

Pre-construction Services: Cure or Curse?

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Definition Peer Review

A process through which professional engineers evaluate, maintain, or monitor the quality and utilization of engineering services, prepare internal lessons learned, or exercise any combination of such responsibilities.

- National Society of Professional Engineers

Definition Constructability Review

A structured review of the plans and specifications with the focus on the buildability, biddability and efficiency of construction. Constructability reviews are performed to assure consistency between design, fabrication, and installation. These reviews identify errors, conflicts, and omissions and as a result of constructability reviews future costly field changes can be minimized.

- AACE International

Objective Awareness

- *Peer review provides confirmation and assurance that the design is sound and that the design specifications are clear. (New Jersey Law Journal – 2019)*
- *Constructability review is a process used during project design to infuse construction knowledge into the design process. (World Conference on Transport Research Society – 2017)*

The Traditional Model

AIA B101 (2017) 3.4.1 Based on the Owner's approval of the Design Development Documents, and on the Owner's authorization of any adjustments in the Project requirements and the budget for the Cost of the Work, the Architect shall prepare Construction Documents for the Owner's approval.

The Professional Standard of Care

“The Architect shall perform its services consistent with the professional skill and care *ordinarily* provided by architects practicing in the *same or similar* locality under the *same or similar* circumstances. The Architect shall perform its services as expeditiously as is *consistent with* such professional skill and care and the orderly progress of the Project.”

AIA B101 2017, Article 2.2. (Emphasis added.)

Peer Review Reality

- K-12 School District
- Peer Review by Consulting Architect
- Done after design submitted
- No standards or agreed procedures
- 96 comments received
- Plans modified
- Construction proceeds
- Contractor claim for changes and delays
- District tenders claim to Architect of Record, but not to Peer Review Architect

Too Common Model & Perils

Sheet/Detail/ Specification	Comment	Resolution

But It Gets Worse . . .

- Major healthcare facility
- For first time ever, Project owner retains pre-selected contractor to provide “constructability review”
- City Construction Manager charged to manage process
- 95% of comments resolved by changes or rejection of position
- Balance either not addressed or fell into “agree to disagree”
- Contractor asserts claims for changes and schedule disruptions on the basis of “we told you so”
- Claims equate to 10% of original guaranteed maximum price
- Tendered to architect by owner
- Construction Manager never named or pursued

But I Still Believe . . .

- Renovation and expansion of historic public facility
- “Newer” architect selected, but lacks extensive track record for similar projects as lead
- Local, experienced architect retained as part of compensated design team to provide oversight and design review
- Front line of defense in claims asserted by contractor for costs of “correction” of project as installed

But I am Worried . . .

- Major Airport Renovation & Expansion
- Design-Build Based on Owner Criteria
- Owner introduces “Seismic Peer Review Panel” at 30% Construction Documents
- Leads to \$14M quantity growth
- Leads to 195 day delay

Agenda

- Industry Trends & Dynamics
- Standard of Care & Risk Advantages & Impacts
- Danger with a Stranger
- An Issue Wide Model

- Third Party Design Review
 - “Peer” Review
 - “Other “ Review

- The Peer Review Opportunity

The Drivers Toward Pre-Con Services

- The Hype
- “Alternative” Project Delivery Models
- Regulatory Requirements
- Client Preferences
- Design Team Protection & Sales

ASCE Policy Statement 351

The American Society of Civil Engineers (ASCE) promotes and supports the use of peer reviews for projects. Peer review is the practice of obtaining an independent, unbiased evaluation of the adequacy and application of engineering principles, standards and judgment from an independent group of professionals having substantial experience in the same field of expertise. Peer reviews are in addition to the normal quality control and checking procedures required on any engineering assignment.

The Hype

- “Determine project feasibility and maximize project value.” - AIA
- “Mitigate Design Risk: Supercharge Design & Constructability Reviews with Machine Learning” – Autodesk
- Kentucky Transportation Cabinet concluded that constructability reviews save over 1.25% of the project budget on average.

\$ in the Standard of Care

“The average impact of design imperfection is cited by owners in the research as typically 3% to 5% of construction cost.”

