

Variation of Quality of Roller-Compacted Concrete Based on Consistency

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Abstract : Roller-compacted concrete (RCC) has been used for decades in many pavement applications due to its economic cost and high construction speed. However, due to the lack of deep researches and experiences, this material has not been widely employed. An RCC mixture with appropriate consistency can induce high compacted density, while high density can induce good aggregate interlock and high strength. Consistency of RCC is mainly known to define its constructability. However, it was not well specified how this property may affect other properties of a constructed RCC pavement (RCCP). This study suggested the possibility of an ideal range of consistency that may provide adequate quality of RCCP. In this research, five sections of RCCP consisted of both 13 mm and 19 mm aggregate sections were investigated. The effects of consistency on compacted depth, strength, international roughness index (IRI), skid resistance are examined. From this study, a new range of consistency is suggested for RCCP application.

Keywords : compacted depth, consistency, international roughness index (IRI), pavement, roller-compacted concrete (RCC), skid resistance, strength

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