Turner

Developing a Respectful but Critical Eye to Assess Work Processes at the Gemba

- 3C Framework -

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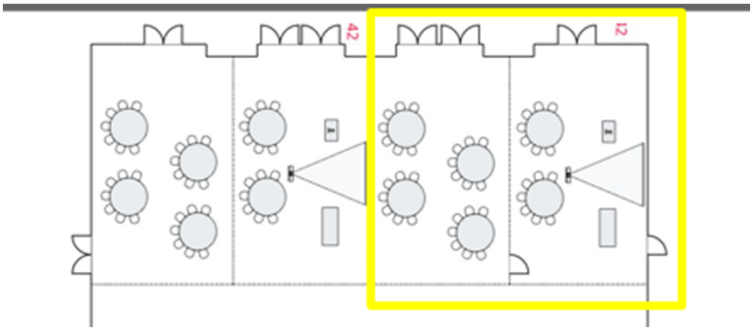
SAFETY MOMENT

Building L.I.F.E.

Live Injury Free Everyday



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TODAY'S AGENDA:

- ❑Little bit about us and Turner
- ❑Objectives
- ❑Video (Observation Exercise)
- ❑How at the GEMBA ?
- ❑The 3 C's (Work Breakdown)
- ❑Some Results
- ❑Is this Problem Solving?
- ❑Q & A

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Bryant Sanders

LEI Senior Coach

David Solomon

Lean Manager

Bob Grimes

VP & Director of Lean

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LEARNING SESSION OBJECTIVES

- ❑ Use your eyes, ears, and legs to see, listen, and respond more effectively to what people (closest to the actual place of work) are telling you.
- ❑ Break down, measure, and improve any work process using Content, Characteristics, and Categories.
- ❑ Use this critical eye to help improve the problem-solving capabilities of your people.

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Observation Exercise

Pen & Pad Ready !

Watch the Work !

Write down the steps !

5 min work video

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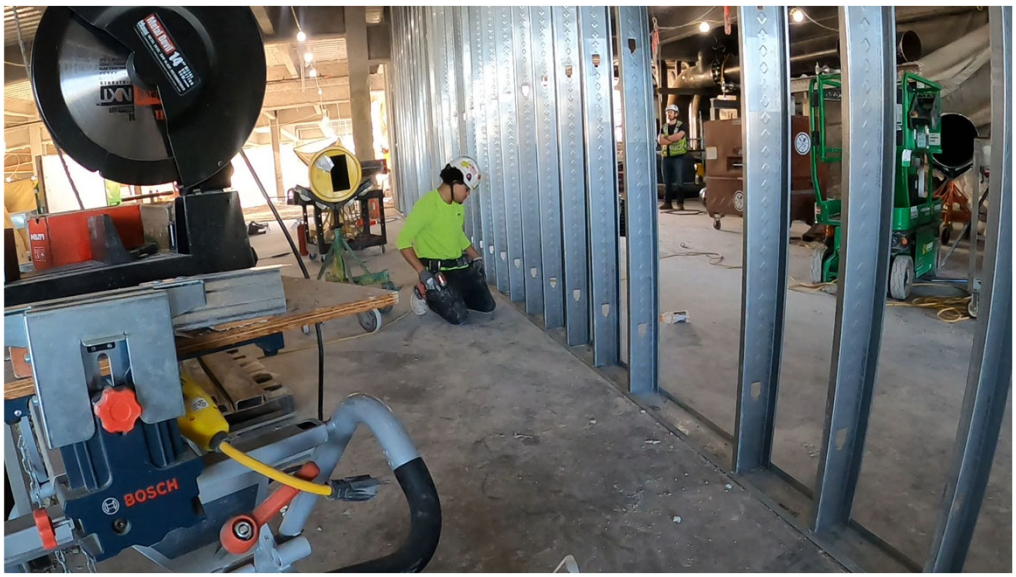

What did you see

GO SEE (field sheet)		
THE WORK		
#	The steps you see	Comments

Another Look

GO SEE (field sheet)

