Quality Assessment of Concrete Paving Blocks Using Non-Destructive Measurements of Early-Age Properties

Nader Ghafoori,[1] and David R. Smith[2]

Abstract:

Over the past few decades segmental concrete paving blocks have become an attractive feature in a variety of residential, commercial and industrial applications. While engineering and specification aspects have generally been satisfactory and this type of paving has a proven performance and service record, the need for practical measures in production of consistent quality pavers has long been a concern of this rapidly growing industry. The depth and unit weight requirements appear to be the most practical properties to rapidly measure in a totally automated paving block plant. This paper presents experimental results aimed at examining the relationships between matrix compositions, unit weight, absorption and strength properties of concrete pavers. Based on the results obtained, unit weight is strongly related to aggregate-cement ratio and other bulk properties, making it an important predictor of overall quality of concrete block pavers.

DOI: 10.70803/001c.140784

[1] Assistant Professor, Department of Civil Engineering and Mechanics, Southern Illinois University-Carbondale, TMS Member.
[2] Director of Paving Products, Concrete Paver Institute, National Concrete Masonry Association.