

Retrofitting of Non-Engineered Buildings and its Impact on Earthquake Risk Reduction

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Abstract

Irregular development of slum settlements in Afghan cities such as Kabul which contains increasing construction of non-engineered buildings with bricks, wood and mud leads to raising exposure and hence probable risk of earthquake. According to the results of recent seismic hazard assessment of Kabul city conducted by International Institute of Earthquake Engineering and Seismology (IIEES) of Iran the level of seismic hazard in Kabul is higher than what reported in previous studies which will be the probable occurrence of earthquake with acceleration of 0.8g and magnitude of 7.5. This can lead to abundant damage to existing adobe and masonry buildings with high casualties. In this study, various methods of seismic retrofitting for such buildings are described including providing horizontal and vertical tie beam with concrete or steel profile, strengthening bearing walls with wire mesh and concrete to increase shearing capacity, retrofitting brick and wooden roof and strengthening joints among structural elements. Expected results indicates vulnerabilities reduction of retrofitted non-engineered buildings to probable risk of earthquake.