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Experimental Investigation of Seismic Response of Hybrid Shear Wall with External Energy Dissipating Reinforcement

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Abstract

A conventional shear wall has negligible reusability capacity if it gets severely damaged during any strong earthquake. This forms a major drawback for many civil installations, which are prone to frequent seismic activities. Often, a post-tensioned (PT) shear wall having self-centering capacity is used as one of the effective ways of resisting such large lateral shear forces, however it has limited energy dissipation capability. Therefore, in situations having a higher force and limited drift demand, PT shear walls with internal Energy Dissipating Reinforcements (EDRs) is that, once they get damaged, they cannot be replaced. Hence to solve this problem use of external energy dissipating reinforcement has been introduced due to its merit of easy replacement. A new configuration of external energy dissipating device has been introduced in this study, where notch plates are used as external energy dissipating devices. The suitability and functionality of such External Energy Dissipating Notched Bars (EDNB) have been checked experimentally and reported.

Keywords: Post-tensioned shear wall, External energy dissipating notched bars (EDNB), Self-centering