



Plick and Associates, Forensic Engineers

Forensic Engineering Newsletter

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Past Editions of the newsletter now available on the web at www.plickandassociates.com

This Edition's Joke

An astronaut in space was asked by a reporter, "How do you feel?"

The astronaut replied, "How would you feel if you were sitting on top of 20,000 parts, each one supplied by the lowest bidder?"

Plick and Associates has purchased a slip meter to assist in slip and fall investigations.



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The Anatomy of a Recall, Part 1

In 2005, more than 42,000 lives were lost and over 2 million disabling injuries occurred on American roadways. In the United States, motor vehicle crashes are the primary cause of trauma-induced paralysis and spinal cord injuries. The financial cost of these crashes is estimated at \$150 billion annually. These staggering statistics dictate a need for improved motor vehicle safety. The recall and removal of unsafe motor vehicles from our roadways is essential to reducing the risk of serious injury or death.

Since 1966, more than 300 million vehicles, over 40 million tires, and nearly 85 million vehicle components --including child seats-- have been recalled by the National Highway Traffic Safety Administration (NHTSA). NHTSA has the authority to issue and enforce Federal Motor Vehicle Safety Standards (FMVSS). NHTSA also has the ability to recall vehicles or vehicle components that are not in compliance with FMVSS.

FMVSS regulations are written in terms of minimum safety performance requirements for motor vehicles or items of motor vehicle equipment. These requirements are specified in such a manner "that the public is protected against unreasonable risk of death or injury in the event crashes do occur." *-Excerpt from NHTSA's legislative mandate under Title 49 of the United States Code, Chapter 301-Part 571*

NHTSA has defined a safety-related defect as an issue that exists in a motor vehicle or item of motor vehicle equipment that:

- Poses a risk to motor vehicle safety, and/or
- May exist in a group of vehicles of the same design or manufacture, or items of equipment of the same type and manufacture

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FACT:
Motor vehicle crashes are the number one killer of Americans under age 34.



**Do you have a matter requiring forensic investigation or a question about your case which can be answered by a professional engineer or architect?
Call us anytime at 610-747-0675 or email us at experts@plickandassociates.com**

Is it Safe to Enter?

After a fire or accident, it is often necessary for individuals to gain access to the loss location. However, many times the site is not safe. Depending on the incident that occurred and the impact it had on the structure, the risks could include post-incident structural collapse, fire, explosion, and/or electrical hazards.

A fire, explosion or impact can weaken, dislodge, or otherwise damage supporting members of a building, leaving the potential for a collapse or partial failure of the remaining structure. A vehicle or tree impact to a building can have the same effect. Careful assessment of damage to a building is imperative before entering a structure.

After an incident, a building or structure should first be inspected from the exterior to determine if portions are leaning, out-of-plumb, or out-of-level. Have supporting posts or columns been damaged? Is a bearing wall or corner damaged? (Bearing walls are walls that support an overlying floor or roof structure; building corners often include joints between bearing and non-bearing walls.) Is there loose or hanging debris present which must be removed or secured before entering?

The status of the building utilities must be confirmed. A fire, explosion, or impact can damage an electrical system. Live electrical circuits in a damaged building increase both the risk of electrocution by contact with live wires and the risk of fire from damaged wiring.

A damaged gas pipe poses the risk of explosion. An explosion can be initiated by damaged electrical wiring, sparks from shifting metal items in the structure, or sparks or static charges from equipment or persons entering or working on the structure. Damaged water or sewer lines can leak, causing further deterioration to the building.

Because of the potential for further property damage and physical injury from a structurally compromised building, it is vitally important the damaged building be assessed from the exterior by experienced personnel. Decisions can then be made regarding measures to make a building safe for people to enter, such as temporary shoring and bracing, or whether selective demolition is required to prevent further property loss or risk of injury.

A case in point: in August of 2003, Plick and Associates Forensic Engineers was asked to inspect a mid-rise building and determine if a fire was of electrical causation. The License and Inspection Department of the municipality questioned the structural integrity of the building before allowing anyone to enter the structure to conduct an investigation.



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NHTSA has outlined the following examples as defects that could initiate a recall:

- Steering components that break suddenly, causing partial or complete loss of vehicle control
- Problems with fuel system components, particularly in their susceptibility to crash damage, that result in leakage of fuel and possibly cause vehicle fires
- Accelerator controls that break or stick
- Service brake failure or brake component failures causing a partial or complete loss of brake efficiency
- Wheels that crack or break, resulting in loss of vehicle control
- Engine-cooling fan blades that break unexpectedly causing injury to persons working on a vehicle
- Windshield wiper assemblies that fail to operate, or malfunction
- Critical vehicle components that break, fall apart, or separate from the vehicle causing loss of vehicle control or injury to persons inside or outside the vehicle
- Wiring system problems that result in a fire or loss of lighting
- Car ramps or jacks that collapse causing injury to someone working on a vehicle
- Air bags that deploy under conditions for which they are not designed to deploy
- Child safety seats that contain defective safety belts, buckles, or vehicle components that create a risk of injury— not only in a vehicle crash but also in non-operational safety of a motor vehicle

When defect or non-compliance (s) is present in a vehicle or vehicle component, NHTSA or the manufacturer can initiate a recall. Recalls are necessary when a safety defect exists or when a motor vehicle (or component of a motor vehicle) fails to comply with FMVSS.

