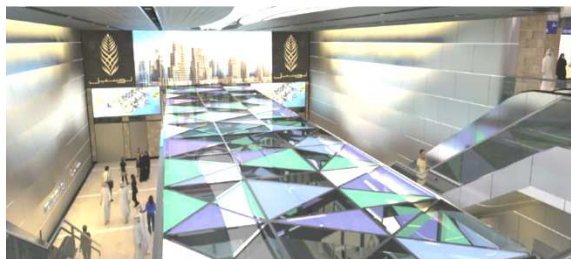


Scheme of the underground part of the Lusail LRT.



Architecture of an underground station of the Lusail LRT.



Structural works of tunnels of the Lusail LRT.

## Description

Lusail is a city development project north of Doha in Qatar. The city is currently being built. Lusail covers an area of 35 km<sup>2</sup> and shall house more than 200'000 people. The light rail system (Lusail Light Rail Transit, LRT) shall form the backbone of the new city's public transportation network.

The Lusail Light Rail Transit comprises 37 stations on 4 lines for a total length of 33 km, including 10 km of double-track tunnels and 10 underground stations. Those are equipped with platform screen doors and with modern ventilation systems that are able to ensure user comfort, as well as user safety in case of fire. The tunnels are fitted with a mechanical ventilation system in order to increase the safety during evacuation phase in case of an emergency. Moreover, a comprehensive tunnel cooling system controls the tunnels' temperature and humidity.

The consortium formed by Alsom and QDVC has been qualified by the project owner (Qatar Rail Company) within the scope of a design-and-build agreement. The ventilation system of tunnels and stations is realized by the subcontractor Cegelec Mobility.

## Services

As an experienced partner in the tunnel ventilation domain, HBI Haerter AG was appointed by Cegelec Mobility to provide technical support. The following main themes were addressed by HBI:

- Design of ventilation strategies for normal service, congested service and emergency mode of operation, including degraded modes (equipment failure),
- Aerodynamic and thermodynamic simulations of tunnels and stations,
- Elaboration of the regulation matrix,
- Pressure drop calculations and operating points of fans,
- Answer to project owner's questions and requests,
- Evaluation of offers from equipment suppliers,
- General counselling for execution.