

## Investigation on Teardrop Connection of Rack Clad Building

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**Abstract-**A rack clad building (RCB) is a kind of storage system where the raking forms part of the structure. The larger size of the RCB structure makes it dissimilar to the typical storage system. To enhance the lateral stability and the moment capacity in the unbraced down aisle direction, different types of connections are used in the rack clad building history. Teardrop connection which is one of the connection systems of the RCB, is a boltless connection where tabs used as connectors, are entered into the perforated hole of the cold formed column. The moment capacity, rotational stiffness, rotational capacity of the teardrop connection are the parameters that determine the efficiency in controlling the sway limitation in the down-aisle direction. There is limited research on the investigation of the mechanical behaviors and the design of teardrop connections. On this account, it is imperative to disclose the vital parameters related to the performance of the connector. This paper reviews the existing methods such as different types of experimental studies, finite element analysis, analytical model, component method which are used in determining the stiffness and the capacity of the connection. Finally, the influence of the geometric characteristics of the components such as thickness of the column, height of the beam, number of tabs, welding position of the beam to beam end connector, on the performance of the joint, has been presented in this paper.

**Keywords:** Storage rack, Teardrop connection, Tab connector, Cold-formed steel