

24TH ANNUAL



24TH LCI CONGRESS
OCTOBER 18-21

A GC's Inventory Management Journey: Missteps and Learnings

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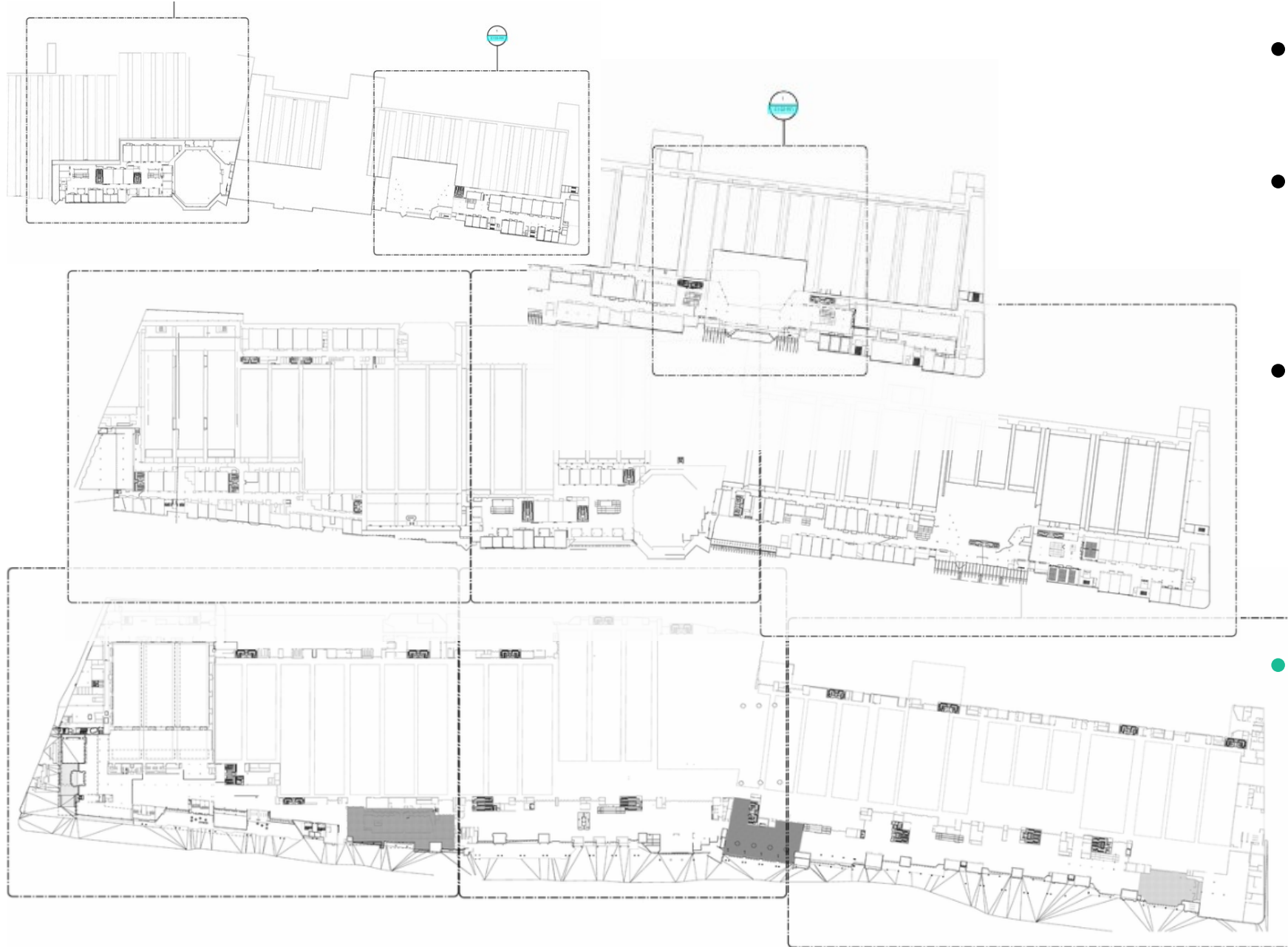
Mark Perrin, Landis Construction

