

24TH ANNUAL



24TH LCI CONGRESS
OCTOBER 18-21

LEAN GUMBO: THE RIGHT INGREDIENTS FOR PROJECT SUCCESS

Intermediate Last Planner System® Practical Application

October 18, 2022

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“LCI would like to acknowledge and thank the work cluster for their leadership, work and collaboration to create this workshop. Learning opportunities like this exist because people like them engage to create them.”

-Kristin Hill, LCI, Director, Education Programs

Christian Pikel, The ReAlignment Group

Eric Lusic, Lynx Lean Services

Houston Brown, Brasfield & Gorrie Constructors

Rebecca Snelling, JE Dunn Construction

Ryan Ring, JE Dunn Construction

Perry Thompson, Parsons Electric

LCI Course:
Intermediate Last Planner System®
Practical Application
8 CEU

Sign the sign-in sheet for credit



Learning Objectives



Identify the essential foundational principles of each of the 5 connected conversations of LPS.



Engage in all of the connected conversations of LPS® from Milestone Planning to daily interaction through practical application.



Experience the process of constraint management to improve project workflow.



Gain practical insight to effectively use Percent Plan Complete (PPC) and variance to improve reliable project plan execution.

Rules of Engagement



This is a safe zone



Everyone has equal status



Speak up and share your ideas



Actively listen to others



One conversation at a time



Use E.L.M.O.



Silence phones



Be focused and engaged



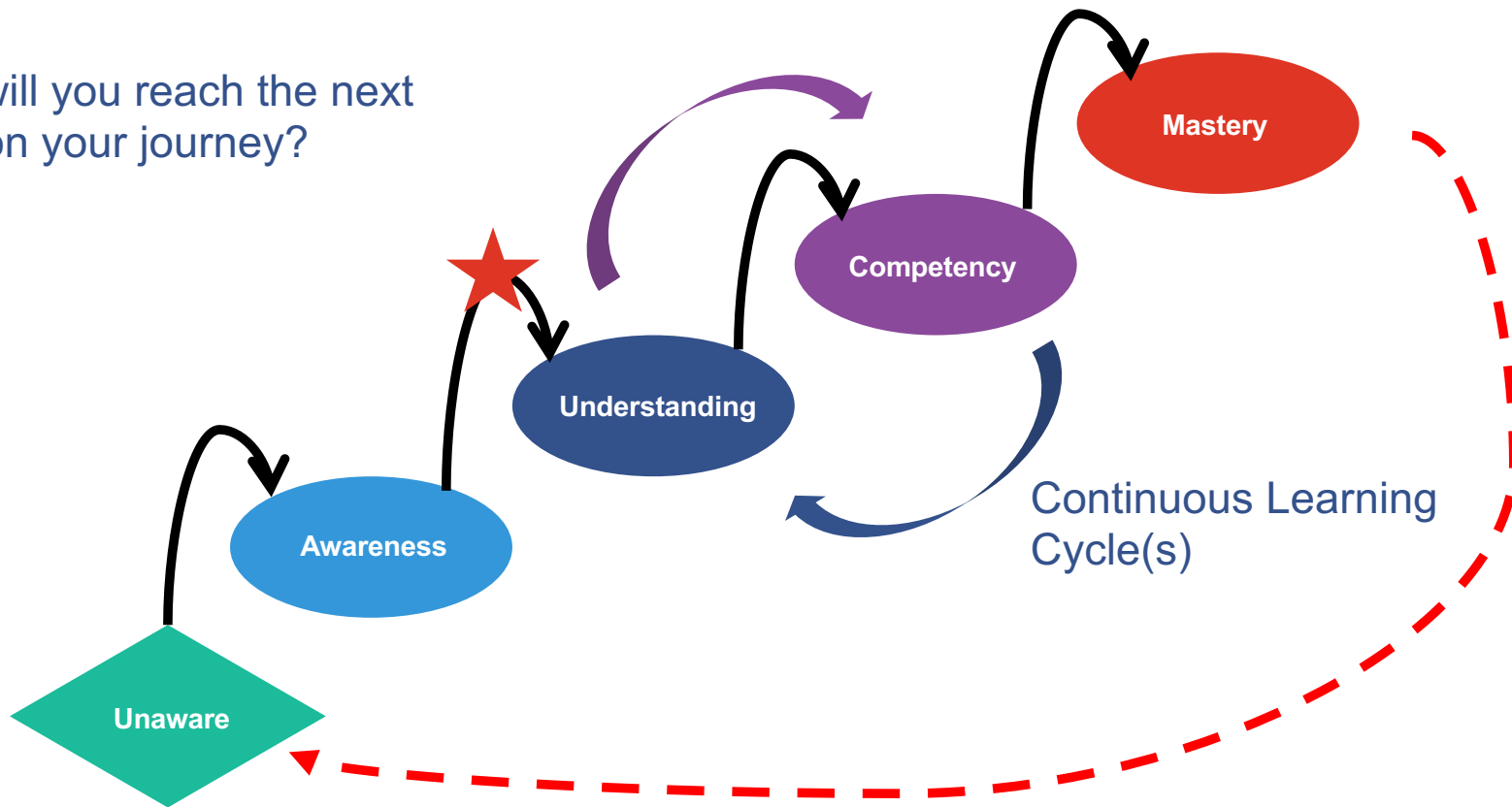
Stay on time



Have fun!

Lean Journey to Mastery

How will you reach the next level on your journey?



Last Planner System Trademark



The Last Planner System® is a registered trademark of the *Lean Construction Institute*:

- Last Planner System®
- LPS®
- Last Planner® (In reference to the person not the system)



Definitions

Lean:

A culture of respect and continuous improvement aimed at creating more *value for the customer* while identifying and eliminating waste.

Lean Project Delivery System:

An organized implementation of Lean Principles and Tools, *of which LPS is one*, combined to allow a team to operate in unison to create flow.



Six Tenets of Lean and LPS

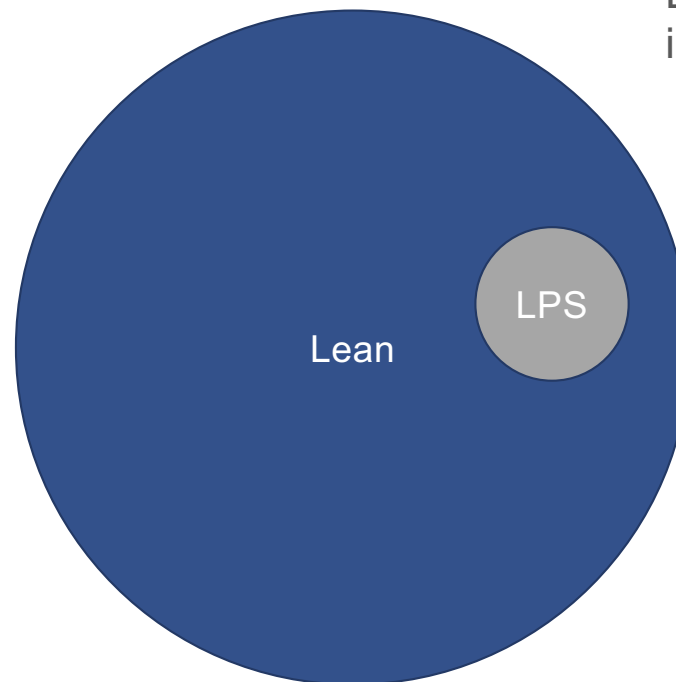
- 1 Respect for people
- 2 Optimize the Whole
- 3 Generate Value
- 4 Eliminate Waste
- 5 Focus on Flow
- 6 Continuous Improvement



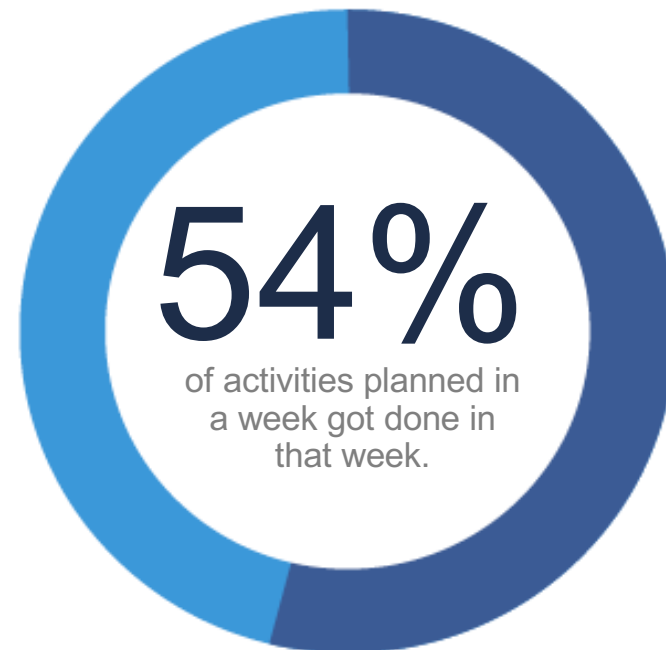
Where Can LPS Be Applied?

The Last Planner System supports a Lean Project *regardless* of the contract type or phase.

Lean is much more than just Last Planner System implementation.

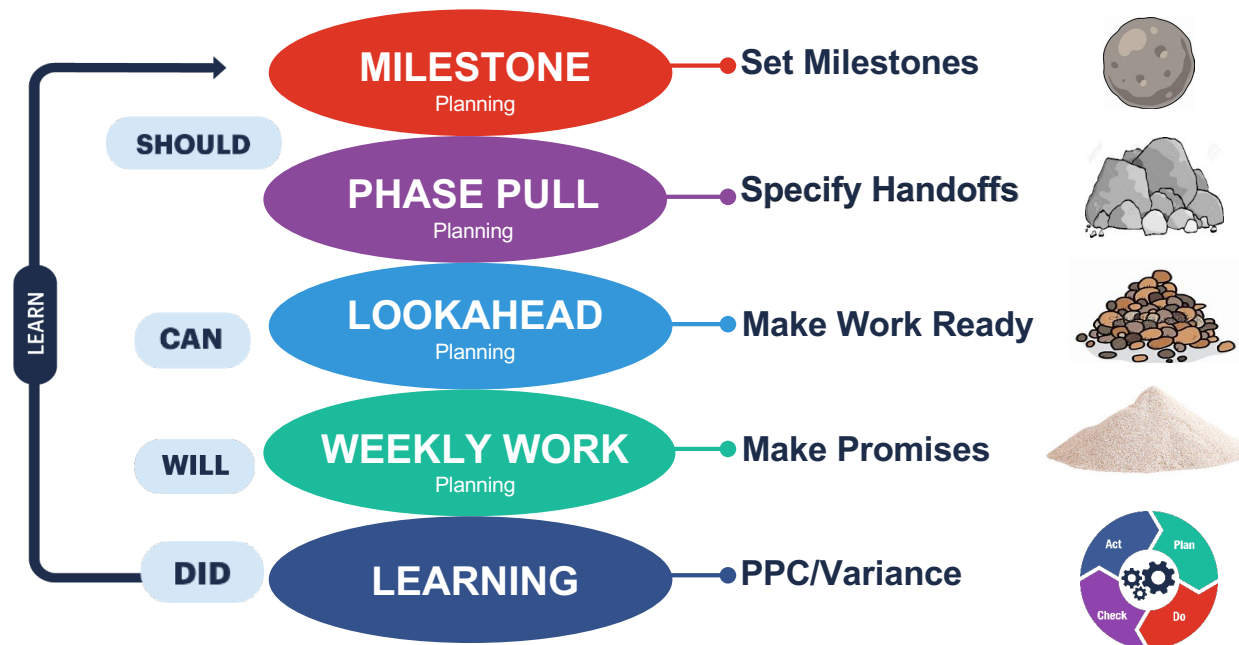


Brief History of LPS



Last Planner System Overview

5 Connected Conversations



Last Planner System Defined

The Last Planner System is a *production planning system* designed to produce *predictable workflow* and *rapid learning* in programming, design, construction and commissioning of projects.



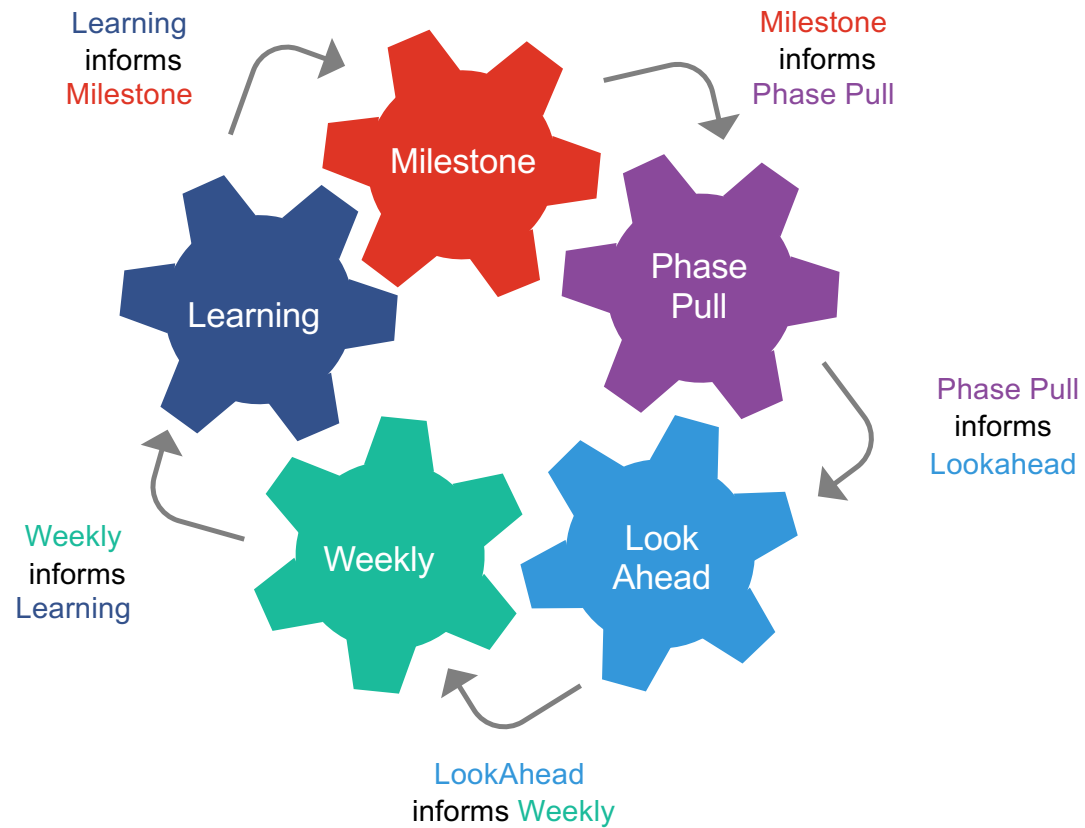
System Defined



A system is a group of interacting or interrelated entities that form a unified whole.



System for Planning



Who Is The Last Planner®?

The *Last Planner*® is the person closest to work with the authority to make decisions regarding the schedule and to make reliable commitments to complete the work of their discipline.

Last Planners®



Discussion Question: Group

What struggles have you experienced or observed while implementing LPS?

Group Discussion
10 minutes



Reliable Promises

I can do it when...

- I have the ability to say “no”
- I am able to perform the work
 - Or I supervise performers
- I estimate how long hands-on it will take
- I have the capacity & I’ll allocate it
- I am not having a private unspoken conversation in conflict with the promise
- I will be responsible (clean up the mess)

Commitment processes are conversation acts

Reliable Promising

Which of these are promises?

- I will do...
- Maybe I will...
- I'll try, we'll see what happens...
- Yes, I will do... if...
- I could probably do it
- No, I cannot do it
- Sure, I'll try to do...

& which of these are useful?

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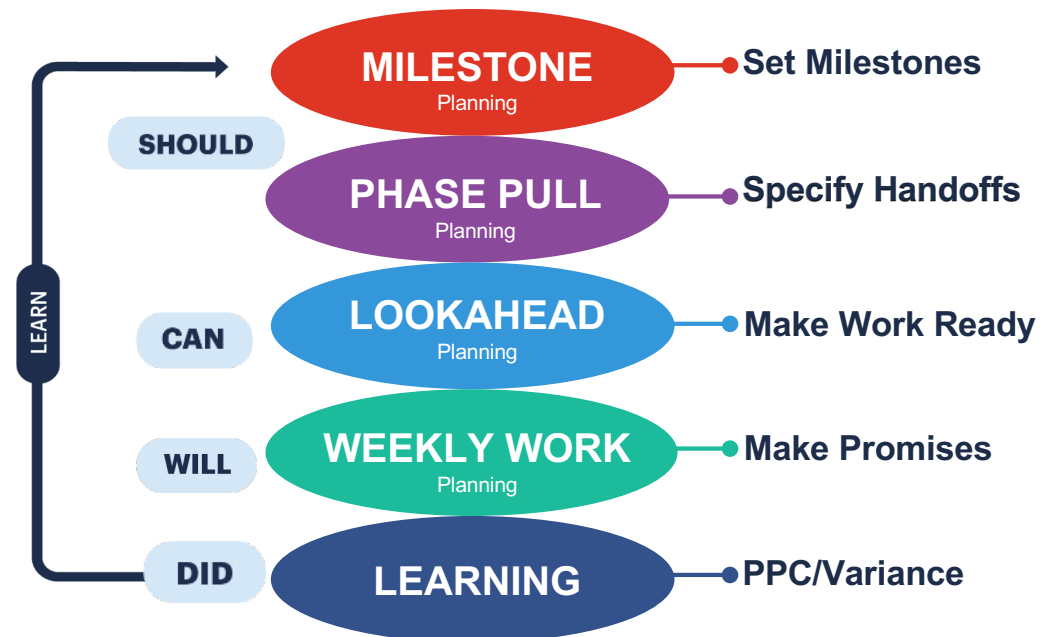
& which of these are useful?

