

Test Program on the Seismic Behavior of Confined Masonry Structures

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Abstract:

Results of a testing program on the response of confined masonry structures subjected to earthquake-type loads are presented. Five one-story specimens were designed and constructed according to the present Mexican practice. The experimental variables were the flexural coupling between two wall panels (Series I), and the horizontal reinforcement in running bond joints (Series II). For Series I tests, it is concluded that the degree of coupling did not influence the failure mode of the specimens, which was governed by shear failure of the masonry panels. Maximum measured strength was 150% higher, on the average, than that obtained from current code recommendations. In Series II, the use of high-strength deformed wire as horizontal steel considerably enhanced the response of the structure increasing the strength and dissipated energy. In contrast, prefabricated cold-drawn wire reinforcement did not significantly improve the behavior. However, maximum measured strengths for both specimens were higher than those calculated from code equations.

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