

EXPERIMENTAL EVALUATION OF PROGRESSIVE COLLAPSE RE-SISTANCE OF STEEL MOMENT FRAME CONNECTIONS

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Abstract: During their lifetime, buildings may be subjected to accidental actions, like blast and impact, which can cause significant local damages. To limit the effects of such unforeseen events, the structure should retain the structural integrity by limiting the extent of damage and prevent its progress. Taking advantage of structure's inherent redundancy and available load paths, seismic resistant steel frames are considered appropriate to resist local damage without collapse. However, there are specific problems, which need to be considered when localized failures, particularly of columns, occur, i.e. large deformations and catenary response of beams. In this study, we investigated the performance of four steel frame beam-to-column connection types affected by the column removal. Acceptance criteria for progressive collapse events were proposed and compared to existing provisions.

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