

# Lean Construction Institute

Building Knowledge in Design and Construction

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# Last Planner®

5 - 4 - 3 - 2 - 1

*A Global Perspective of Key Elements*

LCI-NE Jan 26, 2012

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# Last Planner Highlights

- 5 Linked Conversations
- 4 Key Artifacts
- 3 Roles
- 2 Goals
- 1 Overarching Principle

LPS is a comprehensive system conforming to the five lean thinking principles - a platform for lean management of the project and the firm

# 5 Linked Conversations

Milestone and Phase Planning	Should
Make-Ready Planning	Can
Weekly Work Planning	Will
Daily Commitment Management	Did
Retrospectives	Learn

# Conversation: **Should**, Milestone and Phase Planning

- Intent: Collaboratively establish the flow of work for the project at a milestone level and for each phase, i.e., define the plan with everyone's buy-in/ownership
- Defines the network of hand-offs
- Defines “conditions of satisfaction” for hand-offs
- Conducted in advance of the phase with all trades for the phase

## Protocol:

- What do you need from other trades to do your work?
- How do you want it provided? In what amount?
- What effort is required to complete your work?
- What is the uncertainty associated with the work?
- Only do work that releases work-requested by others

# Conversation: Make-Ready Planning

- Intent: Make work ready by defining specific work content for tasks and identifying and eliminating constraints to task completion
- Intent: Coordinate and level work, update plan based on commitments met
- Conducted weekly at the place of work
- Multiple trade foremen and project engineers meet with general superintendent
- Planning starts confirming next week
- Moves backwards from week 6 to week 2

# Conversation: Weekly Work Planning

- Intent: Make reliable commitments for next week from work made ready and coordinate committed work
- Conducted weekly at the place of work
- Multiple trade foremen meet with general superintendent
- What work will you do next week based on what can be done in the priority established in the look-ahead plan and current status of committed work?
- Does the work conflict or share resources with other work committed for next week?

# Conversation:

## Daily Commitment Management

- Intent is to manage promises to stay on plan
- Conducted at the place of the work at the end of day
- Multiple trade foremen meet with an "area superintendent"

### Protocol:

- Did you accomplish work promised?  
Yes/No If no, why?
- If no, what is needed to finish?
- What is promised for tomorrow?
- Do you need help?
- Can you offer help?

# Conversation: Retrospectives

- Consistent with lean thinking principle *pursue perfection*
- Better to say, "Tightly couple learning with action"
- Performed on a schedule and whenever someone asks for it

## Various Approaches:

- End-of-meeting Plus|Delta
- End-of-milestone lessons learned

## Protocol (basic):

- Start doing?
- Stop doing?
- Continue doing?

# 4 Key Artifacts

- Milestone and Phase Pull Plan
- Make-Ready Plan including Constraints Log
- Weekly Work Plan
- Performance Charting

# Key Artifact: Milestone and Phase Pull Plan



# Key Artifact: Make-Ready Plan

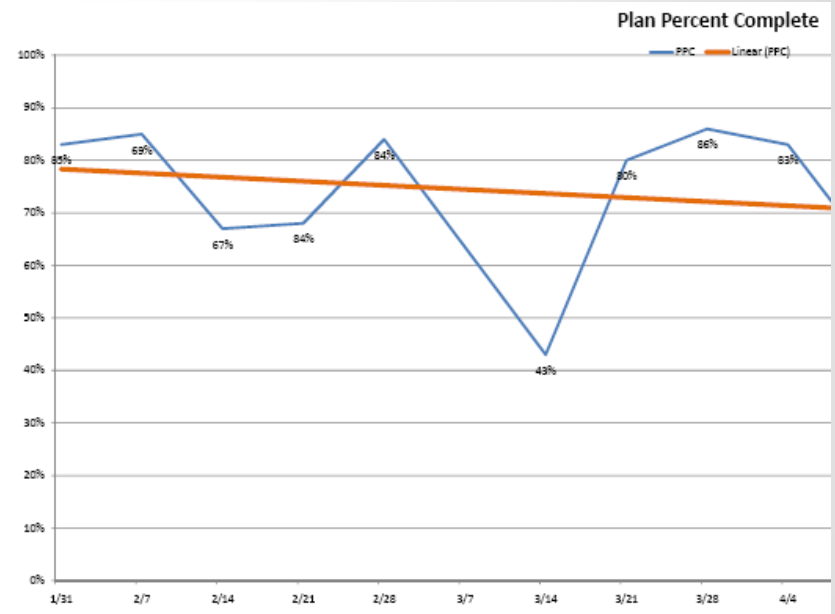
- Uses a look-ahead of the phase pull plan. 6 weeks is recommended
- Identify constraints
  - anything that would keep the performer from starting and completing the work
- Record promises to
- Capacities
  - Labor
  - Space
  - Tools + equipment
- Prerequisites
  - Work-in-place
  - Material
- Directives
  - RFIs, ASIs, COs, submittals
  - Permits, inspections, etc.

