

SHAKING TABLE TESTS OF 1/4 SMALL SCALED MASONRY MODELS RETROFITTED WITH PP-BAND MESHES

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ABSTRACT

Retrofitting of low earthquake-resistant masonry structures is the key issue for earthquake disaster mitigation in developing countries as only that can reduce the probable casualty significantly. Promotion of retrofitting is possible only if the retrofitting technique considers issues of economical affordability and social acceptability together with technical feasibility. An appropriate PP-band retrofitting technique, which considers all these issues, has been developed and being studied at Meguro Laboratory, ICUS, Institute of Industrial Science, the University of Tokyo since some years.

Shaking table experiment of two masonry building models was carried out in this year to test the effectiveness of the newly developed technique. The test revealed that the technique is very effective which could enhance the seismic capacity of masonry buildings by 10 times in terms of maximum base displacement and 4 times in terms of maximum velocity. The retrofitted model survived with life safety level damage until 15 more shakings than the shaking at which the non-retrofitted building model was totally collapsed. The result suggested that the technique can enhance safety of existing masonry buildings to survive even in worst case scenario of earthquake ground motion like JMA 7. This paper describes the process and preliminary outcomes of the experiment conducted.

1. INTRODUCTION

It is seen in past and recent earthquakes that unreinforced masonry buildings, if not retrofitted, are the number one killer during earthquakes. Human
