At the European Business Aviation Convention & Exhibition (EBACE) in late May, a representative of Airbus expressed frustration at the difficulty in finding sufficient slots at independent completion and refurbishment centers to do executive cabin work at the same pace the company is producing airplanes.

The remark should have come as no surprise. Manufacturers such as Airbus and Boeing, and more recently Embraer, rely on independent completion centers to build and install interiors in aircraft selected from their production lines for executive configuration. In the past, the arrangement has worked well. The number of new bizliners being sold was about equal to the capacity of the independent centers. And if it were only new bizliners queuing up, the capacity might still be there, even with the heavier demand. But production slot availability of new bizliners is now stretching well into the next decade, and buyers are dipping deeply into the inventory of used airliners to be reconfigured for private use while they wait for delivery of the new airplane.

The crunch is compounded further by large numbers of widebody airplanes being sold for executive use. They require a large hangar and eat up a larger portion of a completion center’s resources and, once the airplane has been rolled in, the cycle time can be as long as two years.

All of this is leaving OEMs and used aircraft brokers scrambling for early completion center slots and looking for solutions to the problem.

At EBACE, Airbus announced that it has appointed Fokker Services of The Netherlands as an additional completion center and is also reviving the defunct, company-owned Sogerma completion center. The resurrected facility on the Airbus premises in Toulouse, France, has been renamed Airbus Corporate Jet Center and will be managed independently. Initial plans by the new center call for the completion of three Airbus executive airplanes a year.

Airbus had already authorized two U.S. independent completion centers to do aircraft from the ACJ line–Associated Air Center in Dallas and Gore Design Completions in San Antonio.

Airbus has firm orders for 14 aircraft in the ACJ series.
ECONOMIC GOOD TIMES SEND HELICOPTER MARKET SOARING

In an industry where the machinery goes up vertically, helicopter sales seem to be doing exactly that and, as would be expected, business at the OEM completion centers and independent completion and refurbishment facilities is going up with similar enthusiasm. It certainly wasn’t that way in 2002. A flight ban immediately after 9/11 only served to accelerate a growing recession as revenue-generating activity dwindled. Putting a positive spin on the industry at the Helicopter Association International Heli-Expo show in 2002 was a challenge as OEMs reported simply that sales in the first six weeks of the year had been “good.”

As for orders taken at that show, there were few enough. Market leader American Eurocopter sold a mere dozen aircraft and counted it a good show. Bell took orders for slightly more than half that number. Worse, market analyst Forecast International of New-town, Conn., noted a steady drop in helicopter shipments for the previous three straight years—493 in 2000, 405 in 2001 and an estimate of 323 in 2002. In addition, the outlook for the following decade was bleak.

“Growth in the industry can be traced to an improved economy that has called for more offshore oil production and research, recognition of the value of…medevac aircraft, and, of course, the much higher utilization of helicopters in disaster and military situations,” said a Bell spokesman.

Strangely, positive estimates of the impact of 9/11 on helicopter demand, he added, really didn’t materialize. Instead, law-enforcement organizations spent those new funds on other first-responder items they needed that were not as expensive or focused.

Demand Outstrips Completions Capacity

Whatever the reasons for the growth in demand for helicopters, business is good. It is certainly good enough to drive plant expansion. At Edwards & Associates, a Bell Helicopter subsidiary responsible for most of the OEM’s aircraft interior work, the company spent the month of May moving its cabin completion and maintenance divisions into a new 133,000-sq-ft facility.

Keystone Helicopters, based in Coatesville, Pa., was purchased by Sikorsky Aircraft early last year and is rapidly expanding its facilities. Last year the company moved into a new 173,000-sq-ft “Heilplex” site that will eventually total 315,000 sq ft, and there are plans for further expansion as demand increases. “Fortunately,” said Rick Hinkle, v-p of business development for Keystone, “with our new parent company’s support, we’re able to expand quickly enough.

“From 2005 to 2006 and into 2007, there has been a definite spike in interiors work on green Sikorsky aircraft as well as aftermarket refurbishment,” said Hinkle. “The volume of work has increased tremendously.”

