The Evolution of Design Risk on Transportation Projects
GENERAL CONTRACTING

Contractor is competitively bid per the Public Bid Laws

Subcontractors are competitively bid to General Contractors
Project Delivery Options

Traditional Delivery

Design-Bid-Build (DBB)

Owner

Designer

Builder
Design Bid Build

• Non-collaborative model, each party with separate scope, separate contract and separate interest.
• Design 100% complete before being issued to bidders.
• Design risk = ambiguities, conflicts, E&Os.
When providing professional services, members of a profession (law, medicine, architecture, engineering) are required to exercise the care and skill that is ordinarily exercised by other members of the engineering profession in performing professional engineering services under similar circumstances.

Counsel of American Structural Engineers
The Owner’s Implied Warranty of the Plans and Specifications, a.k.a. the “Spearin Doctrine”

In the landmark case *United States v. Spearin*, the United States Supreme Court ruled that “if the contractor is bound to build according to plans and specifications prepared by the owner, the contractor will not be responsible for the consequences of defects in the plans and specifications.”

248 U.S. 132, 39 S.Ct.59 (1918)
Project Delivery Options

Traditional Delivery

Design-Bid-Build (DBB)

SOC

Owner

Designer

Builder

IMPLIED WARRENTY
Traditional Method

Preliminary \[\text{Drawings}\] \quad \text{Detail} \quad \text{Bid} \quad \text{Construction}

Cost Established

Design-Build Method

Preliminary \[\text{Drawings}\] \quad \text{Detail} \quad \text{Construction}

Faster Completion Time
Project Delivery Options

Alternative Delivery

Design-Build - Lump Sum (LS)

Owner

Design / Builder
Project Delivery Options

Design-Build - Lump Sum (LS)

Owner

Design / Builder

Designer
Design Build

• Lump Sum Price based on Preliminary Design

• Design risk of ambiguities, conflicts, E&Os.

• Risk that design development will be late and impact work on the critical path
Timeliness issues can be addressed by LD clauses—new risk to many design firms.

Some D/B contractors have also attempted to address issues regarding the adequacy and accuracy of the design documents by writing a “Spearin” type of performance standard into the design services subcontract, mandating that the designer provide design documents “suitable for the use intended”. This contractually-specified heightened standard of care requirement conflicts with the designer’s traditional SOC—leaving a gap between the implied legal duty imposed on the design team, and the heightened duty imposed on the designer by contract with the DB contractor.

This gap may result in uninsurable exposure to both the designer and DB contractor. There is no indication that the Professional Liability insurance market will expand coverage to address heightened design requirements and provide “fit for use” insurance coverage.
Design/Builder acknowledges that based upon the Design Agreement Documents and applying its knowledge and experience as a construction professional in developing its bid and pricing for the DB D&C Work, it undertook analyses regarding the estimated quantities of materials, established labor and unit pricing assumptions, and developed plans related to construction means, methods, techniques, sequences and procedures, but it is acknowledged by Designer that in so doing, the Design/Builder relied on the scope, quality and quantity parameters set forth in the Design Agreement Documents to develop its Proposal including, but not limited in developing its DB Project Budget and DB Project Schedule.
Design-Builder acknowledges that Services performed by Designer are based on limited information, and must be considered as preliminary and not suitable for construction. Design Builder agrees to undertake its own analysis to assess the risks regarding all matters related to construction means, methods, techniques, sequences, or procedures. … Design Builder acknowledges that during the design process, the preliminary designs developed during the pursuit evolve into the construction documents and reasonable assumptions, accurate at the time of the preliminary design, may change as the Construction Documents are further designed.
Many contractual solutions involve a “dead band” concept, where pre-proposal, the parties collaborate on quantities or general risk items, attempt to price or quantify them, and then create a no-fault zone within the estimated risk range. Incentives may be attached for coming in below the zone and disincentives for above the zone.
Project Delivery Options

Alternative Delivery

Design-Build - Progressive (GMP)

Owner

Design-Builder

Local Subcontractors and Subconsultants
Progressive Design-Build Process

RFQ Advertisement

RFQ

RFP

Phase 1A - Proof of Concept

Decision Point #1
Proof of Concept within GMP
or Off Ramp

CTB Award (GMP)

Phase 1B – Project Development

Phase 2 – Final Design and Construction

Decision Point #2
Lump Sum Price Established at 40-60% Design or Off Ramp

GMP