



Adiabatic Temperature & Coefficient Thermal Expansion of 20MPa Concrete

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Condition: New. Publisher/Verlag: LAP Lambert Academic Publishing | Experimental tests for adiabatic temperature rise & coefficient thermal expansion for concrete using granite aggregate | This paper is focusing on the review of mass concrete (MC) specification with specific reference to the evaluation of 20MPa temperature control concrete requirements for the construction of MC hydro-dam implemented in Malaysia. The experimental hot-box and coefficient of thermal expansion (CTE) tests were conducted to ascertain the adiabatic temperature rise and thermal strain development on 20MPa MC using granite aggregate. A two-pronged approach consisted of laboratory hot-box and CTE tests, including British oriented CIRIA C660 thermal model were carried out to determine the concrete peak temperature, maximum placing temperature, early-age adiabatic temperature rise characteristics, adiabatic hydration curve, and maximum core-surface temperature differentials on 20MPa MC using Portland-Fly-Ash concrete under semi-adiabatic conditions. These consisted of submitting granite concrete block samples instrumented with thermocouples and vibrating wire extensometers to temperature measurements and thermal shocks. The developed CTE values facilitate the validation of actual maximum permissible critical temperature differential limits in preventing early-age concrete cracking. | Format: Paperback | Language/Sprache: english | 88 pp.



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