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Aftershock Collapse Capacity Assessment of Mid-Rise Steel Moment Frames Subjected to As-Recorded Mainshock-Aftershock

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Abstract : Aftershock collapse capacity of Special Steel Moment Frames (SSMFs) is evaluated under aftershock earthquakes by considering building heights 8 and 12 stories. The assessment evaluates the residual collapse capacity under aftershock excitation when various levels of damage have been induced by the mainshock. For this purpose, incremental dynamic analysis (IDA) under aftershock follows the mainshock imposing the intended damage level. The study results indicate that aftershock collapse capacity of this structure may decrease remarkably when the structure is subjected to large mainshock damage. The capacity reduction under aftershock is finally related to the mainshock damage level through regression equations.

Keywords : aftershock collapse capacity, special steel moment frames, mainshock-aftershock sequences, incremental dynamic analysis, mainshock damage
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