

Modeling of Dynamic Behavior of Structural Systems

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Summary

Civil and structural engineers are often interested in constructing a mathematical model of a structure. This model is then typically used to predict response motions of the structure resulting from various loading conditions or forcing functions. When we mathematically model a structure we are, in effect, treating the structure as a system. For this system, the forcing function is considered the input, the resulting response motion is the output, and the cause-effect relationship between them is determined by the dynamic properties and geometry of the structure. In this paper, we will demonstrate that when formal systems theory techniques are applied to structures, much information concerning the physical and dynamic properties of the structure can be obtained.

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