


<b>Developing Vibration Control Systems for Realize Safety and Functional Maintenance of Building Structures</b>		
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**Research Topics**

- Development of a rocking pillar base isolation system suitable for masonry houses
- Development of new damper with inertial mass effects
- Elucidation of the damage mechanism of gymnasium building

**Research Seeds**

Demands for buildings are diversifying, along with demands related to maintenance of building functions and other characteristics. My research themes are development of new vibration controls and a base isolation system to satisfy these demands.

As a main research theme, I am studying the improvement of seismic performance of masonry houses in developing countries.

Many people in developing countries must live, for technical and economic reasons, in traditional masonry houses of adobe, bricks, and concrete blocks. The M6.5 earthquake which struck Iran on December 26, 2003 destroyed the historical city of Bam completely, killing 40,000 people. The disaster reminds us that an urgent subject of earthquake engineering is to improve the seismic resistance of homes in economically developing countries. Despite the risks posed by older methods of construction, it is not easy to shift the construction of these houses to that of modern technology because dependence on local masonry material products will not change. A possible solution for avoiding the collapse of the masonry houses is to implement base-isolation devices to reduce input acceleration by restricting the responding stress within the shearing strength of the masonry walls. To popularize base-isolation systems widely in economically developing countries, the system must be so simple that it can be manufactured at low cost and can be installed on-site by non-skilled local laborers. Considering those requirements, the authors have developed a new form based isolation system for masonry houses using a rocking pillar foundation.



Fig. 1 Isolation test specimen on shaking table.



Fig. 2 Analysis program (I made).

**Related Technology**

- Shaking table test
- Vibration response analysis