It has apparently increased sufficiently that Sikorsky is sending some of its helicopters to other independent completion and refurbishment centers. Jet Aviation at West Palm Beach, for example, has done one green S-92 in executive livery and two green Black Hawks in government executive configuration. The completion and refurb center is currently working on the last two of four Black Hawk executive cabin refurbishments.

Heritage Aviation in Grand Prairie, Texas, is owned by Patriarch Partners of Charlotte, N.C. It is a sister company of Phoenix-based MD Helicopters but does interior completion work—both green and refurbishment—for other
interiors are working on a backlog, executives at lesser known centers are wondering, “How about us?” Indianapolis Jet Center president Randy Keeker had a response to Airbus concerns about bizliner completion slots. “Maybe they just haven’t looked far enough.” Keeker’s hangars are currently packed with seven Challengers, a CRJ200 being converted to executive use for a Chinese customer and six Learjets. He expects to take in an ACJ for a major cabin refurbishment later this year and added, “We have the capacity for more.” The company also has the experience, having done major executive refurbishments on a 767, two 757s and two 727s in the past several years.

Flying Colours in Peterboro, Ontario, is converting a CRJ200 to a private jet for an Indian customer, and according to Sean Callespier, director of sales and marketing, “We’re finalizing contracts for several more.” He added, “We do have the capacity and the skills to handle an ACJ or BBJ.”

Also in Canada, Goderich Aircraft of Huron Park, Ontario, has the capacity to handle the smaller bizliners. The company had an MD-87 executive conversion scheduled for delivery at the end of last month. Another MD-87 is scheduled to arrive before the end of the year, and the schedule is being adjusted to accommodate a 727 executive conversion.

Phazar Aerocorp of Fort Worth, Texas also has the capacity to handle bizliners the size of the ACJ. The company recently delivered two MD-87s, one of which was converted to executive use for Russian customer Sistema; Phazar is at work on a third MD-87. The company did a major executive refurbishment of a BBJ in 2005 and is working on a second one scheduled for delivery later this year.

Airbus found a possible solution to a perceived completion slot shortage in its alliance with Fokker Services and in its new Airbus Corporate Jet Center, and Jet Aviation is expanding its capacity. But for the manufacturers as well. According to Everett Horst, director of marketing for Heritage, “In 2006, business was up about 30 percent over 2005, and in 2007 we expect to do at least as well as in 2006, or better.”

At this point, said Horst, the company has adequate facilities and is running double shifts and accommodating growing demand by making adjustments in scheduling and manpower. The facility has encountered a challenge that is plaguing other helicopter completion and refurbishment centers: a dwindling pool of experienced technicians. “We don’t want to under-hire, but we don’t want to hire too quickly and end up having to lay people off either,” said Horst.

Metro Aviation has been doing helicopter interiors about a year—for some 30 years. That’s changing, and for the better. “The company has recognized a need to expand, and after a significant investment we’re moving into a new, 160,000-square-foot facility later this year,” said Jim Kettles, director of sales and support for the Shreveport, La., based company. Not only does it increase Metro’s capacity and capability, three new paint booths eliminate what had been a bottleneck in the completion and refurbishment process.

According to Kettles, new helicopter availability is not keeping up with demand, and looking forward, “I’m positive [that will continue] at least for the next 24 months—maybe even the next 36 months.”

The company has close ties to Eurocopter and has done more than 100 EC 135 interiors, including EMS, offshore transport and executive configurations. “And we’re starting to do significant numbers of EC 145s,” he added.

“Our challenge now,” he said, “is to fill that building with qualified, skilled people so we can fill it with helicopters.”

Wysong Enterprises in Blountville, Tenn., is focused primarily on custom medical transport interiors and law-enforcement interiors but does the occasional executive cabin. Vice president Roddy Wysong is optimistic about the future. He said the company is booked through the early fall. “If we could find the people, we could do more,” he allowed, noting that some of the helicopter manufacturers are working on two- and three-year backlogs. AugustaWestland, for example, is working on a backlog valued at about $1.235 billion.

