LCI Israel’s Launch – Jeff Grillo
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The US Experience of Lean Construction

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The construction industry has not achieved the productivity gains of many other sectors.

To move the productivity improvement at the required pace, Owners looked in two primary directions:

- **External** - What are the industry leaders doing and how can we learn/implemented
- **Internal** - What can we learn from other sectors

1 GDP value-added per employee

SOURCE: Bureau of Economic Analysis (BEA), Hideyuki (2011)
External Learning Efforts

**OWNER SHARING**
Universal Health Services
Sutter Health
Walt Disney Imagineering
British Petroleum
UC San Francisco

**BENCHMARKING**
Bain Study
CURT Owners (P&G, GM, AB)

**WEBINARS**
BIA – Bridging
ConstructPro - GMP
DBIA – Design Build

**BIC INNOVATION CONSTRUCTORS**
JE Dunn – Paperless & Collaborative Design
Bechtel - Vertical Integration
Balfour - Innovation Center
Turner So Cal - Productivity
DPR – IPD
Boldt - CBA

**CONSULTANT CONNECTS**
Howard Ashcraft
Will Lichtig
Rex Miller
Dick Bayer
Steve McIntyre
Klaus Lemke
Rebecca Bettler
ASU Professors

**CONSORTIA**
CII – Construction Industry Institute
LCI – Lean Construction Institute
CURT – Construction Users Round Table
DBIA – Design Build Institute of America
What We Learned From Our Core Business (Intel Internal Learnings)

• **Process – Measure and Adapt**
  - Establish the measureable baseline for what is possible today
  - Map the Value Stream and measure actual performance against possible baseline
  - Identify variance (risk) and focus efforts to mitigate

• **People – Build Trust & Commitment, invest in development**
  - Consistent team membership
  - Trust established via delivering commitments
  - Invest in technology and development

• **Aligned Goals**
  - Individual goals directly enable factory output
  - Continuous Improvement targets a way of life
Intel Lean Journey

Learning Org
- Benchmarking
- Standards
- Education
- Industry Consortia
- Project to Project Improvement

Lean Construction
- Kaizen Events
- Last Planner System
- Target Value Design
- IPD/IFOA
- Transparency

Technology
- BIM
- Various Project Management Tools

Offsite Fabrication
- Sub-fab laterals
- Boiler
- Tool Install
Collaborative Agreements - Innovation

All projects now use a collaborative strategy & contract
- IFOA, Consensus Docs Collaborative, etc
- Fixed and reimbursable compensation
- Designer/Builder/Trades on board before Design or earlier (desired state)

Each leverage the same principles
- Target Cost based upon Market/Best-in-Class
- Innovation plans/commitments to improve cost
- Jointly managed risk, everyone has ‘skin in the game’
- Shared savings for improving costs beyond target & for mitigating risk

Build Partnership & Trust
- Goal/Information transparency (Budget, Schedule,....)
- Aligned method to track, monitor and define ‘great’
- Conditions of Satisfaction
- Indirect cost target included owner costs
- Entire team has ownership of key decisions
Intel Lean/IPD Journey

Partner’s View and Learnings
Previous State

- Contractors only concerned about their own success
- Extremely adversarial relationship with owner (lack of trust)
- Management resources focused on protecting bottom line
- Contract used as a weapon on both sides
- All risk incorporated into pricing
- Individual departments only concerned with their own needs
- Owner’s answer to problem was to throw money/people at problems
- Win/Lose environment
Trust

- Us - we are all in this together and cannot accomplish this without each other
- Tell us what is affordable and we will help make it happen
- Transparency – Everything on the table from all involved
- Transfer ownership of cost, safety, schedule, and quality to those accountable for it
- True collaboration by all
- Access to correct people on Owner’s side who helped drive change
- Shared savings
- Win/Win for all
Partner’s Perspective

- IFOA Agreement Drastically Reduced Contractor Risk
- Transformed Project Culture From Severely Adversarial To Collaborative Teamwork
- Focused Project Resources on Innovation and Cost Savings
  - Contractors Collaborated to Share Project Resources
    - Indoor Laydown Space
    - Community Cut Stations
    - Co-location of 3D Modelers
    - Equipment
- Successful Cost Cutting Methods and Best Practices Shared With Contractor Partners
Observations

Pre-IPD

Waste Identified

- VA 17%
- Breaks 11%
- Waiting 15%
- Retrieving Materials 10%
- Moving 13%
- Safety 19%
- Set-Up 9%
- Measuring 5%
- Cleaning 2%
- Consult Diagram 2%
- Discussion 2%
- Rework 1%
- Observations 1%
- Testing 0%
- Cleaning (Wipes) 0%

NVA 72%

Breaks 11%
Summary

• Must find means and methods for better integration – find and eliminate the waste.

• Committing to reduce spending by 30% on all new projects in 2013 and beyond.

• Looking for best known practices.

• Looking for business partners who can bring integration value through the entire supply chain.

• Focusing internally on becoming “Client of Choice.”
Summary
Q&A