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Operational Efficiency on the Plant Floor

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Operational Efficiency on the Plant Floor

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Introductions



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Purpose

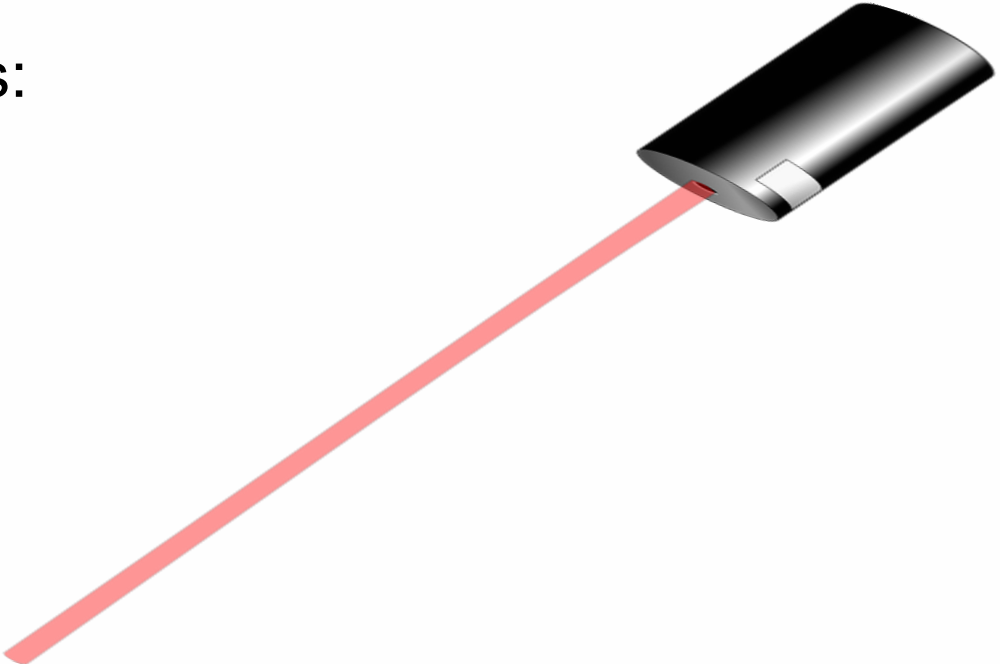
- Review basic steps & basic tools
- Begin thinking about 1% improvement every day
- Review examples of 1% improvement at locations
- Plant the “seed” – what can you start (or continue) to do tomorrow

Process dependent; not people dependent.

Hard on the process; easy on the people.

Continuous Improvement: Two Basic Steps

1. Set your house in order(6S) – you can't kaizen chaos.
2. Observe your processes for opportunities:
 - FLOW of material
 - FLOW of information
 - FLOW of people
 - Wastes



Order → *Cash*

You Can't Kaizan Chaos

- **Look for Chaos**

- You can't manage chaos
- Do we have standard operating procedures
- Is there variation in how employees do the job?
 - Is that bad, does it matter?
- Do we fully understand the process

- **Develop Stable Work Processes**

- SOP
- Backups in place
- Routine
- Standard repeatable processes



Execution: Agile Project Management

Tasks

+ Add task

☐

Sprint 4 4.3 - Send Email for Team to Update Settings

☐

Sprint 4 4.5 - Establish New Way of Creating Release

☐

Sprint 4 4.6 - Establish Process For How to Push to TM

☐

Sprint 4 4.7 - Identify Scenarios for Manually Adding Hangers to TM

☐

Sprint 4 4.8 - Create Standard for Hanger List on Layout

☐

Sprint 4 4.9 - Create Training Plan for Design Team

☐

Sprint 4 4.10 - Train Design Team on Tool

☐

Sprint 4 4.11 - Establish Measures to Gauge Success

To Do

+ Add task

↔

☐

Layouts over 100'

↔ RE_Layouts.msg

📎 2

📅 05/15

☐

Sprint 4 4.4 - Create and Send Email to Install New Plug In

📅 05/16

☐

Sprint 4 4.1 - Meet with Billy on Visibility Settings

📅 05/23

DC

PV

☐

Sprint 4 4.2 - Standardize Visibility Settings

Completed

+ Add task

Completed tasks 44 ^

☒

Sprint 4 4.2 - Update SE Hanger Inventory

CL Completed by Connor Laughlin ...

☒

Create Sprint 4 Tasks - Hanger Calculator

CL Completed by Connor Laughlin ...

☒

Sprint 3 3.9 - Roll Out Final Sprint 3 Changes with Team

Completed by Glen Etchison on ...

☒

Sprint 3 3.8 - Review Sprint 3 Feedback

Completed by Glen Etchison on ...

☒

Sprint 3 3.7 - Spot Check

Planner

Microsoft Corporation

Open

★ 3.8 (13.4K ratings)

Set Your House in Order



If you can't do 6S don't do the rest!!

6S – Visual Management Reinforced

Developing Visual Management Systems

Strive to answer the following questions:

1. What is the standard?
2. How do we know this visually?
3. How do we know if we're meeting the standard?
4. If we're not meeting it, what do we do about it?

By answering these questions, we start to reinforce the standards, and we also encourage problem solving for those instances when we're not meeting the standard.

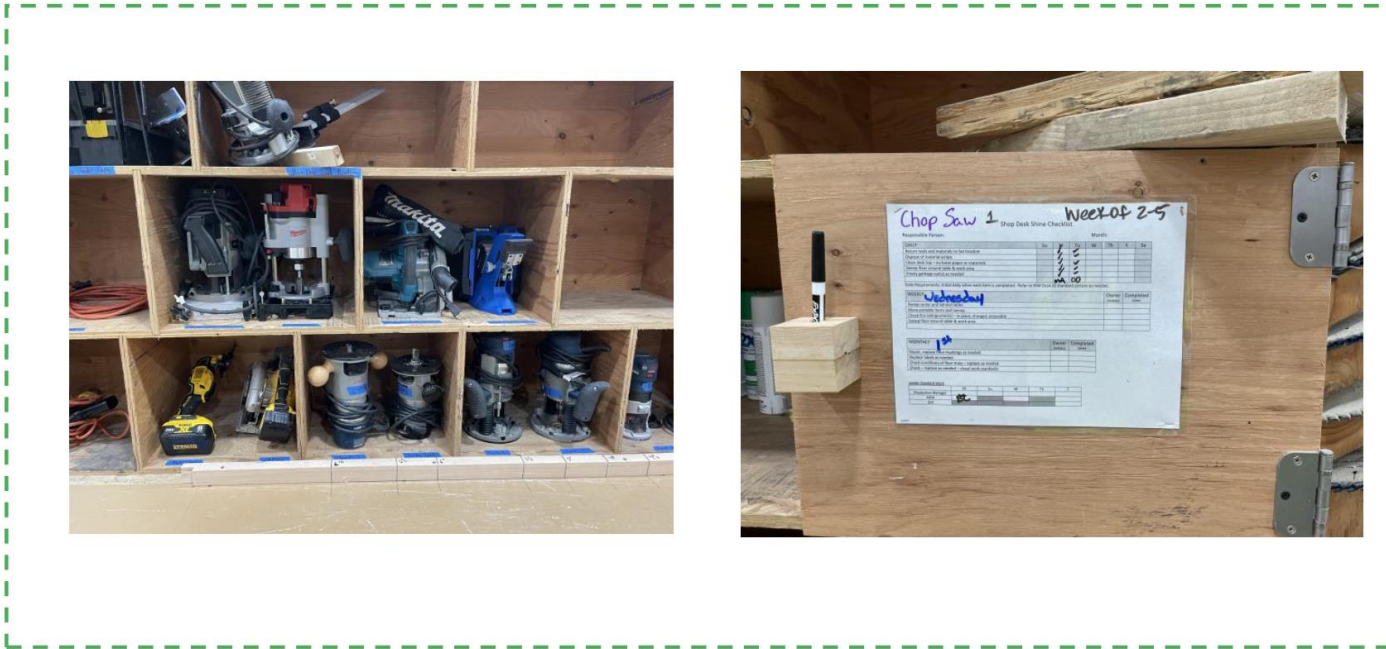
SORT

Separate the necessary from the unnecessary.

