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**Reduction of Dynamic Strength Capacities of Reinforced Concrete Structures
under Different Corrosion Conditions**

Ifham M. R. M., Ahamed M. Z. S., Rathnayake R. M. M. C., Sanjeewa H. V. A. N.
and Appuhamy J. M. R. S.

*Department of Civil and Environmental Engineering, Faculty of Engineering,
University of Ruhuna*

** Corresponding Author: ruwan@is.ruh.ac.lk*

Steel reinforcement corrosion is one of the major deterioration mechanisms of Reinforced Concrete (RC) structures. Once the corrosion signs appear on the concrete surface, it'll intensify further corrosion and as a result, service life of RC structures will be reduced. Many structural failures in RC structures were occurred due to seismic forces and corrosion triggers the vulnerability of these structural failures. Due to corrosion, concrete members may loose their dynamic carrying capacity and tend to fail a member when an earthquake occurred. Due to the failure of a member, whole structure may fail. Therefore, the prediction of the dynamic behavior of RC structures with different corrosion conditions is vital. If the dynamic behavior of corroded RC members can be predicted, then the members which are in critical condition can be identified. This study was aimed to develop a reliable methodology to predict dynamic behavior of corroded concrete members. In this study, large scale RC beam specimens were constructed and 'electrochemical corrosion technique' was used to corrode the reinforcement bars of the specimens. All the specimens were tested under same cyclic loading condition and the behavior of the specimens were analyzed with respect to their corrosion level. It was revealed that the dynamic strength capacity was reduced with the increase of the severity of the corrosion conditions.

Keywords: accelerated corrosion, dynamic behavior, reinforced concrete, seismic loading