Even MD Helicopters, which has struggled in recent years, now has a backlog approaching $330 million, “including a long-term contract with a Middle East customer.”

More remarkable, he added, is that more and more operators and private owners are buying a used helicopter while they wait for delivery of a new one and then contacting independent centers such as Wysong for a minor or major interior refurbishment, as well as avionics upgrades, engine work and paint.

Public-use Demand Picks Up

Helicopter manufacturers and independent completion and refurbishment centers generally agree that the growing demand for rotorcraft by law enforcement agencies and offshore oil and gas producers has done much to improve the lot of the helicopter market.

American Eurocopter’s “core competency” is EMS and law enforcement, and thanks to a thriving U.S. economy the demand for air medical and law enforcement interiors has grown steadily over the past several years. According to Larry Roberts, American Eurocopter v-p of sales and marketing, the key has been “spending a lot of money to develop the right products at the right time and being able to deliver.”

Of the 112 Eurocopters sold at Heli-Expo earlier this year, 47 were destined to serve the oil and gas industry. A total of 34 helicopters were ordered for EMS, and 31 for use by private owners and operators in the tourist sector. At Bell, 17 of 64 green completions last year were for executive interiors. Six were for EMS, nine went to law-enforcement agencies and the remainder to offshore oil and gas support, military transport and utility patrol. In the last year, said a spokesman, the company has seen increases in executive and law-enforcement interior completions.

Many of the executive helicopter cabin improvements, he noted, have been driven in part by increased power and performance, allowing more flexibility in the design and function of interior components. Among the cabin improvements are auto-tint windows, better thermal/acoustic packages and more exotic woods and materials.

If there is a cloud over the helicopter interiors market, it appears to be in the form of a shortage of raw materials, according to Eurocopter’s Roberts, including special metals, plastics and fine leathers. “We’re at the point now where we’ve been trying to find vendors who can offer a quality alternative to leather,” he said.

The only other “problem” is meeting the growing demand. If 2007 deliveries don’t top the 2006 figures, “The constraining factor is the capacity to produce the aircraft, not the number of buyers,” said one OEM representative.

Metro Aviation’s Kettles agrees, noting that capacity has been a worldwide problem for more than a year, and not unique to the helicopter industry. “We’re seeing increasing lead times for a number of interior components.”

Some in the industry suspect it is not so much a shortage of raw materials as it is a reluctance on the part of vendors to increase their capacity at a pace to meet the spike in demand from the aviation industry. They are aware, said one observer, that it is a cyclical industry and they’re being cautious.

Meanwhile, in the world of labor-intensive completion and refurbishment, helicopter interiors shops will continue to deal with such challenges as a shortage of skilled technicians and vendor-delivery lag times. But while it isn’t an ideal world, said one completion-center executive, it sure beats the state of the industry in 2002, “when you couldn’t give away a helicopter.”
most part, independent completion and refurbishment centers are remaining cautious on the subject of major expansion, recalling the layoffs and empty hangars that accompanied the last economic downturn.

**THERE IS ONLY ONE DIRECTION, AND IT’S UP**

If the bizliner side of completion and refurbishment is being challenged, it is no less so on that side of the industry dedicated to smaller business jets, from the Global Express and Gulfstream down to the very light jets and turboprops.

The General Aviation Manufacturers Association (GAMA) described last year as “a banner year” for general aviation. Total deliveries for business jets increased from 750 in 2005 to 885 in 2006, up a healthy 18 percent.

In May, GAMA released its first-quarter 2007 delivery numbers, which showed a continuing upward trend. Deliveries for business jets increased 12.2 percent, from 188 aircraft in the first quarter 2006 to 211 for the same period this year.

If deliveries in the first quarter of this year were not much to dance about, reported sales to date have been little short of spectacular and are a better indicator of what completion and refurbishment centers can expect. At EBACE Hawker Beechcraft announced it had reached an agreement with fractional operator NetJets Europe for the purchase of 32 Hawker 4000s, a deal valued at more than $700 million, with deliveries to begin next year and continue through 2016.

