
Earthquake Motion Observation of High-Rise Residential Building in Kobe – PART4 Observed Records of Osaka-Fu Hokubu Earthquake on June 18th in 2018 (Mj=6.1) and a Simulation Analysis by the Analytic-Model in Design –

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In order to study the dynamic behavior of the soil-structure interaction during a strong ground motion, earthquake motion has been monitored on the 33rd floor of a pile-supported high-rise residential building in Kobe City since March 2000. In this building, strong motion records of the earthquake in Osaka-Fu Hokubu on June 18th, 2018 (Mj=6.1) were observed. We performed a simulation analysis for the said earthquake using the structural design model to inspect the validity of the design model and compared it with the observation records. We conducted two analyses for the basic fixed model and S-R model that attached a sway rocking spring to the base foundation, assuming 33-mass shear system (MDOF). As a result, analysis results of the S-R model accorded with the observations well compared to the basic fixed model, and particularly, for the acceleration response wave phases. It is suggested that it is important to evaluate soil-structure interaction appropriately in the seismic design of a pile-supported high-rise building.
