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5th International Conference on Behaviour of Steel Structures in Seismic Areas - Stessa 2006, Yokohama, Japan, 14 August 2006 through 17 August 2006, Code 74062

### Base isolation for steel structures on stiff and soft soil (Conference Paper)

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#### Abstract

In designing base isolation devices for mitigating dynamic response induced in civil structures by earthquakes, a main role is played by the interaction effects between the structure itself and the soil characterizing the site. In the paper one reports an effective approach for properly calibrating structural isolator devices on the basis either of the dynamical characteristics of the superstructure or of the subsoil filtering capacity. © 2006 Taylor & Francis Group.

#### Indexed keywords

Engineering controlled terms: Dynamic response; Seismology; Soils; Steel; Steel construction

Engineering uncontrolled terms: Base isolation devices; Base isolations; Civil structures; Dynamical characteristics; Interaction effects; Soft soils

Engineering main heading: Steel structures

ISBN: 0415408245; 978-041540824-0 Source Type: Conference Proceeding Original language: English Document Type: Conference Paper

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STESSA 2006 – Mazzolani & Wada (eds)  
© 2006 Taylor & Francis Group, London, ISBN 0-415-40824-5

## Base isolation for steel structures on stiff and soft soil

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**ABSTRACT:** In designing base isolation devices for mitigating dynamic response induced in civil structures by earthquakes, a main role is played by the interaction effects between the structure itself and the soil characterizing the site. In the paper one reports an effective approach for properly calibrating structural isolator devices on the basis either of the dynamical characteristics of the superstructure or of the subsoil filtering capacity.

### 1 INTRODUCTION

As well known, the skill of base-isolation devices for structural applications in mitigating inertia forces due

$$\begin{aligned} \mathbf{M}\ddot{\mathbf{u}}(t) + \mathbf{C}\dot{\mathbf{u}}(t) + \mathbf{K}\mathbf{u}(t) &= -\mathbf{M}\mathbf{a}_g(t) = \mathbf{f}(t) \\ \mathbf{u}(0) = \mathbf{0}, \quad \dot{\mathbf{u}}(0) &= \mathbf{0} \end{aligned} \quad (1)$$