Bombardier celebrated orders taken at EBACE from three customers for four aircraft valued at about $101.4 million, and in a separate announcement revealed an order for two more Learjet 40XRks and a Global Express XRS from Swiss charter operator VistaJet. In fact, the company’s sales figures for its first quarter (February 1 to April 30) showed 83 aircraft sold, compared with 33 for the same period last year.

Also at EBACE, JetAlliance of Oberwaltersdorf,

**EXECUTIVE BOEING 787 CABINS PIQUE DESIGNERS’ INTEREST**

With demand building, executive interior proposals for the Boeing 787 are already appearing, with a dramatic mix of fact and fantasy. “At this point they are only concepts,” said one designer, “but concepts have a way of becoming reality.”

One of the most recent conceptual unveilings was at the Aircraft Interiors Expo 2007 show in Hamburg, Germany, in April. BMW Group DesignworksUSA of Newbury Park, Calif., unveiled a cutaway of an executive 787 interior that it created for a fictitious Russian client in his mid-30s, a global traveler who would be spending a significant amount of time in the air.

Discussing the ideas generated and built into the proposed cabin, the DesignworksUSA team imagined guests who would enjoy a cocktail while admiring luxury vehicles stowed in the cargo bay through a transparent floor. After an evening meal in the dining area, the owner and guests would retire to the upper theater lounge complete with waterfall floors and walls.

The interior by DesignworksUSA is one of three Boeing-commissioned interiors unveiled to date. The other two came from Teague and Lancaster Design, both of Seattle. Another came from Jet Aviation of Basel, Switzerland, and another from German independent completion specialist Lufthansa Technik.

To date, Boeing Business Jets’ order book for executive versions of the Dreamliner is approaching 10 aircraft.

Swiss-based charter and aircraft management giant PrivatAir was the first to order an executive 787. Delivery of the airplane is scheduled for 2012, and independent completion centers are bidding fiercely to win contracts.

**BOEING SPARES NO EXPENSE IN DESIGN OF EXECUTIVE 747-8**

As bizliners get bigger, the interiors get ever more dramatic, and Boeing Business Jets designers recently unveiled a luxurious interior for the Boeing 747-8 conceived by the company’s design department.

The company revealed the concept renderings at last month’s European Business Aviation Convention & Exhibition in Geneva. In the company’s vision, the executive version of the airplane will include such features as spiral staircases, vaulted ceilings and a “wall-size” video screen.

"With more than 5,000 square feet of cabin space, the new 747-8 epitomizes incomparable luxury and operational flexibility," said Boeing Business Jets president Steven Hill, noting that the aircraft is a proven design “with the operational flexibility to fly into most airports throughout the world.”

The 747-8 is a derivative improvement on the company’s successful 747-400 airliner, but with a stretched “SkyLoft” upper deck that provides 881 sq ft of floor space, in addition to the 4,786-sq-ft main cabin.

The executive version is expected to carry 100 passengers; in such a configuration, it would have a range of more than 9,000 nm. Boeing Business Jets claims that the airplane—with a max cruise speed of Mach 0.86—is the fastest business jet in the large-cabin class. The commercial list price for a 747-8 starts at about $272.5 million.

Boeing has already sold four of the airborne manor houses, and the first is expected to enter service in about 2011, about a year after the first airline versions go into service.

There are 22 smaller executive versions of the 747 in service today, and according to Boeing, the 747-8 will require the same pilot type ratings, services and most of the same ground-support equipment.

