

# Building the future

*Pride and excitement run high at Boeing South Carolina as the journey begins toward 787 final assembly and delivery*

**By Eric Fetters-Walp and photos by Bob Ferguson**

In less than a year, Boeing employees are scheduled to begin assembling 787 Dreamliners in a massive new building rising from the landscape of North Charleston, S.C.

As that date approaches, more than 3,000 employees at the 240-acre (100-hectare) site are meeting three major challenges: integrating two separate 787 component factories into Boeing's policies and processes; improving production rates and efficiencies in those plants; and setting up the new final assembly and delivery facilities.

"We've just started on the journey, and we have a long way to go," said Tim Coyle, vice president and general manager of the Boeing South Carolina site. "But I look back on how far the site's come in just a few years, and I'm amazed. It all stems from the fantastic can-do attitude of our work force."

The existing Charleston plants opened just four years ago under Vought Aircraft Industries and Global Aeronautica, a joint venture between Vought and Italy's Alenia Aeronautica. The two facilities, which assemble major sections of the mid- and aft fuselage, were purchased by Boeing during the past two years, with the final piece of the operation acquired in December 2009.

Since the ownership switch, Boeing managers have focused on bringing the site's business systems, manufacturing processes and a thousand other details into line with the rest of the company. Boeing also has improved the existing site infrastructure, adding more parking and food service choices, among other things.

"It's been somewhat overwhelming because of the fast pace we're on," said Rick Muttart, Shared Services Group director in South Carolina. "I think there's been some shock

**"Everything about this place is brand-new, so we're trying to mold it."**

*– Tim Coyle, vice president and general manager of the South Carolina site*

**PHOTO:** As workers construct the towering final assembly building, the Dreamlifter (far right) is ready to pick up or deliver its next major 787 component worldwide. When completed, the building will have a footprint of 610,000 square feet (56,700 square meters).

to the system, but everyone's been very welcoming, really gracious. The employees have been interested and engaged."

Geoff Schuler, Site Integration leader, said introducing Employee Involvement teams and related practices has been a big part of the transition. "We have a set of initiatives to create a culture for employees that emphasizes active engagement and makes them aware that leaders are here to listen and break down barriers," he said.

That already is visible among the employees, who express pride and excitement about being added to Boeing. Since Employee Involvement teams began forming late last year, employees say it's made a difference in how they perform and how they feel about their jobs and managers.

"It helps us define and improve our processes," said Janice Carter, a materials management analyst in aft body Cell 215, where members of the Employee Involvement team The Finishers often wear their matching orange shirts.

"We are the ones on the factory floor and

doing the job," said Amey Burden, team leader for the Palmetto Flyers. "That's why I love this; we can tell managers what we need."

Employees have formed more than 100 Employee Involvement teams between the two buildings next to Charleston International Airport. Coyle said Boeing has brought Employee Involvement and Lean+ experts from numerous sites to South Carolina to help accelerate progress. Support people have been moved closer to the work cells, and daily "board walks" allow managers and mechanics to talk about progress and any problems. Other ideas and best practices commonly used at Boeing production sites are being phased in as well.

