GEO INSTRUMENTS

New Theatre

Ryga, Latvia

The New Theatre in Riga, Latvia was established in 1992. The theater is housed in a former tobacco factory building in the creative district of Miera Street, and its historic building in the city center has been renovated. Several internationally known Latvian directors, including Alvis Hermanis, Viesturs Kairišs, began their careers at this theater.

The project

The expansion of the New Theatre in Riga affects, among other things, the structure of the existing adjacent buildings. Due to the ground interference below the existing foundation level of the adjacent buildings, it was necessary to perform special foundation works to secure the buildings between which the newly constructed theater is located. As part of these works, protection of the excavation is executed in the form of a pile foundation in a mixed technology, i.e. made of piles drilled in the VDW casing pipe and DSM (deep soil mixing) columns. One of the elements of the complex project of specialised works is also the preparation and maintenance of the structural monitoring system of facilities allowing for efficient determination of values of displacements and deformations taking place, registration of changes and, consequently, identification and minimisation of hazards in the course of the works.

The challenge

Designing and launching a comprehensive monitoring system for the structure, allowing for continuous vibration monitoring during the foundation works and measuring tilts and settlements of all building objects adjacent to the construction site. The monitoring system should make it possible to record and control all the above parameters in real time so that it is possible to quickly define potential hazards and make decisions aimed at their elimination.

The solution

To meet the high demands of the General Contractor, we used several independent systems working together. For vibration monitoring we used two mobile triaxial Sigicom C22 geophones. To measure building settlements we used as many as eighteen Hydrostatic Precision Leveling (HLC) sensors, and to measure building tilts we used six Wisen wireless, two-axis inclinometers. All installed devices were configured and shown in a single QuickView data acquisition system, which allows us to track all recorded parameters in real time 24/7.

Project facts

Owner(s)
State Real Estate

Keller business unit(s)
GEO-Instruments Polska

Main contractor(s)
SKONTO

Engineer(s)
Tomasz Kokurowski - Monitoring Engineer
Partyk Gajosz - Site Engineer

Services
Deformation monitoring

Markets
Buildings

Technologies
Hydrostatic levelling cells
Wireless sensors
Vibration and noise monitors