

# Seismic performance of slender rocking wall-frames

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**ABSTRACT:** Design and development of rocking frames is an advanced method to ensure the seismic resilience of structures by creating a non-linear elastic response. Dissipating significant amounts of energy without sacrificing structural components is the key objective of implementing rocking frames. However there are some issues that need to be addressed to enable designers to consider these systems without the need for full time-history analysis. For instance building response prediction and the implications of impact loads induced during rocking on horizontal and vertical floor accelerations and the resulting effects of building contents must be fully characterised. In this study higher mode effects are identified and their influence on moment and shear demands on rocking frames of different aspect ratios is highlighted. Simplified design methods are also developed to capture the important dynamics without the need for engineers to develop dynamic structural models and time-history analysis. These methods can be used by designers to develop quick, robust designs of rocking frame systems.