LEAN GUMBO: THE RIGHT INGREDIENTS FOR PROJECT SUCCESS

October 20th 2022



Scope Summary



- \$50+Million Project
- ~35,000 SF Restroom Renovation
 - 3 stories, up to 18 football fields per story
- Demo to “whitebox” and build back with new tile, MEP Rough Ins and Fixtures, new ceilings, and Finishes
- Install ~700 new Restroom Stalls/Partitions

Overall Outcome

On time

On Budget

Happy Owner

Mostly Happy Trades/Suppliers

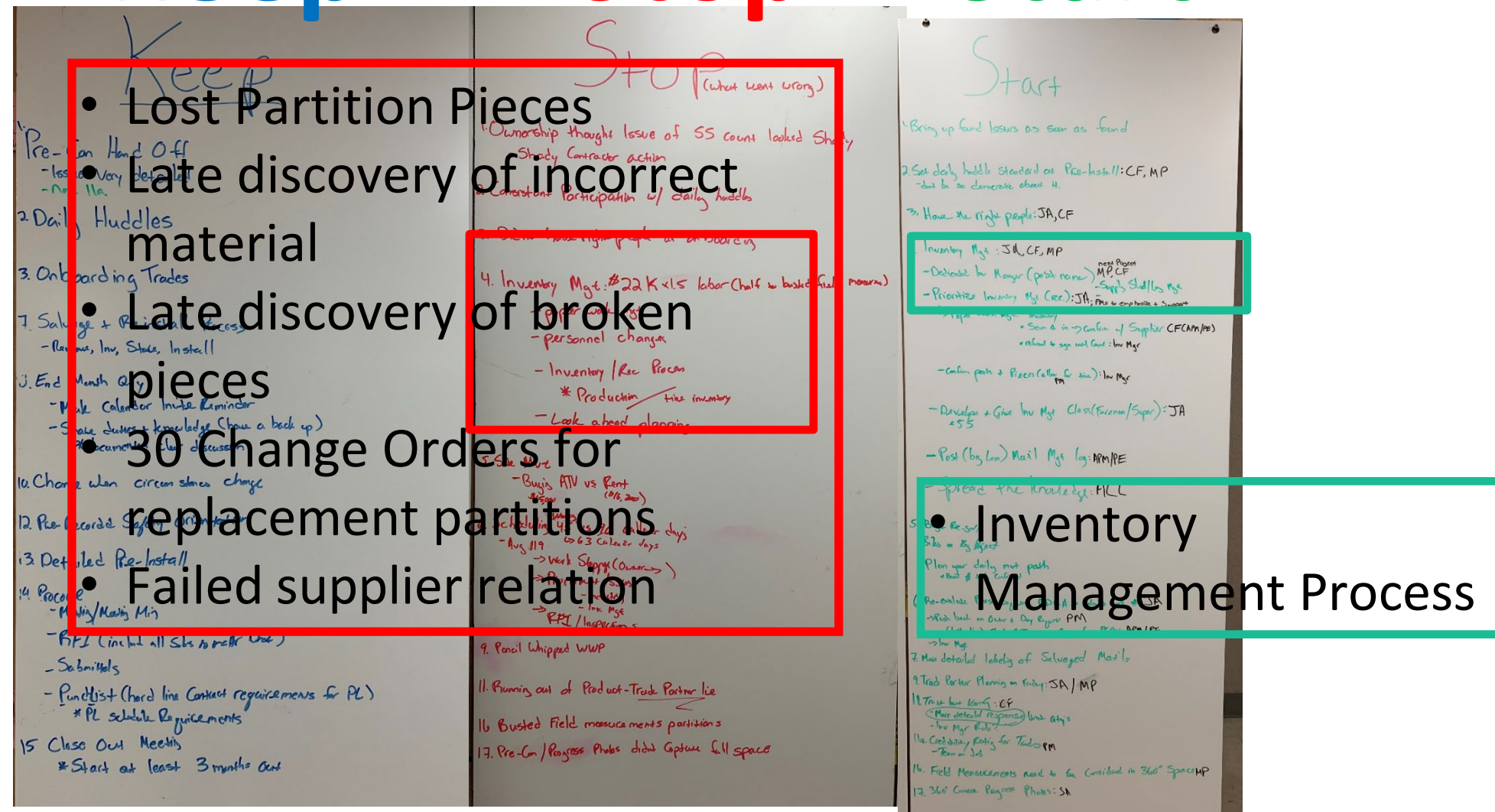


What happened?

