Common Legal Doctrines and Insurance Issues Effecting The Forensic Structural Engineer  
David J. Taylor, Yost & Baill, LLP

Abstract

Large scale cause and origin forensic engineering investigations present a wide range of unique and often-changing legal issues under the best conditions. The number and complexity of the issues dramatically increases when the forensic engineering work compromises the original integrity of the investigation being conducted. Paper will explore the various legal issues affecting forensic engineers from all sides when conducting a cause and origin investigation where the scene is compromised by the investigative work itself, namely when heavy equipment used to conduct the investigation collapses into the area of suspected origin.

Factual Scenario

Forensic engineers of various disciplines are on-site conducting a large scale investigation regarding the cause and origin of a generic fire/explosion scene that caused significant property damage. While the investigation is on-going, a crane that is being used on-site topples into the suspected area of origin. Although technically unknown, it is suspected much physical evidence is destroyed.

This article will focus on the various legal issues a structural engineer involved in this scenario may face and how to deal with them.

The Article:

This article is intended for the structural engineer who is retained by the insurance industry to participate in forensic engineering investigations. Structural engineers are retained by insurance carriers looking to pursue a claim as well as carriers looking to investigate allegations that their insureds were somehow at fault for a loss. Sometimes, and somewhat uniquely in regard to engineers participating in forensic investigations, structural engineers will be retained to evaluate a site for safety before the forensic inspection can begin. This article will address some of the common legal issues for structural engineers who are conducting forensic work.

The two legal doctrines that have had the most significant effect on the jobs and duties of forensic structural engineers are Daubert Standard and Spoliation of Evidence. The Daubert Standard, which addresses the admissibility of scientifically based expert opinion testimony, has significant effect on whether the structural engineer’s opinions will ever be heard by a jury, and Spoliation of Evidence dictates what steps a forensic engineer should be taking in the field while performing investigations.

Spoliation of Evidence: The Importance of Proper Documentation

The most important legal development affecting forensic structural engineering work and how it’s conducted in the field is the development of the doctrine of spoliation of evidence. Simply defined, “[s]poliation of evidence is the destruction, significant alteration, or non-preservation of evidence that is relevant to pending or future litigation.” In summary fashion, the doctrine of spoliation imposes a duty to preserve all relevant evidence on the party that controls the evidence to the extent that is reasonably possible. Failing to preserve relevant
evidence can result in a myriad of negative consequences on the party’s ability to prove its case and may prevent it from moving forward at all.

Although the doctrine’s use has exploded in the past fifteen or so years its origins actually predate the founding of the United States and stems from the common law principle of “contra spoliatorem omnia praesumuntur,” to wit: “all things are presumed against the destroyer.” This means if a party is in control of relevant evidence that is lost, destroyed or otherwise not preserved for review by the other interested parties, it will be presumed that the evidence would have been helpful to those parties that were prevented from inspecting the evidence.

The doctrine of spoliation is applied on a state-by-state basis, but some common principles have emerged as to how courts apply the doctrine. “Generally, courts will analyze (1) the importance of the evidence that has been lost, in terms of prejudice incurred by the non-spoliating party, and (2) the fault of the party responsible for the spoliation.”

The relative importance of the evidence and the relative level of prejudice suffered by the other party will generally dictate what type of sanction a reviewing court may issue. Sanctions may be as little as allowing the jury to draw a negative inference due to the lost or destroyed evidence but may also, in rare instances, effectively operate as a dismissal of the case by prohibiting expert testimony regarding the missing evidence.

Although cases involving spoliation issues or motions for spoliation sanctions will be decided on their individual facts, case law appears to have developed what could be considered majority and minority views regarding whether to impose sanctions and to what degree. The minority view includes cases where courts have excluded evidence of a defective product involving allegations of a product defect or similarly excluding expert testimony on the issues in controversy. Both of these sanctions operate as a dismissal of a plaintiff’s case because a plaintiff cannot move forward without evidence of the defect, and can rarely move forward without the support of expert opinion testimony.

