

A New Approach to Retrofit Steel Moment Resisting Frame Structures after Mainshock

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Abstract : During earthquake events, aftershocks can significantly increase the probability of collapse of buildings, especially for those with induced damages during the mainshock. In this paper, a practical approach is proposed for seismic rehabilitation of mainshock-damaged buildings that can be easily implemented within few days after the mainshock. To show the efficacy of the proposed method, a case study nine story steel moment frame building is chosen which was designed to pre-Northridge codes. The collapse fragility curve for the aftershock is presented for both the retrofitted and non-retrofitted structures. Comparison of the collapse fragility curves shows that the proposed method is indeed applicable to reduce the seismic collapse risk.

Keywords : aftershock, the collapse fragility curve, seismic rehabilitation, seismic retrofitting

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