

# Anatomy of Construction Litigation

## Part I - Identification of Defects

By Derek A. Hodgin, RBEC, PE, CCCA; and John C. Wylie, REWC, PE

*EDITOR'S NOTE: This is the first of a periodic series on the anatomy of construction litigation.*

Photo credit: iStock.com/utah778

### DISCLAIMER

The issues described in this paper are considered to represent the realities of construction litigation. The opinions expressed are not intended to offend participants of this process. Rather, it is the authors' 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 if we are truly fulfilling the ethical and professional standards that we have all agreed to meet. In the end, it is the authors' opinion that those most offended by the content of this paper are likely those guilty of the abuses 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, stucco, etc.), windows, doors, balcony waterproofing systems; and even the reconstruction of concrete driveways, patios, and sidewalks.

Could the construction of new buildings 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 anyone 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 first element of a typical construction litigation case, the identification of defects, and will provide commentary based on direct involvement in numerous cases in which the authors have provided expert services to both plaintiffs and defendants. Parts II, III, and IV (to be published in subsequent issues of *IIBEC Interface*) will discuss the expert report, repair scope, and testimony aspects of construction litigation, respectively.

### A PROBLEM IS DISCOVERED

As previously discussed, there is always at least one real problem (i.e., defect); this is the problem that prompted the building owner to contact the attorney and/or forensic expert in the first place. In some cases, the one problem turns into a witch-hunt that reveals a laundry list of problems, with some real issues and some not-real issues. The lengthy list of "defects" identified by an overzealous plaintiff expert can place undue stress on the property owner. Additionally,



Figure 1 – Absence of weepholes above a garage opening in brick veneer.

once the plaintiff report is published, it serves as written notice to the owner that issues exist, many of which may be subject to disclosure laws if the property is sold. A cognizant plaintiff expert should choose

words carefully, so as not to place unnecessary burdens on their client. Additionally, in the case of homeowner associations (HOAs) that are typically responsible for the proper maintenance and upkeep of common elements,



Figure 2 – Exterior wall water damage.

the plaintiff report provides written notice of the “defects” to be corrected. Failing to act on these issues could expose the HOA to liability.

In some instances, the near-term monetary benefit received by the building owner (much of which is shared with the plaintiff attorneys and experts) may not exceed the long-term monetary loss that could be associated with a property “tarnished” by construction litigation.

Obviously, the merits of each case should be carefully considered by all parties (i.e., property owners, plaintiff attorney, and consulting expert). Experts should always value their integrity more than the monetary benefit of a case, regardless of whose monetary benefit you are talking about (e.g., increased expert compensation, increased owner/attorney reward, or a smaller defense payout). For these reasons, a consulting expert must always be willing to: 1) give bad news to a plaintiff or defense client (“Things are not so bad,” or “Your person really screwed up,” respectively) and 2) turn down work that requires a position contrary to the expert’s true beliefs. A consulting expert must never be an advocate for the client. Fortunately (or unfortunately), these criteria do not apply to attorneys, where advocacy is allowed and expected.

#### WHAT CONSTITUTES A DEFECT?

Many of the so-called problems identified by plaintiff experts have little to no consequence, yet the same experts insist that corrective (and often expensive) repairs are required. As plaintiff experts, we must remember that perfection has never been a required construction standard. Additionally, we must not impose our own forensic engineering and/or architecture standards on contractors. Unfortunately (and sometimes fortunately, depending on



Figure 3 – Improper guardrail attachment.

who your client is), contractors can only be held to the instructions available to them at the time of construction. Contractors are not required to comply with best practices imposed by forensic experts unless those practices are clearly incorporated into the contract documents used for original construction.

Buildings are not constructed in a laboratory environment and will always include imperfections. There is no such thing as a “code-plus” environment where exceeding the building code is actually required. However, it is recognized that owners of higher-end buildings will likely have expectations that exceed the building code. Unless specified otherwise in contract documents, the building code is all that must be delivered. Buildings are constructed by real people and are never perfect. For this reason, “defects” can be found on every single building when examined looking for perfection. Additionally, the building codes, which are the bare minimum construction requirements, are also written by real people, and also are imperfect. For this reason, a deviation from a building code requirement does not always represent a “defect.”

