

عنوان مقاله:

Analysis of Axial, Shear and Bending Forces on Pedestrian Truss Bridges and Evaluation of Modal Analysis and Their Displacement

محل انتشار:

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خلاصه مقاله:

In recent years, the use of pedestrian bridges has increased significantly due to the increasing traffic flow and, consequently, widening of roads and streets. Therefore, identifying the most appropriate design according to the current situation is important. We know that in addition to the dead load, unexpected loads are applied to the structure of a pedestrian bridge during the period of operation, such as earthquake loads, billboards and finally additional loads caused by accidents of various vehicles which should be given more attention to reduce damage and optimally design these types of structures. In this research, a truss pedestrian bridge designed in SAP 2000 software was subjected to various loads and the axial, shear and bending forces on the members were analyzed. In addition, the displacement of structural members under the applied load has been calculated and presented. The modal analysis of the structure has also been evaluated. The overall results showed that the structural systems of ordinary pedestrian truss bridges have sufficient capacity against static and dynamic loads and, considering the weight of the structure, compared to other structural systems in the same conditions, they have lower construction costs. As the last result of this research, it can be said that if the design of the bridge is optimal and the required stiffness is provided, the vibration frequency of the structure under pedestrian load, wind load and earthquake load will be within the allowable frequency range.

کلمات کلیدی:

Pedestrian Bridges, Truss Bridge, Modal Analysis, Bending moments, Shear Force

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