

Windsor Windows Forgets Assumptions and Follows the Data *Six Sigma Journey Leads to Surprising Solutions*

By Jane Albright

MONROE – Assumptions often get blown away when a company begins Six Sigma, which uses statistical analysis to methodically and objectively get to the root of problems. Windsor Windows in Monroe recently blew away several assumptions when it applied Six Sigma to its processes of making high-quality windows and doors.

“We’re the leader of the entire 22 plants in North America,” said Richard Stephens, general manager of the Monroe plant, at the recent presentation from two of the plant’s Six Sigma teams. “We reduced our delivery time to customers with fewer issues (complaints).”

The teams had gone through the Six Sigma program at North Carolina State University with specialist Kevin Grayson, who attended the presentation to see how well they had applied what they learned to their company’s bottom line. As they demonstrated, the teams achieved a potential \$100,000 in annual savings by challenging assumptions.

Experience Doesn’t Count

For one example, there was no difference between rookies and veterans in the quality or efficiency of work done in the Pinnacle Double Hung Set Up Department, said team leader Ty Simpson. His team’s mission was to reduce labor inefficiency in the process, and he was surprised to learn that experience made no difference when a worker’s output was measured. So the team focused on process, not people.

They learned that one of the quality steps in the process only added time, not quality. The team discovered this by benchmarking the process with their sister facility in Des Moines, where the extra quality check wasn’t done. By removing this unnecessary step, step-up time was reduced by 21 percent.

Doing the work differently found huge savings. A time study comparison of single windows built individually or in batches found that the work could be done in half the time if done in batches. That change alone saved 892 hours in labor costs each year, Simpson said.

Shipping Clips

More time was saved by changing when the shipping clips on the windows are added to keep them closed during shipping. Analysis showed that adding the shipping clips during the frame line while the window was open took half the time it did at the end of the process, when the window had to be opened to add the clips. This saved 248 hours a year.



Through statistical analysis, the Six Sigma process helped determine a savings of 248 hours per year.

The team found the largest savings when they realized that they had two people doing a job that could be done by one without losing quality or output. In the cutting operation, one person was

the cutter and another person was the group leader of the six-worker unit. The team leader took on the role of cutter without affecting output and the unit reduced to five workers.



Rail parts were stored on 2 x 4 runners which resulted in significant bowing and waste.

Finally, the team developed a new labor tally sheet by reducing the tick marks required by an operator from 7 to 3. By challenging assumptions, the team reduced labor costs for a savings of at least \$50,000 a year.

Scrap or Not?

The Six Sigma scrap team challenged other assumptions. It was assumed everyone knew what scrap was. As it turned out, that wasn't the case. The team first had to define scrap. The data clearly showed that most of the plant's scrap, at least 24 percent, came from the Pinnacle Double Hung product.

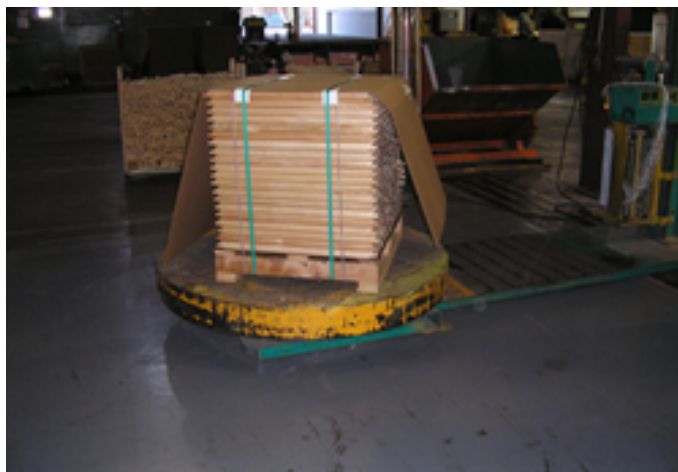
A random sampling of 25 scrap parts discovered that 8 of them, or 32 percent, actually were good. The team tested the operators and no one was better than 80 percent at selecting scrap from good pieces. Retraining began immediately.

The team developed visual aids, including boards with actual wood defects and laminated photos of material defects. All workers improved. After training, only 17.9 percent of scrap was actually good, which showed improvement had doubled.

The team also looked into preventing scrap in the first place. Bowed rail parts are scrapped, so the team looked into what could be done to prevent bowing. They learned that rail parts packed on pallets are clearly less likely to be bowed than those packed on runners.

By the end of this year, the scrap team projected savings in scrap and labor is expected to be \$46,543. With refinements, the potential could be more than twice that.

“Obviously, there's not one thing we could have done to make a difference, or we would have already done it,” said Chris Walden, the Windsor Window Six Sigma Black Belt who worked with both teams. Six Sigma allowed them to challenge assumptions and find solutions beyond the obvious.



Packing rail parts on pallets rather than forklifts helped contribute to scrap savings of \$46k for Windsor Windows.