As a general rule of thumb, the problems identified by the plaintiff expert (that may ultimately require repair) should represent one or more of the following:

1. A building code violation that actually has a consequence (*Figure 1*)
2. A defect that has caused physical damage (*Figure 2*)
3. A safety issue (*Figure 3*)

Merely deviating from a specific installation instruction may not have any measurable and/or specific consequence. For instance, it would be unreasonable to expect a contractor to measure the placement of every nail (typically measured by forensic experts to within 1/16th of an inch) when installing building products such as roof shingles, cementitious siding, etc. (*Figures 4 and 5*). Minor variations have been determined (via scientific testing and/or engineering due diligence) to be of little consequence such that the performance intent of the code has not been compromised. When this occurs, the deviation simply represents a technical violation of the building code, and no repair is necessary. Other issues, such as the number of nails in a metal hurricane strap or truss hold-down (*Figure 6*) may need further evaluation to determine the capacity of the connection versus the

code-prescribed wind load that the connection needs to resist. If the as-built condition is unable to meet building code requirements, a repair may be justified.

#### WHAT ELSE IS WRONG?

The additional things that may be “defective” in a building—typically unknown to the occupant—are determined via a comprehensive survey. The survey should represent a balance of evaluating the critical components of the building that relate to durability, structural integrity, and safety,

while not bankrupting the owner in the process.

Contrary to popular belief (mostly by attorneys who are negatively impacted by the results of a survey), statistical relevance is not a requirement for a competent survey.<sup>2</sup> After all, the expert is expected to meet the standard of care for his or her profession, not the standard of care for a statistician. In the end, the consulting expert must collect information to testify to a “reasonable degree of certainty” that a defect exists. Obviously, one observation of



## PosiTest<sup>®</sup> AIR Leak Tester

Quickly and easily  
detect air and  
water leaks in air  
barriers and roof  
membranes.

Conforms to  
ASTM E1186

1-800-448-3835  
www.defelsko.com



Made in U.S.A.

- Single and two-ply membranes
- Liquid applied membranes and paint
- Air barriers
- EPDM roofing systems
- Waterproofing and more



DeFelsko<sup>®</sup>

The Measure of Quality

DeFelsko Corporation • Ogdensburg, New York USA

Tel: +1-315-393-4450 • Email: techsale@defelsko.com



Figure 4 – Roof shingle horizontal spacing.

a defect on a large project should not satisfy the certainty requirement. However, if several observations are made to develop a pattern of the same defective construction details by the same contractor, the certainty requirement may be satisfied even with a relatively small sample size. The actual number of observations needed to meet the certainty requirement would vary based on the experience of the expert and the commonality of specific elements of the case (e.g., the developer, architect/engineer, plans/specifications, general contractor, sub-contractors, building products, building codes, code enforcement, etc.).

When the pattern of the observed defects is consistent, a human factors argument can be made regarding the construction process. In other words, it is highly unlikely that a window installer would change the installation details of a window from one window to the next. Unless it can be established that the observed defect was identified during the construction process and corrective actions were taken, it is likely that the defect was

