Effective Design-Build Teaming Agreements Between Design-Builders and Consulting Engineers

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Effective Teaming Agreements
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Overview

- Statement of the Design Development Risk Problem and Professional Liability Risks for Consulting Engineers Involved in Design-Build Projects
- Elements of Effective Design-Build Teaming Agreements to Manage and Limit Design Development Risk
  - Scope and Limitations of Proposal Phase Services of Consulting Engineers
  - Recommendations as to Proposal Phase Studies, Investigations, and Disciplines/Levels of Design Development
  - Quantity Estimates
  - Design Development Contingency
  - Standard of Care
  - Limitation of Liability
  - Survival
- Summary

Statement of the Design Development Risk Problem and Professional Liability Risks for Consulting Engineers Involved in Design-Build Projects

Pre-Award Services in DB:

- Most **frequent** source of professional liability claims by Design-Builders against Consulting Engineers
- Source of most **severe** professional liability claims by Design-Builders against Consulting Engineers

Typical Professional Liability Claim against Consulting Engineer in DB:

- Consulting Engineer's conceptual or preliminary proposal phase design or studies, investigations or recommendations did not meet the Standard of Care, resulting in "cost overruns" in final design and construction that Design-Builder cannot recover under the terms of the prime DB Contract with the Owner.

Statement of the Design Development Risk Problem and Professional Liability Risks for Consulting Engineers Involved in Design-Build Projects

Professional Liability Claim Mechanism

A = Actual cost of design and construction
B = Design-Builder's Contract Price based on conceptual design
C = Difference – i.e., the foundation of a professional liability claim by the Design-Builder against the Consulting Engineer

Statement of the Design Development Risk Problem and Professional Liability Risks for Consulting Engineers Involved in Design-Build Projects

Causes of **Frequent/Severe** Professional Liability Claims in DB

- Unrealistically low fixed-price cost in DB
- Design-Builder's Pre-Award failures to identify and realistically or adequately assess design development and related risks
- Design-Builder's failure to adequately price and carry design development contingency
- Imbalanced Risk Allocation in Prime DB Contract

Consequences

- Substantial increases in Final Design and Construction Cost **compared** to DB Contract Award Amount
- Increases Manifest During Post-Award Design Development Process
- Design-Builder has no Contractual Cost Adjustment Remedy; not able to recover "cost overruns" from the Owner
- Design-Builder Seeks Alternative Source for Recovery of "Cost Overrun" – Professional Liability Claim Against Consulting Engineer
  - See, D.J. Hatem & P. Gary, ed., Public-Private Partnerships and Design-Build: Opportunities and Risks for Consulting Engineers, Chapter 12, Washington: American Council of Engineering Companies (3d ed., 2020).

Statement of the Design Development Risk Problem and Professional Liability Risks for Consulting Engineers Involved in Design-Build Projects

Design Development Risk

Definition: The risk of defects in the basis, standards, criteria, details, degree of prescription, development, assumptions articulated or underlying:

(a) Preparation of conceptual or preliminary design ("preliminary design") included in the Owner's procurement documents;

(b) Design-Builder and its Consulting Engineer's understanding and assumptions as to the preliminary design including pre-award conceptions and in preparation of pre-award technical proposals;

(c) Design-Builder and/or Consulting Engineer's pre-award assessment of risk and contingencies associated with the development of the pre-award design and potential or probability of variations therefrom; and

(d) Design-Builder's pricing of design and construction cost and contingency associated with the development and finalization of preliminary design.

