Transforming the Laguna Facility

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Laguna Clay and Glaze Company

Laguna Clay is a ceramics manufacturing company which produces high quality clay, glaze, kilns, pottery wheels and refractory primarily for artists and university ceramic programs. Laguna plans to move their manufacturing to a new facility in 2023. Over a 10-week period during the summer of 2021, the HMC Riggs team designed a more lean and efficient floor plan for Laguna's new facility.

Current Production and Floorplan

Current floor space: 113,412 ft^2

Yearly revenue: $20 million

Percentage of Total Revenue by Department: 65% from clay, 15% from glaze, 10% from wheels, 5% from kilns, and 5% from refractory

Inventory value: $4 million

Current State

Crowded Workspace

The kilns department has too many kilns crowding the assembly area, creating a less than ideal workspace with operators having to avoid work in progress as they use machines and attach parts to the kilns.

Disorganized Materials

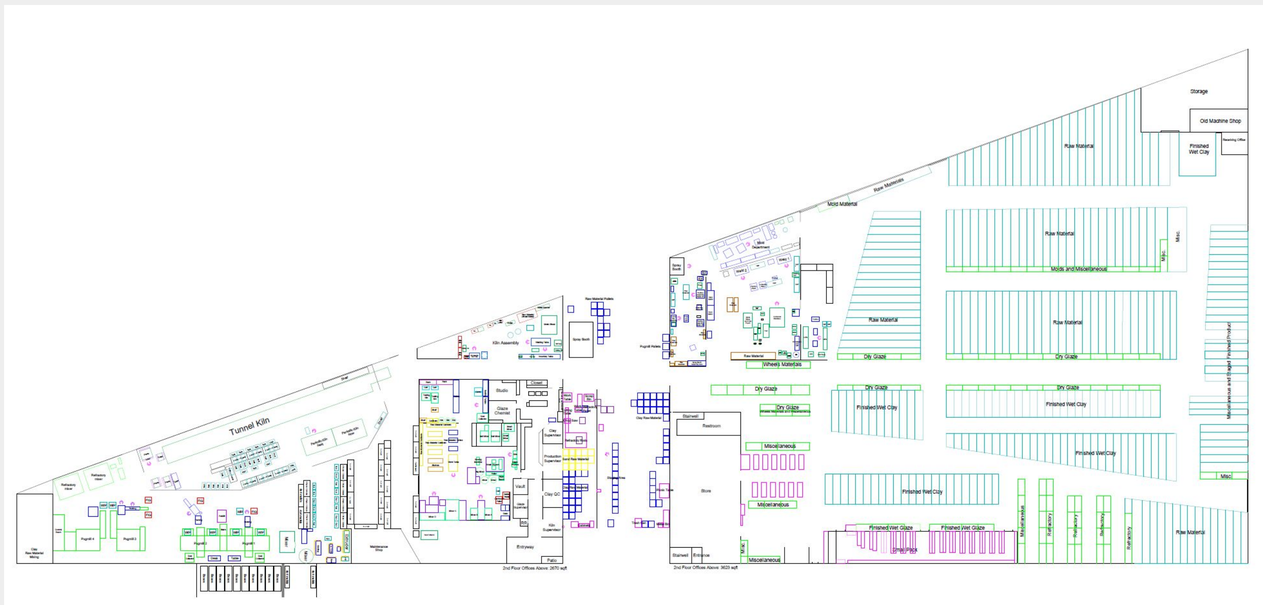
The glaze department has a disorganized shelving system of raw materials in buckets which take up space. Trash also accumulates on these shelves.

Double Handling

The outdoor staging area is an intermediate storage area for clay raw materials before pallets are rearranged into the different recipes. Extra time, space, and operator work is required to manage the inventory.

