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INFLUENCE OF PRETWISTING ANGLE ON THE BUCKLING CAPACITY OF STEEL COLUMNS: A REVIEW

THERESA PAUL[1] & NIVIN PHILIP[2]

[1]PG Scholar, Computer Aided Structural Engineering, Mar Athanasius College of Engineering, Kothamangalam, India

[2]Assistant Professor, Computer Aided Structural Engineering, Mar Athanasius College of Engineering, Kothamangalam, India

ABSTRACT

A column is a vertical compression member designed to transmit compressive loading. It is generally seen that when a slender member is loaded in compression, it will bow sideways or buckle, and if the load is then increased further the column will eventually fail in bending. Buckling is a mode of failure that is mainly observed in compression members due to structural instability. A pretwisted column has its strong flexural plane weakened and its weak flexural plane strengthened, leading to a favourable effect on buckling strength of the pretwisted column. A linear buckling analysis study was conducted for boxed and unboxed sections for columns with varying twist angles to study the effect of twist angle variation on improvement in buckling capacity. The studies reviewed that buckling capacity increased upto an optimum twist angle value and further reduced. It was found that pretwisting is effective to increase the buckling capacity of columns.

KEYWORDS: Pretwisting, Slenderness Ratio, Buckling, Local Failure