

In-Plane Seismic Response of Reinforced Concrete Masonry Shrinkage Control Joints

Jason Ingham,¹ Gavin Wight², and K. C. Voon³

Abstract:

The experimental results from two separate studies considering the in-plane seismic response of concrete masonry shrinkage control joints are presented. The details used for these shrinkage control joints were consistent with recommendations and specifications in New Zealand's concrete masonry design standards NZS 4230:2004 and NZS 4229:1999, and it is believed that these tests were the first to be conducted to experimentally validate detailing that has for many years been perceived within New Zealand to be acceptable. It was found that the shrinkage control joint details presented in the New Zealand concrete masonry design standards led to satisfactory inplane seismic response. Evidence of this conclusion was partly provided by shaketable testing that confirmed that the separate panels of the tested wall had permitted the central shrinkage control joint to open as required during seismic loading, with pounding of the two panels observed when the joint closed. This relative motion was achieved without damage developing in the bond beam at the location of the control joint. This was supplemented by pseudo-static testing of two walls containing shrinkage control joints, where it was confirmed that maximum displacement capacity exceeded the upper limit assumed in the New Zealand masonry design standards.

To purchase full article: Please use this direct link to purchase the TMS Journal Volume of this article, Volume 26, Issue 1: <https://masonrysociety.org/product/tms-ejournal-vol-26-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.138970

¹ Associate Professor, Dept. of Civil and Environmental Engineering, the University of Auckland, Committee Member, NZS 4229 and NZS 4230

² Technical Manager - Ductal®, VSL Australia. Former doctoral student researcher, the University of Auckland

³ TMS Member, Former doctoral student researcher, the University of Auckland.