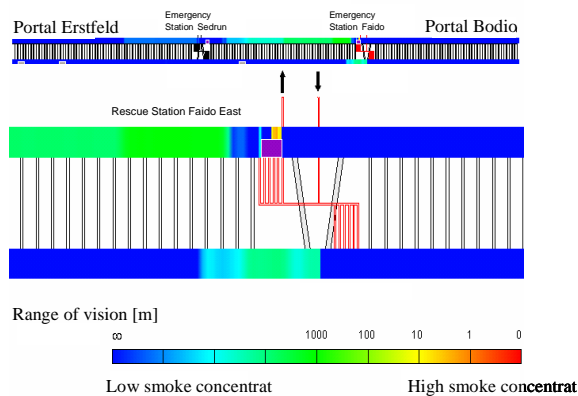


Detail of the escape route through an escape gallery of the rail tunnel



Scenario 1: Emergency train stops in the Emergency Station Faido East
Time after outbreak of fire [min]: 36

- Freight train
- Passenger train

Smoke propagation in the Gotthard Base tunnel (part of animation)

Description

The Swiss cross-alpine rail tunnel projects including the Gotthard and Loetschberg Base tunnels are part of the European high-speed network for railbound cargo and passenger traffic through Switzerland.

The Gotthard Base tunnel with a length of 57 km is the main element within the planned north-to-south connection between Basel and Chiasso.

Important features relevant for the safety of the Gotthard Base tunnel are the two parallel single-track tubes connected by cross-passages at regular intervals and the two emergency stations in Faido and Sedrun both equipped with an emergency ventilation.

Complex programs and visualisation toolboxes are necessary in order to verify the efficiency of the ventilation system in case of fire.

Services

The following services were provided by HBI Haerter Consulting Engineers:

- Development of smoke extraction and safety concepts for the Gotthard Base tunnel in co-ordination with the operation and rescue staff
- Determination of design fires on the basis of the EUREKA fire tests
- Definition of operational procedures and possible emergency scenarios
- Modelling and visualisation of the time-dependent smoke and gas propagation in the rail tunnel
- Determination of the toxic combustion products, visibility and temperature in the tunnel air loaded with smoke
- Evaluation of risks for people in the tunnel
- Evaluation and optimisation of the operational procedures and the evacuation concept
- Provision and preparation of the input needed for a quantitative risk analysis