

What a great idea!



The Concept Center looks different from other Boeing workspaces. The open work area includes this illuminated “connection” board, where acrylic “idea” tiles are clustered to form the basis for future projects.

GAIL HANUSA PHOTO

What’s next on board? Payloads Studio has some exciting thoughts

BY KATHRINE BECK

You’re flying from Johannesburg to Los Angeles, via a connection in London. You’d like to arrive feel-

ing fresh, so somewhere over the Canadian Rockies you decide to slip into the shower. You enter the airplane’s on-board shower compartment and get out of those clothes you’ve been living in for hours, while the fan warms the compartment air. You enter the shower itself and press a switch to choose the right nozzle height for your own height. A warm mist envelops you. The soothing feeling is enhanced by colored lights. Doesn’t that feel better?

The onboard shower has automated cy-

cles, like a dishwasher. To save water, the mist stops while the soaping cycle is on. A displayed message lets you know your present cycle and how much time you have before the next one starts. Next comes the rinse cycle, followed by the dryer—which gets you as dry as a towel would. After you leave, the unit cycles to clean mode and dispenses a disinfectant solution, then dries itself in readiness for the next passenger.

You won’t find this shower on board a jetliner just yet. But Boeing has the technol-

ogy—technology developed with airplane operational requirements in mind, such as low weight to save fuel burn. Indeed, this shower only uses five cups of water.

The prototype for that onboard shower already exists at the Payloads Studio of the Commercial Airplanes organization known as the Concept Center. The organization's facility near Everett, Wash., is a developmental studio that creates future concepts through research, prototypes, mockups and interactive workshops. It's where technology is harnessed to provide innovative new products and services

aimed at making flying fun for passengers again. And just as important, the facility, which has become a destination for airline-customer visitors, has helped underscore Boeing's reputation as an innovative company.

The shower is one exhibit in what amounts to a futuristic studio of innovative products. It's based on existing technology, but it combines these elements in a new way to help Boeing's airline customers provide their passengers with exciting new flying environments. What's more, the innovations reflect the Payloads Studio's

"airplanes for people" concept. This philosophy recognizes that by analyzing the entire value stream, the studio's staff can create compelling design solutions for everyone who touches the product.

POWERED BINS

There's a lot to see at the facility. Here are some of the ideas on display.

- **Power Automated Stowage Bin System.** In this concept, the overhead bins open and close firmly but gently with the touch of a button. That makes it easier for all passengers, including the elderly and physically challenged, to use the bins. Also, airline personnel can close all bins at once from a central location. And because each bin is powered and operated individually, it's easier for airlines to reconfigure interiors.

- **Super Integrated Passenger Accommodation Space.** This integrated passenger seat concept incorporates the oxygen and mask delivery system, fan and air distribution nozzles, and a reading light that passengers can control to deliver the desired angle and brightness. Sensors in the seat bottom let cabin staff know through wireless links if the passenger is seated, if the tray table is stowed, if the seat is upright, and if the seatbelt is fastened—making it a lot easier to prepare for takeoffs and landings. The integrated seat makes it easier to reconfigure the airplane, because when you move the seat you also move items that have traditionally been part of the overhead architecture. It also significantly reduces the cost of airplane assembly, and provides passengers with more legroom.

- **The Light Lab.** This interior mockup area shows off an innovative LED lighting system that calls on human factors technology and physics to mix a rainbow of colors. The result: changeable lighting that can dramatically alter the mood and feel of the cabin, the way colors look, and the way passengers feel and function.

- **An open area for socializing and collaborating.** This space includes a unique conversation point in the floor. It's an oval glass pane that works like a window on the world and shows the terrain below as captured by a camera mounted on the belly of the airplane—or, in case of cloud cover, a Global Positioning System-based map.

- **Radio frequency identification-based baggage handling and tracking systems.** Industrywide, mishandled baggage is a \$2.5 billion problem, and it costs airlines an average of \$86 to recover and deliver a lost bag to a passenger. In response, Payloads Studio teammates are developing baggage handling and tracking systems based



At the Concept Center, you'll find a prototype for an onboard shower. A refreshing in-flight shower could become a reality for commercial airplane passengers.

CONCEPT CENTER PHOTO

■ COMMERCIAL AIRPLANES

on the same RFID technology that will be used to tag 787 Dreamliner parts.

'CATALYST' FOR IDEAS

The Payloads Studio, like other studios within the Concept Center, is a commercial aircraft interiors engineering and design group, and a place where a diverse group of people from many disciplines come together in an environment designed to remove constraints and encourage risk-taking. Their job is to come up with new concepts that might well become part of the airplane interiors of tomorrow.

"They serve as a catalyst for idea generation, and they collaborate with other members of the product development team," said Todd Zarfos, Commercial Airplanes vice president of product development. "Their role is to spark the idea and create the concept, and then it gets handed off to others who will mature it."

The risk-taking environment was planned that way from the get-go and is the brainchild of Concept Center Director Alan Anderson (see story on Page 21). Anderson, a 40-year Boeing employee who's spent his career in commercial airplane payloads, wanted an organization that could develop innovative concepts for the airplane interior five to 15 years into the future. He also wanted an organization that felt free to pursue "wild ideas" that one day could go on to possible Boeing product development and integration into new airplanes.

