

ASCE 31-03 Seismic evaluation of a five-storey reinforced concrete frame building with masonry infill in Nepal

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ABSTRACT: This paper summarizes the seismic evaluation of a five-storey reinforced concrete frame masonry infill building constructed in Nepal. The seismic assessment was conducted according to the American Society of Civil Engineering standard ASCE 31-03 Seismic Evaluation of Existing Buildings, following the Standards three-tier evaluation process. Due to budget restraints, only Tier 1 (Screening Phase) and Tier 2 (Evaluation Phase) were conducted. Structural plan and vertical irregularities, multiple lateral force resisting systems, URM brick parapets, seismically unsecured non-structural components, URM shear walls, openings in diaphragms, and URM rooftop structures severely penalised this building constructed in the highly seismic Kathmandu valley. Along with the building's primary lateral force resisting system consisting of reinforced concrete frames with masonry infill, other lateral forces resisting systems include reinforced concrete moment frames and URM shear walls. The partial fifth storey consists of timber-framed and URM structures along with seismically unsecured non-structural components. As part of the ASCE 31 evaluation, this paper will also outline the seismic evaluation requirements of ASCE 31, including an overview of the level of investigation required, site visit requirements, the levels of seismic performance and seismicity and building type classification.