

Commercial Metal Forming

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ABSTRACT

The purpose of this project is to address areas of safety, Work In Progress, ergonomics, and maintenance, for Commercial Metal Forming.

INTRODUCTION

Commercial Metal Forming is a leading manufacturer of tank heads and tank accessories. The company recently introduced an initiative to only produce parts of sizes 60+". Our goal is to help the company with adjusting to this change and address issues of safety, WIP, ergonomics, and machine maintenance.

REFERENCES

Facilities Planning/Design, Quality Systems, Product Inventory & Control, Human Factor Engineering

METHODOLOGY

Define

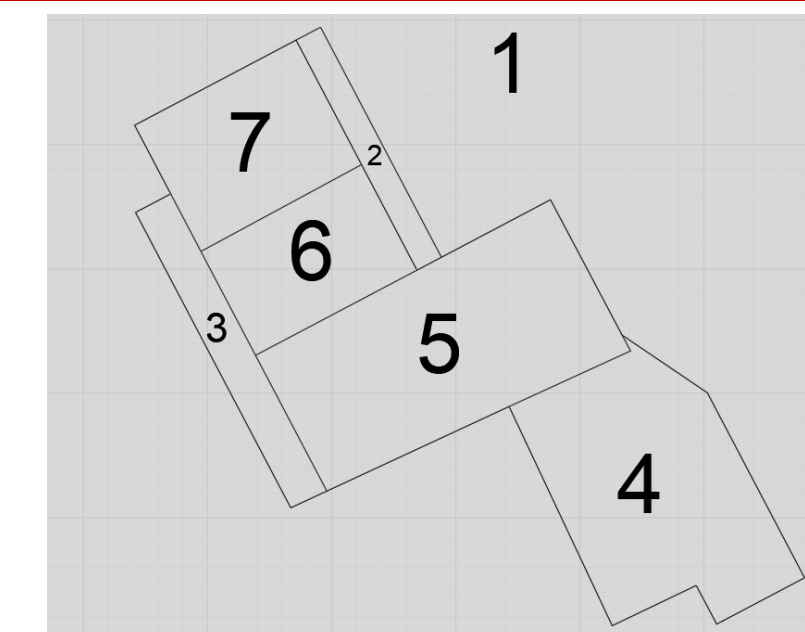
Goals: to satisfy all OSHA safety requirements, to reduce setup time by at least 15%, to increase ergonomic conditions, to establish regular maintenance schedules

Trade Study

Section	Weight							Score
	Safety	WIP	Ergonomics	Maintenance	Scrap	Raw Material	Space Utilization	
1								10
2	X		X	X	X	X	X	15
3			X	X	X	X	X	8
4				X				5
5	X	X		X	X			20
6	X	X	X	X				22
7	X	X		X			X	18

Measure

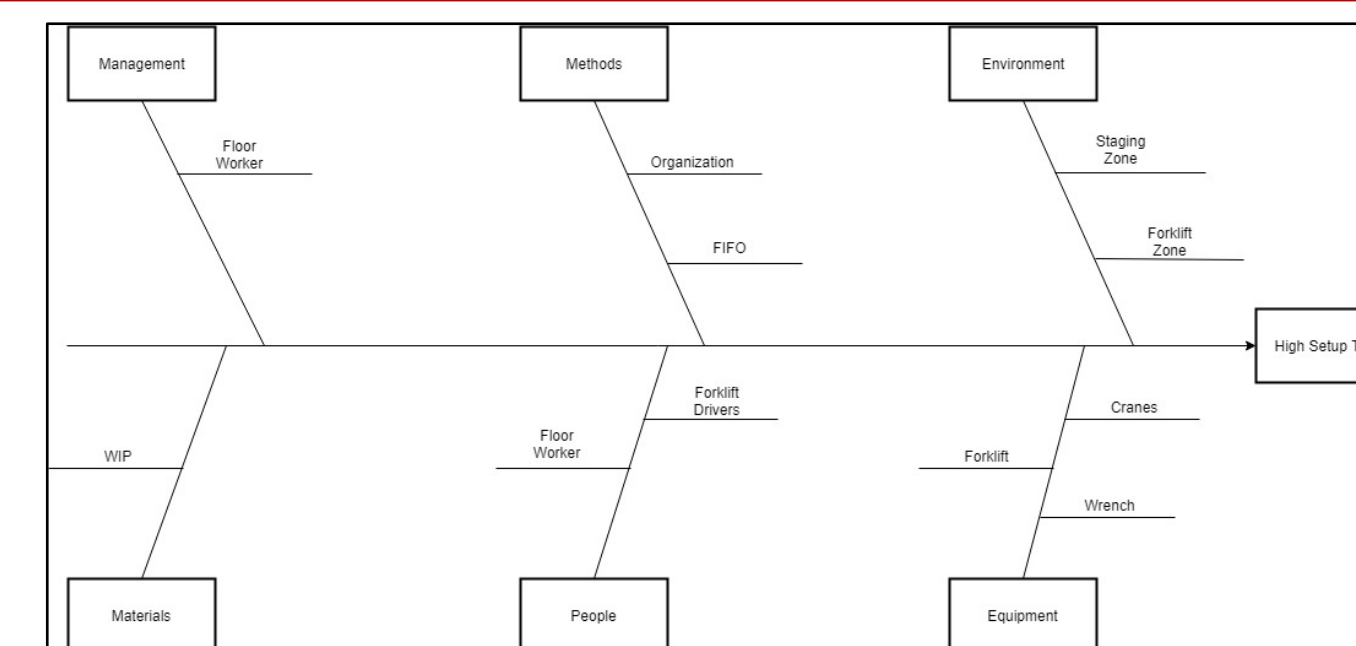
- Service pit dimensions
- Set-up time ranges
- Facility Layout



