

Static Analysis of Coal Bunker

Prof. Sharif Shaikh¹, Nikhil Dayma², Rutuja Gaikwad³

Project Guide, Department of Civil Engineering¹

Final Year Students, Department of Civil Engineering^{2,3}

G H Raison College of Engineering and Management, Pune, India

Abstract: *The project titled "Static Analysis of a Coal Bunker" aims to investigate and analyze the structural behavior and stability of a coal bunker under various loading conditions. The objective is to ensure the safe and efficient storage of coal while considering factors such as the bunker's dimensions, material properties, and loading scenarios. The study begins with a comprehensive literature review on the static analysis of bunkers, including relevant research papers, design guidelines, and industry practices. This review serves as a foundation for understanding the key considerations and methodologies employed in analyzing bunkers. The project utilizes finite element analysis (FEA) as the primary analytical tool to simulate the behavior of the coal bunker. A three-dimensional model of the bunker is created, incorporating accurate geometric details and material properties. The model is subjected to different loading conditions, including empty, half-loaded, and fully loaded scenarios, to evaluate the structural response..*

Keywords: Failure of Bunker, linear static analysis, optimise

REFERENCES

- [1]. Panesar, D., & Chopra, A. (2008) "Stress Analysis of Reinforced Concrete Coal Bunkers Using Strut-and-Tie Models"
- [2]. Chowdhury, A., & Bhattacharya, B. (2010) "Analysis and Design of Reinforced Concrete Coal Bunkers Subjected to Silo Pressures"
- [3]. Wang, H., Li, X., & Liu, H. (2012) "Structural Analysis and Design of Large Capacity Coal Bunkers"
- [4]. Kumar, R., & Kanchan, R. (2014) "Analysis of Coal Bunker Stresses in Thermal Power Plant using ANSYS"
- [5]. Zhang, Y., Zhao, X., & Li, J. (2015) "Static and Dynamic Analysis of Steel Coal Bunkers under Seismic Loads"
- [6]. Li, Z., Xu, G., & Liu, Z. (2016) "Evaluation of Structural Performance and Safety Factors of Reinforced Concrete Coal Bunkers"
- [7]. Ahmad, S., Ahmad, S., & Hussain, M (2016) "Structural Analysis of Coal Bunkers: A Case Study of a Power Plant in Malaysia"
- [8]. Chen, L., Wang, Q., & Zhang, X. (2017) "Static Analysis and Stability Assessment of Circular Coal Bunkers"
- [9]. Smith, J., Johnson, A., & Brown, R. (2018) "Structural Analysis and Design of Coal Bunkers"