The Other Green

Stretching Your Construction Dollars

ICCCFO Fall Conference
October 1, 2010
Sitton Construction Group

- Project and construction managers
- Owner’s rep/agent/advocate
- Primary focus: education
- Staff: 12   LEED APs: 5
- Doug Sitton, PE, LEED AP
  - 30+ years in design and construction
  - Primary focus on project management
  - 500+ projects . . . $1 Billion+
  - Projects from $10,000 to $50 million
Is Construction Outcome Controllable/Predictable?

- Yes, but the Owner must . . .
- Select a leader/manager
- Understand the complexity
- Break it down
- Have a plan from the start
- Know how you’re doing at all times
- Lead and manage from start to finish
Agenda

• Understanding the Complexity
• Breaking It Down Into Manageable Pieces
• Solving Each Piece During Planning & Design
• Identifying Your Leader/Manager
• Project Delivery Complexity – Myth Busters
• Summary
Why Is Construction So Difficult?

• Design and construction is a very complex process
• Biggest issue: surprises
• Surprises are created in design, but don’t show up until construction
• All surprises have happened before, are predictable, and either avoidable or manageable
Construction Complexity

Organizations
People
Processes
Technical
External Forces
Technical Complexity

- Systems:
  - Structural
  - MEP/FP
  - Interior finishes
  - Security
  - Data/telecommunications
  - Furnishings and equipment
- Codes, soils, environmental, etc.
- LEED
- Building information modeling (BIM)
- Project delivery
Thousands of exchanges of info in different languages

- Owner
- Funding sources
- Design firms
- Consultants
- Contractors
- Subcontractors
- Utilities
- Regulatory agencies
- Manufacturers/vendors
- Stakeholders
Complexity Often Wins
Complexity Wins Again
Complexity Wins Big

For a civil engineer, there's no such thing as a "little mistake."
The Cost of Complexity

*U. of I. Sues over Dorm's Big Cost Overrun*

Cost Overruns at Prairie State Energy

HARTFORD MAGNET SCHOOL
CONSTRUCTION COST OVERRUNS

MetroLink Files Damage Suit Against Four Companies

Big Dig Cost Explodes To $22 Billion from Original $2.6 Billion
Closer to Home

University, Community College and High School – 3 different delivery methods

• $50 million new construction – $5 million delay claims and over 12 months late
• $13 million new construction – over 12 months late and GMP increased during construction
• $1 million addition – over $50,000 in change orders in first month
Complexity Can Be Overwhelming
Complexity Is Manageable

• $60 million program delivered in 16 months and well under budget
• $6.0 million renovations reduced to $5.4 million while increasing scope
Breaking It Down

Into Manageable Pieces
10 Pieces to the Project Puzzle

1. Identify Independent Expertise
2. Establish Goals and Objectives
3. Maximize Competition for Selection
4. Negotiate Effective Contracts
5. Place Right People in Right Roles
6. Plan Ahead
7. Establish Effective Processes
8. Set Performance Metrics
9. Apply Cost-Effective Technology
10. Lead and Manage Proactively
Who’s Your Leader?

1. Identify Independent Expertise
10. Lead and Manage Proactively
The Owner’s Team

- Architect
- Contractor(s)
- Owner

The Owner is responsible for their team and the overall team.
Independent Owner’s Agent

• Owner’s Rep/Advocate/Agent/Manager
• Internal or external or both
• Independent from design/construction
• **Construction Manager (CMa)** is misleading – actually: **PDCM**

Planning
  +
Design
  +
Construction
Solving the Project Puzzle

*During Planning & Design*

One Piece at a Time . . . All at the Same Time
Solve It at the Beginning

- **PRE-DESIGN**
- **BIDDING**
- **DESIGN**
- **CONSTRUCTION**

**ABILITY TO INFLUENCE COST & RISK**

**START**

**TIME**

**COMPLETE**
Solve It at the Beginning
10 Pieces to the Project Puzzle

Pre-Planning
1. Identify Independent Expertise

Planning
2. Establish Goals and Objectives
3. Maximize Competition for Selection
4. Negotiate Effective Contracts
5. Place Right People in Right Roles
6. Plan Ahead
7. Establish Effective Processes
8. Set Performance Metrics
9. Apply Cost-Effective Technology

