

## The Forensic Expert Consultant/Witness

Some Things To Know

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This article is an overview of the definitions, qualifications, roles and obligations, conflicts of interest and biases, ethics, and liabilities of the expert consultant/witness retained to investigate the failure of a structure and/or to assist in the litigation of resulting claims. The article follows and complements the one, *Professional Practice of Forensic Structural Engineering*, by the author in the July, 2007 issue of STRUCTURE Magazine. It relies heavily on the author's *Forensic Structural Engineering Handbook* and on ASCE's *Guidelines for Forensic Engineering Practice*; and is, in part, modified and condensed from the author's lengthier treatise in the *Proceedings of the 2006 IABSE Symposium*.

An engineer's success as a forensic expert consultant/witness is the result of the combination of many components in his or her background: a good education in engineering and its related subjects; years or even decades of hands-on experience in analysis, design, construction, testing, inspection, condition assessment and trouble-shooting; understanding of the design-construction process; comprehension of legal implications; good communication skills; a knack for problem solving; a positive attitude to team work; a strong sense of ethics; self-confidence without arrogance; confident and credible disposition; and a high level of intellectual sophistication. Some of these traits can be learned and acquired, but some are ingrained.

### The Process and The Expert Consultant/Witness

The truthful expert witness is a valuable and necessary professional in the resolution of claims. The American judicial system makes it virtually impossible to hold an engineer liable for his/her errors or omissions without an expert, i.e., another engineer, testifying to those errors and omissions.

The typical process of forensic investigation of a failure, hence the activities of the expert consultant investigating the case, may be coarsely outlined as follows:

- First-response and preliminary assessment.
- Development of investigation strategy.
- Fact-gathering and document review.



- Engineering evaluation and determination of the cause(s) of the failure.
- Rendering engineering opinions as to the cause(s) and responsibilities
- Reporting.
- Litigation support (assisting attorneys in the resolution of claims).
- Giving expert testimony, if the case is tried or arbitrated.

The process depends to an extent on the nature and magnitude of the failure, the dollar amount of damages and claims, and often on the experts and the attorneys involved. (*Rather complete discussions of the practices and services of expert consultants/witnesses in the US are in References 3, 5, 6 and 7.*)

### Who Is An "Expert"

There is a difference between an "expert consultant" and an "expert witness". An expert consultant may be anyone whom a client believes to be especially knowledgeable and reliable for assisting with the technical aspects of a problem. The identity and work of the expert consultant may or may not be disclosed to the other parties in litigation unless and until it is decided that he/she will be a testifying expert, i.e., an expert witness. That decision is made by the legal team based on the opinion the consultant holds, the validity of that opinion, the strength of his/her expected testimony, and, as the bottom line, the value of the testimony to the success of the case.

There are several published definitions of the expert witness, two of them follow:

"An expert witness is a non-biased professional who provides testimony based upon his/her technical expertise." [8]

"An Expert Witness is a person who, by reason of education or special training,

possesses knowledge of some particular subject area in greater depth than the public at large." [9]

### Qualifications of an Expert

In order to qualify as an engineering expert on a particular case, one has to have appropriate *education, training, experience, skill and knowledge* [3] relevant to the case, and the ability to use those attributes. The ASCE *Guidelines for Forensic Engineering Practice* devotes many pages to the subject of qualifications, and the reader is urged to peruse them.

How the courts evaluate the qualifications of an expert may be different from how we, engineers, view them – and it is the courts not the engineers who decide whether or not an engineer is allowed to testify as an expert.

The US Federal Rules of Evidence, FRE Rule 702 (1987), states that "If scientific, technical, or other specialized knowledge will assist the trier of fact [judge and jury] to understand the evidence or to determine a fact in issue, then 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 [and only if] the testimony is based on sufficient facts or data, the testimony is the product of reliable principles or methods, the witness has applied the principles and methods reliably to the facts of the case, and the opinion is sufficiently tied to the facts of the case." (Author's emphases in brackets.)

There are no definite guidelines for determining the knowledge, skill, experience, training or education required. In the US the judge is the "gatekeeper" on qualifying (accepting) an expert witness; and

the judge is the “gatekeeper” on admitting the expert’s opinions – and only if they are shown to be both *reliable* and *helpful*, i.e., the opinion “rests on a reliable foundation and is relevant to the task at hand.” [*Daubert v. Merrel Dow Pharmaceuticals*, 1993] The so-called “Daubert test” is intended to keep “junk science” out of the courtroom.

