

FROM THE LAWYER'S PERSPECTIVE: The Role of a Fire Protection Engineer

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Any discussion surrounding the role of an expert witness, e.g., a qualified fire protection engineer, in loss site investigations and litigation must begin by defining the purposes for which the fire protection engineer is retained. From the lawyer's perspective, the purpose of an expert in a fire investigation is two-fold: he or she is an investigator of the loss and an advocate for his client during litigation. Too often, experts consider themselves only as investigators and disregard or minimize the importance of being an advocate for their client during later litigation. Both roles are equally important, and an expert should be mindful of these dual roles throughout the assignment as they go hand in hand.

Not only do clients and attorneys rely on experts to investigate losses and formulate opinions as to their causes, but they rely on experts to convincingly testify as to their opinions during litigation or trial. The best, most accurate opinion as to the cause of a loss can be severely undermined if not testified to or presented with confidence and conviction. A way in which to develop confidence in one's opinions is to conduct a thorough investigation to ensure that properly supported conclusions are reached. This, in turn, will foster conviction in one's opinions and assist in communicating that conviction to an opposing party, judge, or jury.

In order to provide effective testimony and advocate strongly on behalf of a client, the fire protection engineer must be comfortable with the facts that support his or her opinions and be able to strongly present his or her opinions and conclusions. Opinions and conclusions that are not supported by the facts, or the standards of care applicable to the industry, will surely come across to a



in the Investigation of Fire-Related Losses and Subsequent Litigation

fact-finder as weak and not believable. Finding the facts to support one's opinions begins at the investigation stage.

CONDUCTING A PROPER INVESTIGATION

The first and most critical step in any investigation is to have the right expert.

From an attorney's prospective, selecting and retaining the proper expert is essential to a successful resolution of a claim or defense. The use of expert witnesses in litigation has blossomed, in part, because of the specialization and concentration of practices that all professions are currently experiencing. The attorney's task, on behalf of his or her

client, is to initially identify the need for a particular forensic analysis and then ask the proper questions of particular consultants to make sure that the consultant has the appropriate expertise for the situation. Fire protection engineers should not feel offended if an attorney vigorously “cross-examines” him or her during the engagement process. It is the attorney’s job to know the law and the standards for admissibility of testimony and opinions. Background questioning and interviewing of expert witnesses is designed to allow the attorney to make an assessment as to whether the particular witness possesses the background, experience, and knowledge to be able to meet the standards for admissibility. Some points are obvious, but warrant repeating. As with any witness, honesty is always the best quality. Fire protection engineers should never stretch their qualifications or experience in order to “get the project.”

After confirming that the right expert has been retained, the next step is to define the tasks and duties of the fire protection engineer. Almost universally, the earlier that an expert can become involved in a conflict, the more useful and beneficial the role of that expert will be. Personally inspecting a fire scene and the related equipment, material, burn patterns, and building construction, as well as interviewing eyewitnesses, will prove ultimately to be invaluable when testimony is offered. The fire protection engineer should not only address the specific issues he or she has been asked to review, but also guide counsel in spotting additional issues and educate counsel along the way. The exchange of information, facts, and ideas will typically push an investigation into areas and directions not immediately evident when the project originates.

Perhaps the most obvious situations calling for the expertise of a fire protection engineer arise when there are issues surrounding the design, installation, and operation of automatic sprinkler systems and smoke/fire detection devices. In order to provide value for a client, a fire protection engineer must understand the design criteria that existed at the time that devices were designed, installed, modified, or upgraded. Similarly, a fire protection engineer should be retained in situations involving compliance with building codes or standards, such as fire separations, fire areas, seals around openings and conduits for utilities, and flammability standards for particular materials, all of which are extremely important in any fire investigation. Typically, fire cases involve two critical areas of analysis. The first is why the fire started, and the second is whether there is some particular event or design or construction defect that permitted the fire to spread into areas that it should not have otherwise spread under the circumstances. Usually, the fire protection engineer’s role is more critical in the second stage of the analysis.

