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Experimental study on the seismic retrofit of a two-story concrete frame using combination of column-jacketing and supplemental beams

To improve the safety of existing structures, the Taiwanese government has been urging the seismic rehabilitation of old buildings in recent years. Among the numerous retrofit approaches, column-jacketing, which builds up building columns with enlarged sections and additional reinforcement, is the most widely used techniques currently in Taiwan. However, with the mechanism dominated by the flexural yielding of column base, the retrofit bonus drops quickly as the height of building increases. To provide additional strength, the concept of supplemental beams is introduced. By constructing additional beams between adjacent columns, the effectiveness of column jacketing could be improved. For verification, a full-scale, quasi-static experiment on three two-story concrete frames was performed in this study. This technique can make a great enhancement to the seismic performance of the retrofitted frames.

Biography

Chao Hsun Huang is an Associate Professor in Structural Engineering at National Taipei University of Technology, Taiwan. His main research areas include reinforced concrete and masonry structures, seismic assessment and retrofit and dynamic behaviors of building and other structures. He is the author of several books as well as a number of journal and conference papers. His most current research is mainly on seismic retrofit of concrete buildings using combination of column jacketing and supplemental beams.

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