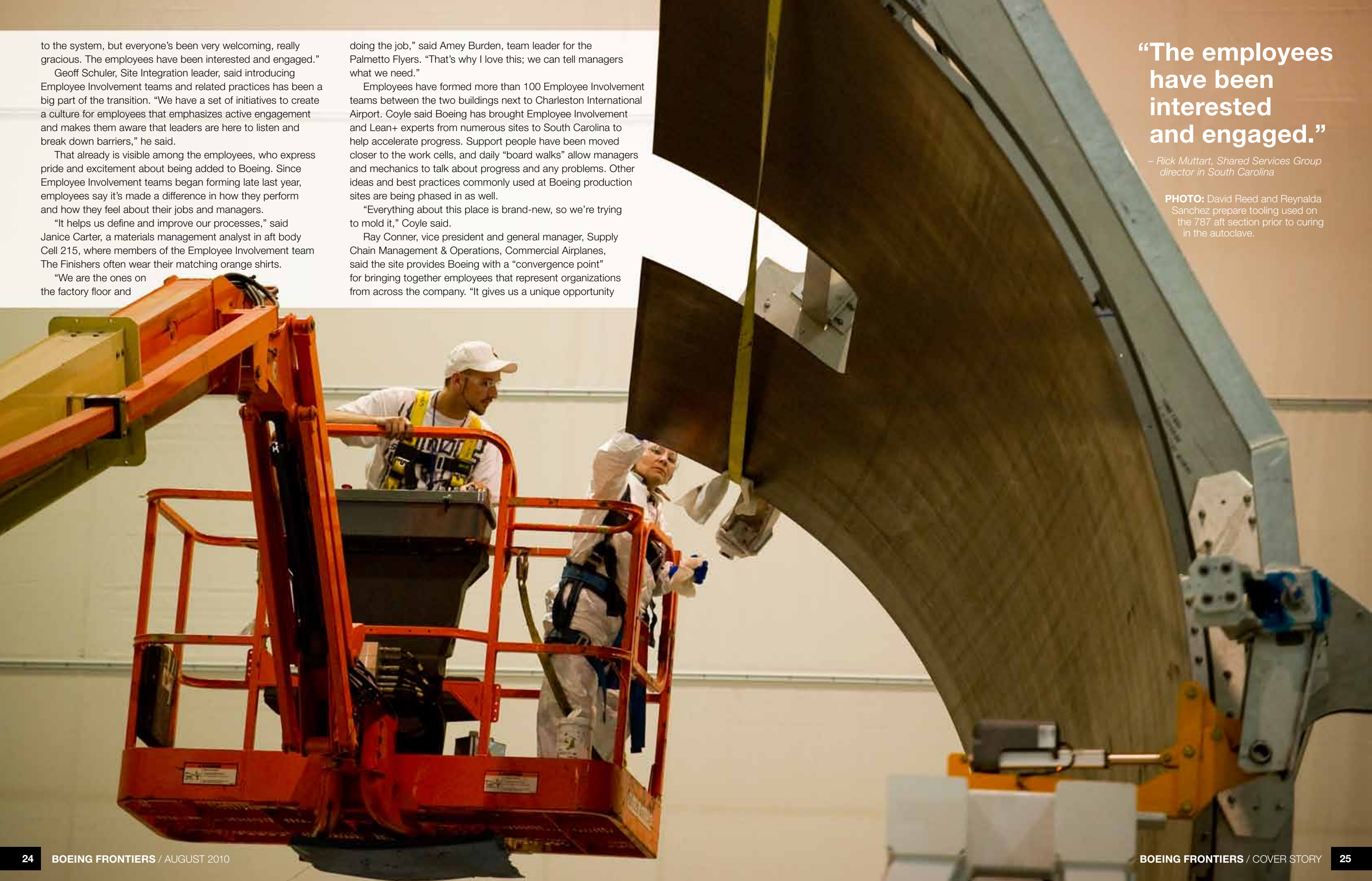
"Everything about this place is brand-new, so we're trying to mold it," Coyle said.

Ray Conner, vice president and general manager, Supply Chain Management & Operations, Commercial Airplanes, said the site provides Boeing with a "convergence point" for bringing together employees that represent organizations from across the company. "It gives us a unique opportunity

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*– Rick Muttart, Shared Services Group director in South Carolina*

**PHOTO:** David Reed and Reynalda Sanchez prepare tooling used on the 787 aft section prior to curing in the autoclave.



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— Letha Fogle, Employee Involvement team leader for the Crib Dwellers

**PHOTO:** Gregory Anderson (foreground) and Barry Riebe inspect work performed on a 787 aft section.



to share, collect, and implement best practices and processes in new and innovative ways,” Conner said. “At its most basic level, the discipline and integration that’s going on here defines what functional excellence is all about.”

Coyle, meanwhile, tries to demonstrate the type of leadership he expects from his managers. And that hasn’t gone unnoticed by employees on the factory floor.

“This is the first company I’ve worked for where you can talk to the managers without any type of open-door policy,” said Letha Fogle, Employee Involvement team leader for the Crib Dwellers. “If I have a problem, I can talk with them. I get excited to come to work every day.”

That kind of enthusiasm among Boeing South Carolina employees is needed going forward as the site continues to improve production and efficiency rates for 787 fuselages and gets ready for final assembly and delivery work. This summer, the building’s steel frame, including giant roof trusses, is going up amid a bevy of cranes and fast-paced construction activity. It’s the first final assembly facility built by Boeing since the Everett plant was expanded for the 777 production line in the early 1990s. A new customer delivery center, welcome center and employee cafeteria are planned as well.

Additionally, Boeing Fabrication plans to build an interiors facility in North Charleston, about 10 miles (16 kilometers) from the final assembly and delivery site. It will supply final assembly with stow bins, closets, partitions and other interior components for the 787. That operation could employ up to 150 people.

William Smith, a mid-body lead at the Boeing South Carolina site, said he’s pleased with the number of jobs Boeing is creating in the state.

“Not only are we employees excited to have Boeing here, but Charleston itself is, too,” said Smith, a native of the Lowcountry region of South Carolina. “We haven’t seen someone come in and put in an investment like this since the U.S. Navy shipyard.”

