

## Development and Structural Performance Evaluation on Slit Circular Shear Panel Damper

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**Abstract :** There are several types of metal-based devices conceived as dampers for the seismic energy absorber whereby damages to the major structural components could be minimized for both new and existing structures. This paper aimed to develop and evaluate structural performance of slit circular shear panel damper for passive seismic energy protection by inelastic deformation. Structural evaluation was done using commercially available nonlinear FE simulation program. The main parameters considered are: diameter-to-thickness ( $D/t$ ) ratio and slit length-to-width ratio ( $l/w$ ). Depending on these parameters three different buckling modes and hysteretic behaviors were found: yielding prior to buckling without strength degradation, yielding prior to buckling with strength degradation, and yielding with buckling and strength degradation which forms pinching at initial displacement. The susceptible location at which the possible crack is initiated is also identified for selected specimens using rupture index.

**Keywords :** slit circular shear panel damper, hysteresis characteristics, slip length-to-width ratio,  $D/t$  ratio, FE analysis

**Conference Title :** ICCSGE 2014 : International Conference on Concrete, Structural and Geotechnical Engineering

**Conference Location :** London, United Kingdom

**Conference Dates :** July 27-28, 2014