

Improvement of Mobile Unit Loading at American Red Cross

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Abstract: Wichita Red Cross currently has a supply warehouse that stocks and dispatches all of the donation vehicles that are used for collections in the Kansas and northern Oklahoma region. In order to meet the increased blood collection demand, a new, larger warehouse is being built, where improvement efforts will be focused. The purpose of this project is to reduce the overall cycle time of loading vehicles by improving material handling, determining optimal facility layout, and increasing the safety of employees. The project was divided into two main improvement areas: facility layout and ergonomics. The approach was to observe each improvement area, collect data, perform the appropriate engineering analysis, followed by making recommendations. To determine the optimal facility layout, cost analyses were done on each alternative. The NIOSH lift equation was used to determine degree of risk for three potentially hazardous tasks. The facility layout analysis resulted in the development of two alternative layouts. The first layout was determined to be optimal, with its implementation giving a total yearly savings of 3,655,200 feet of walking and \$9,452.00. The ergonomic study showed NIOSH scores for the three tasks to be “moderate and high” risk. Suggested improvements lower the risk. By implementing the suggested recommendations, the loading cycle time will decrease by 50% (90-45 minutes).

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