

Abstract

Absolute Technologies Inc. (ATI) has been growing for years, and is running out of space at their current manufacturing facility in Yorba Linda, CA. ATI will be moving to a much larger facility this winter. They are looking for an efficient way to utilize this space. The machine positions were taken as fixed, seeing as a lean expert was brought in to give advice on placement. With the machines fixed, the scope was narrowed to other areas.

A systematic approach to facilities design is utilized. First, a goal needs to be defined. The goal is to reduce the time wasted during the inspection process. The next step is to define the departments. The departments are broken up into two types, those that were possibly applicable to the project, and those that should be disregarded. Next, the relationships between the possibly applicable departments are quantified. A to-from chart was developed to identify the most important department relationships. This chart yielded three important relationships, but the proposed layout of the machines by the LEED expert showed that there was a large distance between one of these three important relationships. This relationship was between the Tool and Gage Crib, and the Inspection Area.

A very important process, which involves these two departments, is the Tool Check-out System. This system was analyzed in depth, and simulated in a software package called ProModel. Once the current system was fully understood, Alternative solutions were discussed, the most viable of which being the implementation of an RFID Tool Crib Portal. This proposed system was defined, analyzed, and simulated using ProModel. The simulations of the two tool checkout systems yielded the following results.

- Save 6.89 minutes per job

- Save 2.87 hours per day
- Save 840 ft of walking
 - 84% less
- Save \$22,386 per year on employee time
 - 78.5% less per year
- An overall payback period of approximately 2.5 years

An A3 report was then developed, in order to help educate the entire company efficiently. This A3 shows the entire life-cycle of this problem-solving effort in a user-friendly format.

Much was learned during this project. Multiple facets of Industrial Engineering were used in the development of this report, and many more could be applied once ATI moves into the new facility. Implementing the RFID Tool Crib Portal is recommended, as the overall benefits of the system should outweigh the initial costs within a matter of a few years. Also, the A3 report should be available to every employee who will be affected by the changes implemented. In order for this proposal to work to its full capacity, everyone should be on-board, and up to date with the overall direction of the company.