World Academy of Science, Engineering and Technology
International Journal of Civil and Architectural Engineering
Vol:11, No:07, 2017

A Methodology of Testing Beam to Column Connection under Lateral Impact Load

Authors : A. Al-Rifaie, Z. W. Guan, S. W. Jones

Abstract : Beam to column connection can be considered as the most important structural part that affects the response of buildings to progressive collapse. However, many studies were conducted to investigate the beam to column connection under accidental loads such as fire, blast and impact load to investigate the connection response. The study is a part of a PhD plan to investigate different types of connections under lateral impact load. The conventional test setups, such as cruciform setup, were designed to apply shear forces and bending moment on the connection, whilst, in the lateral impact case, the connection is subjected to combined tension and moment. Hence, a review is presented to introduce the previous test setup that is used to investigate the connection behaviour. Then, the design and fabrication of the novel test setup is presented. Finally, some trial test results to investigate the efficiency of the proposed setup are discussed. The final results indicate that the setup was efficient in terms of the simplicity and strength.

Keywords : connections, impact load, drop hammer, testing methods
Conference Title : ICSDA 2017 : International Conference on Structural Design and Analysis
Conference Location : Amsterdam, Netherlands
Conference Dates : July 10-11, 2017