

Hollow-core floors in earthquakes - assessment and retrofit

Kenneth J. Elwood¹,

1. Prof. of Earthquake Engineering, Department of Civil and Environmental Engineering, University of Auckland, New Zealand

Abstract

Past research has indicated that precast concrete hollow-core floors in buildings are susceptible to non-ductile failure modes when subjected to earthquake deformations. Damage to buildings containing hollow-core floors in Wellington, New Zealand, during the 2016 Kaikoura Earthquake prompted the need to understand better the behaviour of hollow-core floors and enable those with limited drift capacity to be retrofitted or replaced. This presentation will summarize provisions in the New Zealand Seismic Assessment Guidelines capturing three potential failure modes for hollow-core floors: loss of seating, positive moment failure, and negative moment failure. Ongoing research in New Zealand on retrofit approaches for hollow-core floors will also be discussed.