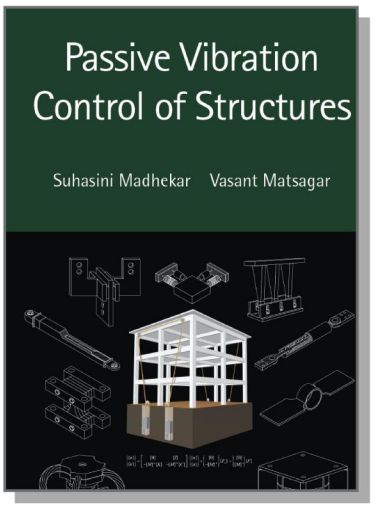

PASSIVE VIBRATION CONTROL OF STRUCTURES

During the last few decades, several techniques and strategies have been developed for controlling the vibration of structures under different types of dynamic loading, such as earthquake, wind, wave, vehicular movement, blast etc. Nevertheless, the state-of-the-art knowledge on modeling, analyzing and implementation of vibration control devices is primarily available through research articles and technical reports. In this context, the book titled "Passive Vibration Control of Structures" written by Prof. Suhasini Madhekar and Prof. Vasant Matsagar is a unique piece of work fulfilling the need of the hour. The authors have shared their vast knowledge and invaluable experiences in this domain, acquired over past decades, in a lucid manner.

The book contains extremely informative and systematically arranged 11 chapters. The first chapter provides a concise introduction to the structural response under earthquake, wind and wave excitations, along with delineating the need of the vibration control. This chapter also introduces the readers to various strategies typically adopted for structural vibration control. The second chapter, which is dedicated to the loading consideration under earthquake, wind and wave excitations, can serve as a single source of information for understanding the structural response analysis under these loading condition. Chapters 3 through 7 present the Bracing Systems, Viscous and Viscoelastic Dampers, Tuned Dampers, Friction Dampers and Metallic Dampers for effective response control of structures. The working principles, mathematical formulations and characteristic parameters of each device and their functional aspects are discussed thoroughly. Numerus working examples and associated MATLAB® codes to perform the non-linear response history analysis of structures fitted with control devices are included to make the learning of the concepts and applications very effective. Chapters 8 and 9, respectively, present valuable discussion on re-centering devices used in the seismic vibration control and the use of vibration control devices in defense applications, transmission towers etc. Traditional books often lack the discussion on such miscellaneous applications of vibration control devices. The use of shape memory alloy (SMA)-based devices, having excellent re-centering capability, is also discussed in detail. Advanced vibration control strategies with various devices, used as a standalone system, or used in combination of multiple devices, are elaborated in Chapter 10. The concluding chapter covers several practical aspects that need to be considered while employing any passive vibration control strategy.. Some of the benchmark problems on passive vibration control, developed from existing buildings and bridges, are also presented in this chapter which will be extremely useful for the readers who wish to pursue research in the domain of passive vibration control and wish to develop their own numerical tools.

In a nutshell, the authors have presented vast and well-researched contents in the form of a book which can benefit the students, researchers and practitioners equally. This reviewer has thoroughly enjoyed reading the book and strongly considers this book as one of the most valuable reading resources in the domain of vibration control of structures.

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