

Seismic Design of Reinforced Concrete Masonry Moment-Resisting Frames

M. J. N. Priestly¹ and Chai Yuk Hon²

Abstract:

Aspects of a seismic design philosophy for reinforced masonry frames of hollow concrete unit construction are presented. The suggested approach is based on ultimate strength theory, and on the provision of adequate ductility through properly detailed beam plastic hinges to ensure dependable inelastic response, and is similar to approaches used for reinforced concrete frames. Particular emphasis is placed on design of the beam-column joint region as construction requirements result in significant differences from desired practice for reinforced concrete structures. The design, construction and testing under repeated cyclic displacement reversals of a full size reinforced concrete masonry beam column unit intended to test the theoretical approach is reported in some detail. Results from the test show that excellent predictable behavior was obtained for the test unit at high displacement ductility levels.

To purchase full article: Please use this direct link to purchase the TMS Journal Volume of this article, Volume 4, Issue 1: <https://masonrysociety.org/product/tms-ejournal-vol-4-no-1/>

Otherwise, consider becoming a TMS member for full access to all TMS Journal articles: <https://masonrysociety.org/membership/#join>

DOI: 10.70803/001c.141838

¹ Reader in Civil Engineering, University of Canterbury, Christchurch, New Zealand.

² Structural Engineer, Kuching, Malaysia.