



Production, Quality & Operations Improvement

Global Experience
Engineered Solutions
Data Driven Results



PRODUCTIVITY SOLUTIONS
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We pride ourselves on providing a One Stop resource for engineered solutions based proven Industrial Engineering, Lean Manufacturing and Continuous Improvement tools.

Industrial Engineering Services

- Facility Layout Design
- Cellular Mfg./ Group Technology
- Value Stream Mapping
- Six Sigma Black Belt projects
- Digital Simulation Modeling with ProModel
- Takt time / line balancing techniques
- Capacity & Cost Modeling
- Ergonomic Reviews
- Bottleneck Analysis
- Return-On-Investment calculations
- Standard Work / Time Studies / MODAPTS
- Material handling equipment specifications
- Labor Analysis
- Project Management

Manufacturing Engineering Services

- Lean Manufacturing
- Set-up Reduction / SMED
- BOM and Routing Maintenance
- Process Documentation
- Equipment Specification
- Capital Appropriations

Proprietary Productivity Tracking Tools

- LeanOps – Production Reporting Database.
 - OEE Calculations
 - Equipment Downtime Analysis
 - Operator Efficiency Calculations
- Excel Based Tools
 - Defect Tracking
 - Labor or Equipment Utilization

Thomas Perrego

Founder & Process Improvement Specialist

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Prior Experience and Role Highlights

Tom... is a passionate process improvement leader who thrives on details. He has over 25 years of experience identifying & implementing improvement opportunities, educating clients on their processes, team building and providing value added engineered solutions. He has led projects and project teams that provided value added services that improved quality, reduce labor costs, lead times, inventories and overhead. He has managed global transformation programs and individual improvement projects. With particular emphasis in lean, continuous improvement and problem solving, Tom has worked in a wide variety of settings including the automotive, glass, fiber optics, aerospace, chemical, food, steel, stamping, compressed gas, industrial manufacturing and assembly industries.



Focus

- Manufacturing Operations
- Process Modeling / Facility Layouts.
- Improvement ROI Justification Calcs
- Process Documentation

Recent projects include:

- Assisted FORD Power Train with upgrading their F150 , Explorer & Ranger engine assembly lines.
- Justified new \$36M / 35,000 sq-ft 55 gallon auto filling building by calculating reduced labor savings
- Saved a client \$25M in new equipment by identifying another option.

Prior to his work as an independent consultant, Tom worked as an industrial engineer, engineering manager, R&D manager and Plant Manager at a parts fabrication and assembly company. His hands on shop floor experience is a value that other advisors lack.

Define

- Layout Rearrangement Objectives
- Available Operating Time
- Desired Equipment Utilizations
- Product Families
- Forecasted demand.
- WIP & FG Objectives
- Future Expansion Requirements
- Budget

Measure

- Current Department Floor Space
- Process flow charts.
- Department Relationship Diagrams
- Material Flow Paths and distances.
- Update missing equipment in current facility layout.
- Current material handling labor / costs

Analyze

- Product Routing Matrices analysis to identify product families.
- Value Stream Mapping
- Material Flow diagrams
- Material handling technologies.
- Utilize Process Simulation if applicable.




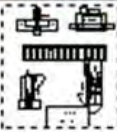

Improve

- Compare improvements to project objectives to ensure alignment.
- Implement Cellular Manufacturing where justified.
- Cost justify improved material handling equipment or equipment modifications.
- Low hanging Set-up Reduction / SMED
- Line Balancing
- Calculate reduced operational costs.