Stud Attachement Bottom Track	3 C's								
Observe / Record - THE STEPS	Content			Characteristic		Time (sec)	Categories		
	V	I	W	H	U		C	P	A
1 Grabs screw from pouch		x				4	x		
2 Attaches Screw to Drill Tip		x				4	x		
3 Leans down in postion		x		x		2		x	
4 Alligns Stud & Speed Square-drills screw with right hand		x				3		x	
5 Screw comes off tip			x			1			x
6 Re-alligns / re-attaches screw to drill tip			x			5			x
7 Grabs Stud & Track		x		x	x	1	x		
8 Drills in screw with right hand	x					6	x		
9 Re-positions Speed Square to next stud location		x				4	x		
10 Grabs screw from pouch		x				4	x		
11 Sets down drill on ground			x			1		x	
12 re-positions body back towards next stud location		x		x		3	x		
13 Picks up drill			x			1		x	
14 Attaches Screw to Drill Tip		x				3	x		
15 left hand alligns square		x				2	x		
16 left hand grabs stud and track		x		x	x	2	x		
17 Drills in screw with right hand	x					6	x		
18 Re-positions Speed Square to next stud location		x				5	x		
19 Sets down drill on ground			x			1		x	
20 re-positions body back towards next stud location		x		x		4	x		
21 Picks up drill			x			1		x	
22 Grabs screw from pouch		x				3	x		
23 Attaches Screw to Drill Tip		x				2	x		
24 left hand alligns square & Tries to drill in screw at same time			x	x	x	3		x	
25 Screw dislodges & re-attaches screw to drill tip			x		x	11			x
26 left hand alligns square		x				5	x		
27 left hand grabs stud and track		x		x	x	2	x		
28 Drills in screw with right hand - it comes off of tip			x			2			x
29 Picks up broken screw and removes broken piece from tip			x			3			x
30 flips square over			x		x	2			x
31 Grabs screw from pouch		x				3	x		
32 Attaches Screw to Drill Tip		x				2	x		
33 left hand alligns square		x				7	x		
34 left hand grabs stud and track		x		x	x	2	x		
35 Drills in screw with right hand	x					5	x		
36 Re-positions Speed Square to next stud location		x				3	x		
37 Sets down drill on ground			x			1		x	
38 re-positions body back towards next stud location		x		x	x	3	x		
Percentages						02:02			

1st **2 min**
less than half the time

We recorded **38** steps

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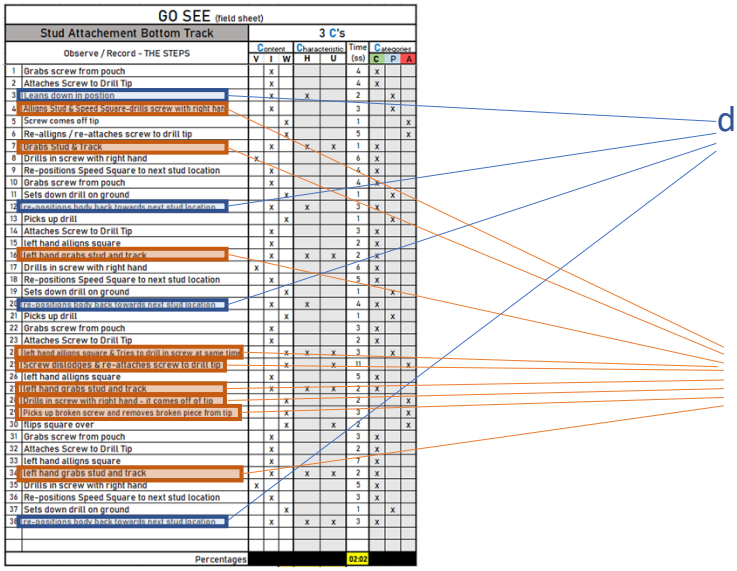

GO SEE (field sheet)

