

THE FORENSIC ENGINEERING REPORT

BY I-ENG-A... AS IN 'ENGI-NEER'

VOLUME 18, ISSUE 5

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Upcoming Events:

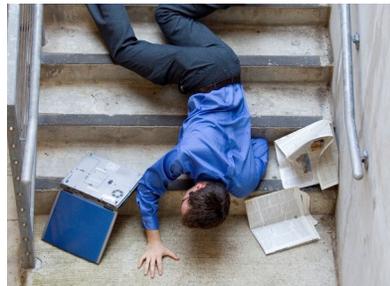
Babar M Khan, P.E., I-ENG-A of New Hampshire will be making two presentations at the national convention of Investigative Engineering Association in Ft Lauderdale, Florida from November 9th through 12th. Topics are "Ethics in engineering investigation of insurance claims" and "Investigation of product defects".

INVESTIGATING SLIP, TRIP AND FALL INCIDENTS BY LEWIS W. ERNEST, PE, I-ENG-A ADVISOR

As winter approaches there will be a higher frequency of slip/trip and fall incidents, especially in areas of snow and ice accumulation on walking surfaces. We should all be mindful of walking conditions on slick surfaces and exercise extreme caution when we are walking in those areas.

In reality, however, slip/trip and fall incidents occur in many everyday situations. A trip over a rug in a commercial building, a fall on a stairs or irregular walking surface or a slip on a wet surface in the produce department of a grocery store are a few examples of common slip/trip and fall incidents. In many cases a slip/trip and fall incidents are purely an "accident" where no party is totally or partially at fault. In some

cases, however, a fall incident can be attributed to an improper or unsafe conditions and there may be "fault" to be associated with the incident. Where potential fault is suspected with a slip/trip and fall incident, it would be prudent to investigate the factors surrounding the incident, especially if there is injury to the victim. I-ENG-A members are trained in the aspects of these type incidents and slip/trip and fall topics are covered at many of our annual conventions.



We encourage our readers to be very mindful of unsafe walking conditions during the winter months.

The study of slip/trip and fall incidents involves many common sense factors as well as scientific disciplines and engineering principles. An engineer

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THE EVENT DATA RECORDER, "BLACK BOX" BY ELVIN AYCOCK, PE, ACTAR, I-ENG-A ADVISOR

Many adjusters, new to automobile accidents claims, are surprised when we tell them that all cars have "Black Boxes." The "Black Box" is usually stored under the driver seat or in the middle console between the seats. It is also known as an Event Data Recorder (EDR).

Most EDRs are built into a vehicle's airbag control module and record information about the deployment of airbags as well as pre-crash data from the engine control module, such as vehicle speed, throttle position and engine speed. This information is recorded immediately before (usually 5 seconds) and immediately after a vehicle impact.

Most Event Data Recorders record the speed in one second increments beginning 5 seconds prior to impact. The report will show you the speed of the vehicle at 5 seconds, 4 seconds, 3 seconds, 2 seconds and at 1 second prior to the collision.

For example, if the report said the vehicle was going 62 mph at 5 seconds prior to impact and the posted speed on the roadway was 45 mph, then the driver was traveling 17 mph over the speed limit.

The report will also show if the brakes were engaged, what the throttle position was and if the seat belts were engaged. This information can be very useful to a claims adjuster as well as to the investigating reconstruction engineer.

Not all car manufacturers make Event Data Recorder data available for download. Your local traffic accident reconstruction engineer can determine if the data can be downloaded from the vehicle involved in an accident.

The Event Data Recorder is a very good reconstruction tool and its use grows each year. However, the data from the EDR report should not be used as a stand-alone measure of speed. A reconstruction of the accident should be performed to support the report. The use of the EDR tool, along with the reconstruction report prepared by an experience and Certified Forensic Engineer provides great evidence that can be used to assist the Adjuster in claims review.

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INVESTIGATING SLIP, TRIP AND FALL INCIDENTS CONTINUED

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can evaluate many factors involved in a fall incident to determine if it was a pure accident or if there were faults that could be attributed to the incident. Some of the common areas where an engineer could be helpful in analyzing a fall incident include:

- **Physical Conditions**-Determining whether the victim's health or physical condition was a factor in the incident (i.e. age, disability, ailments, impairments, gait, eyesight, normal human locomotion, unimpeded walking ability, etc.)
- **Walkway Conditions**-Evaluating walkway conditions (i.e. sidewalks, floor surfaces, stairs, ramps, etc.) to determine if they were built/maintained properly and in accordance with proper codes and if there were any flaws in the walkway surface that may have contributed to the incident
- **Coefficient of Friction and Walking**-Analyzing the cause(s) of a slip incident usually includes the measuring the tractive properties of the combination of the shoe sole material and the walkway. The coefficient of friction is a measure of how easily a surface will slide over another surface. Engineers have several methods to test friction conditions and to determine if an abnormal slip condition caused or contributed to the fall incident, and/or if improper footwear was a factor.
- **Lubricants and Contaminants**-These substances that may come between a shoe sole and the walkway may alter tractive characteristics of the surface. An engineer can determine if this was a factor in a slip and fall incident.
- **Transition between Surfaces**-Abrupt changes in the tractive properties of a walkway are the cause of many slip/trip and fall incidents. An engineer can determine if an abnormal transition condition was a cause or factor in a fall incident.
- **Stairways**-Stairways are a major source of fall incidents. The Consumer Product and Safety Commission has reported that stairs rank second only to bicycles as the most hazardous consumer product. Engineers are well trained to evaluate whether an improperly built/maintained stairway or handrail system was a factor in a fall incident.
- **Illumination**-The illumination levels (especially on stairways), as well as walkway textures, shadows, traffic levels and walkway slopes are other variables that can influence fall incidents. Engineers are well equipped to determine if improper lighting or other factors caused or contributed to a slip/trip and fall incident.

