ABC Webinar
Presented by John Wiegand

Dispelling Myths- Lean Theory
THANK YOU FOR JOINING TODAY’S WEBCAST
HISTORY...

- 1980 - Toyota Production System
- 1990’s– Lean Construction was Established
- 1998 – Present – LPC (Lean Project Consulting), and Last Planner were established.
Produce and Stock Only What’s Needed by the Customer
Lean: Waste/Value in Construction vs. Manuf.

(Design &) Construction
- Waste: 57%
- Support Activities: 33%
- Value Added: 10%

Manufacturing
- Waste: 12%
- Support Activities: 26%
- Value Added: 62%

Source: US Bureau of Labor and Statistics
What Lean *Is*...

Through **continuous improvement** and **respect for people**, delivering ever-increasing **value** to customers while eliminating **waste**
Consider how a Lean Operations Strategy can improve an architectural and engineering practice...Deliver Lean Design:

"...a creative process to prevent error and invent value."

*This is Lean* suggests that resolving sources of variation in the design process – inherently recursive and iterative – can deliver both required function (meeting the client's need) and aspirational form (meeting the architect's need) within the constraints of time and money.

-An Architect's Interpretation, by Sam Spata, in *This is Lean*, (Nicholas Modig & Par Ahlstrom, 2015)
...or if you prefer...

Lean is nothing more than common sense, rigorously applied.
7 Values – Create Value for the Customer

- Correct price
- Timely response
- Valued products
- Flexible solutions
- Reliable supply
- Ethical supply
- Trusted quality

(“7 wastes.... what about 7 values?”, from The Joy of Standards, ©James Sandfield, 2016)
What is a ‘Lean’ product?

Custom-designed,

Low batch size/inventory,

Material efficiency,

Designed at the point of innovation,

Manufactured at the point of desire
What is ‘Lean’ production?

Providing the right information,

And the right materials,

To the right person,

In the right place,

At the right time
What is ‘Lean’ demand?

Providing a customized product,
Made of the desired materials,
Delivered where the client wants it,
When they want it
At a price they are willing to pay
Variation in Production Systems

- Client decision-making
- Code compliance
- AHJ review
- Systems/Component information
- Manpower planning
- Value engineering
- Scope/Process differences
- Studio/Personnel differences
Lean Supply Chain and Assembly

- Develop decision/responsibility matrix – who decides what and when
- Plan decisions & dependencies
- Plan manpower according to workflow
- Provide appropriate expertise
BIG CHALLENGES!

- Developing trust
- Inexperience in making commitments for planning
- Poor promising

Learn in Action
Continuous Improvement
Lead by Example
Lean and Data

*Connect* the silos

- Minimize handovers
- Get involved early, stay involved late
### Strategic Planning

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<tr>
<th>SHOULD</th>
<th>MASTER SCHEDULING</th>
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### Production Planning

<table>
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<tr>
<th>SHOULD</th>
<th>PHASE SCHEDULING</th>
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<tbody>
<tr>
<td>CAN</td>
<td>LOOKAHEAD PLANNING</td>
</tr>
<tr>
<td>WILL</td>
<td>WEEKLY WORK PLANNING</td>
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<tr>
<td>DID</td>
<td>DAILY CHECK-IN</td>
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### Managers ...
- Set milestones
- Identify long leads

### Last Planners ...
- Pull workflow and hand-offs
- Builders plan crew flow
- Identify and remove constraints
- Make reliable promises to deliver next week’s work
- Measure PPC for previous day
- Confirm today
- Remove obstacles for tomorrow
Levels of Detail in Work

- Projects consist of phases
- Phases consist of processes
- Processes consist of operations
- Operations consist of steps
- Steps consist of motions
- Motions create the product
AGREEMENT / STRUCTURE
IPD Elements & Outcomes

- Early involvement of key participants
- Innovation & creativity
- Efficiency & effort
- Joint project management
- Risk allocation
- Joint sharing of risk / reward
- Commitment to project
- Project outcome
- Shared pain / gain
- Join validation of target / goals
KEEPING IT SIMPLE…

- MAP – Milestone Alignment Plan (once)
- Phase Scheduling – 6 weeks before major milestones
- Look Ahead – Look 6 weeks out (once a week)
- Check In – As often as possible (preferably daily)

MPLC
MILESTONE ALIGNMENT PROCESS

Step 1
• Gather stakeholders
• Define major milestones
• Describe what “done” means

Step 2
• Stress test thru CPM

Step 3
• Reconvene -- agree on dates and deliverables
“Pull Planning” – Why?

• Why?

Establishes the most reliable sequence of activities and their durations, and allocates float to maximize plan stability.
Pull Planning Examples
More Simply

Pull plan to avoid producing work that’s not really needed
“Planning is everything, the plan is nothing”

Dwight Eisenhower
Involve & Listen to the “Last Planners”

Who are they?

➢ The onsite field supervisors responsible for making decisions and committing resources
WHO IS INVOLVED?

- Clients
- Consultants
- Contractors
- Trade Partners
- Suppliers
  …EVERYONE!!!

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BENEFITS

• Promotes early trade partner engagement
• Projects on track
• Trust, openness & honesty
• Improves communication
• Improves visibility (transparency)
• Understand the risks
• Predictable workflows
LEAN THINKING
5 PRINCIPLES FOR ELIMINATING WASTE

1. Identify VALUE
2. Map the VALUE STREAM
3. Make value-creating steps FLOW
4. At the PULL of the customer
5. Strive for PERFECTION

JAMES WOMACK
in Lean Thinking
5 PRINCIPLES TO ELIMINATE WASTE
## WASTE IN CONSTRUCTION

<table>
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<tr>
<th>Category</th>
<th>Description</th>
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| **OVERPRODUCTION** | Putting as much work in place as possible, making it harder to do priority work  
Ordering additional material because of poor quality or fit                           |
| **WAITING**     | For materials, direction, information or prerequisite work and design completeness                                                           |
| **INVENTORY**   | Information or material delivered before it is needed                                                                                       |
| **MOVEMENT**    | Moving materials from one place to another before installing it                                                                               |
| **EFFORT**      | Returning to the shop to pick up plans, materials or tools not at the site  
Hunting for information or tools                                                                                           |
| **REWORK**      | Incomplete Design  
Re-doing work because of lack of quality                                                                                      |
| **PROCESSING**  | Recreating work because it cannot be shared  
Unnecessary reporting  
Expediting material not ordered in time  
Excessive coordination of multiple levels of suppliers                         |
LAST PLANNER OVERVIEW...

- Conversations & Collaboration
- Network of Commitments (Promises)
- Create Reliable Workflow
- Continuous Improvement
CONTINUING THE DISCUSSION

Register for the upcoming webinar on February 2<sup>ND</sup>

*Six Critical Factors to Lean Construction Success*
Presented by John Wiegand

SAVE YOUR SEAT

LIVE WORKSHOP EVENT! On the Road with ABC: South Florida
Thursday, February 16 – Coconut Creek, FL

SAVE YOUR SEAT