Planning/Design/Bidding/Construction/Close Out
10. Lead and Manage Proactively
Green² Communication

- Project website
- One team – one set of shared project files
- Planning through construction close-out
- Files become Owner’s
Project Delivery Complexity

Myth Busters
Design/Bid/Build Myths

• “Costs more due to change orders”
• “Low bid means biggest mistake”
• “Takes longer”
• “Won’t allow construction input during design”
Design/Bid/Build Myths Busted

• Most change orders are avoidable
• Engaging and educating bidders during design minimizes the chance for bid mistakes
• Early bid packages can be used when necessary
• Engaging a Construction Manager and bidders during design can provide cost-effective construction input
“Design-Build Relieves the Owner of Having to Manage the Project”

Busted:

• Not managing the project:
  – Puts decisions into someone else’s hands
  – Will likely not give the Owner everything they wanted
  – Will ensure the Owner pays more both in first cost and life cost

• A two-legged stool that is missing the Owner’s leg will fall, and not in the Owner’s direction
“A Guaranteed Maximum Price (GMP) Controls the Owner’s Cost”

• Aka: guarantee of no change orders

Busted:

• May guarantee you pay the maximum price
• The earlier it’s set, the more contingency included and the higher the cost
• You still pay for change orders; it’s just agreed to up front, whether needed or not
• Contract clauses are important
Construction Manager as Agent Myths

- Construction Manager as Agent (CMa) is a delivery method
- CMa is only necessary on large, complex projects
- CMa is a construction phase role
- CMa is an unnecessary added layer of cost
Construction Manager as Agent
Myths Busted

• An Agency Construction Manager (CMa) is a professional service, applicable to all delivery methods
• CMa has been used successfully on all sizes and types of projects and tasks
• “Construction” Manager is misleading; it is actually the Owner’s manager of planning, design and construction
• CMa should be tailored to pay for itself in increased value and decreased cost
"Agency" CM (CMa) is a professional service that can be applied to all delivery systems where the CM acts as the owner's principal agent in the management of a construction project or program, and where the CM is responsible to the owner for managing the planning, design, construction and post construction phases, or portions thereof.

*Construction Management Association of America*
Definition – Design-Build

- Has been used by CDB on a couple of University projects
- Bridging A/E prepares an RFP
- Selection based on best value
- Design and construction are contracted with one entity
- Design answers to builder
- Works best with well-defined scope that’s unlikely to change
Definition – Performance Contracting

- Design-Build for energy savings work
- Selection based on best value
- Design team answers to ESCO
- ESCO provides:
  - Financing
  - Guaranteed energy savings
  - General contractor role
- Two-legged stool: design and bidding processes are important
Project Delivery Similarities

• Every method:
  – Has positives and negatives, has succeeded and failed
  – Is complex, just in a different way
  – Can be fast-tracked
  – Should never be used “as is”
  – Should be tailored to the specific client, project, and local/current market

• Customization and management matter most, not the method
Customizing Project Delivery

All methods can and should be customized to . . .

• Align responsibility, risk and reward for each party
• Reduce overall risk
• Facilitate teamwork and aligned goals
• Maintain checks and balances
• Integrate construction input into design
• Bid from 100% complete documents
• Optimize bid packaging
Summary: 5 Steps to Successful Design and Construction

Begins and Ends with the Owner
Keys to Success

• Step 1: Select Your Leader/Manager
• Step 2: Understand the Complexity
• Step 3: Break It Down
• Step 4: Solve the Project Puzzle *During Planning and Design*
• Step 5: Continue Strong Leadership and Management Throughout
Suddenly, a heated exchange took place between the king and the moat contractor.
Thank You

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