Sintra Newsletter | Fall 2009

Managing Complex Insurance Losses:

Ensuring Your Interests are Protected

All insurance losses are disruptive to the personal or business life of the insured. Returning an insured back to normal operations as quickly as possible is one of the goals of the claims adjuster. This is a challenging task, comprised of multiple steps, and can be even more difficult when the circumstances surrounding a loss are complex.

Of paramount importance is the need to protect your interests by ensuring that the claim resolution process is thorough, coordinated, and performed with due diligence. A forensic engineering firm with experience in handling complex claims can provide value beyond describing the technical reasons for a loss. Their management of the process can facilitate and expedite the resolution of a complex claim.

Insurance claims can be complex for a number of reasons, but chief among them are losses that are widespread in the scale or scope of damage. Large losses with extensive physical damage represent significant quantum exposures and require large reserve amounts. These losses have a high profile within the insurance company and are a priority for swift resolution. In these instances, forensic engineers can help from the outset. As soon as the scene is released to private investigators, an engineering expert can assist with damage quantification, determine salvageable components, ensure proper evidence handling to avoid spoliation, and manage the joint examination of evidence on site should multiple parties become involved.

Whenever a loss involves many parties, the matter takes on new complexities. Each of the insurers involved is attempting to understand their position and protect the interests they represent. In complex losses, each insurer will generally hire their own expert. An expert experienced in coordinating joint examinations of evidence will know how to manage the situation so as to glean appropriate insight and reveal information only as is necessary. This is all about ensuring that your interests are protected and your position is known.

Complexity in the claims resolution process can also arise when the potential cause of a loss is multi-faceted. For example, a total loss fire may have been caused by a combination of electrical and mechanical systems. Attempting to determine which aspects of the damage is victim damage and which aspects pertain to the cause is difficult and often requires a technical opinion spanning different engineering disciplines. A forensic engineering firm with multiple in-house engineering disciplines can provide a comprehensive technical opinion on the cause. This reduces the coordination of multiple experts required on the part of an adjuster.

Any time an insurance company is exposed to a large complex loss, opportunity to subrogate the loss is always in play. Engineering experts can help identify contributory factors that can lead to possible avenues for subrogation. While this may not result in a total transfer of liability, it can mitigate the loss. When the quantum is significant, small shifts in the percentage liability can represent substantial sums.

When it comes to resolving complex insurance losses, your focus must be squarely on minimizing the impact of loss for the claimant. Engineering experts can help with all other aspects of the claim resolution process to help you protect your interests ensuring a fair, swift, and successful outcome to even the most challenging claims.

Heat Trace As An Ignition Source

The severe cold that is experienced during prairie winters can cause potentially damaging freezing in residential and commercial buildings. In many applications, electrical heat trace can be a solution. It can stop pipes from freezing by keeping them warm and prevents ice damming by keeping water at roof edges from freezing in the gutters. Two main types of electrical heat trace: series (or constant wattage) heat trace and parallel (or self regulating) heat trace, operate differently from one another and, consequently, fail differently. Knowing how these systems operate and how they differ, can help adjusters understand how different heat trace systems lead to fires.

Series heat trace is the type that you can purchase in any hardware store. It is commonly used in crawlspaces, particularly in mobile homes, to keep water lines from freezing. Series heat trace basically operates as a single heating element. It produces a constant wattage output when it is energized, which means that it provides a constant amount of heat when it is turned on. This type normally requires a thermostat to turn it on and off, though some are simply plugged into a standard outlet.

The problematic feature of series heat trace lies in the design that allows constant wattage to flow through the line while activated. If a section of series heat tape was ever to cross, it can cause overheating at the crossing and, depending what the tracing is mounted on, it can cause a fire to the item being heated. Also, if the thermostat is not connected to the object that is being heated, the heat trace may operate at elevated temperatures which can lead to fire.

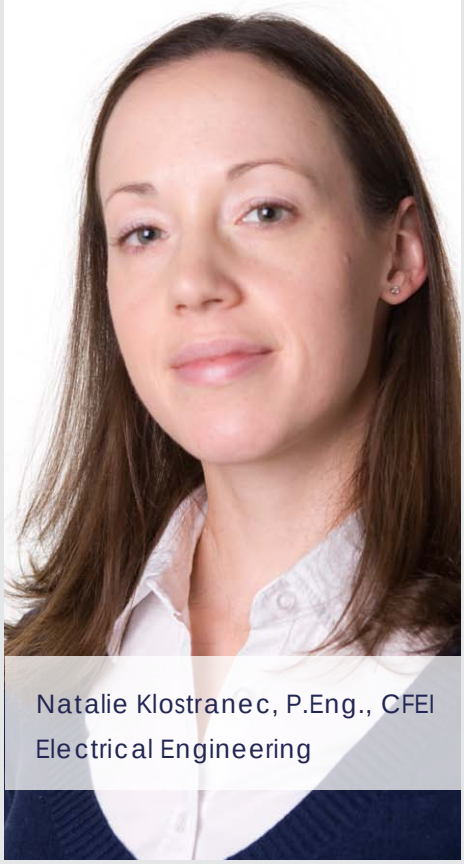
Critical to evaluating them as possible ignition sources involves understanding their unique operating characteristics and modes of failure.

