

Seismic Behavior of Short Core Buckling Restrained Braces

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Abstract : This paper investigates the seismic behavior of a new type of buckling restrained braces (BRBs) called "Short Core BRBs" in which a shorter core segment is used as an energy dissipating part and an elastic part is serially connected to the core. It seems that a short core BRB is easy to be fabricated, inspected and replaced after a severe earthquake. In addition, the energy dissipating capacity in a short core BRB is higher because of larger core strains. However, higher core strain demands result in high potential of low-cycle fatigue fracture. In this paper, a strategy is proposed to estimate the minimum core length in a short core BRBs. The seismic behavior of short core buckling restrained brace is experimentally examined. The results revealed that the short core buckling restrained brace is able to sustain large inelastic strains without any significant instability or strength degradation.

Keywords : short core, Buckling Restrained Brace, finite element analysis, cyclic test

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