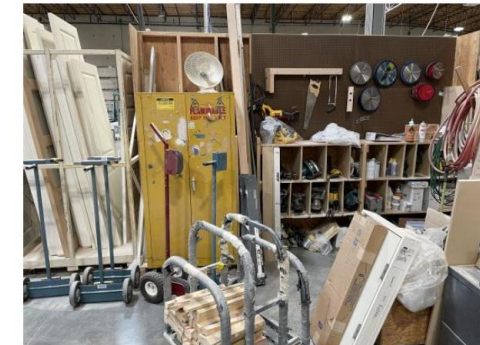


SET – Tools & Equipment

Standard in place



No standard in place



A place for everything, and everything in its place.

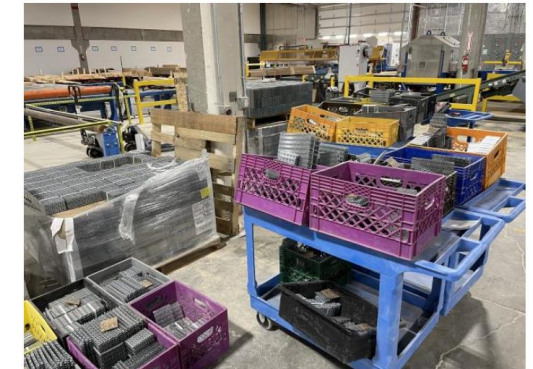
Set Material Flow

Standard in place



Visuals should readily highlight normal vs. abnormal.

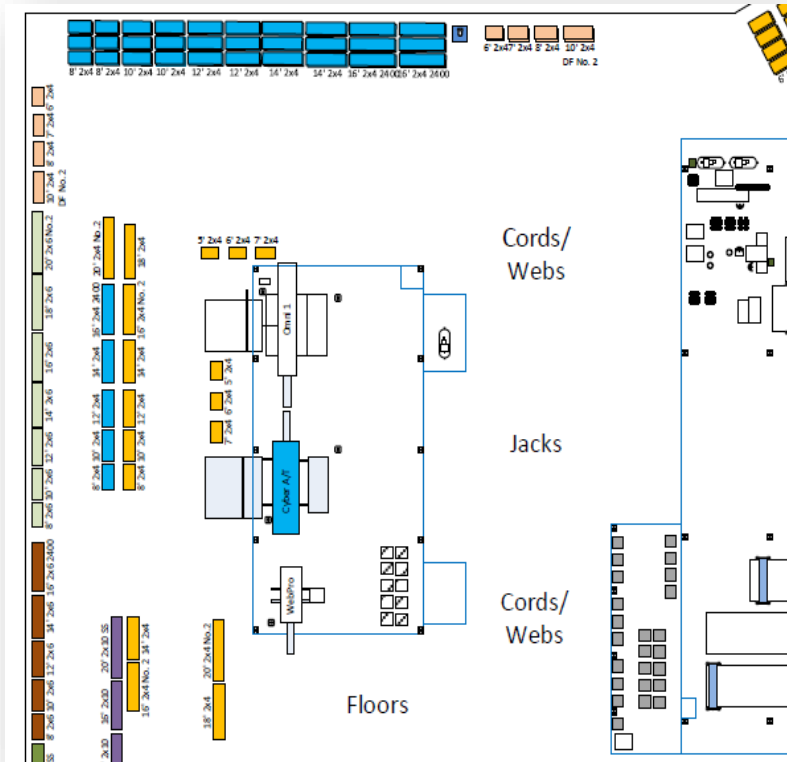
No standard in place



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Truss Examples

- Create a Layout
 - Standardized where cut members go



Project Elevate – how can this help as we execute Elevate?

- Visual Bin Systems



Truss Examples

- Standardize where things go
 - Reduces Chaos 😊



- More Standards/Visual Management



Look and See!

- Look for Paper Trails
 - Does paper pile up in places?
 - Think digitally (emails, reporting, DDMS, AW, etc.)
 - Is paperwork incorrect that requires flow of work to be interrupted?
- Look for Inventory
 - Does inventory pile up in places?
 - Does the inventory move?
- Waiting for something?
 - Why are we waiting?
 - Over the wall
 - Do we complete a task just to have to wait for someone else to finish it?

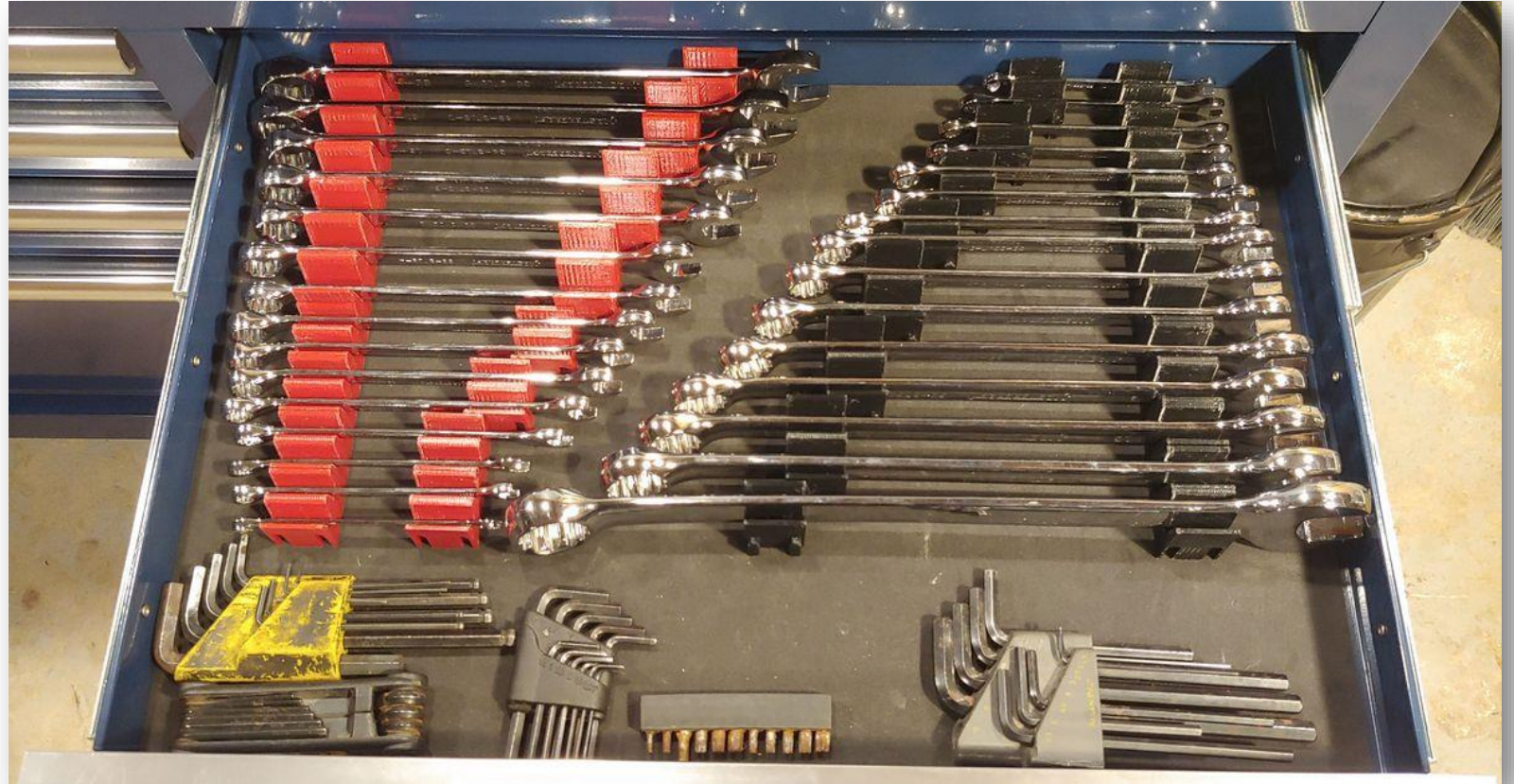
- Motion
 - Do you notice people walking to locate tools, materials or information?



