

# Committee Report: JCI-TC151A

## Technical Committee on Systematization of the Various Sensor Technology with an Emphasis on Applicability to Actual RC structures

### 委員会報告：JCI-TC151A 実構造物への適用性を重視した各種センサ技術の調査と体系化研究委員会

Takaaki OHKUBO, Dr. Eng.: Hiroshima Univ.  
大久保 孝昭, 博士 (工学) : 広島大学  
Hiroshi WATANABE, Dr. Eng.: Public Works Research Institute  
渡辺 博志, 博士 (工学) : 土木研究所  
Hisashi SUGIYAMA, Dr. Eng.: Utsunomiya Univ.  
杉山 央, 博士 (工学) : 宇都宮大学  
Akira ERIGUCHI: TAIHEIYO CEMENT Co., Ltd.  
江里口 玲 : 太平洋セメント  
Shinya UCHIDA, Dr. Eng.: Ritsumeikan Univ.  
内田 慎哉, 博士 (工学) : 立命館大学  
Kentaro OHNO, Dr. Eng.: Tokyo Metropolitan Univ.  
大野 健太郎, 博士 (工学) : 首都大学東京  
Madoka TANIGUCHI, Dr. Eng.: Hokkaido Research Organization  
谷口 円, 博士 (工学) : 北海道立総合研究機構  
Kazukiyo TAMAKI: Sumitomo Mitsui Construction Co., Ltd.  
玉置 一清 : 三井住友建設  
**Contact:** jci-web@jci-net.or.jp  
**Keywords:** sensor, sensor network, electronic data, monitoring, quality control, maintenance

---

## Abstract

This research committee conducted a survey to improve the production and maintenance of reinforced concrete structures by utilizing dramatically-advanced sensor and network technologies in the construction field. Many types of sensors have been installed in civil engineering structures and buildings over several decades, and while assuming that the structure users and managers are using the building while effectively utilizing measurement data, our goal is to lead the investigative research results for the purpose of constructing that foundation. The investigative research was implemented through 3 WGs; (1) the need for sensor technology in construction production and maintenance, (2) the trends of seed technologies related to sensor and measurement, and (3) the case of monitoring and the method of utilization.

## 1. Purpose and Investigative Method of the Investigative Research

### 1.1 Purpose of Committee Establishment

In recent years in the construction field, there has been an urge for the practical use of sensor technology in the maintenance and management of social infrastructure, and active efforts are being made to make full use of sensor monitoring technology in construction production systems and maintenance management systems. In particular for civil engineering structures, the Ministry of Land, Infrastructure, and Transport

has implemented the “SIP Strategic Innovation Creation Program” to achieve a reasonable preventative maintenance system, and is working on national technologies.

In order to judge the construction quality and soundness (degree of deterioration) of structures and parts, this research committee measures what and at which part in the actual structure, regardless of the measurement constraints, clarifies which physical property will be evaluated, and aims to establish.....