



## **Parameter Study on ADAS Metallic Damper**

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### **Abstract**

Protection of structures to frequently occurring earthquake has been an active area of research due to devastating effects of an earthquake. Energy dissipating devices undergoing inelastic deformation have been developed and implemented successfully for protection of various type of structures. The present paper aims to perform numerical study of hysteretic behavior of laboratory based scaled model of ADAS type metallic damper under increasing cyclic loading. A parametric study is conducted for ADAS type metallic damper in terms of thickness and number of plates under predefined yield load/ displacement. Nonlinear Chaboche model is considered for defining metal plate behavior in the post-yield region. FE model of ADAS type metallic damper is developed and is subjected to increasing cyclic loading. It has been found that ADAS type metallic damper has good energy dissipation capability. Equivalent viscous ratio,  $\zeta$ , for the damper is of the order of 47% following yielding of the X-shaped steel plate. Parametric study in term of thickness and numbers of plates for ADAS type metallic damper shows marginal improvement in energy dissipation capacity.

**Keywords:** ADAS Metallic damper, Energy dissipation devices, cyclic loading, FE analysis