5 Connected Conversations Of LPS

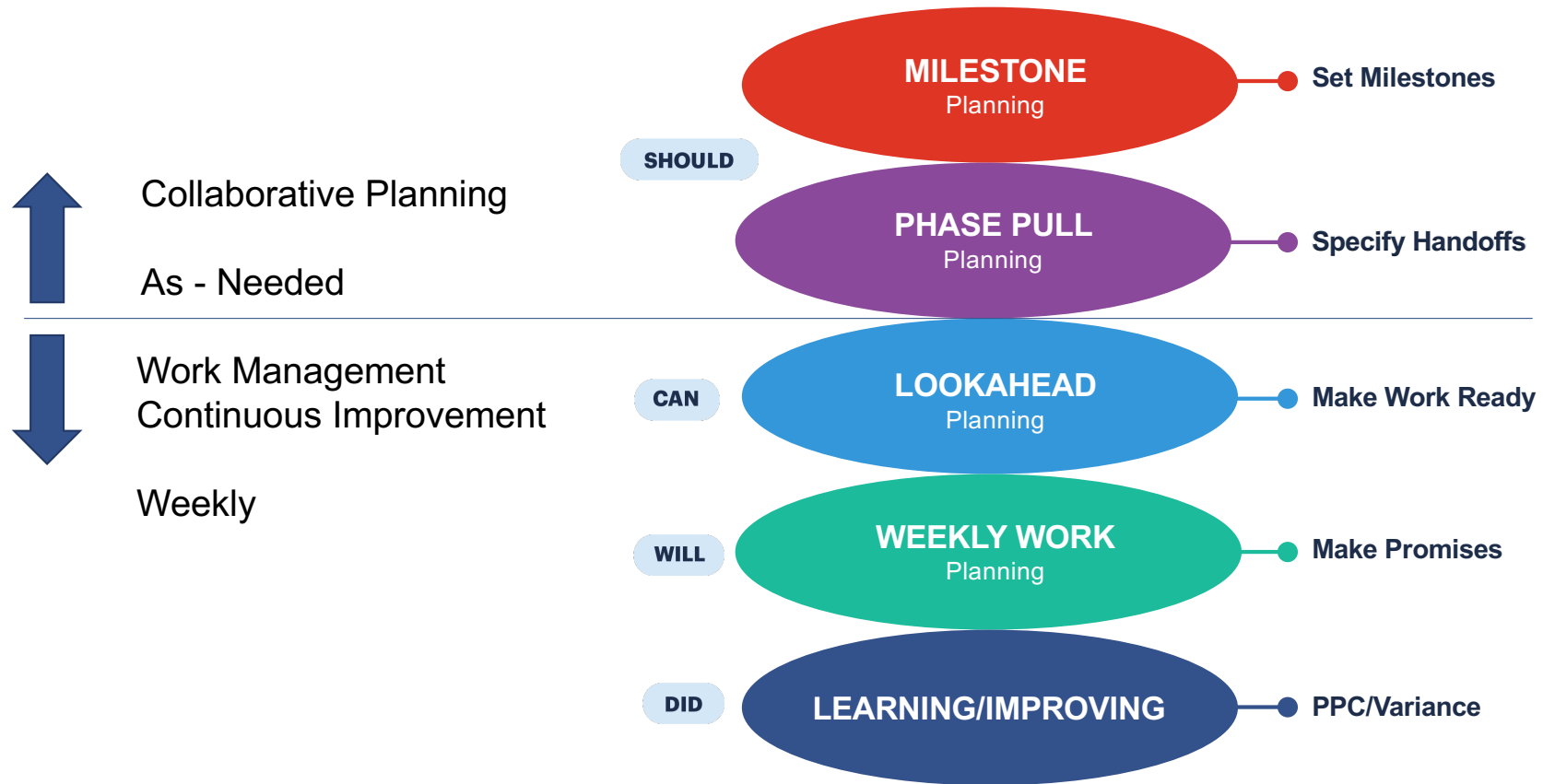
The LPS is a commitment-based system integrating 5 connected planning conversations:

1. Milestone Planning (Should)
2. Phase Pull Planning (Should)
3. Lookahead Planning (Can)
4. Weekly Work Planning (Will)
5. Learning (Did/Learn)

5 Connected Conversations



Last Planner System Overview



The Project – Tiny Home Development

For the remainder of this workshop, we will be using a *fictitious project* to practice application of each conversation in Last Planner System.

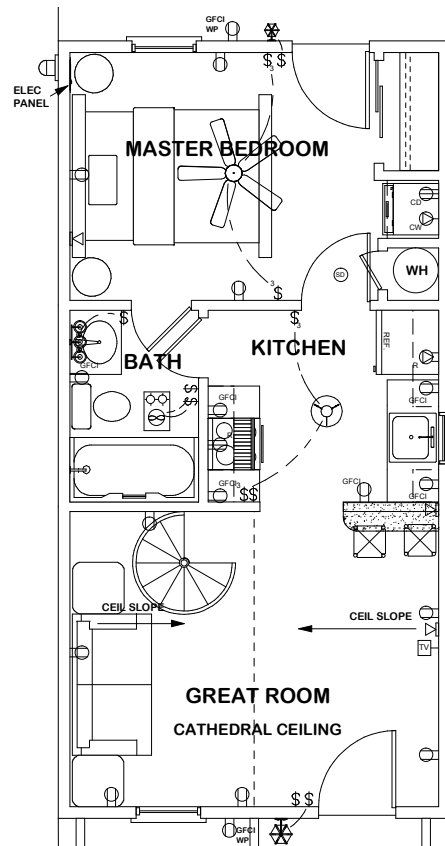


The Project – Tiny Home

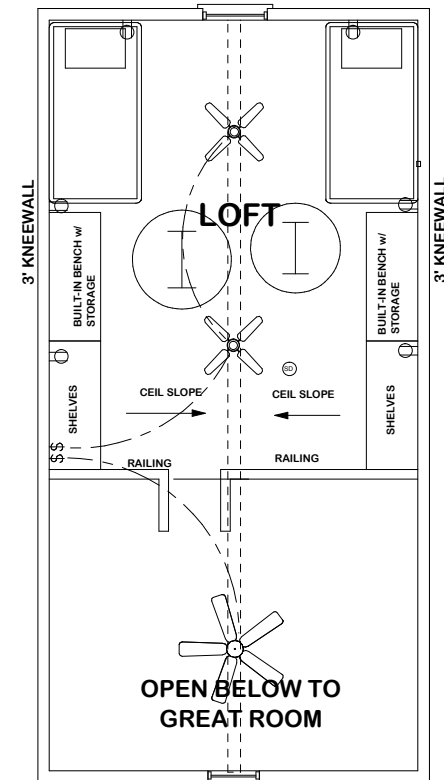


The Project – Tiny Home

First Floor



Loft



Home Specifications

- 1 bedroom and 1 bath, as well as a sleeping loft.
- 8'-0" ceilings on first floor and cathedral ceiling in the loft, rising from a 3' knee wall.
- The house is 15'-0" wide and 30'-0" deep (+6' rear deck and 4' front porch)
- Gable metal roof with a main roof pitch of 10:12 and a hip roof over porch with a pitch of 6:12.
- Vinyl or hardi plank siding.
- Plan comes with pier and beam foundation.
- **Square Footage:**
 - First Floor: 450
 - Loft: 270
 - **Total Heated Living: 720**
 - Porch: 60
 - Total Area Under Beam: 780
- Prefabricated steel spiral staircase.
- Dual zone split system heat pump HVAC with ductless cassette indoor units and pumped condensate drain.
- Kitchen & Bath Exhaust with through wall vents.
- Finishes:
 - Wood Plank Vinyl Flooring.
 - LED Lighting.
 - Energy Start & Low Consumption fixtures/appliances.
- Low-E Glazing.

Activity: Team Member Trade Assignments

Trade Assignments:

- 1) Concrete
- 2) Site & Landscape
- 3) Framing & Drywall
- 4) Envelope
- 5) M&P
- 6) Electrical
- 7) Interior Finishes



Activity: Role Assignment

- Teammate introductions
- Decide on project roles to play
- Add role to zoom name

10 Min



Milestone Planning

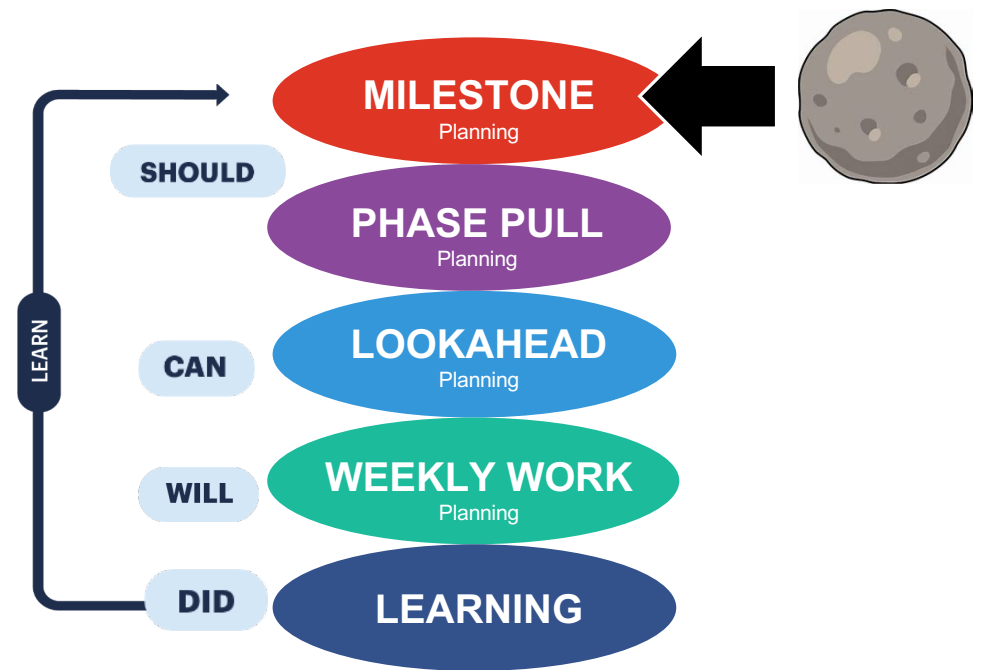
The first conversation of LPS is *Milestone Planning*.

Milestone Planning

The goal of Milestone Planning is for the team to align with and *set the milestones* for the project.

This starts the we “*should*” be able to do conversation.

5 Connected Conversations



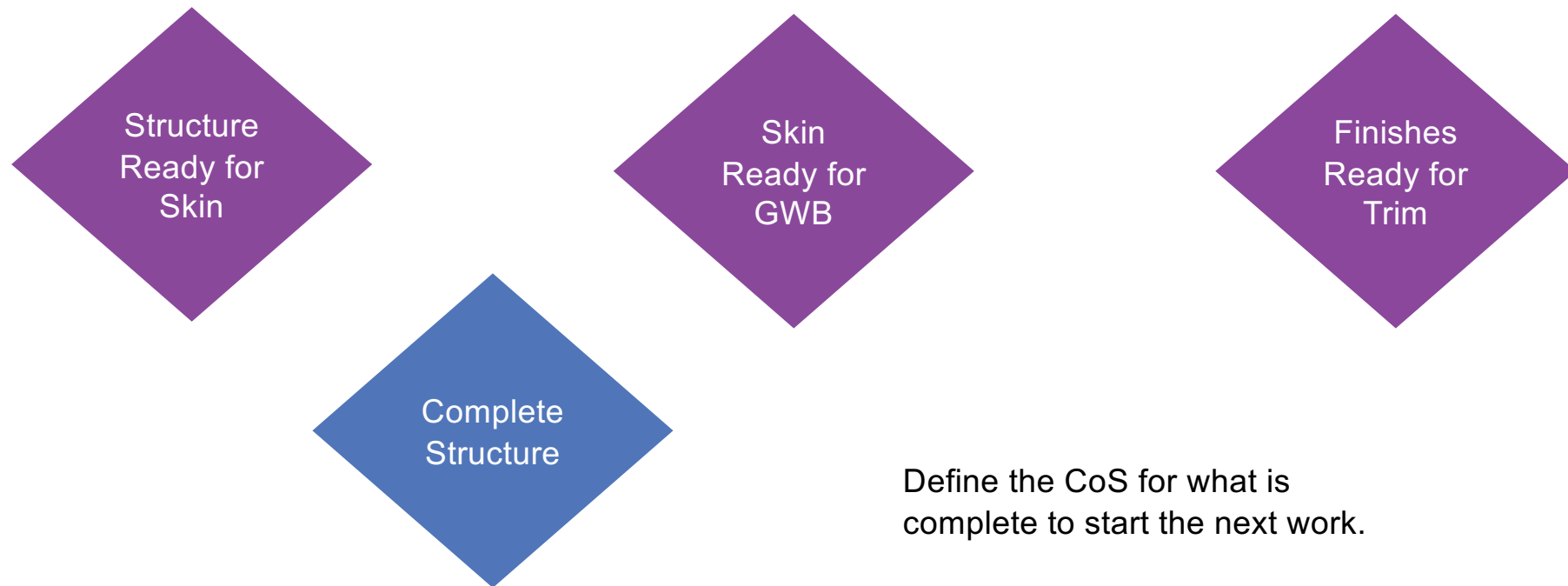
Milestone Definition

Project Milestones are a significant event which *releases* work in another major phase or trade.

Milestones should be *broken down by each trade* for their interim milestones to support the project requirements.



Milestone Examples



Define the CoS for what is complete to start the next work.

Milestone Planning: WHY

Teams that skip Milestone Planning/Alignment risk:

- Disconnect in the LPS Conversations.
- Misaligned prioritization of work.
- Delivering too large a batch for milestone completion versus just what is required to release the next phase/trade.
- Loss of visual management control of overall project road map.



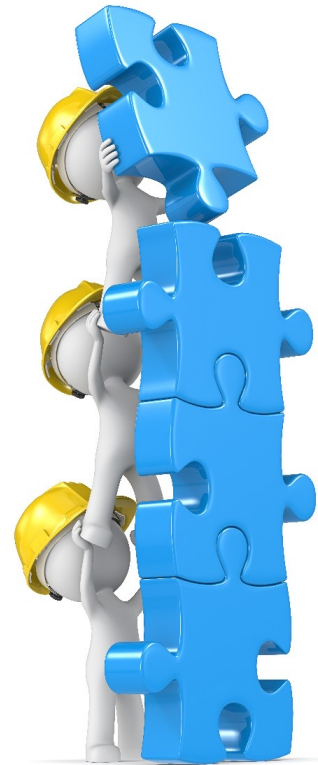
Milestone Planning: WHEN

- As *early* in the project as possible.
- Can be done even *before we know the building design*.
- Should form the basis of continuing *onboarding as trades* engage in the project.
- Should set the *schedule for Phase Pull Planning* events.
- May be *conceptual* early on to provide a framework.

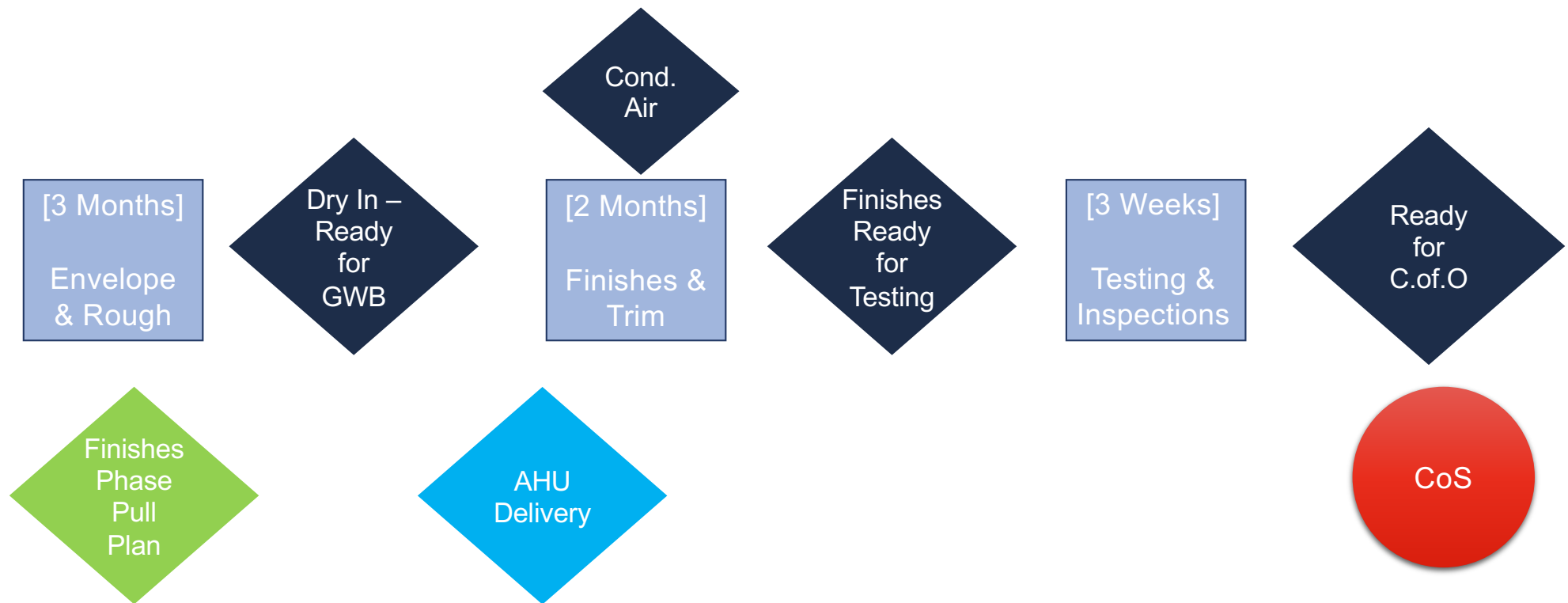


Milestone CoS: “Definition of Done”

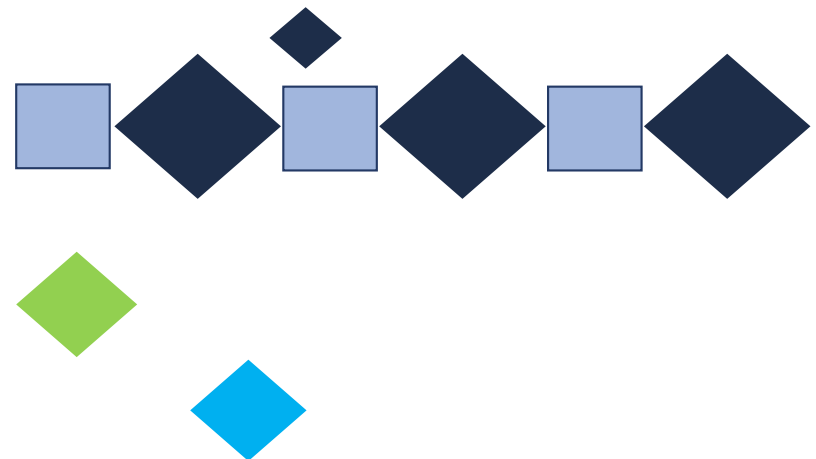
- Team aligns on a clear description of the *work included* in the milestone by each trade.
- What is *essential* to satisfy the pull of the released phase.
- *High level*, don’t get bogged down in minute activities.