Opposing attorney may request a *voir dire* of the expert witness in court, which is essentially a challenge through cross-examination of the witness’s competence, with an attempt to disqualify that witness as an expert. (*Typical grounds on which attorneys try to win disqualification are listed in Ref. 4.*)

## The Expert’s Dual Obligation

The forensic engineer/expert witness has dual obligations: to the judge and jury, and to the client.

It is the expert’s role and obligation to assist the trier of fact (the judge and the jury) in understanding the complicated technical subjects that are not within the knowledge of the average person. But also, when retained by one party to a litigation, the forensic engineer has a duty to that client: to assist the attorney with the technical information he/she needs to develop the case, to provide expert opinion, and to give expert testimony, if called upon. Ideally, the expert discharges his/her obligations to both the trier of fact and to the client equally – even though justice’s demand for truth and clarity may be in conflict with the client’s need for helpful testimony.

## Advocacy versus Impartiality

Should an expert advocate? Yes, BUT NOT for his/her client, but for his/her opinions, for the conclusions he/she arrived at with reasonable engineering certainty, and for the position he/she had decided to take on the case.

While a failure may be triggered by one single item, it is usually caused by the interplay of many factors (a little design error, a little material defect, a little construction mistake, a little misuse/abuse of the structure). The late Lev Zetlin opined that one can maintain one’s honesty and integrity while putting emphasis

on the factors that favor one’s client; as human beings, this is natural and expected.

If the judicial system and the courts want an expert to explain or clarify a technical issue without suspicion of partiality to one side or another, then they need to change the rules and the court itself has to retain and pay the expert for that impartial service! Even then, however, there may be a sense of partiality. Let’s face it: human beings are seldom totally objective without any bias.

## Conflict Of Interest And Bias

**Conflict of interest** may take many forms. For an expert it can be prior or current personal or business relationship with one of the parties, an interest in or benefit from the outcome of the case, or anything else that might compromise the expert’s impartiality. The conflict may be: *Actual* – certain to affect opinion; *Latent* – may have reasonable chance to affect opinion; and *Potential* – can be foreseen to cause conflict of interest. By the NSPE *Code of Ethics, Rules of Practice 4a*: “Engineers shall disclose all known or potential conflicts of interest that could influence or appear to influence their judgment or the quality of their services.” By Section 4.2.9 of ASCE’s *Guidelines for Forensic Engineering Practice*: “Before starting any forensic investigation, the investigation team should provide a full disclosure of all possible conflicts of interest to the client’s legal counsel. The attorneys can then decide if there is a sufficiently high probability of conflict of interest so that a different investigative team should be retained to perform the investigation.”

**Bias** is one’s “inability or unwillingness to consider alternative approaches or interpretations.” [Ref. 3, Section 4.2.9] The perception of bias in an investigation can be eliminated or minimized by using more than one method to analyze the data and to test the validity of the possible scenarios.

The possible consequences of conflicts of interest and bias can be many and serious, such as: termination of services by the client, denial by the court to testify, dismissal of the client’s case by the court, and disciplinary action up to and including suspension or even removal of P.E. license.

## Ethics of The Expert

Justice’s demand for truth and clarity may be in conflict with the client’s need for helpful testimony. This creates the ethical dilemma!

According to the ASCE *Code of Ethics* “Engineers, when serving as expert witnesses, shall express an engineering opinion only when it is founded upon adequate knowledge of the facts, upon a background of technical competence, and upon honest conviction.” [Ref. 10, Canon 3.c.]

A forensic investigator’s findings and testimony can have devastating effects on the

future business, professional reputation, and even on the personal life of the party who is accused of having caused the failure. For this reason, if for nothing else, the forensic engineer’s ethics in investigating the case, and his or her impartiality or advocacy in the case, are open to much scrutiny. Because of the adversary proceedings in which experts find themselves, ethical conduct is taken very seriously. (*Because of its importance, the reader is directed to several publications dealing with ethical conduct in forensic engineering: References 3, 6, 7, 8, 10, 11, 12, 13.*)

Forensic engineers are often looked upon with suspicion, and are even condemned by some people – usually those who had at one-time-or-another been on the wrong end of an expert’s opinion. “Hired Gun” is not an infrequent, however unfair, characterization of an expert witness.

