

# Anatomy of Construction Litigation

## Part II – Preparing a Written Report

By Derek A. Hodgin, RBEC, PE, CCCA

*EDITOR'S NOTE: This is part two of a four-part series about construction litigation.*

*For purposes of completeness, and so that each part can make sense individually, the disclaimer and a large portion of the background sections are repeated. Please see the August 2019 issue of Interface to read Part I.*

### DISCLAIMER

The issues described in this paper are considered to represent the realities of construction litigation. The opinions expressed are not intended to offend any particular participant of this process. Rather, it is the author's intent to promote open discussion and/or debate among participants regarding improving on the "defective" (but sometimes necessary) process of construction litigation. Additionally, the issues discussed in this paper should serve to promote self-evaluation of participants to determine whether we are truly fulfilling the ethical and professional standards that we have all agreed to meet. In the end, it is the author's opinion that those most offended by the content of this paper are likely those who are guilty of the abuses and behavior that it serves to expose. Perhaps by acknowledging the shortcomings in the process, the participants can collectively work toward needed improvements.

### BACKGROUND

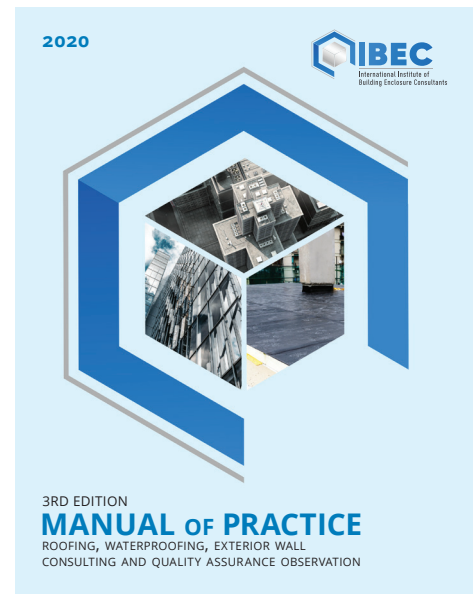
No matter how tough times get, the business of construction litigation seems to go full steam ahead. Each claim typically has at least one real problem that serves as the

mode of discovery for the building owner. However, when this problem is investigated, the investigator (typically a professional engineer or licensed architect) is asked to provide a list of any other issues that may represent deviations from the project plans and specifications, applicable building codes, accepted industry standards, or manufacturer instructions (collectively referred to as contractor's instructions).<sup>1</sup> After all, the plaintiff only gets one opportunity to provide a list of alleged defects to which the defendants will respond.

This scenario often causes unsuspecting building owners (who may have thought they only had a leaky patio door—the one real problem that initiated the process) to face a myriad of alleged defects that essentially require the building to be reconstructed from the framing out. It has become common for plaintiff reports and their associated repair scopes to require complete removal and replacement of roof coverings, exterior cladding (e.g., brick veneer, siding, or stucco), windows, doors, and balcony waterproofing systems. In some cases, even the reconstruction of concrete driveways, patios, and sidewalks are included.

Could new building construction really

be that bad? With so much "wrong" with these buildings, it is surprising that they ever passed an inspection or were sold to discriminating buyers and represented as quality construction. The fact is (and any-



*Figure 1 – IIBEC Manual of Practice; Roofing, Waterproofing, Exterior Wall Consulting and Quality Assurance Observation, scheduled for publication this spring.*