Self-regulating or parallel heat trace operates in a completely different manner. This type of heat trace is commonly used in commercial buildings to heat roof edges and prevent ice buildup in drains and gutters. Parallel heat trace has two wires called bus wires that run the length of the heat trace cable. These bus wires conduct electricity, but do not generate heat themselves. The bus wires are encased in a semi-conductive polymer matrix that electrically connects the two wires together. When current flows through the bus wires, the matrix bleeds current from one bus wire to the other generating heat. As current flows through the matrix, it heats the matrix up and this in turn slows the current flow allowing it to cool. This heating and cooling of the matrix is often referred to as self-limiting or self-regulating.

The problematic feature of self-regulating heat trace lies in the fact that the construction of the cable can allow a fault to occur without tripping the circuit protection. If there is a problem in the wiring, such as a ground fault, a conventional circuit breaker will not trip. A ground fault can result in arcing that in turn can start fires. Failures in self-regulating heat trace are spectacular and are referred to as wet wire fires as they can create arcs that persist even in water. These fires look like sparklers or the arc from an electric welder, are intense and continue in a sustained manner. This makes improper installations particularly dangerous. The wiring for parallel heat trace must be carefully installed including ground fault protection, careful termination of the lines and weatherproofing of the entire circuit.

Heat trace systems are often attributed as the potential causes of fires. Improper installation, failure to follow the manufacturer's specifications, or the use of an incorrect type of heat trace for a specific situation are all common causes of heat trace failures. Critical to evaluating them as possible ignition sources involves understanding their unique operating characteristics and modes of failure.

Natalie Klostranec, P. Eng., is an electrical engineer and a Certified Fire and Explosion Investigator (CFEI). She has a background in electrical systems and avionics. Natalie provides insight into electrical failures with particular emphasis on electrical based fires.



Natalie Klostranec, P.Eng., CFEI
Electrical Engineering

Profile – John Towler, P.Eng., CFEI

When it comes to failure, John's an expert. It seems his whole life John has been working on broken things, trying to figure out why they failed and how to fix them – from aircraft gas turbine engines to old vehicle restoration. His career experience has been diverse: Aerospace, Oil and Gas, electrical product development and manufacturing, and power generation – including wind turbines. A recent highlight of his career was a multi-million dollar root cause failure analysis investigation of a generator excitation system on a gas turbine. Some people get excited about the strangest things. John has joined Sintra as a Senior Forensic Engineer. When we get a call that something has failed, John will be the guy to tell us why.

Specialty: Failure Analysis

If you weren't an engineer, what would you be?
An automobile mechanic specializing in body repair, painting and restoration.

Hometown
Bradford in Yorkshire, England.

Favourite sport to play
Rugby, followed closely by hockey.

Can't live without
My family, obviously (wife, two teenage daughters, dog, cat). After that, I'd say a good beer.

Best meal ever eaten
A vegetarian buffet I had in Bangalore, India.

First vehicle
A Lambretta Vega 70cc scooter when I was sixteen. After I'd progressed through a few motorcycles, my first car was a 1970 Ford Escort.

The "Black Box"

In the insurance community, the term "black box" has been commonly used to refer to a vehicle's Event Data Recorder (EDR). The EDR is a recording device found in some vehicles, which records information about a vehicle in the moments before, during, and after a crash. The type of information gathered, and its usefulness in collision reconstruction, remains a mystery for some. Here are our answers to some common black box questions.

Do all vehicles have an EDR?

No. EDRs are not found as stand-alone devices in vehicles. They are integrated as part of other control modules on vehicles. There are various types of control modules in vehicles, all with different functions, but these did not become standard in most vehicles until the early 1990's. All modern vehicles equipped with air bags will have some form of control module and a large portion of these will have an EDR that can record information.

Can the information from any EDR be downloaded?

