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## **XChanger Systems Dramatically Improve Thermal Management and Temperature Control to Meet Manufacturing Requirements**

### **Avoiding Significant New HVAC Capital Expenditures**

#### **The Facility**

The Stanley Engineering building is in Glen Burnie, Maryland, and totals 45,000 square feet. The building has a high bay ceiling height of ~22 feet. The company manufactures intricate parts for the Department of Defense, NASA, and other large defense contractors. Due to very specific manufacturing tolerances the facility is required to maintain temperatures between 68-74 degrees to manage thermal expansion issues.



#### **The Problem**

In the hot summer months, the facility was struggling to maintain constant and required shop temperatures. The facility was reaching temperatures in the upper 70's which could affect the manufacturing processes on the shop floor. Stanley Engineering was going to add additional rooftop units (RTUs) for more cooling capacity but instead reached out to XCo first.

#### **The Solution**

Two of 6 RTUs were initially retrofitted with the XChanger damper system in critical areas on the shop floor. Within 5 hours of operating the units for the first time, the facility temperature dropped by 4 degrees. And for the first time in 6 weeks the existing HVAC system could meet temperature and was able to shut off. The enhanced energy efficiency and thermal management via stratifying the cold air low and leaving the hot air high was even shown in the temperature of the concrete floor being reduced by one degree. This allowed Stanley to meet its shop floor thermal requirements without adding additional RTU capacity, which would have added significant capital expenditures and increased energy costs. The XChanger systems cost significantly less than new RTUs and reduced energy costs.

A significant additional benefit was also realized in the winter months. With the XChanger patented system comes a Passive Heat Mode which circulates accumulated warm air from the ceiling down to where the occupants are. This passive heat mode (with zero BTUs for heating required) reduced heating costs significantly and uses the heat from the manufacturing processes to now heat the building, which equates to a significant reduction in utility costs.

The picture below shows the installation of the first 2 XChanger damper systems in optimized locations. After initial evaluation of these units, a total of 5 systems were installed to optimize 80% of the square footage of the shop floor.



XChanger Companies Inc.

Direct: (860) 992-2950

info@XCoGreen.com

www.XCoGreen.com



“We were struggling with maintaining constant and required temperatures for our manufacturing processes on the shop floor. We installed XChanger systems and the installation process was not onerous at all, it was very easy and straight forward. It improved our thermal control dramatically and has lowered our energy costs. It's bringing much cooler air to the point of delivery where we needed it and, therefore, making our energy costs at those points much lower than they are in the rest of the shop where we did not have to retrofit our HVAC. The alternative was to purchase and install more RTU tonnage and the XChanger systems allowed us to avoid that expensive solution.”

Ken Stanley, President/ Stanley Engineering Corporation

## Additional XChanger Benefits

- Up to 30% HVAC Efficiency Improvements
- Potential for Rebates from Utility Efficiency Programs
- Qualifies for “Bonus” Depreciation or a 179D Tax Deduction
- Savings + Depreciation + Potential Rebate + Low Interest Financing = No Brainer ROIs
- Supports GHG Reduction and Sustainability Goals
- RTU Runtime Reductions
- Increased Employee/Customer Comfort
- Enhanced Air Circulation and CO2 Management
- In Greenfield Designs or Retrofits, Reduced RTU Count and Lower Capital Expenditures Due to Higher Efficiencies and Peak Load Reductions
- Simple, Reliable and Long-Life Installation
- 100% Sales and Technical Support Supplied by XCo