
Dynamic Properties of High-Rise RC Building in Earthquake Motions and Aging

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This study reports new knowledge from long-term observations of earthquake motions for dynamic properties of the high-rise RC building in earthquake motions and aging. We found first natural frequencies were stable in the long term, and, the second and third natural frequencies were scattered. The Fourier spectral ratios (RF/GL-29m and RF/1F) showed that first natural frequencies changed by each earthquake motion that had different properties. According to estimation for first natural frequencies in earthquake motions by the ARX model, we can be said that first natural frequencies have tendencies to recover the values of themselves as time passes, and, lower as the building ages even though relative displacement amplitudes at RF with respect to 1F of earthquake motions are low. Furthermore, we investigated the running-spectral ratios (RF/1F) in earthquake motions, and found that spectral ratios tended to augment in the low-frequency range with increasing the amplitude of earthquake motions. This trend has good agreement with that of the ARX model.