Stud Attachement Bottom Track	3 C's								
Observe / Record - THE STEPS	Content V	Content I	Content W	Characteristic H	Characteristic U	Time (ss)	Categories C	Categories P	Categories A
1 Grabs screw from pouch		x				4	x		
2 Attaches Screw to Drill Tip		x				4	x		
3 Leans down in position		x		x		2		x	
4 Aligns Stud & Speed Square-drills screw with right hand		x				3		x	
5 Screw comes off tip			x			1			x
6 Re-aligns / re-attaches screw to drill tip			x			5			x
7 Grabs Stud & Track		x		x	x	1	x		
8 Drills in screw with right hand	x					6	x		
9 Re-positions Speed Square to next stud location		x				4	x		
10 Grabs screw from pouch		x				4	x		
11 Sets down drill on ground			x			1		x	
12 re-positions body back towards next stud location		x		x		3	x		
13 Picks up drill			x			1		x	
14 Attaches Screw to Drill Tip		x				3	x		
15 left hand alligns square		x				2	x		
16 left hand grabs stud and track		x		x	x	2	x		
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18 Re-positions Speed Square to next stud location		x				5	x		
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25 Screw dislodges & re-attaches screw to drill tip			x		x	11			x
26 left hand alligns square		x				5	x		
27 left hand grabs stud and track		x		x	x	2	x		
28 Drills in screw with right hand - it comes off of tip			x			2			x
29 Picks up broken screw and removes broken piece from tip			x			3			x
30 flips square over			x		x	2			x
31 Grabs screw from pouch		x				3	x		
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33 left hand alligns square		x				7	x		
34 left hand grabs stud and track		x		x	x	2	x		
35 Drills in screw with right hand	x					5	x		
36 Re-positions Speed Square to next stud location		x				3	x		
37 Sets down drill on ground			x			1		x	
38 re-positions body back towards next stud location		x		x	x	3	x		
Percentages						02.02			

10.5 %
disrespectful to a worker

23.7 %
was unnecessary burden

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27	left hand grabs stud and track		x		x	x	2	x		
28	Drills in screw with right hand - it comes off of tip			x			2			x
29	Picks up broken screw and removes broken piece from tip			x			3			x
30	flips square over			x		x	2			x
31	Grabs screw from pouch		x				3	x		
32	Attaches Screw to Drill Tip		x				2	x		
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34	left hand grabs stud and track		x		x	x	2	x		
35	Drills in screw with right hand	x					5	x		
36	Re-positions Speed Square to next stud location		x				3	x		
37	Sets down drill on ground			x			1		x	
38	re-positions body back towards next stud location		x		x	x	3	x		

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So HOW ? We use this basic thinking :

- Grasp
- Set Target
- Strategy
- Test
- Effect
- Next Steps

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Tilling The Ground

We learned the HARD way (effort and struggle) helped us

- Build Trust
- Gain Permission
- What their pain points are
- What they are proud of
- Daily Management
- Vocabulary

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Give yourself permission to learn!

We cannot think about improvements or ideas to make the work better without first observing what is happening **NOW.**

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Let's breakdown the work

The 3C Framework

Content
Characteristics
Categories

Content

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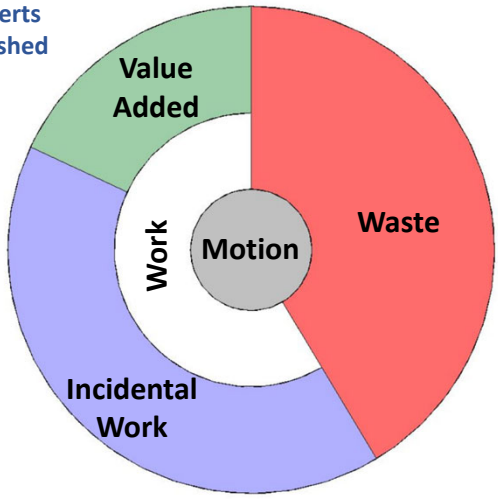
Work that advances or converts raw materials closer to a finished product

- Driving Screw into stud
- Welding flange to column
- Marking centerline (Layout)



Needless elements of production that create no value and should be eliminated

- Waiting or Walking
- Looking for material
- Measuring

Work that does not convert to a final product but is necessary under present working conditions