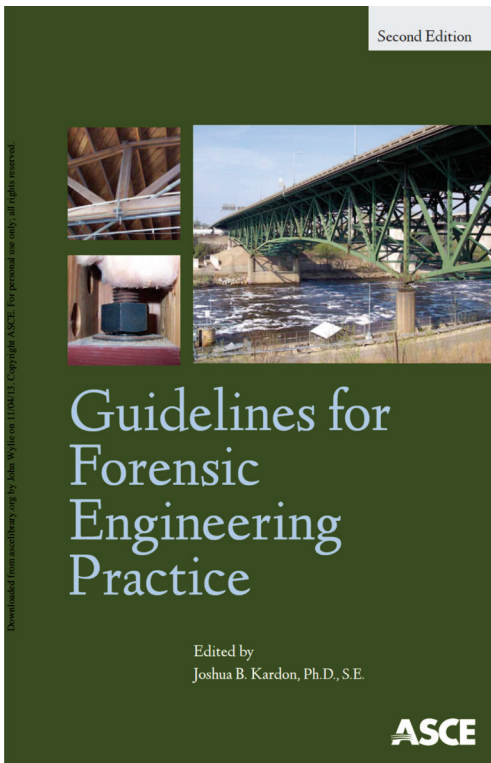
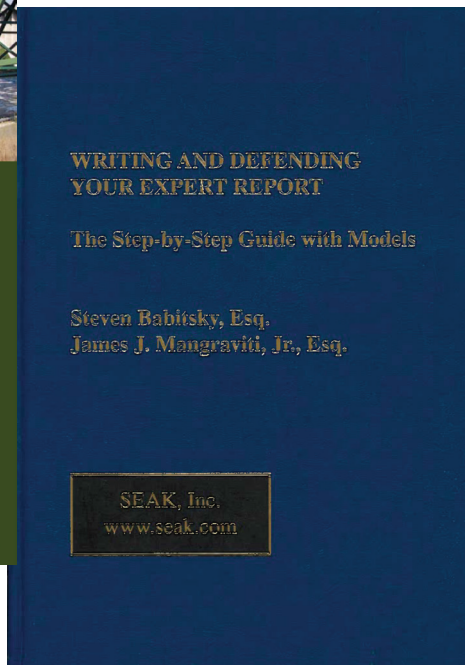


Figure 2 – ASCE Guidelines for Forensic Engineering Practice.

Figure 3 – Writing and Defending Your Expert Report.



one who provides an honest evaluation of constructed buildings should agree), many of the alleged defects simply represent deviations from the contractor's instructions. Some deviations actually have a consequence such that a repair is warranted, while many do not.

This paper will discuss the second element of a typical construction litigation case—the preparation of a written report. It also provides commentary based on direct involvement in numerous cases in which I have provided expert services to both plaintiff and defense parties. Part I of this series (published in the August 2019 issue of *IIBEC Interface*) discussed the identification of defects. Parts III and IV will discuss the repair scope and testimony aspects of construction litigation, respectively.

While this paper provides the “best practices” for a construction litigation report, many of the recommendations would apply to other consulting fields as well. *The RCI Manual of Practice*<sup>2</sup> (published in 2010 by what is now IIBEC), also presents guidance on the subjects discussed in this series. IIBEC is scheduled to pub-

lish its new totally digital *IIBEC Manual of Practice; Roofing, Waterproofing, Exterior Wall Consulting and Quality Assurance Observation* this spring (Figure 1).<sup>3</sup> Other industry references are available that provide guidance on this subject as well, such as ASCE<sup>4</sup> and SEAK<sup>5</sup> (Figures 2 and 3).

As with other aspects of the construction industry, the extent to which these “best practice” recommendations can be incorporated into a project is dependent on the available budget, schedule, and the needs/ desires of the client. However, we should always strive to provide our very best, regardless of the constraints placed on our work.

### IS A REPORT NEEDED?

The decision to provide a written report will typically be made by the retaining attorney and/or client. In most cases, a report is provided by the plaintiff expert for the purpose of summarizing the alleged defects. This report typically establishes the basis of the claim. The defense expert may or may not be asked to provide a written report. An expert should not write a report unless asked to do so. If a report is prepared, several basic rules should be followed. The most important rules are summarized below.

