

# This Reliability Engineer Earned His REC and Saved His Company More Than \$600,000

Through Life Cycle Institute's Reliability Engineering Certification program, countless Reliability Engineers have earned their certification and translated what they have learned into tangible value for their company.

When a Reliability Engineer at a major U.S. window and door manufacturer began his reliability journey with Life Cycle Institute, he had no idea the significant impact he would ultimately make on his organization's bottom line.

To earn the Reliability Engineering Certification (REC) at Life Cycle Institute, the RE attended the four required classes and presented and defended his work product. The requirements for the REC capstone work product are straightforward: choose a critical system asset; build a Failure Mode and Effects Analysis (FMEA) for the asset's primary function; choose one failure mode and complete an RCA analysis to determine all of the possible causes; and propose a predictive maintenance technology approach to predict or mitigate deterioration.

This RE chose a line which provides completed insulated glass units, generating over \$2,000 per hour in potential revenue. He chose this asset because it's an extremely manual line, frequently presents safety hazards to employees, and consistently experiences serious quality issues.

His criticality evaluation of the line showed that the line's washer had the highest score of the ranked components, scoring a Level 2 criticality ranking. The washer's primary functions are to convey glass through the washer at a consistent speed, clean the glass through direct contact with lubricated, spinning brushes, and dry the glass using angled air blades.

After performing the FMEA evaluation of the washer, the RE discovered that more than 20% of equipment downtime was caused by having to clean or remove debris. He evaluated the maintenance history, and by focusing on cost, downtime, and occurrences, decided to take a closer look at the asset's filtration system. The repeated failures evident in the maintenance history suggested the filtration system was not performing effectively. The consistent failures, impact to production, and impact to quality triggered a root cause analysis of the filtration system.

The next step was to propose a predictive maintenance strategy approach. By collaborating with the Maintenance and Process Engineering teams, he developed a new filtration process which created a bypass to allow for filter changes without interrupting production. Now all work could be done on the filtration system without the company's bottom line feeling the pain of interrupted production.

The Reliability Engineer and his team proposed the new system to leadership, explaining how the new design would dramatically decrease the amount of fungus, algae, and debris, and reduce the overall downtime the operators were experiencing with current system. Understanding the strong benefit in exchange for a relatively low cost, leadership approved the new system.

## The Results Exceeded Expectations

After eight weeks, a review of the washer showed a drastic decrease in debris, fungus, and algae. The most surprising find: only five out of 132 nozzles were clogged. The operators were the first ones to thank RE and his team for the new filtration system. The smell of mildew, fungus, and debris disappeared completely, dramatically improving their working conditions. The new system also significantly reduced the amount of time they had to spend cleaning. The operators went from cleaning the nozzles once every few days to once every eight weeks. Considering the full impact of the new filtration system design – fewer work orders, zero downtime, and reduced operator care hours – the RE and his team



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projected annual savings of \$620,000.

## The Impact of the REC Program

The RE is the first to say he could not have delivered these results alone. "Root cause analysis and development of asset management plans can't be done alone. You may think you can do it faster by yourself, but that will leave critical information out." He also credits his team for his success. "The help I received from several team members allowed for a successful discussion, design, and implementation of this project. Performing this alone would have extended the time to complete and may have resulted in several attempts to get the right solution."

For the Reliability Engineer, the value of Life Cycle Institute's REC program speaks in the results. "The REC program provided me with the knowledge on how to attack issues that negatively impact the company I work for. The mission to become a predictive and potentially proactive company is not an unachievable task; it just takes time and effort."

The relationships he built with the fellow maintenance professionals in his classes were an added bonus. He reached out to instructors as well as other participants to gain their insight. With one student, the RE exchanged more than 20 emails over the course of the project, gaining an outside perspective that was critical for the new system's success. He "created more relationships than I expected to have and gained more knowledge than just sitting in a classroom. I got real-life experience from individuals who've helped me through this process."

The RE's supervisor is enthusiastic as well. "We have a young reliability program, but watching the team mature has been fun to see. The level of partnership that it's brought to the organization and really understanding the value of working to become proactive has been significant. We have another team member in line to come through the REC program soon, and we're excited. We need to multiply this and expand it as quickly as we can."

To begin your own reliability journey with Life Cycle Institute, call us at 1-800-556-9589, email us at [education@LCE.com](mailto:education@LCE.com), or visit our [website](#).



For more information on the REC program, please contact Dan Anderson at [danderson@LCE.com](mailto:danderson@LCE.com) or visit [Life Cycle Institute's website](#).

