Cirrus Aircraft

Cirrus Aircraft, Duluth, Minnesota

Facility Types: ...2 buildings: production facility and customer service building.
Facility Square Footage: 270,000
Dates Built: ..... 1993-2006 (including additions)
Number of Facilities Personnel:..... 8
BOC Participants Profiled: ..... Alan Jusczak, Facilities Director, and Bill Carlson, Mechanical Technician

At Cirrus Aircraft's production facility in Duluth, facilities director Alan Jusczak has overseen several major projects designed to save energy and streamline operations. Alan has been at Cirrus Aircraft since 2002, starting as Facilities Manager and later becoming Facilities Director. Alan completed the Building Operator Certification course in 2005; the following year, his colleague Bill Carlson took the course, on Alan's recommendation.

Challenges

Economic Downturn Requires Creativity

Although Cirrus management has always been very supportive of energy-saving projects, the recent economic downturn has forced Alan to become very focused in his pursuit of energy efficiency. To obtain management approval for their projects, Alan and his staff have to look for low-cost projects with paybacks of 12 to 24 months, as well as energy-saving process improvements and behavioral changes. They have also focused on identifying projects that can be undertaken in stages and primarily with internal staff.

I think a good deal of our energy consciousness came out of that BOC training.
-Bill Carlson

Adding to the challenge, any changes to facility operations must avoid adversely affecting Cirrus' production processes. For quality control and safety reasons, some areas of the production building, particularly the bonding and storage areas, must stay within set limits of temperature and humidity.

Results

Technical Knowledge Aids in Gaining Management Support for Efficiency Projects

The most useful aspect of the BOC training, in Alan's opinion, was learning methods for assessing the "health" of buildings and calculating expected energy savings. With more accurate savings estimates, Alan can better calculate the payback period and make a more effective case to management that the projects will be cost-effective and reap near-term benefits. Now that they have completed several efficiency upgrades and observed meaningful savings, management is more comfortable pursuing additional projects.

The BOC course taught us to study the health of our building and calculate expected energy savings from different measures. This technical knowledge helps us sell management on energy efficiency projects.
-Alan Jusczak

Reduced Usage of Motors and Air Compressors

One of the most significant energy saving projects undertaken at Cirrus was a change to the design of the gritblast booths, which is where the fiberglass

airplane parts are prepped for bonding. By modifying the booths' shape and the fan motors, Alan and his team were able to reduce the motor speed by 50% while actually increasing the airflow through the booths. The redesigned booths not only save energy, but also conserve sand and reduce the frequency of filter changes.

By adding a 20hp variable frequency drive air compressor and additional 1,040 gallon storage tank, they were able to save more energy by taking two large air compressors (125hp and 75hp) offline. Altogether, Alan and Bill have observed reductions in demand charges of approximately 20% (more than $10,000 per year) and significant reductions in energy use as well, from an investment of less than $5,000 in these process modifications and booth redesign.

New Lights and Better Color Accuracy

The BOC training informed Alan about the many options for more effective and efficient lighting. He has since replaced 400W metal halides with fluorescent systems, replaced T12s with T8s, and installed 5000K lamps for color correction.

Change in color accuracy with newly installed efficient lighting. The 5000K lights make the airplane in the foreground look white, not dingy like the same-colored plane still under the old lights (background).

The more efficient lighting saves energy and improves the productivity of the workers by providing higher quality light with more lumens and better color rendering. Under the old lights, the workers on the floor were not seeing what customers will see in daylight.

Alan also replaced the timers on the parking lot lights with photo sensors, which are more effective because they do not have to be adjusted in response to daylight savings time and weather changes.

As a result of our increased focus on energy efficiency in our production processes, our demand charges are down about 20% - savings of more than $10,000 per year from roughly a $5,000 investment.

-Alan Jusczak

Culture Changes Yield Notable Energy Savings

With current tight controls on capital spending, Alan and his staff are focusing on energy conservation projects that can be accomplished with in-house resources. These include training staff that the last one out of a room is responsible for shutting off lights and sending emails to remind employees to shut off their computers at the end of the day. These efforts require no capital expenditures, just a culture change.

Another conservation project that they recently undertook is to turn off the vacuum pumps over the three-day weekend when the company switched to a 4-day production schedule. The facilities staff had to closely coordinate with the production staff to ensure that they didn't do anything to interrupt the production schedule, and now they are saving over $1,000 each year from that schedule change.

Pursuing Additional Opportunities

Alan and his staff have several more projects lined up for when the economy improves and there is capital available for the upfront costs. Alan notes that pursuing these projects will have a positive effect on the local economy, as there are contractors and suppliers out there waiting for companies to start doing retrofits and building improvements.