



New chiller systems will greatly reduce water consumption and provide tempered air to the renovated facility

Focused on the environment: Boeing's Ridley Township site seeks sustainable solutions

Today's business climate demands a focus on the environment and highlights two vital needs: the need to manage resources and waste for maximum levels of cost-efficiency, and the need to embrace environmental stewardship to lower the footprint of businesses on the environment.

Companies that meet these demands are creating better ways of doing business, and the result is not only a cleaner environment but a more efficient, more successful business as well.

The Boeing Ridley Township, Pa., site employs nearly 6,000 employees and is the headquarters for the company's Mobility division, which manufactures the C-17 Globemaster III and the innovative KC-767 tanker at locations throughout the United States. The site itself is home to the CH-47F Chinook, the MH-47G Special Operations Chinook, and the MV- and CV-22 Osprey.

Traditionally, the manufacturing process can create a fair amount of waste and by-products. But at the Ridley Township site, Boeing has undertaken the challenge of reshaping its manufacturing and business processes to match the needs of the environment. The facility is

making consistent progress toward increased energy efficiency and improved environmental stewardship in the community by controlling waste, managing resources and keeping employees engaged and informed.

Controlling waste

"Zero Waste to Landfill" describes a facility's ability to recycle, reuse and repurpose all of its waste material and other by-products. Beginning in 2011, the Ridley Township site is set to achieve that outcome.

"The goal," said Bob Cassidy, director of Environmental Health and Safety, and Manufacturing and Production Engineering,

“is to avoid sending anything off to a landfill. We want to make sure that we find the right way to recycle or reuse everything we can.”

The site recycles significant amounts of its waste materials—everything from paper and plastics to scrap material. Recycling lowers the impact on the environment and alleviates the drain on natural resources that go into producing items such as printer paper, plastic bottles and other everyday items.

But the facility set its sights on doing more. Modern aircraft, rotorcraft and fixed wing aircraft alike, rely on composite parts to help control weight and improve flexibility. These composite parts, developed in the site’s Composites Center, are made from layers of

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non-metallic material giving them the strength and flexibility they need. However, they are also very difficult to recycle.

While work continues to develop processes and technologies for fully recycling composite materials, Boeing is partnering with a local business to turn this scrap composite material into energy, using waste as a resource and reusing material in a more beneficial way than sending it to a landfill.

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A CH-47F Chinook during production in the renovated area of Boeing Ridley Township facility



An MV-22 Osprey landing on the re-surfaced Ridley Township flight ramp during a 2010 fly-in

Focused on the environment

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Managing energy and resource use

Conserving resources and managing energy use is one of the most effective tools in lessening a facility's environmental impact. As part of the site's \$130 million H-47 factory renovation effort, the facility has focused on efforts to more efficiently manage resources, receiving a LEED Certification for the project.

LEED, or Leadership in Energy and Environmental Design, was developed by the U.S. Green Building Council (USGBC) and provides building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions. The criteria can definitively improve performance across all the environmental and operational metrics: energy savings, water efficiency, and carbon dioxide emissions reduction. LEED-certified buildings tend to be more cost-effective to build and more efficient to run, especially throughout the life-cycle of the building.

"It just makes good business sense to build an efficient factory," said Obie Jones, site leader and director of Operations for the Ridley Township site. "The tools and techniques we are using in our renovation effort provide returns on our investment through lower operating costs and even in the volume of construction material we are using."

Among the activities wrapped into the extensive renovation, new boilers will be installed in the site's Central Utility Plant. Replacing boilers originally installed in 1929, these new systems will run on natural gas, a much cleaner fuel that burns more efficiently than fuel oil. New chiller systems installed throughout the renovated factory space will also greatly reduce water consumption and provide tempered air to the facility.

Strategically placed tinted windows, new flooring and brighter color coatings will all make the most of incoming sunlight; and newly upgraded lighting systems, installed throughout the renovated factory and across the campus, will improve energy efficiency, especially when combined with occupancy sensors to further reduce energy consumption and overall operating costs.

Creating a state of mind

Perhaps one of the biggest challenges in developing a sustainable business climate is keeping employees focused on the company's overall environmental efforts, which call for a 25 percent improvement in greenhouse gas emissions, energy and water consumption, hazardous waste generation and recycling by 2012.



Tinted windows, new flooring and brighter color coatings used during the renovation will make the most of incoming sunlight.

The company has focused on efforts to make the information most relevant to ongoing environmental initiatives and programs visible to employees, especially in those areas such as the factory or various shops where the potential for waste, as well as savings, is highest. These "four wall" metrics are simple graphics or even spreadsheets that highlight measurements in areas such as water conservation, recycling rates, energy consumption and greenhouse gases. The site began posting material in these areas to improve visibility and further engage employees in the process.

"Our 'four wall' metrics are very simple tools," said Al Kramer, manager, Environment, Health and Safety at the Ridley Township site, "but they give people a visual reminder of how the program is doing and how their efforts can impact our end result."

The site is also ISO 14001 certified. The International Organization for Standardization (ISO) 14001 environmental management system is a global standard designed to ensure a common approach to improving environmental performance, reducing pollution and waste, increasing recycling rates and improving energy efficiency.

As a part of that certification process, Boeing created and must sustain an environmental management system (EMS). The system ensures that the site complies with applicable laws and regulations, administers environmental pollution prevention and conservation programs and works to continuously improve its performance within the EMS.

These efforts translate into highly visible environmental management plans that are developed to address the most significant

environmental impacts of company operations. The plans are reviewed by employee teams and adapted to ensure that the site remains certified during annual audits.

Looking to a sustainable environmental future

Along with a cleaner environment, perhaps the true measure of success in developing more green ways of doing business lies in the future. Looking at future sustainability—operating costs and efficiency savings—several years after the steps are implemented may give companies the best picture of how those efforts translated into results.

However, the Boeing Ridley Township facility is looking for more immediate milestones.

"The good news here is that we are working to prevent sending any material to landfills," Cassidy added. "We are all striving to make sure that our environmental efforts and our renovation efforts have a positive impact on both the work we do and the region we do it in. It's all a part of being a good steward to the community."

Boeing's plan is that by controlling waste, managing resources and mobilizing and informing employees, the company can create consistent improvement in energy efficiency and environmental stewardship at the Ridley Township site. The results are set to positively impact both the bottom line and the production line. ♦