Foundation and pile testing specialists

The stability of a structure starts with a strong foundation
Delivering improved asset safety and ensuring long term asset performance.

Strainstall affords significant confidence in the long-term performance of foundations, delivering fast and highly accurate on-site verification services which adhere to critical design parameters.

As the leading, independent provider of foundation and pile testing services, Strainstall verifies design parameters thereby instilling significant confidence in a foundation’s ultimate long-term performance under load.

Our breadth of resources allows us to deliver a rapid response, with minimal disruption to on-going work within the test location, with results instantly available on-site. Our experience and expertise enables us to provide practical advice on the best testing methods for your project needs.

Using only the latest innovative products, we cater for a broad range of loading capacities and offer a wide range of non-destructive testing methods to meet the industry’s exacting requirements. The real-time distribution of invaluable data facilitates informed decision making that improves overall project performance in terms of safety, productivity and asset protection.

**Our scope of foundation testing includes:**

- Below ground corrosion assessment
- Bi-directional static load testing
- Cross hole sonic logging
- High strain dynamic pile testing
- Low strain dynamic pile testing
- Static load testing
- Parallel seismic testing

We can also provide a fully integrated geotechnical monitoring service which includes ground movement monitoring, noise and vibration monitoring, landslip monitoring, tunnel monitoring and building movement monitoring.
A part of James Fisher and Sons plc, Strainstall is an innovative and fast growing company. Our highly skilled team has significant experience in structural monitoring and pile testing, delivering solutions across the Middle East, Malaysia, Asia Pacific, the UK and Ireland.

Working in partnership with our sister company Testconsult, an expert provider of specialist testing services and equipment and structural health monitoring, Strainstall is able to provide solutions for the most operationally challenging projects faced by our customers around the world.

By leveraging the companies’ global reach, complementary services and breadth of expertise, we have an unrivalled ability to meet the constantly developing needs of the markets in which we work.

**Specialist foundation testing equipment**

We design and manufacture our own range of specialist foundation testing equipment in-house; driving innovative and cost-effective solutions to deliver improved operational performance for our customers worldwide.

**Committed to quality and safety**

Strainstall is committed to delivering high quality solutions throughout all of its operations. We ensure best practice and compliance with industry regulations, as evidenced through our industry accreditations and memberships. We are committed to delivering the highest standards in order to meet our customers’ exacting requirements.
Our range of highly accurate pile testing services is critical for verifying foundation design parameters and communicating corrective actions as required.

Below ground corrosion assessment

Strainstall’s below ground corrosion assessment service is a non-intrusive and operationally efficient alternative to traditional excavation methods.

Understanding the performance of metals when buried in soils and the rate of corrosion enables a structure’s service life to be determined.

Traditional excavation techniques can be very costly and disruptive. Using our own specially developed equipment, we provide an efficient and non-invasive way of evaluating corrosion rates.

Low strain dynamic pile testing

A highly effective testing technique, low strain dynamic pile testing is non-destructive and requires no advanced planning or access tubes.

Low strain dynamic pile testing is the most affordable way of evaluating the shaft integrity of concrete piles, as it does not require any advanced planning or expensive set-up costs.

Using the latest portable equipment the test detects potential defects such as major cracks, voids, necking, soil inclusions and, in some situations, unknown lengths of piles, providing instant on-site analysis.

High strain dynamic pile testing

High strain dynamic pile testing provides a rapid method for evaluating the structural integrity of deep foundations with instant on-site results.

A non-destructive testing method, high strain dynamic pile testing is suitable for use on all types of drilled and driven piles. Performed using a pile driving analyser (PDA), more piles can be tested at a faster rate and at a much lower cost.

The PDA verifies the capacity of both driven and bored piles, as well as investigating other aspects of driven pile installation such as hammer efficiency and driving stresses.
**Parallel seismic testing**

Parallel seismic testing by Strainstall is regarded as the most reliable method of checking the durability of foundations beneath existing structures.

Occasionally, doubts about the integrity and length of concrete and sheet piling only arise after the structure is completed and pile heads are no longer accessible for testing.

