

## DIMETIX APPLICATION EXAMPLE

AE-0511

### STRUCTURAL HEALTH MONITORING

**Industry :** Geodesy & Construction

**Application type :** Monitoring

#### Brief description



*Pic 1: Commercial/Residential development*

A unique request to measure sub-millimeter displacements in 3 axis of freedom required by a civil Engineering Company to develop new multi-axis , multi-sensor structural health monitoring within a 3 month timeframe. New tower development in the heart of a busy sports complex required excavation only a few feet away from three existing bridge piers. The developer needed to ensure no shift of the existing bridge structure occurred during the excavation and construction periods of the new 320' high mixed commercial/residential development. The owner of the structure wanted to ensure a high precision measurement system was in place prior to excavation to detect any anomalies during the excavation and construction period.

By combining 3 heated Dimetix laser sensors from and a specialized, high precision 2-dimensional laser position target detector, The Engineers were able to provide the client readings of 0.3 mm precision for the Lasers and 0.1 mm precision for the detector. The IP65 rated laser sensors were equipped with optional heater units to withstand temperature variations and harsh external conditions, and measure transversal displacement from the bridge piers to the sports arena while the detectors measure transversal and vertical displacement.

The systems were deployed in July 2014 and have been collecting readings 24 hours a day, 7 days a week ever since. The structural health monitoring system has enabled 24/7 data collection and observation with sub-millimeter accuracy, which could not have been achieved with traditional survey methods. Careful data collection and monitoring have allowed the sports complex to remain operational throughout excavation and construction period, Adjacent buildings and infrastructure were protected against damage in a high density construction area.



*Pic 2: Construction site*

#### Customers advantages

- Maintenance free application
- Easy alignment thanks to the visible laser beam
- Rugged aluminum housing suitable for harsh industry environment

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