreased with the increment of aggregate size but permeability increases and concrete made with 19mm maximum aggregate size yields the optimum value. No significant differences on the strength and permeability test are observed between the brick aggregate made zero fine concrete and stone aggregate made zero fine concrete.

Keywords : pervious concrete, brick aggregate concrete, zero fine concrete, permeability, porosity

Conference Title : ICAMESM 2016 : International Conference on Applications of Material Engineering and Smart Materials

Conference Location : San Diego, United States

Conference Dates : January 21-22, 2016