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STRUCTURAL ENGINEERING / EARTHQUAKE ENGINEERING

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[\[PDF \(444K\)\]](#) [\[References\]](#)**VELOCITY-BASED DESIGN OF SEISMIC UNSEATING PREVENTION CABLE AND SHOCK ABSORBER FOR BRIDGES**Shinobu TAKENO¹⁾, Hiromi OHNO²⁾ and Kazuyuki IZUNO³⁾

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The design of connecting devices for preventing bridge girders from becoming unseated during strong seismic motion is extended to include consideration of the velocity response of the bridge. The necessary strength and cross-sectional area of the connecting cable are derived based on conservation of energy considerations, and the shock stress arising when the device becomes active is calculated. The installation of a shock absorber with optimum stiffness based on its deformation limit and the cable stiffness is found to reduce both the impact stress on the cable and the required cross-sectional area. The effectiveness of the proposed design is then verified through numerical simulations.

Key Words: bridge unseating prevention system, response velocity, impact stress, shock absorber

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