



SHAKING TABLE TEST ON SEISEMIC RESPONSE BEHAVOIR OF 2-STORY MASONRY HOUSE MODEL WITH PP-BAND MESH RETROFITTING

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ABSTRACT: This report is the study on the dynamic properties and seismic performance of the two-story masonry house model by the 1/4-scale shaking table test. The specimen is an ordinary dwelling house in south Asia. The shaking table test was carried out by the sinusoid input wave of the one direction in the horizontal direction. Acceleration and displacement are measured. The dynamic response properties and comparative study of one-direction excitation were explained.

Key Words: two-story masonry, polypropylene band, shaking table test, arias intensity

INTRODUCTION

Unreinforced masonry structure is one of the most popularly used constructions. It is also unfortunately the most vulnerable to the earthquakes. It would collapse within a few seconds during earthquake movement, and does become a major cause of human fatalities. Therefore, retrofitting of low earthquake-resistant masonry structures is the key issue for earthquake disaster mitigation to reduce the casualties significantly. When we propose the retrofitting method in developing countries, retrofitting method should respond to the structural demand on strength and deformability as well as to availability of material with low cost including manufacturing and delivery, practicability of construction method and durability in each region. Considering these issues, a technically feasible and economically affordable PP-band (polypropylene bands, which are commonly utilized for packing) retrofitting technique has been developed, and many different aspects have been studied by Meguro Laboratory, Institute of Industrial Science, The University of Tokyo (Yoshimura 2004).

Single-story masonry house made of a regular shape brick units have been widely studied both from experimental and numerical point of view, and based on previous experimental results, it was concluded that in single-story high houses with timber roofs, PP-band meshes were not demanded to their full capacity. This is because the band itself is very strong. Therefore, it is expected that PP-band meshes can also be efficient to retrofit two-story high residences. Therefore, the present work aims at increasing the insight about the behavior of the two-story masonry house model under dynamic loading.

A real scale model test makes possible to obtain data similar to real structures. However, it requires large size testing facilities and large amount research funds, so it is difficult to execute parametric tests by using the full scaled models. Recently, structural tests of scaled models become

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