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PSEUDO-DYNAMIC EARTHQUAKE RESPONSE MODEL OF WOOD-FRAME WITH PLASTERED TYPHA (MINIMA) BALE MASONRY-INFILL

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Abstract

This study looks at designing and evaluating strength of typha strawbale wall cross section rather than the assumption of edge column acting as axially loaded members that should resist all vertical members from the loads acting on the wall. Based on the aforementioned claim, the objective of this work is to provide the average design thickness for the cement-plastered typha strawbale that stiffens the wooden frame. Data on strength and deformation of the structure are the input for the analytical models. Pseudo-dynamic earthquake response tests, of a one quarter (¼) scale model low rise storeys wooden frames stiffened with cement plastered strawbale masonry was conducted. The structure is idealized as plane frames. The analysis utilised the hysteresis models for members' models as time-independent. The force-displacement relationship of the members' models has been evaluated by the approximate method on the basis of the material properties and structural geometry. A model was investigated with straw bale infill panel to determine the hysteretic parameters, stiffness deterioration and strength degradation due to seismic forces.

Keywords: seismic; masonry-infill; typha strawbale, finite element; degradation, wood