The majority view takes a less severe approach to imposing sanctions, generally not imposing any sanctions or limiting the sanction to allowing the jury to adopt a negative inference as a sanction on the offending party.

So how does the doctrine of spoliation of evidence affect the work of a structural forensic engineer? In short, it affects almost every step the engineer takes during the process of a forensic investigation. Good planning, and more importantly good communication, between the engineer and their client and counsel as well as good communication amongst the other potentially
interested parties ("PIPs"), their counsel and engineers will serve to reduce the chances of creating detrimental spoliation issues. So who are the other PIPs?

Because structural engineers are often retained to conduct and oftentimes oversee a forensic investigations, those engineers will play a critical role in determining what parties may be “interested” in their investigation. This will mean that the carrier will likely look to and rely on the structural engineer to determine or identify the PIPs for a particular investigation. PIPs oftentimes include manufacturers of products, construction companies or entities that have worked on a structure and may include other design professionals, including architects and engineers of varied discipline.

Once those PIPs are identified, they should be put on notice of the loss or the on-going investigation and given an opportunity to participate or, at a minimum, to observe the evidence before it is altered. This will generally be accomplished by the insurance carrier or its counsel sending out Notice of Claim letters to the party and then coordinating a joint inspection that will take place with all parties present.

Of course some investigation will need to take place in order to identify PIPs. Because this limited investigation will likely also involve some of the physical evidence of the loss scene, the forensic engineer is stuck between two competing goals - leaving the scene undisturbed vs. identifying the PIPs to be notified. In order to limit risks of spoliation, the forensic engineer is well served by fully documenting the loss scene upon arrival and upon every step taken to identify PIPs. Current technology offers a host of options to accomplish this task whether the documentation is photographic, video or even 3D-Laser Scanning. Proper documentation implemented with an extremely limited investigation to identify PIPs will generally allow the client to avoid significant spoliation arguments.

Spoliation will also significantly affect the steps taken by the structural engineer during their forensic investigation. As explained supra, the doctrine of spoliation focuses on the preservation of evidence so all parties can investigate, so it will necessarily affect the decisions a structural engineer will make when deciding what evidence to retain and store for future use. The engineer who is controlling the loss scene will necessarily have to retain the physical evidence they believe is relevant for their purposes, but will likely also have to retain evidence that is important to other “interested” parties. This can be best accomplished by identifying an evidence custodian to handle and retain the physical evidence for future use.

So does this mean that the engineer in charge is responsible for identifying the collecting evidence for a potentially opposing party? No. “An interested party is responsible for identifying the evidence it wants collected and providing sufficient information to the evidence custodian to
ensure the collection of the identified evidence and preservation of the scene for further investigative activities.  

Although the Courts’ spoliation analysis focuses on the conduct of the offending party, it will also likely include the offending party’s familiarity or relative sophistication regarding the litigation process. As many structural engineers are retained by insurance companies investigating claims that are likely to end up in litigation, you will often be working for a party who will be viewed as extremely sophisticated in regard to civil litigation and will be held to the highest standard when handling evidence.

Our fact scenario will necessarily involve spoliation arguments from many different parties. Certainly those PIPs identified as possibly having liability for the original loss will argue that they can no longer properly defend themselves due to physical evidence being destroyed by the fallen crane. Although the carrier who insured the original loss site may have not had a direct role in causing the spoliation of the scene, its prospects of moving forward will be compromised to the same degree that the defendant PIPs ability to defend themselves has been compromised.

However, in our fact scenario, the carrier insuring the original loss site may attempt to argue that the entity in charge of the crane and its safe operation compromised the carrier’s ability to move forward with its subrogation efforts stemming from the original loss. This may give rise to a separate claim against the crane company that is distinct from the original loss.