Like those smaller private 747s currently flying, the executive 747-8 will include an air-stair system modification. And as it has with other widebody bizliners, Boeing will deliver the aircraft green to independent completion centers to do the interior finish work.
Austria, ordered 25 more Cessna Citations valued at $280 million. The company already has orders for 22 Citations due for delivery this year and 25 more next year. Gulfstream launched its EBACE presence by announcing a contract for 20 G450s from National Air Services of Saudi Arabia, which placed a firm order for three and took options on 17 more. The agreement is potentially worth more than $650 million if all the options are exercised. It calls for deliveries to begin in the third quarter of 2009 and continue into 2014. In terms of growth, the Savannah, Ga.-based OEM saw total production increase from 89 aircraft in 2005 to 113 last year to an anticipated 139 this year.

HOT USED MARKET ADDS TO REFURBISHMENT CRUNCH

With OEM production slots for new business aircraft sold out well beyond 2010, and in some cases far out as 2015, the rush is on for used airplanes as well. A year ago buyers were already “cherry picking” among the low-time and most desirable used jets—Falcon 900s, Global Expresses, Gulfstreams. Now the market is even tighter. The used business jet inventory in June last year was 1,723 aircraft. Last month that number was 1,643.

What’s more, said one broker, “I’d swear there are people putting their airplanes on the market for absurd prices, just to see if anyone is willing to pay that much.” By “that much,” he is talking about asking prices of as much as $55 million for a used Gulfstream G550, “which is a tidy profit for an airplane that originally cost maybe $43 million.” In fact, it is about $9 million more than the current list price for a G550.

While long lead times in new business jet deliveries are in part driving the market for used aircraft as interim transport, other factors include the relatively reasonable cost of borrowing money and market confidence in the residual value of used aircraft.

“You get a sense of what’s happening when the escrow companies are not as quick to call you back as they were,” said Bryan Comstock, president of Long Beach, Calif.-based broker Jeteffect.

According to Comstock, “It’s a seller’s market.” Virtually the entire inventory of Gulfstream G450s has dried up at about $57.5 million each, Global Expresses and Gulfstream G550s “are selling in a heartbeat, and dried up at about $37.5 million each, Global Expresses eventually the entire inventory of Gulfstream G450s has gone up, and the going price is being tested with ket as “volatile,” he explained that this would suggest confidence in the residual value of used aircraft.

The so-called “smart window” isn’t really smart, but it may well be a useful alternative to the current systems of manually and electrically operated shades and might eventually eliminate the need for window shades in aircraft cabins.

With the touch of a button, the smart window goes from clear to opaque and back, allowing passengers to select everything in between.

The technology is not new, but after about half a decade of development, it is available for commercial use. Two aircraft manufacturers, each of which selected a different system, are offering the technology.

Hawker Beechcraft recently picked the SPD (suspended particle device) window as a retrofit item on its line of King Air twin turboprops. The manufacturer is also considering making the window available as a standard option on new King Airs, as well as its Premier IA and Hawker.

The SPD SmartGlass window is the result of some six years of research and development by Research Frontiers of Woodbury, N.Y., and a two-year joint development project with manufacturer/distributor InspecTech Aero Service of Fort Lauderdale, Fla.

The system has no moving parts. blocks more than 99.9 percent of harmful ultraviolet radiation, has no known limit to its life expectancy and it weighs less than an electrically operated window shade but comes at the same price. These features, said Randy Groom, Hawker Beechcraft president of global customer service and support, were sufficient to induce the company to offer a five-year warranty on the windows.

According to InspecTech president Jim Lang, “We recently did a project in which we replaced a set of pleated-shade, manually operated aircraft windows at a cost of several hundred dollars less per window than it would have cost to replace them with new pleated shades.”

InspecTech’s product comes in two variants—the e-Shade and the i-Shade. The former offers adjustments from clear and opaque and any point in between and blocks 99.5 percent of incoming light. The latter has a simple on/off button and at its opaque setting blocks 100 percent of incoming light.

The SPD technology is relatively simple. Millions of black particles are suspended in a liquid sandwiched between two layers of polycarbonate. By nature, the particles remain in a random pattern, blocking light from passing through the window. When an electric current is introduced into a conductive coating on the acrylic polycarbonate, the particles align and allow light to pass. How much light passes through—typically in the 55-percent range, about the same as the amount of light passing through the windows of a large office building—depends on the voltage applied.

