

■ 'Culture of innov



PHOTO: Tony Dymarkowski of the IT Infrastructure Data Center Management Group (right), checks a floor opening with Alan Woolf, facilities engineer, Shared Services Group Site Services, at a Puget Sound-area data center. Using insulating pillows to reduce cooling air loss helps cut energy use. **MARIAN LOCKHART/BOEING**

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Green Teams help Boeing achieve environmental targets

By Bill Seil

It was clearly a mission for the Green Team—stop the escape of expensive cooled air at six U.S.-based Boeing computing data centers. In these centers, computer cabinets are placed on raised floors to allow wiring to run underneath. The space beneath the floor is also used to circulate cooled air, which rises from floor grates just below the intake vents on the computing equipment. But some of the cooled air was escaping through openings in the floor where cabling was routed.

The team's solution was a simple one: Block the openings with small, simple insulating pillows. According to Tony Dymarkowski of the IT Infrastructure's Data Center Management group, the Green Team member who coordinated the project, the installation of the floor pillows is expected to save approximately about 685,000 kilowatt-hours of electricity for cooling per year, or about \$55,000 annually.

"We're seeing a growing Green Team 'culture of innovation.' Environmental best practices are beginning to spread from site to site, and Green Team leaders are extremely generous in sharing their learning with new teams and site leaders around Boeing."

That's how Mark Arvizu, senior manager for Boeing Environ-

ment, Health and Safety, characterizes some 25 employee-led Green Teams operating companywide.

Protecting Earth's environment is a priority at Boeing, and employee Green Teams, working with individual sites and programs, are playing a major role in keeping this commitment. In doing so, they are also making an important contribution to the business success of the company by reducing waste and increasing efficiency. "Last year, there was a sense among employees that Boeing was getting more and more environmentally focused," Arvizu said. "With the economic downturn in the third and fourth quarters and the changing business environment, it became more important than ever that the Green Teams prioritize what they do and focus their time on projects with the most relevant impact."

Green Teams are increasingly taking on projects that help Boeing achieve its environmental improvement targets (see box on Page 28). These activities illustrate how employees understand business realities and see these conditions as an opportunity to demonstrate the value of responsible environmental practices.

MEASURABLE IMPACT

Indeed, the IT Infrastructure's "Environmentally Friendly IT Project" Green Team decided to pursue information technology improvements that would create a measurable business impact.

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Green Teams are groups of environmentally engaged Boeing employees. Working with the company's EHS organization and the Shared Services Group Conservation Initiative, these teams take on a variety of environment-oriented tasks—from Earth Day activities in their communities to recycling at their facilities. In some cases they are joining forces with Lean+ leaders to advance Lean practices, generating operational as well as environmental efficiencies. While most Green Teams are created to support a site, some support enterprisewide organizations.

identifying a number of projects that were 'green' in nature," said Fred Hardy, project manager for this Green Team. "Then we eliminated the nebulous stuff and got down to a number of projects that, when implemented, would have a real, measurable impact on the company."

Given this team's work in computing systems, many of its ideas relate to increasing energy efficiency, which is one of the company's five-year environmental goals.

One recently completed project involved those six computing data centers and the escaping cooled air.

Other projects of the Environmentally Friendly IT Project in-



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clude upgrading to newer computing equipment with lower power utilization and higher processing power; stocking Enterprise Print Services printers with paper that’s 30 percent recycled; conducting power management evaluations of servers; and other projects related to energy efficiency and recycling. Combined, the efforts of this Green Team are expected to generate \$1.6 million in savings in 2010.

CONSERVATION TAKING ROOT

Environmental improvements are taking place in production facilities as well. At the Commercial Airplanes site in Auburn, Wash., a Green Team has been formed in the Boeing Fabrication Machining and Emergent Operations area. One project involves finding the right balance of trash containers and recycling bins to encourage employees to dispose of waste in the most environmentally responsible way.

Another team project involves working with Lean manufacturing personnel to install more energy-efficient ovens for accelerating the cure of sealant used in bonding during assembly. The goal is to use ovens that are the right size for the parts being cured, equipped with timers to shut them off when the curing process is complete.

“It’s really exciting seeing people on the shop floor who are so interested in environmental topics,” said Tessa Higgins, Auburn

site environmental scientist. “Some of them are motivated to make big changes.”

And in El Segundo, Calif., one of the first Green Teams, organized in one building in early 2008, now promotes environmental activity throughout the entire site.

“Our goal was to make it a grass-roots effort, where employees could take ownership of projects to help make Boeing greener,” said Matt Robinson, an electrophysics engineer in the Space and Intelligence Systems business of Integrated Defense Systems. “We particularly wanted win-win ideas that would improve both the environment and Boeing’s business position.”

In February, the El Segundo Green Team held an electronic waste (e-waste) event where employees brought in old personal electronic equipment for recycling. The team also has planted a drought-tolerant garden at the site and it plans to work with the site energy focal to get employees more involved in energy conservation.

LEAN, GREEN SYNERGY

The need to better align environmental programs with the company’s overall business goals has led to a closer relationship with Lean+.

