

# Investigation of rubble-masonry wall construction practice in Latium, Central Italy

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## ABSTRACT

The 2016-2017 Central Italy seismic sequence severely affected existing unreinforced-masonry constructions in four regions. Those in Latium region were the most prone to fragmentation because of an unfortunate combination of undressed natural stone units and very low lime content in mortar. Within the framework of a research project funded by the regional government, shaking table tests are planned to investigate masonry disintegration as well as possible intervention techniques, as described in a companion paper. All specimens have natural stone units retrieved from the debris of the Accumoli-Amatrice area, comprehensive of Collespada, a settlement within the municipality of Accumoli, the most affected by the seismic sequence. To push further the representativeness of the specimens with respect to field conditions, wall geometry, masonry fabric and mortar recipe are carefully designed. The wall thickness will be approximately equal to 500 mm, almost matching the average thickness surveyed in the area. Following the survey of several vertical sections of actual masonry walls, the specimens will present unconnected external leaves with a limited nucleus. Based on previous tests on mortar sampled from collapsed buildings [1], specimen mortars will have just one part of natural lime every nine parts of sand. Shear tests on sampled mortar delivered apparent cohesion and friction coefficient that are used as preliminary values of a finite-discrete element model [2], which can account for masonry fragmentation in dynamic non-linear analyses. The numerical model is tested under the envisioned sequence of records, belonging to the Amatrice station and related to the east component, approximately fault normal, of the two main seismic events, August 24 and October 30.

## REFERENCES

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