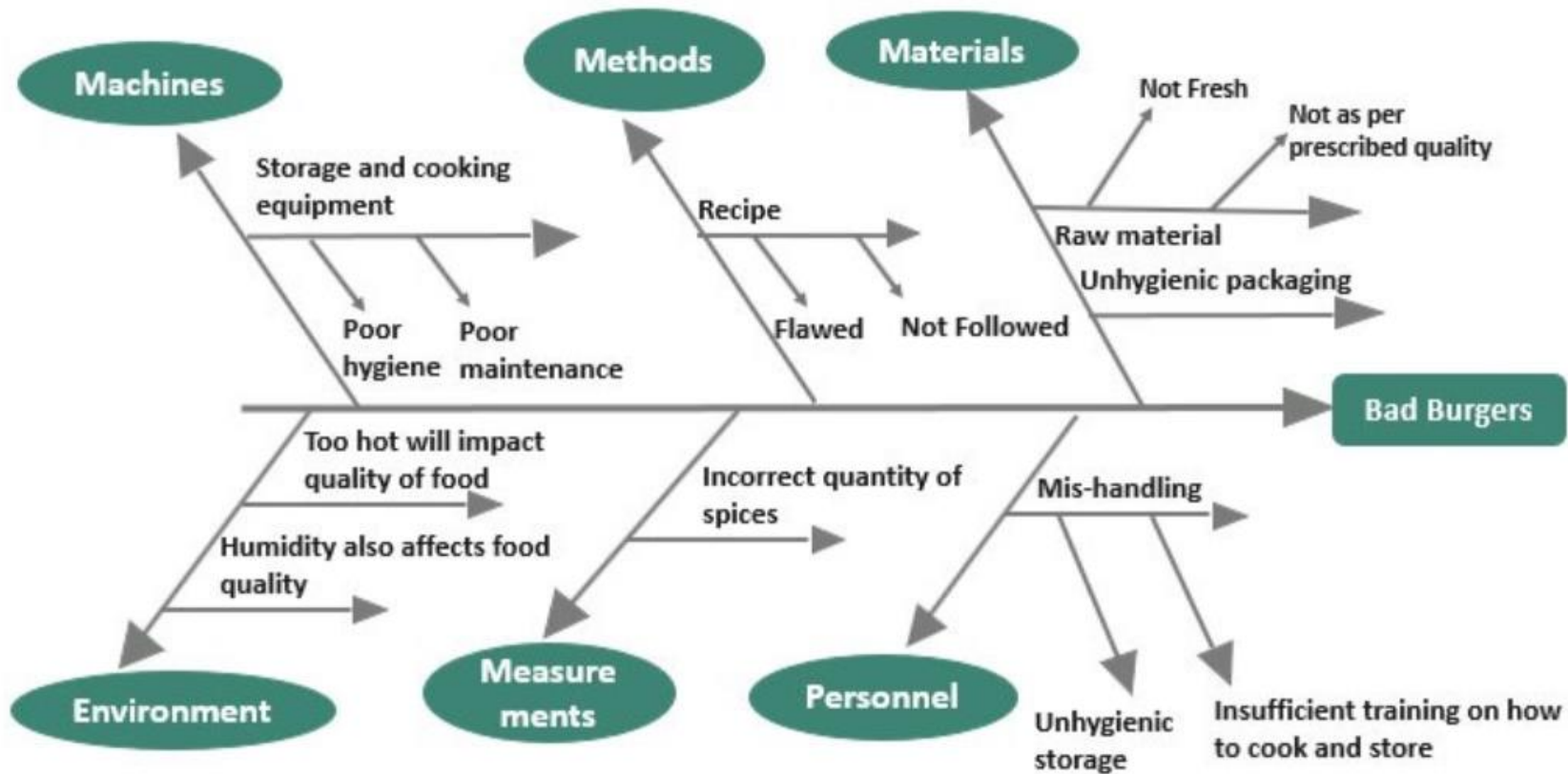
- FLOW of material
- FLOW of information
- FLOW of people

3 Basic Tools

1. Fishbone Diagram
2. Spaghetti Diagram
3. Process Mapping



Fishbone Diagram Tool



Use 5 Why methodology to get to root cause

5 Why's

	Level of problem.	Related countermeasure.
Why?	• There is a puddle of oil on the shop floor.	• Clean up the oil.
Why?	• Because the machine is leaking oil.	• Fix the machine.
Why?	• Because the gasket has deteriorated.	• Replace the gasket.
Why?	• Because we bought gaskets made of inferior material.	• Change the gasket specifications.
Why?	• Because we got a good price on those gaskets.	• Change the purchasing policy.
Why?	• Because the buyer is evaluated on short-term cost savings.	• Change the evaluation process of the buyer.

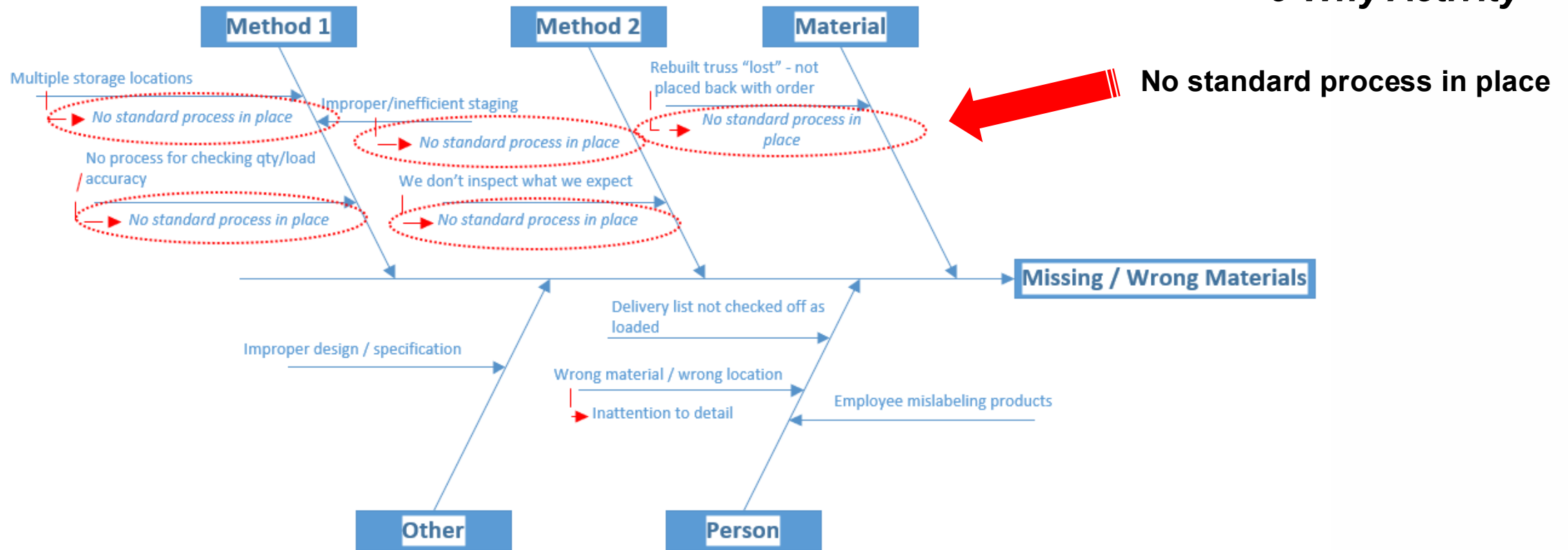
Source: Jeffrey Liker, *The Toyota Way*, McGraw-Hill, 2004

Initial source: Peter Scholtes, *The Leader's Handbook*, McGraw-Hill, 1998.

