Welcome to LEAN Construction and Partnering

Moderator: Tom Clark, NAVFAC EURAFSWA
Speaker:
- Rear Adm. Gary Engle, P.E., DBIA, F.SAME, USN (Ret.), Executive Vice President, AECOM
Lean Construction and Partnering
Better Processes to Increase Readiness

Gary Engle
AECOM
Lean Construction Tenets

- Optimize the Whole
- Continuous Improvement
- Removal of Waste
- Generation of Value
- Focus on Process & Flow

RESPECT FOR PEOPLE
Lean Impacts

- Typically 8 to 12% cost improvement over project duration
- Increased owner satisfaction
- Increased participant satisfaction
- Complex projects have largest impacts
Most who never heard of Lean think the industry is **Efficient**.
Owner Satisfaction & Project Performance

Objectives:

1. Benchmark owner satisfaction & project performance

1. What is the impact of lean?

Survey:

81 Owners/ 162 projects
Satisfaction vs. Value

Performance from Approval of Capital Project (% of Best/ Typical Projects)

- Completed Ahead of Schedule:
  - Best Project: 24%
  - Typical Project: 6%
  - Total (n=81)

- Completed Behind Schedule:
  - Best Project: -21%
  - Typical Project: -61%

- Completed Under Budget:
  - Best Project: 46%
  - Typical Project: 10%
  - Total (n=81)

- Completed Over Budget:
  - Best Project: -49%

Satisfaction vs. Value

NAVFA  EURAFSWA  SAME  Government Industry Engagement Forum
www.same.org
Satisfaction vs. Value

- Satisfaction for Quality:
  - Rated 3 or 4: 83% for Best Project, 56% for Typical Project
  - Rated 1 or 2: 17% for Best Project, 44% for Typical Project

- Satisfaction for Safety:
  - Rated 3 or 4: 84% for Best Project, 69% for Typical Project
  - Rated 1 or 2: 16% for Best Project, 31% for Typical Project

Legend:
- Blue: Best Project
- Red: Typical Project
# Importance of Team Cohesion

## % Projects Reporting the Highest (4/4) Rating

<table>
<thead>
<tr>
<th>Perception of Team Chemistry</th>
<th>Integration of Project Team Members</th>
<th>Commitment of Team Members to Same Project Goals</th>
<th>Timeliness of Decision Making Related to Issue Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical</td>
<td>Best</td>
<td>Typical</td>
<td>Best</td>
</tr>
<tr>
<td>10%</td>
<td>9%</td>
<td>11%</td>
<td>5%</td>
</tr>
<tr>
<td>68%</td>
<td>61%</td>
<td>54%</td>
<td>40%</td>
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</tbody>
</table>

**Graph: **
- Perception of Team Chemistry: 68% Best, 10% Typical
- Integration of Project Team Members: 61% Best, 9% Typical
- Commitment of Team Members to Same Project Goals: 54% Best, 11% Typical
- Timeliness of Decision Making Related to Issue Resolution: 40% Best, 5% Typical
Learn as a Team

Methods with Most Degree of Difference Between Usage

<table>
<thead>
<tr>
<th>Method</th>
<th>Typical</th>
<th>Best</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-location Big Room</td>
<td>6%</td>
<td>44%</td>
</tr>
<tr>
<td>Target Value Design</td>
<td>6%</td>
<td>40%</td>
</tr>
<tr>
<td>Prefab/Modularization</td>
<td>17%</td>
<td>49%</td>
</tr>
<tr>
<td>Conceptual/Continuous Estimating</td>
<td>22%</td>
<td>48%</td>
</tr>
<tr>
<td>Full-team On-boarding</td>
<td>17%</td>
<td>41%</td>
</tr>
<tr>
<td>BIM Design authoring</td>
<td>17%</td>
<td>41%</td>
</tr>
<tr>
<td>A3 Thinking</td>
<td>5%</td>
<td>27%</td>
</tr>
<tr>
<td>Last Planner System®</td>
<td>19%</td>
<td>40%</td>
</tr>
</tbody>
</table>

Part-time co-lo more common than full time

LPS more common in construction than in design

Total (n=81)
What can be done

- Get key team members in early
- PARTNER (next)
- Engage ‘design assist’ services
- Use procurement flexibility
- Get educated internally
- Conduct pre-award work shops
- Connect w/ peers having success
Partnering
Dispute Prevention to Increase Readiness
Partnering

"Clearly, the best dispute resolution is dispute prevention. Acting to prevent disputes before they occur is key to building new cooperative relationships. By taking the time at the start of a project to identify common goals, common interests, lines of communication, and a commitment to cooperative problem solving, we encourage the will to resolve disputes and achieve project goals."

– LTG H. J. Hatch, Commander, USACE
7 August 1990
Partnering
Partnering Continuum

A. Project Delivery Strategy
- Plan for structuring design and construction services
  - Delivery method
  - Procurement process
  - Contract payment terms

B. Team Integration
- High-quality interactions

C. Group Cohesiveness
- Development as a team

D. Project Outcomes
- Measures to gauge project success
  - Cost
  - Schedule
  - Quality

E. Programming Factors
- Owner type, facility size, facility type

F. Project Impact
- Readiness

PROJECT ORGANIZATION  PROJECT PERFORMANCE  PROJECT CONSEQUENCE
Components

- Goals, Objectives, Conditions of Satisfaction
- Governance
  - Organization
  - Escalation Ladder
  - Communications Plan
  - On ramp / Off ramp
- Risk and Opportunities Matrix
  - Perceived risks, obstacles, historical problems
  - Opportunities to cut time and money; improve quality and safety
- Current Issues
- Charter
- Follow up plan
- Close
Goals/Objectives/Conditions of Satisfaction

- Everyone is profitable / brought in under budget
- Delivered on time / Number of months for project delivery
- Number of RFIs
- Number of Change Orders
- Exceptional teamwork
- Quality at acceptable levels the first time
- Total project transparency
- Strong stakeholder involvement
- Rapid mitigation of issues
Governance - Team

- Project Delivery Team (PDT)
  - Project inspectors
  - Key subcontractors
  - Superintendents
- Project Leadership Team (PLT)
  - Project Manager – Client
  - Project Manager – Contractor
  - Contracting Officer
- Executive Leadership Team (ELT)
  - Executive Vice President – Contractor
  - Operations Officer NAVFAC
Governance - Escalation

Sample Issue Resolution Ladder

Designer → Client → Contractor → Other Stakeholders

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<th>Days</th>
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Risk Analysis

Risk Analysis

Identify | Assess | Respond | Control

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<tr>
<th>Risk</th>
<th>Category</th>
<th>Causes</th>
<th>Impacts</th>
<th>Controls in place</th>
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Q&A AND FEEDBACK