Simply because a property, building, job, or project was designed, built, or installed does not necessarily mean that all aspects of the work were performed in compliance with applicable codes and standards. All too often, fire or other catastrophic events occur in municipalities where code officials or building inspectors have simply relied upon certifications of others, such as sprinkler inspection companies, design professionals, or contractors, rather than inspecting the items themselves. This is not to suggest that there is anything unusual or inappropriate about this situation; in fact, this is probably the norm in most jurisdictions. Many jurisdictions simply do not have the manpower, time, or resources to determine compliance with every code, standard, or design practice. Rather, they rely on the certifications of other

professionals who are especially retained to conduct such detailed and in-depth inspections. However, many times, these companies fail to properly perform their duties. Fire protection engineers can be particularly useful in identifying design and construction errors that are overlooked by parties merely because the work has received prior “approval” or certification.

In addition to determining factors and circumstances that promote fire, smoke, and water spread, nonoperation of fire-suppression and fire-detection devices, and design and installation issues, fire protection engineers are necessary to establish the “standard of care” with which a particular party is alleged to have failed to comply. A fire protection engineer can expect to research the appropriate standard of care for design issues, such as hydraulic analysis, proper sizing of pipes, sprinkler ratings, and the protection of sprinkler devices from environmental effects. Fire protection engineers should be able to establish the standard of care with respect to construction and installation errors involving automatic sprinkler systems and comment upon practices relating to inspection, testing, and maintenance of sprinkler systems. The bottom line is that without a fire protection engineer, or a similarly qualified witness, a party to a lawsuit will likely face a difficult task establishing what should have been done in a particular set of circumstances and why the act or failure to act fell below the standard of care within the governing industry.

The overall task of the fire protection engineering forensic project should be to show that a different design, construction, technique, product, or material would have made a difference in the outcome of the event. There must be a nexus or causal connection between the event and the issue being reviewed. Code violations or installation errors are factually irrelevant if they play no role in leading to the “bad” result or if the same result would have nevertheless occurred, even if the design, installation, testing, and maintenance of a particular system or building component was originally performed correctly. Of course, identifying a series of code violations and other deficiencies in conjunction with a particular violation that caused a fire or fire spread might be extremely beneficial in showing a pattern of sloppy work on the part of a particular party.

PROVING YOUR CASE

After the fire protection engineer has inspected the fire scene, reviewed all of the appropriate codes and standards, reviewed all of the documents exchanged during the course of litigation, and prepared his or her report, the next step is proving the case. This is where the advocacy role of the expert comes in. Before addressing how to best go about proving one’s case, it is important to have an understanding of the potential pitfalls that attorneys and experts face in having an expert disqualified or having expert opinions excluded because they are not properly supported.

In today’s courtrooms, there is a harsh legal climate restricting the ability of parties in lawsuits to present “opinion” evidence that supports their respective positions. Obviously, the goal in any lawsuit brought by a plaintiff, or resisted by a defendant, is to develop facts that will convince a fact-finder (typically a jury, but sometimes a judge) that a particular theory, scenario, or position is correct. But equally important, and sometimes overlooked, is the need to build the proper foundation that enables those parties to present that evidence, i.e., the story, the documents, the physical evidence, through appropri-

ate witnesses whom the court will permit to provide expert testimony at the time of trial.

Now, more than ever, this potential stumbling block dominates trial and evidentiary rulings as they relate to expert or opinion testimony. The strict standard for admissibility has its genesis in the 1993 United States Supreme Court landmark decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.* There, the Court directed trial judges to be “gatekeepers” of evidence and responsible for evaluating and guarding against improper evidence making its way to a jury for consideration. The Court implored trial judges to keep “junk science” out of the courtroom. To identify “junk science,” the courts generally look at the overall “reliability” of an expert’s opinions as the cornerstone of admissibility. Courts consider factors such as the background and experience of the proposed expert witness; the existence of standards against which the acts in question can be judged; whether there have been peer review processes involving the expert’s opinions on the same issue; whether the opinions, theories; and scenarios have been tested; and whether the expert has utilized the appropriate methodology in reaching his or her conclusions.

