

"The Black Box"

VCE, Inc. is offering a new service that is available to insurance adjusters, attorneys and other agencies that benefit from Accident Reconstruction Services. VCE now uses a **Crash Data Retrieval System** to download the on board crash data recorder on GM vehicles. This crash data recorder is currently available on most 1996 to 2001 GM vehicles, but other manufactured vehicles will be available in the future.

The crash data recorder records pertinent information about the vital statistics of the vehicle such as the vehicle speed, the throttle position, the braking status and whether the seat belts were in use. The vehicle data recorder starts recording when there is a near air bag deployment event. As seen in Tables 1 & 2, the recorder records information for the previous 5 seconds to a near deployment event (impact) and 300ms (.3 seconds) after the air bag deploys. As seen here, this tool is useful to help determine how fast the vehicle was traveling at and before the point of impact.

This new service will be done through VCE trained technicians in order to assure the most cost effective price. The crash data recorder will be downloaded

with a same day verbal report and a written report to follow within a few days. The cost will be approximately \$250.00 depending on the location and on the volume of assignments.



When an Accident Reconstruction is necessary, VCE utilizes the latest technology when conducting the Investigation:

1. VCE uses the **Sokkia Total Station** to electronically map the accident scene. This is

PRE-CRASH DATA		Event Data/Time/Check Status	
Approx. Before	Approx. After	Event	Check Status
00	01	01	01
01	02	02	02
02	03	03	03
03	04	04	04
04	05	05	05
05	06	06	06

Table 1

normally used for accident locations that either have a hillcrest or a curve where the sight distance is in question, or at locations where there are angular intersecting roads. The Total Station allows for the creation of an accurate scale diagram that is used in the analysis and in the report



Table 2

- to best convey the conclusions.
2. VCE uses **RecTec, WinCrash, AutoStats, AutoSketch and CARS**, state of the art computer software, to calculate the vehicle speeds at various locations of the accident events. This includes speed/time/distance calculations that show where the vehicles were located in relation to each other, how fast they were traveling, and how much time was available for evasive action.

3. VCE uses **Accident Reconstruction Experts** with many years of experience in reconstructing vehicle accidents and giving expert testimony in general sessions, civil and federal courts.

by Todd Hutchison

Can New Settlement Cracks Occur in a 20 Year old house???

The short and skinny answer is YES. However, most homeowners are not satisfied with that short answer.

This article identifies several conditions that can contribute to ongoing settlement which can cause cracking to residential housing and other types of construction.

Most people believe that their foundation supports their house. In the truest sense, this is not correct. A typical concrete block foundation used to support the floor and wall system of a residential house is part of a system which supports that house. This system includes concrete footings, and load bearing soil which support the footings and concrete block foundation walls. Concrete block foundation walls and concrete footings rely on the load bearing capacity of soil to prevent against cracking and shifting of various members in the structure. Load bearing capacity of soil varies based on type of soil and the ratio of void spaces in the soil, moisture in the soil, and soil mass. As these ratios change, the load bearing capacity of the soil changes. When the load bearing capacity of the soil is reduced,

additional settlement can occur to a structure of any age, even one that is 20 or more years old.

When subsoil shifting occurs, settlement cracking can follow. The most common type of settlement cracking occurs when soil consolidation takes place as a result of initial loading when a new structure is placed on the existing soil.

Typically cracks seen from these activities show up in the first few years after a structure is built.

However, several

conditions exist that can cause subsoil shifting over the life of a structure. When this subsoil shifting takes place, additional settlement can occur.

Surface water runoff can erode the soil around a foundation and weaken the integrity of the soil, thus causing additional settlement to occur.

Photo 3

Subsurface water runoff can redistribute the soil underneath a footing or foundation and cause additional settlement to occur. **Excessive rainfall and**

drought cycles can cause soil particles to redistribute, thus leading to additional settlement. **Large canopy trees**, planted in close proximity to a structure, can **place high water demands** on the soil around that structure. It is not uncommon for root systems of large canopy trees to extend 1 to 1 1/2 times the canopy radius out from the trunk of the tree. The water demands of these trees during a drought period can cause additional soil consolidation and lead to severe settlement cracking. Photographs 1 and 2 show severe ground cracking which resulted from drought conditions and water demands from large canopy trees. In addition to this ground cracking, severe settlement cracking is seen to extend from cracks in the ground to the exterior brick wall of the residence. Photograph 3 shows large canopy trees in close proximity to the side of the residence where severe settlement cracking has occurred.

Site evaluations by trained and experienced experts can help you

identify conditions which may cause settlement of older homes. In addition to site evaluations, 3-D Topographical Analysis software can be used to determine surface

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Photo 1

Photo 2

VCE, Inc. does Unusual Investigations

VCE, Inc. expertise is available for both casualty and property claim evaluations.

Do you have an unusual claim such as some we have previously successfully handled for clients?

Check us out on the web @ www.vceinc.com

"Vehicle Through Portion of Building"
VCE, Inc. has structural investigators to service any of your needs.

Give us a call at
615/781-3844 or 1-800-747-3844
and let us assist you with your next claim

SERVICE ALERT

VCE has a tool available which assists our roof experts in determining whether hail damage occurred to a specific structure. More information to follow in next newsletter.

Can Settlement Cracks Occur in a 20 year old house?

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settlement of older homes. In addition to site evaluations, 3-D Topographical Analysis software can be used to determine surface and subsurface water runoff conditions which can contribute to soil consolidation. Damage type and location correlation can be used to corroborate differential settlement causation determination by identifying companion or reflective type damage typically found where differential settlement has occurred.

VCE, Inc. Areas of Forensic Expertise



Earl C. Hutchison, P.E. - Forensic Engineer

William I. Price, P.E. - Blasting Damage

Dr. Dale A. Wilson, Ph.D., P.E. - Metallurgy

**Todd O. Hutchison - ACTAR Accredited
Traffic Accident Reconstructionist**

Joe Gallagher - Truck Specialist

William H. Greene, P.E. - Sign Specialist

William E. DeWitt, P.E. - Electrical Engineer

James B. Carson, P.E. - Electrical Engineer

**Dewey Griffin - Electrical Accident & Fire C&O
"Certified Fire & Explosion Investigator"**

Carl Hudson - Roof Specialist

Herb Stewart - Product Specialist

Clarence E. Bennett, P.E. - Civil Engineer

Wade C. Hutchison - President

With my training as a Civil Engineer, I bring an understanding of soil mechanics to each structural analysis in order to determine causation for claimed damages. Often settlement cracks are blamed on blasting. Cracks that could be attributed to blasting have distinct characteristics. These characteristics are those associated with an instantaneous reverse stressing of a material. Differential settlement cracks are typically caused by a continuous stressing of materials. The manifestation of each of these categories of cracks are unique.

by Wade C. Hutchison

Established Professional Innovative Flexible

VCE, Inc. began operations in 1975,
and our key employees now have 200
plus years of experience. All of our
technical services are enhanced by this
collection of experience.

Wade C. Hutchison
President

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