

Computer model for precast bearing wall

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ABSTRACT

This paper presents the analysis of test results from precast bearing building system in Thailand under cyclic load by computer programming. The tested specimen Wall1 with 3 cross over dowel bars and Wall3 with 4 cross over dowel bar are selected and model. Precast wall panel is model with non-linear layered shell element. There are 4 millimeter diameter with spacing 150 mm in both direction is assigned to wall panel. The vertical link (interface link) represented the compressive behavior of cement grout between precast wall and foundation is created from the relationship of stress and strain of cement grout, compressive strength, 50 MPa. The other vertical link (dowel bar link) represented the dowel bar behavior is created from vertical force in dowel bar exacted from stress-strain of steel relationship and bond slip model. The horizontal link represented the shear friction between precast wall and foundation. The analysis by non-linear static push over showed that the proposed model was able to predict the relationship between envelope load and story drift closed to the tested result. The stiffness and maximum load are almost same. The model can be modified to be a simplify model in order to develop for full building and connection design for precast concrete bearing wall under seismic load.

Keywords: Precast bearing wall, Seismic design, Computer model, Cyclic load, FEM analysis