Different Ways to Contract for Lean Project Delivery

Joel Darrington
San Diego COP - 3/27/19
Relevance of Contracts?

• Increase alignment among parties
• Parameters for Lean behavior and activities
• First collaborative act
• Traditional contracts get in the way of Lean
“Every contract type will influence contractor decision-making and behavior. Firm, fixed-price or lump-sum contracts provide a very strong incentive for contractors to control costs, a behavior that on the surface appears highly desirable. The behavior becomes undesirable when cost avoidance begins to affect performance. . . . [T]his acquisition strategy – a selection based on low price with a resulting firm, fixed-price contract that includes design specs – is common in construction, as are schedule and cost growth, owner dissatisfaction, claims and lawsuits.” – Diana Hoag & Nancy Gunderson

[Design-Build DATELINE – February 2005]
Motivation & Incentives

• Structure contract incentives to support integrated behavior

• Intrinsic motivation is critical

• Incentives structured the wrong way can undermine intrinsic motivation
Intrinsic Motivation
Extrinsic Motivation
So what?

- Research in economics and psychology shows that non-economic factors play key role in performance.
- Some key non-economic motives that are implicated by paid work are:
  - Desire for fairness and to reciprocate
  - Desire for autonomy/self-determination
  - Desire to work for a valued purpose
Intrinsic Motivation Adds Value

• Can’t specify everything
• Best supported through relational contracts

A relational contract gives greater focus to contract terms that develop and sustain a commercial relationship among the parties to achieve their mutual purposes.
Take-Aways on Intrinsic Motivation

• High performing teams rely on intrinsic motivation
• Traditional contracts and compensation structures get in way of collaboration and intrinsic motivation
• Relational contracts depend on and aid intrinsic motivation
• Lean Project Delivery benefits from a more relational contract
6 Features of Integrated Project Contracts

- Early Involvement of Key Participants
- Collaborative Management
- Financial Transparency
6 Features of Integrated Project Contracts

- Shared Risk/Reward Based on Project Outcome
- Limited Liability
- Lean Operations & Culture
Integrated Project Delivery Agreements
Integrated Project Delivery Agreements

Early Involvement of Key Participants
Integrated Project Delivery Agreements

Core Group

Project Management Team

Core Team

Collaborative Management
Integrated Project Delivery Agreements

Financial Transparency

Shared Risk/Reward Based on Project Outcome
Integrated Project Delivery Agreements

Limited Liability

Lean Operations & Culture
Level of Common Understanding

Traditional Contract

- Architect Hired
- Engineers Hired
- CM/GC Hired
- Major Trades Hired

Pre-Construction Services
- SD
- DD
- CD

Construction

≤100%

Early Involvement of Key Participants
Another Look At MacLeamy

- Project Progress
- Design Effort/Effect

- Ability to impact cost and functional capabilities
- Cost of design changes
- Traditional design process
- IPD design process

Graphic originated by Patrick MacLeamy, FAIA
Level of Common Understanding

IPD

Pre-Construction Services

Construction

Time

Common Understanding

Architect Hired
CM/CC Hired
Engineers Hired
Major Trades Hired
SD
DD
CD

Early Involvement of Key Participants
Collective Risk Management

• Problem with traditional risk allocation:
  • Interdependence of risks
  • No incentive for others to help
  • Bargaining power dynamics
  • Contingency stacking

• Collective risk management lowers total project risk and more equitably distributes it
Basic Principles of Risk/Reward

- Overall: align the economic interests of the key participants with the overall success of the Project
- Skin in the game, but survival assured
- Reward collective risk management & overall Project success
Compensation Approach

- Fixed Profit and Variable Costs
- Cost, But Not Profit Guaranteed by Owner
- Profit at Risk Sufficient to Buffer Overruns
- Open Book
Compensation Issues

• Calculating profit at risk
• Allocating Overruns/Underruns
• Interim Profit Distribution
• When to Set Target Cost
Cost Benchmarks

Allowable Cost

Expected Cost & Target Cost

EMP

Preconstruction Phase

Construction Phase

Actual Cost
Cost Overruns

- Order of funding cost overruns:

  1st: Any available insurance or responsible 3rd parties
  2nd: IPD Team Contingency
  3rd: Undistributed Profit
  4th: Clawback from distributed Profit
  5th: From Owner
Change Orders

• No Change Orders, Except
  • Scope changes
  • Differing site conditions
  • Changes in Laws and Regulations
  • Owner suspensions
  • Allowance reconciliations

• No Errors and Omissions Change Orders
Waiver or Limitation?

**Waiver of Claims**
- All claims waived except certain carve-outs
- No insurance for waived claims
- No litigation for waived claims
- Unlimited liability for allowed claims

**Liability Limitation**
- Claims allowed, but limited to at-risk profit in most cases
- Insurance for claims
- If not settled, then litigation to enforce claims
- Greater certainty on exposure
Liability Waivers (AIA C191)

• Waiver of ALL Liability Among IPD Parties, Except:
  1. Willful Misconduct
  2. Express Warranty
  3. Owner’s Failure to Pay
  4. Express Indemnification
  5. Failure to Procure Insurance
  6. Damages arising from 3d party liens, etc.
  7. Damages covered by insurance
Limitation of Liability (CD300)

- Covers any claim by Owner or other Risk Pool Member relating to the Work or the Project
- Liability limited to Member’s profit and share of savings
- Carveouts for certain claims
- No need for waiver of consequential damages
Limitation of Liability (CD300)

