

# Publication of "Japan's Concrete Technology"

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**Chief Editor:** Dr. Tsuyoshi Maruya (Taisei Corporation)

**Managing Editor:** Prof. Masahiro Ouchi (Kochi University of Technology)

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The Concrete Committee of Japan Society of Civil Engineers (JSCE) has published a commemorative book entitled "Japan's Concrete Technology" to honor the 100th anniversary of the founding of JSCE. The book is divided into four parts, "Structure and Design", "Materials and Construction", "Maintenance, Environment and Management" and "Standards", and 77 articles concerning concrete technology are covered. Each article was contributed by a total of 65 experts in the each field who are a member of standing committee of the JSCE Concrete Committee. As the title says, this one-of-a-kind publication has gathered together the world-class concrete technologies made in Japan.

Special feature of this publication is that the articles are written in English and Japanese and both descriptions are placed in the same page. Editors carried out editing and planning of the publication with a feeling a sense of responsibility to share the great concrete technology in Japan all over the world.

This publication provides fascinating reading as a "catalogue of concrete technology" in Japan.

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### *Preface*

#### **CHAPTER 1: STRUCTURE · DESIGN**

*Nonlinear Finite Element Methods in Structural Analysis, Flexural Deformation Analysis Using Fiber Model, Equations for Shear Capacity of Linear Members, Prediction Equation for Drying Shrinkage of Concrete, Consideration of Autogenous Shrinkage of Concrete in Structural Design, Evaluation of Long-Term Excess Deflection of PC Box Girders, Method of Verification for Concrete Salt Damage, Concrete under Carbonation, Chemical Attack, Ultra-Long-Term Durability Model, Thermal Cracking Analysis of Mass Concrete, Fire Protection for Concrete in Tunnel Structures, Seismic Design of Reinforced Concrete Structures, High Ductility Reinforced Concrete Columns, Seismic Retrofitting Methods for Improved Seismic Capacity, Extradosed Bridges, Repair of Settled PC Airport Pavement, Bridge Erection Using Suspension Structure, Pre-Grouted Prestressing Tendon, Evolution of Hybrid Prestressed Concrete Bridges with Corrugated Steel Webs*

#### **CHAPTER 2: MATERIALS · CONSTRUCTION**

*Self-Compacting High-Performance Concrete, Semi Self-Compacting Concrete, Fiber Reinforced Concrete & Cement Composites, High-Performance Fiber Reinforced Cement Composites, Ultra High-Strength Fiber Reinforced Concrete, High Early Strength Shotcrete, Crack Self-Healing Concrete, High-Performance Lightweight Concrete, Anti-Washout Underwater Concrete, Super Low-Heat Cement, Low-Heat Portland Cement, Eco-Cement, Fly Ash Concrete Admixture, Ground Granulated Blast Furnace Slag, Expansive Additives for Concrete, High-Range AE Water Reducing Admixture with Viscosity Agent, Shrinkage-Reducing High-Range AE Water Reducing Agent, AE High-Range Water Reducing Agents, Shrinkage Reducing Admixtures, Epoxy-Coated Reinforcing Steel Bar, Stainless Steel Reinforcing Bars, FRP Reinforcement, Recycled Aggregate, Standards for Various Slag Aggregates, Ferro-Nickel Slag Aggregate, Concrete Rubble from Earthquakes, Recycling Industrial and Construction Waste, Ready-Mixed Concrete, Allowable Lift Placement Interval, Compaction Evaluation and Quality Control, Curing Technologies, Technology for Rapid Placing of Mass Concrete, 100-Year Durability Tests of Concrete at Otaru Port*

#### **CHAPTER 3: MAINTENANCE · ENVIRONMENT · MANAGEMENT**

*Non-Destructive Inspection of Tendon Grouting in Prestressed Concrete Beams, Permanent Forms (Stay-in-Place Forms, Exposed Concrete Forms), Surface Coating, Surface Penetrants, Cross Section Restoration Methods and Materials, Concrete Crack Repair by Injecting Organic Resin,*

*Cathodic Protection, Electrochemical Desalination Method, Seismic Diagnosis & Seismic Retrofitting, Degraded Concrete Removal, Renewal of Concrete Slab, Environmental Performance Verification, Low-Carbon Concrete, Porous Concrete, Constructability and Workability, Asset Management Support System*

#### **CHAPTER 4: STANDARDS**

*Japan Industrial Standards (JIS) for Concrete, Standard Specifications for Concrete Structures, Design Specifications for Highway Bridges, Design Standards for Railway Structures (Concrete Structures), Technical Standards for Port and Harbor Facilities, JCI Guidelines for Control of Cracking of Mass Concrete, JCI Practical Guideline for Investigation, Repair and Strengthening of Cracked Concrete Structures, International Standards (ISO) for FRP Reinforcement*

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