

New Construction Inselspital BB12, Bern

Automatic monitoring of excavation pits and buildings with geodetic and geotechnical sensors



- 📍 Bern, Switzerland
- 👤 Inselspital, Direktion Infrastruktur
- 🕒 2017 - 2020

Leistungen

- ◆ Installation of a complex geodetic and geotechnical measuring system
- ◆ Operation of the system during the shell construction phase (approx. 3 years)
- ◆ Automatic measurements at intervals of minutes or hours (depending on the measuring system)
- ◆ Alarm when limit values are exceeded

Technologien

- ◆ 2 precision total stations with approx. 100 measuring points
- ◆ 21 liquid levelling sensors
- ◆ 7 vibration sensors
- ◆ 58 anchor force sensors
- ◆ 45 strain gauges (measurement of strut force)
- ◆ 19 pore water pressure and groundwater level sensors
- ◆ TEDAMOS Web, password-protected customer portal with 24/7 access

The BB12 building will be the new main building of the Inselspital in Bern and will replace the current high-rise ward block in the future. It will house the Swiss Heart and Vascular Centre and various specialist clinics. Construction of the new building began in 2017 and was monitored from the outset using various automatic measuring systems for deformations and other changes caused by the construction process. The new building, which cost CHF 550 million, is scheduled to be commissioned in 2023.

The automatic measurements are used to monitor the surrounding area and the buildings adjacent to the excavation pit, and to permanently monitor the stability of the excavation pit. For the building monitoring, 3D deformation measurements are carried out using tachymeters, settlement measurements with tube level sensors and vibration measurements in several rooms of the hospital. 3D deformation measurements are also being carried out using tachymeters at the excavation site to monitor the deformation of the excavation pit closure. In addition, automatic anchor and strut force measurements and groundwater level measurements are being carried out in the excavation pit.

These measuring systems are operated together with our local partner, bbp geomatik ag. bbp geomatik also carries out manual deformation measurements using tachymeters, levelling and inclinometers.