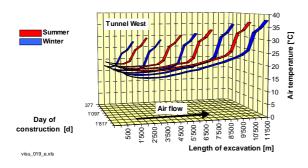


Ventilation system in the intermediate access at Mitholz



Calculated air temperatures according to excavation progress without cooling



Refrigerator and air cooler

Description

The extraordinary length of the Loetschberg base tunnel of 35 km and the maximum rock overburden of 2000 m lead to special requirements for the ventilation and cooling of the construction sites. Elevated rock temperatures of up to 45 °C and the use of heavy machinery resulted in exceptional releases of heat tunnel system.

Despite these demanding boundary conditions, an acceptable climate had to be provided by ventilation and cooling in all major parts of the construction sites and during all phases of the project.

Services

HBI Haerter Consulting Engineers provided the following services:

- Design of a ventilation concept and definition of the required quantities and distribution of the air
- Definition of the factors which influence the climate, such as the geometry of the system, the schedule of the construction, the characteristics of the rock, the generation of heat during the construction works, etc.
- Simulation of the development of air temperature and humidity without cooling measures by the computer code BAUKLIMA of HBI considering the changing geometry of the tunnel system with the construction progress
- Simulation of the effect of cooling installations and design of the decentralised cooling installations including heat exchangers and air coolers to fulfil the temperature requirements
- Optimisation of costs by means of an appropriate ventilation and cooling of the construction sites
- Elaboration of the tender documents
- Definition of interfaces with the civil design