“Environmental and lean activities don’t stand alone,” said Leslie York,

director of Environment, Health and Safety for IDS. “Cost, quality and productivity improvements can benefit both the business and the environment. In the current business climate, we need to make sure our environmental priorities are relevant to the overall success of the company.”

This year, IDS incorporated environmental elements in its Lean manufacturing assessment, York said. The assessment now includes such factors as energy use, recycling and the handling of hazardous material. Results from the assessments will be used to make improvements. One example is evaluating the use of reusable

PHOTO: (TOP) Employees at Commercial Airplanes’ Auburn Machining and Emergent Operations organization, in Auburn, Wash., test a mock-up of a future seal dryer that will save time and energy. In the foreground, from left, are Gordon Little, electrical technician, and John Ferrieri, material and process technology. Standing in the background are, from left, Steve Burke, mechanic; and Michael Dilger and Don Zueger, spar assembly mechanics. **MARIAN LOCKHART/BOEING (RIGHT)** Show Me Green Team members Erin Flaschar (left), support coordinator, and Rich Hill, supply chain management analyst, toss plastic into a recycling container at Boeing’s St. Louis site. **RON BOOKOUT/BOEING**



Green Teams at work

Employee Green Teams at Boeing—groups of environmentally engaged Boeing employees—typically focus on areas such as developing environmentally innovative products and services; manufacturing or business process improvements; conservation of energy and resources, recycling, reduction of waste and source reduction strategies; and environmental projects that better their communities.

Although most Green Teams are based at individual sites, some support Boeing organizations that operate across the enterprise. To learn more about Green Teams, or locate a team at your site, visit the online Environment Information Center at <http://ehs.web.boeing.com/enviro> on the Boeing intranet.

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containers to avoid labor intensive packing and unpacking of parts. In addition to saving time and work, the containers reduce the need for packing materials.

Boeing also is incorporating environment considerations along with traditional metrics such as cycle time, lead time, safety and ergonomics in Accelerated Improvement Workshops. Full implementation is expected this fall.

GREEN COLLABORATION

Green Teams are grouped at Boeing sites across the United States. But thanks to virtual—and green—meetings, they can exchange ideas and find new volunteers.

Earlier this year, Boeing's EHS organization launched Green Team Reviews,

quarterly WebEx sessions that include EHS news updates and presentations by individual Green Teams.

"The Green Team Review is a very positive, collaborative forum for Green Teams to share their creativity and their desire to make improvements both within and outside their four walls," said Cheryl Fievet, a member of Boeing's Employee Advisory Council and the St. Louis-based Boeing Employees for Environmental Protection Green Team. She served as the employee moderator during the first two quarterly reviews of 2009.

The July 31 Green Team Review included presentations by the 2-122 Green Team, based in Seattle, and Boeing

Employees for Environmental Stewardship, based in Everett, Wash. (For information on participating in a Green Team Review—or any other aspect of Green Teams—visit the Environment Information Center at <http://ehs.web.boeing.com/enviro> on the Boeing intranet.)

At the end of each review, Fievet, an industrial engineer on the F-15 flight line in St. Louis, cites what she calls the "three P's": passion, patience and perseverance. "If you want to do anything about the environment, you have to have all three," she said. ■

william.j.seil@boeing.com

Target-rich environment

Boeing is pursuing aggressive targets for improvements in energy efficiency and recycling rates, as well as reductions in greenhouse gas emissions intensity and hazardous waste, from 2008 to 2012.

- 25 percent increase in energy efficiency
- 25 percent increase in recycling rates of solid waste
- 25 percent reduction of hazardous waste per dollar of revenue
- 25 percent reduction in greenhouse gas emissions intensity



PHOTO: Marvin Knoblauch (left) and Fausto Ochoa help forklift driver Steve Knoblauch stack reusable materials at the Everett, Wash., Interiors Responsibility Center. GAIL HANUSA/BOEING

By the numbers

Green Teams across the company are helping Boeing facilities improve their environmental performance. Here's a sample of the many achievements these teams have helped lead.

15 percentage reduction in electricity use at the Boeing-SVS facility in Albuquerque, N.M., from December 2008 through June 2009, compared with the same period a year earlier (Boeing-SVS is part of Laser and Electro-Optical Systems)

85 tons (77 metric tons) of paper recycled by Boeing's Huntsville, Ala., site in 2008

10,820 pounds (4,900 kilograms) of unwanted personal consumer electronic equipment collected at a Long Beach, Calif., electronics recycling event organized by that site's Green Team (the equipment was recycled by a third-party company)

56 tons (51 metric tons) of items reused and not put into landfills in 2008 and year-to-date in 2009 at Commercial Airplanes' Interiors Responsibility Center in Everett, Wash.

147,080 pounds (66,700 kilograms) of cardboard collected in St. Louis and St. Charles, Mo., from January through July 2009; Green Teams at both locations started and continue to maintain recycling programs for cardboard, beverage containers and plastic wrap



PHOTO: Scott Lowry, Green Team leader and electrical technician for F-15 Long Term Fleet Wire Assembly in Mesa, Ariz., is pictured here among spools that are now being recycled. After a three-month search for a plastics recycler, these spools are no longer going to the landfill.

MIKE GOETTINGS/BOEING