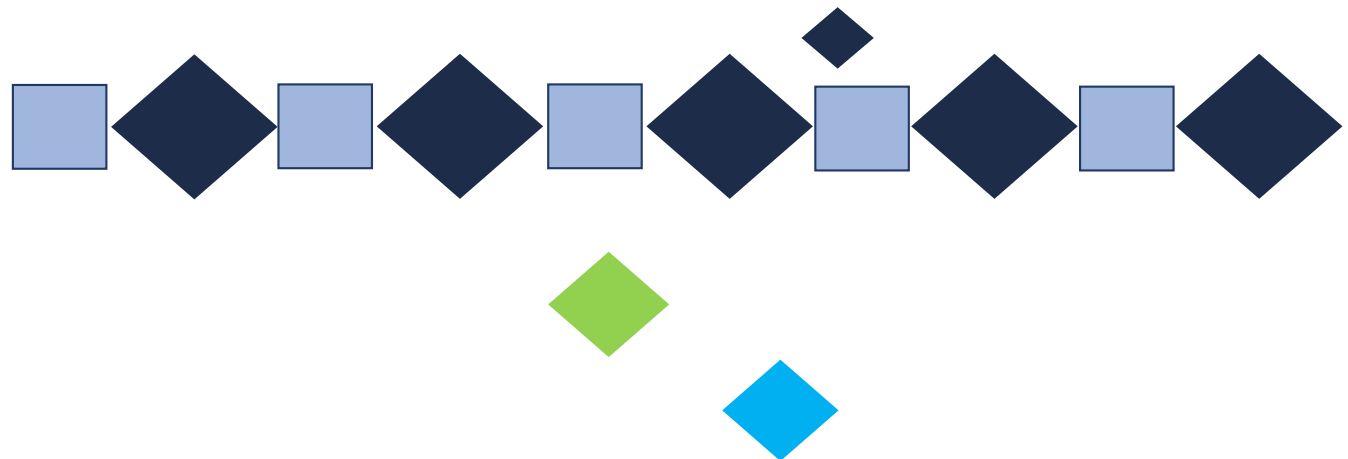
Creating the Milestone Plan



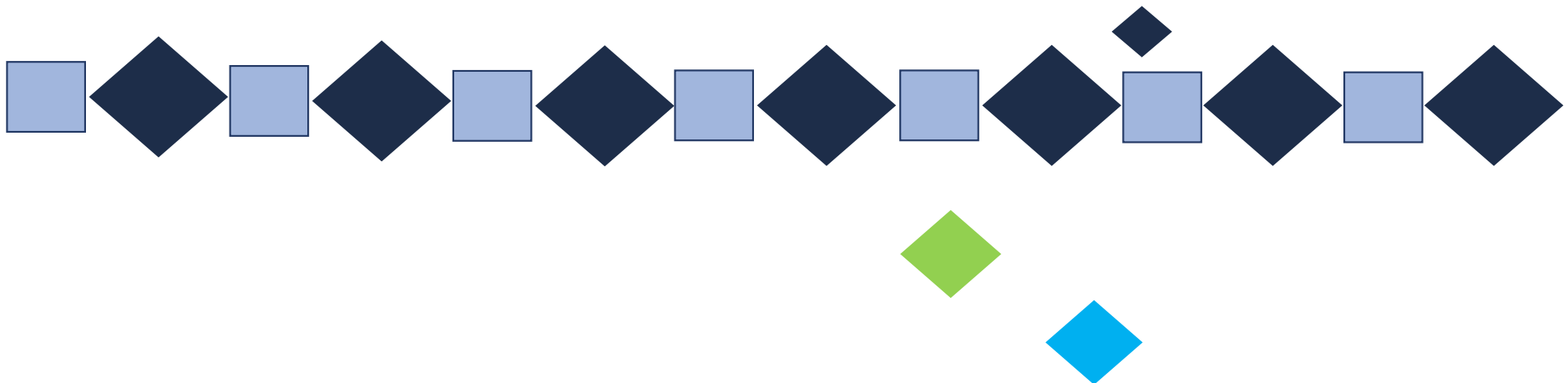
Creating the Milestone Plan



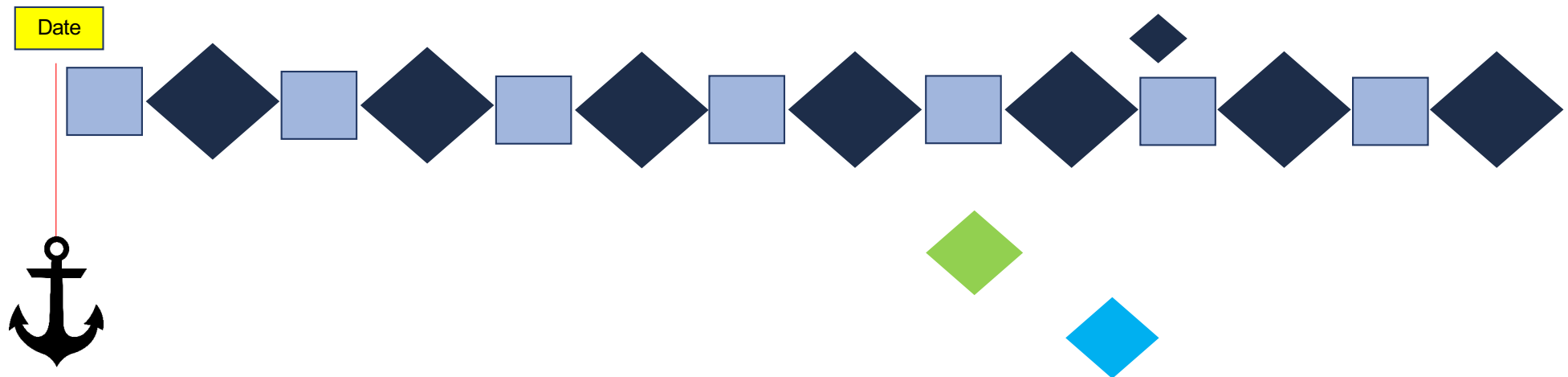
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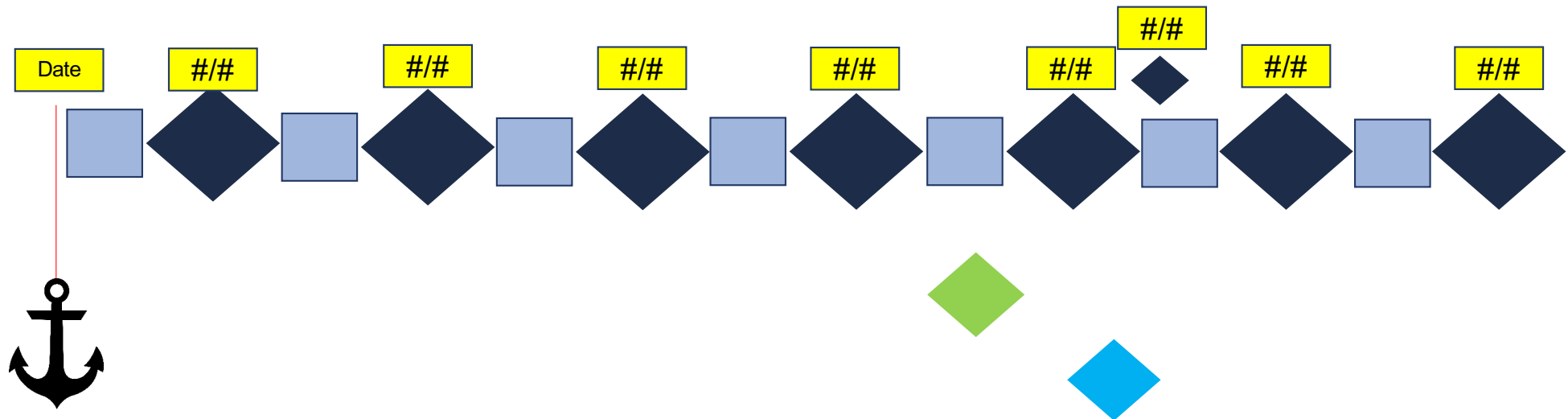
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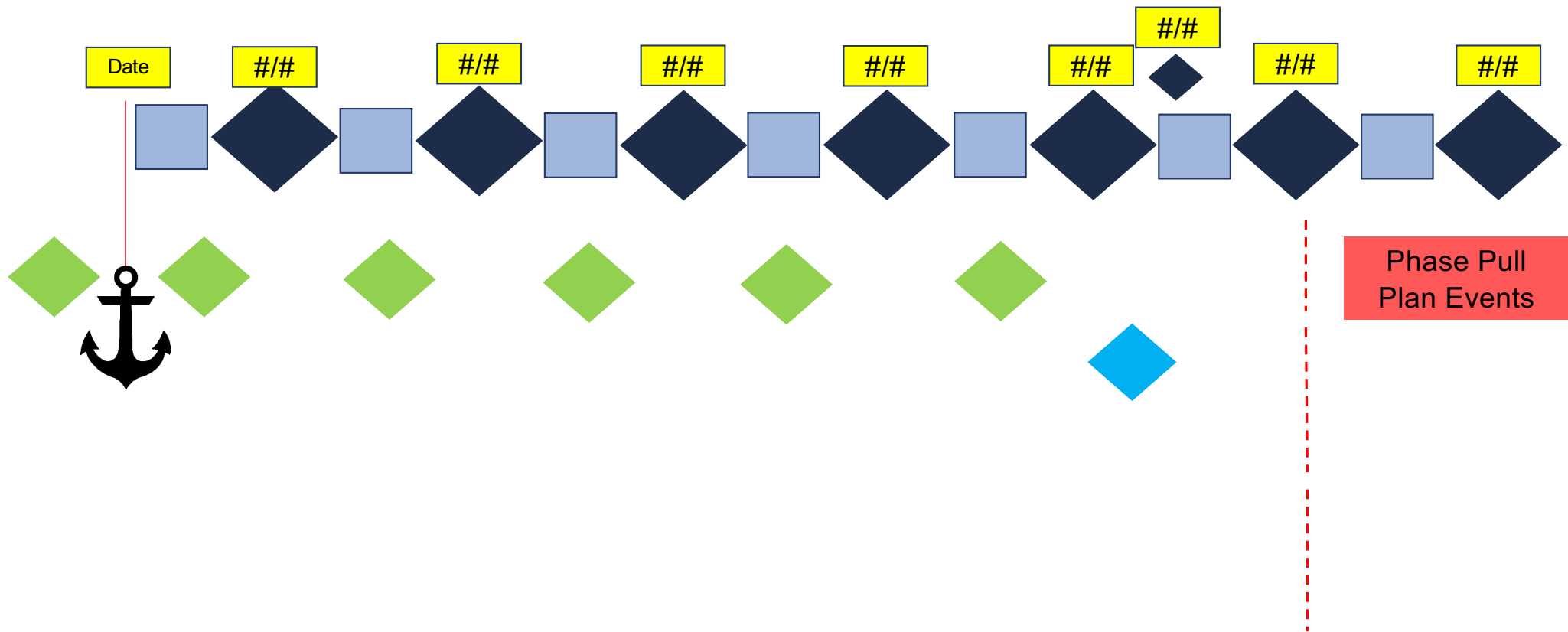
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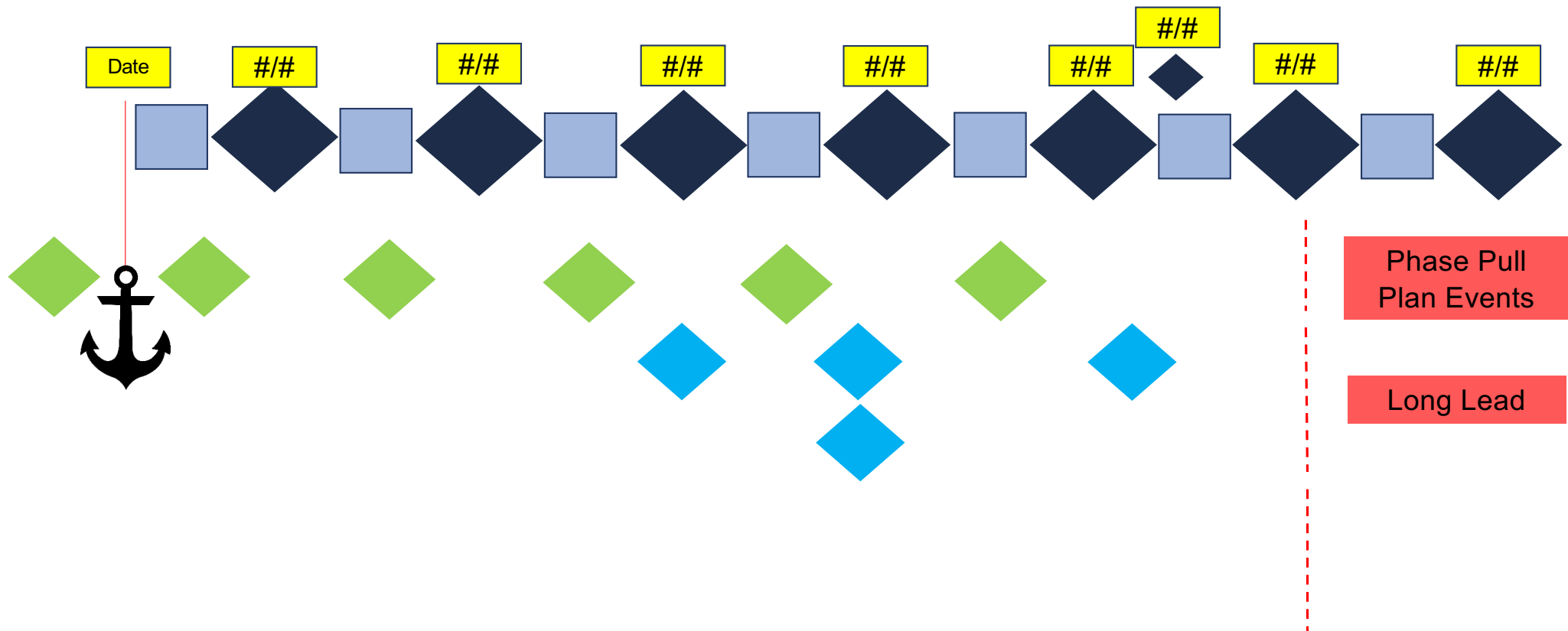
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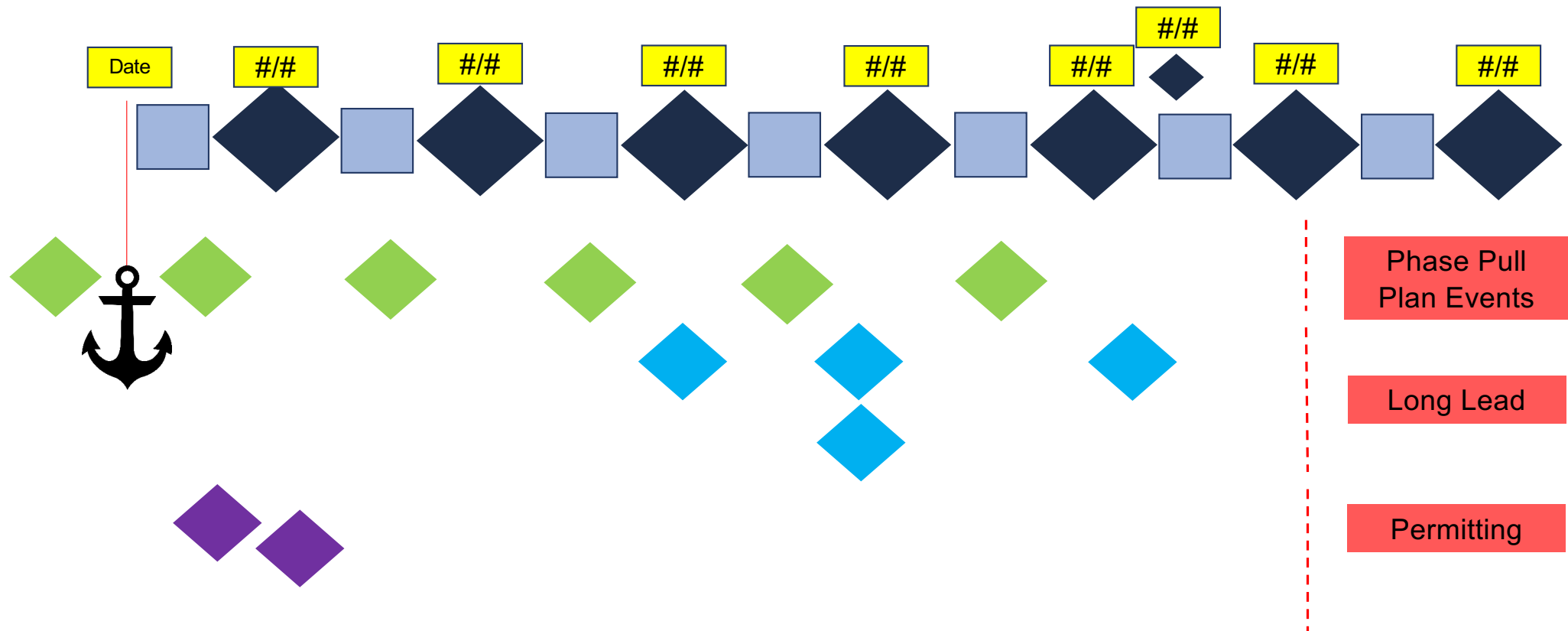
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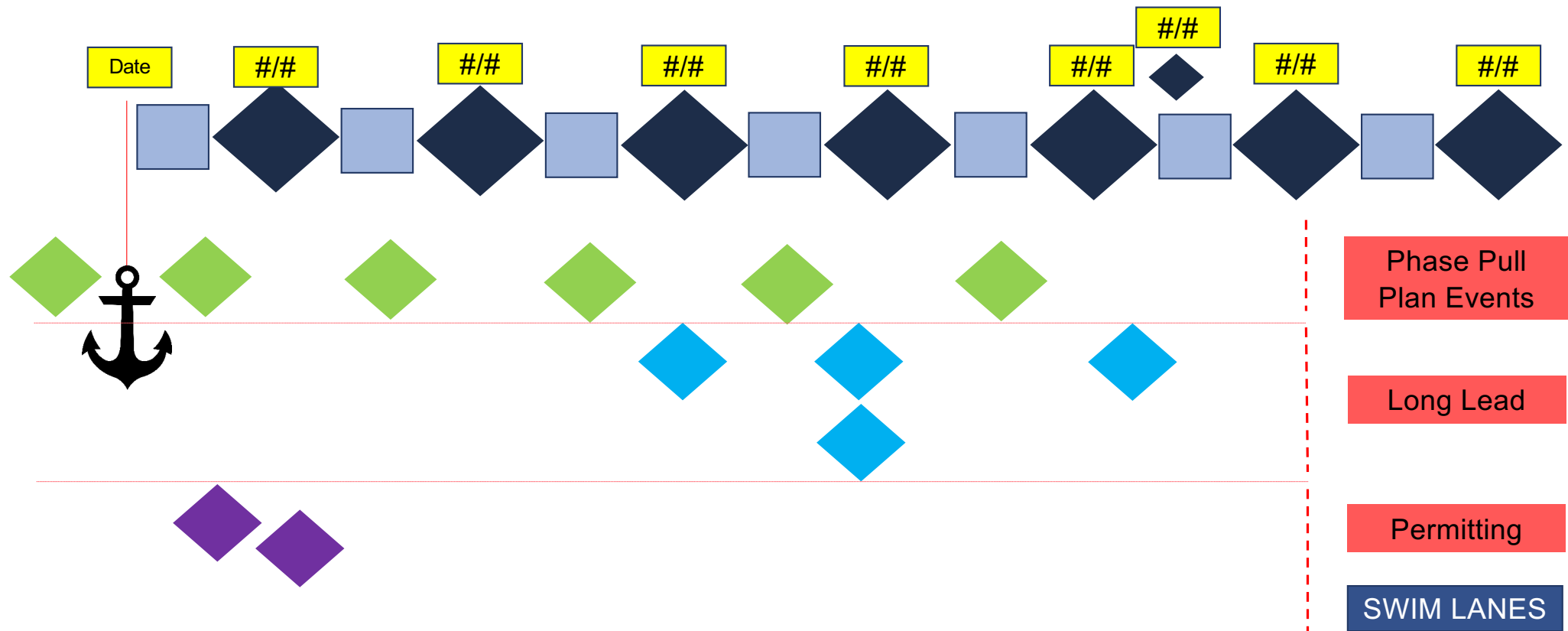
Creating the Milestone Plan



