A SUCCESSFUL MONITORING PROGRAM REQUIRES APPROPRIATE PLANNING, DESIGN AND EXECUTION. TO FULLY MEET THE OBJECTIVES OF SUCH A PROGRAM, SPECIAL ATTENTION MUST BE GIVEN TO THE SPECIFICITIES OF EACH BUILDING THROUGHOUT THIS PROCESS.

High-rise buildings and arenas/stadiums are complex structures. They are comprised of multiple elements and components that become stressed and interact with one another when exposed to external phenomena. Buildings vary widely in size, geometry, structural systems, construction materials and foundations characteristics. These attributes influence how a building performs.

References

- Helsinki Railway Station Roof Monitoring - Finland
- Wankdorf Stadium in Bern - Switzerland
- High-Rise Buildings in Singapore - Singapore
- Skyline Skyscraper in Cosenza - Italy
- Hyundai Building in Seoul - Korea
- Halifax Metro Center - Canada
- Nikken Sekkei Spiral Tower in Nagoya - Japan
- 33-Floor High-Rise Building in Tokyo - Japan
- Tower Blocks Link Bridge - Singapore
- Burj Khalifa Tower in Dubai - United Arab Emirates
- Milad Tower in Tehran - Iran
Structural Health Monitoring allows the rapid assessment of a building's health, and this approach is recognized as one of the best means available to increase the safety and to optimize the operational and maintenance activities of complex buildings.

The data resulting from monitoring programs allow owners to improve the operation, the maintenance, the repair and the replacement of structures, based on reliable and objective data. Detection of ongoing damage can be used to identify deviations in design performance values. Monitoring data can be integrated into structural management systems and increase the quality and cost effectiveness of decisions by providing reliable and unbiased information.

Structural Health Monitoring provides reliable data on the actual condition of a structure, observes its evolution and detects the appearance of new degradations. Concrete will crack and creep and steel will oxidize and may crack due to fatigue loading. The degradation of materials is caused by mechanical factors (loading higher than theoretically assumed) and physical-chemical factors (corrosion of steel, penetration of salts and chlorides in concrete, freezing concrete, etc.). A real-time picture of a building’s current state and evolution can be achieved by permanently installing sensors and continuously measuring relevant parameters.

Structural monitoring using the Roctest Group’s solutions represents valuable methods for increasing knowledge and ability to assess the structural performance and integrity of complex buildings as well as for an analysis of more significantly dynamic behavioral structures. For longterm solutions, static monitoring requires very accurate and stable systems, able to relate measurements often spaced over long periods of time, reliably preserving the integrity and safety of the building.
TOWER TYPICAL INSTRUMENTATION

- MuST Sensor with L-bracket (Front View)
- Bi-axial inclinometer
- Bi-axial accelerometer
- Tri-axial accelerometer/Anemometer
- Anemometer
- Intermediate Connection Box (ICB)
- Central Measurement Point
Roctest is the leading developer, manufacturer and supplier of innovative sensing technologies based on vibrating wire and fiber optic sensors for geotechnical and structural instrumentation.

We are featuring a complete line of conventional sensor-based solutions ranging from the ultra-robust traditional vibrating wire technology to state-of-the-art fiber-optic technology used for the measurement and monitoring of geotechnical projects and structural health monitoring (SHM) of critical assets such as: dams, tunnels, mines, buildings, bridges, nuclear power plants and many other structures too numerous to list.

Roctest offers a wide range of pressuremeters, rock dilatometers, laboratory and in-situ testing equipment for soil and rock.

Available Application Notes

- FO Leak Detection for Dams and Dikes
- Dam & Dike Instrumentation and Safety Monitoring
- Tunnel Instrumentation & Structural Health Monitoring
- Bridge Instrumentation & Structural Health Monitoring
- Building Instrumentation & Structural Health Monitoring
- Historical Monument Instrumentation
- Geotechnical and Structural Monitoring
- Nuclear Power Plant Instrumentation
- FO Movement Detection in Tunnels
- FO Leak Detection for Chemical Plants
- FO Leak Detection for Pipelines
- Storage Facility Instrumentation
- Cliff Instrumentation