

SECTOR:  
CONSTRUCTION

OFFERINGS:  
ENGINEERING SERVICES

TECHNOLOGY:  
CFD

## VENTILATION ANALYSIS OF RAILWAY STATION

Our customer is engaged with development of a suburb railway station into an integrated commercial complex. The complex features platform tunnels, underground subway, concourse and car park area. The customer proposed a ventilation plan such that all areas are comfortable to passengers. The authorities required a CFD based analysis to verify the performance of ventilation plan against prevalent national code.

Zeus Numerix used NIST's FDS code for CFD simulation. It involved modeling of all solid 'obstructions', open vents, exhaust fans, axial fans, column mounted fans and overhead ventilation ducts. CO production was specified based on ASHRAE code. During simulation, flow rates across various sections in domain were monitored and hence convergence was confirmed. Results included velocity distribution on platform and underground areas as well as CO levels in car park area.

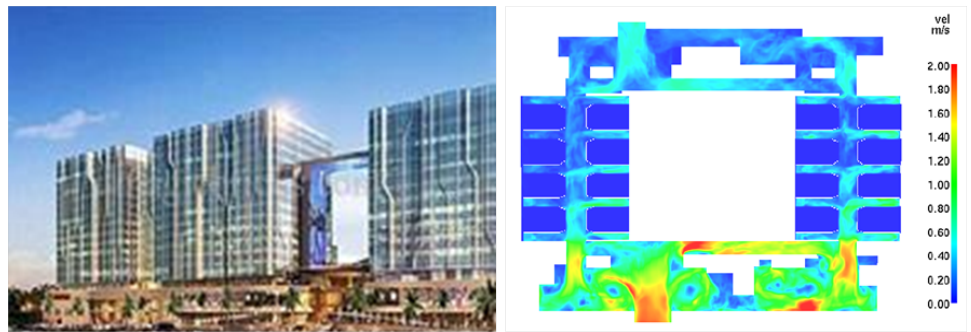


Figure: (a) Integrated Commercial Complex (b) Flow Distribution in Basement Region

Customer was delivered with detailed analysis report which proved that sufficient air flow exists for passengers in platform, subway and concourse areas. Further, proposed ventilation plan is able to maintain CO level within permissible limits. The approval on report allowed customer to go ahead with procurement, installation and commissioning of ventilation equipment.