Statement of the Design Development Risk Problem and Professional Liability Risks for Consulting Engineers Involved in Design-Build Projects

Roles and Risks of DB Project Participants: Relevance and Impact on Design Development Risk

Project Owner

- Imprudent selection of DB
- Imbalanced Risk Allocation Approaches
- Highly Prescriptive and Mandated Design Requirements and Details
- Ambiguous Design Criteria or Requirements
- Role and Scope of Review of Design-Builder Design Submittals
  - Substantive comments
  - Intrusion / interference
  - Preferences / imposing judgments
- Unreasonable Delays in Design Review Process
- Subsurface Conditions Risk Allocation and Disclaimers
- Overly Broad Disclaimers
- Defense and Indemnification Obligations of Design-Build Team for Errors, Omissions and Other Deficiencies in Owner-Furnished Design and Reference Information or Documents

Statement of the Design Development Risk Problem and Professional Liability Risks for Consulting Engineers Involved in Design-Build Projects

Roles and Risks of DB Project Participants: Relevance and Impact on Design Development Risk

Design-Builder

- Aggressive Bid Pricing
- No or Inadequate Design Development Contingency
- Unreasonably Restrictive Scope of Consulting Engineer Proposal Phase Design and Investigation/Verification Services
- Unreasonable Risk Allocation (e.g., quantity overrun contractual liability), and heightened standard of care contractual terms

Statement of the Design Development Risk Problem and Professional Liability Risks for Consulting Engineers Involved in Design-Build Projects

Roles and Risks of DB Project Participants:
Relevance and Impact on Design Development Risk

Consulting Engineer

- Failure to Comprehend or Clarify Project Owner Design Criteria, Standards or Requirements
- Failure to Recommend Investigations, Studies or Further Design Development During Pre-Award Phase
- Failure to Adequately Identify, Evaluate and Advise as to Design Risks and Potential Post-Award Consequences
- Contractual Acceptance of Quantity Growth and Cost Estimating Risk
- Role in Risk Assessment and Risk Register Preparation
- Delays in Preparation of Design Submittals
- Failure to Adhere to Professional Standard of Care in Design Development Process

Elements of Effective Design-Build Teaming Agreement to Manage and Limit Design Development Risk

- Elements of Effective Design-Build Teaming Agreements to Manage and Limit Design Development Risk:
  - Scope and Limitations of Proposal Phase Services of Consulting Engineer
  - Recommendations as to Proposal Phase Studies, Investigations, and Disciplines/Levels of Design Development
  - Quantity Estimates
  - Design Development Contingency
  - Standard of Care
  - Limitation of Liability
  - Survival
- Teaming Agreements, also labeled as Phase I Agreements, Memorandum of Understanding, or Proposal Phase Agreements

Scope and Limitations of Proposal Phase Services of Consulting Engineer

Problem and Issues:

- The DB Team typically is required to respond to the RFP in a highly compressed schedule.
- The Design-Builder will seek to limit the scope of pre-proposal services provided by the Consulting Engineer, but will want to have a reliable basis to price final design and construction cost, **while also being competitive**.

Contractual Objectives for Consulting Engineer

- Clarity in Contractual Service Scope Definition
- Clarity in contractual distribution and delegation of various design service scopes
- Reliance Rights on Owner-Furnished RFP materials (including those provided with disclaimers)
- Ability to Propose or make recommendations as to studies, investigations or preliminary design development
- Definition of “preliminary” design
- Limitations of Preliminary Design for Design, Estimating and Construction Purposes
- Expectation of Post-Award Design Evolution
- Inherent Risks Based on Reliance on Prototypical (i.e., non-project specific) Design Assumptions and Owner-Disclaimed Design, Owner-Furnished Studies, or other materials.

Recommendations as to Proposal Phase Studies, Investigations, and Disciplines/Levels of Design Development

Problem and Issues

- Owners typically provide in the RFP some minimal level of design, criteria or standards, data, reports and other materials (collectively "Materials").
- The Materials may have different stati- i.e., part of Contract Documents, Mandatory Requirements, Reference Documents
- Some of the Materials may be specifically (or more generally) disclaimed as to accuracy, completeness or suitability for any use by the DB Team.
- Some of the Materials may be highly prescriptive.
- The Design-Builder may substantially limit the scope of proposal phase services to be provided by the Consulting Engineer.