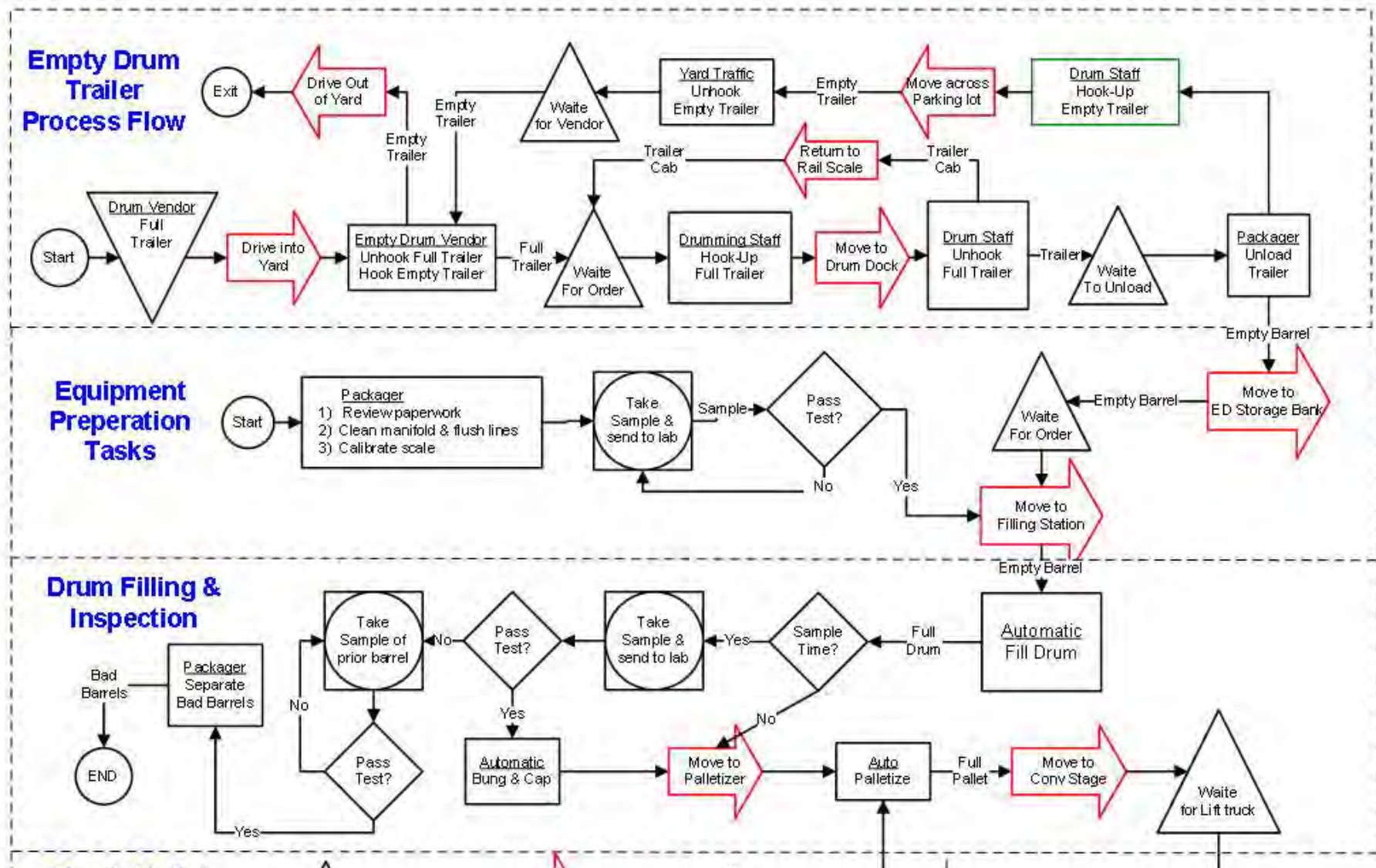
10 Key Elements for a Successful Plant Layout Redesign

- Clear business objective for layout rearrangement.
- Accurate process and equipment documentation.
- In depth knowledge of all processes and products.
- Lean layout based on Lean Principles and broad consensus.
- Proper Workstation Layouts for efficient and safe operations.
- Project team members assigned clear responsibilities.
- Detail layouts which include all material handling equipment, WIP, dies fixtures, etc.
- Comprehensive list of Kaizen projects required to meet objectives.
- Detailed sequenced move plan.
- Weekly or Bi-Weekly project review meetings with full attendance.

Site & Building Layout Levels of Detail

Level	Activity	Space Planning Unit	Environment	Output
I Global	Site Location & Selection	Sites	World or Country	
II Supra	Site Planning	Buildings or Site Features	Site	
III Macro Layout	Building Department or Block Layout	Workcells or Departments	Building	
IV Micro Layout	Workcell of Department	Workstations or Workcell Features	Cells or Departments	
V Sub Micro Layout	Workstation Design	Tool & Fixture Locations	Workstation	

