

Abstract

Paris Precision is a metal fabrication company that fabricates metal components for various companies, one of which is Shark Rack, which creates high end server racks. Shark Rack has plans for a dramatic increase in demand over the next two years. Paris Precision's Final Assembly area is currently not conducive to produce such a large increase in demand. A redesign of the Final Assembly facility is needed to handle the increase in production and to improve product flow through the space. The project team's objectives are to:

- Study current Final Assembly production process
- Analyze the production flow
- Create an ideal state facility redesign
- Propose recommendations of layout and staffing based off the results

The project team will follow the DMAIC process and use various Industrial Engineering tools to identify how much space is required for the increased demand, how each department within the facility should be laid out, and how many employees will be required to meet demand.

First, the team performed time studies on the production process and observed the flow through the facility. The dimensions and current layout were taken to create a current state facility model using SketchUp software. Next, the project team used Simio simulation software to determine how many employees will be necessary to produce the Shark Racks at increased demand. The team then used SketchUp to create a digital design of the new proposed layout, using employee feedback, relationship diagrams, space requirements, and demand requirements to produce a final recommended layout.

From the findings, the group found that two employees were required to meet the future increase in demand of 200 Shark Racks per month. The proposed layout ended up being approximately double in size, with improved mobility for forklifts and movement of Shark Racks throughout the facility. The new facility layout also provided ease of movement between departments and promoted a natural flow of product through the facility.

The total cost of implementing this layout was calculated to be \$6,500.00 with two total employees working in Shark Rack Final Assembly. The project team highly recommends this new facility layout if Shark Rack hopes to achieve enough capacity for their projected demand.