# Key Artifact: Weekly Work Plan



# Key Artifact: Performance Charting

- Visual management is a cornerstone of lean practices.
- Displaying how well a project or a team is doing helps people take action.
- Key measures:
  - PPC
  - TMR
  - TA



# 3 Roles

Last Planner

Make-Ready Planner

Facilitative Leader

# Role: Last Planner

- Directs or supervises the work of others
- Participates in five linked planning conversations
- Has the last opportunity to plan in the moment before assigning work
- Participates in pull planning the phases
- Identifies constraints
- Makes promises for the coming week's work
- Attends daily commitment management meetings

# Role: Make-Ready Planner

- Accountable for managing the process that surfaces and removes constraints
- Uses a 6-week look ahead
- Makes and manages requests
- "Tasks made ready" is key

# Role: Facilitative Leader

- Person is often a superintendent
- Is skilled in having last planners in planning conversations
- Leads pull planning sessions
- Serves rather than directs
- Remains neutral

## 2 Goals

1. Reliably completing work
2. Make the work flow

More than two goals takes attention from what matters most. Track how you are doing. Review goal attainment every week. Use retrospectives to adjust your practices.

# Goal: Reliably completing work

- Make and secure reliable promises
- Throw 3s and 4s
- Function of performing all linked conversations well
- Plan percent complete is key measure - promises percent complete
- Excel at making work ready ... removing excuses for not promising the work that should be done
- Make mutual adjustments to accommodate variances

# Goal: Make the work flow

- Starts by designing the production system for flow with pull planning
- Requires:
  - small batches
  - paced production
  - balanced crew sizes
  - daily coordination
  - mutual adjustments

The payoff is a project that gets done sooner using less resources and with higher initial quality.

# 1 Overarching Principle

Do better today than yesterday.

Continuous improvement takes many forms. Paraphrasing Drucker, you can only improve what you measure. But measuring alone isn't enough. You need to develop improving skills, practices and habits. The leanest companies record and measure their improving performance.

# 1 Overarching Principle: Do better today than yesterday

- Improve system performance. Record and learn from planning failures
- Improve task performance. Study the work, use small batches, and improve from one batch to the next
- Become skilled at learning from variances of all types
- Record and share your improvements on your project and across your firm
- Improve the rate of improvement

# **MassArt Residence Hall**

## **Suffolk Construction Company**

Lessons from an Early Last Planner Experience

Jim Grossman, VP Education Market and  
Leader for Lean Practices

Jon Linehan, Superintendent for MassArt

# Make-Ready Planning Exercise

## July 4th Dog House:

Picked spot in back of yard

Downloaded plans and materials list

Own all tools including power tools (somewhere in basement or garage)