### STICK TO THE FACTS

Written reports should avoid the use of exclusive statements like “all” or “every” or “none.” If such words are used, they should be accompanied by qualifying statements. For example: “All of the shingles observed were noted to have improper attachment.” While the word “all” is used, it is limited to the “shingles observed.” The number of shingles observed could be 2 or 100. It is desirable to identify the extent of

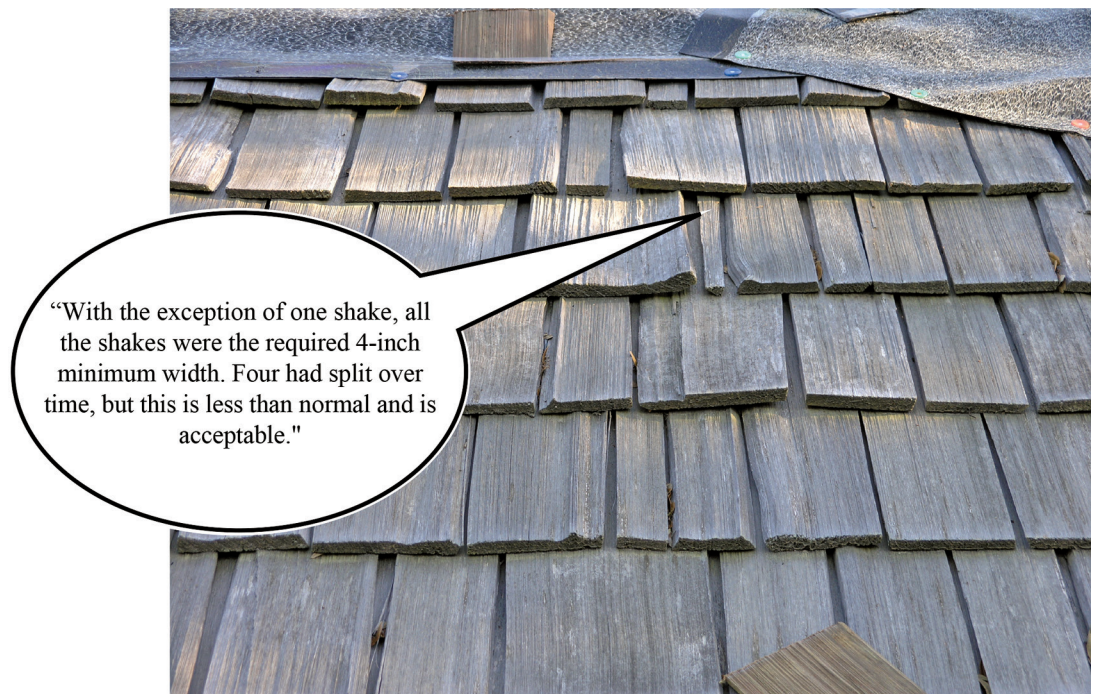


Figure 4 – Example of a comment from a written report that failed to state the facts.

The affidavit by Mr. [REDACTED] based on deliberately misleading claims and a willful neglect of basic engineering principles and standards. The "evidence" he bases his opinions on are either hearsay, significantly and negligently wrongful assumptions, or a deliberate mischaracterization of or a deliberate decision to ignore the indisputable facts. By Mr. [REDACTED] deliberate action of signing this deceptive and misleading affidavit, he allowed for a warrantless lawsuit to be filed against [REDACTED].

## DESIGN PROFESSIONAL AFFIDAVITS

There is a problem with the current process of bringing a claim against design professionals; at least in some states, you might even say the process

*Figure 5 – Example of unethical, unfounded accusations made against a professional engineer in a written report.*

observations in the report as well; this will assist in identifying the degree of certainty established by the expert. An example of a report that clearly misstated that “all” of the cedar shakes were the minimum 4-in. width is shown in *Figure 4*.

A written report should provide an accurate summary of observations. The observations should be described in a factual and objective manner. Experts should avoid excessive use of descriptive adjectives that serve to exaggerate (e.g., “severe” or “excessive”) or minimize (e.g., “minimal” or “minor”) observations or claims. In other words, do not overstate or understate the observed conditions. A simple test should be performed to check for hidden (or not-so-hidden) bias in the report. If the report provides an objective and nonbiased reporting of the facts, the reader should not be able to easily identify whether the report was prepared for a plaintiff or defense party. The facts of each case should speak for themselves, without regard as to which party the facts benefit.