Beyond our factual scenario, spoliation of evidence can be a significant issue for structural engineers who are retained to survey a loss site to ensure the safety of the site before further forensic investigative work can be conducted. These circumstances necessarily require the structural engineer to be the first one into the loss site performing work unrelated to possible or potential litigation arising from the loss. The surveying engineer nevertheless needs to be aware of the importance of the physical evidence on the loss site and the value of such evidence to the various PIPs and must take every precaution, within reason, to perform the site safety inspection without compromising the loss site for others. Proper documentation by the surveying engineer using the techniques mentioned supra will help ensure that the loss scene is not unnecessarily compromised.

**Daubert: Is my Opinion Going to Make it to the Jury?**

Engineers performing forensic investigations are generally retained to offer opinions based on their training/experience, education and general investigation of the loss. Although the opinions may be used only for the carrier’s internal purposes, forensic engineers are more often retained to testify throughout the civil litigation process which culminates with testifying at a trial. Therefore, it’s extremely important to know whether a forensic engineer is going to be permitted to offer his/her opinions if necessary.

With some variation, the general standard to determine whether an expert’s opinion is appropriate for a particular case is to see if the opinion is necessary and admissible per Rule 702 of the Federal Rules of Evidence. That rule states:

> If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience,
training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliability to the facts of the case.

In almost all cases where a structural engineer is retained to conduct a forensic investigation or offer an opinion, Rule 702 will be satisfied to the extent that an expert with specialized knowledge will likely have an opinion that could assist the jury in determining a fact or otherwise understanding the evidence at trial. However, this is not where the analysis ends to determine if the opinion is admissible. The real test is whether the experts’ opinion can survive a challenge from the opposition.

For much of the twentieth century the issue of the admissibility of expert opinion testimony before federal courts was analyzed in accordance with the principals outlined in *Frye v. United States*. However, prior to 1984 the issue of admissibility of expert testimony was rarely formally challenged. In 1993 all that changed with the U.S. Supreme Court’s decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*

*Daubert* was intended to provide a “standard of evidentiary reliability,” and to allow the trial court to act as the “gatekeeper” with the intention of prohibiting “junk science.” In an effort to provide clarity on the issue of the admissibility of expert opinion testimony, the Supreme Court identified four factors to be used by trial courts to analyze: 1) whether the theories and techniques employed by the scientific expert can and have been tested; 2) whether they were subjected to peer review and publication; 3) the known or expected rate of error; and 4) whether the theory or methodology employed is generally accepted in the relevant scientific community.

Although the Supreme Court was not clear about how the four factors were to be weighted, two of the factors for determining scientific validity have received significant attention: 1) whether the theories and techniques employed by the scientific expert can and have been tested; and 2) whether the theory or methodology employed is generally accepted in the relevant scientific community.
Challenging the admissibility of an expert’s opinion testimony has become a routine step in complex litigation. Challenges are more frequently posited by defendants in litigation as the plaintiff’s experts, much like the plaintiff itself, carries the burden of proof. As such, the plaintiff’s experts will likely be required to demonstrate that their theories were tested and can be replicated. This makes sense because the plaintiff always carries the burden to prove its case. Nevertheless, to the degree that defense experts are offering alternative theories regarding why some structure failed, they too must satisfy the Daubert requirements.

So, what does a structural engineer’s opinion have to contain to be admissible per Daubert? The following is a non-exhaustive list representing questions the structural engineer should be able to affirmatively answer to successfully survive most Daubert challenges: A) does your professional experience and educational background fit with the facts and opinions in the case; B) are your opinions and the methodology you employed in formulating them subject to peer review; C) are your opinions and methodology generally accepted in the scientific field; D) have you provided replicable testing to support your theory; E) does the theory have a known error rate; F) has all relevant evidence been considered; G) have you inspected the scene and the any relevant artifacts; H) do your opinions address applicable industry standards or practices. If a structural engineer can affirmatively answer these questions, their opinion will likely be admitted.

