

Pile Dynamics, Inc. develops breakthrough test for concrete foundations in partnership with FGE

A new solution for integrity evaluation of concrete foundations has been developed by the Pile Dynamics (PDI) – Foundation & Geotechnical Engineering, LLC (FGE) partnership: the Thermal Integrity Profiler (TIP).

TIP uses the heat generated by curing cement (hydration energy) to assess the quality of cast in place concrete foundations such as drilled shafts, bored piles, augered cast-in-place, continuous flight auger piles and drilled displacement piles. Because temperatures within the concrete foundation are dependent on its diameter and distance to the center of the shaft, TIP measurements may be used to estimate the actual shape of the shaft including the previously difficult to determine thickness of concrete cover.

The Thermal Integrity Profiler, which is based on research conducted at the University of South Florida and originally implemented by FGE, is attractive in that it assesses the concrete quality of the entire cross-section and along the entire length of the foundation. Another major advantage of the TIP is its early testing time; test results are available as early as 12 hours after concrete is poured, allowing construction to continue.



The Thermal Integrity Profiler (TIP).

The TIP is available in two types of thermal data acquisition systems: either with an infrared probe that is inserted in Crosshole Sonic Logging-type access tubes, or with thermal wires™ that are attached to the reinforcement cage prior to concreting. Either way, data is collected by Thermal Acquisition Ports, transferred to the TIP, and downloaded to a computer for further analysis and result presentation by the Thermal Analysis Reporter software.

In addition to the Thermal Integrity Profiler, Pile Dynamics produces several other quality assurance and quality control products for the deep foundations industry. Its products are recognized throughout the world as the ultimate solutions for testing and monitoring of deep foundations. The company is based in Cleveland OH and has commercial representatives worldwide. 