Studi eksperimental pengaruh dimensi terhadap panas hidrasi pada beton agregat alam dan agregat daur ulang

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Abstrak

The one characteristic that distinguishes mass concrete from the other concrete work is thermal behaviour. Since the cement-water reaction in exothermic by nature, the heat hydration rise within a large concrete mass, where the heat is not quickly dissipated, can be quite high. This volume of concrete with dimensions large enough requires control that being taken to cope with the development of heat of hydration and attendant change to minimize cracking. The main objective of this research, first, to find out the heat generation behaviour of concrete of recycled and natural aggregate. Secondary, this research aims to find out mathematical equations that used to predict heat hydration of these three concretes at certain dimensions of mass concrete. Results of this research show that the larger dimension of the mass concrete will increase the heat of hydration. The diffrerence of temperature between surface and interior that has been coorporated into European StandardENV 206:1992 exceeds 20°Ccan cause cracking of concrete. This reference and the mathematical equations result the minimal volume of mass concrete which need curing and control at early ages to avoid cracking due to heat of hydration.