Identify the Root Cause

- Understand the **facts**; get to root cause

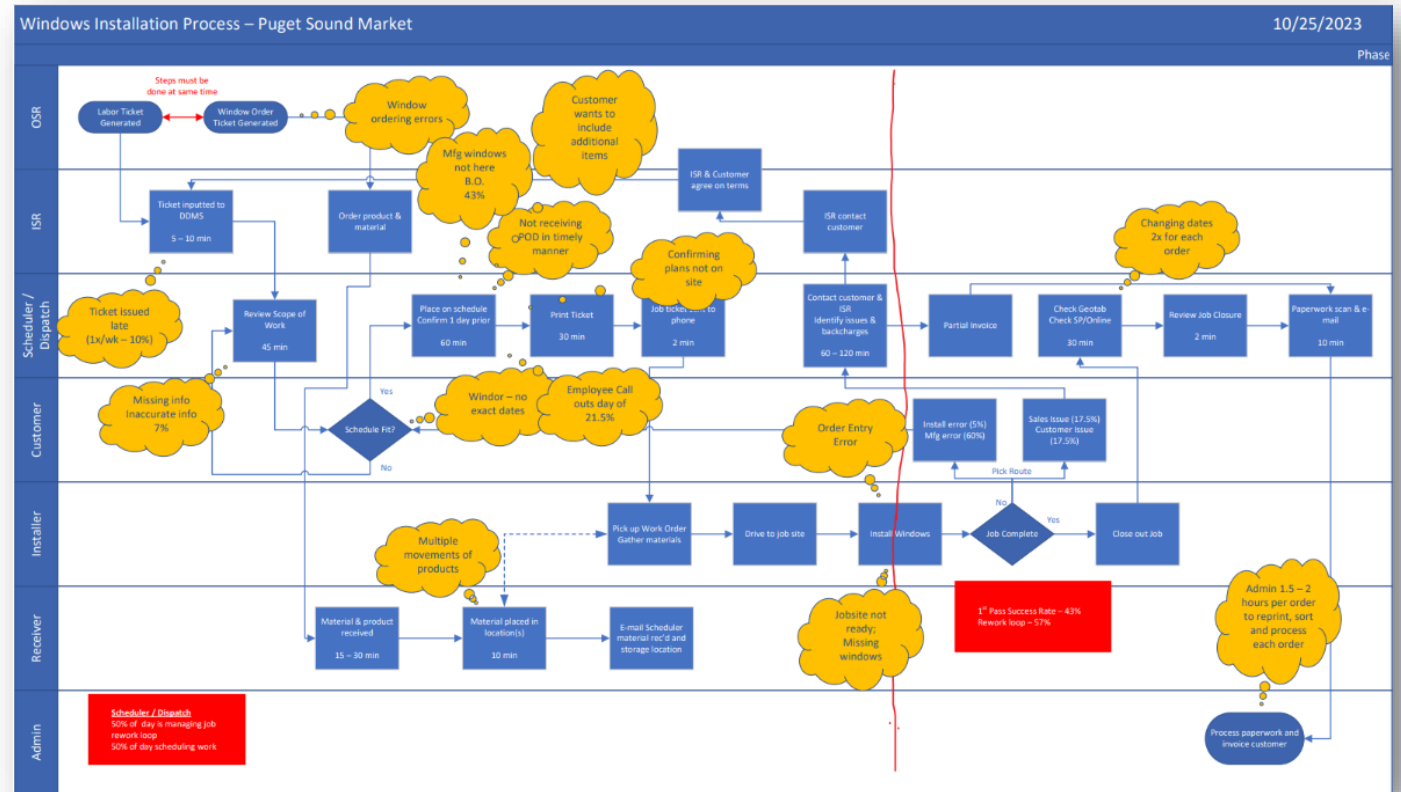
Fishbone Diagram 5-Why Activity



Hard on the process; easy on the people.

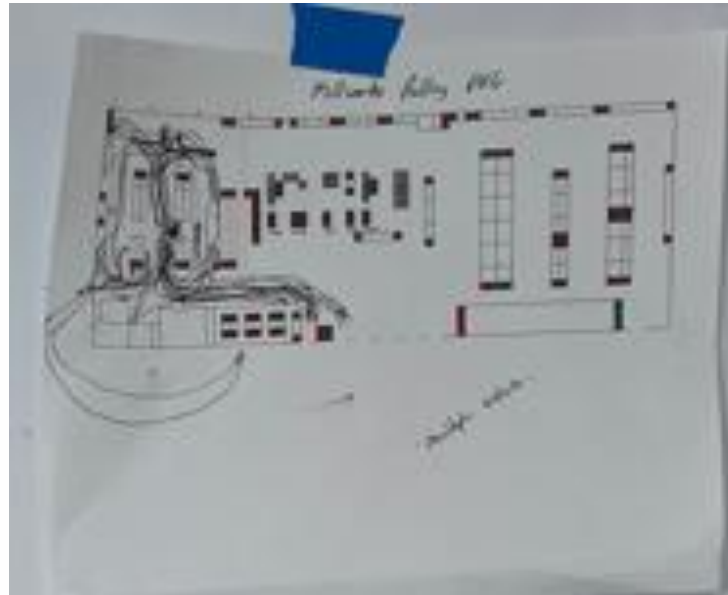
Process Mapping

- Tends to be more business or admin process focused
- Swim Lane map good when multiple functions involved in a process
- TIMWOODS focus
- Current State to Future State gap analysis & plan creation



Spaghetti Diagram

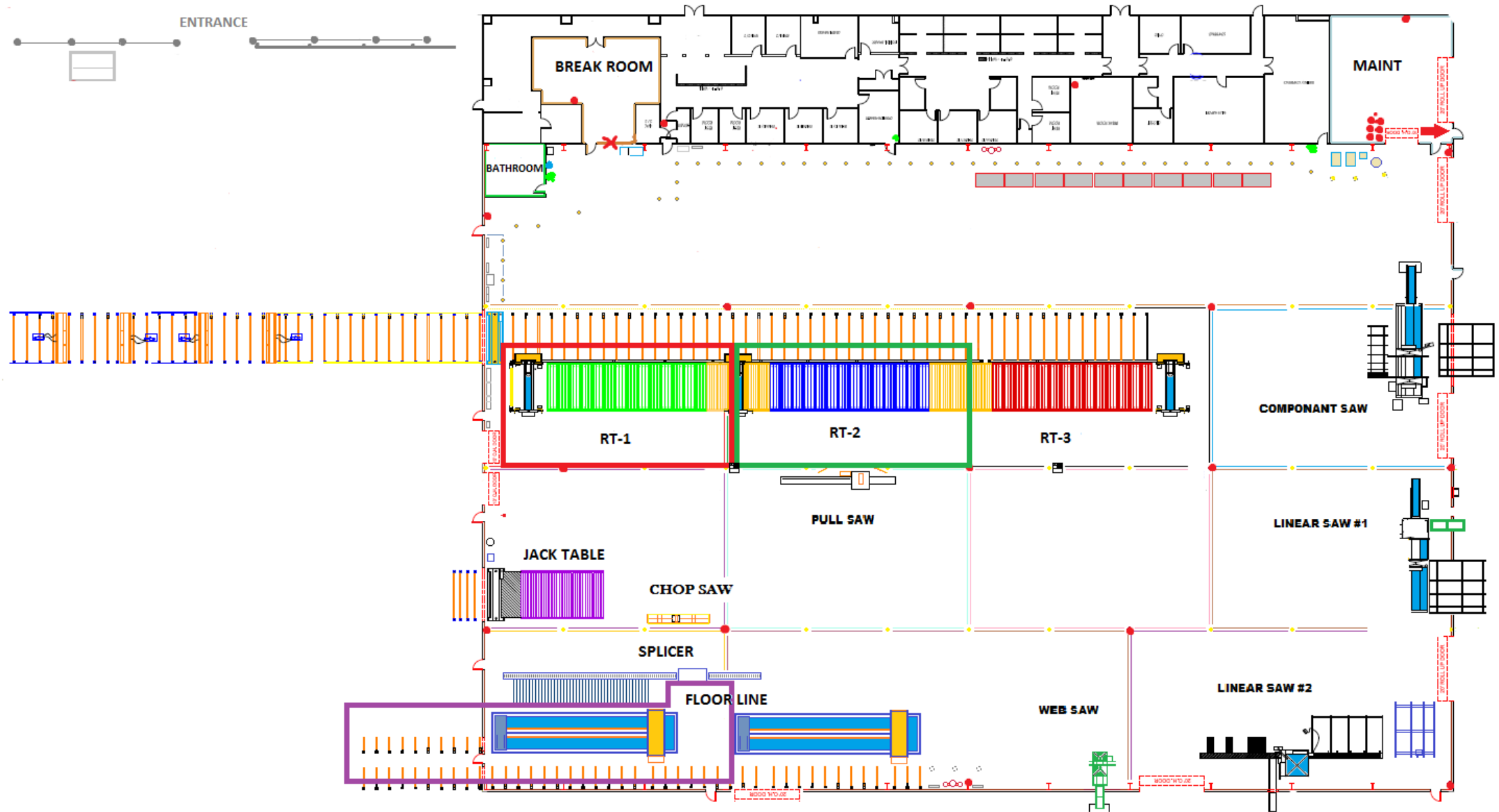
- Capture various flows in a process
 - People, material, finished goods, information
- Drives data collection – distance, time, # of required movements
- Current State to Future State gap analysis / plan creation