It should be noted that in some instances, it will simply be impossible for all of these factors to be satisfied, and that a failure to meet one of the requirements does not necessarily mean the opinion is inadmissible. Rather, as is the case with most legal analysis, the totality of the factors and the experts’ opinions must be evaluated to determine its scientific reliability and admissibility. A structural engineer should therefore strive to be able to demonstrate that their theory has been tested and can be replicated to be reasonably sure that it will be heard by the jury.

The Daubert decision and the standard that has been developed since are important to the forensic structural engineer because it operates as the measuring stick for whether the engineer will ultimately be able to testify in a single trial, but the Daubert challenge is important to forensic structural engineers for the additional reason that failing to meet the standard can have a significant effect on the engineer’s prospects of being able to testify in future and unrelated cases. If an engineer’s opinion is successfully challenged and therefore prohibited from being used, that will be a figurative “black mark” on that engineer’s record as an expert witness. As the Daubert challenge has become a commonplace step in civil litigation, it has become equally commonplace to examine an expert witness’ history of offering or not being able to offer expert opinions. Although in a purely objective sense it should make little difference if an expert is prevented from testifying in a single case involving specific facts, many believe that being blocked once creates additional hurdles for the expert to testify in future cases. Once an expert is properly excluded from testifying per Daubert, the expert will likely be hounded by attorneys in future cases trying to draw analogies between the earlier prohibited opinions and those being offered in the current case.

Notwithstanding the significant effects a successful Daubert Challenge can have on an expert’s professional reputation, it is not uncommon for expert witnesses to be unaware of Daubert challenges being made and whether or not they were or were not
successful. In an attempt to ensure that they are fully aware of how their opinions are being evaluated in a particular case, some experts are required, as part of their retention contract, that the client or its counsel must inform the expert of the filing of a Daubert or Daubert type challenge within 48 to 72 hours of it being made. Proper notice allows the expert to be fully engaged in offering explanations or additional information regarding their opinions to not only protect the chances of the opinion being ruled admissible but will also allow the expert to be fully engaged in protecting their own professional interests that will be present beyond the present case.

In our factual scenario, it is difficult to identify specific Daubert issues that would arise with the exception of saying that opinions regarding the original cause and origin investigation will necessarily be compromised by the destruction of evidence caused by the fallen crane. If the original theories generated by the initial investigation can still be or have already been properly documented and tested, the opinions may survive and make it jury. If the opinions have not been properly tested or the scene had not been properly documented before the collapse, Daubert will likely prevent those opinions from being offered at trial.

Discovery: How Much of My Work is Going to Be Available to the Other Side?

Discovery is the general term used to describe the portion of the litigation process after suit has been filed wherein the parties exchange and develop information to pursue or defend their cases. Although discovery may take many forms, it almost universally includes requests from both sides to answer interrogatories, requests to produce documents and depositions of both lay and expert witnesses.

It is important to note that many structural engineers may be familiar with the discovery process, specifically the act of sitting for an expert deposition, but many engineers, structural and otherwise, do not understand how “discoverable” their notes and other file materials are. The issue of what extent an experts’ file is discoverable will generally be decided on a jurisdiction by jurisdiction basis and may sometimes differ from judge to judge. Nevertheless, there are some tips that structural engineers can take to manage their investigative files so as to minimize the chances of causing problems for their clients’ cases as they move through the litigation process.

First, one of the most important documents generated by structural engineers is the “expert opinion report” that is drafted for the client so the client can understand the investigation performed and the experts’ opinions regarding a loss. The issues in regard to expert opinion reports and the discovery process are A) If it is necessary to have a report written and B) when should the report be written.
Depending on the state the case is venued, an expert report may not be necessary. Many states simply require the expert to explain their opinions and the basis for them via responses to interrogatories. Interrogatory responses are generally crafted with the assistance of counsel rendering the expert report unnecessary. However, many state jurisdictions and all federal jurisdictions will require reports that require a complete recitation of the experts’ opinions, the factual and engineering basis for the opinion and the expert’s qualifications to hold the opinion.