When a defense report is prepared, it should address the issues set forth by the plaintiff report. Unless a need exists to do so, the defense report should not be overly critical of the plaintiff allegations and simply respond to each issue based on objective observations and analysis. Remember to be objective, honest, professional, and respectful to others. In some instances, an unprofessional and disrespectful report can violate the standards of professional conduct.<sup>6</sup> *Figure 5* shows an excerpt of a written report that clearly crossed the line by making personal and completely unfounded attacks on another expert, resulting in a claim with the engineering licensing board.

In some cases, insufficient information has been produced by the plaintiff to adequately support an allegation. While a cursory analysis could be performed based on the limited information, the limitations should be clearly identified. When serving as a plaintiff expert, it can be helpful not to allow the results of a cursory survey to be used for litigation. If the cursory survey

identifies issues that warrant proceeding with litigation, a more comprehensive survey, summarized by a written report, is typically required. Insufficient evidence will often require a return trip to the project to validate the extent that defects and/or damages exist.

### DON'T DEFLECT

If a report spends too much time on issues other than the damages or issues at hand, the facts are typically not favorable to the client of the report writer. Common deflections include critique of opposing experts, reports, or opinions; lack of adequate maintenance; and interpretation of codes or standards. If the facts of the case are not favorable to your client, and you are asked to write a report, deal with the issues openly and honestly. Your objective evaluation of the facts will benefit all parties in making educated decisions regarding the resolution of the case.

is defective. In many jurisdictions, suing a design professional requires an affidavit from another design professional to state that the standard of care has been violated. An affidavit is essentially a written report that carries the same weight as sworn verbal testimony. While an attorney may assist with the format, or even some of the needed and/or desired language, the affidavit is ultimately the work product of the expert who signs it. Be sure that you are comfortable supporting each and every sentence that is included in the affidavit, because you will likely be asked about them in detail at some point in the litigation process.

In the case of design professionals, all of the relevant documents regarding the contracts, scope of services provided, limitations, or design intent may not be available prior to the need for the affidavit. Therefore, design professionals should take extra care not to bring colleagues into cases without due merit. In some situations, after a lawsuit



*Figure 6 – Example of “widespread” improper shingle installation used to support the recommendation of complete roof replacement.*

is filed against the design professional, the limits of services and/or other relevant circumstances are revealed that eliminate or significantly reduce liability. It is desirable to avoid potentially unwarranted claims by having the ability to review relevant documents outside of the context of litigation. It should not be necessary for a claim to be filed against a design professional to obtain all relevant information needed to evaluate the standard of care relative to the context and scope of the individual project.

## DO THE RESEARCH

If time and budget allow for it, independently verify the applicable building code, and obtain the manufacturer instructions for relevant building products (e.g., roofing, windows, doors, exterior cladding, weather-resistant barrier, waterproofing, and/or connection hardware, etc.) used in the subject project. Review the applicable sections from the contractor's instructions to identify any deviations that may have a measurable consequence to the performance of the building.

While many technical deviations may exist, it is often difficult to measure or speculate regarding the actual extent to which a deviation will affect the overall performance of a building, or whether it is significant enough to justify a repair. For example, it would be difficult to determine the consequence of a roofing nail placed  $\frac{3}{4}$  in. away from the end of a roof shingle, as opposed to the 1 in. that is required by shingle manufacturers; yet, shingle nail placement is a commonly alleged defect in construction litigation, associated with a recommendation for complete roof replacement (Figure 6). However, research has indicated that the integrity of the shingle sealant strip is at least as important as the specific nail placement, as it relates to wind blowoff resistance. The bottom line: Make sure that your claims are reasonable and defensible.

## STAY IN YOUR LANE

The best reports are written and signed by those experienced with the subject matter. As a subject matter expert, it is important to opine on subjects about which you have particular knowledge that set you apart as an expert. Avoid the temptation to "dabble" in other areas of science and/or engineering in which you may lack qualifications. If you have an interest in a particular subject, it is best to gain experience working in a mentor-type relationship

# INFLUENCE OF NAIL LOCATIONS ON WIND RESISTANCE OF UNSEALED ASPHALT SHINGLES

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**S**elf-sealing asphalt shingles that are unsealed are vulnerable to damage when exposed to strong winds. The potential for damage is related to a number of factors, including fastener locations. A consortium of the National Roofing Contractors Association (NRCA) and four manufacturers sponsored research on wind performance of unsealed shingles in a wind tunnel to establish a correlation between shingle damage and a matrix of factors.

