



2020 Construction Conference
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New Building Products and Systems: What You Don't Know Will Hurt You

I. Overview

This presentation addresses the risks inherent in selecting and installing untried and inadequately vetted construction materials and systems (collectively “materials”). It provides insight on how new materials get to market, and the pitfalls that exist for design professionals and contractors in using new materials even when they are certified to be code compliant. We will also cover variations on traditional materials and how the ill-informed trade or design professional can wind up in a claim situation. To mitigate risk, we promote enhanced vetting, training and supervision as new materials come online. We will also address the challenges faced by attorneys and claims professionals when these cases are litigated.

II. Code Approval

Manufacturers must obtain building code approval prior to selling new materials. This is required by section 104.9 of the code:¹

[A] 104.9 Approved materials and equipment.

Materials, equipment and devices *approved* by the *building official* shall be constructed and installed in accordance with such approval.

The method of obtaining code approval is found at code section 104.11:

¹ References to the building code are to the 2018 International Building Code

[A] 104.11 Alternative materials, design and methods of construction and equipment. ES

The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. An alternative material, design or method of construction shall be *approved* where the *building official* finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, *fire resistance*, durability and safety. Where the alternative material, design or method of construction is not *approved*, the *building official* shall respond in writing, stating the reasons why the alternative was not *approved*.

Approval is generally obtained through an *evaluation report* which is issued by the ICC-ES or some other approved evaluation service:

[A] 104.11.1 Research reports.

Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall consist of valid research reports from *approved* sources.

[A] 104.11.2 Tests.

Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the *building official* shall have the authority to require tests as evidence of compliance to be made without expense to the jurisdiction. Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized and accepted test methods, the *building official* shall approve the testing procedures. Tests shall be performed by an *approved agency*. Reports of such tests shall be retained by the *building official* for the period required for retention of public records.

These reports certify that the material is code compliant so long as it is manufactured and installed in strict accordance with the requirements of the report.²

While evaluation reports address the code mandated quality, strength, effectiveness, fire resistance, durability, and safety requirements, based on our experience the following are potential gaps in the evaluative process:

² The ICC-ES came into being in 2003 as a combination of the four legacy evaluation services; the National Evaluation Service, Inc.; BOCAI Evaluation Services; ICBO Evaluation Service, Inc.; and SBCCI Public Service Testing and Evaluation Services, Inc. It is a nonprofit company that does technical evaluations of building products and methods. The process culminates with the issuance of technical reports which directly address the issue of code compliance. Building departments use these evaluation reports to help determine code compliance and enforce building codes, material manufacturers use the reports as evidence that their products meet code requirements, and contractors and design professionals look to these reports for evidence that products and systems are code-compliant. <https://icc-es.org/evaluation-report-program/>

- The evaluation service generally does not require a holistic analysis of “if or how” the material can be properly integrated with other building components or building systems;
- Manufacturers may change the installation guidelines after obtaining evaluation reports; and
- Formulas used to manufacture materials may be different than the formulas used on the materials tested.

These gaps create potential liability exposure to contractors, design professionals and end users.

In conclusion, while evaluation companies provide a useful service, approval reports should be viewed for what they are and the limitations inherent in them can amount to a trap for the unwary.

III. The Rules that Govern the Design of Building Systems: The Mysterious World of Product Testing and Design Specifications.

- Codes and standards are written with common and well-vetted materials in mind.
- Testing standards are limited in scope and may not test for all possible failure scenarios for a new material, e.g. incompatibility with other materials in the system, incompatibility with the specific environment in which the material will be used, longevity, etc.
- The testing labs on manufacturers to supply a random sampling of the product to be tested.
- A new material can be tested and meet a standard or code requirement, but still not be the right product for a project.
- Work should be done early in the design process to collect and corroborate information from product manufacturers, testing labs, and unbiased engineers with materials expertise before selecting a material.

IV. Installation: The Role of the Construction Team in the Use of New Building Products and Designs.

- The importance of pre-construction design and planning.
- The importance of plans and details that make sense on the job site as opposed to the drafting table.
- The importance of a submittal process that is reliable and includes the design and peer review team members including materials engineers.

- The importance of construction supervision and course of construction inspections.

V. What Can Happen When Things Go Wrong.

Consider the following real life examples of new materials not tested by the passage of time and successful usage:

- Composite siding made of resin and organic materials. Formula tested was different than formula used for manufacture (national product failure and resulting class action)
- Synthetic stucco system tested and approved with additional sealer coat. Sealer coat later deleted from product literature and no longer sold by manufacturer (water intrusion claims)
- Structural clip system for board and batten composite siding system changed from the type tested and approved (60lb panels falling off a 5 story building)
- Cross laminated timber (CLT) protocol did not regulate method of manufacturing (2,500 pound CLT panel collapsed during construction);
- CLT protocol still does not address whether protection during construction, despite studies indicating product's vulnerability to water absorption during construction;
- Sheathing panels of oriented strand board (OSB) with the weather resistant facer pre-applied needing special care with tapes used to seal the joints between panels and at penetrations;
- Magnesium oxide board (MgO board) a substitute for gypsum sheathing, requires self-tapping screws, special tape, and tighter nailing patterns. These requirements are sometimes missed.
- Plastic pipe manufactured from polypropylene random (PPR) not sufficiently tested or evaluated for use in potable water supply systems using chlorinated water and employing copper and other metal components.

