

PROJECT PROFILE

DYNAMIC TRUCK BODIES



Dynamic Truck Bodies, recognizing the imperative to modernize its truck wall sub-assembly process, collaborated with the University of New Brunswick's (UNB) OCRC research team. This project aimed to improve the existing manual labor-intensive process, optimizing efficiency, reducing production time, and contributing to the overall competitiveness of Dynamic Truck Bodies.

PROJECT BACKGROUND

The Off-site Construction Research Centre (OCRC) planned activities to evaluate the truck wall sub-assembly process. Activities included on-site observations, video captioning, cycle time analysis, and process simulation. The desired outcome was a well-defined, optimized process that improved efficiency and maintained or enhanced product quality.

METHODOLOGY

The research methodology involved site visits, video captioning, and preliminary cycle time analysis. The team simulated the sub-assembly process based on data collected, aiming to propose innovative solutions. The comprehensive approach focused on non-value adding work, identifying bottlenecks, and formulating recommendations for process improvement. The data analysis section introduced process mapping, crew balance charts, and productivity ratings. Preliminary insights showcased the potential for improvement, laying the groundwork for future in-depth assessments. The analysis, though based on a partial dataset, exemplifies the impact of introducing innovative tools to refine the sub-assembly process.

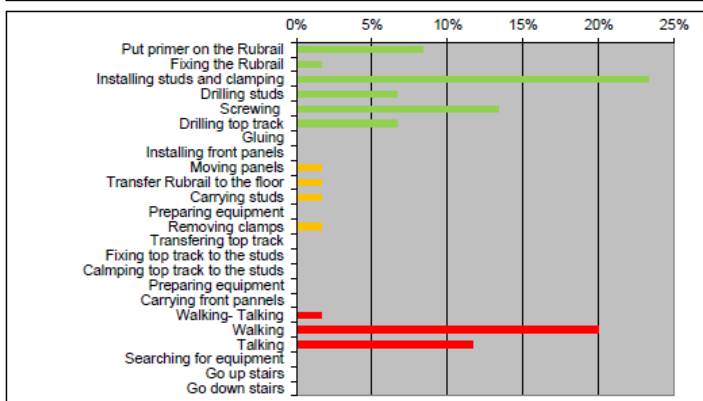
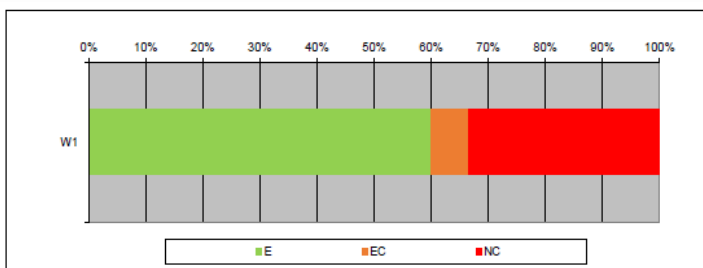
RESULTS

By observing a 25-minute work period, the productivity of the process was examined in two different ways: from a worker perspective and from an activity perspective. The worker perspective (figure 1), shows the percentages of time each project personnel spent on essential, essential contributory, and non-contributory tasks.

The Labour Utilization Factor for each role, and the overall process, was calculated using the above percentages of essential and essential contributory work. The worker had an overall Labour Utilization Factor of 62%. It should be noted that the video observed did not capture the complete cycle to build one of the wall panels, but this shows what time of analysis is possible with this type of data collection to support process improvement efforts.

The second perspective that was analyzed was from an activity perspective (figure 2). Since tasks were previously defined as essential, essential contributory, and non-contributory for other means of analysis, the percentage of time each activity contributed to the 25-

minute period was calculated and summarized. This highlights which tasks play a more prominent role in the execution of the wall sub-assembly process.



RECOMMENDATIONS

Recommendations were tailored to address specific challenges identified in the data analysis. Key suggestions included:

- Introducing pre-drilled holes or templates to streamline connections
- Optimizing framing processes
- Minimizing material transportation waste
- Relocating stations to reduce vertical movement
- Additional data collection for a more comprehensive understanding of the entire process