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Spotlight on Structures



Editor-in-Chief's Featured Article

Volume loss fatality model for as-built and retrofitted clay brick unreinforced masonry buildings damaged in the 2010/11 Canterbury earthquakes

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Read the latest issue

The latest issue of *Structures* (Volume 24, April 2020) is available at www.sciencedirect.com/journal/structures/vol/24.

As his 'Featured Article' from the issue, Editor-in-Chief, Leroy Gardner, has selected an article that attempts to develop a volume loss fatality model for as-built and retrofitted clay brick unreinforced masonry buildings, using data from the 2010/11 Canterbury earthquakes in New Zealand. The article will be available free of charge for six months.

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Building volume loss can be directly correlated with earthquake fatalities and is therefore considered to be a better damage descriptor for estimating risk to occupants than traditional damage states. Empirical volume loss studies are limited and the study presented herein represents what is likely the first attempt to develop a relationship between commercial unreinforced brick

masonry (URBM) buildings' attributes, ground motion, and fatalities based on empirical data. Data from two New Zealand earthquakes was utilized to develop a model that predicts the probability of a URBM building being in a volume loss damage state (VDS) and the associated probability of an occupant fatality. To demonstrate application of the model, two New Zealand

earthquake scenarios are presented and discussed. The model is intended to be applied at a broad scale, to capture an average response over a large number of New Zealand URBM buildings, with applicability to other countries having stocks of comparable URBM buildings.

→ Read the full paper at <https://doi.org/10.1016/j.istruc.2020.02.014>



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Background sketch by Kevin Lyons (Lyons O'Neill)