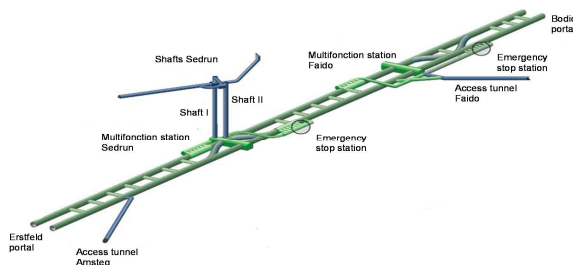




Typical metro station



Ventilator (air supply/removal, smoke extraction)



Scheme of the Gotthard base tunnel

The ventilation design of a metro or railway tunnel system requires broad know-how in various fields - from profound knowledge in aero- and thermodynamics and the capability to perform simulations of complex tunnel systems to the implementation of the design into operational, reliable ventilation systems.

### Our services

- Assessment of the climatic conditions
- Risk assessment
- Planning of escape and rescue routes
- Design of smoke exhaust concepts
- Planning and implementation of ventilation and/or cooling installations
- Planning and implementation of installations for smoke removal
- Design of ventilation and cooling during construction
- Planning of underground emergency stations
- Concepts for an energy-optimised control of ventilation equipment
- Calls for tender for ventilation and cooling equipment (fans, silencers, etc.) inclusive control
- Site supervision
- Acceptance tests of fans / fire tests and commissioning tests

### Your benefits

- Based on our extensive experience in tunnel ventilation (more than 500 completed ventilation installations) we can address all the criteria which are relevant for the design of ventilation installations such as climatic conditions inside the tunnel, tunnel aerodynamics, pressure waves as well as safety aspects in the event of a tunnel fire.
- We provide the complete range of services necessary for the design of ventilation systems. If you wish we will accompany your project from the preliminary design stage to the commissioning phase. With HBI Haerter Consulting Engineers you will avoid unnecessary interfaces and you are assured that viable concepts are developed and implemented.