This paper presents an analysis of the relationship between fastener location and shingle damage, based on data collected during the wind tunnel testing. It also reports on manufacturers' recommendations regarding fastener location variations. Conclusions and recommendations based on the data analysis are provided.

Currently, there are no industry-accepted criteria on allowable variations for the location of fasteners used to attach asphalt shingles. The paper's recommendations can be used to establish allowable fastener location variations. The recommendations also can be used to provide direction as to when corrective action needs to be taken for fasteners that deviate from target locations.

## KEYWORDS

Asphalt Shingles, Blow-off, Fastener Location, Fastener Tolerances, Nail Location, Nail Tolerances, Steep-slope Roofing, Unsealed Asphalt Shingles, Wind Performance.

## INTRODUCTION

When self-sealing shingles experience strong winds before sealant activation, the shingles are vulnerable to damage. The potential for damage (such as tearing near fasteners, fastener pull-through,<sup>1</sup> tab cracking or tab tearing) is related to a number of factors, such as the location of fasteners, shingle fastener's pull-through resistance,<sup>2</sup> shingle pliability, tear strength and overall product strength.

In 1998, the consortium of NRCA and asphalt shingle manufacturers sponsored research on wind performance of unsealed asphalt shingles. The work was conducted in a wind tunnel at Colorado State University (CSU). The purpose of the project was to establish a correlation between unsealed shingle damage and a small matrix of factors, as reported in Reference 1.

<sup>1</sup>The term "fastener pull-through" refers to a shingle pulling over a fastener head.

<sup>2</sup>The term "shingle fastener's pull-through resistance" refers to a shingle's ability to avoid pulling over a fastener head.

After the test specimens were tested in the wind tunnel, the authors recorded the presence of shingle damage near the fasteners. The fastener locations also were recorded. Most of the fasteners were placed in the general locations specified in the ARMA (Asphalt Roofing Manufacturers Association) *Residential Asphalt Roofing Manual* [2]. However, even though applied by an experienced mechanic, most of the fasteners were unintentionally offset slightly from the published criteria. Currently, there are no industry-accepted criteria on allowable variations for the location of fasteners.

This paper presents an analysis of the data on wind-induced shingle damage as a function of fastener location. These data can be used to establish allowable fastener location variations. Data on acceptable variance from target fastener locations can be used by the ARMA/NRCA Asphalt Shingle QC Document Task Force and others in providing direction as to when corrective action needs to be taken when fasteners deviate from target locations.

Note: In addition to providing wind resistance, fasteners also play an important role related to shingle expansion and contraction. The influence of fastener placement on thermal movement was not part of the research. However, if fasteners are placed in accordance with the recommendations given in this paper, they should provide satisfactory shingle attachment with respect to expansion and contraction.

## ATTACHMENT ORIGIN

The first asphalt shingles were produced in 1901; however, they did not come into general use until about 1911 [3]. The birth of the asphalt shingle market is credited to a 1916 booklet sponsored by the National Board of Fire Underwriters (NBFU), which called for the elimination of wood shingles [4]. The NBFU position was in response to a large number of building fires during the late 19th and early 20th centuries, which were in large part attributed to wood shingles' susceptibility to ignition from flying brands.

A 1925 document was the earliest description of attachment of asphalt strip shingles discovered by the authors [5]. It illustrates a four-tab shingle, with nails located  $\frac{1}{2}$  inches (12.7 mm) above each cutout, and a nail near each end of the shingle. Three-quarter-inch- (19-mm-) long galvanized clout nails were specified.

A 1941 document was the earliest description of attachment of three-tab asphalt shingles discovered by the authors [3]. It notes that 11- or 12-gauge galvanized nails

Figure 7 – Example of a peer-reviewed article relevant to shingle attachment.

and/or accepting only the most compelling cases that require more basic application of principles in a particular field. Having a wider range of expert skills can keep your workload more diverse and enjoyable; just make sure you know when to either pass on a case or retain the necessary assistance to learn and properly analyze the facts.

