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Standard Penetration Test Energy Measurements

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Today, equipment is readily available to measure the energy transfer from a Standard Penetration Test (SPT) to the drill string. The method most commonly used is the Force Velocity method in which force and velocity are integrated over time.

Equipment typically consists of a pile driving analyzer, which is connected to an instrumented drill rod that contains two strain gages and two accelerometers. The instrumented drill rod section (*as shown in the photo*) is placed at the top of the drill string.

Energy transfer measurements are made for every hammer drop during an individual SPT test. Tests are performed on several but not all SPT tests. The attachment of the instrumented rod section adds about 15 minutes to the driller's time for each test. A typical report includes a tabulation of energy measurements for each hammer drop, along with the average energy transfer and coefficient of variation for each SPT test.▪

Attaching SPT to Instrumented Rod Section

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December 2006
Soils
& Foundations