The parallel seismic test has been developed for testing in these situations and is often used to determine the embedded depth of sheet piling, for confirming pile depth underneath caps and structures, as well as checking the depth of masonry and footings.

**Static load testing**

Strainstall’s static load test is the original form of pile load testing and is considered to be the benchmark of pile testing.

Suitable for all pile types and sizes, the static load test uses Strainstall’s specially designed, high capacity load cells. Direct measurements of pile displacement are logged and test results are presented in an easy to read graphical format which shows loading versus pile head displacement.

Static load tests can be used to determine the settlement which can occur at working load or a multiple of it, as well as being used to verify the ultimate bearing capacity of a pile.

**Cross-hole sonic logging**

Cross hole sonic logging by Strainstall provides a full and thorough investigation of the quality and consistency of concrete bored piles.

With decades of experience in foundation testing, Strainstall uses the latest logging systems to test the critical soundness of concrete and report on the data.

A non-destructive testing technique, the specially developed cross hole sonic analyser records, at regular depth intervals, the time the signal takes to travel from the transmitter to the receiver as well as signal strength. These two parameters indicate the concrete quality between the pair of tubes at a particular depth.
Driving innovative and cost-effective testing solutions to provide safer, faster and highly accurate results.

Bi-directional static load testing (BDSLТ) is an innovative pile testing method that is proven to deliver safer, faster, highly accurate and cost-effective results.

BDSLТ determines a pile's ultimate load bearing capacity and simulates pile response in actual working conditions, enabling you to predict how well the foundations will withstand the weight of the structure in 5, 10 or even a 100 years time.

This truly innovative technique is the only test which provides direct measurements of a pile's end bearing and skin friction, enabling you to understand exactly how the pile load is distributed between the surrounding soils and the base of the pile, which is one of the reasons why so many engineers are now turning to this method.

The speed and wealth of information provided by BDSLT makes it a highly effective and valuable pile testing method, and it's proven to be far more accurate and cost-effective than traditional load testing.

Benefits of Strainstall's bi-directional static load testing:

- Cost-effective in comparison with traditional testing methods
- Offers improved safety - eliminates the need for overhead beams or reaction piles
- Fast and highly accurate - enables you to understand exactly how pile load is distributed between surrounding soils and the base of the pile
- The only test to provides direct measurements of a pile's end-bearing and skin friction
Strainstall delivers industry first in Singapore

Strainstall Singapore successfully pile tested a 10,000 tonne load – the highest capacity ever tested in Singapore. The test was conducted for Dongah Geological Engineering Co. Ltd, a major Korean construction company.

The location of the pile test was at the confluence of different soil formations, making it challenging to design a test which could acquire meaningful data. Strainstall were able to overcome this difficulty however, using BDSLT and its experience and understanding of customer requirements to deliver a holistic solution.

Abu Dhabi Plaza static load testing

Strainstall Middle East was contracted by Zetas Zemin Teknolojisi to undertake BDSLT and various other pile tests for the Abu Dhabi Plaza in Kazakhstan.

To confirm that the piles could bear the weight of the proposed buildings, Strainstall undertook a range of pile tests including 7 BDSLT on piles of 1500mm and 1000mm diameter, as well as cross hole sonic logging on 144 piles, pile integrity testing on 400 piles and caliper logging on 151 piles.

Structural monitoring of the Burj Khalifa Tower

Strainstall delivered a six year monitoring contract on the Burj Khalifa Tower in Dubai – the tallest man-made structure ever built.

Initially contracted to undertake preliminary pile tests to ensure the piles could bear the weight of the enormous structure, Strainstall went on to supply and install a structural monitoring system designed to monitor the structure’s performance as construction progressed. This provided important ongoing data on the structural behavior of the tower during the initial commissioning period.

Sonic logging at Crossrail

Testconsult, sub-contracted by Cementation Skanska, provided sonic logging on a range of deep piled foundations and diaphragm walls at four different underground stations as part of the prestigious Crossrail transport scheme in London – one of the biggest civil engineering projects in the UK.

The foundation testing contract win, followed four years of materials testing on the same project. Using Testconsult’s latest SCXT sonic logging equipment, technicians were able to log a four tube pile profile in around 15 minutes, which equated to a fast and efficient testing service for the client.