



<i>Project Title:</i>	Application of Maturity Method for Determination of Early-age Concrete Strength in Hong Kong Construction Industry
<i>Principal Investigator (PI):</i>	Dr. Goman HO
<i>Project ID:</i>	CICR/04/20
<i>Research Institution:</i>	Arup
<i>Subject Area:</i>	Construction Productivity
<i>Duration:</i>	9.5 months

Background

Ways of monitoring concrete strength on-site during concrete hardening include non-destructive and destructive techniques. While destructive techniques, as part of the traditional building practice, may be easier to use and direct, they are labour intensive, time consuming and often require special equipment to be present on site. Non-destructive techniques, on the other hand, offer a quick, relatively reliable and convenient way of obtaining concrete strength estimates on site.

Amidst the different non-destructive methods for estimating concrete strength development at real time, the maturity method can be sufficiently reliable. The maturity method is based on empirical-mathematical formulae, which can be used to convert concrete temperature to concrete compressive strength. It has been used for many years and has been standardised by ASTM (ASTM C1074).

Objectives

- i) Review and assess the applicability of the maturity method and maturity functions in predicting the early-age strength development of common Hong Kong cements and concretes.
- ii) Propose model calibration parameters and prepare practical guidelines to facilitate wider application of the maturity method.
- iii) Validate the maturity method through pilot projects.
- iv) Obtain endorsement of the Expert Group on the final report and practical guidelines for application of the maturity method in the Hong Kong construction industry.

Key Deliverables

- ♦ A practical guideline for application of the maturity method in Hong Kong will be the deliverable to facilitate wider application of the maturity method in both public and private projects.

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