

Experimental Study on the Creep Characteristics of FRC Base for Composite Pavement System

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Abstract : The composite pavement system considered in this paper is composed of a functional surface layer, a fiber reinforced asphalt middle layer and a fiber reinforced lean concrete base layer. The mix design of the fiber reinforced lean concrete corresponds to the mix composition of conventional lean concrete but reinforced by fibers. The quasi-absence of research on the durability or long-term performances (fatigue, creep, etc.) of such mix design stresses the necessity to evaluate experimentally the long-term characteristics of this layer composition. This study tests the creep characteristics as one of the long-term characteristics of the fiber reinforced lean concrete layer for composite pavement using a new creep device. The test results reveal that the lean concrete mixed with fiber reinforcement and fly ash develops smaller creep than the conventional lean concrete. The results of the application of the CEB-FIP prediction equation indicate that a modified creep prediction equation should be developed to fit with the new mix design of the layer.

Keywords : creep, lean concrete, pavement, fiber reinforced concrete, base

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020