No. Although there are hundreds of models of vehicles with air bag control modules, the EDRs on most vehicles cannot be accessed because the manufacturers have not released the information required for a company to build an appropriate data collection tool. Currently, only three major automobile manufacturers have released publicly available hardware and software to download and interpret data – Ford, General Motors and Chrysler. There are also a few select vehicle models from Isuzu, Suzuki, and Mitsubishi that are also publicly accessible.

What kind of information can you retrieve from an EDR?

The type of information that is recorded varies from model to model and amongst manufacturers. The common information that is stored includes pre-event vehicle speed, throttle position, engine RPM and brake switch status. Also, for the duration of the crash pulse, acceleration and change in velocity data is commonly reported. Other vehicle parameters include driver and front passenger seat belt buckle status, ignition cycles at time of event and download, fore/aft seat position, air bag and pre-tensioner firing times, cruise control status, ABS activation, and timing of related events. EDR data may not always be present after an event since damage to the vehicle's electrical system can prevent recording of information.

Is EDR data reliable for understanding how and why a collision occurred?

Yes, and No. EDR data can be extremely useful in understanding collision circumstances. However, there are instances when EDR data is not consistent with the physical data and can be proven to be inaccurate. Trained collision reconstructionists should be retained to properly interpret the data in conjunction with a review of the physical evidence and consideration of human factors.

What changes are going to occur with EDRs in the future?

The National Highway Traffic Safety Administration (NHTSA) is Transport Canada's sister organization in the U.S. Last year, NHTSA mandated that by September 2012 all new vehicles manufactured in the U.S. must have a commercially available tool for accessing and downloading data from the air bag control modules. This means that in the next few years, more and more vehicles will have accessible modules.

To obtain a current list of vehicles that are equipped with downloadable EDRs, please contact Sintra Engineering at 780.420.1551.

ask an expert

Free Seminars at Your Office… & We'll Buy Lunch!

Sintra Engineering would like to share some of our unique investigative experiences to help you better understand how forensic engineering analysis can help you resolve insurance claims. We would be pleased to buy your staff lunch and present a seminar on any of the following topics:

The Black Box As A Witness – we run through a demonstration of analyzing crash data and our method of applying this data to an accident reconstruction.

I Didn't See It! – we show how we can recreate the conditions affecting visibility to help answer the questions 'could the driver have seen the hazard in the time and, if so, could the collision have been avoided?'

Burning More Than Just Rubber – we walk you through how our engineers work backwards to determine the origin and cause of a vehicle fire.

Answers Out of the Ashes – we demonstrate our method of determining cause and origin from sifting through ashes and debris.

Was It Really That Bad? – we show how a biomechanical assessment can help answer the question 'could that vehicle accident have caused those injuries?'

Slips and Trips Go Far Beyond 'Oops' – we do a comparison of possible injury outcomes from falls on surfaces that comply to code, to falls on surfaces that don't.

From Fixtures to Faucets to Furnaces and More – we show how we investigate technical failures to determine why the failures occurred and who was responsible.

The Roof Fell In – we walk you through the most common structural failures and how we assess the scope of repair.

All presentations are AIC accredited for one hour of continuing education credit. If there is a forensic engineering topic of interest that is not on this list, please contact us. We'd be pleased to develop a custom lunch hour presentation for you.

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Recent News

Hot Wheels 2009 Training Seminar

Bill Shaver, Forensic Engineering Technologist at Sintra Engineering, was one of the faculty at the FIAA Hot Wheels Vehicle Fire Investigation Training Seminar. The seminar consisted of three days of hands-on training covering: determination of area of origin, ignition sources, arson, recalls and a live burn demonstration.

Bill Shaver, CET, is a Certified Fire and Explosion Investigator (CFEI) and a Certified Vehicle Investigator (CVFI) with the National Association of Fire Investigators (NAFI), and a Red Seal Automotive Journeyman Technician. He is Sintra Engineering's lead fire investigator on vehicle and heavy machinery fire losses.

World Champion

We've got a world champion in our midst! Mark Hughes, president of Sintra Engineering, competed at the Sydney 2009 World Master Games- the world's biggest multi-sport event. This year the Masters attracted a record number of competitors with 28,292 men and women, ages 25+, from 95 different countries. Mark's team, the Piranha Brothers, composed of mostly Alberta based competitors, came away with the gold medal in the Men's Indoor Volleyball 35+ age category (rec) and bronze in the Men's Indoor Volleyball 40+ category (rec). Way to go Mark!

Terra Youth Leadership Program Gets A Big Boost

Sintra Engineering would like to thank all of the participants and sponsors in the Insurance All Industry Charity Golf Tournament at the Blackhawk Golf Course. The sold out tournament was a success, raising over $8,000 for the tournament benefactor, the Terra Association Youth Leadership Program.