

CHALLENGES AND OPPORTUNITIES IN TROPICAL CONCRETING

Author(s)

Tam Chat Tim

Department of Civil & Environmental Engineering, National University of Singapore

Abstract

Much of the technical knowledge on concrete as a construction material originates from research and experiences in temperate regions of the world. Unlike other construction materials, such as steel, timber and masonry, the behaviour of concrete is much more influenced by its service environment, temperature and relative humidity. The transfer of knowledge on concrete, developed for temperate climate, calls for satisfactory adjustment when adopted for tropical climate. These are challenges which also create opportunities for innovative solutions. Firstly a brief review of the effect of tropical temperatures on properties of fresh and hardened concrete is presented. Methods to mitigate the less desirable influence of temperature are considered. Some advantages of tropical ambient temperature on specific applications are described. The urgent need to gather information from monitoring durability performance in tropical exposure environment in order to calibrate future performance based design approaches for durability is emphasised, as these are expected in the coming years. A significant period of local experience and monitored performance data in tropical environment is needed to provide input to calibrate these design models for tropical exposure when they have reached international consensus.

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