- McGraw Hill/AIA Large Firm Roundtable Report – *Managing Uncertainty and Expectations and in Building Design and Construction*

Professionals Standard of Care

A/E is negligent if A/E fails to use the skill and care that a reasonably careful A/E would have used in similar circumstances. This level of skill, knowledge, and care is sometimes referred to as “the standard of care.” (CACI 600.)

A/E is not necessarily negligent just because A/E’s efforts are unsuccessful or A/E makes an error that was reasonable under the circumstances. (CACI 502.)

The Regulatory Drive

- Many public entities now require peer review services for a variety of projects
 - Structural reviews of structures in cities such as New York, Miami, and San Francisco
 - Mandatory seismic review for performance-based designs under ASCE criteria
 - Mandatory peer review for hospital design
- Objective?

An Industry Unprepared

- The AIA, AGC, ACEC, DBIA, and EJCDC all have a huge number of standardized agreements, but only one has a form for Peer Review Services – the EJCDC E-581
- The AIA promotes its C403, but does it work?
 - *The Consultant is not required to ascertain that the documents or information are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities.*
 - *The Consultant shall be entitled to rely on, and shall not be responsible for, the accuracy, completeness, and timeliness of documents, services, and information furnished by the Client and other Project Participants.*

The NSPE Response

NSPE:

- Provide that third-party peer reviewers who are licensed professional engineers are immune from civil liability as long as the third-party reviewer acts in good faith and has no other role in the project besides performing the peer review.
- State clearly that peer review must be done before substantial completion of the project and the peer reviewer must not be an employee, coworker, partner or sub-consultant of the professional engineer whose design is being peer reviewed.

Immunity statutes now exist in: Kansas and Missouri

It works, until it doesn't



The Findings

- National Transportation Safety Board concludes “inadequate peer review” was a major factor in the pedestrian bridge collapse at FIU.

Who?

Final Settlement Marks the End of FIU Bridge Collapse Litigation (1/31/22)

After nearly two years of litigation, the family of one of six people killed in the 2018 FIU bridge collapse has privately settled its lawsuit against the engineering consulting firm [peer reviewer].

All other claims against the engineering firms that were involved in the bridge construction were previously settled in 2019. The settlements amounted to a total of \$103 million.

An Overall Model

- Objective(s)
- Timing
- Scope
- Standards
- Process
- Resolution/Closure
- Accountability

Realistic & Communicated Objectives

- Defined & Realistic
- Limited

Client has chosen to engage the Project team in specific, limited, and focused pre-construction activities in order to confirm and validate elements of the Project program and plan as set forth below. Client recognizes that design and construction remains a dynamic and evolving process and that different parties may have different opinions or positions. Unless expressly agreed otherwise, such pre-construction services are not a warranty or guarantee of cost, schedule, or any other issue. In the event of differing positions, Client shall have the final authority to direct or authorize an action.

Timing

- Milestones as a Menu
- Ends of the Spectrum
 - Programming
 - Final
- Note: Schedule Impacts
 - Recognize the sequence
 - “Manager” or “Control” Imperatives
- Recognize the Costs & Fees

Scope & Standards

Basics

- Code
- Conflicts
- Safety
- Constructable
- Omissions . . .

“Alternates”

- “Value Engineering”
- “Enhancements”
- Discretionary

Process

- Timing
- Manager/Controller
- Sequencing
- Communication
- Input Format
- Resolution & Closure

Resolution/Closure

- “Open” Issues
- Disagreements
- Direction & Resolution

Resolution & Closure

Express

Client shall be informed of the results of the pre-construction services as identified in this Agreement. Client shall review and approve such reports or actions and shall promptly take action, make directions, or provide authorization on issues identified by such reports. A/E may rely on and proceed with its services based on such authorization or direction. If Client fails to provide such action or provide a response, the A/E may proceed with its services and shall not be responsible for any issues which might have been resolved or different based on Client's actions.

Default

Client shall be informed of the results of the pre-construction services as identified in this Agreement or otherwise agreed to and shall be deemed to accept the stated response to or resolution of such issues except only where Client disagrees or directs otherwise in writing.