Keep

Stop

Start



Keep

- Lost Partition Pieces
- Late discovery of incorrect material
- Late discovery of broken pieces
- 30 Change Orders for replacement partitions
- Failed supplier relation

Stop (what went wrong)

- 1. Ownership thought issue of SS count looked shady
- 2. Shady Contractor action
- 3. Collaboration Participation w/ daily huddles
- 4. Inventory Mgt: 22 K x 1.5 labor (half to basket field measure)
- 5. Inventory / Rec. Proc.
- 6. * Production time inventory
- 7. Look ahead planning
- 8. Busted Field measurements partitions
- 9. Pre-Com/Progress Photos didn't Optimize L&L space

Start

- 1. Bring up fund issues as soon as found
- 2. Set daily huddle standard on Pre-Instal: CF, MP
- 3. Have the right people: JA, CF
- 4. Inventory Mgt: JA, CF, MP
- 5. - Dedicate Inventory (post room)
- 6. - Prioritize Inventory Mgt (see): JA, MP, CF
- 7. - Confirm parts + Prices (after 2 wks): In Mgt
- 8. - Develop + Give In Mgt Class (Foreman/Supervisor): JA
- 9. - Post (by Log) Mail Mgt Log: MP, CF
- 10. - Spread the knowledge: ALL
- 11. - Plan your daily work path
- 12. - Re-evaluate Partitioning (see) A
- 13. - Field Measurements need to be Considered in 360° Space MP
- 14. 360° Corner Photos: SA

Inventory Management Process

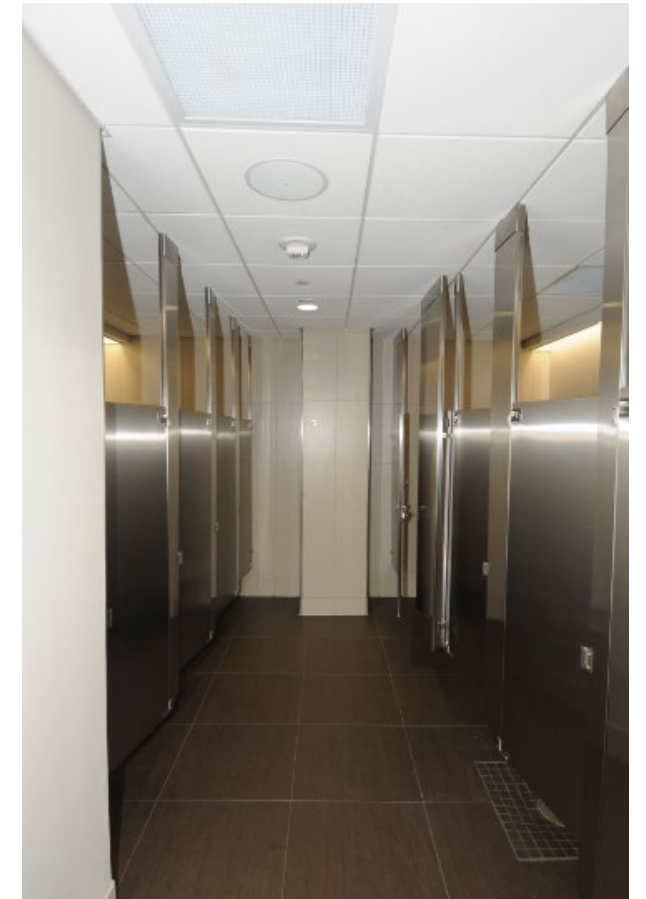
What happened?



