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Spotlight on *Structures*



Volume 54 (August 2023) of *Structures* is now available to read at: www.sciencedirect.com/journal/structures/vol/54.

Hua Yang, Associate Editor for *Structures*, has selected an article reviewing self-centering dampers for seismic-resilient structures.

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Editor's Featured Article

Review on self-centering damper for seismic resilient building structures

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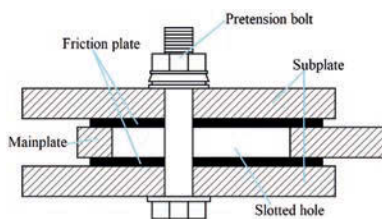
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In recent years, major earthquakes in China, Chile, New Zealand and Japan caused severe damage to many building structures, which must be overhauled or rebuilt. Therefore, how to improve the seismic resilience of building structures has been widely concerned. The energy dissipation dampers are proposed to be installed in some parts of the structure to produce large damping and dissipate much seismic energy input. The disadvantage of these traditional dampers is that they cannot automatically restore to the original position after the earthquake, and the residual deformation may result in huge economic losses. In recent years, researchers proposed to combine self-centering devices with traditional dampers to obtain self-centering capacity in addition to energy dissipation capacity, and the self-centering dampers can effectively avoid post-earthquake damage

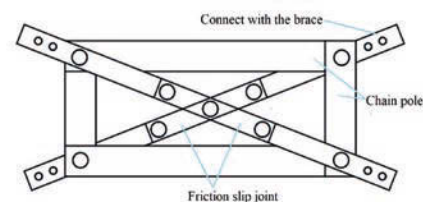
of the structure. This paper first reviews the mechanical characteristics and development of traditional dampers, including metal yield dampers, friction dampers, viscoelastic dampers, viscous fluid dampers, etc. Then, the research of self-centering dampers is summarised according to the types of self-centering devices, including shape memory alloy type, steel tendon and strand type, and mechanical spring type. Further, the experimental research and seismic design

methods of structures with self-centering dampers are reviewed, as well as the classic engineering applications of different dampers. Finally, the future directions which need to be considered in further research are mentioned, which is beneficial to the future popularization and application of self-centering dampers among engineers.

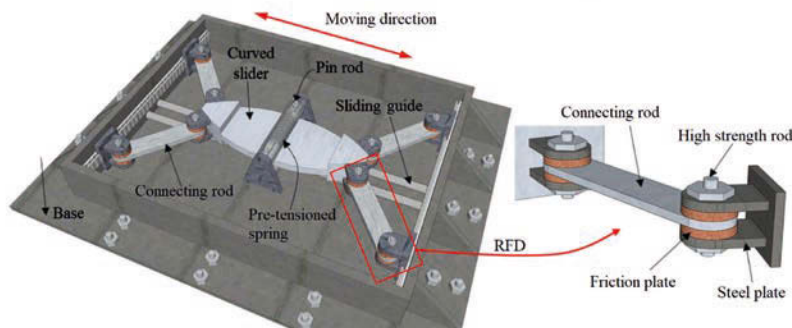
→ Read the full paper at <https://doi.org/10.1016/j.istruc.2023.05.046>



(a) Main components



(b) Pall-type friction damper



(c) Rotational friction negative stiffness damper [34]



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