In part two, in the next edition of the newsletter, we will look at the different types of recalls and the factors considered in making the decision to issue a recall.

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Subsequently, a civil/structural engineer from Plick and Associates, Forensic Engineers, was called out to determine if it was safe for the investigative personnel to enter the building. The engineer inspected the building while suspended from a crane about one hundred feet in the air. Due to the intensity and extent of the fire, the frame was severely damaged on the upper levels. This presented the danger of the upper floors collapsing onto the lower floors. Therefore, the engineer deemed the building unsafe. Following selective demolition of some of the building elements, the fire investigation proceeded. When the fire investigation was completed, the building was found to be unsalvageable and was completely demolished.

Our “In House Service”

Plick and Associates, Forensic Engineers has developed an “In House Service” for examining components suspected to be the cause of a loss. Insurance adjusters, attorneys, and origin and cause investigators have found it convenient and cost effective to send the subject item(s) to us with all available reports, photographs and related documents.

We examine the item(s) and render an opinion within a reasonable degree of engineering and scientific certainty. Our investigation results in one of three possible conclusions:

- 1) The subject item(s) is the cause of the loss.
- 2) The subject item(s) is not the cause of the loss.
- 3) Whereas the subject item(s) may have caused the loss, but there is insufficient evidence and/or documentation to support this conclusion. Therefore the cause of the loss is undetermined.

Obviously, determining the cause of the loss is the most desirable result. However, if we conclude the item is not the cause of the loss, or the cause cannot be determined, the In-House Service is a great cost-saving alternative to more expensive investigations.

Our “In House Service” is especially useful and important when: a second opinion is desired; the dollar loss does not justify a forensic engineer going to the loss scene; the loss scene has been cleaned; or there is not a forensic engineering firm within reasonable distance to the loss scene. This service is just one more way Plick and Associates, Forensic Engineers is working to help you get the most cost-effective results.



“Engineer Spotlight”

MICHAEL X. PLICK, P.E., C.F.E.I.



With over twenty five years of experience in engineering, investigation, and analysis of mechanical engineering-related failures, accidents and fires, Mike Plick brings a well-trained eye to investigations. He is a recognized expert in fire investigations, automotive accidents, mechanical failures, and construction-related accidents. Mike holds a BS in Mechanical Engineering from Drexel University in Philadelphia, where he served on the faculty as an Adjunct Associate Professor in the Mechanical Engineering & Mechanics Department. Prior to obtaining his engineering degree, Mike earned an associates degree in chemistry. Mike is a registered Professional Engineer as well as a nationally certified fire and explosion investigator and certified fire investigation instructor.

Before entering the field of forensic engineering, Mike’s engineering skills were honed in a wide range of environments and applications. He worked in construction at nuclear and chemical plants, refineries, commercial buildings and environmental hazardous waste sites. Mike has also worked on machinery onboard United States Navy and NATO ships. Mike was involved in maintenance, failure analysis, design, project engineering, and construction management, in addition to writing specifications, reports and technical manuals. Mike’s broad experience provided the perfect basis for his career in forensic engineering.

After years of being a solo practitioner in the field of forensic engineering, Mike formed an association with other uniquely qualified engineers to provide clients with full-service forensic engineering. Plick and Associates, Forensic Engineers has offered clients investigations, reports and expert testimony in civil, structural, architectural, electrical, mechanical, chemical and materials engineering.

In his career as an expert, Mike has been called to testify on numerous occasions for a wide range of cases in both federal and municipal courts. He has proven himself to be steadfast and poised on the witness stand and possesses the unique ability to successfully convey technical information to a jury.

Mike and his wife Susan, also a mechanical engineer, have two children and live in Wynnewood, PA.

Plick and Associates, Forensic Engineers loves to hear from its newsletter readers. Please call or e-mail us at experts@plickandassociates.com with article suggestions or feedback.



Plick and Associates, Forensic Engineers On The Road!



Plick and Associates, Forensic Engineers, was asked to speak at a Philadelphia Loss Conference meeting. Mark S. Suchecki, P.E., one of our civil engineers, gave a presentation on determining when a collapse is imminent. The talk generated a tremendous amount of response and questions. Please contact Plick and Associates, Forensic Engineers to arrange for an engineer to speak at your next event.



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Plick and Associates, Forensic Engineers, just returned from the "Big Easy," New Orleans, LA, where the National Association of Subrogation Professionals (NASP) Annual Conference was held. This conference drew a diverse crowd of people from the insurance and legal communities. It provided a wonderful opportunity to share insights about current issues and to reunite with old friends and meet new friends from all over the country.

The Plick and Associates, Forensic Engineering Newsletters are now available online! Go to <http://plickandassociates.com/newsletters> to have access to all of the previous editions.