
Vibration characteristics based on earthquake observation records at the Acoustics Building of the Tsukuba Technical Research Institute

Shigeki SAKAI, Kenichi NAKANO, Takashi KATO and Takahito NAKAMURA

The Acoustics Building at the Tsukuba Technical Research Institute is a seismically isolated building completed in 1992, and earthquake observations have been conducted to verify the effectiveness of the seismic isolation structure. In this report, we focused on the displacement response of the seismically isolated building for 18 strong earthquake events, including the 2011 Tohoku Pacific Coast earthquake, and analyzed the relationship between the displacement of the seismic isolation layer and the predominant frequency of the building. We then compared the observation results with the natural frequency of the structural analysis model at the time of design. The results showed that the predominant frequency of the seismically isolated building from the observation records decreased as the displacement of the seismic isolation layer increased, and that this trend corresponded to the results from the structural analysis model at the time of design.
