

Influence of Curing Types and Age on Bulk and Surface Properties of Concrete Paving Blocks

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Abstract:

Curing is an essential parameter that controls the hydration of cement and eventual strength development of concrete mixes. Proper curing ensures sufficient hydration and reduces porosity level such that the required strength and durability can be achieved. In the case of concrete paving blocks, the selection of curing procedure and curing age are mainly controlled by the economical and practical considerations such as mass production and storage capacity.

This paper presents experimental results of the research investigation which was undertaken to examine the extent to which curing types and ages can affect the strength and surface properties of concrete block pavers. In achieving the stated objective, eight different mix proportions, three different curing types (air-dried, moist and sealed) and age (one-day, three-day and seven-day seal-cured) were employed.

Both bulk and surface properties of concrete pavers are strongly affected by the cement-aggregate ratio of the matrix. Efficient curing conditions can affect a surface property such as abrasion resistance more than a bulk property such as compressive or split-tensile strengths. Seal-cured specimens provide the best surface properties, whereas the air-cured samples display the worst results. Curing age, up to seven days, does not have any significant impact on bulk and surface properties of the seal-cured concrete pavers.

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