

New Building GLC, ETH Zurich

Geodetic and geotechnical permanent monitoring of a deep excavation pit



- 📍 Zürich, Switzerland
- 👤 Swiss Federal Institute of Technology (ETH) & Steiner AG
- 🕒 2016 - 2019

Services

- ◆ Permanent 3D monitoring of the excavation walls and surrounding buildings
- ◆ Installation and operation of geodetic and geotechnical monitoring systems
- ◆ Data transmission to the data loggers, partly wired and partly via radio
- ◆ Alarm when limit values are exceeded
- ◆ Project in collaboration with AFRY Schweiz AG, which carried out crack recordings on the surrounding buildings and manual deformation measurements on buildings and tram rails.

Technologies

- ◆ 2 precision total stations with 100 monitoring points
- ◆ 9 chain inclinometers, each with 15 sensors (135 sensors in total)
- ◆ 6 5-fold extensometers (30 sensors)
- ◆ 70 anchor force sensors
- ◆ TEDAMOS Web, password-protected customer portal with 24/7 access

The excavation pit for the new ETH research building in Zurich is a technical challenge and contains all the difficulties of special civil engineering, such as pre-stressed diaphragm walls, bored piles with multiple back-anchoring, underpinning with micro piles and jetting, etc.

A construction pit of this depth in a steep slope in the city centre is highly dangerous and its behaviour must be monitored intensively using measurement technology.