

عنوان مقاله:

Adjusting a Systematic Table to Predict the Damage and to Strengthen Historical Buildings with Different limits of Budget

محل انتشار:

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خلاصه مقاله:

this paper proposes a systematic table to be able to see the damage and strengthening methods for each of the Mercalli intensity scales of earthquakes for the specific types of historical buildings. One of the most important determining factors in any project is economy. First, we need to categorize the damage and the intervention necessary in different earthquake intensities and the special necessary expenditure to do that conservation task. This matter can be organized in proportion to different Modified Mercalli Intensity scales that are between I till XII, which is on the basis of feeling earthquakes and observed damage. In any earthquake, the intensity level and resulting damage is determined on the basis of previous observations. This damage can be on non-structural elements, material of the structures or main structural damage. Each protection can consist of several degrees of intervention to historical buildings: 1) prevention of deterioration; 2) preservation of the existing state; 3) consolidation of the fabric; 4) restoration; 5) rehabilitation; 6) reproduction; 7) reconstruction. Now, with having this knowledge and the documentation of each case, we can determine the damage and necessary protection for each case study. Variant protection could be done, depending on any intensity level: cleaning, draining water, repairing some elements of the structure, anchoring the non-structural elements, grouting, adding ties, wrapping the building by applying the strips or sheets to the exterior of the structure, fastening the ties to the joints and corners, thickening or enlarging the foundation or other elements, etc. So we will be able to predict the required budget for each stage of conservation for each level of earthquake intensity. If the historical buildings have been well maintained, they will have considerably less damage against earthquake, so with any budget we can have at least a proportional minimum protection. Even if this intervention protects buildings by regarding lower intensity scales, it will be appreciated

کلمات کلیدی:

historical buildings, un-reinforced masonry, damage, strengthening, earthquake

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