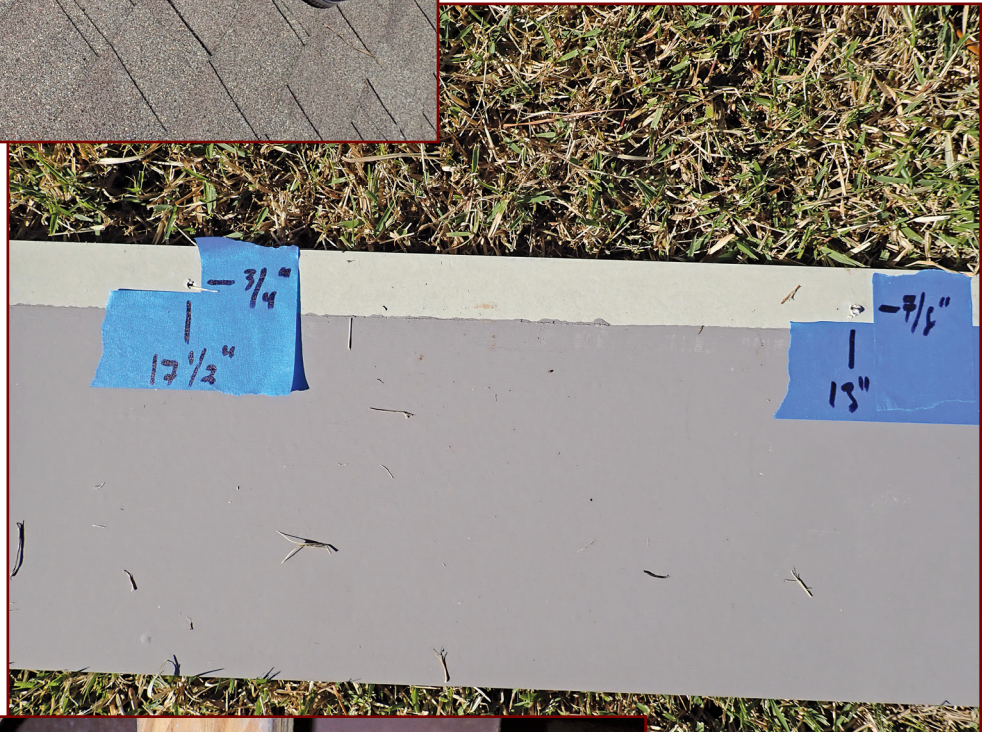


Figure 5 – Cementitious siding horizontal spacing.



Figure 6 – Missing truss hold-down fasteners.

repeated throughout the project. To suggest that the expert just happened to randomly find the only defects in the observed building(s) and no other defects exist is unreasonable and lacks credibility.

### **MAINTENANCE ISSUES**

Whether they make sense or not, maintenance issues are typically raised as a defense in construction litigation. There are many cases in which building components have been neglected and lack of adequate maintenance has contributed to the overall extent of damage. However, this contribution is directly proportional to the age of the building and the extent of the neglect. In other words, it may be unreasonable to suggest that minor imperfections in a sealant joint around a window had a measurable contribution to damages caused by an improperly installed, leaking window.

How much maintenance is realistically expected of an owner during the first three to five years of a building's service life? In the absence of construction defects, the damages to a building during this period should be minimal. However, this statement excludes product defects, which could drastically reduce the effective service life of localized portions of the building, including the defective component itself and possibly adjacent components. Over the past 30 years, defective construction products have been documented to include roof coverings, fire-retardant wood framing components, various exterior-wall cladding components, and plumbing components, among others.<sup>3</sup>

### **APPLICABLE STANDARDS**

While an experienced expert may not require a written standard to guide the survey process, there are published standards available. These standards provide guidance that may assist an expert with the completeness of a forensic evaluation. The use of the standards is voluntary, and their relevance varies, depending on the scope and subject of the assignment.

#### ***ASTM E2128 – Standard Guide for Evaluating Water Leakage of Building Walls***

Originally released in 2001 by ASTM International (formerly the American Society of Testing and Materials or ASTM), this standard describes the methods used in determining and evaluating the causes of water penetration in exterior walls.

#### ***ASCE/SEI 30-14 – Guideline for Condition Assessment of the Building Envelope***

Developed and produced by the American Society of Civil Engineers (ASCE), the intent of the standard is to provide guidelines and methodology for the assessment and performance of existing building enclosure systems. This standard establishes an assessment procedure that includes the investigation, testing, and form for the report of the condition assessment. Additionally, since evaluations for purposes

of condition assessment involve “professional judgment” with factors that are not readily defined and/or standardized, ASCE/SEI 30-14 includes a section that provides guidance for these factors. Referenced below are selected sections from the standard that are considered to be relevant for purposes of the evaluation of existing buildings.

#### ***ASCE – Guidelines for Forensic Engineering Practice***

With the first edition of the book originally published in 2003, the second edition



**WE BRING  
LANDMARK TESTING  
TO EVERY PROJECT**

The most thorough, accurate and professional testing in the United States of America. That's why we've been selected for prestigious projects like the Statue of Liberty since 1984.

Roof Moisture Surveys  
ELD Fusion® Leak Detection  
Electronic Leak Detection Systems  
TruGround™ Conductive Primer

**IR ANALYZERS**  
**Vector Mapping**  
Smarter Testing. Faster Response.™  
800-879-1964 • info@iranalyzers.com

### 49-303. Public Statements.

The Engineer or Surveyor shall issue public statements only in an objective and truthful manner.

A. The Engineer or Surveyor shall be completely objective and truthful in all professional reports, statements, or testimony. He shall include all relevant and pertinent information in such reports, statements, or testimony.