Outside of formal legal requirements of the governing jurisdiction, structural engineers are often asked to draft reports for their clients well before any decisions are made about whether the case or the investigation will end up in litigation. This scenario is the one that can have unintended consequences for both the engineer and the carrier if the report is not properly handled. Although it may not be uniform throughout all jurisdictions, it is generally accepted that an experts report will be discoverable to the opposing side. This is likely true even if the expert drafted the report during the forensic investigation and may not have had all of the necessary information. Of course the report can include a statement acknowledging that all the information has not yet been collected and that the opinions are understandably subject to change, the report will likely be construed as a complete recitation of the expert’s opinions and any change in a later report can be a problem for the expert’s credibility at trial. The best practice regarding expert opinion reports is to not have them drafted until the investigation is complete and it is clear where the investigation or case may go. If it is not going to be a litigated case, then the timing of the report may be a moot issue; however, if the case has a chance to be litigated, it is best to wait on memorializing the opinions in a report to avoid the potential problem of appearing to change positions.

A distinction is often drawn between whether an expert is a “consulting” expert or one who is intended to offer testimony at trial. Notwithstanding distinctions and nuances that differ from jurisdiction to jurisdiction, a consulting expert’s opinions will not be discoverable but the same cannot be said of the testifying expert’s opinions. This distinction makes sense because the consulting engineer will not be presenting any testimony rendering their opinions as being irrelevant or minimally unimportant to the litigation or trial that will follow. However, because more and more cases become “expert driven” it is of extreme importance for all sides to know what the opposing experts’ opinions will be and what they are based on so that all parties can properly evaluate their cases and prepare them for trial.

**Insurance Issues: What’s My Purpose or My Client’s Motivation?**

As mentioned at the outset of this article, structural engineers are often hired directly by insurance carriers to perform forensic investigations or other services for the carrier. It is important to note that the insurance carriers retain the structural engineer to perform duties that the carrier is obligated to do per the terms of the insurance policy it has with its insured. Simply put, this means the carrier is acting in accordance with its contractual obligations. Although it is beyond the scope of this article to try and address all of the variances within insurance policies, it should be noted that often times insurance carriers are limited in what they are required or motivated to do during forensic
investigations because of limitations within the insurance policies they are acting in accordance with.

By way of example, in our factual scenario the insurance carrier for the original loss site will likely be investigating the loss for both coverage and subrogation purposes. Although the carrier may have a clear coverage obligation for the property damage suffered by the original fire/explosion, its obligations may be more limited in regard to paying for business interruption or other economic damages stemming from the original loss. The issue of properly calculating business interruption losses introduces the need for a completely different type of forensic accounting expert.

Frequently, structural engineers are retained to investigate losses not for the purpose of determining what may or may not have caused a particular loss but rather to determine what type of repairs are necessary to fix a building that is damaged in a loss. In such circumstances, the structural engineer may be referred to as a “damage” expert. Their investigation will likely be limited to calculating the costs necessary to repair damaged property and not deal with any causation issues. If the damage expert is expected to testify regarding their damage opinions, the expert will likely be subject to the same discovery procedures as the other “causation” type experts. Additionally, although a damage expert may be limited in terms of their scope of investigation, because they are still working as the agent of one of the parties, the expert will still need to be mindful of the possibility of spoliating evidence during the course of their work.

Our factual scenario will involve insurance carriers of all colors and with varying obligations stemming from the loss. Some carriers will be “re-insurers” meaning they have no duty to any party until an direct insurer has reached a certain (generally contractually established) measure of damage or exposure. Additionally, many large corporations carry large self-insured retention (“SIRs”) for most losses. A SIR is a mechanism used by many large corporations that obligates the corporation to be financially obligated for a loss up to an agreed upon amount before the carrier is obligated to provide coverage. This can affect the structural engineer’s work because at one point in the process the engineer may be working for the party working under a SIR and then later in the litigation process be working for a carrier that had to pick up the coverage for the loss.
Finally, our factual scenario may include insurance carriers who are investigating the loss under what’s often times referred to as a reservation of rights. Generically, this means that an insurance carrier may believe that it is not obligated to provide coverage for a party to a particular loss from a financial standpoint, but may (depending on the terms of the policy and the type of loss) still have an obligation to defend that party in litigation stemming from the loss. Although this will not likely influence the engineer’s work or the scope thereof, it will play a role in how the case is litigated.