- Hooking drill to hip
- Lowering lift
- Measuring

Content

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Driving Nail into Post

What is:

- **V**alue Add
- **I**ncidental
- **W**aste

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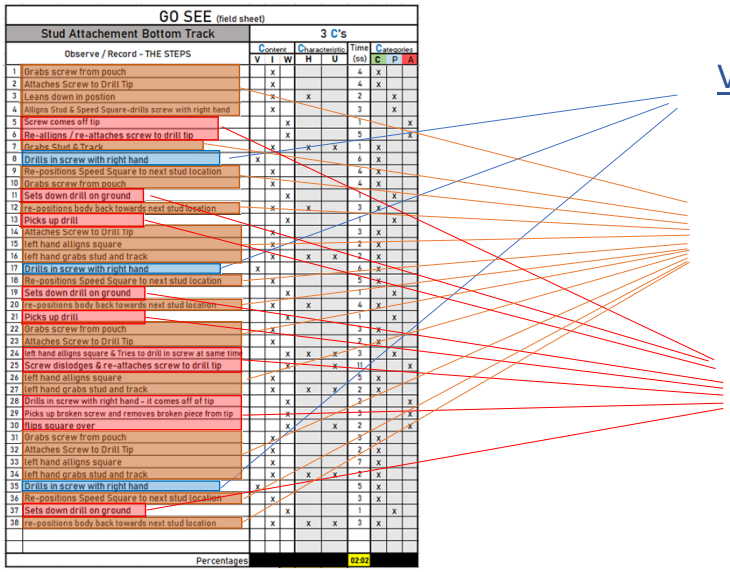

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3 Leans down in postion		x		x		2		x	
4 Alligns Stud & Speed Square-drills screw with right hand		x				3		x	
5 Screw comes off tip			x			1			x
6 Re-alligns / re-attaches screw to drill tip			x			5			x
7 Grabs Stud & Track		x		x	x	1	x		
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37 Sets down drill on ground			x			1			x
38 re-positions body back towards next stud location		x		x	x	3	x		
Percentages						82.02			

7.9%
Value Added

60.5 %
Incidental

31.6%
Waste

Characteristics

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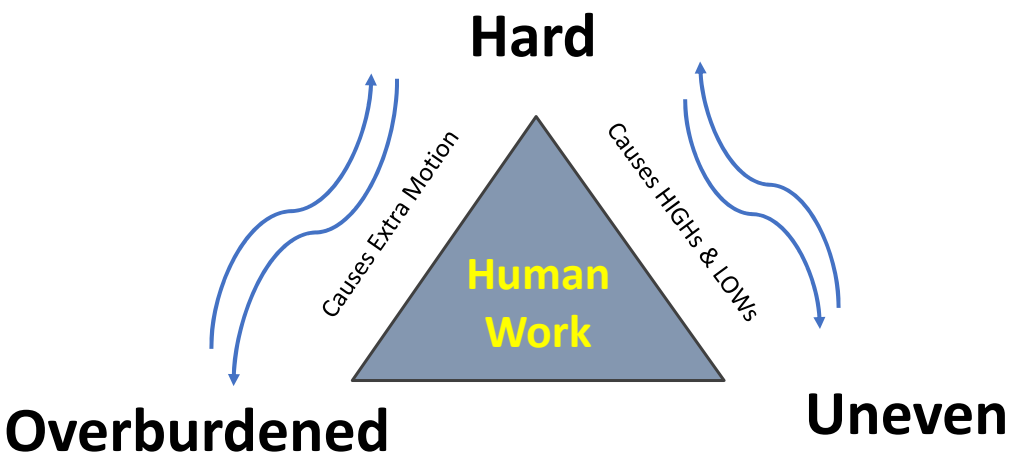