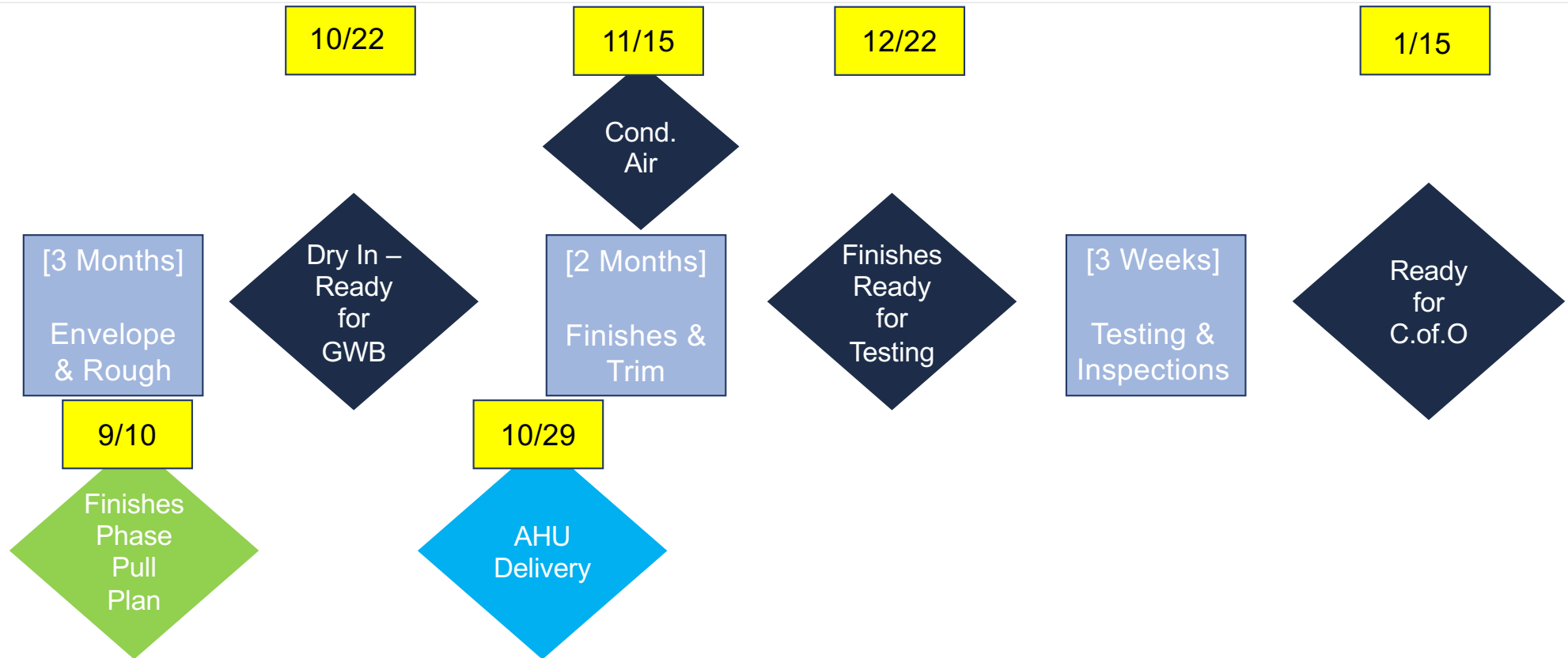
Creating the Milestone Plan



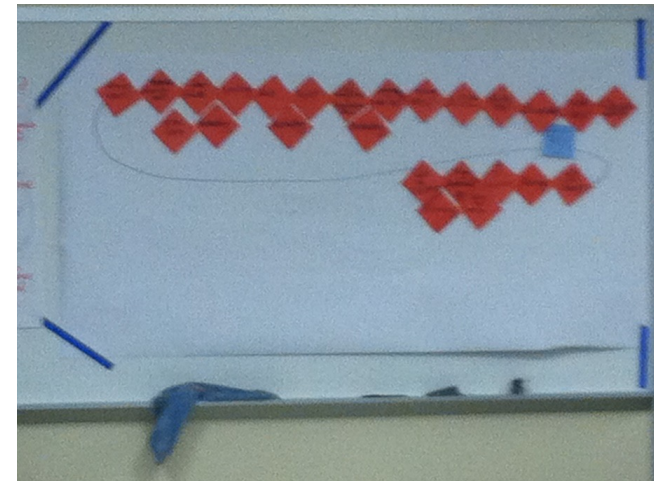
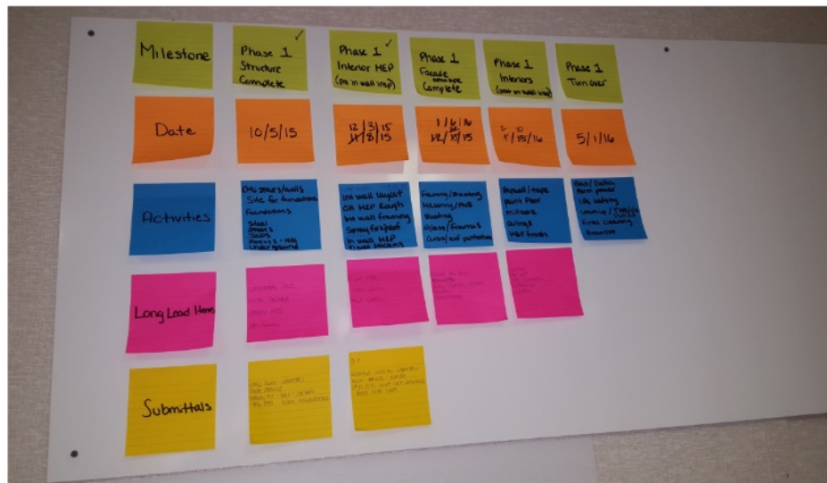
Creating the Milestone Plan



Creating the Milestone Plan



More than one way to format



Activity: Tiny Home Project Milestone Plan

Activity Description:

- Use blank paper, post-its and sharpies
- Start with final milestone
- Create construction milestone structure and flow
- Estimate phase durations
- Arrive at the beginning: 1 Week from 'Permit in Hand'
- Populate Dates Forward

40 Minutes



Ready for
Homeowner
Move In

Phase Pull Planning

The second conversation of LPS is *Phase Pull Planning*.

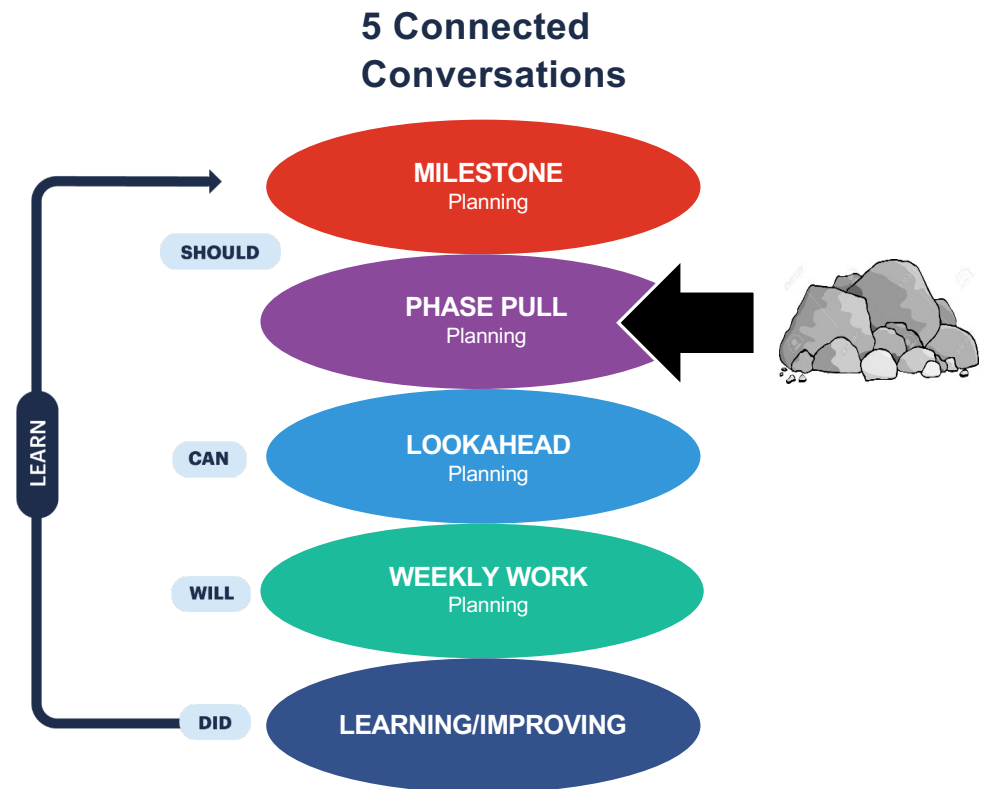
Phase Pull Planning

The goal of Phase Pull Planning is for the team to determine the key *handoffs* of work or information needed to deliver a milestone.

This continues the *we “should” be able* to do conversation.

Pull may validate or change the sequence in Milestone Planning output.

Milestone planning is a pre-requisite.

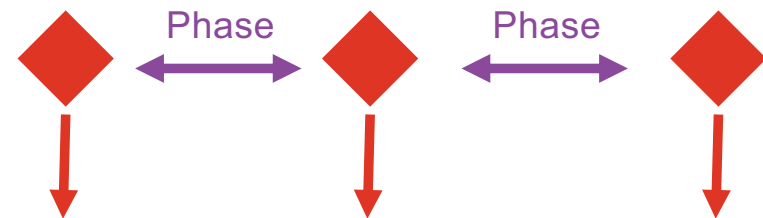


Phase Definition

Phase:

A period of the project, where a *specific group of activities* is scheduled to be accomplished.

A phase can be either a time period or a group of activities leading to the *accomplishment of a defined goal/milestone*.



Courtesy of: Brasfield & Gorrie

Push vs. Pull

Push:

- Advancing work based on central schedule.
- Releasing materials, information, or directives possibly according to a plan, but irrespective of whether the downstream process is ready to process them.

Pull:



- Advancing work when the next in line customer is ready.
- A “Request” from the customer signals that the work is needed and is “pulled” from the performer.



Phase Pull Planning: “Should”

Phase Pull is performed to *plan the work for each milestone*.

- Examples: Structure Ready for Skin, Dry-In Ready for Gypsum Board

The Phase Pull Plan is a high-level view of what the team “*should*” *be able to do*, breaking  into .

Avoid *excessive detail* to minimize planning rework.



Courtesy of: JE Dunn

Phase Pull Planning: Preparation

Identify Milestone and 'Conditions of Satisfaction'

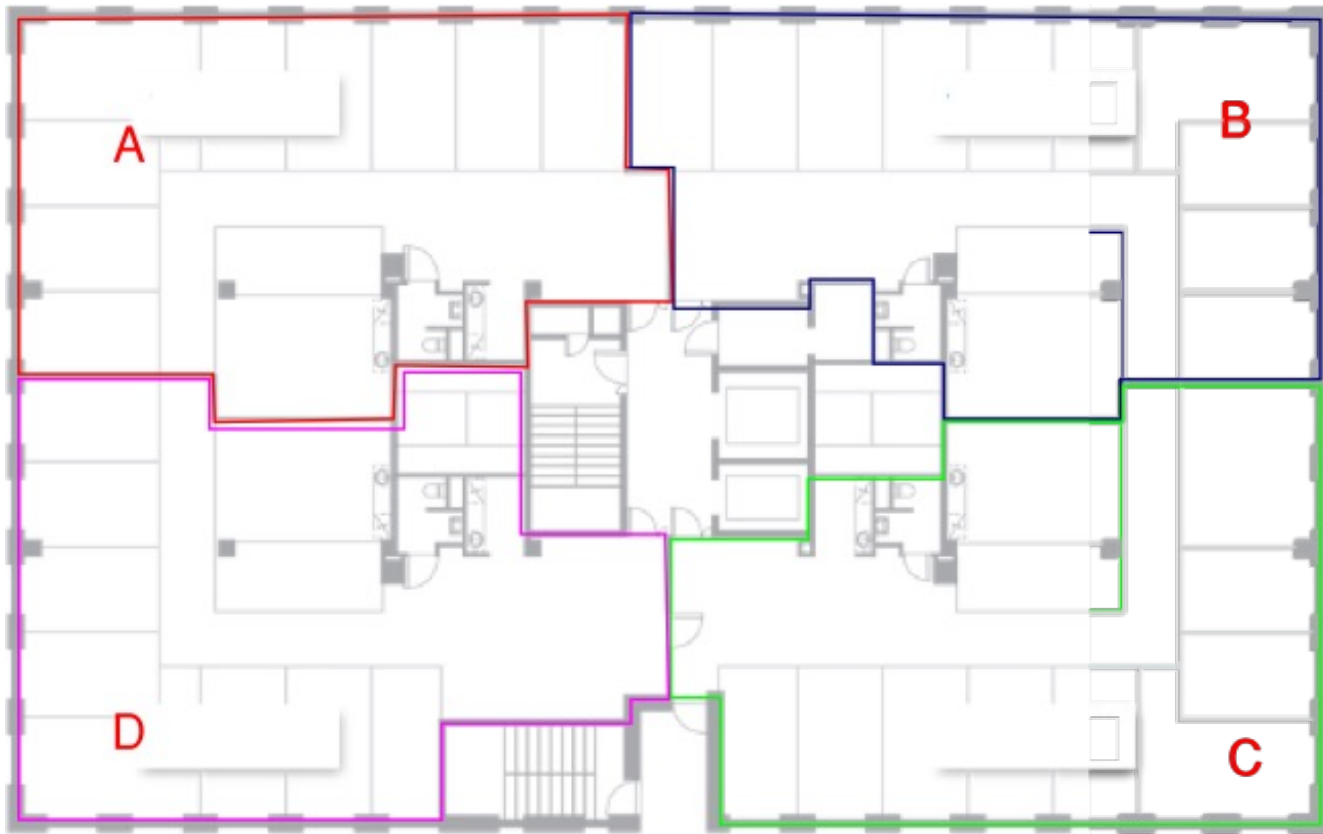
- Identify Milestone the team will pull from.
- Determine work areas and batch sizes.
- Phases should be no more than a 2-3 month batch size.
- Break longer duration phases into interim milestones.
- “Conditions of Satisfaction” (CoS): Create a definition of Done for the Milestone.
- Align on the flow of work direction for all trades.