According to such reputable and authoritative source as the US National Society of Professional Engineers (NSPE) “It is permissible to honestly assist a client in efforts to establish where and to what extent liability lies. Further, you may advise the client, to the best of your ability, as to the best course of action.” [11, 12] Indeed, “Your responsibility is to be loyal to your client within the framework of ethical practice, which places truth above all other considerations.” [12]

The attorney is the advocate and mouthpiece for the client, as well as the team leader or “project manager”. That is his/her role. The attorney will manage the expert testimony and use the expert’s opinion – fairly or unfairly – to maximum advantage. That is his/her duty to the client. Attorneys on either side have no obligation to seek “the whole truth”, they only seek release of information that will help their case. We have to accept that the expert cannot say everything he/she wants, but only what is in response to attorneys’ questions. The investigation should be as thorough and complete as possible – this is the expert’s responsibility – but the form, extent, and selectivity of the disclosure, as long as it is truthful, is the client’s prerogative.

## Differing Findings and Opinions

A structural failure may have more than one cause. Each may have a different degree of contribution to the failure, and different experts may find different degrees of importance or may not even realize any importance at all of a particular condition. “Often there is no single truth. Failures and accidents can result from a number of complex interrelated factors. An honest expression of diversity of opinion, through the introduction of testimony by multiple experts, is a healthy approach to seeking the truth.” [13]

Sometimes a technical aspect of a case becomes a contest between experts’ opinions – and it may be constructive for the judge, jury, or the arbi-





expert services, and by trying to get an indemnity agreement or limitation of liability from the client. Do not agree to sign any indemnity agreement to the client! Your exposure may be unpredictable and become far reaching.

It is also important to recognize the “moral liability” that while serving the need to determine the cause, assign responsibility and prevent the repeat occurrence of a failure, the investigation and testimony of an expert witness can ruin long-built reputations and destroy precious livelihoods of people.



trators to see it that way. While frowned upon, a “battle of experts” brings out the most pervasive arguments. The expert’s passion in presenting his/her opinion can convey the thoroughness of his/her work, and the strength of his/her conviction can convey the validity of his/her opinion. In this author’s opinion, the expert should project that passion and conviction. Without being pompous or obnoxious, the expert should project that he/she is, indeed: The Expert!

## Liability of The Expert

Forensic investigation, advice to a client and expert testimony can be subject to claims of negligence, and the liability may extend far beyond the fee for services. Although it seldom happens, an expert consultant/witness can be sued for not providing an accepted standard of care by the client who relied on his/her expertise. An engineer who represents himself/herself to be an expert can be held to a higher standard than other practicing professionals – specifically because he/she has promised and is therefore relied upon as having expertise beyond the qualifications of ordinary practitioners. But the applicable standard of care in expert consulting witness-ing may be difficult to establish.

The best way to minimize one’s liability is to have the right qualifications for the work and do a thorough job. Some additional suggestions to remember include the following:

- Avoid conflicts of interest, disclose them, if any.
- Disclose prior license problems and disciplinary actions, if any.
- Disclose failures of projects you designed.
- Keep client informed of progress of the work.
- Don’t try to please by creating unrealistic expectations.
- Warn of weaknesses in the case (Your greatest value may be in warning of weaknesses).
- Don’t lose documents, samples, evidence.
- Be careful not to libel and slander others.
- As difficult and embarrassing as it may be, ask to be released from the case if you find yourself to be the wrong expert!

Since one might find oneself in a lawsuit for no fault at all, it is wise to mitigate one’s exposure by buying professional liability insurance covering

## In Closing

Expert consulting/witnessing is a challenging, demanding, lucrative area of professional engineering practice. Not everyone is “cut out” for this work, and not everyone wants to operate in the usually adversarial environment. Whether an engineer is engaged solely in the practice of forensic investigation, or does it occasionally only when a valued client requests it or when a special case arises, he/she should, of course, be technically quali-

fied for the work and personally prepared for the pressures of responsibility.

Those owners, designers, contractors, insurers, attorneys, and others who engage experts to assist in the technical aspect of their cases are well advised, on the one hand, to ascertain the qualifications and, on the other hand, to learn and accept the roles, limitations and ethical obligations of their expert consultants and witnesses. ■

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