What happened

The partition Stalls Fiasco

- Over 30 separate deliveries for ~700 stalls
 - Only planned for around 10 to 15 deliveries
- **Just In Time Inventorying**-Day of Install
 - Missing/misplaced materials when needed
 - non-received materials not discovered until months after delivery
 - broken material in boxes not discovered until months after delivery
- Re-ordered material extended delivery times
 - COVID-lead time increased from from 4 weeks to 8 to 12 weeks
- “Hey Boss I need Screws?” “When do you need them by?” “I’m out now?”
 - Failed timely worker communication of needs for materials.



What, So What, Now What? W^3



What happened?



So, What

- **\$20,000+** in Change orders for missing material
- **3** Months of delays waiting on material
- **Hundreds** of manhours wasted looking for material equating to **thousands** of wasted dollars

DOWN TIME

So What

- **D**efective Material- Delayed discovery
- **O**verproduction-Lost material to be re-ordered only to be found later
- **W**aiting-Over 3 months of no work waiting on new material
- **N**on-utilized resources-Workers not able to go to work
- **T**ransportation-Countless unnecessary extra deliveries
- **I**nventory-Hundreds of manhours wasted looking for missing inventory
- **M**otion-Wasted trips to the storage yard to search for missing pieces
- **E**xcess Processing-Over 30 change orders written to suppliers to resolve missing material problem

Learnings and Missteps

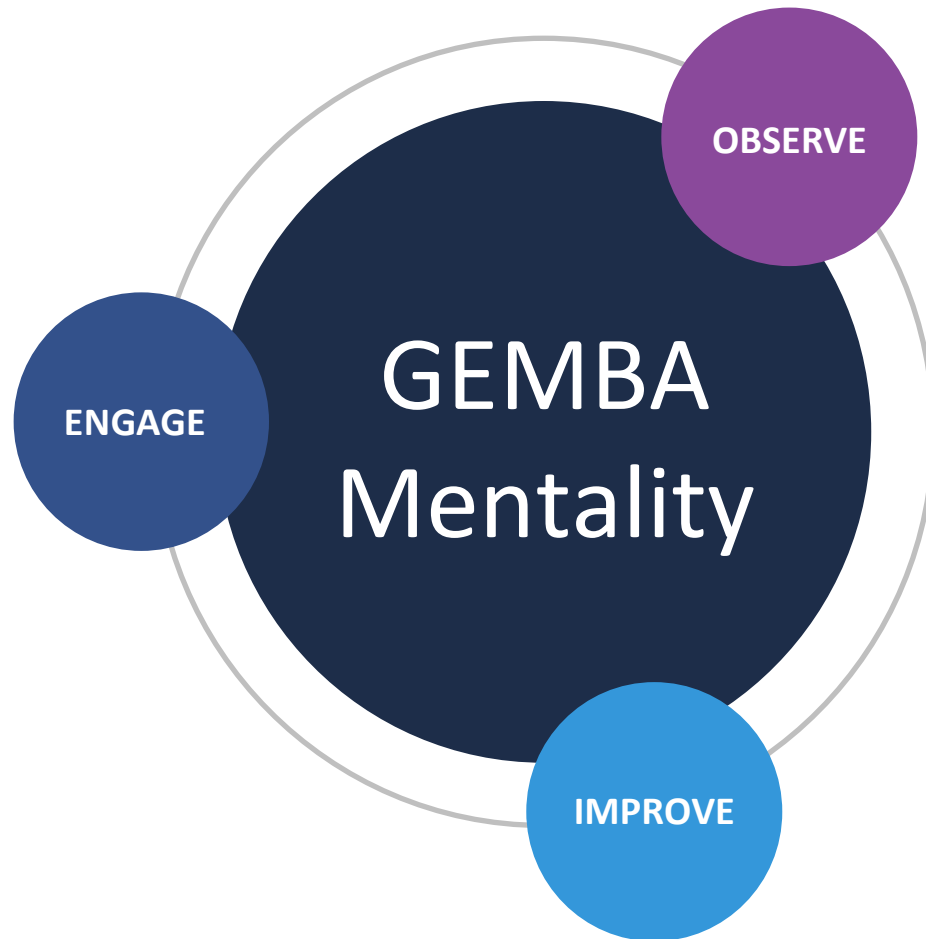
Blame the Process **not** the Person




Now What?