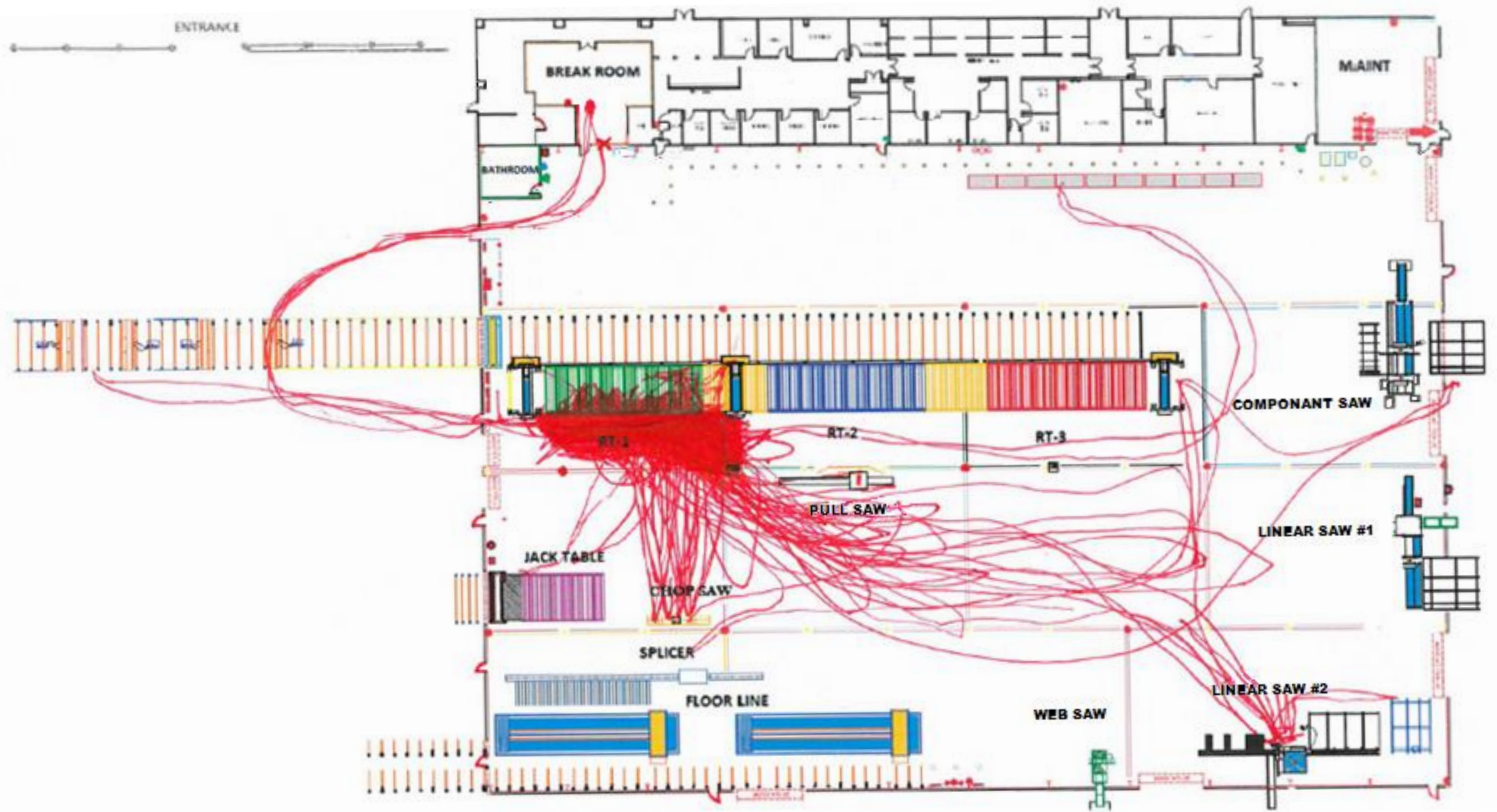


Old School



GPA Trackers





Nonproductive steps outside of RT-1 Zone

- From Table RT-1 To The Pull Saw = 64 steps
- From Table RT-1 To The Chop Saw = 50 steps
- From Table RT-1 To Linear Saw #2 = 190 steps
- From Table RT-1 To The End Of The Plate Rack = 260 steps

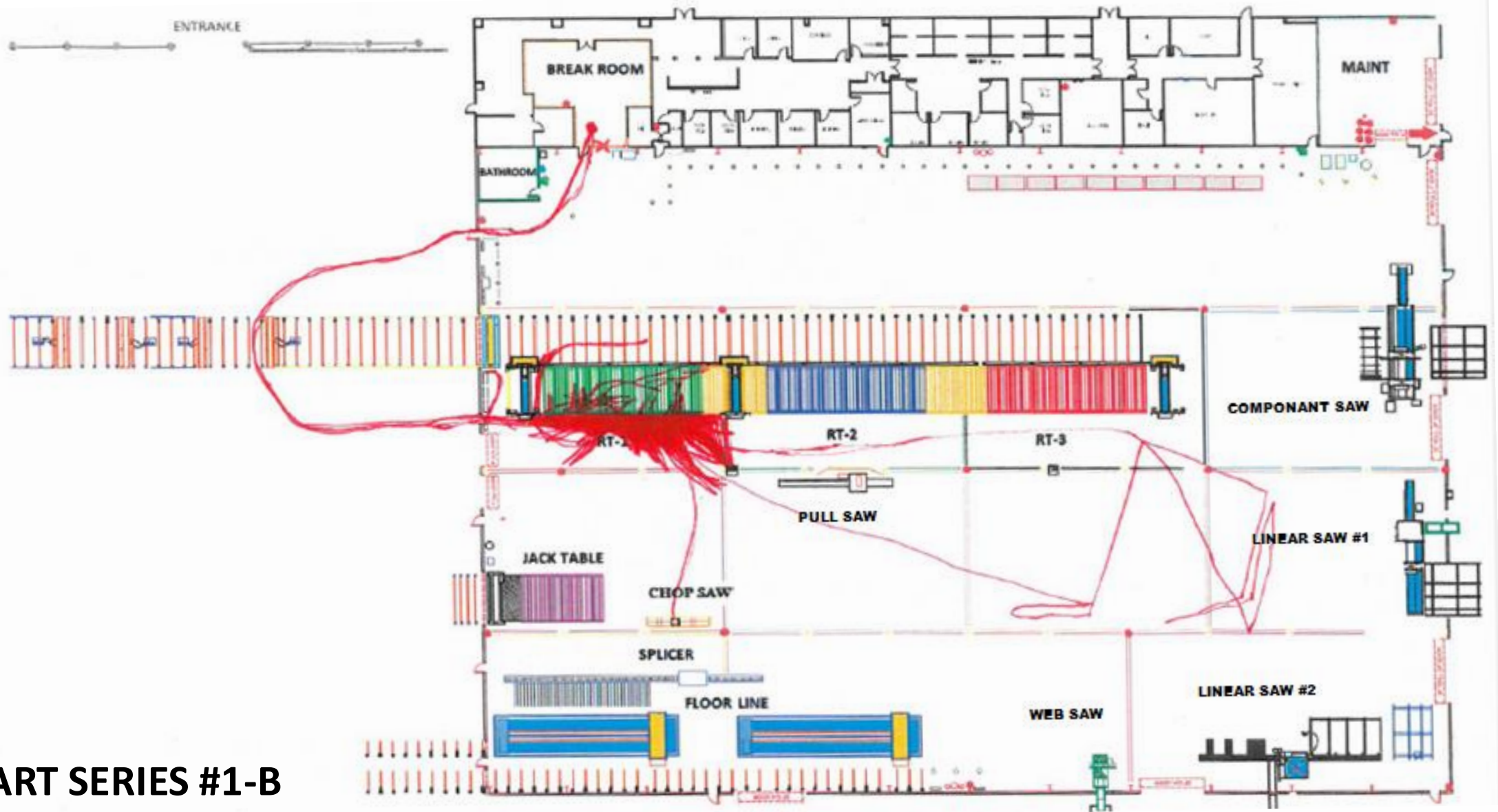
***RT-1 – CHART SERIES #1-A**

Areas of Improvement

- **Miss cuts/recuts**
- **Lumber stacking from saws**
- **Pulling carts to table**
- **Drinking water**

