Experimental and Analytical Studies on Steel Beam-to- Column Connections under Elevated Temperature

Cinitha.A1,V.Nandhini2

*Sr.Scientist,CSIR-Structural Engineering Research Centre,Chennai*

*ME student, Department of Civil Engineering, Nandha Engineering College*

Email: [cinitha@serc.res.in](mailto:cinitha@serc.res.in)

***Abstract* -** The welded flange-web with seat and cleat angle type moment connections are commonly used in the construction of modern steel buildings. The behaviour of this connection under extreme loads especially fire load is limited. In this paper the experimental studies on SHS (Square Hollow Section) as column and H- section as beam welded with cleat and seat angle and exposed to elevated temperature are presented. The beam-to-column connection are subjected to elevated temperature of 600ºC and cooled at room temperature. And subsequently subjected to monotonic loading on the beam with  an axial compression load  to  the column. The inelastic connection behaviour in terms of moment rotation is studied. It is observed that the connection failed at lower loads due to combination of p-Δ effect along with high temperature. The theoretical and analytical results has been compared.

**Keywords: moment connection, elevated temperature, monotonic loading.**