

Experimental Behavior of Composite Shear Walls Having L Shape Steel Sections in Boundary Regions

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Abstract : The composite shear walls (CSW) with steel encased profiles can be used as lateral-load resisting systems for buildings that require considerable large lateral-load capacity. The aim of this work is to propose the experimental work conducted on CSW having L section folded plate (L shape steel made-up sections) as longitudinal reinforcement in boundary regions. The study in this paper present the experimental test conducted on CSW having L section folded plate as longitudinal reinforcement in boundary regions. The tested 1/3 geometric scaled CSW has aspect ratio of 3.2. L-shape structural steel materials with 2L-19x57x7mm dimensions were placed in shear wall boundary zones. The seismic behavior of CSW test specimen was investigated by evaluating and interpreting the hysteresis curves, envelope curves, rigidity and consumed energy graphs of this tested element. In addition to this, the experimental results, deformation and cracking patterns were evaluated, interpreted and suggestions of the design recommendations were proposed.

Keywords : shear wall, composite shear wall, boundary reinforcement, earthquake resistant structural design, L section

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