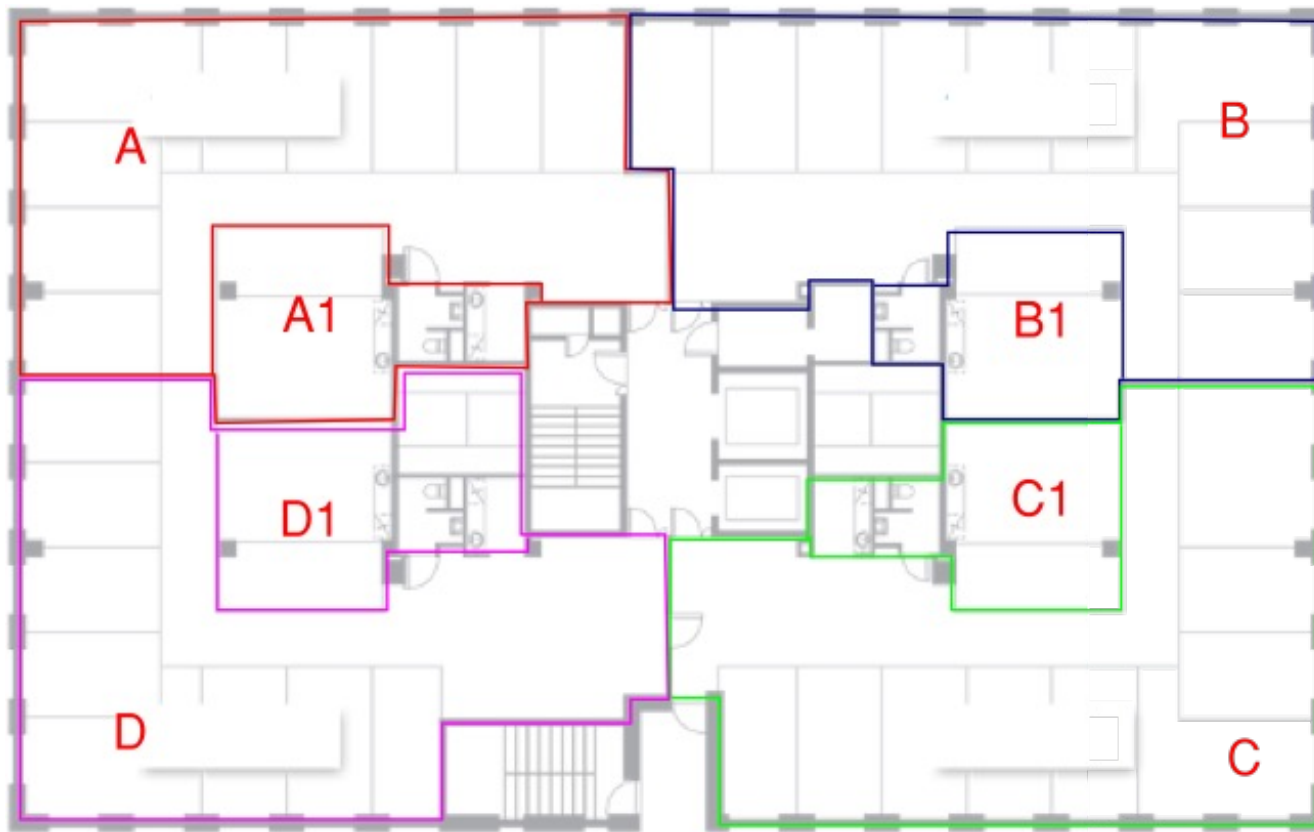
Example: Work Area/Batch Plan



Example: Work Area/Batch Plan



Example: Work Area/Batch Plan



Phase Pull Planning: HOW

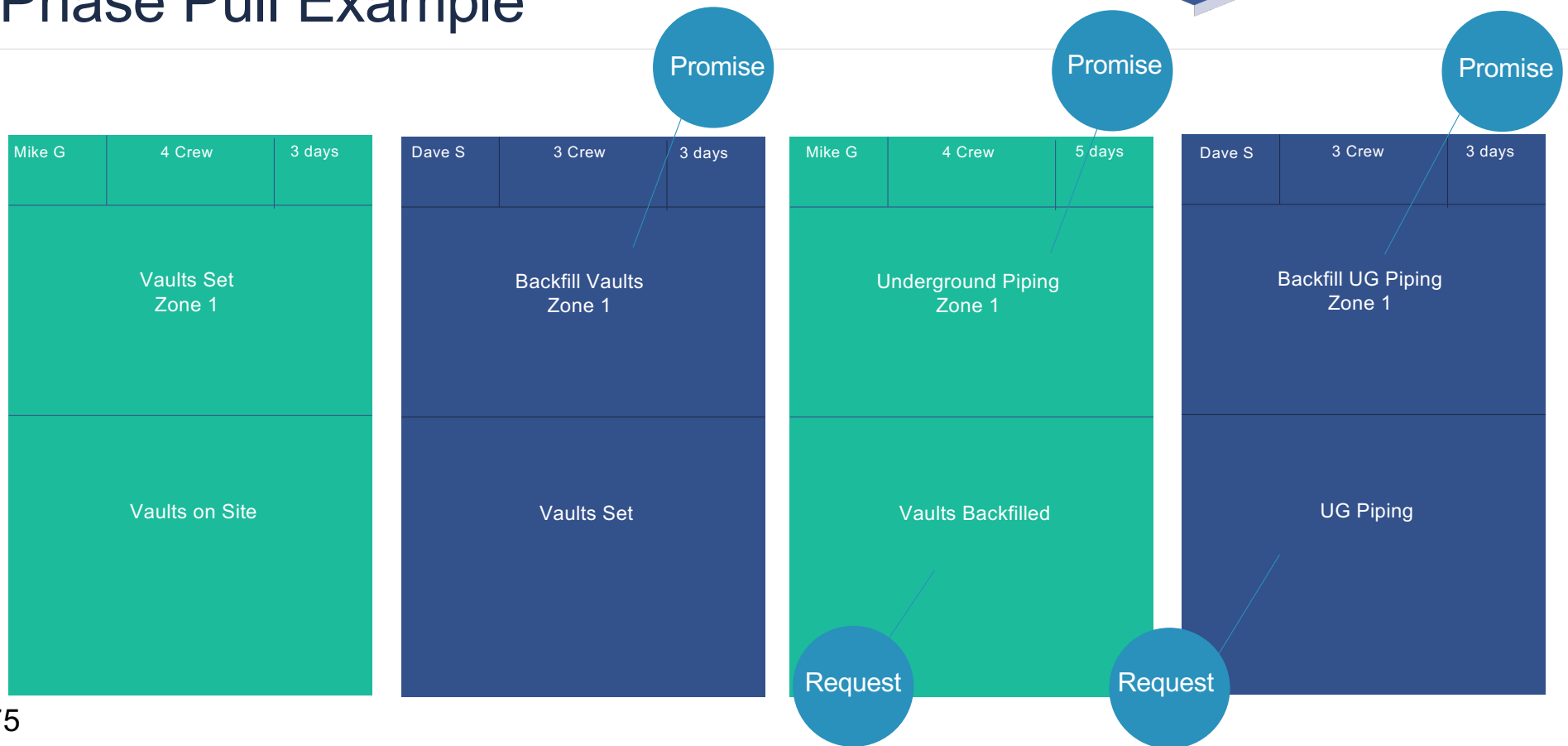
Last Planners Create Tags

- Create a legend of color tags by trade.
- Include location/area to create flow of work.
- Breakdown duration estimates by area.
- Break up the work that is longer than ~5-10 days.
- Understand what you need from other trades to release your work.



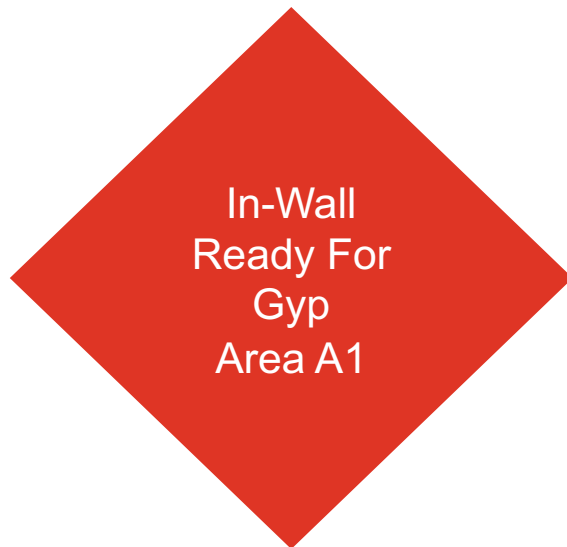
Courtesy of: The ReAlignment Group

Phase Pull Example

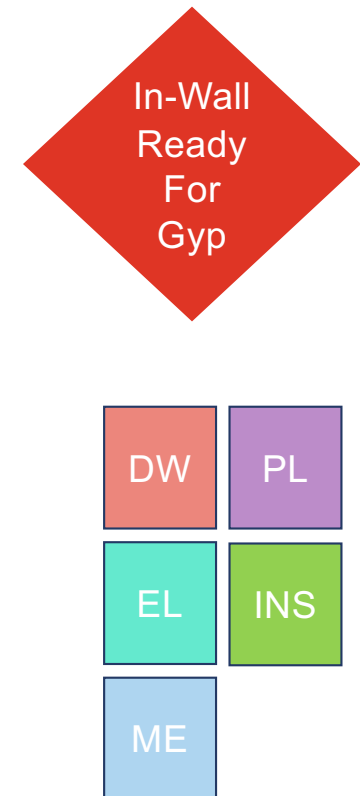


Phase Pull Planning: HOW – “Should”

Step1: Define “Done” – the CoS for completion



Phase Pull Planning: HOW – “Should”

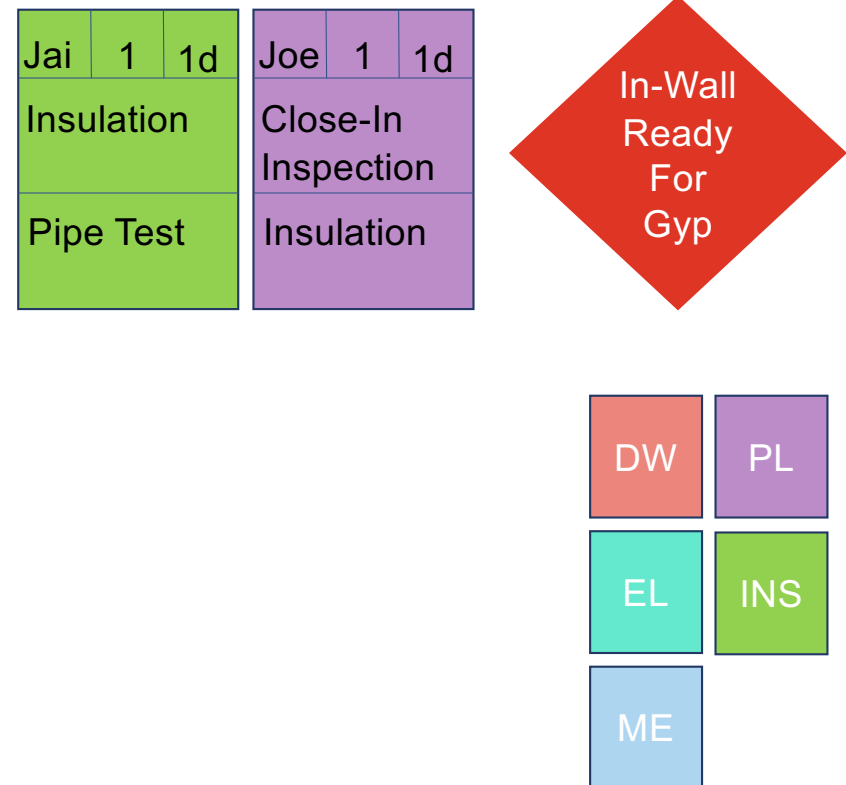


Phase Pull Planning: HOW – “Should”

Joe	1	1d
Close-In Inspection		
Insulation		



Phase Pull Planning: HOW – “Should”

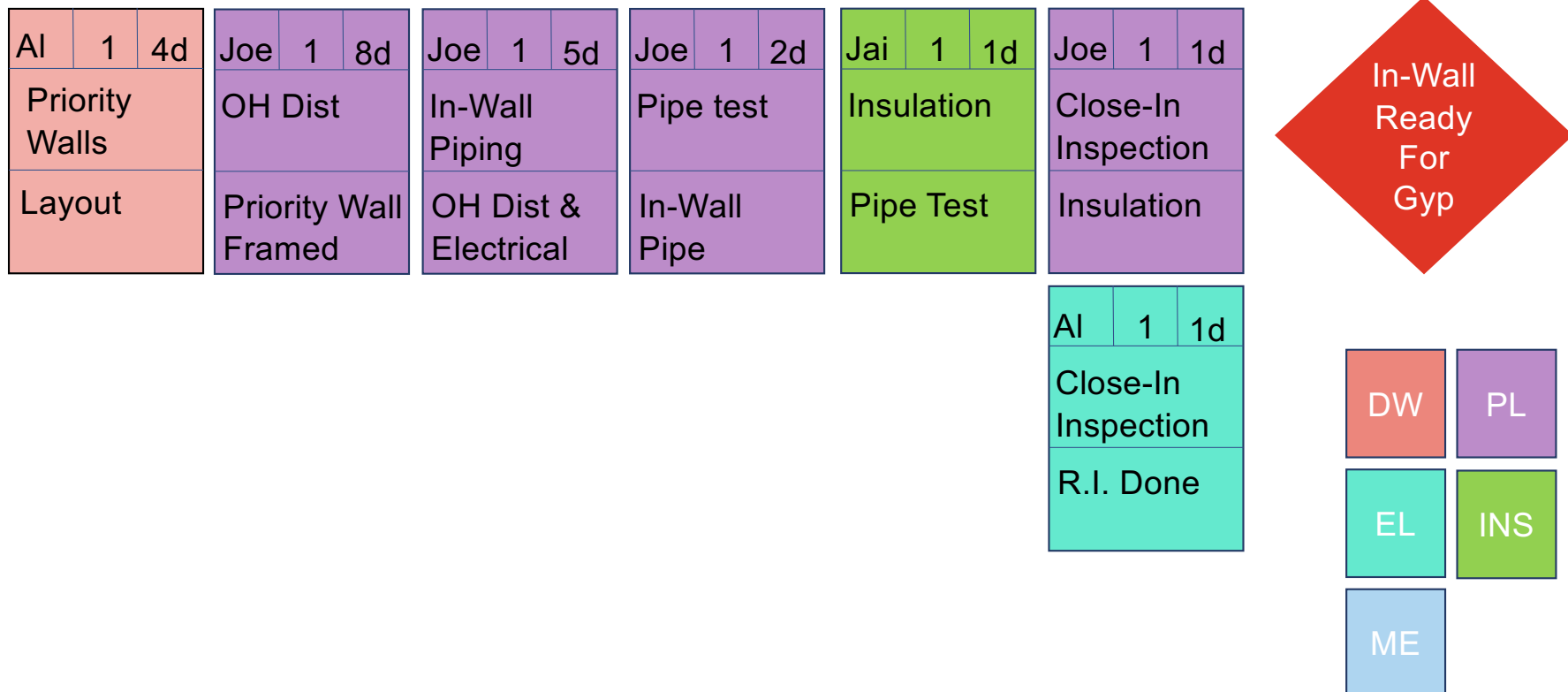


Phase Pull Planning: HOW – “Should”

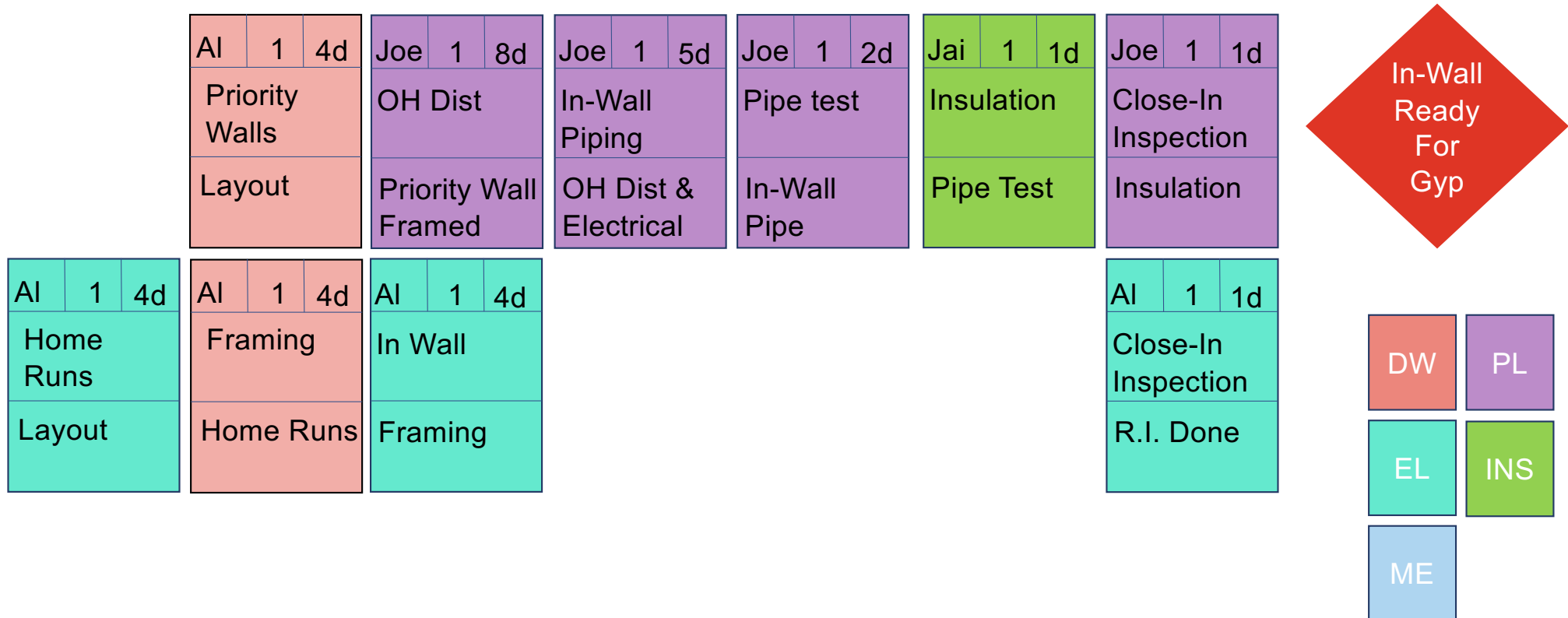
Joe	1	5d	Joe	1	2d	Jai	1	1d	Joe	1	1d
In-Wall Piping			Pipe test			Insulation			Close-In Inspection		
OH Dist & Electrical			In-Wall Pipe			Pipe Test			Insulation		