Now What?



CONDUCTING GEMBA WALKS

Modern Management vs. Lean Management  Lean Construction Institute
Immersive Education Program

	Modern Management:	Lean Management:
IN THE OFFICE	<ul style="list-style-type: none">• Authority• Results• Give answers• Plans• Formal education• Staffs improve processes• Decisions made remotely with data• Standardization by staff• Go fast to go slow• Vertical focus	<ul style="list-style-type: none">• Responsibility• Process• Ask questions• Experiments• Workplace learning• Line mgrs. and teams do• Decisions made in workplace with facts• Standardization by line mgrs.• Go slow to go fast• Horizontal focus
AT GEMBA		

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Now What-What we Learned

- Clearly assigned additional duty with prioritization of the role of Inventory Manager



Now What-What we Learned

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- Can't be production over process



Now What-What we Learned




- Clearly assigned additional duty with prioritization of the role of Inventory Manager
- Can't be production over process
- Instill Planning processes into the worker bees



WEEKLY WORK PLAN										
Project Information				Reasons for Variance Categories						
Project Name				1	Poor Planning		8	Contracts/Change Orders		
Project Number				2	Prerequisite Work		9	Submittals		
Work Area				3	Design Issue		10	Weather		
Onsite Leader				4	Failed Inspection		11	I forgot		
				5	Labor not Available		12	Other		
				6	Materials not Available		13	Unforeseen Conditions		
				7	Equipment not Available		14			
Activity Description	Loc	Crew Size	Needs/Constraints	Material Needs		Special Tools		PPC Analysis		
add crew leaders initials at end ()		#	Predecessor work/RFIs/Roadblocks		Ordered		On site	Done?		
					Y/N		Y/N	Yes	No	
M										
T										
W										
TH										

Now What-What we Learned




- Clearly assigned additional duty with prioritization of the role of Inventory Manager
- Can't be production over process
- Instill Planning processes into the worker bees 
- Instill a 5S mentality into our team



Now What-What we Learned



- Clearly assigned additional duty with prioritization of the role of Inventory Manager
- Can't be production over process
- Instill Planning processes into the worker bees 
- Instill a 5S mentality into our team
- Spread the knowledge

Now What-Spread the knowledge

- Landis Inventory Management Training



Learning Objectives

1. 5S (**S**ort, **S**traighten, **S**hine, **S**tandardized, **S**ustain
2. Roles and Responsibilities
3. Processes
4. Tools for the field

Roles and Responsibilities

Inventory Tracker-Paperwork (APM/PE)

- Receive and Review Submittal from Supplier
- Submittal and Approval with Design Team
- Coordinates procurement with Supplier
- Responsible for tracking potential delivery dates (Field Log)
- Responsible for Recording received materials and notifying supplier of receipt
 - Logging all Packing Slips digitally and emailing Suppliers.
 - Confirming material is correct for what was ordered with spec's

Inventory Manager (Field Leader)

- Responsible for receiving, inspecting, and storing materials onsite
- Works directly with PE/APM to immediately notify of material receipt
- Manages the stored material location
- Helps manage forecasting of misc. materials/tools needed for install

