

Vibration Characteristics of the Main Tower, the Bayon Temple

Yoshikazu Sugiura, Yuki Fukumoto, Toshiro Maeda

Department of Architecture, Waseda University, Tokyo, Japan

Since collapse and degradation are advancing at the Bayon temple, one of the main historical monuments in Angkor remains, it is anxious for the elucidation of collapse mechanism for the purpose of preservation and restoration. We conducted micro-tremor measurement in order to provide structural characteristics of the Main tower for reference of the future study of collapse mechanism. Soil-coupled natural frequencies of the structure are evaluated by power spectrum density of micro-tremor at the top of the structure and damping ratios are deduced by the random decrement method. Base fixed natural frequencies of the structure are deduced from the transfer function of the top to the base. We have acquired indispensable parameters for the future analysis and found that the additional stiffness provided by thick walls and surrounding sub towers must be included along with detailed material properties.

[View the extended summary](#)