**Summary: What Have We Learned**

As highlighted, structural engineers play various roles in forensic investigations that may have differing objectives. The recent legal doctrines concerning the *Daubert* Standard and the doctrine of spoliation of evidence have evolved to have significant ramifications of how a structural engineer conducts themselves at a scene as well as how the engineer formulates and defends their opinions. Although the structural engineer’s role may change based on the purpose of their retention or the insurance policy the retaining carrier is working in accordance with, a structural engineer is well advised to know and understand their role in the investigative process and how their file will or will not be used as the case progresses through the civil litigation process.

1. Yost & Baill, LLP, 220 South 6th Street, Suite 2050, Minneapolis, MN 55402.
6. Id.
8. Id.
10. It should be noted that the forensic engineer does not make the determination of who is or is not a PIP in a vacuum but that the determination is generally done with consultation with the client, the insured and counsel. Innumerable
factors will be at play that can render a particular entity a PIP to a loss and
will not be specifically addressed in this article.

11. Although no specific required protocol is necessary to properly notify the
PIPs, notice letters are generally best authored and transmitted via legal
counsel for the client with little involvement from the forensic engineers
beyond initial identification of what parties to include.

12. 27.6.1.2 Interested Parties Responsibility, NFPA 921, 2008.

13. See generally, Henkel Corp. v. Polyglass USA, Inc., 194 F.R.D. 454
(E.D.N.Y. 2000), as an example of the trial court trying to balance the
prejudice suffered by the non-offending party with the actions of the
offending party who destroyed the physical evidence.

14. Subrogation is generically defined as the substitution of one person in the
place of another with reference to a lawful claim, demand or right, so that he
who is substituted succeeds to the rights of the other in relation to the claim,
and its rights, remedies, or securities. Insurance companies, guarantors and
bonding companies generally have the right to step into the shoes of the party
whom they compensate and sue any party who the compensated party could

15. “A minority of jurisdictions recognize the tort of spoliation. Once such
jurisdiction is Florida. See Bondu v. Gurwich, 473 So. 2d 1307 (Fla. App.
1984).” Fire Scene Spoliation: Have We Gone Too Far?, Scott Katz, Butler
Pappas Weihmuller Katz Craig LLP, For The Defense, Vol.44, No. 6, June
2002.

16. It should be noted that this paper addresses and generally refers to the Daubert
Standard as the governing standard for the admission of expert opinion
testimony. The Daubert Standard would be better understood as the governing
standard for the admissibility of expert opinion testimony for Federal Court
system in the United States. The issue of admissibility of expert opinion
testimony in the various state courts are governed by various other individual
states standards which will likely differ from state to state. Many of the state
standards will reflect, to one degree or another, the Daubert Standard. It is
beyond the scope of this article to address the individual standard for any
particular or all the states so the Daubert Standard is analyzed because it
serves as the model for various state standards and is universally applied in
United States Federal District Courts.


18. Frye v. United States, 293 F. 1013 (D.C.Cir. 1923). (The Fry Court generally
held that if an expert’s opinion testimony rested upon science and
methodology that was generally accepted within the scientific community, then the opinion testimony would be admissible.)


21. Id.

22. Id.


24. Id.

25. It is often argued that the consulting expert’s opinions are not discoverable as either being irrelevant to the case because the expert will not be offering testimony. It is also generally argued that said opinions are protected by the “Work Product Doctrine” which generally protects the thoughts and mental impressions of the Counsel and its agents when formed in anticipation of litigation.