Josh Perrine has worked at the site for more than three years and is now a production manager for mid-body Cell 20, which installs doors on the

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— William Smith, mid-body lead, South Carolina plant

**PHOTO:** From left, Christopher Jackson, Scott Wilson and Patrick Johnson discuss work performed during the mid-body build process.



787 fuselage. “It’s the best thing I’ve ever done, and I’m proud to work here,” Perrine said.

Mary Thornley, president of Trident Technical College in North Charleston, said South Carolinians are keenly aware of the opportunity that comes with hosting only the third final assembly site in the world for twin-aisle commercial airplanes. Her institution has worked closely with Boeing to create a work force training program and facility that can keep supplying qualified, interested employees as the site grows.

“I think when the first Dreamliner takes off from the South Carolina site, it will be a defining moment for us,” Thornley said.

Marco Cavazzoni, vice president and general manager for Final Assembly and Delivery, South Carolina, said that’s the reaction he and other Boeing leaders frequently hear. That kind of support from the community, along with the employees, will help the Boeing South Carolina site reach its goal of creating a final assembly and delivery process

that works seamlessly with the 787 production line in Everett, he said. Many talented employees from other Boeing sites, especially the Puget Sound region, are helping in that effort at Charleston, he said.

“The welcoming we’ve had, along with the people of the state, has been incredible,” Cavazzoni said. “We’re fortunate to be on-plan, and now we need to deliver. We need to show that the confidence the company gave us was well-placed, and we look forward to doing that.” ■

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# Hire learning

Training program helps ensure new Boeing employees are well-prepared for their jobs

As Boeing establishes a presence in South Carolina and its 787 final assembly and delivery facility takes shape, it is striving to create a skilled aerospace work force there.

Ever since Boeing suppliers opened the North Charleston, S.C., facilities in 2006 to produce major components of the 787 Dreamliner's fuselage, Trident Technical College in North Charleston and readySC have teamed to help teach aerospace work force skills. About 1,800 people have finished training and started working at the Charleston facilities in the past four years, said Jeff Stone, director of Training and Employee Development for Boeing South Carolina.

"Without a doubt, Boeing is the largest project we've ever taken on," said Jim Maxon, project director for readySC, one of the oldest state-sponsored work force training programs in the country. "But Boeing is making a significant investment here."

Over the years, the training and the facilities used for teaching have evolved. The most visible sign: the opening in April of an 18,000-square-foot (1,700-square-meter) state-of-the-art training center, which includes a fuselage barrel, drilling and benchwork stations, a sealant lab, and areas for practicing electrical, plumbing and hydraulics work.

"We want to give new employees the look, feel, smell and taste of the factory—to break them into the factory environment while they're still career building," Stone said of the new facility, located on the Trident campus. To that end, the large training room has a tool crib area that operates like those in the Boeing factory, and the training schedule runs on similar factory shift schedules.

John Clem, a Training Integration specialist for Learning, Training & Development, said lessons learned from the 787 Employment Resource Center in Everett, Wash., were applied in setting up the facility. "This is going to have a huge impact in the factory," he said.

Those who learn in the new facility first have to go through a selective hiring process; the training comes after they officially become Boeing employees. Stone said the basic "new hire" training takes about 10 weeks, but it can last up to 24 weeks, depending on the job a trainee is learning.

Ann DeRose, one of more than 30 instructors in the training program, said most of the trainees have entry-level manufacturing experience, but many aren't sure what to expect in the Boeing facilities. She agreed that the combination of more experienced instructors and the new training center will produce better-prepared employees.

"We've fine-tuned it. We have more instructors who've worked in the plant, so we can give more real-world experience," said DeRose, who worked at the South Carolina facility and has more than 22 years of experience in aircraft maintenance.

The ultimate goal of the work force training, Stone said, is to make sure the Boeing South Carolina site produces 787s that are indistinguishable from those now assembled in Everett, once the new final assembly plant opens in 2011. That facility also will incorporate a feature that underlines Boeing's commitment to work force development in South Carolina: a training area to give new employees even more practice opportunities in the final assembly setting.

—Eric Fetters-Walp



PHOTO: "The Finishers" Employee Involvement team prepares a 787 lower aft section for delivery.

# Leading *change*

Creating a better workplace starts with leaders

**F**or Boeing Employee Involvement consultant Ramon Sanchez, learning how to create a “people first” culture at the Boeing South Carolina site began when he attended a leadership development program with site managers last year.

“It’s [now] a totally different place. All of us have the power to make coming to work something each of us can enjoy,” Sanchez said.

During the program in Charleston, Sanchez heard experienced Boeing leaders talk about the importance of creating an open workplace environment that is both energizing and performance-oriented, while listening to employees and developing teammates.

