

Committee Report: JCI-TC163A

Technical Committee on Crack Repair Evaluation in Concrete by Means of Non-Destructive Testing

委員会報告：JCI-TC163A

非破壊試験によるコンクリートに生じたひび割れの補修評価方法の確立に関する研究委員会

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Abstract

The technical committee JCI-TC163A has been organized from FY2016 through FY2017. The target of research is to investigate the non-destructive testing (NDT) methods for evaluating repair of cracks in concrete. Focusing on the crack repair, repair methods for cracks in concrete are first surveyed. Then, the indices are referred to as to evaluate the repair results, and eventually addressed to effective NDT methods for repair evaluation. The issues facing the verification of repair results are examined by a questionnaire posed to managers and clients. The workflows of operation and maintenance are elucidated to confirm the repair results. Results show that the verification and confirmation of the repair results are in great demand for both owners and contractors of concrete structures. Thus, the indices necessary for verifying and achieving the required performance are identified. Concerning NDT methods, not only existing techniques but also brushing-up on the techniques are carried out to correlate with the indices for required performance and verification. As a result, a new workflow for the operation and maintenance of concrete structures is proposed for the evaluation of crack repair by means of NDT methods.

1. Introduction

Concerning optimal life-cycle scenarios for concrete structures in service, it is important to sustain the quality of structures during their service life, from the initial quality (both on the surface and in the interior) up to the service limits. As for performing preventive maintenance and subsequently constructing rational life cycle scenarios, the rational evaluation of internal concrete properties is of great significance to find

out deterioration and damage in concrete as early as possible. This is because evaluation techniques that ensure reasonable repairs are inevitable for properly repairing the damage. At present, however, techniques for estimating internal deterioration and damage of concrete structures, in particular, from their surfaces are yet to be established.

Under the background, in the Japan Concrete.....