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OUT-OF-PLANE FAILURE RESISTANCE OF ADOBE FACADES IN CUENCA-ECUADOR FOR DIFFERENT SEISMIC ACCELERATIONS

Xavier, Cárdenas-Haro^a  ; Nicola, Tarque^b  ; Leonardo, Todisco^b  ; Javier, León^b  ;

Julver, Pino^c 
 Save all to author list

^a Universidad de Cuenca, Facultad de Arquitectura y Urbanismo, Ecuador

^b Universidad Politécnica de Madrid, E.T.S.I Caminos, Canales y Puertos, Pontificia Universidad Católica del Perú, GERDIS Group, Civil Engineering Division, Spain

^c Universidad de Cuenca, Facultad de Ingeniería Civil, Ecuador

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Abstract

A considerable amount of the world's population lives in houses built with raw earth, using different techniques such as adobe, mud, bahareque, cob, etc. This research studies buildings built with adobe located in the city of Cuenca-Ecuador, which since 1999 is recognized by UNESCO as a World Heritage Site. The buildings studied have different geometric and material configurations, but all have adobe-bearing walls. This article performs an analysis of the seismic vulnerability of the adobe facade walls.

The study considers 45 buildings with one and several floors, studying the behavior before outof- plane loads and for five different failure mechanisms for different seismic intensities. The behavior of the

OUT-OF-PLANE FAILURE RESISTANCE OF ADOBE FACADES IN CUENCA... facade walls is analyzed under the capacity-demand methodology, in which an analysis of the main factors that determine the operation in the event of an earthquake of a certain magnitude is established. As a main result, this procedure has made it possible to establish a classification of buildings according to the degree of seismic vulnerability, in addition to establishing the influence of certain parameters on the variability of seismic vulnerability. © 2022, University of Cantabria - Building Technology R&D Group. All rights reserved.

Author keywords

Adobe; Capacity; Demand; Mechanism; Seismic vulnerability

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 Xavier, C.-H.; Universidad de Cuenca, Facultad de Arquitectura y Urbanismo,
Ecuador; email:xavier.cardenas@ucuenca.edu.ec

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