Cyclic Performance of Beam-Column Subassemblies with Construction Joint in Column Retrofitted with GFRP

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Cyclic performance of beam-column subassemblies with construction joint in column retrofitted with GFRP

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Abstract

Construction of multistoried reinforced concrete buildings require construction joint in columns at each floor level. Recent research shows that such construction joint in column leads to inferior performance of structure compared to design performance. Present experimental investigation is focused towards retrofitting beam-column subassemblies with GFRP, thereby, eliminating the weakness arising out of construction joint in multi-storied buildings. Specimens with construction joint in column are retrofitted with GFRP and their performances are compared with corresponding un-retrofitted specimens under cyclic loading. Test results indicate that retrofitting with GFRP could enhance the ductility, initial stiffness and energy dissipation capacity of test specimens by 56-144%, 26-46% and 34-118% respectively compared to un-retrofitted test specimens investigated in the present study. Application of GFRP also restored the capacity of retrofitted specimens over and above monolithic control specimens.

Keywords: Retrofitting; GFRP; Construction joint; Beam-column joint; Cyclic test.

1. Introduction

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