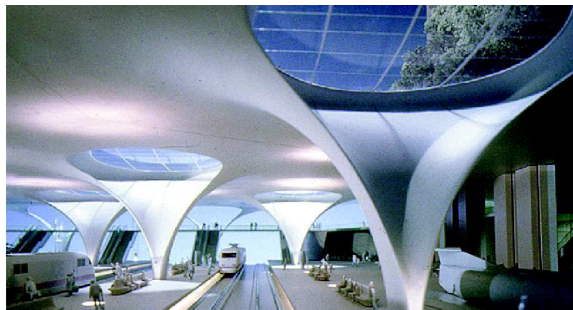
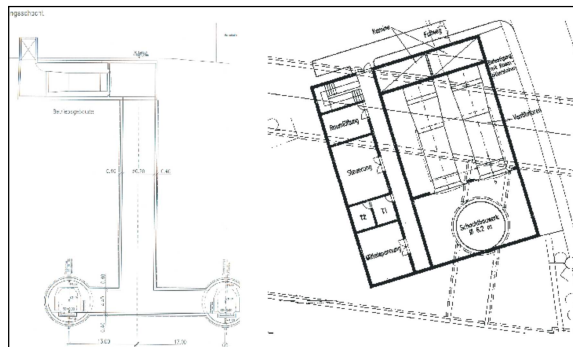


Map depicting the tunnel sections



View from inside the through station



Length section and layout of the smoke extraction shaft

## Description

To access the planned underground station in the city of Stuttgart extensive tunnel sections are necessary in either direction. The planned project consists of an underground track network with the following tunnel sections:

- Fildertunnel, length 9.5 km
- Obertürkheim Tunnel, Length 6.5 km
- Untertürkheim Tunnel, Length 1.1 km
- Cannstatt Tunnel, Length 3.5 km
- Feuerbach Tunnel, Length 3.2 km

All of these five routes run in double-tube single-track tunnels. The two tunnel tubes are connected at regular intervals via cross passages.

At a distance of about 4.5 km from the main station there is a branching with the main tunnel section continuing in direction of Obertürkheim and a side tunnel continuing to Untertürkheim.

## Services

HBI Haerter Consulting Engineers provided the following services:

- To develop an overall concept for smoke extraction from the five tunnel sections and the underground station
- To define an escape route and rescue concept for the tunnel sections in accordance with the concept for smoke extraction and with the rescue services
- To define the minimum required airflow rates for smoke extraction from the tunnel sections
- To design the ventilation stations in the Cannstatt and Feuerbach tunnels
- To estimate the electrical power requirements and the costs for the smoke extraction station
- To numerically simulate and verify the effectiveness of the measures