

<b>Project Id</b>	106
<b>Project Title</b>	Analysis and design of structural connections
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<b>Additional Faculty</b>	
<b>Faculty Department</b>	Civil Engineering
<b>Project Description</b>	<p>California region is prone to earthquakes. There has been lot of casualties both with regards to property and lives in these past earthquakes. In order to protect building and bridges from destruction due to earthquakes, there exist a number of design recommendations in structural codes. However, these recommendations are far from being complete since they are based on limited experimental and/or numerical studies. It is thereby necessary to evaluate the current recommendations and develop new standards for structurally reliable yet cost effective designs.</p> <p>The objective of this project would be to investigate the design recommendations for reinforced concrete beam column joints subjected to seismic loading, a rarely studied however important structural component in building and bridge structures. Post earthquake reconnaissance have revealed that strength and stiffness loss of this important structural component may even lead to catastrophic failure of a building or bridge structure.</p> <p>A database as well as preliminary analysis models for external beam-column joints has been developed by previous honors students. The current student would be required to develop advanced models for these important structural components and then propose new recommendations for strut-and-tie design of external beam-column joints.</p>
<b>Interdisciplinary Nature Description</b>	<p>The work is interdisciplinary in nature since it involves understanding of flow of loads within a structure. Students in CE, ARCE, MECH, AERO and BMED would be able to do the project which would primarily involve use of software for developing and analyzing the model. Even though this project is a direct application to civil engineering structures and thereby helpful for CE / ARCE but the basic fundamentals of load transfer that would be learned in this project would also benefit students in ME, AERO and BMED to do computational structural analysis and design of mechanical, aerospace and biological components.</p>
<b>Links</b>	
<b>Number of Honors Students Requested</b>	2
<b>Applicable Majors</b>	CE, ARCE, ME, AERO, BMED
<b>desired_res</b>	Ability to clearly understand the basics of a problem, willingness to learn new knowledge, and also should be responsible, adjustable, enthusiastic and committed.
<b>Date Added</b>	2008-10-18 20:54:28
<b>Active</b>	1