

## Introduction of JCI Guidelines: Guidelines for Control of Cracking of Mass Concrete, 2016

### マスコンクリート構造物のひび割れ制御指針2016

#### Scope

(1) This document provides standard guidelines for design, construction and inspection necessary to control thermal cracking due to heat of hydration of cement as well as autogenous shrinkage in concrete structures.

(2) This document provides standard guidelines for design, construction and inspection necessary to prevent DEF cracking in consideration of environmental conditions as well as types of cement and mixture proportions in concrete structures for which the risk of thermal cracking due to hydration heat of cement is verified.

(3) Items not covered in the Guidelines shall be

in accordance with “Standard Specifications for Concrete Structures 2012” (Design, and Materials and Construction) published by the Japan Society of Civil Engineers or “Japanese Architectural Standard Specification for Reinforced Concrete Work (JASS 5)” published by the Architectural Institute of Japan.

Only printed volume is available (Price: 8,800JPY).

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### Reference Materials of 2016 Guidelines

- 1 Mechanism of Delayed Etringite Formation
- 2 Examples of Deteriorated Structures Due to DEF around the World
- 3 Present State of Methods to Judge Concrete Cracks Due to DEF
- 4 Limit Values of Concrete Temperature for Verification of DEF Cracking
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- 25 Revision of Estimation Equation of Thermal Crack Width

Note: Material reference 6, 10, 12, 13, 15, 17 and 18 are included in the Japanese version of the 2016 Guidelines, however these are not translated into English.

### Reference Materials of 2008 Guidelines published in 2011

- 1 Derivation of Relationship between Thermal Cracking Index and Thermal Cracking Probability by Three-Dimensional Finite Element Method
- 3 Thermal Crack Control Tests of Reinforced Concrete Wall Structures Subjected to Continuous Restraint at the Bottom
- 4 Relationship between Thermal Cracking Index and Maximum Crack Width
- 8 Estimation of Representative Values for Adiabatic Temperature Rise

Note: Material reference 2, 5, 6 and 7 are included in the 2008 Guidelines published in 2011, however these are not printed.

### Reference Materials of 2008 Guidelines (in Japanese)

- 10 Pre-Cooling Methods

Note: Material reference 10 is translated into English and printed because this is the useful information.

### Case Studies

- 1 Verification of Thermal Cracking—Box Culvert Structure
- 2 Verification of Thermal Cracking—Pier