



Earthquake Loss Assessment for Post-2000 Buildings in Istanbul

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Current building inventory of Istanbul city, which was compiled by street surveys in 2008, consists of more than 1.2 million buildings. The inventory provides information on lateral-load carrying system, number of floors and construction year, where almost 200,000 buildings are reinforced concrete frame type structures built after 2000. These buildings are assumed to be designed based on the provisions of Turkish Earthquake Resistant Design Code (1998) and are tagged as high-code buildings. However, there are no empirical or analytical fragility functions associated with these types of buildings. In this study we perform a damage and economic loss assessment exercise focusing on the post-2000 building stock of Istanbul. Three M7.4 scenario earthquakes near the city represent the input ground motion. As for the fragility functions, those provided by Hancilar and Cakti (2015) for code complying reinforced concrete frames are used. The results are compared with the number of damaged buildings given in the loss assessment studies available in the literature wherein expert judgment based fragilities for post-2000 buildings were used.