Now What-Spread the knowledge



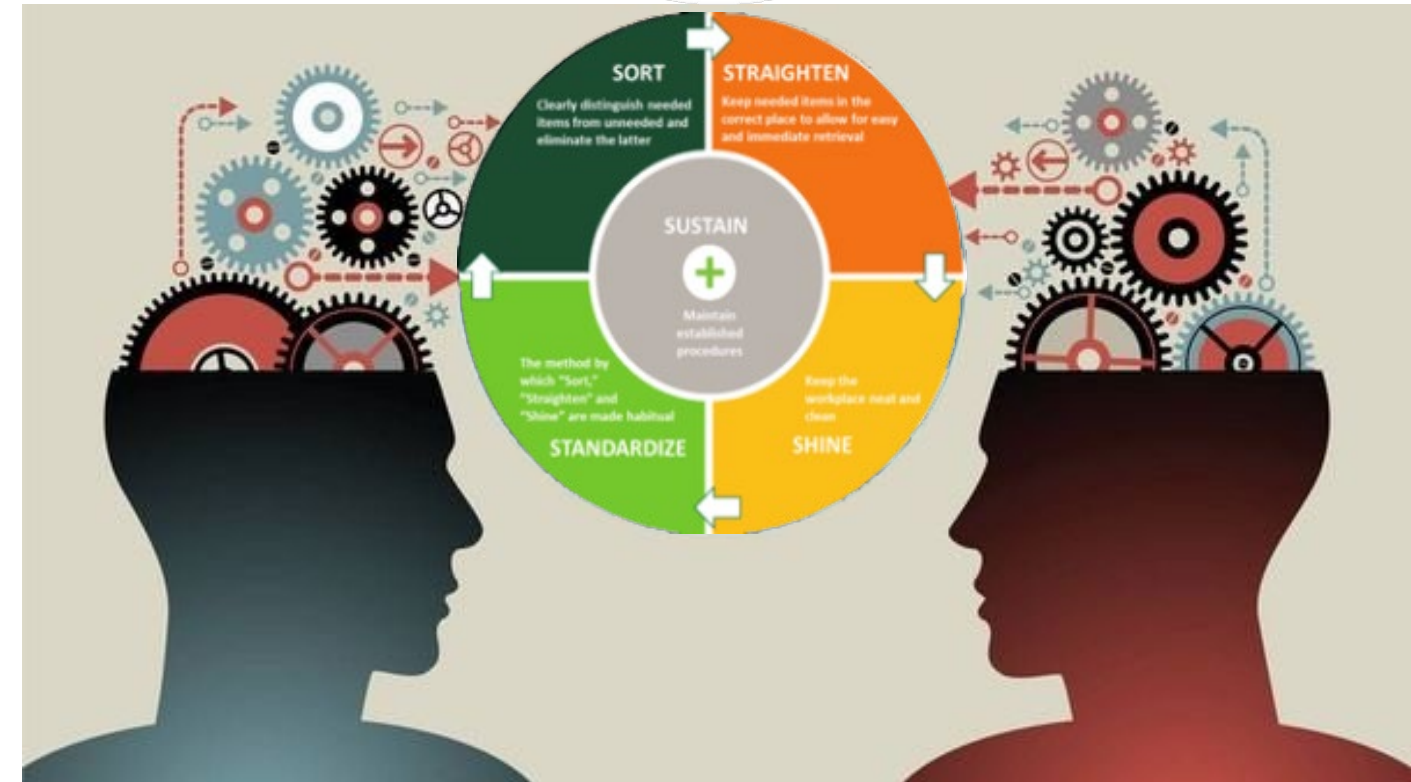
1. Release Material
2. Track Material
3. Receive Material
4. Inspect Material
5. Confirm Receipt with Supplier
6. Store Material (5S)
7. Track/Plan your work





How can you apply this tomorrow?

- Review your own inventory management processes.
 - Does everyone on the team know the process?
 - Who is responsible?
 - Who is in support?
 - Do they understand the priority of their roles?
- Look at the process before the person
- Remember the 1/3 – 2/3 rule of planning
 - Slow is smooth and Smooth is fast
- 5S is a Mentality not just a technique



Contact Us

Jeremy Atkinson

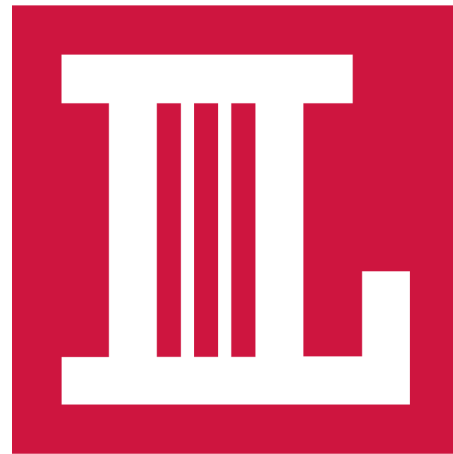
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Thank you for attending this presentation. Enjoy the rest of the 24th Annual LCI Congress!

