

## Tuned Mass Damper Vibration Control of Pedestrian Bridge

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**Abstract :** Based on the analysis of the structural vibration comfort of a domestic bridge, this paper studies the vibration reduction control principle of TMD, the derivation process of design parameter optimization and how to simulate TMD in the finite element software ANSYS. The research shows that, in view of the problem that the comfort level of a bridge exceeds the limit in individual working conditions, the vibration reduction control design of the bridge can effectively reduce the vibration of the structure by using TMD. Calculations show that when the mass ratio of TMD is 0.01, the vibration reduction rate under different working conditions is more than 90%, and the dynamic displacement of the TMD mass block is within 0.01m, indicating that the design of TMD is reasonable and safe.

**Keywords :** pedestrian bridges, human-induced vibration, comfort, tuned mass dampers

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