

# ULTIMATE CAPACITY OF BEAM-TO-COLUMN CONNECTIONS UNDER BENDING AND AXIAL STRESSES

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## Abstract

Capacity of multi-storey steel frame buildings to resist extreme loading may depend on the performance of beam-to-column connections. If catenary action forms, this results in large axial force demands in beams and therefore it is necessary to take into account the interaction between bending and tension for the design of connections. The paper investigates the capacity of different types of beam-to-column connections to resist large axial forces after undergoing large rotations. On this purpose, four types of beam-to-column connections are designed following seismic design criteria for highly dissipative structures to resist seismic actions. Applied Element Method through nonlinear dynamic analyses is applied to predict the structural response, after the loss of one or two columns.

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