Efficiency Enhancements

- **Held weekly crew leader and sawyer meetings**
- **Restructured the Material Handler's job duties**
- **Assigned a team member to clean, fill and stage water coolers daily**



RT-1 – CHART SERIES #1-B

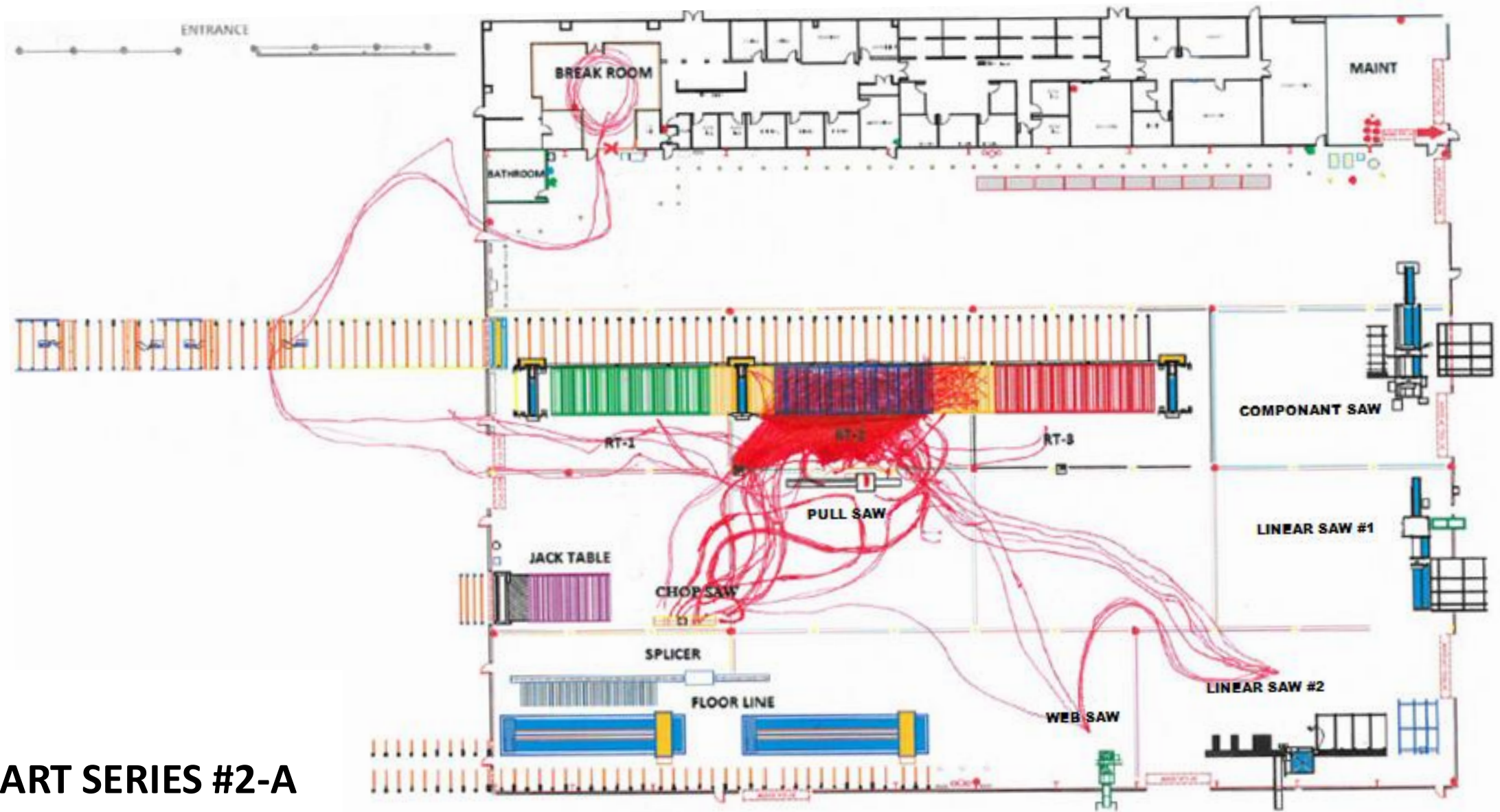
7/25/2016

6546 BF. / 8 HRS.

400 TOTAL STEPS

RT-1 Results

- **Reduction of total steps by 2310 = 85.3%**
 - **Steps needed: Before: 2710 - After: 400**
- **Increase in produced board feet by 22%**
 - **Before: 5109 bdft - After: 6456 bdft**



RT-2 – CHART SERIES #2-A

7/11/2016

4734 BF. / 8 HRS.

1774 TOTAL STEPS

Nonproductive steps outside of RT-2 Zone

- From Table RT-2 To The Pull Saw = 17 steps
- From Table RT-2 To The Chop Saw = 34 steps
- From Table RT-2 To Linear Saw #2 = 70 steps
- From Table RT-2 To The End Of The Plate Rack = 103 steps