To relieve health concerns related to the proximity of the light electric current used, InspecTech employed the Gauss/Tesla test to detect electromagnetic field emissions from the SPD window. “The result was less than one micro-Tesla at the electrical source, and the electromagnetic emissions at the window itself didn’t even register on the meter,” the company said.

InspecTech is looking into additional uses for SPD technology, and Lang said he has already had a request for an SPD cabin divider.

Applications in Commercial Aviation

Meanwhile, Boeing has signed a contract with InspecTech competitor PPG Aerospace of Huntsville, Ala., to install PPG’s electrochromic smart windows in the cabin of the company’s new 787 airliner.

The technology was developed by Gentex of Zeeland, Mich., and, according to PPG Aerospace v-p David Morris, it will be the first commercial aviation application for electrochromic window technology.

Gentex may be best known for its development, using a similar process, of dimmable rear-view mirrors designed to reduce the glare from the headlights of automobiles approaching from the rear. The PPG-Gentex relationship, according to Morris, allows the two companies to create and commercialize the new technology more quickly than either could manage alone. PPG expects to begin shipments of production units to Boeing for installation later this year.

The Gentex technology is similar to that of Research Frontiers, but only in that the “active ingredient” is sandwiched between two pieces of glass that are coated on the inside with an electrical conductor. Where it differs is that the Gentex “sandwich” contains an organic di-electric gel through which the electrical current is passed, causing the gel to darken. In the Boeing 787 windows, passengers can adjust the level of clarity to five levels.

With no electric current, the window allows the passage of approximately 60 percent of outside light. When the maximum electric current is applied, the window allows 0.1 percent of light to pass.

The glass-construction PPG smart windows are heavier than the SPD windows, but a spokesman said the company is developing a means to apply the conducting coat to polycarbonate as well as glass.

According to Mark Cancilla, global director of commercial transparencies, “By our measurements, the electrochromic windows block 100 percent of ultraviolet rays.”

The contract with Boeing will include assistance in obtaining parts manufacturing approval from the FAA. “We intend to take this same technology to all the airframe manufacturers,” said Cancilla, “and we’re talking to almost all of them already.”

He added that PPG has begun developing an electrochromic cabin divider and expects to deliver the first to an unidentified airline next year.
TEAM BRÖKELMANN CREATES ELITE DESIGN

Lufthansa Technik’s introduction of the first executive cabin for the new Airbus A318 Elite at the European Business Aviation Convention & Exhibition in May also served as the introduction of Alexandra Brökelmann, a rising star in the Hamburg-based company’s newly created design center.

The 33-year-old aircraft interior designer led the team and was responsible for that first A318 Elite cabin. Described by Lufthansa completion center CEO Claus Bauer as “brilliant,” she blushed and immediately gave credit to the team assembled to create the cabin for European charter operator and aircraft launch customer Comlux. That team consists of engineers Chi Truong and Martin Wolff; technical artist Martina Kaiser; material support specialist Bright Joost and Comlux liaison Isabelle Bevillaqua. Brökelmann started work on the project immediately after Airbus introduced the A318 Elite program in the fall of 2005. The airplane, a shorter version of the Airbus A330, was announced with a price tag of $47 million, typically equipped, about $12 million less than the ACJ. The project presented a unique challenge, a departure from the usual one-off, highly individualized interior. It would be the first “standardized” cabin in an airplane intended for a niche market.

The first airplane was sent to Lufthansa Technik for cabin completion design and finish work late last year, and the center is now expanding to two interior installation lines capable of delivering six Elites a year.

**Maximum Comfort, Minimal Design**

Brökelmann describes the airplane’s final design as “minimalist,” a term that when applied to art means stripped to its bare essentials. Passengers, on the other hand, are hardly likely to describe it in such terms.

The galley, usually featured so prominently on a business jet, is neatly enclosed, creating instead a softly lighted foyer. A privacy curtain divides the foyer from the center executive lounge, in which wide, offset aisles enhance the feeling of spaciousness.