“These programs are especially important for managers who are new to Boeing,” Sanchez said. “Participating in these programs helps managers understand their role in the development of their people.”

Senior executives from South Carolina taught the program to model the best approach for developing teammates—using the Boeing Leaders Teaching Leaders methodology. This helps leaders better engage with team members and ensure they have the support they need to be successful.

“Launching these programs is part of a larger effort to equip our leaders with the right skills that will help ensure the success of all teammates,” said B.V. McGrue, Human Resources director for Boeing South Carolina. “These programs are helping to facilitate the transition of this site into Boeing.”

The leadership development programs offered in Charleston are part of a larger portfolio developed by Human Resources for the Boeing Leadership Center in St. Louis and for other company locations around the world.

— Drew Favreau

*Employees can learn more about the Boeing Leadership Center at <http://hr.web.boeing.com/index.aspx?com=40&id=47> on the Boeing intranet.*



**PHOTO:** Ramon Sanchez (left), a Charleston-based Employee Involvement consultant, discusses career development opportunities at Boeing South Carolina with Daryl Henry, an Employee Involvement facilitator.



# Field of dreams

The 787 final assembly building that is now under construction embraces Boeing's environmental policies

It will make a worthy home for the innovative 787 Dreamliners that will roll out its huge doors—and for the many hundreds of Boeing employees who will work there.

The Boeing South Carolina Final Assembly building is being designed with the environment in mind.

“The new assembly building and supporting infrastructure will include programs that embrace environmental responsibility, such as optimizing the use of energy and water, and a robust program for solid waste and recycling,” said Rick Muttart, Shared Services Group site director.

Site leaders are also taking environmentally responsible steps during the building phase, such as recycling demolished concrete and asphalt for reuse during construction, and transporting excavated soil unsuitable for engineered fill to a local gravel pit reclamation project, Muttart said.

The facility will be built to a LEED Silver rating or higher. The Leadership in Energy and Environmental Design, or LEED, program, developed by the U.S. Green Building Council, is the U.S. benchmark for sustainable building design, construction and operation. In 2009, Boeing established a LEED Silver rating for all new construction and major renovations of Boeing-owned buildings in the United States.

The LEED certification process verifies that a building is designed and built using strategies that will save energy and water, reduce greenhouse gas emissions, improve indoor environmental quality, and increase the recycling and reuse of materials.

Designing and building to a LEED rating supports Boeing's five-year target for 25 percent improvements in energy and water

consumption and greenhouse gas emission intensity on a revenue-adjusted basis, and a similar target for hazardous waste generation, at its major manufacturing facilities.

Mike Magee of Global Performance, a construction management company, is teaming with Boeing and several other contractors and designers to provide the improved environmental performance.

“These initiatives at this new facility are a testament to Boeing's environmental policy,” Magee said. “We've been teaming with them every step of the way to ensure the best possible product that meets these standards.”

Building to LEED standards is important to Boeing and the surrounding community, said Boeing Conservation leader Jeff Nunn. “Embedding environmentally responsible building practices into facility planning, design and project implementation processes is a major focus area within Boeing's enterprise Conservation Initiative to use resources wisely, reduce the company's environmental footprint and increase productivity,” Nunn said.

Boeing's Bay Area Boulevard building in Houston and the 18-26 building in Kent, Wash., achieved LEED Gold certification in 2009.

— Kathleen Spicer

## From the ground up

The Boeing South Carolina Final Assembly and Delivery facility features an environmentally progressive building design.

Highlights include:

- A stormwater management system to control water runoff during the construction phase and, once the building is operational, to eliminate the erosion and sedimentation of local waterways
- Water-saving strategies, including dual-flush toilets and flow-restrictive faucets, are expected to reduce water consumption

by more than 40 percent; additionally, native plants have been selected for landscaping that do not require sprinklers or irrigation

- An Energy Management System to allow maintenance and service personnel to remotely monitor the heating and air-conditioning systems while providing a comfortable environment for employees
- Healthy interior design and construction, plus a smoke-free environment, to enhance indoor air quality, including the use of paints, adhesives, sealants and coatings with low or no volatile organic compounds

- A robust waste reduction and recycling program, including working with material and equipment suppliers to minimize shipping waste and increase use of reusable shipping containers
- Working with the community to offer mass transit service to the site to help reduce traffic and associated exhaust emissions, while also reducing the need for parking
- Boeing also is evaluating the installation of rooftop solar cells that will convert sunlight directly into electricity to help supplement the building's energy needs

**PHOTO:** The final 787 assembly building now rising from the Boeing South Carolina site will be a model of environmental responsibility. Mark Schwarztrauber (left), construction manager, and John Rhodes, system engineering manager, overlook part of the stormwater management system that will control water runoff into local waterways.