

«GEOMETRISI»

GEOMETRISI has over 10 years experience in seismic assessment of structures. Occupies specialized personnel and possesses a privately owned laboratory and equipment for performing the seismic assessment of structures based on the 2017 2nd revision of CODE OF STRUCTURAL INTERVENTIONS (EPPO) necessary for licensing of illegal buildings but also for renovation of existing ones.

CONCRETE STRENGTH ASSESSMENT OF BEARING STRUCTURE OF BUILDINGS **(Seismic assessment of buildings)**

I. With the use of non destructive methods:

- Test Hammer: (Calculation of concrete strength after suitable data processing)
- Nail Extrusion: (Calculation of concrete strength at selected positions such as beams, columns etc.)
- Rebar location and cover thickness with the use of modern electromagnetic methods.
- Foundation detection with the use of modern electromagnetic methods (georadar).
- Ultrasonic: With the use of appropriate ultrasonic device detection of cracks or voids is feasible. Conclusions on the quality and strength of the bearing elements of the existing building can also be achieved.
- Carbonation test with the use of reagents: With this test concrete disintegration can be estimated.

II. With the use of destructive methods:

- Concrete coring of various diameters. Transport and testing in our privately owned laboratory.
- Rebar location, cover thickness with the use of mechanical means.
- Foundation exposure with the use of mechanical means.

Photographic illustration of these methods can be found here below.

QUALITY CONTROL OF REINFORCED CONCRETE STRUCTURES **(Seismic assessment of buildings)**

The design of reinforced concrete works is based on the conventional strength of concrete. Frequently determination of the in situ strength of concrete is needed. Determination of the in situ strength can be achieved with the use of indirect (Non destructive) methods or with the use of destructive methods.

Indirect Methods

Test Hammer method

It is based on the surface hardness of the structural elements tested. Ideal for identifying the homogeneity of the structural elements mainly before being tested by other methods



Ultrasonic Method

It is based on the ultrasound speed when passing through the body of the structural element. In addition, it can determine the uniformity of concrete, the existence and depth of any cracks, the depth of fire impact, the changes observed in concrete over time, the modulus of elasticity and the Poisson constant.



Nail Extrusion Method

It is based on the resistance of concrete when trying to extrude a 4cm long and 4mm thick nail from it that has been nailed with an appropriate nail gun.



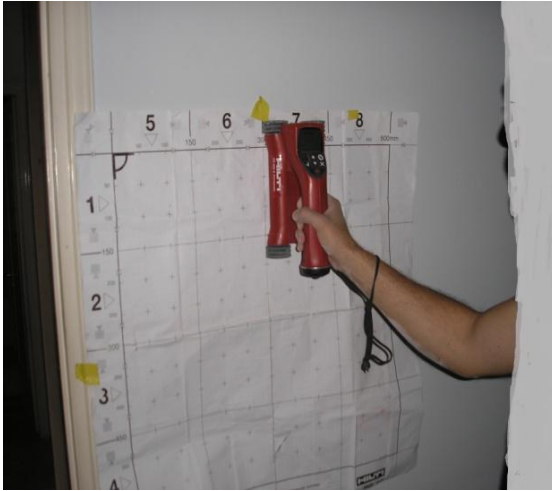
Concrete Coring

Concrete coring is performed with a rotary sampler with a diamond bit (usually $\Phi 100$). Samples are formed and test is performed at the appropriate loading device. The resulting compressive strength is reduced to a 28 days cured concrete cube compressive strength according to E7 circular of KTS '97.



Indirect determination of reinforcement rebars

For structural elements where no information exists regarding rebar reinforcement of concrete, quick and fairly accurate estimation of rebars position, diameter and average cover thickness is possible with the use of automated electromagnetic devices.



Indirect determination of cracks

At structural elements Ultrasonic Testing (UT) using high intensity sound energy for detecting / evaluating imperfections, concrete quality assessment, uniformity, compressive strength and SONREB, crack detection, elastic modulus, detection of gaps, pipes, interfaces and spots.



Foundation detection using georadar

For underground structural elements for which no data are available for their position and dimension it is possible to quickly and accurately assess them with the use of georadar.



We are at your disposal for any clarification.

Yours sincerely

GEOMETRISI

A handwritten signature in blue ink, appearing to read 'D. S. Loukas'.

D. S. Loukas
Engineering Geologist