



# DYNAMIC TESTING OF MASONRY HOUSES RETROFITTED BY BAMBOO BAND MESHES

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**ABSTRACT:** The collapse of unreinforced masonry structures, which are widely distributed around the earthquake prone regions of the world, is one of the greatest causes of death in major earthquake events. This paper presents an innovative retrofitting method for masonry structures, which uses bamboo band arranged in a mesh fashion and embedded in a mortar overlay. In order to determine the effectiveness of the proposed retrofitting technique, shake table tests were conducted using retrofitted and non-retrofitted 1/4 scaled masonry houses and each house was subjected to sinusoidal ground motion inputs. Based on the experimental results, show that the retrofitted specimen exhibited good seismic performance by withstanding a more than twice input energy than non-retrofitted specimen.

**Key Words:** unreinforced masonry, bamboo-band mesh, shaking table test, JMA seismic intensity

## INTRODUCTION

The collapse of the unreinforced masonry building induced by the earthquake events is one of the greatest causes of the human casualties around the world. Around 30 % of the world's population live in adobe construction (Houben & Guillard) and large proportion of the structures are located in earthquake prone regions. Thus, strengthening of unreinforced masonry structure is indispensable need to reduce the casualties significantly.

Till date, several types of retrofitting methods have been developed for unreinforced masonry structures. Retrofitting technique for developing countries should consider not only the effectiveness in terms of seismic performance but also the issues like economic viability, cultural adoptability and material as well as technological availability. Under the aforementioned circumstances, PP-Band Retrofitting Technique is one of the appropriate retrofitting techniques and different aspects of this method have already been researched in Meguro Laboratory, in the Institute of Industrial Science, The University of Tokyo.

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