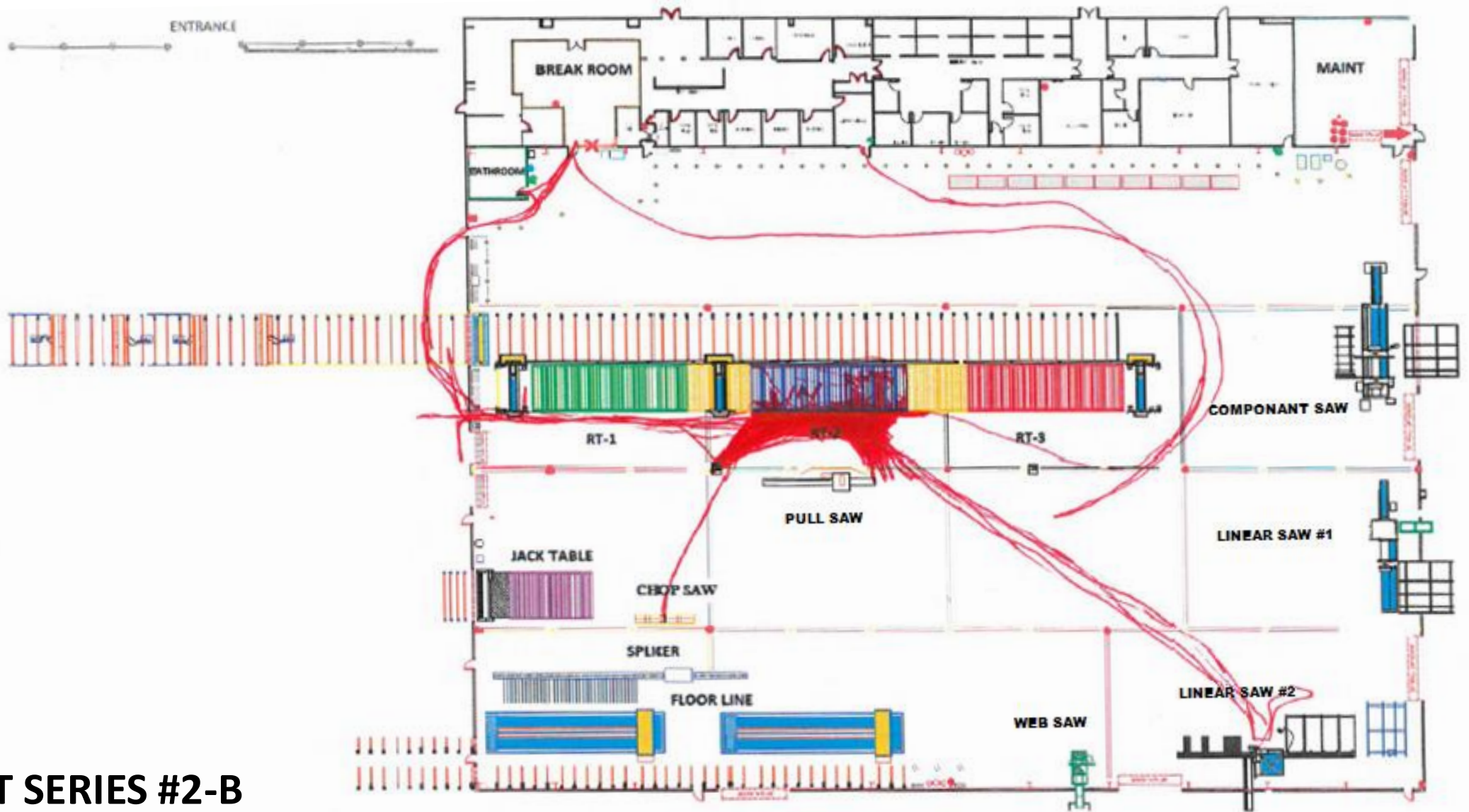
***RT-2 – CHART SERIES #2-A**

Areas of Improvement

- **Miss cuts/recuts**
- **Lumber stacking from saws**
- **Pulling carts to table**
- **Drinking water**

Efficiency Enhancements

- **Held weekly crew leader and sawyer meetings**
- **Restructured the Material Handler's job duties**
- **Assigned a team member to clean, fill and stage water coolers daily**



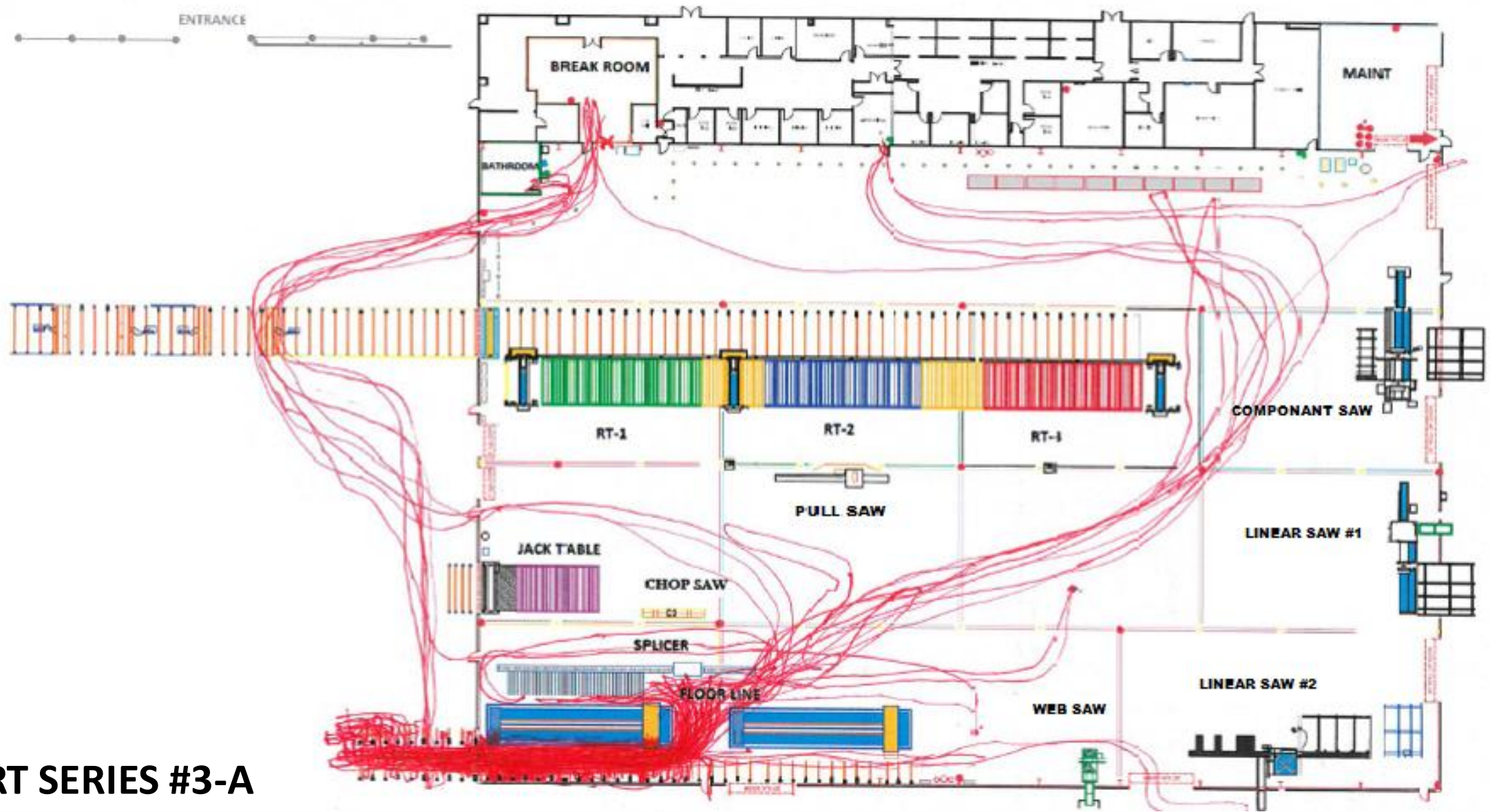
RT-2 – CHART SERIES #2-B

7/27/2016

4770 BF. / 8 HRS. 718 TOTAL STEPS

RT-2 Results

- **Reduction of total steps by 1056 = 60%**
 - **Steps needed: Before: 1774 - After: 718**
- **Increase in produced board feet by 1%**
 - **Before: 4734 bdft - After: 4770 bdft**



FT-1– CHART SERIES #3-A

7/11/2016

4300 BF. / 8 HRS. 1894 TOTAL STEPS

Nonproductive steps outside of FT-1 Zone

- From Table FT-1 To The Pull Saw = 21 steps
- From Table FT-1 To The Chop Saw = 46 steps
- From Table FT-1 To Linear Saw #2 = 50 steps
- From Table FT-1 To The End Of The Plate Rack = 113 steps

