

Aquitaine –Karnataka collaboration Scientific Project for Pre-PhD student exchange

Scientific Proposal

Project Title	Effect of Infills in Seismic Soil Structure Interaction Analysis of Multi Storied Buildings	
Scientific domain	Seismic Soil Structure Interaction	
Summary (ca. 10 lines)	<p>Concrete and steel frames, which find wide application in multi-storey buildings, are often infilled with brick or concrete-block masonry for functional reasons or due to ease of construction and rapid progress of work.</p> <p>Masonry infills are normally considered as non-structural elements and their stiffness contributions are generally ignored. In practice, such an approach can lead to an unsafe design. During an earthquake, these infill walls will increase the lateral earthquake load resistance and stiffness of the buildings. Properly designed infills can increase the overall strength, lateral resistance and energy dissipation of the structure. The Masonry infill can introduce changes in dynamic characteristics of RC frames due to their strength and stiffness.</p> <p>In this context it is proposed to study the behavior of multi-storeyed building by conducting spatial analysis of full 3D model by properly modeling the infills and also their contact with frame. These analyses can be used in formulating practical guidelines in construction stage to derive benefits from infills.</p>	
Student profile wished	<ul style="list-style-type: none"> • Structural back ground with FEA Knowledge • Programming Skills 	
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Timing & duration for project (give approximate ranges)	4 to 6 months
Representative References	<ul style="list-style-type: none"> • ‘Modeling Techniques for rc-frame Systems with Infills’, M. Leipold and J. Schwarz, International Conference on the Application of Computer Science and Mathematics in Architecture and Civil (Engineering , Weimar, Germany, 07–09 July 2009 • Stafford Smith, B., (1968). Model Tests Results of Vertical and Horizontal Loading of in filled Frames. American Concrete Institute, ACI. • Valiasis, T. N., Stylianidis, K. C., (1989). ‘Masonry Infills in R/C Frames under Horizontal Loading- Experimental Results’, European Earthquake Engineering 3, 10-20.

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