How then does this preliminary evaluation by a judge impact the role of a fire protection engineer? First, it potentially translates into more business opportunities for the expert. Because of the heightened standard of admissibility for expert testimony, more and more fire protection engineers will need to be involved in forensic matters in order to overcome the *Daubert* challenges. For example, today, in a fire spread case, it is risky for a claimant to rely solely on a basic cause-and-origin fire investigator, with no fire protection engineering background, to give opinions on issues involving fire spread, automatic sprinkler operation, fire detection devices, or system designs. Retaining the proper fire protection engineer is essential to complement the other members of the forensic investigative team. The fire protection engineer can assist counsel in a manner that will allow for the presentation of facts and opinions that will prove a client’s case.

Second, *Daubert* means that the fire protection engineer must ensure that his or her opinions are factually and scientifically supported. An expert should be especially mindful of this requirement when preparing his report and testifying during deposition, as these two things generally define the scope of the opinions and conclusions that an expert can offer at the time of trial. Although an expert will prepare a report in preparation of litigation, the report itself is not admissible at trial. Rather, the expert must testify as to his or her opinions at trial. However, this does not mean that an expert’s reports, letters, and other communications are not discoverable by the other side. To the contrary, experts should be mindful of what documents they place in their files as everything that an expert reviews and relies upon will most likely be discoverable by the opposing party and can be used to impeach an expert’s opinions and credibility during a deposition or at trial.

Experiments and tests that a fire protection engineer undertakes also become part of his or her work product. While it is certainly encouraged that the expert and the attorney exchange ideas and discuss particular issues in the case, an expert witness, whether a fire protection engineer or not, should never undertake testing or significant work on a particular project without discussing it in detail with counsel and having the project approved.

The final question then is what is the best way to communicate the expert’s opinions convincingly so as to prove the client’s case? As with most things, preparation is the key and cannot be undervalued. Experts should insist upon meetings with counsel in order to have sufficient time to prepare for anticipated cross-examination questions during depositions and at trial. In addition to being well-prepared for one’s testimony, there are other things that an expert can do to convincingly set forth his or her opinions. It is now well known that jurors like to see examples of what they are listening to. We live in a visual society, one in which attention spans are very limited. Thus, there is an increasing use of computer-generated fire modeling and animations that should be within the capabilities of a fire protection engineer. These types of endeavors are particularly helpful when there are issues involving storage practices of combustible materials, allegations that a fire was intentionally set and with multiple points of origin, and theories including deficiencies with regard to system design and building construction.

Most importantly, in order for these types of computer programs to be admissible in court, they must be properly supported by the facts of the situation. The proponent of the visual aids and models must be able to establish the reliability of the program. This requires working closely with counsel on a regular basis and an ongoing exchange of information and facts that are incorporated into the finished product. These projects are effective in terms of establishing what a sprinkler system would have done had it operated properly, whether a sprinkler system would or would not have been overwhelmed by an intentional fire, whether an alarm system should have alerted a central station or fire department at an earlier point in time, or whether particular building materials should have restricted or contained a fire in particular areas. Here again, the ultimate admissibility of the work is the primary concern. The greatest computer-generated program does an attorney or his or her client no good if a court ultimately rules that a jury cannot see the fruits of the fire protection engineer’s work. Generally, if the work is presented as a “depiction” of the ultimate opinions and conclusions of the fire protection engineer who will testify to the content of the program and modeling, it will be admissible. On the other hand, if the work is intended to be a “re-creation” of an actual event, courts have typically frowned upon that type of potential evidence. ▲

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