

## Human-Induced Vibration and Degree of Human Comfortability Analysis of Intersection Pedestrian Bridge

**Authors :** Yaowen Sheng, Jiuxian Liu

**Abstract :** In order to analyze the pedestrian bridge dynamic characteristics and degree of comfortability, the finite element method and live load time history method is used to calculate the dynamic response of the bridge. The example bridge's dynamic characteristics and degree of human comfortability need to be analyzed. The project background is a three-way intersection. The intersection has three side blocks. An intersection bridge is designed to help people cross the streets. The finite element model of the bridge is established by the Midas/Civil software, and the analysis of the model is done. The strength, stiffness, and stability checks are also completed. Apart from the static analysis of the bridge, the dynamic analysis of the bridge is also completed to avoid the problems resulted from vibrations. The results show that the pedestrian bridge has different dynamic characteristics compared to other normal bridges. The degree of human comfortability satisfies the requirements of Chinese and British specifications. The live load time history method can be used to calculate the dynamic response of the bridge.

**Keywords :** pedestrian bridge, steel box girder, human-induced vibration, finite element analysis, degree of human comfortability

**Conference Title :** ICGEE 2021 : International Conference on Geotechnical Earthquake Engineering

**Conference Location :** London, United Kingdom

**Conference Dates :** March 15-16, 2021