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Mass Concrete and Thermal Cracking, a Joint ACI-JCI Seminar

Editors:
Melissa Harrison and Christopher C. Ferraro

SP-325

American Concrete Institute
Always advancing

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Preface

Thermal cracking and damage from high internal temperatures during construction are concerns for the mass concrete of dams, bridges, buildings, and power plants. The design, planning and execution of placements which involve mass and thermally controlled concrete must consider hydration of cementitious materials within the concrete mixture to avoid thermal-related distress. Without such considerations, durability, and in some cases, structural integrity can be affected. This Special Publication is intended to help owners, designers, contractors, and concrete suppliers understand and address concerns with mass and thermally controlled concrete.

To highlight state-of-the-art developments in defining, designing, testing and modeling mass and thermally controlled concrete, American Concrete Institute (ACI) Committee 207 and the Japan Concrete Institute (JCI) held a full-day technical session at the ACI Fall Convention, Cincinnati, Ohio, October 16-20, 2011. This Special Publication (SP) contains eight of the papers presented at the technical session. The subjects of these papers include: (1) defining mass and thermally controlled concrete (2) design and planning considerations for mass concrete; (3) modeling and prediction of in-place concrete temperature development, and (4) physical testing of mass concrete.

On behalf of ACI Committee 207 and JCI, the editors sincerely thank all authors and presenters for their efforts and contributions to the technical session and this SP volume. Special thanks are given to the reviewers of the original manuscripts for their constructive comments and suggestions. The editors are also indebted to the ACI staff for their assistance in organizing this session and in preparing this SP. The editors earnestly hope that the information presented at the ACI session and in this SP will facilitate significant improvements in defining mass concrete, as well as the design, planning and control of mass concrete. This SP will serve as a valuable resource for researchers and engineers to make such improvements.

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