

Behavior of Floor-to-Wall Connections in Concrete Masonry Buildings¹

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Abstract:

Experimental data on the behavior of floor-to-wall connections is essential for seismic analysis and design of concrete masonry buildings. In view of this need a research program is being conducted at the University of California, San Diego, under the sponsorship of the National Science foundation. Three different connection types were selected for initial study; 1) precast reinforced concrete slab to interior wall, 2) cast-in-place slab to interior wall, and 3) hollow-core, prestressed concrete plank with and without topping to interior wall. The tests are carried out using a closed loop computer controlled servo system by imposing zero rigid body translation and rotation of the wall and by applying oscillatory horizontal motion under displacement control to the floor. Tests are performed for different values of vertical precompression to simulate the weight of stories above the test floor. Quantities of prime importance such as interface shear force vs. relative displacement between the floor and the wall are reported to construct the cyclic force-deflection envelopes for each case. This paper presents a brief description of the current research on floor-to-wall connections together with selected experimental results.

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