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The Circle of Forensic Engineering Practice

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Today there is an increase of the so-called “expert” looking for “easy money.” These individuals control the cost by skipping the formalities of Discovery and scientific analysis by simply asking their clients, “What do you want me to say?” The practice can not be stopped by publishing position papers or complaining to state registration boards. But, the onslaught of these individuals can be stopped by professional forensic engineers following the full circle of our practice.

The paper will discuss what is meant by that circle. That circle is the examination of every technical aspect of each case. If we technically analyze what the other technical positions are and prepare the client for what to expect, we will have traveled that circle, done our job, and hopefully served justice and the truth.

Introduction

In forensic engineering practice the laws of science and engineering are applied within the bounds of the jurisprudence system, guided by a self imposed set of ethical standards. If the forensic engineer fails to incorporate the ethical standards adopted and fails to do a complete technical analysis of the issues, the practice and profession will suffer.

One of the top attorneys in the country, is Lefferts Mabie, Jr. in Pensacola, Florida. Mr. Mabie is a successful and well known plaintiff’s attorney and a premier litigator. Beyond that, it is the opinion of many that Mr. Mabie is a great teacher of litigation strategy which incorporates the concept of the circle.

Overview

Using the concept of the circle applies whether the forensic engineer is working with plaintiff’s attorneys, defense attorneys, insurance company claim specialists, or criminal prosecuting attorneys. The project is started with available information; and, after it is reviewed, an opinion begins to be formulated as to whether the case has any technical merit. Throughout the process, the preliminary opinions, basis for the opinions, and the need for additional information are coordinated with the client. If the case does not have technical merit,

the client must be told immediately. If the case does have technical merit and technical opinions are developed, the engineer will be named and disclosed as an expert. At this point the job of the forensic engineer is only half complete.

In addition to the technical work done to arrive at one's opinions, other "experts" are providing opinions to the other side of the case. These experts range from policemen moonlighting as accident reconstructionists, non-degreed safety engineers, design engineers doing forensic engineering part-time, to fully qualified engineering experts with different opinions. All of these categories contain individuals who, from time to time, are referred to as "hired guns." Someone always thinks the expert on the other side is a "hired gun." Unfortunately, the "hired gun" syndrome is something to be expected as part of working in the forensic field.

Writing position papers, letters to the editor, and making general complaints will not eliminate the problem. The foregoing is not meant to imply that vigilance should not maintain with regard to the legislative activities in the various states concerning qualifications and requirements to practice. It does mean additional work is required by the Board Certified Forensic Engineer in doing a thorough job by completing the circle of forensic engineering practice to prepare the client.

The Initial Approach

Once named as the expert witness with established opinions the work on the circle begins. The analogy is that those opinions are True North. Since there is litigation there is someone who has opinions that are due South. To do the job completely, the solutions and opinions must be checked and cross-checked by considering the various alternatives at points around this circle. This is accomplished by reviewing the materials with a series of "what if" questions, slowly approaching and examining the technical position that might be taken by the opposite side.

This methodology accomplishes two very important objectives. First, it tests one's original position and a detailed examination of the bases for those opinions. Second, it necessitates the full evaluation of the other side's position, materials used and assumptions made in order for them to take that position.

Once the basis is established for the opposition's technical opinion, proceed around the circle slowly evaluating their assumptions and bases for those opinions.

Are these assumptions valid?

Did they have other information you did not have?

Why would they use that information?

Did you have information they were not provided?

Was testing involved?

Did they use the correct equations?

Do they have solid references and sources of technical facts based on research?

The process should confirm one's original position. It will also disclose the full scope of the technical issues and variations that brought the matter to litigation. Using the circular process also reinforces one's ethical position in the matter, eliminating any tendency toward advocacy, or bias.

Once the forensic engineer has analyzed the technical position and the basis for that position of the opposition, then the competent forensic engineer must educate the client as to how the opposing expert reached his/her technical opinions.

Know The Expert

As part of the preparation for the client concerning the opposing party's expert, find out who he is. Suggest to the client that the name of the opposing party's expert be discussed with the client and other professional associates in order to determine if anyone knows the expert or has had any connection or experience with that expert. Do not assume that the client will automatically do this.

One may be familiar with the particular individual either through a personal acquaintance or reputation developed, through local professional associations, or through the expert's writings. If the expert is from out of town enlist assistance from one's contacts and acquaintances in or around the expert's home town area to obtain additional background information.

It is important to further assist the client by obtaining copies of any articles that the opposing party's expert has written. Review the curriculum vitae and review any reports written on this specific case. As one reviews the report or any information disclosed during the Discovery process relative to the opposing party's expert, list areas that need further clarification. Depending on the complexity of the case, it may be necessary to frame certain probing questions that the client attorney can use during the deposition of the opposing party's expert. In a more complicated case it may be advisable to attend this expert's Deposition in order that one may hear first hand what was used to formulate the expert's opinion. This work is all part of doing a complete job. Unfortunately, it is frequently overlooked.