B. The Engineer or Surveyor when serving as an expert or technical witness before any court, commission, or other tribunal shall express an opinion only when it is founded upon adequate knowledge of the facts in issue, upon a background of technical competence in the subject matter, and upon honest conviction of the accuracy and propriety of his testimony.

C. The Engineer or Surveyor will issue no statements, criticisms or arguments on engineering or surveying matters connected with public policy which are inspired or paid for by an interested party, or parties, unless he has prefaced his comment by explicitly identifying himself, by disclosing the identities of the party or parties on whose behalf he is speaking, and by revealing the existence of any interest he may have in the matters.

Figure 7 – Engineering rules in the state of South Carolina.

provides an update and expanded commentary for forensic engineers in investigating the cause of failure, identifying the parties responsible, assisting in mitigating the effects, and providing an understanding of the professional, ethical, legal, contractual, and business practices. The main focus of the guidelines is to provide current practice and guidance for the effective and ethical practice of forensic engineering.

### DESTRUCTIVE TESTING

Many construction details can only be observed by performing destructive testing. Destructive testing provides information that is useful in determining the cause and extent of damage. It is particularly useful in evaluating water intrusion issues. Many nondestructive (or minimally destructive) tools exist to evaluate water intrusion (e.g., thermal imaging cameras, moisture meters, boroscopes, etc.); however, the physical construction details are best documented by the destructive testing process.

Destructive testing typically includes the systematic removal of the layers of construction components that make up part of the subject building, such as a roof or wall assembly. As each layer is removed, its physical condition and installation details can be documented to later be checked for compliance with contract documents.

### DOCUMENTATION

A visual survey of a subject building is typically documented with field notes and photographs taken by the expert. Field notes should be factual, objective, and complete. All conditions should be documented—not just those that support the desires of the expert's client.

Ultimately, the opinions of the expert must be based on an objective evaluation of all of the relevant facts. This is actually an

ethical requirement imposed by many professional licensing boards, such as shown in the excerpt in Figure 7 from the rules that govern the practice of engineering in the state of South Carolina.

For example, only documenting elevated moisture conditions or improper nail spacing when areas of normal moisture and proper nail spacing exist is highly unethical. Additionally, the biased reporting of one expert cannot be adequately evaluated in an objective manner, making it difficult to reach unbiased conclusions.

Photographs should be taken with a high-quality camera. Each area of interest should be photographed globally first to show the relationship between the area of interest and the adjacent building components. This photograph will help identify the location of all subsequent photographs that are specific to the subject area. Avoid taking multiple photographs of the same




Derek A. Hodgin

Derek A. Hodgin, of Construction Science and Engineering in Westminster, SC, has over 25 years of experience as an engineering consultant. He is responsible for facility condition inspections, failure analyses, damage assessments, and forensic engineering investigations of all types of structures. A large part of his projects included analysis of deficient construction cases, including roofs, exterior walls, windows, doors, structural framing, civil site work, and building code review.

area unless doing so may be justified. The number of photographs taken of each issue should be relatively balanced and not be skewed toward supporting a desired position.

### SUMMARY

In summary, each case that an expert evaluates (plaintiff or defense) must include a careful evaluation of all of the facts without prejudice for what the client would like to hear. As professionals, we are called to uphold a stringent code of ethics that requires an honest assessment of all relevant information. How can this assessment be performed in the absence of all the facts? The expert should serve as the purveyor of all facts (regardless of which side has retained the expert's services) so that the triers of fact can be adequately informed to provide an unbiased and reasonable resolution. 

### REFERENCES

1. Derek A. Hodgin and Luther McCutchen. "Contractor's Instructions: A Forensic Engineering and Legal Perspective." *Interface*. IIBEC. March 2004.
2. Lonnie Haughton. "Qualitative Sampling v. Statistical Analysis v. Daubert." *Interface*. IIBEC. November 2008.
3. Joseph Lstiburek. "Increasing the Durability of Building Constructions." *Building Science Digest 144*, December 20, 2006.



John C. Wylie

John C. Wylie, with Construction Science and Engineering Inc., has over ten years of experience as an engineering intern and consultant—primarily in the areas of deficient construction, structural analysis, and collapse/damage investigations. He is responsible for the inspection and structural analysis of a wide variety of building enclosure and framing systems, including roof, wall, and guardrail systems that have been subjected to damage caused by hurricanes, floods, tornadoes, hail, wind, ice, and fire.