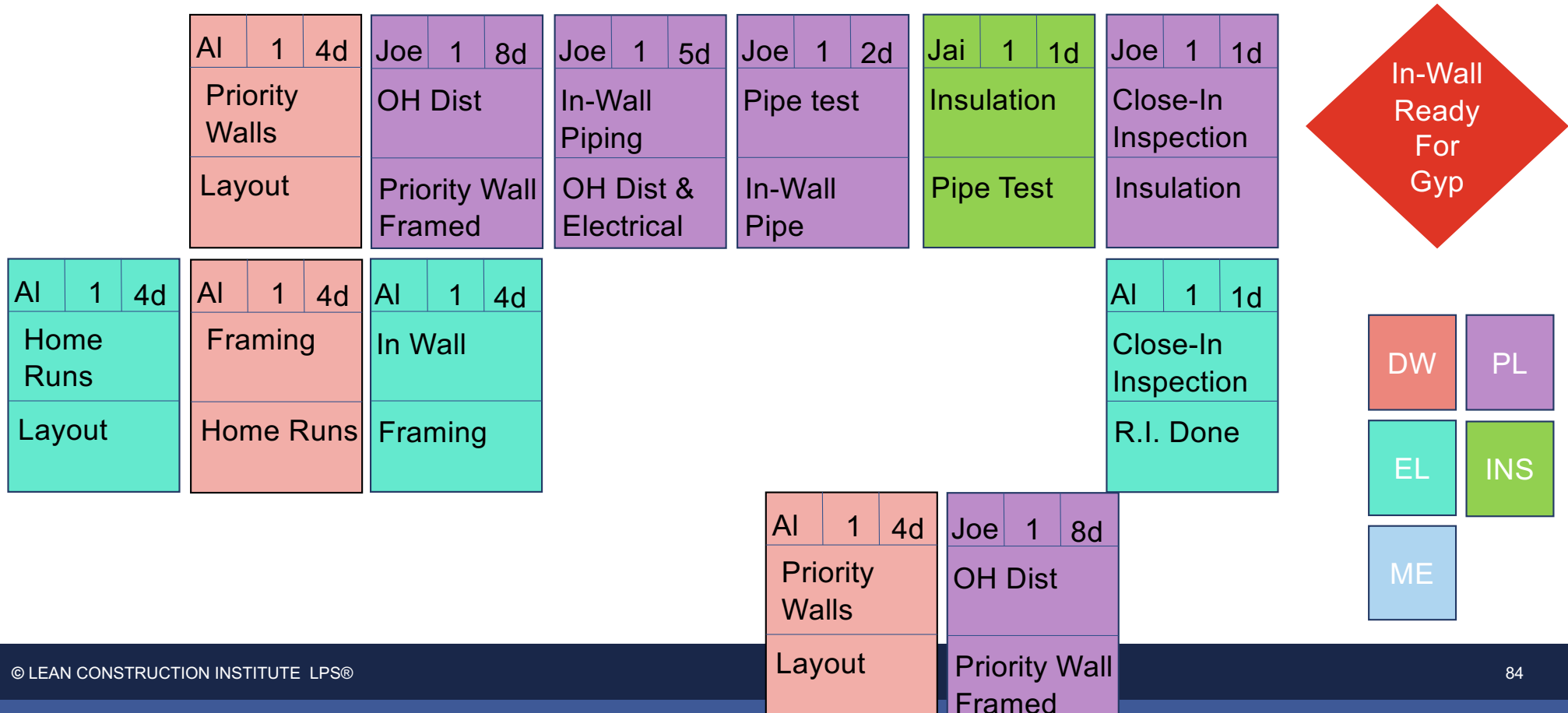
Phase Pull Planning: HOW – “Should”



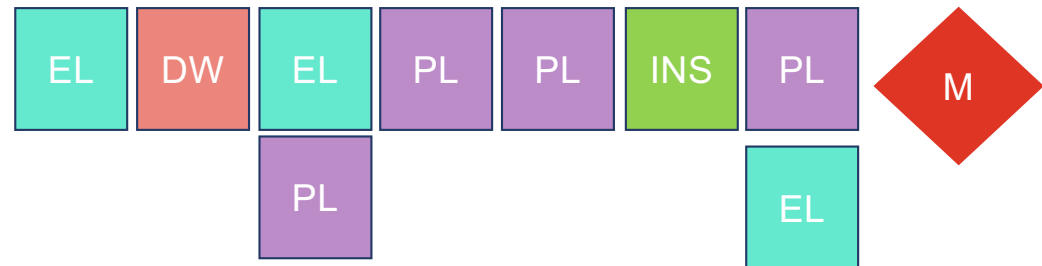
Phase Pull Planning: HOW – “Should”



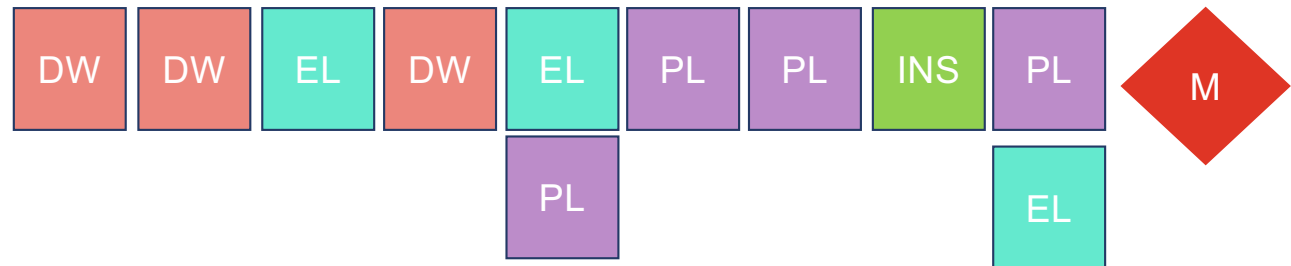
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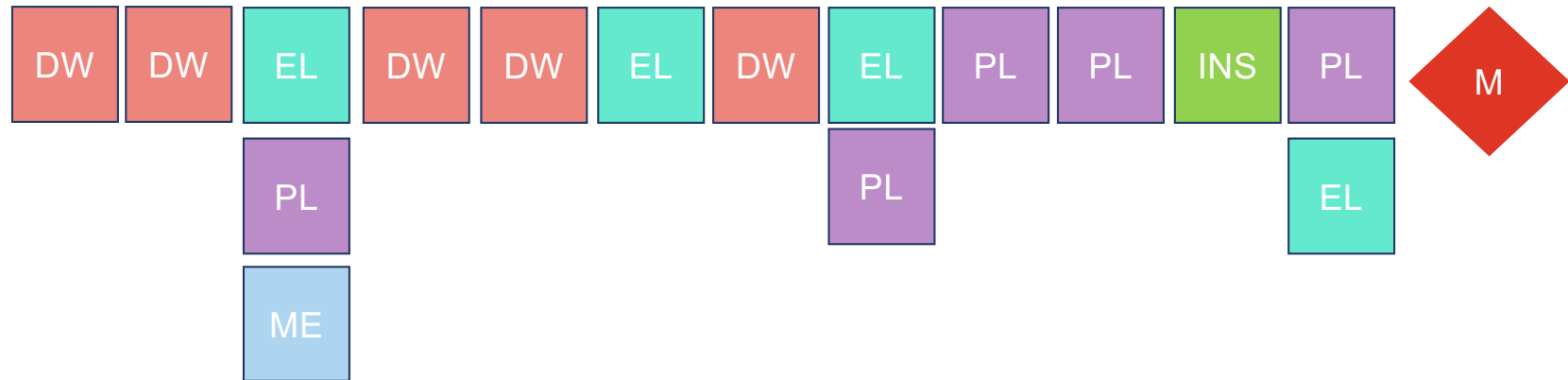
Phase Pull Planning: HOW – “Should”



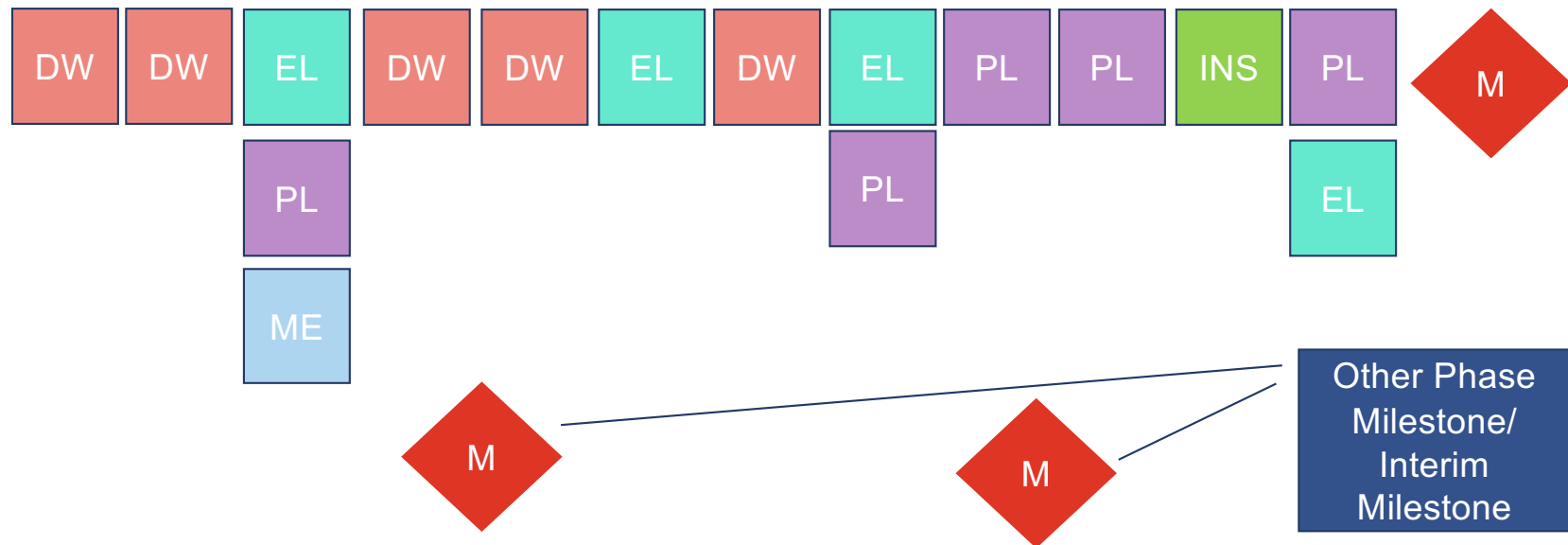
Phase Pull Planning: HOW – “Should”



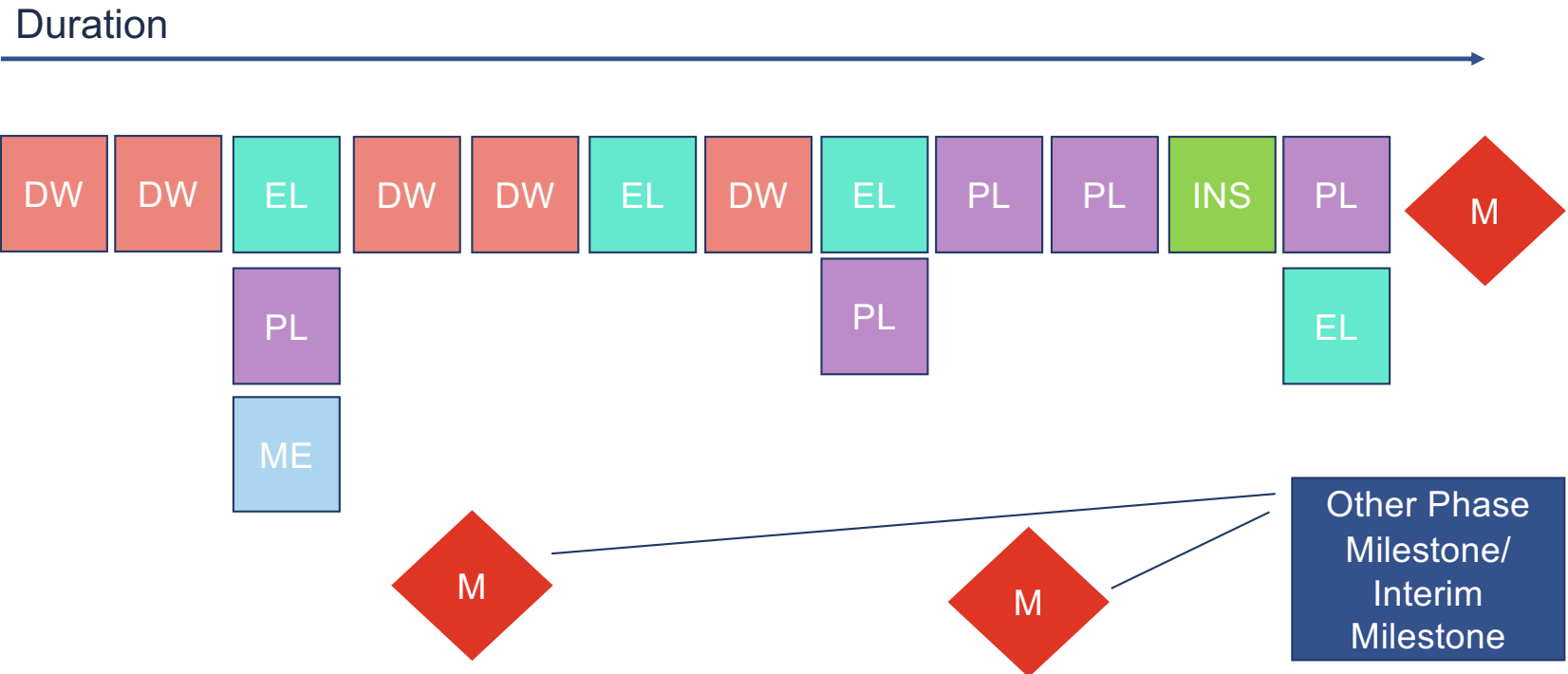
Phase Pull Planning: HOW – “Should”



Phase Pull Planning: HOW – “Should”



Phase Pull Planning: HOW – “Should”



Phase Pull Planning: Agenda

Step 1 - Identify milestones and define “conditions of satisfaction”

Step 2 - Last planners break down their work into tasks

Step 3 - Pull from the milestone backwards to build a network of commitments

Step 4 - Forward pass, check and adjust

Step 5 - Optimize the whole

Step 6 - Record the plan

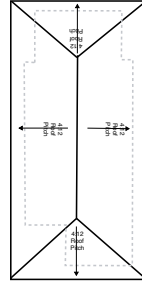
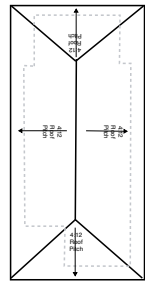
Activity: Tiny Home Phase Pull Plan

- Preparation – 15 Min
 - Select Milestone
 - Define CoS
 - Create Area/Batch & Flow Plan
- Trade Preparation – 10 Min
 - Activities & Duration Estimates
- Create Phase Pull Plan – 20 Min
 - Pull Activities
 - Validate Plan

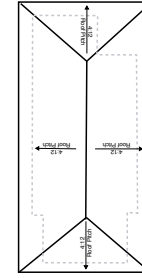
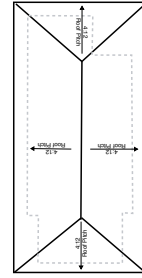
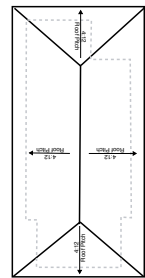
60 Minutes



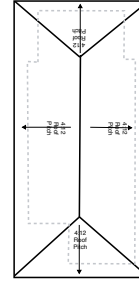
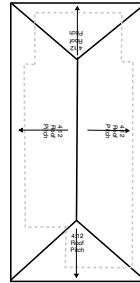
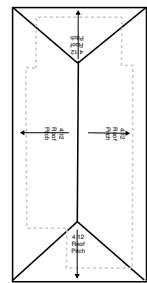
Tiny Home Batch & Flow



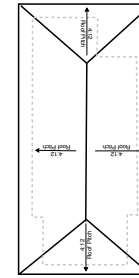
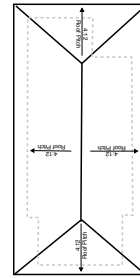
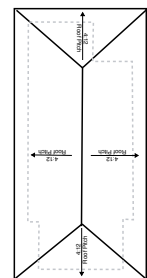
Tiny House Street West



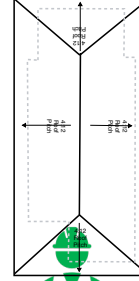
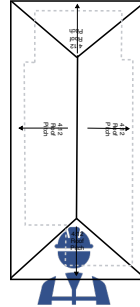
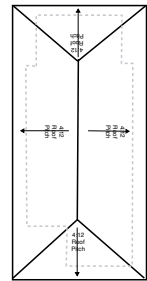
Why Batch Size Matters



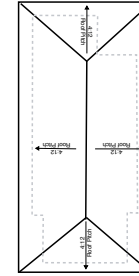
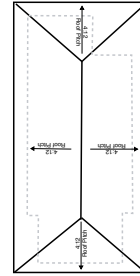
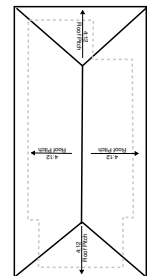
Tiny House Street West



Why Batch Size Matters



Tiny House Street West



Activity: Tiny Home Phase Pull Plan

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 - Pull Activities
 - Validate Plan

60 Minutes



Weekly Planning Meetings

Weekly planning activities and tools that encompass the remaining conversations of LPS – Can, Will, Did and Learning.