Facility
Sectional
Layout

Analyze

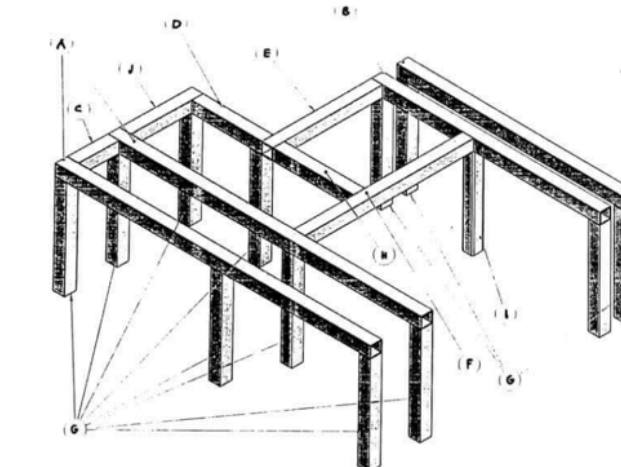
- Root Cause
- Cost Analysis
- Backwards Elimination



Fish Bone Diagram for Current Machine Set-Up Time

Improve

- Design scaffolding for flooring
- Propose Quikrete pothole filler
- Reduce variation between worker techniques



3D SolidWorks model of foundation flooring at CMF

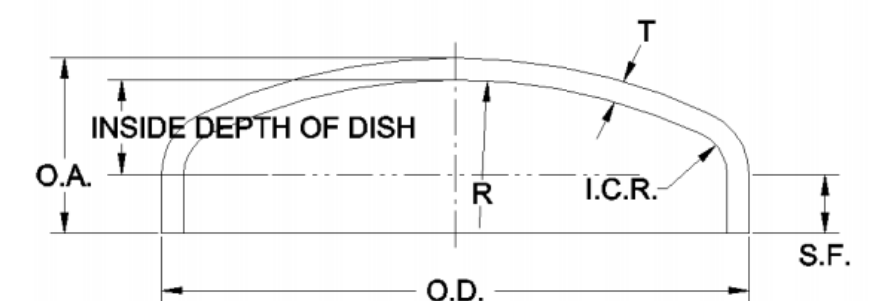
Control

- Develop inspection schedule
- Statistical Process Control for setup time
- Standardize Preventative Maintenance Program

RESULTS

Improvements

- Satisfy OSHA safety regulation for open service pits
- Reduced average Set-Up times by 23%
- Document 3 Year preventative maintenance plan
- Standardize Knuckle changing procedure
- Implement use of power tool instead of manual tools



CONCLUSION

Through analysis of the produced data, we are able to conclude that process times were reduced by 23%. Increased machine up-time is to be expected now that a set schedule is made for maintenance through a PMP. Also, through root cause analysis, we were able to design models to be built so that CMF can meet OSHA regulations for both Flangers.

FUTURE WORK

Extend facility zoning to entire shop floor.