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Behavior of Castellated Beam Column Due to Cyclic Loads

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Abstract : The purpose of this study is to determine the behavior of beam-column sub-assemblages castella due to cyclic loading. Knowing these behaviors can if be analyzed the effectiveness of the concrete filler to reduce the damage and improve capacity of beam castella. Test beam consists of beam castella fabricated from normal beam (CB), castella beams with concrete filler between the flange (CCB) and normal beam (NB) as a comparison. Results showed castella beam (CB) has the advantage to increase the flexural capacity and energy absorption respectively 100.5% and 74.3%. Besides advantages, castella beam has the disadvantage that lowering partial ductility and full ductility respectively 12.6% and 18.1%, decrease resistance ratio 29.5% and accelerate the degradation rate of stiffness ratio 31.4%. By the concrete filler between the beam flange to improve the ability of castella beam, then the beam castella have the ability to increase the flexural capacity of 184.78 %, 217.1% increase energy absorption, increase ductility partial and full ductility respectively 27.9 % and 26 %, increases resistance ratio 52.5% and slow the rate of degradation of the stiffness ratio 55.1 %.

Keywords : steel, castella, column beams, cyclic load
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