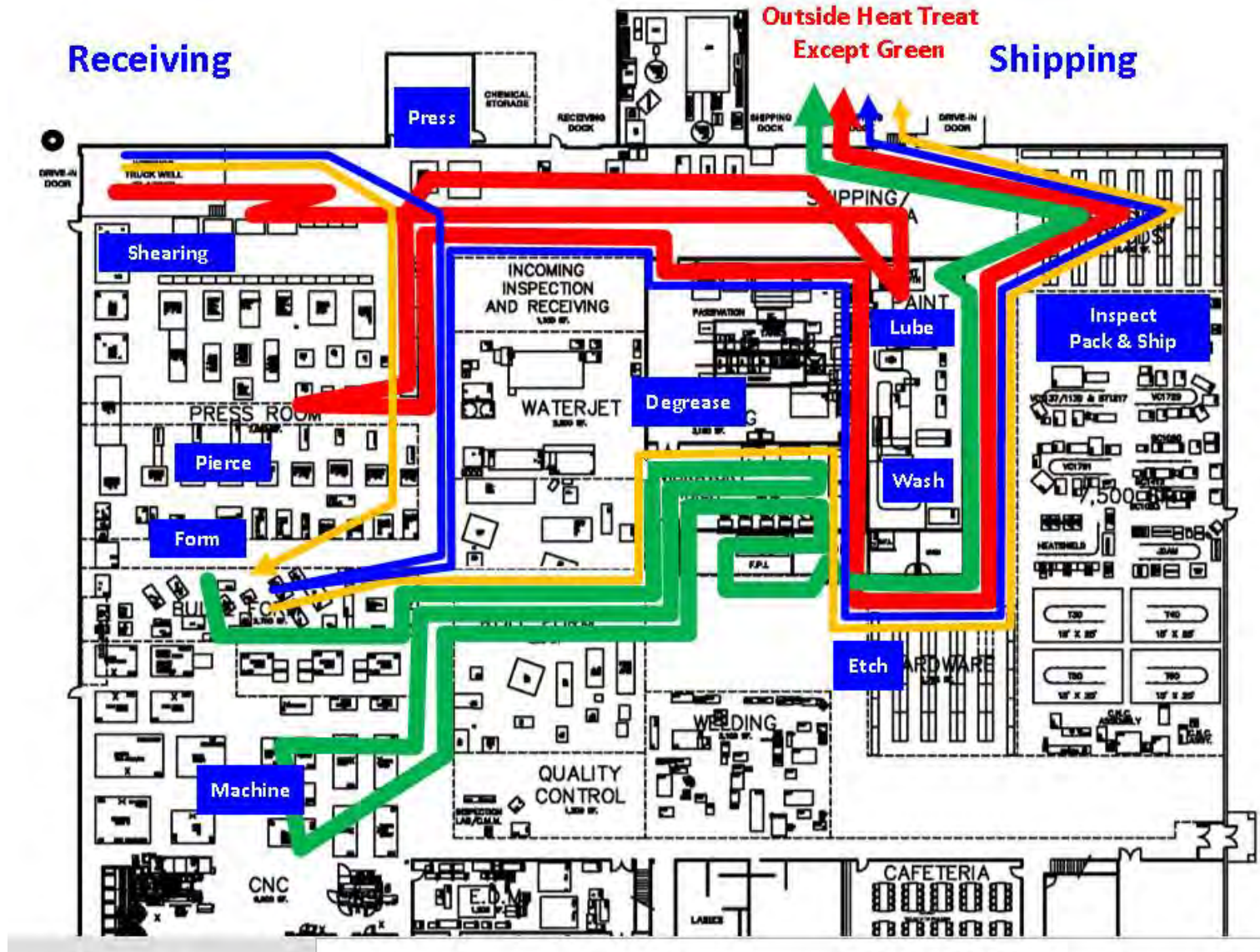
Process Flow Charts



Department Block Diagrams



Material Flow Charts



Forecasted Sales Volume Pareto Analysis

2020 Total Volume =

650,321

Suf	Product Family	Selected Part Numbers		Total	
		Volume	Routing Printed	Volume	Percent
SV	Solenoid Valve	207,080	95%	196,726	30%
BV	Ball Valve	122,356	85%	104,003	16%
DV	Diaphragm Valve	65,324	90%	58,792	9%
CV	Check Valve	38,070	65%	24,746	4%
RV	Releaf Valve	34,223	89%	30,458	5%
MF	Machined Flange	4,911	73%	3,585	1%
SK	Adapter / Retainer Ring	6,757	91%	6,149	1%
SP	Other Metal Forms	81,653	84%	68,589	11%
	Misc	32,014		32,014	76%
				525,061	81%

Site Layout Projects

- 5 Yr Site Expansion plan for a steel melting & coil rolling company
- 3 Phase Site Expansion for a batch chemical company
- \$600M Green Field Site layout for LCD Glass fabricator

Facility Layout Projects

- 250k to 120k sf space reduction & relocation layout for aerospace company
- 30k sf Layout for chemical drum filling building
- 50k, 100k & 150k sf warehouse expansions
- 130K custom wood working fabrication, assembly & paint facility.
- Multiple work station and assembly cell layouts for multiple industries.

Why Productivity Solutions ?

- Experienced engineers that use proven Lean tools.
- Experience in multiple industries allows cross pollination of best practice processes.
- Ability to identify additional improvements opportunities and solutions not associated with scoped project.
- Personable employees that listen.

Contact Information

Visit our website for a more detail review of our capabilities & project experience in different environments.

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