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ABSTRACT

Design of an Improved System for Tool Tracking for Webcor Builders

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Webcor builders asked the Senior Project team to create a design of an organized job box on Solidworks that improves worker efficiency, improves jobsite organization, and limits financial losses, which are common tool-related issues for the company. As a group, the members analyzed the job box current situation using multiple perspectives to create two designs, one streamlined by each project group member. The project group developed each of the designs based on a current state analysis in which we analyzed the job box, simulated finding tools to create multiple motion studies, collected worker feedback, conducted an ergonomic analysis, conducted a waste analysis and analyzed the finances. With the current state analysis fulfilled and all aspects of the Webcor deliverables addressed with a solution to implement in the design, the team moved to the design process.

Each of the project members collected all the material from the current state analysis and implemented it into two different designs. One was the most cost effective, implementing recycled plywood cubbies in a pre-existing shelving unit. It implemented a tool prioritization by keeping most used and important tools in the upper levels of the box, in turn, also making it more ergonomically friendly. The second design implemented very similar deductions from the current state, but varied from the first design by converting the bottom shelf to a section for metal drawers. The drawers would make it even more ergonomically friendly and addressed an issue noted in the time study, which was the inability to find a tool in a cubby because of the tools being stacked. The drawers make it the less cost effective design. Finally, from this analysis, the group decided it would recommend that Webcor implements the first design, because it is so cost effective. The tool prioritization, standard tool list and ease of the organization would have the same effects as the second design. Because implementation was not in our scope and not possible, we couldn't quantify effectiveness, other than the analysis on a pre-existing organized boox. The tool prioritization, standard tool list and ease of the organization would have the same effects as the second design.