

## Leadership in Manufacturing

Despite depressed market conditions over the past three years, we have continued to post strong financial performance. One critical factor to our success has been improvement in operational efficiencies, driven by our corporate strategy to achieve Operational Excellence.

Our year-over-year productivity improvement has enabled us to offset the impact of increasing costs and still provide deeper price discounts each year to our customers. This in turn has allowed us to grow our business and to capture an increasing market share.

In recent years, we have made great strides toward our "Vision of Operational Excellence" through:

1. Launching our continuous improvement initiative, the Greenheck Production System (GPS)
2. Investing capital aggressively back into the business providing state-of-the-art manufacturing technology and tooling
3. Partnering with our suppliers to optimize value throughout our entire supply chain.

The results have been impressive, totaling 16% cumulative improvement in factory productivity over the last three years.

Through these strategies, we are blending best manufacturing practices to create flexible, low-cost processes that provide unmatched value to our customers. Our Vision of Operational Excellence consists of a well-trained workforce, easily visualized systems, and cost-effective equipment focused on value-added operations.



### Greenheck Performance System – Our Continuous Improvement Initiative

In May 2002 we launched the Greenheck Performance System (GPS). Through this initiative, we are educating and implementing the proven methodologies of Design for Excellence, Maintenance Excellence, Business Process Improvements, and Lean Manufacturing throughout our entire organization. Each of these methodologies directly correlates to the manufacturing processes we employ. For example, through Design for Excellence Strategies, we challenge ourselves to deliver maximum value to our customers through our product



designs. This product design strategy utilizes cross-functional teams to exploit our manufacturing processes and employee-owner creativity. Our Maintenance Excellence Strategy strives for optimal equipment repeatability and availability. The equipment we employ must be dependable and capable, especially as we reduce inventories and move closer to just-in-time production with single-piece flow. Business process improvements focus on reducing waste in our office and transactional areas. Strategies focus on variation reduction, assuring repeatable and predictable processes. Our processes must consistently produce quality parts at the right time. Through Lean Strategies, we focus on maximizing the value in each value stream, eliminating waste and non-value added activities.

To understand our value streams, we create value stream maps for all major projects. These value stream maps allow us to understand the manufacturing processes and information flow for a given product from start to finish both in the current state and our desired future state. As we evaluate each value stream map, we pay particular attention to the overall processing and throughput times, as well as the associated investment in inventory.

With this information, we challenge ourselves to remove all of the identifiable waste and non-value added activities. The following capital projects highlight specific examples of how we have successfully implemented these methodologies.

### **Value Engineering - Assuring our Suppliers' Processes Deliver Maximum Value**

We constantly focus our efforts on identifying opportunities to reduce our product costs through internal and external value engineering or purchasing cost reductions. We partner with our suppliers to assure the components we purchase and install in our products deliver optimal value for our customers.

Over the past few years, we have implemented many significant process improvements and we have similar plans already in motion for this upcoming year. We understand continuous improvement is a journey, not a destination. In the coming years, we will continue to focus on maximizing value and minimizing waste throughout Greenheck and the entire supply chain.



## Research and Development Leadership

Greenheck has developed and maintained state-of-the-art testing laboratories. The laboratories are used to develop new or redesign existing products, truly adding "Value in Air". Products are designed and developed to address energy efficiency, indoor/outdoor air quality, noise, safety, and reliability concerns. Current testing capabilities include aerodynamic, acoustic, structural, life, environmental, and thermodynamic testing.

Greenheck prides itself on qualifying both purchased and manufactured components, for use in our products. Quality assurance has been maintained in every Greenheck product, for over 60 years.

Greenheck's on-site testing laboratories have established the company as the industry leader for testing to the latest versions of AMCA, ANSI, ASHRAE, UL and other industry standards of performance. Greenheck has four air performance test chambers and a reverberant room facility, all accredited by AMCA for testing air and sound performance levels of fans, dampers, and louvers.

Greenheck personnel have been very instrumental in using testing knowledge to advance industry standards and regulatory codes. Greenheck's engineers participate

on many code and trade association standards writing committees. These standards specify how data is to be obtained and uniformly presented to the public. Greenheck recently worked with educational facilities and trade associations to develop standardized testing methodologies to determine the grease extraction efficiency of filters. This effort has created patented technology to reduce grease emissions and minimize potential for restaurant fires.

Investing in product research and development directly correlates to two of our key strategies - Accelerate new and redesigned product introductions and Invest in people and manufacturing capacity. Today, Greenheck has over 60,000 square feet of research and development testing facilities.

---

### International Testing Standards

Testing standards are the same as our USA products along with the Chinese GB standards for fans and dampers and damper standard of BSI.

---

