

SEISMIC RETROFITTING OF AN EXISTING PERUVIAN EDUCATIONAL BUILDING OF REINFORCED CONCRETE USING SHEAR WALLS

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Received: 00/00/0000 Accepted: 00/00/0000

ABSTRACT

The seismic evaluation and retrofitting of existing buildings is very important on many occasions, particularly in buildings considered essential. In this study, an existing three floor level building owned by the National University of the Altiplano is analyzed, whose structural system is composed of reinforced concrete frames with infill masonry wall, the structure was designed and built in the 1990s, based on the engineering practice of that time.

In previous studies by Luque [1] and Quispe et. Al [2], by means of non-linear static o pushover analysis, the seismic performance and the influence of the infill masonry wall on the behavior were determined, finding that the structure does not satisfactorily meet the acceptance criteria for the level of performance of immediate occupation, and that the infill wall masonry provides an increase in Strength and stiffness, from a certain level of lateral displacement there is a degradation of strength and stiffness due to the fact that the masonry does not provide lateral stiffness and the soft story mechanism is formed on the first floor level of the building

The seismic retrofitting consists of the isolation of the infill masonry walls, inclusion of shear walls in certain sectors of the building, turning the structure into a dual type, obtaining a better seismic behavior of the building, due to the contribution of stiffness of the shear walls and improvement ductility.

Keywords: retrofitting, pushover, infill wall, shear wall

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