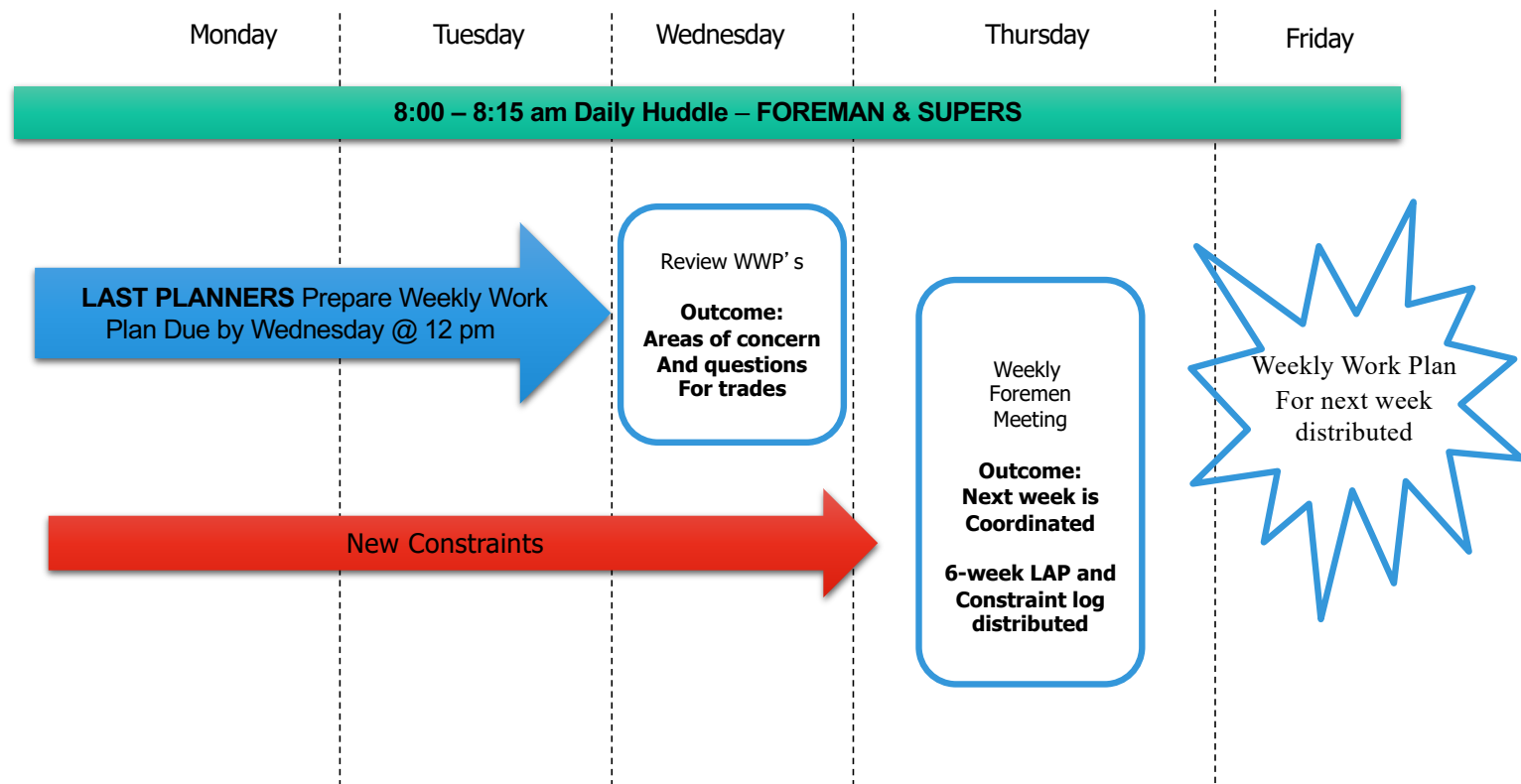
Weekly Planning Conversations

- Look Ahead Planning
- Weekly Work Planning
- Learning & Improving
- Celebrating Wins
- Building Trust



Courtesy of: JE Dunn

Weekly Planning Cycle



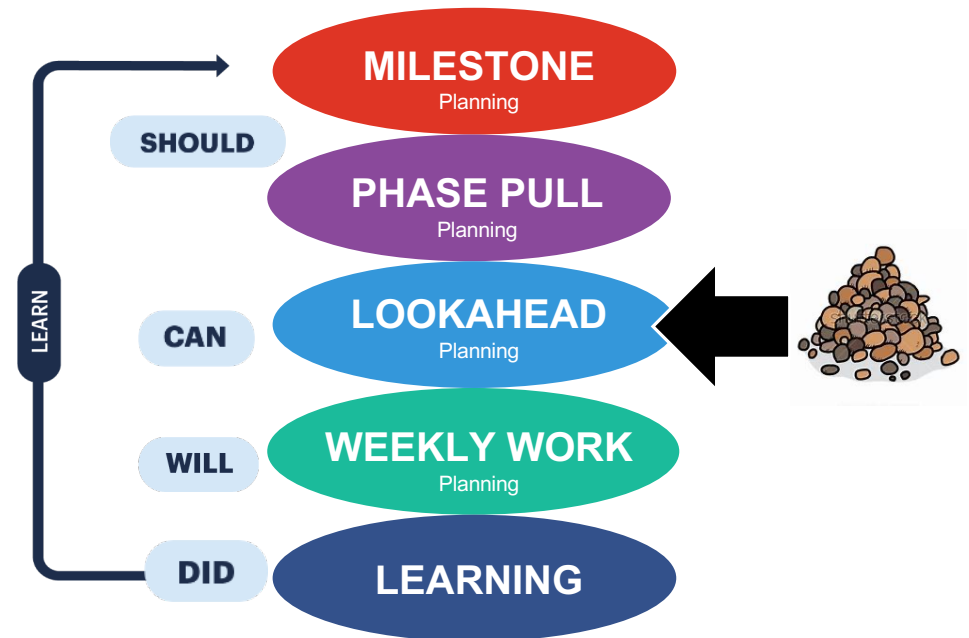
Lookahead Planning

The third conversation of LPS is *Lookahead Planning. (LAP)*

This level focuses on making work ready or assuring that the work that *should* be done, *can* be done by identifying and *removing constraints* in advance of need.

The conversation is we “*can*” do this.

5 Connected Conversations



LookAhead Planning



Project:									
Project No.:									
Responsible Person:									
Constraint Number	Activity Number	Constraint Description	RFI No.	Responsible Person	Responsible Company	Date Identified	Date Need Resolution	Date Resolution Promised	Actual Date Resolved

Constraint Log

- Transferred from the *Phase Pull Plan* to a plan with dates/weeks.
- Boards, P6 or other software documentation.
- Rolling (6-10 weeks) LookAhead to “make work ready”.
- Supports Team Meeting Discussion/Action for:
 - *Risk Log*
 - *Constraint Log*
 - Informs the *Weekly Work Plan*

Project:									
Project No.:									
Responsible Person:									
Constraint Number	Activity Number	Constraint Description	RFI No.	Responsible Person	Responsible Company	Date Identified	Date Need Resolution	Date Resolution Promised	Actual Date Resolved

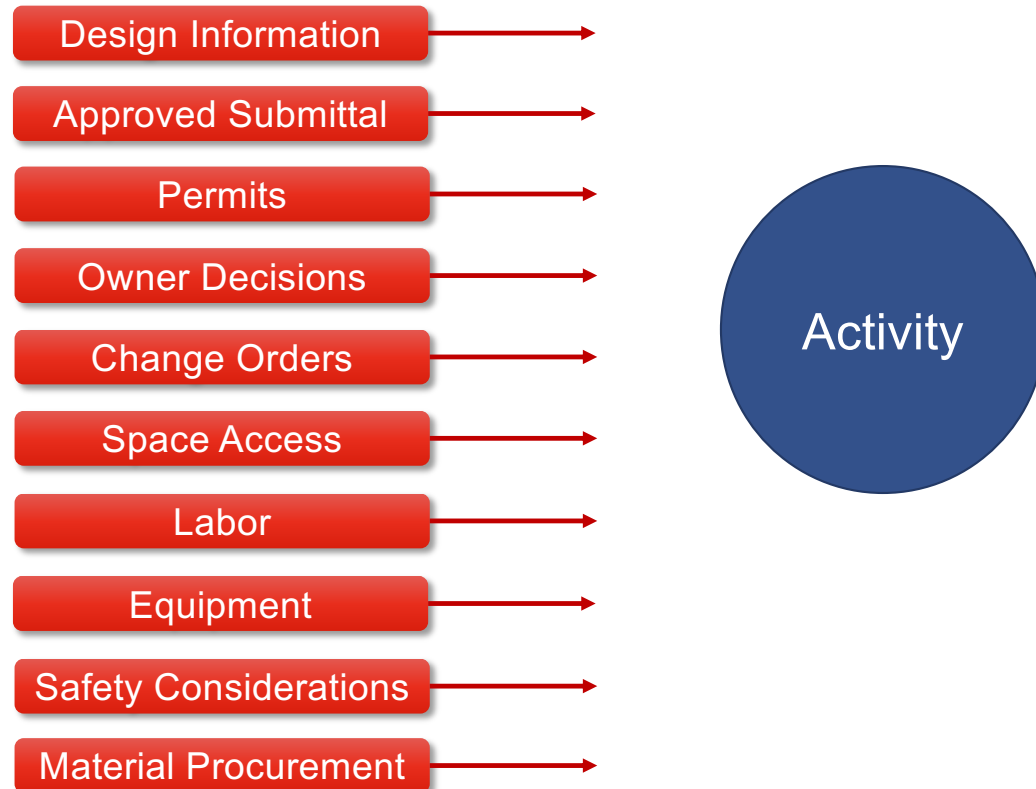
DATE PROMISED

CONSTRAINT DESCRIPTION RESPONSIBLE PERSON & CO DATE IDENTIFIED DATE NEEDED DATE RESOLVED

Constraint Defined

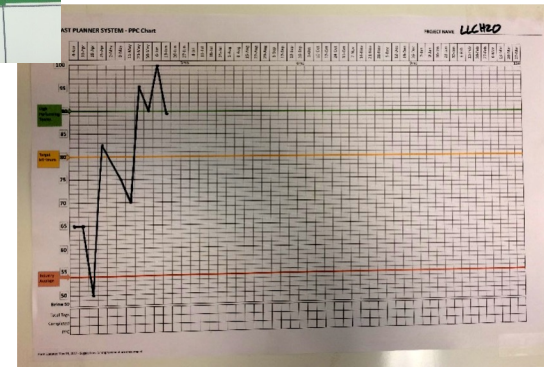
Constraint:

An item or requirement that **will prevent an activity** from starting, advancing or completing as planned.



Weekly Planning Meeting: Round 1 Agenda

- Review Plus/ Delta
- General announcements
- Look Ahead Plan Update
 - Rotate and add new activities
 - Update existing constraints
 - Identify new constraints
- Last Week's PPC/ Variances
- Weekly Work Plan created/negotiated for next week
- Round Robin to address any new issues not covered
- Plus/Delta



Activity: Tiny Home Look Ahead Plan

- Create Look Ahead Boards
 - Swim lanes by area
 - Follow color legend
 - 3-4 Weeks of activities
 - More detailed than Phase Pull Plan
- Setup Constraint Log



Activity: Tiny Home Constraint Log Update

- Review Look Ahead Plan
 - Activity Starts – Make Ready
 - Set a date out 6 weeks
- Identify Constraints
 - For each activity start, deal a ‘Constraint Card’
 - Record any constraints on the log
 - Correlate to look ahead plan with dots



Report out

How did it go?

Any aha moments?

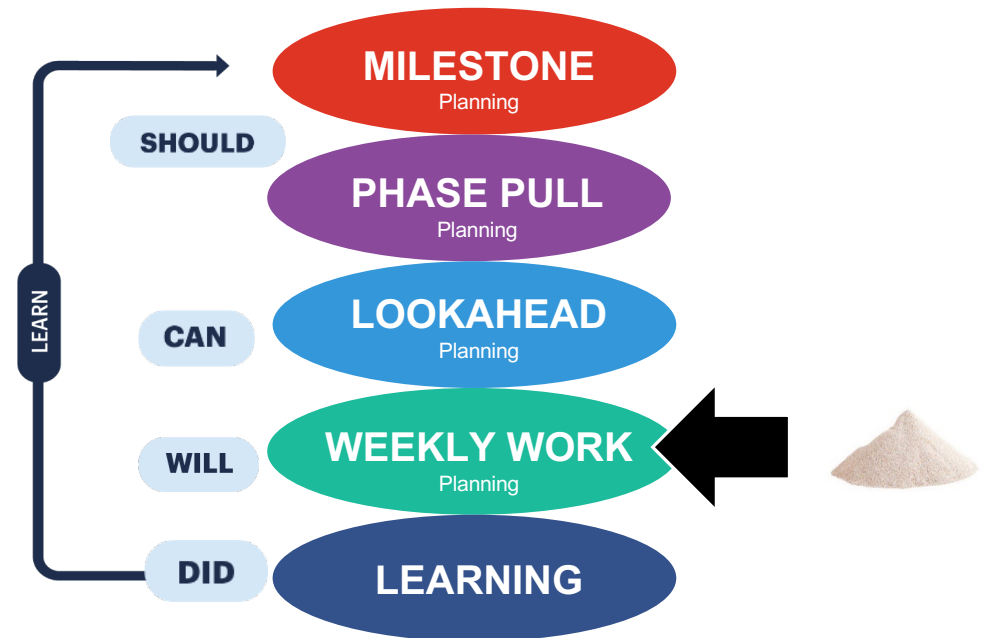
Weekly Work Planning

The fourth conversation of LPS is *Weekly Work Planning. (WWP)*

The goal of this level is for the Last Planners to *establish the plan* for the upcoming week at the daily level.

The conversation is I “*will*” do this.

5 Connected Conversations



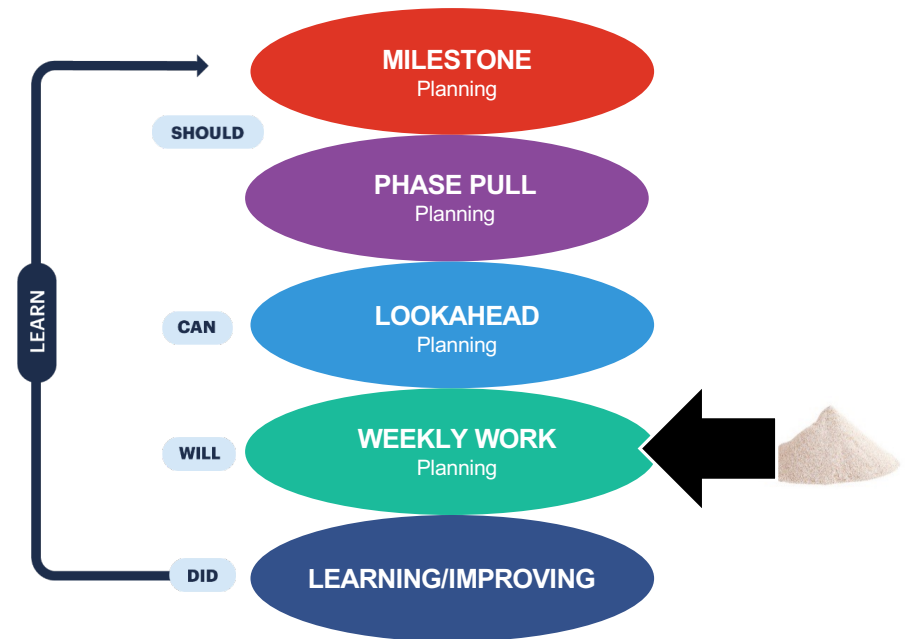
Weekly Work Planning

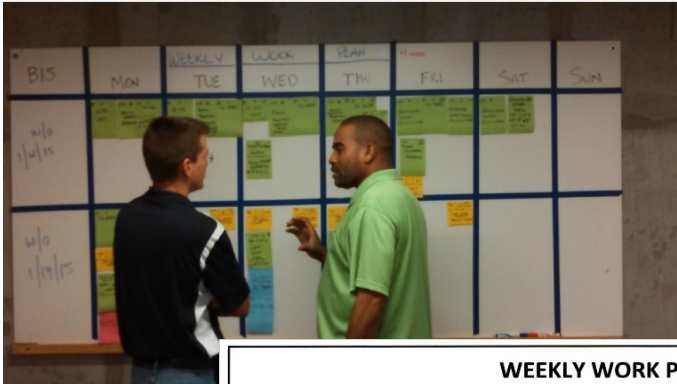
This is the level that the team identifies the *promised task completions* agreed upon by the *Performers* for the upcoming week.

The WWP is used to determine the *success* of the planning effort and to determine what *factors limit performance*. And is the basis of measuring PPC (Percent Plan Complete).

This is done during a *Check-in Session* or *Huddle*.

5 Connected Conversations





Weekly Work Planning

- Informed by the Look Ahead Plan
- Detail work by trade at the Daily Level
- Detailing of the next week
- Informs the Daily Huddle
- Take to the field

WEEKLY WORK PLAN															
Area:		CATEGORY* OF PLAN FAILURE										TOTAL ACTIVITIES			
Contractor:		1 Coordination	5 Prerequisite Work	9 Submittals	13 Space	ACTIVITIES COMPLETED							10		
Shift:		2 Design	6 Labor	10 Approvals	14 Site Conditions	PERCENT PLAN							50%		
Last Planner:		3 Owner Decision	7 Materials	11 Equipment	15	COMPLETE (PPC)									
		4 Weather	8 Contracts/COs	12 RFIs	16										
Activity ID	ASSIGNMENT DESCRIPTION <small>Safe - Defined - Sound - Proper Sequence - Right Size - Able to Learn</small>			Responsible Person	Start Date		05-Oct-09		DONE?		LEARNING		Category*		
					Mon	Tue	Wed	Thu	Fri	Sat	Sun	YES		NO	REASONS FOR PLAN FAILURE
Column Grid A1 - G8															
	Joels Framing		Bill												
7055	Top Track Install			4	4						1				
7060	Framing Walls				4	4					1				
7065	Backing Install					4	4				0	IOR not available	10		
	Sparky's Electrical		Jim												
1605	Rough in Walls				2	2	2	2			1				
1610	Rough in Ceilings						2	2	2			0	Need grid elevation layout	5	
	Acme Mechanical														
1505	Plumbing - in wall rough in - Install					2						0	Walls not inspected	10	
1510	Plumbing - ceiling rough in - Install						2					0			
Column Grid G9 - J 12 Kitchen servery															
	Joels Framing		Bill												
7055	Top Track Install							4			1				
7060	Framing Walls								4		1				
7065	Backing Install									2		0	room not available	1	
	Workable Backlog (My "Plan B": What work can I do without affecting other trades if above plan breaks down?)										5				

Weekly Work Planning Example

“What, Where,
Who & When”

WEEKLY WORK PLAN													Work Beginning:			
Area:		CATEGORIES OF PLAN FAILURE								TOTAL ACTIVITIES				31		
Contractor:		1 Coordination		5 Prerequisite Work		9 Submittals		13 Space		ACTIVITIES COMPLETED						
Shift:		2 Eng/Design		6 Labor		10 Approvals		14 Site Conditions		PERCENT PLANNED				0%		
Last Planner:		3 Owner Decision		7 Materials		11 Equipment		15		COMPLETE						
		4 Weather		8 Contracts/COs		12 RFIs		16								
Activity ID	Commitment Description <small>Safe - Defined - Sound - Proper Sequence - Right Size - Able to Learn</small>			Responsible Person	Start Date		1/28					DONE?		LEARNING		Category
					Mon	Tue	Wed	Thu	Fri	Sat	Sun	YES	NO	REASONS FOR PLAN FAILURE		
1	Pour new moat floor on the south side of the building			B.A.M	4	4										
2	Adjust (4) down spouts on the south side of the building			B.A.M	2	2	2								What & Where?	
3	Patch masonry around 6 conductor boxes on the roof			B.A.M	1	1	1	1	1							
4	Install base on 2nd floor in the south side class rooms			B.A.M		3	2	3	3							
5	Install wainscoting on the first floor north side			B.A.M	4	4	3	4								
6																
7																
8	Pull wire for Chiller			Ryan	5											
9	Security rough-in on all floors			Ryan	2	3	3	3	3						Crew Size?	
10	Basement rough-in complete			Ryan	4	4	4	4	4							
11																
12	Hang and finish all rated chases			Fred			3	3								
13	Reframe and hang dry wall in hallway 121			Fred	4	4	4	3	5						Who?	
14	Sand dry wall in hallway 139			Fred	2	2										
15	Finish dry wall in west class room 107,144			Fred	3	3	3	3								
16																
17																
18	Rough-in media center ceiling			Troy	5											
19	Get fresh air duct inspected in attic			Troy				6							When will it be done?	
20	Get north west chase duct inspected			Troy				6								
21	Insulate north west chase duct			Troy			4									
22	Tie in vav boxes in the attic			Troy	3	3	3									
23	Start tying in vav boxes in the east wing 1st and 2nd floors			Troy	4	4	4	4								

What & Where?

