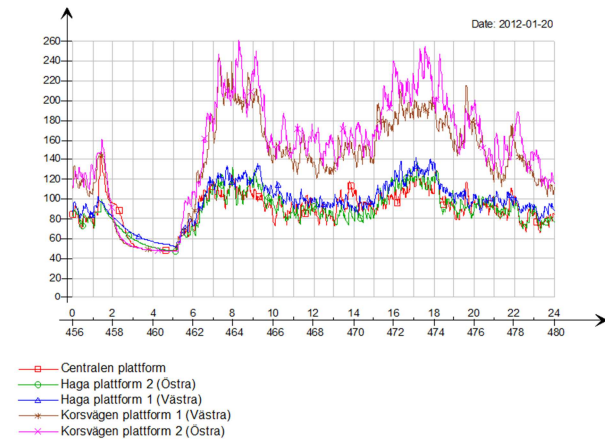
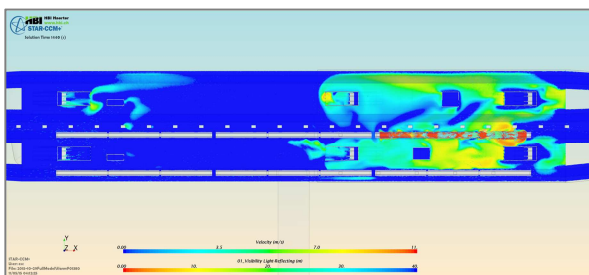
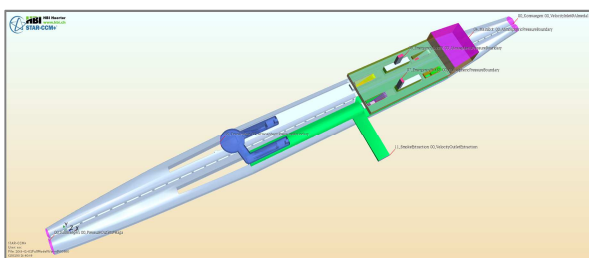




Planning corridor of Västlänken project in Göteborg



PM-10 dust concentration analysis with IDA TUNNEL



CFD model of station Korsvägen (top) and results for smoke propagation with STAR-CCM+ (bottom)

## Description

The Västlänken rail project in Göteborg (West Link project in Gothenburg) is a major public transport project in Sweden. The new heavy-rail line for long-distance and urban passenger transportation will consist of about 6 km of single-tube, double-track rail tunnels and three new underground stations (Centralen, Haga and Korsvägen). At final stage, each station shall have four tracks and two island platforms.

The tunnels and stations will be equipped with a tunnel ventilation system using a combination of natural air-exchange, tunnel air supply by means of jet fans, over-trackway exhaust and draught relief to ensure comfort and safety of the users.

The project owner is Trafikverket, the Swedish Transport Administration. HBI Haerter AG has worked together with ÅF Infrastructure division (tender design) and with TFIP as part of a construction consortium led by NCC Infrastructure. The latter is responsible for E02 Centralen, an ECI contract encompassing the new underground part of Gothenburg central station and associated rail tunnel stretches.

## Services

Together with the aforementioned partners, HBI has been working on the general optimisation of the ventilation concept as well as on the verification and detailed specification of the ventilation system. The following studies have been conducted (selection):

- Proposals for optimization of the ventilation system and the ventilation strategies
- Prediction of environmental conditions in the tunnels and stations for varying modes of operation by means of one-dimensional, unsteady aero-thermodynamic simulations (software IDA TUNNEL)
- Verification and optimization of the performance of the ventilation systems to manage fire incidents and smoke propagation in the rail tunnels by means of one-dimensional, unsteady aerodynamic simulations (software IDA TUNNEL)
- Verification of smoke-management system and -strategies in case of fire incidents in the stations by means of three-dimensional, unsteady simulations (software Star-CCM+)