

# Committee Report: JCI-TC174A

## Technical Committee on Reasonable Test Method for Evaluation of Concrete Performances based on their Principles

### 委員会報告：JCI-TC174A

#### コンクリートの各種性能評価試験方法の合理化・省力化に関する研究委員会

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### Abstract

The members of this technical committee conducted a survey focusing on various methods for evaluating the performance of concrete, for the purpose of rationalizing and achieving labor savings with outdated test methods. The subjects of the survey included testing of concrete materials, fresh concrete, and hardened concrete. In surveying each subject, if there were materials or concrete properties requiring fresh evaluation, we organized them while also surveying the related evaluation methods, considering recent diversifications in concrete production.

### 1. Introduction

Various new materials have been used in concrete production. For example, new materials are being used for the aggregate (a component of concrete mix). To address environmental concerns and to develop concrete with new properties, river-derived aggregate is being replaced by crushed sand and stone, various metal smelting by-products, as well as recycled aggregate. Such new materials often have properties far different from previous materials; thus, it is sometimes difficult to apply existing quality test methods to them. The consistency of manufactured concrete ranges from highly stiff to having high fluidity, and the properties of fresh concrete vary depending on the use of superplasticizers and other admixtures. Progress has also been made in construction methods, and the properties sought for fresh concrete have been changing

depending on these methods. This applies to hardened concrete as well. In addition to mechanical properties, permeability and surface concrete qualities have been investigated from the perspective of durability of concrete structures. Furthermore, efforts have been made to ascertain deterioration through non-destructive or micro-destructive testing of structures currently in use.

On the other hand, changes are also being made to ensure safe and environment-friendly testing of concrete. These include restrictions on dangerous tasks, handling of heavy objects, and use of hazardous chemicals during testing.

Against this background, in recent years, conventional test methods have been abolished and large-scale revisions implemented when reasonably.....