Characteristics

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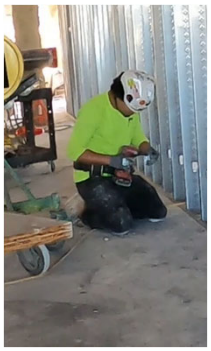
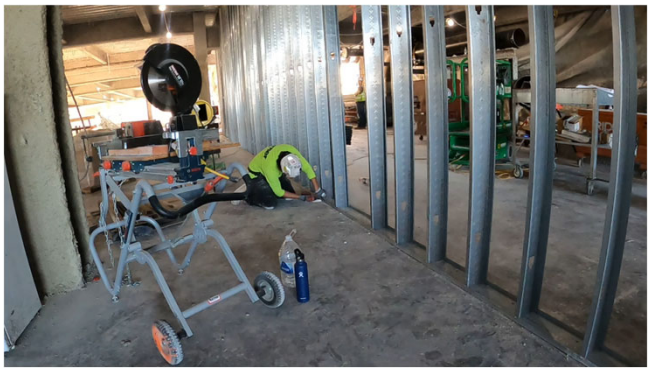
Uneven

Burden



Hard



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35	Drills in screw with right hand	x					5	x		
36	Re-positions Speed Square to next stud location		x				3	x		
37	Sets down drill on ground			x			1		x	
38	re-positions body back towards next stud location		x		x	x	3	x		
Percentages						02.02				

26.3%
Hard or Uneven

Categories

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Abnormal (A)

Work that deviates from standard and must be eliminated

Periodic (P)

Not every cycle but with some frequency to maintain quality, safety, and/or conveyance.

Cyclical (C)

Occurs every cycle to complete the unit

Categories

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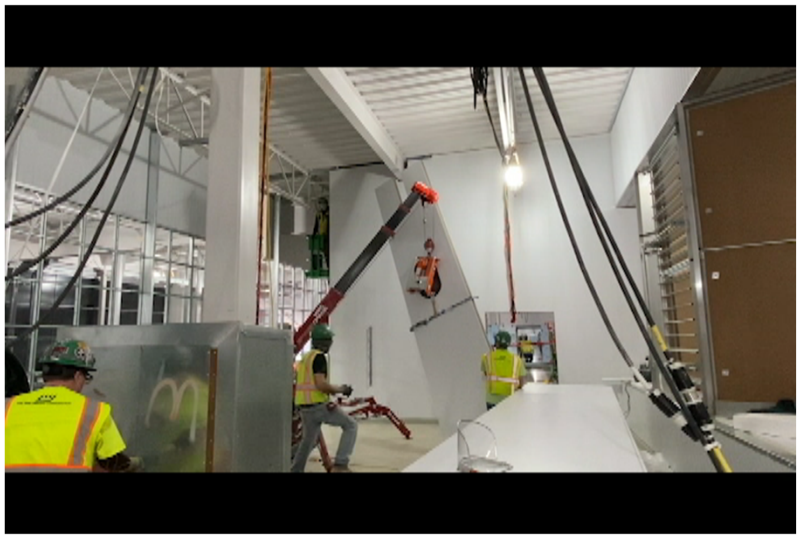

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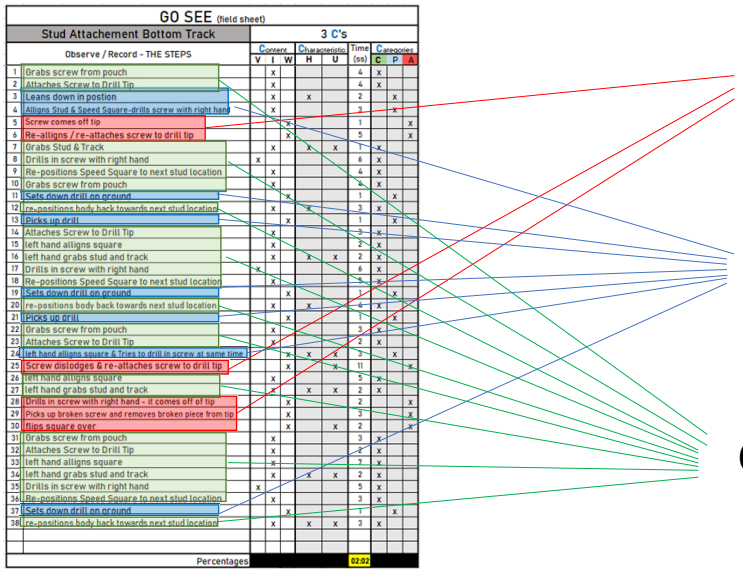

