Aseismic Strengthening of Historical Stone-Masonry Buildings by Building-Friendly Technologies

Miha Tomaževič[1], Vera Apih[2], and Marjana Lutman[3]

Abstract:

The possibilities of application of building-friendly technologies for aseismic strengthening of historical stone-masonry urban buildings are discussed. Stone-masonry walls can be efficiently strengthened by injecting specially prepared, masonry-friendly grout mixes, where part of cement is replaced with inert aggregates compatible with original masonry materials. A series of model shaking-table tests has indicated that the replacement of wooden floors or brick vaults with massive r.c. slabs is not always necessary. Out-of-plane collapse of the walls can be prevented and similar degree of improvement in seismic resistance of the building can be obtained by simple tying the walls with prestressed steel ties, adequately designed and positioned in plan of the floor.

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[1] Member TMS, Professor of Earthquake Engineering and Masonry Structures.
[2] Senior Research Engineer, Institute for Testing and Research in Materials and Structures, Dimičeva 12, 61109 Ljubljana, Slovenia.
[3] Research Engineer, Institute for Testing and Research in Materials and Structures, Dimičeva 12, 61109 Ljubljana, Slovenia.