It is amazing how many roof "experts" are not Registered Roof Consultants (RRCs), but simply have a basic knowledge of roofing and can read manufacturers' instructions. Even with the lack of specific knowledge, these experts are rarely questioned or excluded in construction litigation cases. However, most reports prepared by those outside of their field of expertise include

oversimplified analysis and/or recommendations. To use another shingle example, if shingles are found to have five nails instead of six (which may or may not be required in high-wind environments), it is often recommended that the entire shingle roof be removed and replaced, without any research or analysis regarding the code, ASTM testing standards, or peer-reviewed articles (Figure 7) that speak directly to the issues in question.<sup>7,8</sup>

## STATE THE DAMAGE OR CONSEQUENCE

If an observation has a damage or consequence, it should be clearly stated in the report. In the event that an as-built

condition caused damage, it should be documented with photographs. A representative photograph should be included in the report to illustrate the extent of observed damage. If no damage has occurred, but a consequence (e.g., future damage and/or non-performance) can reasonably be anticipated, the report should summarize these conditions. If conditions related to a particular detail vary in damage or consequence, the report should describe the varying conditions.

### **PROVIDE ADEQUATE SUPPORT OF OPINIONS**

When opinions are stated in a report, they must be provided to a reasonable degree of certainty. This standard simply means more likely than not. “Opinions or conclusions must account for all known relevant facts related to the incident and be consistent with accepted scientific and logical principles.”<sup>9</sup> Opinions should be supported with adequate references. These references may include photographs, building code requirements, manufacturer instructions or literature, accepted industry standards, technical articles, relevant plans and/or details, project specifications, project documents, etc. The date of the references should correspond to the date of the construction. A defendant (contractor, architect, engineer, manufacturer, etc.) can’t be held to a code or standard that did not exist at the time the project was designed and constructed.

The support documents referenced by a plaintiff report should be limited to the contract documents available to the contractor at the time of construction. In residential cases, this may be limited to the applicable building code. In more sophisticated construction cases, the contract documents may be extensive. It is unreasonable—particularly for a plaintiff—to rely on obscure and/or outdated references to support a claim. However, a defense expert may rely on any relevant and applicable information that is available to defend the as-built conditions. In other words, the support documents referenced by the plaintiff should include references that were readily available and relevant to the contractor(s) who constructed the subject building. However, the support documents referenced by the defense can include whatever documents are relevant to defending the present-day claim. This allows the as-built conditions to be evaluated using current, state-of-the-art information and research to determine adequacy.

### **USE GRAPHICS**

Construction litigation includes many technical subjects that may not be familiar to the readers of your report. Take the time to explain issues as needed, and add a photo or illustration to describe more complicated issues. Well-placed graphics will serve to improve the ability of the reader to understand the issue, and make the report easier to read by breaking up pages of text. There are many relevant illustrations available in the building codes, industry standards, and manufacturer instructions. It is often informative to place an illustration of what was required next to a photo of what was provided to illustrate a deviation or defect.

### **DOES YOUR REPORT PASS THE SMELL TEST?**

The written report should objectively convey the facts, but more importantly, it should be believable. The written report should pass the smell (aka B.S.) test. While the author has a deep respect for those

with the persistence, patience, and smarts to earn a doctorate degree in any field, experts with a PhD are often retained when the facts of a case do not align with the desires of a party, and a higher level of analysis is required. In most cases, such an analysis makes sense and supports the needs of the client. However, in some cases, the analysis includes a mess of misapplied standards and statistics; improper testing; improper interpretation of testing, codes, and standards; and a report riddled with qualifications and careful semantics used to avoid outright fraud.

By the way, the length of a report is not proportional to its believability. The author recently reviewed a lengthy report regarding a roof shingle wind claim, with most of it falling into the B.S. category. While that may seem harsh, it happens. If you have not witnessed this behavior, you have not yet been serving as an expert witness long enough.

