

### 13. Dynamic Characteristics of Seismically Isolated Structures in Microtremor

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Due to damages during earthquakes in recent years, increasingly applications of seismic isolation to production facilities and development facilities have been considered aiming to keep the performances after earthquakes. However, seismically isolated structures are seemed to have several disadvantages: 1) the effect of soil-structure interaction is quite small and thus dissipation damping to the ground cannot be expected, and 2) the amplifying properties of the seismic isolation layer in microtremor are not clarified. Thus, microtremor during normal times is concerned for adversely affecting equipments that are sensitive to vibration.

In this study, the microtremor properties of seismically isolated buildings and seismic isolators were monitored aiming to verify the properties and to establish prediction technologies and countermeasures.

As a result, the natural frequencies in the microtremor level of seismically isolated structures were around 1.4-2.7 times of those in the design level and, the seismic isolators have the damping constants of  $\eta=0.02$  degree in the microtremor level. It was confirmed that the equation of Yamahara well expressed the input loss effect of the ground vibration by using the length of the short-side direction for foundation length in any directions.

**Key words :** seismically isolated building, microtremor monitoring, RD method, input loss filter