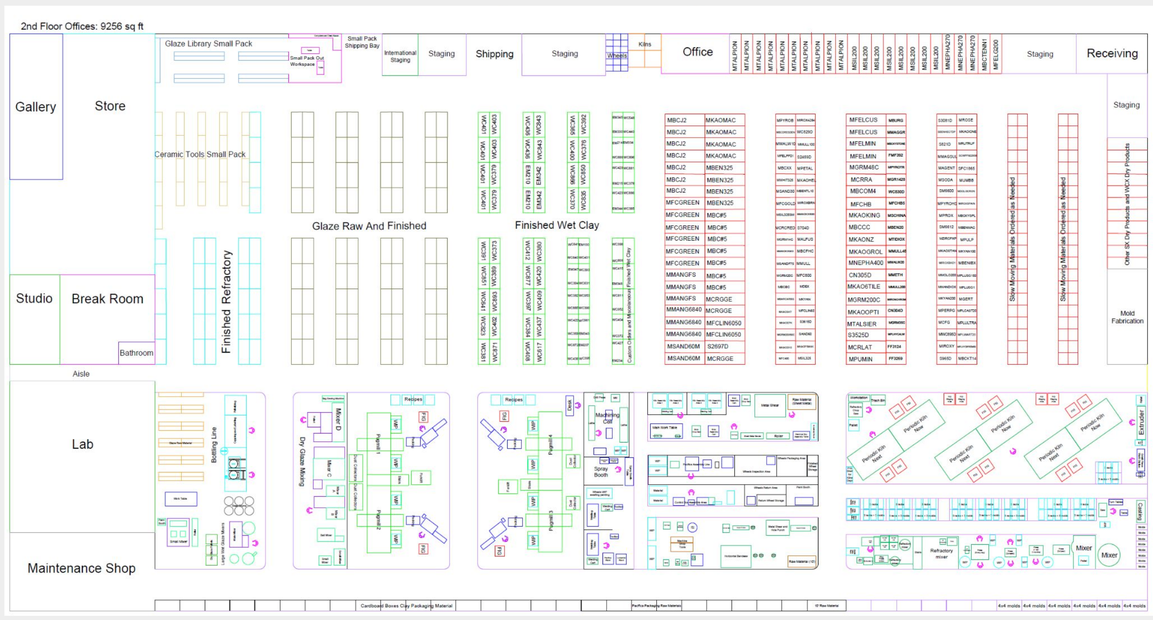
Floorplans

Current State



The current facility has an ineffective triangular layout across two buildings. The east building houses the production departments and the west building primarily houses the warehouse. The production departments are disorderly arranged. Offices are on the second floor, split between the west and east buildings.

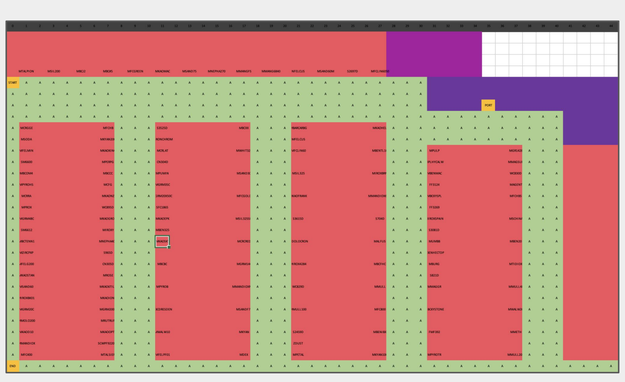
Future State



The future facility uses a rectangular format with the warehouse at the top, the production departments on the bottom, and the store, gallery, and lab on the side. Offices are on the second floor, left side. The production departments are arranged glaze, clay, wheels and kilns, and refractory from left to right.

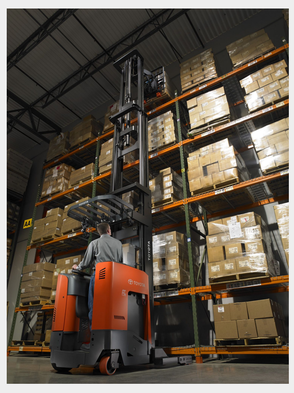
Future State

Warehouse Optimization



Raw clay materials are arranged in the future warehouse using a path optimization algorithm according to the frequency and composition of clay recipes. This will allow aisle support to transport individual recipes to the clay department, eliminating the staging area and decreasing lead time substantially.

Removing Forklifts



Left: In future state forklift-free zones, operators can use carts for transporting raw materials and finished goods.
Right: The future warehouse, which has higher pallet racks, uses reaches instead of forklifts to retrieve stored items.

Departmental Footprints

Department	Current ft^2	Future ft^2	Percent Change
Clay	12,428	5,354	-57%
Glaze	3,936	4,346	+10%
Refractory	10,126	7,292	-28%
Wheels and Kilns	6,730	5,307	-21%
Warehouse	67,245	43,432	-35%
Store and Gallery	3,397	4,472	+32%
Lab and Studio	2,620	3,384	+29%
Two Main Aisles	0	7,788	
Other	6,930	2,673	
Total	**113,412**	**84,048**	**-26%**

Results

	Current	Future	Change	Savings
Inventory	$4,000,000	$2,600,000	-35%	$140,000
Forklifts	15 forklifts 1 reach	5 forklifts 2 reach	-56%	$300,000
Total Floorspace	113,412	84,048	-26%	$300,000
Total Savings	**$740,000 / year**			

Acknowledgements

The Harvey Mudd College Riggs fellowship team would like to thank Bryan Vansell for the opportunity to investigate the current facility layout of Laguna Clay and apply lean manufacturing principles to propose a future facility layout. A special thanks also goes to all the operators and employees at Laguna Clay who shared invaluable insight throughout the project.

The team also gives thanks to Mike Sandoval for his recommendations about the Glaze department and for sharing his expertise with the team. The team would also like to thank Rob Perhamus and the Harvey Mudd College summer machine shop team for their help machining components. Last but not least, the Riggs team would like to thank Professor Gokli for his continued support and guidance throughout the project.

This work was made possible by Riggs Fellowship for Engineering Management.