Resolution & Closure

Sheet/ Detail/ Specific ation/ Material	Mandatory or Discretionary	Comment	Response	Client Direction	Client Signature & Date
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Clarity in Accountability

Peer Review

- Prime A/E of Record
- A/E of Record Team
- Peer Reviewer
- **Client**
- **(Building Official)**

Constructability & Cost

- Reviewer
 - Contractor
 - Construction Manager
 - “Advisory” Reviewer
- A/E Team
- **Client**

Play Your Part – Know the Players

- Architect or Engineer of Record with Peer Review
- Architect or Engineer of Record with Constructability, Cost, or Schedule Review
- Professional Peer Review Services

The A/E of Record Imperatives

- To list or not to list?
- Reject/exclude the extraneous.
- Respond, resolve, and **close**.
- Secure confirmation/signoff of peer reviewer.
- Inform client and secure approval.
- Othre?

The A/E of Record Peer Review Checklist

- Timing/Milestone
 - In Process
 - Final
- Establish the “Standard”
 - The later the less discretion/subjective
- Establish the Format.
- Engage the Client.
- Respond, resolve, and **close**.
- Closure with Peer Reviewer, Client, or Building Official.

The A/E of Record Peer Review Responses

- *This Comment misstates the design documents which are to be read as a whole with what is required by part to be required for all. Accordingly, no further response is required.*
- *This Comment relates to discretionary design issues and is not consistent with prior Client directions or approvals. If requested by Client, Designer will evaluate the comment further and provide design evaluations and options to the Client as an additional service.*
- *This Comment calls for information which should be developed and provided in the construction phase by submittals, shop drawings, and other contractor provided information. Accordingly, the issue is deferred to that time.*

Constructability Review Imperatives

- Scope & Standards
- Manager
- Documentation
- Closure
- Accountability

The A/E of Record “Other” Review Checklist

- Timing/Milestone
 - In Process
 - Final
- Establish the “Standard”
 - The later the less discretion/subjective
- Establish the Format.
- Engage the Client.
- Respond, resolve, and **close**.
- Closure with Peer Reviewer, Client, or Building Official.

Constructability Scope & Standards

Contractor/CM's review of design documents prior to permitting shall include review of the following issues:

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Contractor/CM shall remain solely responsible for all cost, schedule, sequence, and safety issues.

Where an issue is identified by Contractor/CM prior to its final pricing or contract for the Project, it shall include the issue, its status, and the impacts of same in its Contract price and shall not be entitled to any additional compensation or schedule adjustment for the issue.

Peer Review Potential & Peril

A/E is negligent only if A/E was not as skillful, knowledgeable, or careful as another reasonable [insert type of professional] would have been in similar circumstances. (CACI 602)

Growing Peer Review Opportunity

- Mostly for engineering and not architecture.
- Evolving even more in public projects for all disciplines.
- Now often engaged as supplemental service or part of internal QA/QC.
- Examples of Mandates: New York, Florida, and California now have mandatory peer reviews for some project types for structural engineering and geotechnical engineering.

The Peer Reviewer

Peer Review is for general conformance of the Project plans and specifications with Codes and other identified regulations, internal conflicts, omissions of necessary information, and safety. Where an issue is identified, the Peer Reviewer will not provide the correction or remedy since the final design shall remain the sole responsibility of the A/E of Record or the contractor supplying shop drawings, submittals, or other design input.

Intended Beneficiaries

Peer Reviewer's services, communications, and documents are intended for the sole benefit of _____ and shall not create any third-party rights, benefits, or causes of action.

... and? ...

Peer Reviewer's communications and documents shall be provided solely to _____ and shall not be provided to any other persons or entities without Peer Reviewer's written consent.

Limitations of Liability

Peer Reviewer shall have no liability or other financial responsibility to Client or any third party except only to the extent caused by Peer Reviewer's sole negligence or sole breach of this Agreement.

Client shall limit Peer Reviewer's liability to Client and any third parties to the greater of \$_____ or ___% of Peer Reviewer's fee for the Project.

Available Printed Resources

- The Stranger in Design: Surviving and Succeeding with Pre-construction Review Projects
- Peer Review Design Services: Peril and Potential
- Know your Limitations: A Design Professional Guide to Limited Liability
- Pareto Principles of Professional Service Agreements

Questions & Answers

Thank You!

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