For example, it is important to know if the opposing party's expert was an electrical engineer who had worked almost exclusively for one defense law firm testifying on electrical fires and breaker failures. If the individual was now being offered as an expert on slip and fall, the client's preparation and approach to this expert would be significantly affected.

The Two Part System

Now the technical positions and bases have been established. One has evaluated the opposing expert's position and bases. One has become familiar with the opposing expert's background, reports and writings and have advised the client of one's findings and any needed questions to pose at the Deposition of the opposing expert. At this point all that can be done has been done.

Qualifications

Generally, only 8-10 per cent of the total projects analyzed by Forensic Engineers result in a requirement for courtroom testimony. Basically testimony in court is divided into two sections: qualifications and opinions. Some states, including Florida, no longer require that an expert witness be qualified per se before being allowed to give an opinion. It has been deemed appropriate that qualifications only go to the weight of the opinion that is offered. Therefore, the qualification process is critical.

A colleague related that he was about to testify in court and prior to proceeding through the qualification process the opposing attorney stipulated to his qualifications and acknowledged the fact that he was an expert in the field. His client proceeded directly with the opinion portion of his testimony. However, when the opposing attorney put his expert on the stand, he went to great lengths to present all of his witness's qualifications and merits. As a result, the jury gave more weight and credibility to the opposing attorney's expert because they heard his qualifications.

In another case, during the qualification phase, an expert had testified concerning his educational credentials and continued to testify relative to his opinion in the case. Upon cross examination, the opposing attorney had the expert confirm his education. He then turned and pointed to a lady sitting in the audience and advised the expert that this was the registrar from the school from which he had his Bachelor of Science degree. Further, he stated that she would testify that he had never attended that school. The expert closed his notebook, left the courtroom.

Always be sure the client does not allow the opposing attorney to stipulate to one's qualifications or take for granted that what the opposing party's expert qualifications stated as fact, are fact. The testimony relative to qualifications are

not for the attorneys, they are to inform the juries as to what level of expertise lies behind the opinions being given.

Even if the opposing party's experts' qualification have not been overstated and assuming that one has had access to the opposing expert's deposition and curriculum vitae, it is incumbent to advise the client of certain specific questions that might be asked of the opposing expert which may enlighten the jury as to his lack of qualifications. One of the primary examples of this would be the police officer who testifies to critical speed. Informing the jury that the witness has a high school education and two weeks training in accident investigation will give them some insight that this opinion is given by an individual with less than substantial technical qualifications.

Direct Examination

If one has done a complete job and closed the circle, one is ready for the second part of the process, which is presentation of the technical opinions and bases for them. One also knows where the opposing attorney is most likely to attack one's opinions. Therefore, use the circle to outline your testimony. Many papers have been written and presented relative to those items which need to be presented. A word of caution: Keep it simple. The presentation of your opinions is not a forum to impress the jury with one's technical prowess, but to inform the jury by simplifying complex technical issues to an understandable statement backed by sound technical principles.

Knowing the opposing expert's technical position and where it differs from one's own position, defines the most likely areas to anticipate attack by the opposing attorney. "A lion with no teeth can't eat you." Therefore, take the teeth out of the potential cross examination by dealing with the differences on direct examination. The more these issues are handled during a friendly direct examination the less the adversarial attorney has to work with in cross examination.

Cross Examination of the Opposing Expert

Different lawyers have different strategy and style when it comes to cross examining the opposing expert. It depends on their experience and comfort level in approaching the expert. Books, articles, and presentations seem to indicate keep it simple. If the opposing expert has not hurt their case, many attorneys choose not to cross examine them. These litigation references all seem to indicate; keep it short, keep it direct and keep it simple. The primary objective is not to become entangled in technology and technical jargon causing the jury to loose the path of the cross examination. The last thing an attorney wants to do in trial is to ask a question to which he does not know the answer. If one does the job completely, then the technical expert for the opposing party will seldom provide the unwanted surprise.

The forensic engineer can provide the necessary information to the client in a number of forms utilizing specific technical questions that should be asked of the opposing expert. The questions may be concerning the basis for the opinion with regard to materials reviewed or assumptions made. It may also take on the form of a derivation or origination of basic technical principles and equations, how the calculations were performed, were these calculations based on a purchased computer program or on standard equations used by practicing engineers. The Chairman of the Mechanical Engineering Department at the University of Maryland, 1962, taught a senior level course in Heat Power. In addition to the routine questions requiring solution of equations the tests also contained essay questions which contained a killer question: "If so, why so. If not, why not." The forensic engineer provides the client with questions, relative to technical approach, basis, assumptions, documents, etc. in a format that ends with, "If so, why so, or if not, why not". Then, the trier of fact will be able to follow the simple basic logic and determine whether or not the opinions expressed were valid.

Conclusion

The practice of forensic engineering as a worthwhile profession is basically under an attack by those in the business of just being an expert witness, the true "hired gun." In order to preserve the integrity of the system, the value of the profession, and ethical unbiased statements of technical opinions takes work. One has a moral imperative to travel this circle of forensic engineering practice. One must each do one's part to eliminate the self righteous, fakers, charlatans, and magicians from this profession, even if it is only one person at a time. Then, the system works and truth will prevail.