

## Development of a simple and low-cost sliding type base isolation device

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### SUMMARY

In the developing country, the people residence built without an engineer almost involving is vulnerable to an earthquake, and the collapse causes human damage. The shaking table test experiment were conducted, and proposing a simple and low-cost sliding type base isolation device, verifying validity for also masonry structure. The experiment was conducted in Japan at the Building Research Institute, and also it carried out at Catorica University in Peru. It is known that a friction coefficient will become very small when combine “geo-textile” and some plastic sheets. The friction coefficient was investigated combining various kinds of sheets. The structure it can be considered to a kind of sliding isolation mechanism. By experiment in the Republic of Peru, the acceleration of the building top part when installing slide material is reduced to 0.33, compared with the acceleration of shaking table. (Fig.1, Fig.2) On the other hand, the acceleration when fixing the foundation to shaking table, building top acceleration amplified to about 2.0 times to the acceleration of shaking table. As a part of result of an experiment at the Building Research Institute, the acceleration of the model top part is reaching the ceiling by about 100 gal, and it is thought that the slide has arisen at this time (Fig.3). From this result, It is possible to predict simply the motion of the sliding isolation building in case of an earthquake. Since, input acceleration is reaching the ceiling according to a friction coefficient, that a building response (velocity and displacement), and can carry out outline presumption of the response by integrating with acceleration of an assumption earthquake leveling off according to the friction coefficient. A base isolation device used “geo textile” is easy to construct, and low-cost, It is effective in order to reduce the human damage also in developing countries.

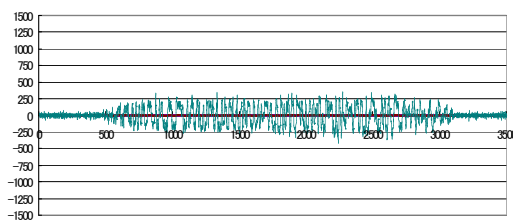


Fig.1 Acceleration at building top

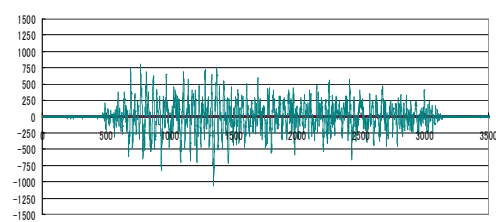


Fig.2 Acceleration at Shaking Table

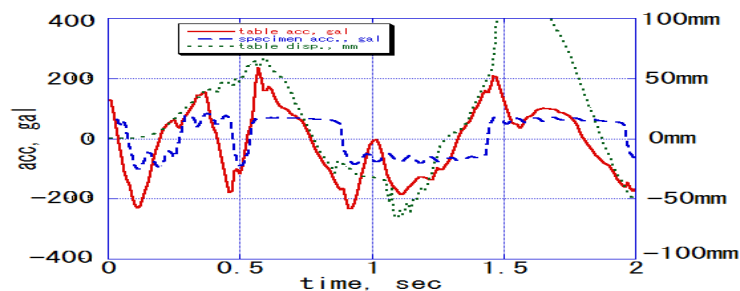


Fig.3 Example of waveform