عنوان مقاله:

Empirical Seismic Vulnerability and Damage of Bottom Frame Seismic Wall Masonry Structure: A Case Study in Dujiangyan (China) Region

محل انتشار:

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خلاصه مقاله:

In order to understand the seismic performance and mechanism of bottom frame seismic wall masonry structure (BFSWMS) and its vulnerability in empirical seismic damage, based on the statistical and numerical analysis of the field seismic damage observation data of 2178 Dujiangyan structures in the Wenchuan great earthquake urban of China on May 12, 2008, a non-linear function model between the seismic grade and the number of field damage samples is established, and the regression curve is given. The empirical seismic vulnerability matrices in multiple intensity regions are established, and the regression model functions of each intensity region and the vulnerability curves based on seismic damage grade and exceeding probability are obtained, respectively. A vulnerability matrix model with mean damage index (MDI) as its parameter is proposed, and the empirical vulnerability matrix is embedded in it. The vulnerability matrix based on this parameter and the regression curve of MDI in Dujiangyan city are derived. The above research results can provide the necessary practical reference for the vulnerability study of BFSWMS and the seismic code of China.

کلمات کلیدی:

Bottom Frame Seismic Wall Masonry Structure, Fragility curves, Mean Damage Index, Vulnerability Analysis, Vulnerability matrix