

## **Assessment of Bridge Performance with Laminated versus Spring Seismic Isolation**

**Authors :** M. Z. Ramli, A. Adnan, Chee Wei Tan

**Abstract :** To gain a better understanding of earthquake forces on reinforced concrete bridge piers with different bearing condition, a series of experiments was conducted on a realistic, 1:4 scale reinforced concrete bridge pier. The normal practices of laminated seismic isolation bearing is compared with the new design spring seismic isolation bearing where invented by Engineering Seismology and Earthquake Engineering Research (e-SEER), Universiti Teknologi Malaysia. The nonlinear behavior of piers is modeled using the fibre beam theory to verify the experimental works. The hysteresis of bridge pier with different bearing condition was illustrated under different Peak Ground Acceleration (PGAs). The average slope of the hysteresis respectively to the global stiffness was also investigated.

**Keywords :** bridge, laminated seismic isolation, spring seismic isolation, Peak Ground Acceleration, stiffness

**Conference Title :** ICCSEE 2015 : International Conference on Civil, Structural and Earthquake Engineering

**Conference Location :** Toronto, Canada

**Conference Dates :** June 15-16, 2015