Aware that many passengers would be comparing the cabin with those of other business aircraft, the team wanted a look of luxury throughout the cabin. At the same time, durability and ease of maintenance were equally important.

One solution, said Brökelmann, was to use an outside vendor to do a photo-film dip process to cover the cabinetry, rather than use heavier and more easily damaged wood veneer. The team went so far as to build identical sample cabinetry structures out of wood veneer and photo-film coating and challenged customers to identify them. The result was so successful, she noted, that Lufthansa Technik has since built its own photo-film application shop.

The center section of the Comlux airplane doubles as a lounge and work space but converts easily for use as a dining area. There are three side-facing divans, two double-club seating arrangements and one quad-club seating area. And while there is a forward galley, a cabinet is conveniently located near the center of the lounge for self-serve drinks and snacks.

The team’s design resulted in an airplane cabin that came in more than 800 pounds under the interior allowance goal and contributed to a completion cycle goal of just four months (from roll-in to roll-out).

While all A318 Elites will have a common baseline cabin, a modular approach and choices in colors, fabrics and cabinetry finish allow for considerable individualization, said Brökelmann.

“When you are in the business of providing comfort and space to a discerning clientele, you want the best,” said Comlux CEO Ettore Rodaro, “and that is what we have with the Airbus A318 Elite.”

Brökelmann described the Comlux airplane as “my first baby.” Certainly, it was some time in gestation. She did not set out to pursue a career in interior design. Instead, she studied economics. When that lost its allure, she enrolled in the University of Applied Sciences in Düsseldorf. Immediately after the public defense of her final thesis, she was offered a job at an architectural firm where she spent the next two years.

When Munich-based Reiner Heim Design offered her a job, she took it and discovered that the owner had “a passion” for aircraft interior design. While there, she spent about 18 months on the interior design for a 747 Lufthansa Technik was completing. No sooner was it finished than she was offered a job by Lufthansa Technik.

“They hired me as an interior design specialist,” said Brökelmann. “More important, they trusted me.”
Dubai Aircraft Interiors Show Gets Official Backing

His Highness Sheikh Ahmed bin Saeed Al Maktoum, president of the Dubai Department of Civil Aviation, has lent his patronage to the recently launched Aircraft Interiors Middle East business-to-business exhibition scheduled for June 16-17 next year in Dubai. Organized by Fairs & Exhibitions and held for the first time in May this year, the show welcomes airline and executive interiors specialists and vendors, as well as business aviation caterers. There will also be a hosted buyer program. For additional information, contact Barbara Saunders: +971-4-390-2960, e-mail Barbara.s@actionprgroup.com, or visit www.aime.aero.

Midcoast Offers Clean Air Option on Globals

Midcoast Aviation, a Bombardier-approved completion center for the Canadian company’s Global XRS and Global 5000, is offering for both aircraft the JetAir bio-protection system from Air Data.

“Everyone who flies has a personal stake in cabin air quality,” said Midcoast v-p of completions and modifications Roger Renaud. The JetAir solution is based on patented cold plasma ionic interaction technology currently in use on the International Space Station.

Jet Aviation’s Big New Hangar To Hold the Biggest

Jet Aviation was expecting to break ground this summer for a $28.503 million hangar that redefines “large.” The 377,000-sq-ft facility will be large enough to simultaneously house an Airbus

Continues on page 35

Greenpoint Technologies Ramps Up To Roll Out BBJs

Greenpoint Technologies, a Boeing-only completion center, is ramping up in anticipation of continued demand for Boeing executive aircraft of all models. An additional 20,000 sq ft of engineering and technical office space is under construction, and the company is already hiring 50 engineers and technical people.

Greenpoint has also recently opened an engineering and development test laboratory that will allow the company to perform materials and structural researching. Already in development at the Kirkland, Wash. center are concepts for utilization of the Boeing 747-8 “SkyLoft” area in the executive version of the big widebody. The SkyLoft between the vertical stabilizer and the upper deck is considered valuable space for such uses as crew rest and a children’s playroom.

