

Author: Keyword:

Search

[ADVANCED](#)[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

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[\[PDF \(807K\)\]](#) [\[References\]](#)**EFFECT OF COVER CONCRETE ON ANTI-BUCKLING OF LONGITUDINAL BARS IN REINFORCED CONCRETE COLUMNS**Jun-ichi HOSHIKUMA¹⁾, Shigeki UNJOH²⁾ and Akihiko SHIOJIMA²⁾

1) Construction Planning Division, Policy Bureau, Ministry of Land, Infrastructure and Transport

2) Public Works Research Institute

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This paper proposes an analysis model that, based on fiber element analysis, appropriately evaluates the phenomenon—spalling of cover concrete by buckling of longitudinal bars under the mechanism of the formation of a plastic hinge in a reinforced concrete bridge column under cyclic loading—and presents a study of its suitability based on a comparison with cyclic loading testing of reinforced concrete bridge column models performed by the authors in the past. The results have revealed that by modeling the cover concrete as a beam with its thickness treated as effective height and considering controlling the force of the longitudinal bars pushing outwards based on the bending resistance of this beam, it is possible to estimate the deformation of the bridge column when the longitudinal bars buckle causing spalling of the cover concrete with relative accuracy.

Key Words: RC columns, anti-buckling, cover concrete, fiber element analysis, seismic evaluation

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