



Niharika Computational Engineering
Solutions Pvt Ltd

HVAC Industry vertical

Case study

CFD analysis for underground transport tunnel: Al Shamiya Expansion Project, Makkah, Saudi Arabia





Client: Zamil Group - Saudi Arabia, end user Saudi Binladin Group- Saudi Arabia

Duration: Three months

Description of the work:

Underground tunnel infrastructure offers faster direct routes and excellent connectivity between communities.

The tunnel needs a reliable ventilation system for continuous air provision to limit the concentration of air pollutants during normal tunnel operation and to transport smoke gases out of the tunnel during emergency smoke extraction.

Our Computational Fluid Dynamics (CFD) simulation results have enabled our client to understand the flow development in the complete tunnel and gain confidence in the proposed Jet fans and various operating combinations of motorized dampers for smoke extraction in an emergency.

Our precise CFD analysis results have enabled our client to make conscious engineering decisions to achieve better resource efficiency and safety compliance.

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