Contractual Objectives for Consulting Engineer

- The Consulting Engineer should document its recommendations to the Design-Builder for the performance during the proposal phase of specific studies, investigations or levels of discipline-specific design development and design approach validation.
- The Technical Proposal must be compliant with the requirements of the RFP, even though the procurement strategies of the Design-Builder may not align with these strategies
- The Design-Builder should accept risks due to (a) conscious and strategic submission of a non-compliant Technical Proposal and (b) failure to adhere to recommendations of the Consulting Engineer.
- The Design-Builder has authority to direct its Consulting Engineer's performance provided that such direction does not compromise the Consulting Engineer's ability to exercise independent professional judgment in conformance with the standard of care and contractual requirements.

Quantity Estimates

Problem and Issues

- In developing its Pricing Proposal, the Design-Builder will seek to estimate quantities of materials or construction components (e.g. drainage) to be required in the final design and construction of the permanent project work.
- The Design-Builder may seek, or require in the Teaming Agreement, the Consulting Engineer's input in the estimation of such quantities.
- Further, in some instances, the Design-Builder may request or require that the Consulting Engineer assume financial risk for "overrun" in estimated quantities.

Contractual Objectives for Consulting Engineer

- Quantity (and pricing) estimates should be the exclusive risk and responsibility of the Design-Builder.
- Quantities will correspondingly evolve (plus and minus, by material or construction component categories or types) based on or as a result of natural progression of design development; the information learned from post-award investigations and studies and corresponding evaluations; subsurface or site conditions; design or implementation of construction means and methods; Design-Builder, Owner or stakeholder preferences; and Owner input in the review of design submittals, to name a few influential factors.
- Quantities may be influenced by the manner or terms of the Design-Builder's subcontracts with Trade Sub-Contractors or material suppliers.

Quantity Estimates

- Contractual Quantity Risk may not be insurable unless obligations are aligned with Standard of Care application.
- In those circumstances in which the Consulting Engineer considers it appropriate to accept quantity risk, the Consulting Engineer should accept quantities responsibility only if (a) contractual baselines for estimated quantities are particularly defined; and (b) triggers for risk realization and financial responsibility and financial responsibility are clearly defined; and (c) assumptions, qualifications and exclusions as to specific quantities are included, for example:
  - Influences or impacts on quantities of construction means and methods
  - Unforeseen subsurface conditions
  - Owner or stakeholder scope changes or preferences
  - Sub-trade or materials suppliers terms or conditions or purchase/buy-out terms
  - Natural progression or evolution of design development
  - Generic exclusion for quantity variation due to causes beyond the control of Consulting Engineer
  - Need to “net” quantity variations among quantity categories or types
  - The Consulting Engineer shall have the ability to exercise independent professional judgment in all design approaches and determinations, and options, including design optimization, and value engineering.
  - The Consulting Engineer shall have a reasonable opportunity to mitigate potential quantity increases above contractual baseline estimates
  - Standard of Care Application, not strict liability for quantity increases above contractual baseline estimates

Design Development Contingency

Problem and Issues

- Realistic and prudent Design-Builder pricing should include adequate design development contingency.
- In many instances, in order to be competitive, Design-Builders aggressively reduce the amount of design development contingency.
- **Fixed price contracting, inadequate design development contingency, and imbalanced risk allocation terms in the prime DB Contract substantially increase the risk of Design-Builder professional liability claims against Consulting Engineers.**

* See, D. J. Hatem, "Improving Risk Allocation on Design-Build Subsurface Projects" June 2020 Tunnel Business Magazine. (A version of that article with more detailed footnotes and related commentary may be obtained by emailing dhatem@donovanhatem.com).

Design Development Contingency

As a Massachusetts Superior Court has recently commented in the context of a design-builder claim asserted against a consulting engineer:

> "A number of experts testified concerning industry standards regarding the amount of contingency that a contractor should include when bidding a design/build project; consensus seemed to be that cost increases in the range of 10% should be expected. It is unnecessary for the court to find as a fact what the proper percentage for contingency was in this case; indeed, an appropriate contingency is undoubtedly dependent on the project and the amount of time available to the engineering team to advance toward a final design before bid submission. All of the experts, however, agreed, and the court finds, that in design/build projects weights, complexities and therefore construction costs invariably increase after the contract is awarded as design development proceeds to the final approved-by-owner construction design."