Crew Size?

Who?

When will it be done?

Weekly Planning Meeting: Round 1 Agenda

- ~~Review Plus/ Delta~~



- General announcements



- Look Ahead Plan Update

- Rotate and add new activities
- Update existing constraints
- Identify new constraints

- ~~Last Week's PPC/ Variances~~



- Weekly Work Plan created/negotiated for next week



- Round Robin to address any new issues not covered



- Plus/Delta

Weekly Work Planning: Preparation

Questions to ask when preparing for the WWP:

- Will I have the appropriate amount of staff on site to perform the work?
- Do I have the material needed?
- Is it the right sequence?
- Is it safe?
- Are there any open constraints that need to be resolved?
- Do the tasks tie directly to look ahead plan? If no, ask why?



Activity: Tiny Home Weekly Work Plan Week 1

- Setup Weekly Work Plan Template
- Pick 1 week from Look Ahead Plan
- Detail weekly planning activities on WWP
- Ensure no constrained activities
- Check for missing activities
- Round Robin
- +/-Delta



30 Minutes

Learning While Doing

Executing the weekly work plan, daily huddles, variances and tracking plan reliability.

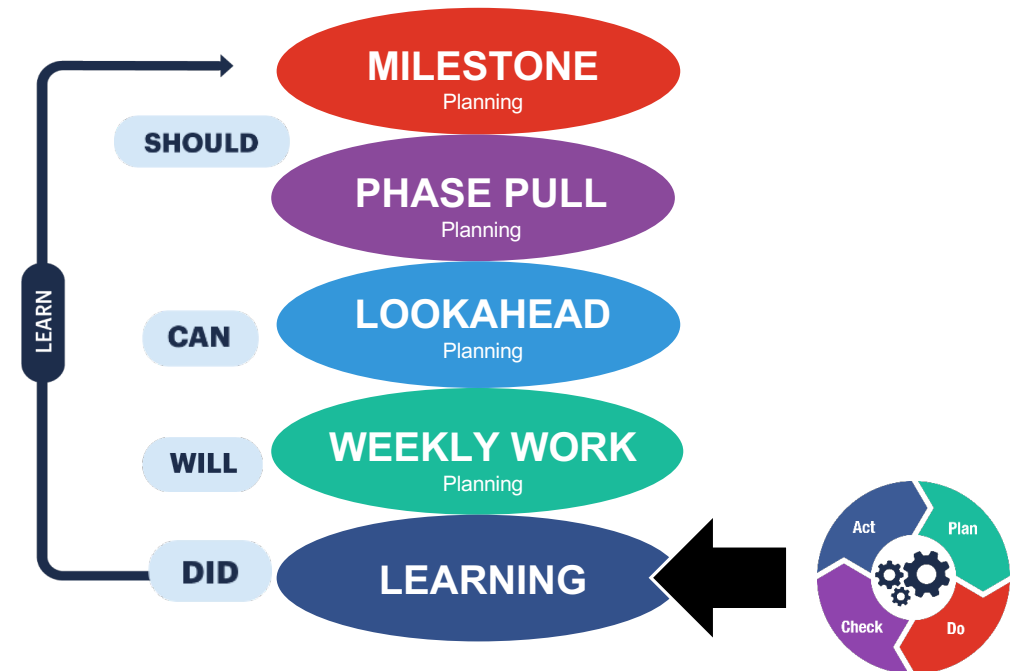
Learning/Improving

The fifth conversation is *Learning/Improving*.

The goal is for the team to *learn* from the cycle and take *actions for improving* going forward fulfilling PDCA.

The conversation is what we “*Did*” and “*Learned*”.

5 Connected Conversations



Daily Huddle

1. What *did* I complete?
2. What *will* I complete?
3. What needs to be *re-planned*?
4. How can we *improve* future planning?



Photo Courtesy of: KHS&S

Daily Huddle: How

- Superintendents/Foremen huddle every day
- Status Weekly Work Plan Daily
- Held in front of Weekly Work Plan Boards
 - Or with Weekly Work Plan in hand
- Be respectful time
 - 10-15 minutes
- Each Superintendent/Foreman report out their work



Daily Huddle

Photos Courtesy of: Landis Construction



Photos Courtesy of: Brasfield & Gorrie



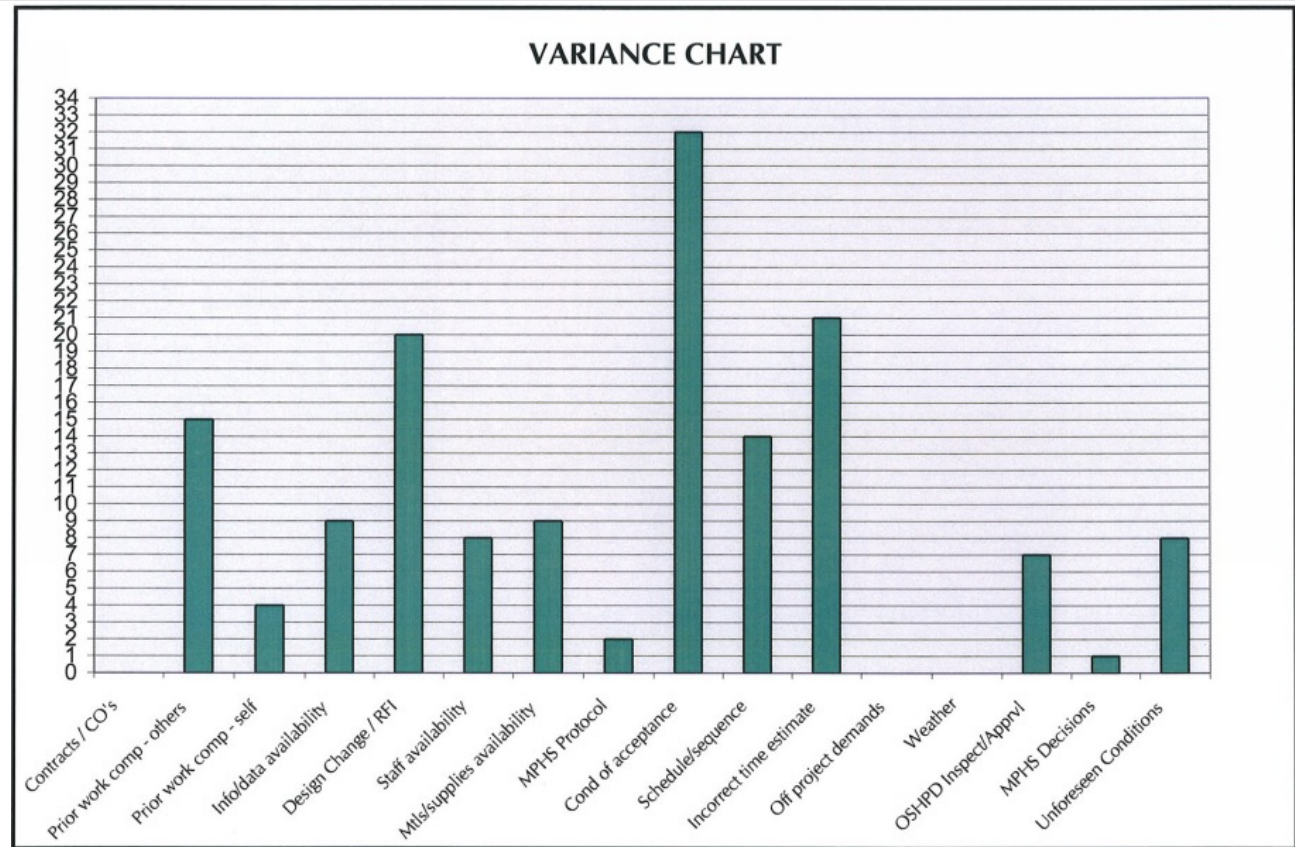
The Importance of PPC

$$\text{WEEKLY PPC} = \frac{\# \text{ Completed Activities}}{\# \text{ Planned Activities}} = \frac{16}{20} = 80\%$$

As Planned

Taking Action For Variance

When a variance or failure occurs, the team must *discuss the likelihood* of it occurring again and determine *actions to mitigate such*.



Activity: Tiny Home - Work the Plan

- Perform 1 week of Daily Huddles to process your WWP
- For each day, trades with activities draw 'variance' cards
- For activities completed as planned, record 'Yes'
- For impacted activities, record 'No' and reason for the variance
- Are there things we can do today adjust for variances that may reoccur tomorrow?

15 Minutes



Successful Weekly Planning Meetings

- *Consistency* is key
 - Start on time/ end on time.
 - Assign a timekeeper.
 - Everyone in the room that needs to be there.
 - Same expectations for everyone.
- Everyone's voice is heard.
- Last Planners talk more than the facilitator.
- LAP distributed weekly, up to date, and aligns with master schedule and WWP.
- Use Parking lot.

Activity: Tiny Home - Weekly Work Plan Week 2

Follow Agenda for Weekly Planning Meeting

- Update Variance/PPC Chart
- Discuss weekly work plan variances and PPC – what can we change to improve?
- Observe team dynamic – who is disengaged?
- Have fun!
- Take photos of your planning wall – you're done!

10 Minutes



Weekly Meeting 2 Agenda

- ✓ • Review Plus/ Delta
- ✓ • General announcements
- ✓ • Last Weeks PPC/ Variances
- ✓ • Current WWP Check-in
- ✓ • Look Ahead Plan Update
 - Rotate and add new activities
 - Update existing constraints
 - Identify new constraints
- ✓ • Weekly Work Plan created/negotiated for next week
- ✓ • Round Robin to address any new issues not covered
- ✓ • Plus/Delta

Wrap Up – Report Out & Questions from Activities?

Revisit Flip Chart – Key Take-Aways

Revisit Flip Chart from the discussion in the morning:

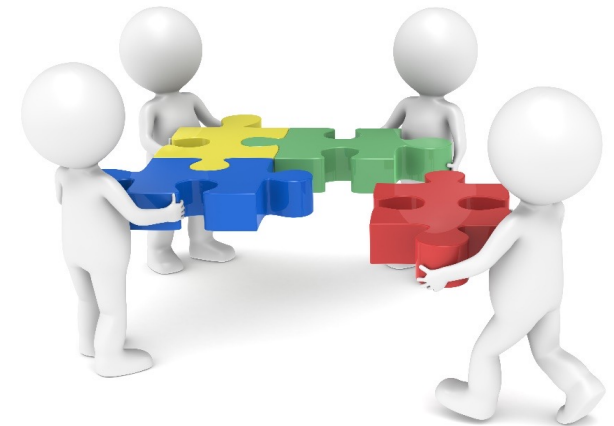
What have you seen or learned that will influence your approach to LPS and Last Planners.

- **Next Actions?**
- What next actions will you take to continue to implement your learning today?



Remember.....

- Your forms and other artifacts may *look different* from what we showed you today. Or even different from project to project.
- That is not a problem – as long as you are staying true to the *foundational principles of LPS* – the right people having the right conversations in order to make and keep reliable commitments.
- Likewise the forms and artifacts don't make the system work. It's the *conversations coupled with continuous improvements* that make the system work.

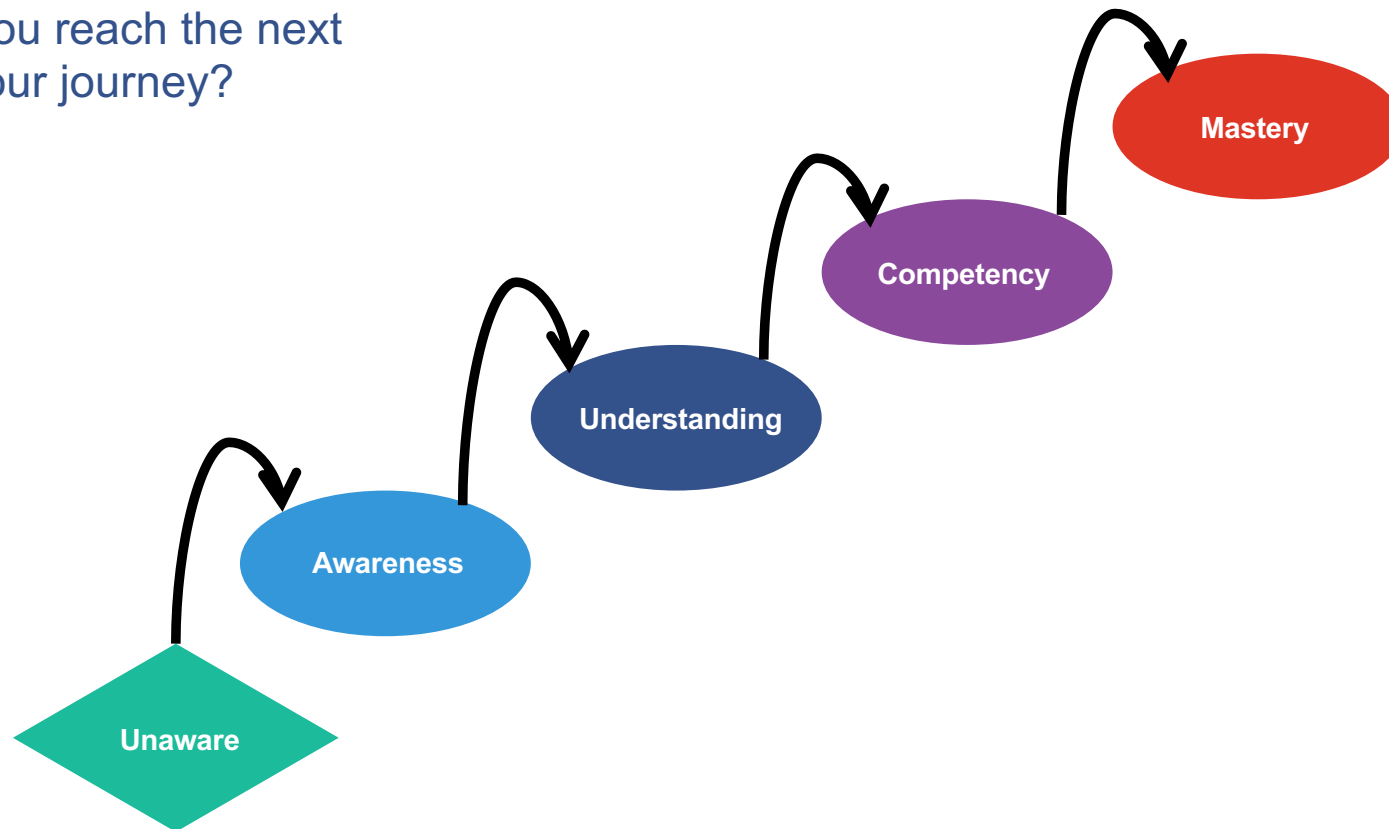


Questions



Lean Journey to Mastery

How will you reach the next level on your journey?



More on Learning



Books:



Events:

- Local Community of Practice
- Congress (October)
- Design Forum (May)

eLearning:

Learn on your own time without taking time off project work.


Start learning now:

www.LeanConstruction.org

eLearning Courses




- Introduction to the Last Planner System®
- Introduction to Lean Project Delivery
- Lean in the Design Phase
- Effective Big Room
- Target Value Delivery
- Last Planner System® in Design



Introduction to the Last Planner® System

Please enter your first name below then click the button to begin.

BEGIN



WELCOME

This course will allow you to gain in-depth insight to the practical application of the Last Planner® System (LPS) through multimedia, hands-on interactions, diagrams, worksheets, and more. The key achievable goal of this course is to learn how to engage at all five levels of LPS effectively on a day-to-day basis with a team implementing the system.

LEAN IN THE DESIGN PHASE

1
OVERVIEW

2
CONNECTING PEOPLE

3
CONNECTING PRINCIPLES

4
CONNECTING PRACTICES

INTRODUCTION TO LEAN PROJECT DELIVERY

The key achievable goal of this course is to prepare and enable team members with a foundational understanding of Lean approaches for daily use within a project environment.

1	2	3	4
LPD OVERVIEW	CONNECTING PEOPLE	CONNECTING PRINCIPLES	CONNECTING PRACTICES
LESSON 1: Foundations of LPD LESSON 2: Lean Project Delivery System LESSON 3: Eight Wastes	LESSON 1: High Performing Team Behavior LESSON 2: Project Promise LESSON 3: Conditions of Satisfaction (CoS)	LESSON 1: Big Room LESSON 2: Problem Solving LESSON 3: Last Planner® System	LESSON 1: Integrated Project Delivery LESSON 2: LPD in Action LESSON 3: Target Value Delivery

Learning Objectives Reviewed



Identify the essential foundational principles of each of the 5 connected conversations of LPS.



Engage in all of the connected conversations of LPS® from Milestone Planning to daily interaction through practical application.





Experience the process of constraint management to improve project workflow.





Gain practical insight to effectively use Percent Plan Complete (PPC) and variance to improve reliable project plan execution.

Conduct Plus/Delta

 Plus: What produced *value* during the session?

 Delta: What could we *change to improve* the process or outcome?

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