15.8%
Abnormal (A)

21.1%
Periodic (P)

63.1%
Cyclical (C)

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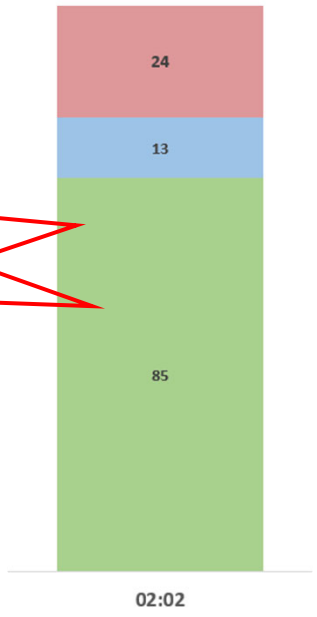
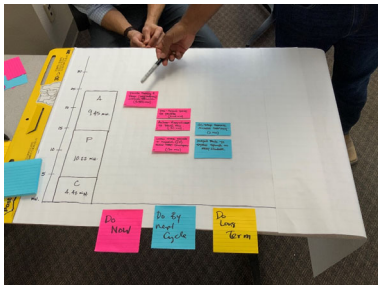
Yamazumi
(山住)

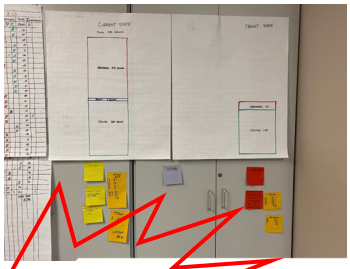


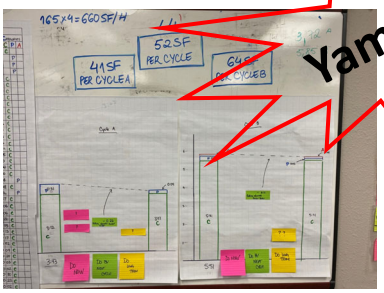
Abnormal (A)

Periodic (P)

Cyclical (C)







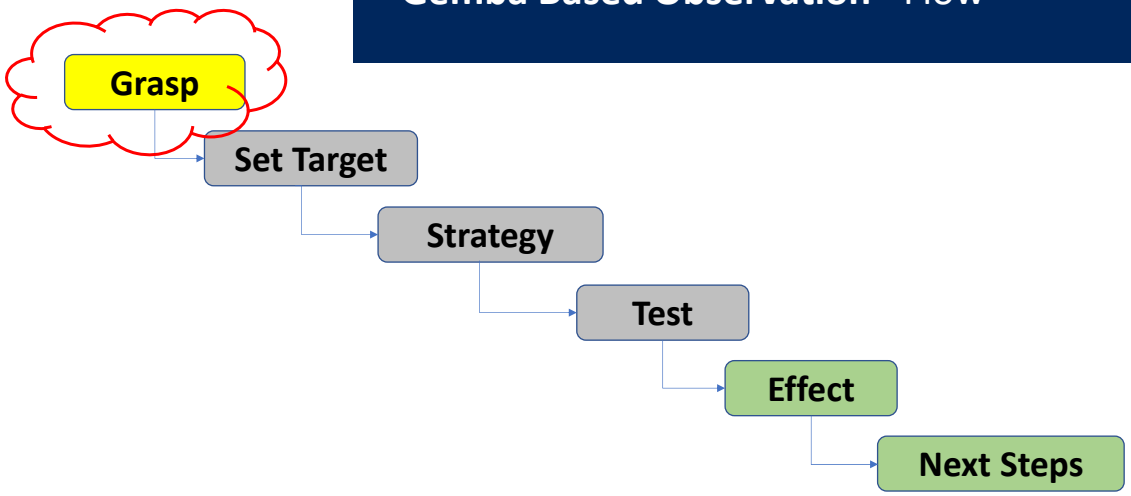
Yamazumi

BEFORE 31:43 Worker Minutes

SO now what ?