- The Middlesex Corporation, Inc. v. Fay, Spofford & Thorndike, Inc., Commonwealth of Massachusetts, Superior Court, Civil Action 15-02992-BLS1, Memorandum of Decision, June 28, 2019, pp. 13-14.

Design Development Contingency

"The Design-Builder hereby affirms that it shall set aside a design contingency, at the rate of twenty percent (20%) of the total cost of all construction contracts, purchase orders, vendor agreements, and all other contracts for material, labor, and equipment required to fully construct the Project, and shall reduce to five percent (5%) upon completion of the construction document plans. This contingency shall also cover increased costs due to design defects that are not caused by the Consulting Engineer's standard of care departure. The Design-Builder acknowledges that the Consulting Engineer is not responsible for the adequacy of the contingencies described herein. The Design-Builder shall disclose and report periodically on the amount of available contingency, and at the Consulting Engineer's request."

Design Development Contingency

- The purpose of design development contingency is to cover the cost attributable to (a) the natural and expected evolution, progression and process of design development; (b) risk for design defects e.g. errors/omissions - that do not result from SOC departures but are intrinsic to the design development process; (c) the acquisition and evaluation of information produced post-award that inform and influence the evolution and the process of design development; (d) the input, including preferences of the owner, concessionaire (their respective consultants) and other project stakeholders that will in all probability influence (if not direct) the design development process; (e) the coordination, integration and interface among design disciplines during the design development process; (f) design revisions due to fast track or multiple packages delivery approaches; (g) more detailed and resolute planning, design and implementation decisions as to the contractor's contemplated "means, methods, sequences" of construction as relevant to inform and influence permanent works design; and (h) the cost incident to progressing multiple packaged, sequential construction phasing (i.e., fast track).
- Contingency is not expected to cover genuine and proven standard of care departures.

Design Development Contingency

- Contingency in Design-Build should be segregated and aligned with specific and reasonably anticipated risk exposures and consequent cost exposures, such as those incident to the design development process.
- Unless contingency amounts (e.g. line items) have been (more) specifically aligned with specific risk category exposures, design development contingency should be available in an aggregate, undifferentiated manner for specific or individual elements of design development.
- Contingency should realistically and adequately account for risk variations due to evolution or changes in design or implementation of temporary works, or construction means, methods, sequences or procedures from the contemplated or planned construction approaches, and consequent cost and schedule impacts. Note, this contingency category is distinct from design development contingency pertaining to permanent works design.

Standard of Care

Problem and Issues

- The Design-Builder typically will be required in the prime DB Contract to accept warranty and fitness for purpose obligations pertaining to accuracy, completeness and suitability of design.
- Design-Builder will seek to flow down these elevated design defect risk contractual obligations to the Consulting Engineer
- Consulting Engineer's professional liability insurance will cover only breaches of a negligence-based standard of care, not higher standard or warranties.
- Strict and Prescriptive Design Criteria or Requirements (often directed by non-project Owner)
- Role of expert opinions
- Complex Scope; Undefinable or Unknown design details or conditions
- Number of Stakeholders with Differing and Conflicting Interests
- See excellent discussion in R. Drake, W. Hansmire, Getting Metro Owners the Best Value from their Major Underground Projects, 2020 Proceedings, North American Tunneling, Society for Mining, Metallurgy and Exploration, PP. 256-262.

Standard of Care

- **Key Issues: Design Development Risk**

  1. Application of the Professional Standard of Care to Professional Liability Claims Arising out of Design Development Risk?
  2. Relevance of Project Owner Procurement, Contractual and Risk Allocation Practices to Design Development Risk
  3. Relevance of Design-Builder Bid Pricing, Estimating and Contingency to Design Development Risk

Standard of Care

- Professional Standard of Care – Application to Design Development Risk
- Reasonable care under the circumstances
  - Scope of services
  - Time constraints
  - Roles, responsibilities and risks of Owner and Design-Builder
  - Other factors and considerations
- Role of expert opinions: No presently recognized industry standard; Much subjectivity and advocacy in expert opinions