The bottom line: We should use our credentials for the greater good of our respective fields. Honor your profession. Be a Professional Engineer (PE)—or other expert—first, and serve as an expert witness second. You are a Professional Engineer, not a Professional Expert. We should work to solve building problems and let others figure out who is responsible and who will pay for the repairs, based on our objective and unbiased input. After all, that is the way we are required to behave (*Figure 8*).<sup>10</sup>

Do not place your client’s desires above your own integrity. Always be willing to deliver bad news. However, when you have bad news, you will not likely be writing a report about it. Most clients are not fond of memorializing damaging facts. Sometimes, even when the facts are not favorable, they may be better than the “facts” being alleged by the opposing party. In these cases, a well-written report with adequate support can educate the opposing side of an alternative view that is associated with a reasonable and effective repair scope.

### **AVOID “CHERRY PICKING” REFERENCES**

In the lengthy roof shingle report mentioned previously, the report’s author provided numerous references. Serving as an umpire in an insurance dispute, I pulled and read every one of these references. In many cases, the roof report was misstating the reference and/or was not including (or omitting) relevant information from the

A well-written report, with reasonable and supported opinions that are presented in a professional and unbiased manner, can be instrumental in conveying the facts of a case to key decision makers.

## Code of Ethics for Engineers

### I. Fundamental Canons

Engineers, in the fulfillment of their professional duties, shall:

1. Hold paramount the safety, health, and welfare of the public.
2. Perform services only in areas of their competence.
3. Issue public statements only in an objective and truthful manner.
4. Act for each employer or client as faithful agents or trustees.
5. Avoid deceptive acts.
6. Conduct themselves honorably, responsibly, ethically, and lawfully so as to enhance the honor, reputation, and usefulness of the profession.

Figure 8 – NSPE’s engineering ethics.

reference. After the award statement was issued, an appeal was made to reconsider, based entirely on the perceived thoroughness and accuracy of the report. Based on the in-depth review of the report references, and the biased/selective nature of their use, the appeal was immediately rejected.

If you use references in your report, which is highly recommended, they should be from accepted and reliable sources. Make sure that you review your references completely so that you do not misstate or take information out of context for the benefit of your report. Leave the twisting of facts and taking things out of context to the attorneys. Attorneys are allowed to be advocates for their clients; experts are not.

### TESTING YOUR FINISHED REPORT


There are a few easy ways to test the validity, strength, and tone of your finished report, as described in the following.

As previously stated, read your finished report and decide whether it is easy to identify which party retained you. If it is easy to identify the general camp you are in (plaintiff or defense), the report should be revised to be less biased. If the report uses explosive words, only shows photos of damage, and/or includes a repair scope (Part III of this series, to be published in an upcoming issue of *Interface*) that is conservative and extreme, chances are good that the author was retained by the owner/plaintiff. If the report is short, includes limited photos, blames others for problems, overstates maintenance issues, and recommends only localized repairs (if any), it is likely written for a defense client. Make sure that your reports are balanced and objective so that perceived bias is eliminated.

As you read your finished report, put yourself in the place of the other party.

If you are writing a plaintiff report, put yourself in the place of the defense. Are you overstating any issues? Are all of the allegations supported by an applicable code, instruction, or standard? Is the recommended repair reasonable? If you are writing a defense report, review it through the eyes of the plaintiff. Are you minimizing any issues? Are your defenses supported by applicable (or current) codes, instructions, or standards? Is the recommended repair reasonable? Do you have a legitimate repair estimate from a qualified contractor who is willing to sign a contract and perform the work? If not, why? Are you willing to sign and seal repair documents for the owner to use to fix the subject building? Always be ready and willing to answer the question: Is this how you would want your building to be fixed?

### THE FINISHED PRODUCT

Each time that you are provided the opportunity to furnish a written report, think of it as an opportunity to do your best work. A well-written report, with reasonable and supported opinions that are presented in a professional and unbiased manner, can be instrumental in conveying the facts of a case to key decision makers. If we fail to honor our profession by making unsupported and/or exaggerated claims, we will gain an unwanted reputation and potentially damage the image of expert witnesses in general. Always do your best work and let others deal with the facts of the case—good, bad, or ugly. 

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