

# 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

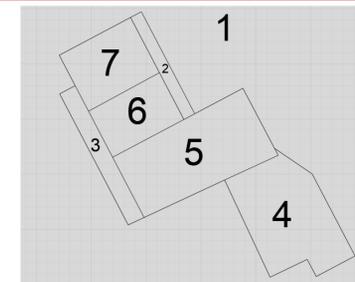
Goals: to satisfy all OSHA safety requirements, to reduce setup time by at least 15%, to increase ergonomic conditions, to establish regular maintenance schedules

Trade Study

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

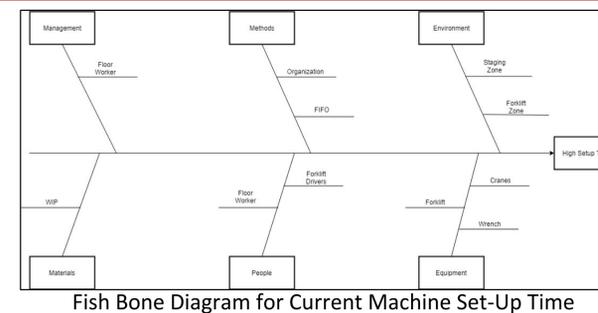
### Measure

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



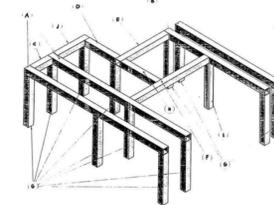
### Analyze

- Root Cause
- Cost Analysis
- Backwards Elimination



### Improve

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



3D SolidWorks model of foundation flooring at CMF

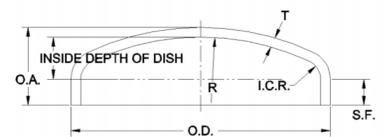
### Control

- 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.