

# Analysis and Design of Transmission Tower using Staad-Pro

**Prof. P. O. Modani<sup>1</sup> and Shrikant S. Warade<sup>2</sup>**

Professor, Department of Civil Engineering<sup>1</sup>

PG Student, Department of Civil Engineering<sup>2</sup>

Pankaj Ladh Institute of Technology and Management Studies, Buldhana, India

**Abstract:** A transmission tower, also known as an electrical power tower or utility pole, is a tall structure used to support overhead power lines for the transmission of electrical energy. Transmission towers play a critical role in the reliable and efficient transmission of electricity from power generation plants to distribution networks and ultimately to consumers. This abstract provides an overview of transmission towers, including their purpose, types, components, and key considerations in their design and construction. Transmission towers are designed to withstand various environmental and loading conditions, such as wind, ice, and seismic forces while maintaining the integrity and stability of the overhead power lines. Different types of transmission towers, such as lattice towers, tubular towers, and pole towers, are used based on factors such as voltage level, span length, and terrain conditions. Analysis of this transmission tower is administered using STAAD PRO The present work describes the analysis and design of a transmission line tower of 31 meters in height and 220KV double circuit viz. various parameters. The components of a transmission tower typically include tower legs, cross-arms, insulators, and hardware for attaching conductors and ground wires.

**Keywords:** Transmission towers, Geometry of the tower, Self-supporting tower, Configuration of the tower, unit load, deflection, design

## REFERENCES

- [1] Alas C. Galeb and Ahmed Mohammed Khayoon, "Optimum Design of Transmission Towers Subjected to Wind and Earthquake Loading." Jordan Journal of Civil Engineering. Volume 7. No. 1, 2013, pp.70-92.
- [2] Gopi Sudam Pune, "Analysis and Design of Transmission Tower," International Journal of Modern Engineering Research, Vol. 4, Issue 1, 2014, pp. 116-138.
- [3] Dr.S.A. Halkude and Mr. P. P.Ankad. "Analysis and Design of Transmission Line Tower 220 kV: A Parametric Study." International Journal of Engineering Research & Technology, Vol. 3 Issue 8, pp.1343-1348.
- [4] C. Preeti; K. Jagan Mohan, (2013) Analysis of Transmission Towers with Different Configurations, Jordan Journal of Civil Engineering, Volume 7, No. 4.
- [5] Gopi Sudam Punse, (2014) Analysis and Design of Transmission Tower, International Journal of Modern Engineering Research, ISSN: 2249-6645.
- [6] Ram Chandra, (2008) Design of Steel Structures-2, Standard Publishers (India).
- [7] A.S. Arya; J.L. Ajmani, (Fifth Edition) Design of Steel Structures, Nem Chand & Bros, Roorkee
- [8] S.S. Bhavikatti, (2009) Design of Steel Structures, International Publishing House Pvt. Ltd.