In conclusion, we encourage our readers to be very mindful of unsafe walking conditions during the winter months, as well as during your normal waling activities. And if you are involved in or associated with a fall, feel free to contact one of our local I-ENG-A member firms to help in the investigation into the cause(s) of the incident.

If you would like an evaluation of a slip and fall or other incident resulting in injury or loss, please request a quote at www.engineeringquotes.com.

I-ENG-A CONVENTION 2014 DRONES AND ENGINEERING

The next Investigative Engineers Association Convention will feature demonstrations of unmanned aerial vehicles (UAV), also known as drones, for investigative or forensic engineering by Pioria Robotics, Inc. Liability and privacy issues will be discussed. Many feel that drones could be the next mobile tech tool in not only for claims management, but for many other commercial applications. Regulation by the Federal Aviation Administration (FAA) is going to be a key element for the use of drones. Priority Robotics, Inc., will be sharing the current status of the regulations, use of the drones and engineering applications.

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COMEDY RELIEF CORNER

Why couldn't the teddy bear eat any more thanksgiving dinner? *He was already stuffed!*

My son told his teacher the Indians could not possibly have served popcorn to the Pilgrims at the first Thanksgiving because they didn't have microwave ovens.



Just before Thanksgiving, the holding pen was abuzz as Mother Turkey scolded her younger birds. "You turkeys are always into mischief," she gobbled. "If your grandfather could see the things you do, he'd turn over in his gravy."

A girl walks into a supermarket and asks the clerk, Can I have a turkey for my grandma?" the clerk responds, Sorry. We don't do exchanges."

Q.Why cant you take a turkey to church????

A.Because he uses FOWL language!!!!

Why did the turkey cross the road? *To prove he wasn't chicken...*

HAIL DAMAGE CLAIMS

BY TOM DRIVER, P.E., INVESTIGATIVE ENGINEERS OF CENTRAL GEORGIA

The number of reported claims involving hail damage to residential and commercial roofing systems has increased dramatically over the past few years. Every year, insurance companies pay out over \$1 billion for repairs to insured property for damages caused by hail.

What is the cause of this increase in claims? The increase is partly due to what is often termed "Neighboritis". Neighboritis is a term used to describe a human disease that breaks out in epidemic proportions when a community experiences a hail event. If even one building owner is awarded a new roof by their insurance adjuster, then everyone believes that they deserve a new roof. This neighboritis is helped by the feeding frenzy of roofing contractors who pounce on a neighborhood when a hail event occurs. The vendors will come out of the woodwork to help owners take on the "greedy insurance companies" and will handle all services related to the "loss" from an initial free inspection and quote, to the hiring of an "expert" and finally to install the new roofing system. They take out the work and worry of the homeowner who says "What the heck? If he's gonna get me a new roof, I might as well let him try". With the neighboritis being rampant and with the contractor making it easy for the homeowner, it is no wonder hail damage repair claims have increased so much.



One way to combat neighboritis claims is to engage qualified engineers with real experience in identifying hail damage. GEC has engineers on staff that can assist in the evaluation of roof damage from hail events. GEC has the experience and the tools necessary to properly evaluate the claim. The typical procedure for evaluating roof damage from hail consists of the following:

- Obtain a hail report from a reputable reporting agency. The report will include the storm date, wind velocity and direction among other important aspects of the weather on that day.
- Conduct a ground level inspection of the property noting any damage to windows, siding, gutters, decks, garden plants, etc.
- Access the roof and note any damage to vents, chimneys, roof penetrations, etc., documenting such damage with photos.
- Perform a roofing layout on paper and note the damages that occur within each area, noting each hail bruise, dent, or depression in the roofing and shingles on the roof.
- Provide a written report with photo documentation and opinions regarding roof damage and potential causes.



The claims are predictable and often have the same signs:

- Late Notice- Since most of these claims originate from a contractor knocking on a door, the claim is often made well after the actual hail event.
- Homeowner Absence- The actual building owner is often absent from the claim and the claim process is handled by the contractor.
- Extent of Damage- When extensive damage occurs, or when leaks are present, the homeowner generally initiates the claim immediately. Neighboritis claims often exhibit minor or even microscopic damage which the contractor or expert claims "Might leak in the future".

It is the adjuster's desire to award damages to deserving property owners while combating those who desire to beat the system and get something for nothing. A qualified third party consultant is an invaluable tool to assist the adjuster in this endeavor.

Tom Driver, P.E.

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