

ISE462_S22_STG Project

Apr 25, 2022

Shade Tree Grills

RE: STG Manufacturing Facility Proposal

To whom it may concern,

Thank you for considering our proposal for the new manufacturing facility. Our team conducted a thorough analysis of the given materials and has proposed a layout drawing in AutoCAD.

We utilized the *Activity Relationship Chart* and a 4x3 rectangular layout to determine the warehouse layout. A rectangular layout was chosen because it creates a direct path for the parts to flow through the departments. We prioritized placing departments next to each other based on the extremes of the rating: A and X. If departments had an A rating, then we placed them right next to each other and if they had an X relationship they were placed far from each other in the warehouse. Many tradeoffs were made to optimize the layout based on the rating and table layout. We determined the warehouse equipment from the *Table 3: Equipment Requirements* and *Total Office size* documents. These documents provided the most practical information for our warehouse model, so we avoided other miscellaneous equipment information that was given to us. Next, we conducted online research and used our understanding of material handling equipment to determine the functional purposes of the equipment. Finally, we placed all the equipment in the fabrication, painting, and office departments based on the equipment function and practical use.

The methods and containers for our warehouse were 5 Pallet trucks, 2 Forklifts, 2 Conveyors, and Pallet, Tote, respectively. These choices were made by conducting research on various material handling methods and containers, analyzing the dimensions of the various parts in the warehouse, and determining the ideal container for the part and the ideal method for the container. Additionally, we found that using 2 Forklifts instead of 3 reduced the overall cost dramatically. To account for the increase in demand of upcoming products in the next 5 years, our layout includes 2 receiving docks and 5 shipping docks using 60' trailers. The proposed manufacturing facility is 29,065 sq ft and costs \$58,495.61/day.

This new manufacturing facility will support the five year future growth of this company and is capable of fabricating, assembling, and delivering high quality grills while embracing lean principles like kaizen. We hope to hear from you soon.

Sincerely,

Albert Joseph, Jonathan Shechter, Jake Miller, and Marc Yarkony