Standard of Care

Contractual Objectives for Consulting Engineer

- Teaming Agreement should include a negligence-based Standard of Care provision, and specifically include in the provision statements that the application of the Standard of Care shall take into consideration:
  - Limitations of available information
  - Need for studies, investigations, tests, analyses and evaluations to inform and validate viable or optimal design approaches
  - The realist that codes and standards often are susceptible to differing interpretations, applications and judgements that will influence design development
  - Expectation of design evolution through design development
  - Changes in design made by Design-Builder or Owner
  - Limited fee
  - Limited scope of pre-proposal services
  - Compressed schedule
  - Other factors and considerations

Standard of Care

The DB Contractor acknowledges that all designs and information prepared by the Consultant under this Teaming Agreement (collectively, the "**Preliminary Information**") are preliminary in nature and based on limited studies, information and design development. The DB Contractor is responsible for developing the design-build price for inclusion in the DB Proposal. The Parties recognize that final quantities determined after final design are expected to vary from any proposal phase estimates due to the natural progression of design development. The Consultant does not warrant or guarantee that its final design can be constructed within the DB Contractor's design-build price or that the final quantities will not vary from any Proposal Phase estimates. For the avoidance of doubt, nothing herein shall be construed as relieving the Consultant from, and the Consultant remains responsible for, exercising reasonable skill, care and diligence in preparing the Preliminary Information.

Limitation of Liability

Problem and Issues

- Based on professional liability claims experience of Consulting Engineers in Design-Build due to design development risk, the liability exposure profile- measured in terms of severity and frequency- is substantial.
- The commensurate “reward’ or fee for Proposal Phase services is minimal and hardly accounts for the enormity of the professional liability risk.

Contractual Objectives for Consulting Engineer

- Include limitation of liability for claims and liabilities arising out of Proposal Phase Services:

“To the fullest extent permitted by law, the total liability in the aggregate, of Consulting Engineer and Consulting Engineer’s officers, directors, employees, agents, and independent professional associates, and any of them, to Design-Builder and Owner, and anyone claiming by, through or under Design-Builder or Owner, for any and all injuries, claims, losses, expenses, or damages whatsoever arising out of or in any way related to Consulting Engineer’s services, the Project, or this Agreement, from any cause or causes whatsoever, including but not limited to, the negligence, errors, omissions, strict liability, breach of contract, misrepresentation, or breach of warranty of Consulting Engineer or Consulting Engineer’s officers, directors, employees, agents or independent professional associates, or any of them, shall not exceed the total compensation received by Consulting Engineer for Proposal Phase Services for the Project.”

Survival

Problem and Issues

- Teaming Agreement will be succeeded by a Design Services Agreement ("DSA").
- The DSA may supersede the Teaming Agreement.

Contractual Objectives for Consulting Engineer

- Maintain legal effectiveness and relevance of Teaming Agreement following DB contract award.
- Require that relevant Teaming Agreement terms survive termination and/or be expressly incorporated into a subsequent Design Services Agreement.

"Notwithstanding termination of this Agreement, the provisions which by their nature are intended to survive termination will continue in full force and effect, including but not limited to the Confidentiality, Standard of Care, Limitation of Liability, Indemnity, Intellectual Property Rights and other provisions of this Agreement."

Survival

"Services provided by the Consulting Engineer in furtherance of the Project prior to the Award Date shall be deemed to have been undertaken and provided pursuant to the terms and conditions of this Teaming Agreement; including the standard of care defined in the Teaming Agreement."

Summary

- Pre-Award Services are the source of most **frequent** and **severe** Professional Liability Claims by Design-Builders against Consulting Engineers in Design-Build.
- Design-Builder and Consulting Engineer should implement an effective Design-Build Teaming Agreement to Manage and Limit Design Development Risk.
- The Teaming Agreement should include the following provisions to manage and limit design development risk:
  - Scope and Limitations of Proposal Phase Services of Consulting Engineers
  - Recommendations as to Proposal Phase Studies, Investigations, and Disciplines/Levels of Design Development
  - Quantity Estimates
  - Design Development Contingency
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