

Expansion of the Zürich Oerlikon Railway Station



The city of Zürich and Swiss Federal Railways have undertaken to adapt the district railway link and the Mitte and Ost pedestrian underpasses in response to the ever-increasing passenger and pedestrian use of the Oerlikon Railway Station. EBP was commissioned to draft an energy concept for the project and to complete the planning for the necessary electrical systems engineering.

The two renovated pedestrian underpasses Mitte and Ost (referred to below as PUM and PUO) at the Oerlikon Railway Station were to offer enough space for a new railway travel center and a total of 28 other commercial rental units at ground and basement level.

Loop fields for a geothermal heat pump system were installed under each of the pedestrian underpasses to secure an efficient supply of energy for the commercial space at the sites in question. The two loop fields serve as seasonal energy storage units for the supply of heat and air conditioning. The energy concept developed by EBP outlines the ways in which the synergies that exist between heating and cooling operations can be exploited. In particular, the heat that is generated in the context of cooling the commercial space and the utility rooms can be used as a source for heating. Similarly, the cool air generated at the heat pumps can be used to supply the tenants directly and to thereby establish an appropriate circuit. The geothermal loop fields, which were planned by Geowatt, serve as storage units for excess heat or cold occurring in different seasons.

The new railway travel center, the commercial rental space, the plant rooms and the bathroom facilities need to be supplied

Client

PUM: Locher Ingenieure, 10:8 Architekten
 PUO: SBB Infrastructure

Facts

Period	2010 - 2017
Project Country	Switzerland
Planning services provided by EBP	Entire building services planning
Construction volume for PUM and PUO	CHF 180 million
Building systems engineering for PUM and PUO	CHF 11 million

with heat, air conditioning, air, drinking water and electricity. Moreover, a fire sprinkler system needed to be installed in the pedestrian underpass Mitte. EBP completed the entire planning work for the heating, air conditioning, ventilation, plumbing, electrical, building automation and sprinkler systems, as well as overseeing their realization. Working in close consultation with the architectural and engineering services team, EBP ensured an impressive result, i.e. one in which the energy-efficient and largely concealed components of the building systems engineering meet the demanding specifications. Special project challenges presented themselves in the form of limited space between the railway lines, various groundwater concerns, the specified height of the commercial rental units and generally tight scheduling. Despite these, challenges, however, effective solutions were found for an array of special tasks, including the placement of the heat exchanger and the design of the track-bed drainage system.

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Energy corridor at PU Mitte: typical of the space constraints faced in the project

The designers of the Oerlikon Railway Station expansion received an Umsicht-Regards-Sguardi 17 award from the Swiss Society of Engineers and Architects in recognition of the expansion's sustainable design.

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