

ABSTRACT

Arch bridges are the oldest structural monuments that are symbols of heritage and culture. Arch bridges work by transferring the weight of bridge and its loads partially into a horizontal thrust restrained by the abutments at either side. A viaduct may be made from a series of arches, although other more economical structures are used. Types of analysis used for arch bridge are static, modal, buckling, transient, non-linear. The modal analysis is used to determine natural mode shapes and frequencies of an object or structure during vibration. It is common to use Finite Element Model(FEM) to perform this analysis. The types of equations which arise from modal analysis are seen in eigen systems. The results of the physical test can be used to calibrate finite element model to determine if the underlying assumptions made were correct. Free-free modal analysis will be carried in the present study. Inputs required are material properties such as Poisson's ratio, Young's modulus, Density. Arch bridge modal analysis is carried to find frequencies and mode shapes.

Keywords: Arch bridge, Modal analysis, Finite Element Model, 2D