The then-named Payloads Concept Center, the first organization of several that would come together as BCA's Concept Center, was officially born in 1999. It's now grown from three to 24 employees, and it's been churning out new ideas at a fast clip.

Its success resulted in the creation of a parallel, colocated organization, The Systems Concept Center, later joined by the Flight Deck Concept Center, all operating under one umbrella and now known collectively as BCA's Concept Center. More studios are planned, said Anderson. "Different studios will be established, working together but each maintaining its own focus and personality."

TOYS IN THE OFFICE

All the studios will be in the idea business. What does it take to keep all those new ideas coming?

It starts with a diverse work force. The people on the Payloads Studio team have a wide variety of backgrounds, disciplines and interests. They have collective experi-



Payloads Studio mechanical design engineer Heidi Kneller views a mosaic of colored acrylic tiles showing current projects and the ideas that spawned them.

GAIL HANUSA PHOTO

ence and expertise in payloads engineering and design, cabin systems management, human factors, interiors configuration, industrial design, mechanical engineering, physics and bioengineering.

The team shares a big open area that facilitates desk-hopping and collaboration. It's full of new materials and strange objects that just might—and do—spark ideas. In fact, at quarterly "inventible" parties, employees go over regular shipments of new materials and

industrial objects that arrive and could come in handy for an exciting new concept.

It's also a hands-on environment where employees are constantly sketching and doodling and building models from real materials in two big studios. And they're having fun doing it. "I have an awesome job. This is the best job at Boeing," said technical designer Shawn Claffin.

He said employees aren't just responsible for innovative thinking. They're also

responsible for developing the processes that keep ideas moving from the idea to a working prototype to practical application. Employees work in an atmosphere of creative freedom, but there's nothing undisciplined about their processes.

Clafin was part of the employee team that designed and built a unique installation to visually track those ideas. Teammates record ideas with a wet erase pen on a clear acrylic tile and display them in a special rack. The ideas are reviewed by others, and placed alongside related ideas in a second location—creating a mosaic of ideas coming together. When they morph into projects, they are color-coded by categories, recorded on colored tiles and moved again to a third section that charts the course of innovation.

And they do their homework. The process begins with learning the right questions to ask—questions based on input from many sources. They include airline requests, benchmark studies of other companies and industries, studies of emerging markets and review of new technologies that could have useful applications for commercial aviation. They also include personal experience of team members. That's how the Payloads Studio de-

cidied, for example, to check into traveling pets and their needs.

To learn more, they embark on projects such as a cultural study of passenger populations in the burgeoning economies of Asia. Their "Experience Aging" project outfitted staff members in gear that gave them the limited mobility, vision and hearing of the elderly, then sent them on commercial flights to learn more about the needs of an aging flying public (see Page 24 of the December 2005 *Boeing Frontiers*).

They also examine whole areas of the passenger experience. Not only are they studying airline food, but they've decided to investigate concepts such as nutritional bars and vitamin drinks formulated for high-altitude conditions.

Nothing's off limits, and that's part of the risk-taking culture the Concept Center nurtures and that its employees prize.

"Where else can you learn and try things you may not necessarily be good at yet," said mechanical design engineer Heidi Kneller. Added Payloads Studio manager Pete Guard: "The environment we've cultivated is at the heart of the future of Boeing." ■

kathrine.k.beck@boeing.com

Innovating for innovation

At Commercial Airplanes' Concept Center, innovation isn't just a hallmark of its work. Innovation plays a major role in shaping this work environment, where creativity is king.

"We'll continue to experiment with work space, innovative conditions, and innovative ways of doing business," said Concept Center Director Alan Anderson. "Many things we do here could be appropriate in any traditional design or engineering office. Not everything is appropriate in every situation, but freedom in the arrangement of space, being more mobile, moving people and office furniture around, are all things that could help any group."

Anderson said the Concept Center approach to work involves having the freedom to move resources and continually prioritize work. "We needed permissions from our bosses to pool the money we wanted to move toward innovative efforts and allow it to be managed more locally. We got that," he said.

"The old way of project management was you had to know a year ahead what you wanted to do to fit the budget cycle," added Pete Guard, Payloads Studio manager. "By the time you got funding, your project might have been out of date."

A successful teammate at the center, said Guard, is confident, collaboration-oriented, highly motivated and achievement-oriented, and has strong communication skills. Also a plus: the ability to deal with ambiguity—which Guard said strongly connects to Finding a Way, one of Boeing's leadership attributes. "The whole element of tenacity and breaking through challenges—that's huge in this environment," he said.

—Kathrine Beck

It's our future

Actions cited in this story show how employees are applying concepts of the Boeing Management Model to support the company's business strategies. Here's how.

- **Leadership attributes: Devising creative solutions supports Finding A Way.**

To learn more about the Management Model, visit <http://bmm.web.boeing.com> on the Boeing intranet.



The Concept Center advanced interiors concept mockup is a showcase for new ideas. The circular viewing pane on the floor gives passengers a camera's-eye view of the terrain below their feet.

GAIL HANUSA PHOTO