

Welcome to Specialized Test Vehicles



Core Rig



Pavement Friction Tester



Lightweight Profilometer



Ground Penetrating Radar



Rapid
Travel Profilometer



Falling Weight
Deflectometer



Bridge Underclearance
Measurement System

Click on a photo or select from the left menu for more information.

Core Rig



This truck is used to collect sample cores from concrete and bituminous pavement. Removing a sample from the pavement is often the best way to determine if any structural or material problems exist. The rig is also used to ensure that new pavements are built to the specified thickness.

Pavement Friction Tester



This vehicle measures pavement friction by applying water on the road and locking up the brakes on one wheel of the trailer. Horizontal and vertical forces are measured by instrumentation on the trailer axle. Once these forces are known, a friction value can be determined for the tire to pavement interface.

Lightweight Profilometer



Originally developed here at Construction & Technology, lightweight profilometers are used to measure the ride quality or smoothness of recently constructed pavements. It operates similar to a full size Profilometer, but its lightweight and low tire pressure allows it to be driven on concrete pavements within a few hours of placement.

Ground Penetrating Radar Equipment



C&T's Ground Penetrating Radar (GPR) unit consists of a 1000 MHz antenna mounted off the back bumper of a van that can travel at posted speed limits to obtain a continuous scan of the pavement cross-section. The GPR has been used successfully to obtain pavement thicknesses on dozens of projects. Mostly, the project designer wants to know the pavement thickness during the design phase. In a few cases, the GPR has been used to examine pavement thicknesses directly after paving. While the GPR will not replace coring operations, it can provide a larger sampling of the pavement for relative thickness differences and areas to concentrate coring in.

The antenna fires very low-energy electromagnetic waves down into the pavement structure and those waves bounce back at the boundaries of differing materials. C&T's GPR unit is capable of recording a scan of the pavement as close as every one foot at 70 mile per hour travel speed. Scan spacing can be increased at slower speeds. Depth of penetration is typically three feet. Results can be reported visually with cross-section printouts or as a graph with depths averaged over equal intervals (for example, every 50 feet).

Asphalt pavements are a better conductor of the signal than concrete pavements (particularly fresh concrete). Metal is an excellent reflector of the signal, therefore GPR is a good means for locating steel.

C&T also has four other antennae. Two 1500 MHz antennae have shallow depths of penetration and so are used for bridge decks, steel reinforcement and dowel bar location. The 200 MHz and 400 MHz antennae penetrate much deeper and are used for void detection, culverts, pipes, utility vaults, etc. All four of these antennae must be dragged along the surface so data collection is slower and they typically require lane closures.

For further information about C&T's Ground Penetrating Radar unit, please contact:

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Rapid Travel Profilometer



This vehicle measures the ride quality or smoothness of pavements. Operating at highway speeds, it uses a laser to measure the profile of the roadway and an accelerometer to determine the movement of the truck.

Falling Weight Deflectometer (FWD)



Pavements, like any other structure, deflect when loaded. The Falling Weight Deflectometer drops a weight of known magnitude on the pavement and measures the resulting deflections. From this data, the pavement's stiffness can be determined and its remaining life estimated.

High Speed Bridge Underclearance Measurement System



This vehicle is used to measure the underclearance of a bridge at normal highway speeds using laser technology. The system is portable and can be mounted on any vehicle with a 2 inch trailer hitch receiver. Along with the bridge under clearance data, GPS (Global Positioning System) information is recorded to mark the location of a bridge.

[Click here for High Speed Bridge Underclearance Measurement System Presentation](#)

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