• Exclusions from limitation on liability:
  • fraud or willful misconduct
  • covered by insurance
  • where recovered from non-IPD subcontractor, supplier, or consultant
  • government fines and penalties
  • for failure to pay sums due under Agreement
  • default on correction of work obligations
Preconstruction Phase

- Create a Responsibility Matrix
- Initiate Target Value Design and set a Target Cost
- Establish BIM parameters
- Continuous cost modeling & constructability/value analysis
TVD process

- Protocols
- Target Costing
- TVD Clusters
- Design/constructability reviews
- Set-Based Design
- Value analysis
- Built-in Quality Plan

Value analysis
Other Lean Methods

• Project Planning System based on Pull Planning
• 5S Plans
• Streamlined Communications
  • Lean RFI Process
IPD Agreement Forms

- ConsensusDocs 300
- AIA C195 (Single Purpose Entity)
- AIA C191 (Three Party)
- Hanson Bridgett’s IPD Agreement
- Sutter Health’s Integrated Form of Agreement (IFOA)
Design-Build Contracts
Lean via Design-Build Contract

• Distinction between Design-Build as a *delivery model*, and Design-Build as a *contract format*
• Currently no industry forms adapted for Lean Project Delivery
• Options:
  • Custom-drafting
  • Modify the ConsensusDocs 305
Lean via CM at Risk Contracts

- Options:
  - Custom-drafting
  - ConsensusDocs 305 Lean Construction Addendum
Introducing CD305

Owner/Design Professional Contract

CD 305 Lean Construction Addendum

Owner/Constructor Contract
Addendum to What?

- ConsensusDocs 500 CM at Risk Agreement
- Other forms of CM at Risk contracts
- Construction contracts under Design-Bid-Build
- Owner contracts with Design Professional
- Not intended for Design-Build Prime Contracts
How is this Different than IPD?
Using the CD305

• When?
  • O/A/C are committed to Lean, but one or more are not ready or able to enter an IPD Agreement
  • As early in the Project as the Owner will allow

• How?
  • Jointly negotiated, separately attached
  • Check-the-box
CD305 Check-the-Box Example 1

**Validation Phase**
- Joint Worksite Investigation (6.1)
- Evaluate Owner’s Program (6.2)
- Validation Study (6.3)

**Preconstruction Phase**
- ✔ Continuous Cost Modeling (6.4)
- ✔ Integrated Design/Target Value Design (6.5)
- ✔ Risk Identification/Management (6.6)

**Construction Phase**
(Always included; no check boxes)
CD305 Check-the-Box Example 2

Validation Phase
- Joint Worksite Investigation (6.1)
- Evaluate Owner’s Program (6.2)
- Validation Study (6.3)

Preconstruction Phase
- ✔ Continuous Cost Modeling (6.4)
- ✔ Integrated Design/Target Value Design (6.5)
- ✔ Risk Identification/Management (6.6)

Construction Phase
(Always included; no check boxes)
CD305 Check-the-Box Example 3

Preconstruction Phase
- Joint Worksite Investigation (6.1)
- Evaluate Owner's Program (6.2)
- Validation Study (6.3)
- Continuous Cost Modeling (6.4)
- Integrated Design/Target Value Design (6.5)
- Risk Identification/Management (6.6)

Construction Phase
(Always included; no check boxes)
What about Incentives?

- CD305 does not itself provide for incentive compensation
- Provides for Performance Improvement Program – could be a platform for incentive compensation
- Incentives would require amending the project contracts
Article 4 - Core Group

• Empowered Representatives from O/A/C
• Daily project leadership
• Consensus decision-making
• Inspire/enforce Lean behavior

Collaborative Management
Article 5 – Project Planning System

• Based on pull planning
• Would be satisfied by LPS™
• Requires a whole system:
  • Phase Planning
  • Make-Ready Look Ahead Planning
  • Weekly Work Plans
  • Evaluation & Continuous Improvement
Commitment-Based Planning

SHOULD
- Master Scheduling
  - Specify handoffs
- Milestones
  - Make ready & launch replanning when needed

CAN
- Phase “Pull” Planning
  - Make ready & launch replanning when needed

WILL
- Make Work Ready Planning
  - Promise
- Weekly Work Planning
  - Measure PPC & act on reasons for failure to keep promises

DID
- Learning
Allowable Cost

Expected Cost & Target Cost

Validation Phase

Joint Worksite Investigation (6.1)
Evaluate Owner’s Program (6.2)
Validation Study (6.3)

Preconstruction Phase

Contract Price

Construction Phase

Actual Cost
Integrated Design & TVD

Preconstruction Phase

- Continuous Cost Modeling (6.4)
- Integrated Design/Target Value Design (6.5)
- Risk Identification/Management (6.6)

Expected Cost & Target Cost

Validation Phase

Allowable Cost

Contract Price

Construction Phase

Actual Cost
Article 7 – Lean During Construction

- Built-In Quality Plan
- 5S Principles
- Logistics & Just-In-Time
- Completion/close-out plan
Streamlined Communication

• Goal: assure that all team members have a high level of common understanding
• Get information to the parties that affects their performance or which they can impact
• Document information/decisions & make available to team
• Streamlined RFIs:
  • Conversation first, pursue reliable promise for resolution
  • RFI to confirm solution (not to initiate inquiry)
ConsensusDocs 541 – Design-Assist

• Addendum to both design and construction contracts

• Optional provisions from CD305:
  • BIM
  • Owner’s program evaluation
  • Value Analysis
  • Cost modeling
  • Risk analysis
  • Production planning system

• Constructability & Design Coordination
Design-Bid-Build Contracts
Questions?