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Shaking table tests of a high strength steel frame with curved knee braces under pulse-like earthquakes

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ABSTRACT

High strength steel frames with curved knee braces (HSSF-CKBs) were recently proposed for enhanced seismic resilience. Although previous research demonstrated that HSSF-CKBs can achieve encouraging seismic performance under non-pulse-like earthquakes, the structural behaviour of HSSF-CKBs under pulse-like earthquakes was still not well understood. This paper is a preliminary report on the shaking table tests of a half-scaled, three-storey HSSF-CKB specimen under pulse-like earthquakes. The test results demonstrated that the specimen showed an outstanding recentring capacity under the selected pulse-like records. However, when subjected to earthquakes with short pulse period, the specimen exhibited nonuniform responses with higher interstorey drifts and storey shears in the upper storeys.

REFERENCES

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