

# International Building Code (IBC) Pile Integrity Testing

**CEC geotechnical engineers provide pile load and capacity testing requirements for deep foundations in compliance with the International Building Code (IBC).**

The success of any building project rests on properly installed foundations, and deep foundations necessitate compliance with IBC pile load and capacity testing requirements. Pile Integrity Testing (PIT) is a cost-efficient and time-saving alternative to traditional deep foundation load testing and is the ideal Quality Assurance method.

## **BUILDING CODE REQUIREMENTS**

Chapter 18 of the IBC states “Piers or piles shall be installed in such a manner and sequence as to prevent distortion or damage....” Additionally, Chapter 17 of the IBC requires inspection and testing to “determine capacities of test piles and conduct additional load tests, as required.” Accordingly, construction of deep foundations or piles (drilled, driven, caissons, auger-cast and timber) requires field testing to meet the requirements of the code. Traditional deep foundation load testing is expensive and time consuming. Furthermore, load testing is limited to only a few test piles on a project, and typically includes only non-production members. PIT verifies not only the final depth of the foundation, but that damage has not occurred during installation. As such, PIT can be used to reduce the number of load tests and provide a significant savings to the project. More importantly, PIT can be performed on every production member within the limits of the building project.

## **PILE INTEGRITY TESTING EQUIPMENT**

CEC utilizes a Piletest® Pile Echo Tester to perform non-destructive PIT on both test and production piles. Using low-impact hammer strikes to the top of the pile, the reflecting signal is captured by a digital transducer to produce a reflectogram. The reflectogram is then immediately imported to a laptop or tablet via USB cabling.

Based on the captured reflectogram, PIT can quickly and accurately indicate various deep foundation characteristics, including depth, widened or necked sections, irregular vertical profiles, etc. The Pile Echo Tester permits assessment of a large number of deep foundations quickly and accurately, and the majority of sites can be tested in a single day.

## **ASTM COMPLIANCE**

CEC geotechnical personnel perform PIT in general accordance with ASTM D5882, “Standard Test Method for Low Strain Integrity Testing of Piles.”