To this point we have shown you how using the 3C's framework can help you study deep and breakdown what is currently happening.

Gemba Based Observation - Flow



Cut Station video

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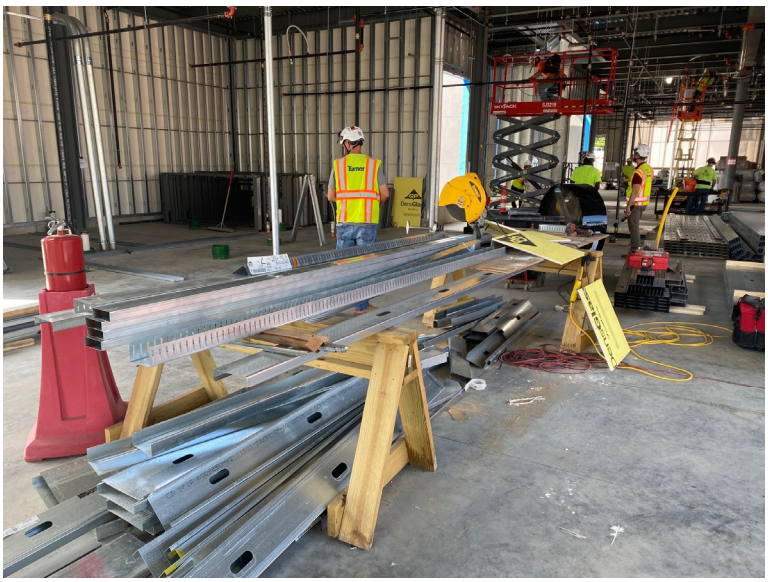
BEFORE



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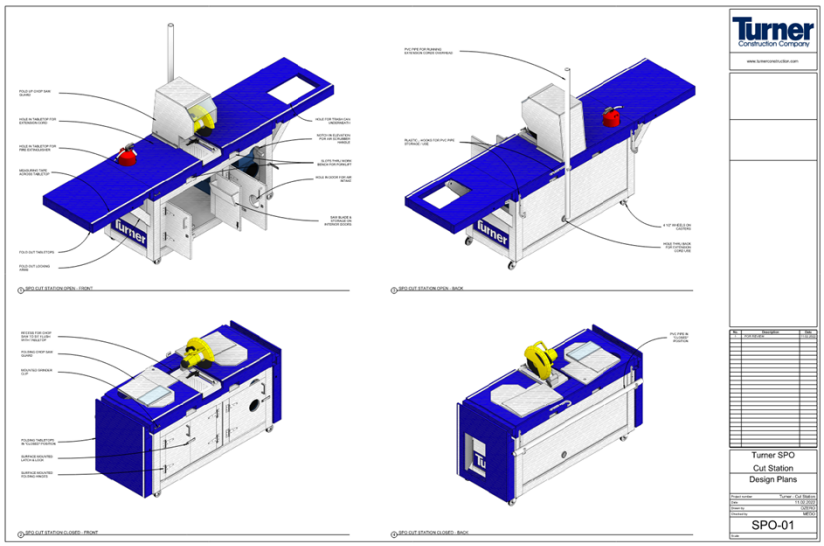
AFTER

AFTER
(Rev 5)



BEFORE

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AFTER

25% decrease in burden of movement

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Decreased movements from **10** down to **3**

PROBLEM: Terminator has to use heat gun on all four sides of heat shrink sleeve when applying it to the lug/wire connection.

