

Title: Standardization of composite connections for trapezoid web profiled steel sections

Author/Authors: Anis Saggaff, Mahmood Md. Tahir, Arizu Sulaiman, Poingian Shek, Jahangir Mirza

Abstract: Connections are usually designed either as pinned usually associated with simple construction or rigid normally is associated with continuous construction. However, the actual behaviour falls in between these two extreme cases. The use of partial strength or semi-rigid connections has been encouraged by Euro-code 3 and studies on semi-continuous construction have shown substantial savings in steel weight of the overall construction. Composite connections are proposed in this paper as partial or full strength connections. Standardized connection tables are developed based on checking on all possible failure modes as suggested by "component method" for beam-to-column composite connection on major axis. Four experimental tests were carried out to validate the proposed standardised connection table. The test results showed good agreement between experimental and theoretical values with the ratio in the range between 1.06 to 1.50. All tested specimens of the composite connections showed ductile type of failure with the formation of cracks occurred on concrete slab at maximum load. No failure occurred on the Trapezoidal Web Profiled Steel Section as beam and on the British Section as column.