عنوان مقاله:

THEORETICAL AND NUMERICAL STUDY ON THE STRENGTHENED STEEL PLATE SHEAR WALLS BY FRP LAMINATES

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خلاصه مقاله:

In this paper, nonlinear behavior of strengthened steel plate shear walls (SPSWs) by FRP laminates has been investigated both theoretically and numerically. In the first part, a new method, thecomposite-plate frame Interaction (C-PFI) method , has been introduced to predict the shear behavior ofthe composite steel plate shear wall systems (CSPSWs). In the second part, several models of one-story unstiffened and strengthened SPSWs have been simulated using finite element software, all specimens subjected to quasi-static cyclic loading. Comparison between results of FEM method and C-PFI methodshow that theoretical formulations can well predict nonlinear behavior of CSPSWs. FEM results show that with strengthening infill steel plate on the steel plate shear walls, yield strength, ultimate shear capacity and secant stiffness of SPSWs can be significantly increased. Moreover, in the all strengthenedSPSW the amount of cumulative dissipated energy were increased

کلمات کلیدی:

Steel Plate Shear Wall; FRP Laminate; C-PFI Method; Hysteretic; Nonlinear Analysis

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