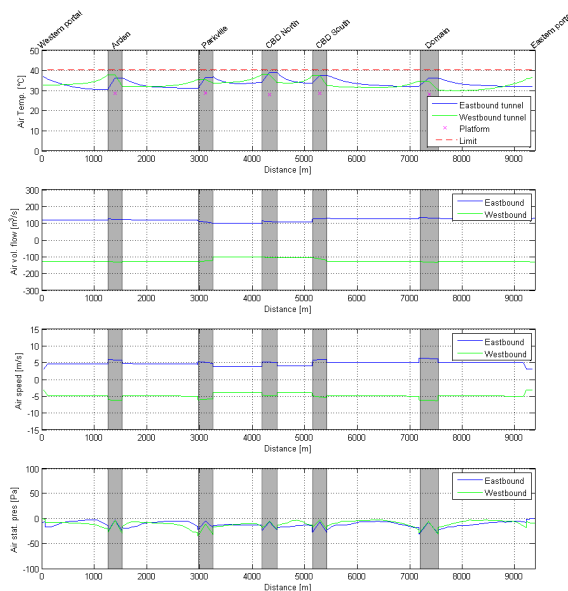
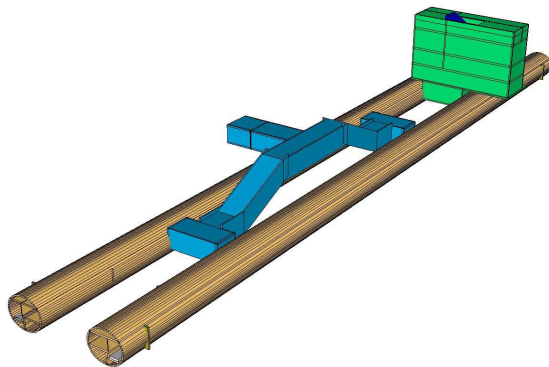




Situation of the new metro line in Melbourne



Temperatures and aerodynamic conditions in the stations and tunnels as calculated with IDA Tunnel



Three-dimensional model of the station CBD North for the study of smoke propagation with FDS

Description

The Melbourne Metro Rail Project (MMRP) is one of the largest public transport projects ever undertaken in Australia. The new metro line to be constructed will consist of nine kilometres of twin tube rail tunnels and five new underground stations.

The tunnels and stations will be equipped with a tunnel ventilation system using a combination of tunnel exhaust, tunnel supply including Saccardo nozzles, over-trackway exhaust and draught relief to ensure comfort and safety of the users.

The consortium “Moving Melbourne Together”, composed of the companies CPB Contractors Pty Lim, Ghella Pty Ltd, and Salini Impregilo S.P.A, has been pre-qualified by the Melbourne Metro Rail Authority (the owner) for the submission of a tender design for this project.

Services

As a partner of the above mentioned consortium, HBI Haerter AG has been working on the verification and optimization of the ventilation system. The following studies have been conducted:

- Prediction of environmental conditions in the tunnels and stations for varying modes of operation (normal and congested) by means of one-dimensional, unsteady aerothermodynamic simulations (software IDA Tunnel)
- Calculation of aerodynamic conditions (pressure fluctuations and air speed) in the tunnel and stations by means of one-dimensional, unsteady aerodynamic simulations (software ThermoTun)
- Verification and optimization of the performance of the ventilations system to manage fire incidents and smoke propagation by means of one-dimensional, unsteady aerodynamic simulations (software ThermoTun)
- Verification of smoke management system and strategies in case of fire incidents in the stations by means of three-dimensional, unsteady simulations (software FDS)
- Proposals for optimization of the ventilation system and the ventilation strategies