COUNTERMEASURE: Use new diffuser attachment to heat shrink all sides of the heat shrink in one pass

IMPACTS:

1. Decreases the amount of time to complete this task
2. Terminator doesn't have to hold heat gun at awkward angles
3. Less chance of uneven heating which can cause a split in the sleeve

BEFORE:

AFTER:

Reduction of 40 seconds per cycle

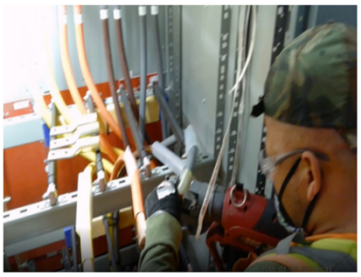
31% increase in production by just removing burden and uneven work

PROBLEM: Terminator has to lift and hold stead the 14.7 lbs crimping tool when crimping the lugs onto the end of each wire.

COUNTERMEASURE: Terminator uses a lanyard attached to the structural supports of the cabinet and attaches the crimping tool to it.

IMPACTS:
1. Decreases strain on worker
2. Worker can maintain fine-motor skills when crimping
3. Eliminates wasted energy retrieving crimping tool

BEFORE:



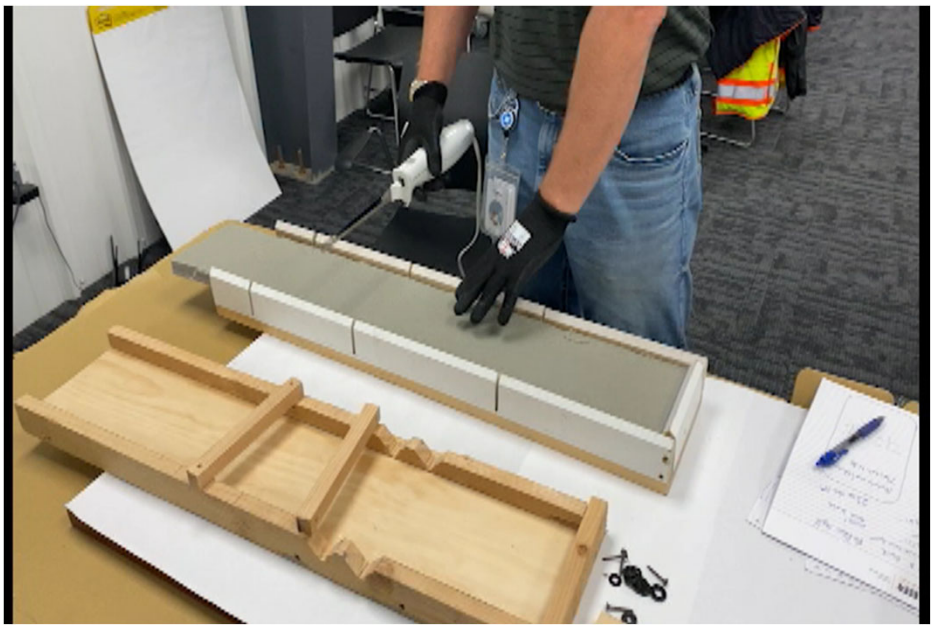
AFTER:

BEFORE

Turner

AFTER

Turner



RESULTS

70% reduction in time to complete work
82% reduction in kneeling time
98% reduction in abnormal work
35% increase in cyclical work
Safety: cutting toward body reduced 138 instances

Potential Labor cost saving remainder of project: $19,650.00

Respect For People

Electrician for Alterman Electric that we met at the end of a long hard career.

- **He was open to change, but no one would have known it because of the way we previously observed work.**
- **He worked in an environment (that all construction workers work in) that had no time to produce a better way of doing the work.**
- **He was in a culture of 'get it done' regardless of what it did to him physically. He accepted the work as it was (hard) and didn't question it because 'that's just the way it was'.**
- **He asked us "where were y'all 20 years ago...I wouldn't be retiring soon if we had met earlier". *That was a heartbreaking statement.***
- **After we implemented some of our improvements he said, "I actually got to go home yesterday and relax, normally I can't do that because I am in so much pain after I get off work". *That too was heartbreaking to hear.***
- **He was doing some of the hardest work on site because of his experience and knowledge. What a reward for his body after taking a beating his entire career.**

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GBI's - Gemba Based Improvements

IMPACT on → Turner

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Q & A