

## عنوان مقاله:

Finite Element Simulation and Theoretical Approach of Laminated Rubber Bearings in Base-Isolated Structures

## محل انتشار:

سومین کنفرانس ملی زلزله و سازه (سال: 1391)

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## خلاصه مقاله:

The base isolation concept is accepted as a new strategy for earthquake resistant structures. According to different types of base isolation devices, a multilayer rubber bearing is one of the most popular devices to reduce the effects of earthquakes in buildings. These devices should be protected against failure or instability because failure of isolation devices may cause serious damage to the structures. Hence, the prediction of the behaviour of the laminated rubber bearing with different properties is essential in the design of a seismic bearing. In this paper, a complete comparison between the analytical solution and finite element modelling of the laminated rubber bearing is presented. First, based on Haringx's theory, a summary of the analytical results is presented and the equations of motion and rotation of an elastomeric bearing has been obtained. Second, the procedure for finite element modelling is described. By a comparison of the analytical, numerical and experimental results, the validity of modelling is determined. The results of this study indicate that there is good agreement between the theoretical and finite element analysis. The finite element results also show that shear force is affected on maximum lateral displacement and horizontal stiffness, which cannot be considered in the theoretical solution

## کلمات کلیدی:

Finite element modelling, base isolation, elastomeric bearing, laminated rubber bearing, ABAQUS, horizontal stiffness

## لینک ثابت مقاله در پایگاه سیویلیکا:

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