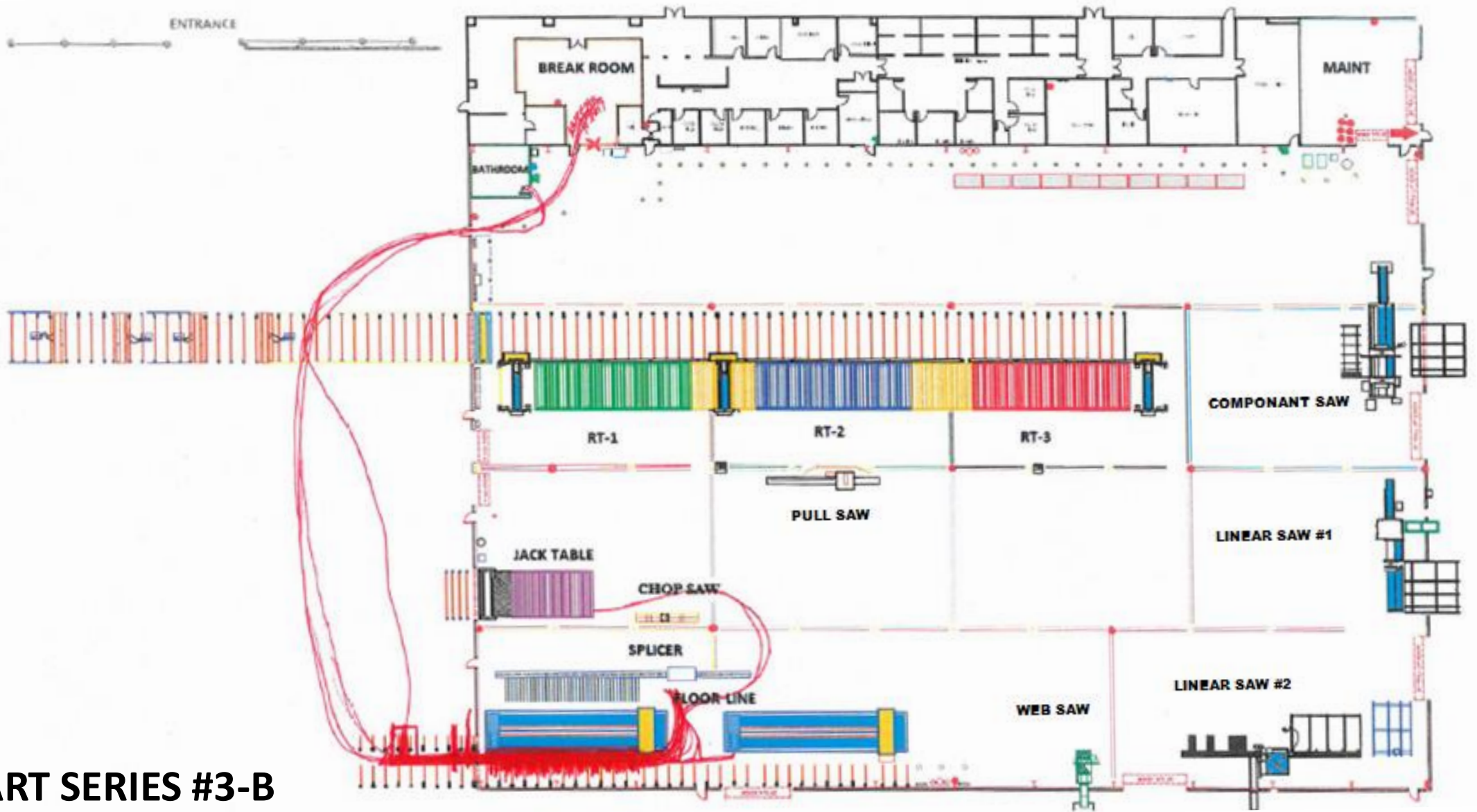
***FT-1 – CHART SERIES #3-A**

Areas of Improvement

- Pulling plates
- Pulling webs
- Show drawings
- Drinking water

Efficiency Enhancements

- **Held weekly crew leader and sawyer meetings**
- **Restructured the Material Handler's job duties**
- **Assigned a team member to clean, fill and stage water coolers daily**



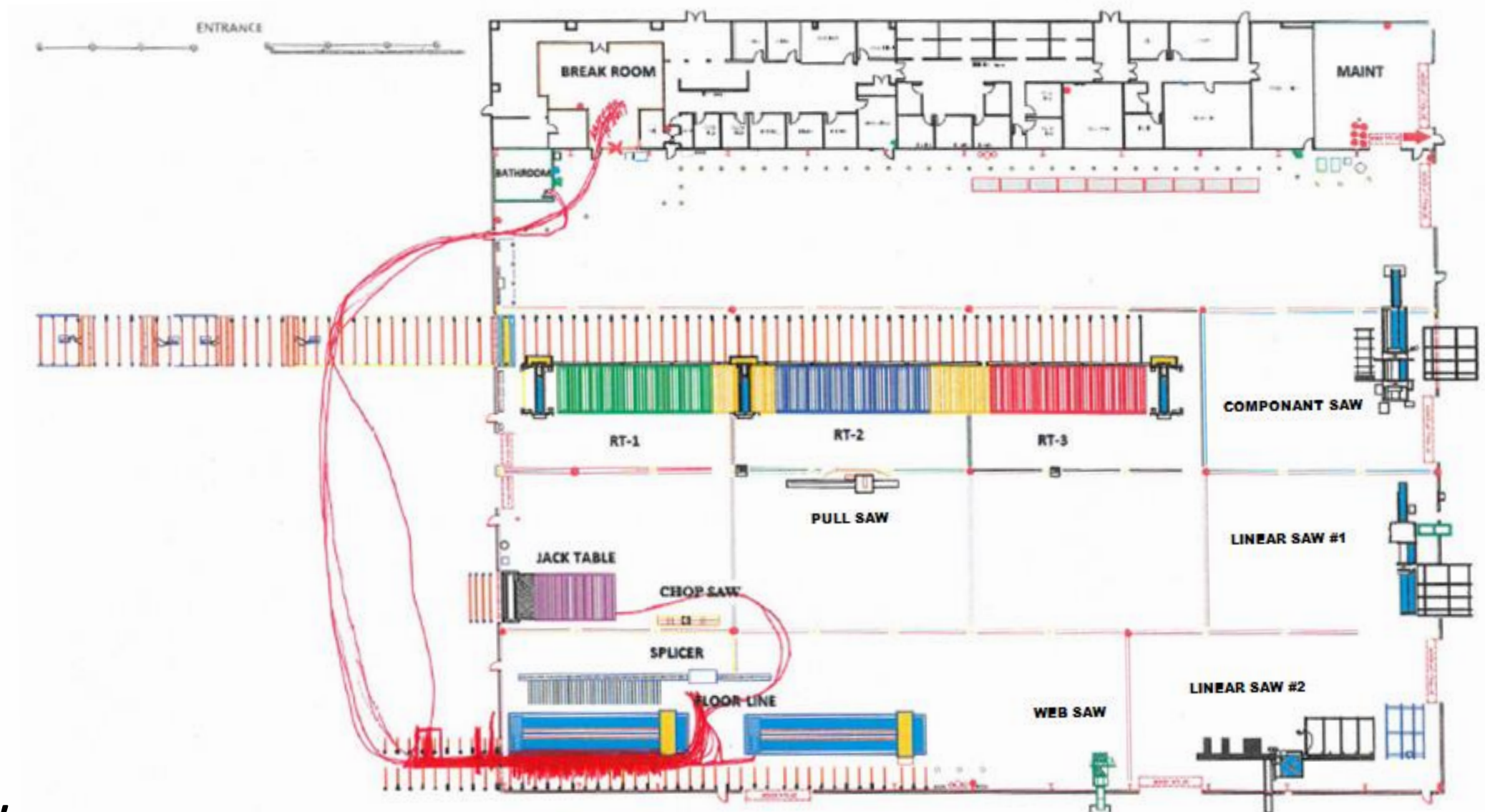
FT-1– CHART SERIES #3-B

8/3/2016

6873 BF. / 8 HRS. 284 TOTAL STEPS

FT-1 Results

- **Reduction of total steps by 1610 = 85.1%**
 - **Steps needed: Before: 1894 - After: 284**
- **Increase in produced board feet by 37.5%**
 - **Before: 4300 bdft - After: 6873 bdft**
 - **Increase of 2573 board feet**



After Review

Nonproductive Steps: RT-1 = 400
 Reduced Extra Steps: RT-1 = 85.3%

RT-2 = 718
 RT-2 = 60%

FT-1 = 284
 FT-1 = 85.1%

In Summary

- **Total amount of steps reduced as a result of this study:**
 - RT-1: 85%
 - RT-2: 60%
 - FT-1: 85%
- **Achieved an increase in board foot output as a result of this study:**
 - RT-1: +1437 bdft 22%
 - RT-2: +44 bdft 1%
 - FT-1: +2573 bdft 37.5%

In Summary

- **This was achieved by:**

- Weekly crew meetings to review findings and generate ideas.
- Weekly saw meetings to review missed cuts, stacking and workflow.
- Thorough training of employees on PM's and calibration to eliminate machine reasons for missed cuts.
- Restructured Material Handler's job functions to ensure that materials are being staged when needed. This helped to reduce the amount of downtime between batches.
- Assigned an employee to clean, fill, and stage the water coolers at the start of each shift.
- Identified areas of training for new employees.

Q&A

Education Session
Evaluation

SCAN HERE





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