World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Through-Bolt Moment Connection in HSS Column

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Abstract : It is currently desirable to use Hollow Square Sections (HSS) in moment resistant structures in construction of building because they offer fewer restrictions for designing and more useful space while adhering to build design codes. This paper present a through bolt connection in HSS column. This connection meets building code standards that require the moment resistant connections to deflect and absorb energy resulting from gravity and seismic loads. Connection through bolts is installed and pretension to provide the connection strength needed to make a beam–column moment rigid zone. A rigid joint is typically used to resist lateral forces by holding columns and beams fixed in relation to one another. With bolted moment frames using HSS columns, a through–bolt connection could be used to secure the beam and end plate to the column. However, when multiple columns and beams are used to span a length of building, the use of through-bolts would necessities aligning multiple beams simultaneously to the columns. In the case of a linear span, the assembly process requires the holes of a first beam end plate to be aligned with through bolt holes in a column and aligning the holes of a second, opposing beam plate with the column through bolt, then inserting the through bolts in each hole for tightening with nuts and washers. In moment resistant building, a problem arises when assembling beams to columns where multiple beams and columns are required. Through bolt, moment connections are among the economical, practical and not difficult rigid steel connection for HSS column building. In this paper, the results of numerous analytical studies performed for moment structures with HSS columns with through bolt based on AISC standard codes are shown.

Keywords : through bolt, moment resistant connection, HSS columns section, construction engineering
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020