Want electrician to run buried conduit in advance

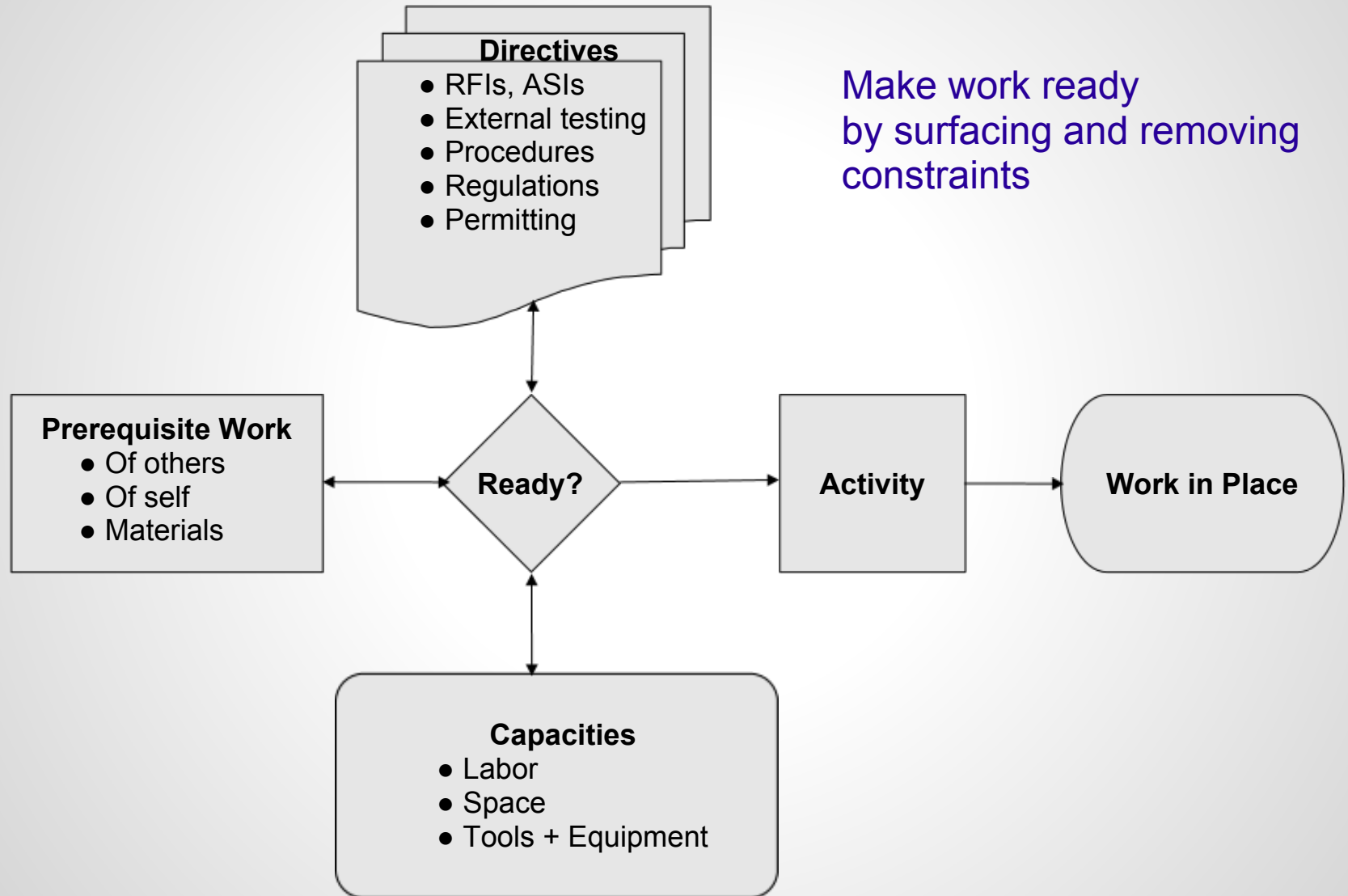
Partner needs to approve paint colors

Only have one day available to build it

Requires a full day so no store trips on the 4th

What would keep you from building the dog house?





Make work ready  
by surfacing and removing  
constraints

# End Notes

- Last Planner is a registered trademark of the Lean Construction Institute, [www.leanconstruction.org](http://www.leanconstruction.org)
- *Last Planner System - Just the Essentials* is available at [www.leanproject.com/lpc-downloads/](http://www.leanproject.com/lpc-downloads/)

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