

## Case Study

### Plant Ventilation with Energy Management

A specialty chemical company in Pennsylvania was directed by their corporate management to institute an energy savings campaign as part of a process improvement program. Some plant production areas were located throughout a high bay warehouse structure requiring additional ventilation along with temperature control during the winter and summer months. Several ventilation concepts were being considered including gas fired makeup air units and wall/rooftop exhausters with supply fans.

SysTech, with a "Go Green" policy, offered an alternative solution of High Volume Low Speed (HVLS) ceiling fans. HVLS fans, available up to 24 feet in diameter, blanket large areas with constantly moving air and create an expansive comfort zone at the operator level. These fans rotate slowly, moving large volumes of air with minimal disruptive currents. During the winter months, warm air accumulated near the ceiling, is pushed back down to the operator level. This de-stratification of uneven temperature air, typically fifteen degrees Fahrenheit warmer at the ceiling, results in significant energy savings, because additional heating for employee comfort is not required. During the summer months, workers have the benefit of evaporative cooling. As the fans move air across the operators they are "cooled" as body heat is lost due to evaporation of perspiration. Throughout the year, overall plant air quality is improved by the constantly mixing of fresh air and pockets of stale air.



The company awarded a contract to SysTech to furnish and install four (4) Envira-North "WhalePower" Altra-Air ceiling fans. Two sizes were chosen, one was 24 feet in diameter moving 400,000 cfm with a 2 HP motor and the other a 14 foot diameter fan moving 150,000 cfm with a 1.5 HP motor. SysTech selected Envira-North HVLS fans knowing that their patented Tubercle Technology™ blade design out-performs all conventional air foils, with dramatic increases in efficiency and unit stability. Envira-North fans use five blades where others may use as many as ten blades to achieve a comparable performance. Moreover, the Altra-Air fan generates less than 1/5 Th the noise of conventional fans and they consume 20% less power.

Results have been well received by management and employees.

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