

FAILURE MODE OF HOLLOW CIRCULAR RC STRUCTURES IN THE GROUND AND EFFECTS OF STEEL CORROSION

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Reasons for the Award

This paper discusses the results of load tests conducted on corroded steel RC hollow circular specimens, examining the interaction between circular structures and soil as well as changes in structural performance due to steel corrosion through both experimental and numerical analysis. In particular, the numerical analysis, which reproduced the interaction between soil, structure, and material degradation, generally captured the progression of internal cavity displacement and the soil pressure conditions. This demonstrates the importance and potential of evaluating strength in failure modes where assessment using strength formulas based on existing knowledge is difficult. It is recognized as deserving of the Paper Encouragement Award because these findings, which are expected to contribute to the advancement of maintenance and management by establishing inspection and performance evaluation methods for underground structures as they are accumulated and organized in the future, have been obtained, and the research holds future potential.