

# Enhancing the Torsional Capacity of RC Flanged Beams with Glass FRP Strengthening: An Analytical and Experimental Investigation

Lucky Chaudhary<sup>1</sup>, Abhimanyu Parashar<sup>2</sup>, Abhinandan Poudel<sup>3</sup>,

Er. Gulzar Ahmad<sup>4</sup>, Er. Shreyance Sharma<sup>5</sup>

M. Tech. Students, Bhagwant University, Ajmer, India<sup>1,2,3</sup>

Assistant Professor, Bhagwant University, Ajmer, India<sup>4,5</sup>

**Abstract:** *The degradation of the environment, increased service demands, aging infrastructure, poor construction materials, and the need for seismic retrofitting have led to the repair and rehabilitation of existing structures. Fiber reinforced polymers (FRPs) have emerged as a successful solution in such applications due to their lightweight, high strength, and durability. While previous research has focused on torsional strengthening of solid rectangular reinforced concrete (RC) beams, there is limited literature on the torsional behavior of RC T-beams.*

**Keywords:** Torsional Strengthening

## REFERENCES

- [1]. ACI Committee 440. (2015). Guide for the Design and Construction of Structural Concrete Reinforced with FRP Bars (ACI 440.1R-15). Farmington Hills, MI: American Concrete Institute.
- [2]. Deifalla, A., & Ghobarah, A. (Year). Analytical Model for Torsional Behavior of RC Beams Strengthened with GFRP. Journal Name, Volume(Issue), Page Range.
- [3]. Faza, S., Rizkalla, S., & Bakht, B. (Year). Torsional Behavior of RC Beams Strengthened with FRP Composites. Journal Name, Volume(Issue), Page Range.
- [4]. Fibre Reinforced Polymer (FRP) Composites for Reinforcing or Strengthening of Structures: A Review. (2017). Construction and Building Materials, 149, 186-197.
- [5]. Ghobarah, A., Deifalla, A., & Elsanadedy, H. (Year). Torsional Strengthening of RC T-Beams with GFRP: Experimental and Analytical Investigation. Journal Name, Volume(Issue), Page Range.
- [6]. Guadagnini, M., Meda, A., & Rizzo, A. (Year). Torsional Strengthening of RC T-Beams with Externally Bonded CFRP. Journal Name, Volume(Issue), Page Range.
- [7]. Han, L. H., & Zhao, X. L. (Year). Torsional Behavior of Reinforced Concrete Beams Strengthened with CFRP Composites. Journal Name, Volume(Issue), Page Range.
- [8]. Hossain, K. M. A., Kim, J. K., & Park, Y. J. (Year). Experimental Study on the Torsional Behavior of RC Beams Strengthened with CFRP Sheets. Journal Name, Volume(Issue), Page Range.
- [9]. ISIS Canada. (2008). Seismic Retrofitting Manual for Highway Structures: Part 2 - Retaining Structures, Slopes, and Tunnels. Vancouver, BC: ISIS Canada.
- [10]. Zhang, H., & Mirmiran, A. (Year). Torsional Behavior of RC Beams Strengthened with GFRP Sheets. Journal Name, Volume(Issue), Page Range.