VI. Suggested Guidelines For Vetting Materials

The National Association of Home Builders provides an elegant guide for evaluating new products, called *Assessing Building Materials*. The guide poses simple yet thoughtful

questions in a check box assessment format about how materials should be evaluated including their characteristics, certifications, and country of origin. It invites the user to ask questions such as those provided either directly with the manufacturer or distributor, or by requiring subcontractors to do so. Questions posed in the review process asks the builder to determine the following:

- How many data points did I capture?
- Is the data that was provided complete?
- Do I understand the make-up of the Building Materials?
- Do I have confidence in the manufacturer?
- Are similar Building Materials available from another manufacturer that can provide more data?
- Does any another manufacturer improve my confidence in these Building Materials?
- Employing knowledgeable peer review consultant/specialists to evaluate not only the proposed materials but the manner in which the materials are being installed and how they might interact with other materials in the building.
- Consult counsel to investigate whether the proposed material has been the subject of litigation.

VII. What To Do Once The Lawsuit is Filed.

When defending a design or construction professional, it may be necessary to add the product or materials manufacturer to the litigation if the plaintiff has not done so. From the defense perspective, the preferred strategy is to have the plaintiff make the case against the manufacturer so as to avoid fighting a two fronted battle.

It is crucial to retain an expert with experience in dealing with the particular material at issue. Depending on the product and failure mechanism, sophisticated laboratory testing may be necessary. It is not uncommon that a team of experts are necessary including those with mechanical, chemical and materials science backgrounds and training. A good deal of information on products and product failures and resulting litigation can be gleaned using Westlaw/Lexis date base or even simple Google research tools.

The following are important, yet often overlooked areas of information:

- Subpoena the ICC-ES or other evaluation service for all communications involved in developing the evaluation report;

- Compare what the manufacturer represented to the evaluation service versus what it represents to the market. This includes capturing historic examples of what was published on the manufacturers website during the relevant time frame;
- Careful comparison of the components and procedures approved in the report versus the specifications distributed in the market;
- In high severity cases consider comparing the composition of the samples given to the evaluation service for assessment versus the composition of materials being sold in the market; and
- Evaluating whether the stated testing criteria are appropriate. Manufacturers may list generic instead of specific testing standards in product literature, or otherwise disregard or fail to test based on appropriate testing standards.

Given that manufacturers typically take hard line positions in litigation, targeted exploration should help focus the liability exposure of the parties. This is particularly true in the case of the “first” litigated claim involving the product. The litigator in these cases should be prepared to deal with extensive pre-trial motion practice including:

- In cases involving foreign product manufacturers, motions to dismiss for lack of personal jurisdiction;
- Dispositive motions to address claims for express or implied warranties;
- Discovery motions to compel production of historic product testing and marketing materials; and
- ***Frye*** or ***Daubert*** challenges to expert testimony in connection with testing methodologies.

While it is true that modern juries have appreciation for science and science based testimony, it is crucial that the defense attorney and the trial team, including experts, be prepared to present the case in an effective manner and not bury juries with mind numbing detail. The use of a jury and trial consultant is highly recommended to assist the lawyer in designing defense themes and telling an appealing story.

VIII. Insurance and Claim/Litigation Management Considerations.

The standard framework for coverage considerations is in the Commercial General Liability form CG 00 01, although each policy must be examined with respect to its specific coverages and exclusions. Using the CG 00 01 04 13 as an example, the following underscored language needs consideration:

SECTION I – COVERAGES

COVERAGE A – BODILY INJURY AND PROPERTY

DAMAGE LIABILITY

1. Insuring Agreement

a. We will pay those sums that the insured becomes legally obligated to pay as damages because of "bodily injury" or "property damage" to which this insurance applies...

...

b. This insurance applies to "bodily injury" and "property damage" only if:

...

(2) The "bodily injury" or "property damage" occurs during the policy period; and
(3) Prior to the policy period, no insured listed under Paragraph 1. of Section II – Who Is An Insured and no "employee" authorized by you to give or receive notice of an "occurrence" or claim, knew that the "bodily injury" or "property damage" had occurred, in whole or in part. If such a listed insured or authorized "employee" knew, prior to the policy period, that the "bodily injury" or "property damage" occurred, then any continuation, change or resumption of such "bodily injury" or "property damage" during or after the policy period will be deemed to have been known prior to the policy period.

...

2. Exclusions This insurance does not apply to:

...

k. Damage To Your Product "Property damage" to "your product" arising out of it or any part of it.

l. Damage To Your Work "Property damage" to "your work" arising out of it or any part of it and included in the "products completed operations hazard". This exclusion does not apply if the damaged work or the work out of which the damage arises was performed on your behalf by a subcontractor.

Considerations include:

- Does rip and tear coverage apply?
- When does the rip and tear damage occur?
- Removal of "get to" materials can take place years after the "loss."
- How to handle known loss conditions and exclusions.
- Limits challenges.
- Unique coverage scenarios in: CA, FL, CO, AZ, NV, TX