

Research on Improving the Durability of Concrete Structures Based on Construction Reliability



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Reasons for the Award

The awardee has long been engaged in research and practical application at construction companies, focusing on the development of new materials and construction methods for concrete, as well as the maintenance, management, and longevity enhancement technologies for social infrastructure facilities.

Among the representative technologies still widely used today are the embedded formwork method, which utilizes high-durability thin-walled members as formwork requiring no stripping, and the self-compacting (high-flow) concrete method. Both are technologies that ensure the quality and longevity of social infrastructure. By actively addressing challenges in rationalizing construction and improving reliability in response to societal trends, the recipient achieved the world's first successful practical application of these methods. Furthermore, he was among the first to introduce methods from overseas for measuring various ion concentrations in the pore solution within concrete. This advanced the chemical understanding of alkali-silica reactions and chloride ion behavior, establishing a method to analyze chloride migration in concrete as ion transport. This significantly contributed to subsequent advances in durability assessment for concrete structures. Furthermore, the awardee played a central role for over 15 years on the revision committee for the Standard Specifications for Concrete, and as the first chair of the Subcommittee on Concrete Education and Research, dedicated himself to nurturing construction engineers with excellent practical knowledge and judgment capabilities.

In summary, the awardee's efforts as a practitioner aiming for high-quality, durable concrete structures have greatly contributed to the advancement of concrete engineering in Japan and to academic society activities. These contributions are recognized as worthy of the Japan Society of Civil Engineers Yoshida Award in the Research Achievement category.

Development of Topology Optimization Methods for RC Structure Fabrication Using 3D Printing Technology

Han Jike (Kyoto University)

Development of a Damage Prediction Method for Concrete During Fire Based on the Thermal Deformation Difference Between Cement Paste and Aggregate

Taku Koyama (Gunma University)

Development of a Mix Design Method for High-Flowability Concrete Requiring Compaction, Based on Material Separation Resistance, Flowability, and Passage Through Voids

Masamitsu Suzuki (Tokyu Construction Co., Ltd.)