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STRUCTURAL ENGINEERING / EARTHQUAKE ENGINEERING

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[\[PDF \(729K\)\]](#) [\[References\]](#)**EXTREMELY LOW CYCLE FATIGUE ASSESSMENT METHOD FOR UN-STIFFENED CANTILEVER STEEL COLUMNS**Kazuo TATEISHI¹⁾, Tao CHEN²⁾ and Takeshi HANJI¹⁾

1) EcoTopia Science Institute, Nagoya University

2) Dept. of Civil Eng., Nagoya University

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This paper presents the results of un-stiffened cantilever column subjected to incremental or constant amplitude cyclic loading. The objectives of this study are to investigate the extremely low cycle fatigue life of the column and verify the proposed strain based approach. During the test, fatigue cracks initiated from the weld toe at the corner and propagated along the weld toe. Finally, the column ruptured without a local buckling. The failure of low cycle fatigue induced by large cyclic deformation has been elucidated. In a further step, the crack initiation life was estimated based on the local strain by proposed simple approach. It is indicated that correlation between the test result and the estimated life was good enough.

Key Words: extremely low cycle fatigue, steel columns, crack initiation and propagation, local strain approach

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