In April, Montreal-based Air Data announced the results of avian flu testing on the JetAir system. The tests were conducted by Air Data partner AirInSpace through the Laboratoire de Virologie et Pathogénologie Virale in Lyon, France, and the result showed “a complete reduction from a high concentration of virus at its inlet to an undetectable level exiting the unit.” In other tests, the bio-protection system was 99.99-percent effective against bio-contaminants such as the Corona virus, Serratia marcescens, Staphylococcus aureus (anthrax surrogate) and others. It also “significantly” reduces cabin ozone levels.

Air Data’s bio-protection system, shown at the Aircraft Interiors Expo 2007 in Hamburg, Germany, has proved effective against avian flu.
Continued from page 30

In terms of cabin technology, the promise has always been a seamless transition from the home or office to the business jet, with the availability of Wi-Fi and high-speed Internet connections, e-mail access on your Blackberry, in-flight use of your cellphone, a couple of hundred channels of satellite-direct in-flight television on a big, high-definition screen, a multiple-disc DVD/CD player and, best of all, a cabin-management system to tie all these elements together in a neat, user-friendly package in the form of a single, wireless remote.

‘That’s what we’re talking about. But it’s a little bit like the “tomorrow” that never comes. It’s always just around the corner. No matter how good it gets, there’s always something coming that’s a little better–faster, brighter, more reliable, more easily maintained, less expensive or just plain prettier.’

Wireless Internet access, long available in coffee shops and FBOs, will soon be available in the aircraft cabin. Thane ’n’ Thane’s new Aero-SB+, introduced at EBACE this spring, delivers built-in Wi-Fi and voice over Internet protocol (VoIP) connectivity. Combined with SwiftBroadband, Aero-SB+ is expected to provide speeds of up to 432 kbps and comes with four channels for global voice, one flight-deck datalink and up to two data channels. The Danish communication specialist also claims the service will dramatically lower the cost of in-flight telecommunications.

Last month, Rockwell Collins and Arinc signed an agreement for the reintroduction of Rockwell Collins eXchange broadband connectivity, featuring Arinc’s SkyLink network service. Under terms of the agreement, Rockwell Collins will supply airborne broadband hardware and after-sales support, while Arinc SkyLink will provide the Ku-band satellite service. The eXchange package provides broadband speeds of up to 3.5 Mbps to the aircraft. Coupled with SkyLink satellite service, eXchange customers will have access to the Internet and corporate intranet e-mail, a flat-rate VoIP global telephone service and video-conferencing. Rockwell Collins hopes to have the package available this fall.

Rosen Aviation of Eugene, Ore., has taken the core map capability of its RosenView moving-map display and combined it with a stand-alone DVD player to create the RosenViewVX. The new package, including amplifier and internal switching, is the size of the DVD player and weighs just 3.5 pounds. Among other features, it offers auxiliary audio input for XM radio interface, allowing the user to listen to music while viewing the moving-map display. The RosenViewVX, said Jeff Unger, v-p of engineering, is priced at less than $10,000 and was designed with the very-light and light-jet market in mind. The new unit will be in full production by the middle of this month. Rosen is also developing a new 24-inch LCD monitor to replace its current model. The new monitor is high-definition capable and will accept input from the new high-definition Blu-ray or HD-DVD players. It also has an RGB computer monitor input feature. Target availability is late this month. The retail cost is expected to be $16,875.

Moving toward an April 2008 certification date for its multi-role Grob 520 light jet, Grob Aerospace has selected Honeywell’s Ovation C Series cabin management system for the $7.8 million aircraft. The Ovation C will allow for the optional integration of DVD/CD players, XM satellite radio, MP3 interface, LCD monitors and Honeywell’s JetMap II moving-map display. Customers will also have the option of a 10.4-inch bulkhead-mounted master cabin monitor or individual 8.4-inch “hot-plug” monitors for each passenger with individual control panels with headphone jacks.

Continues on page 34

CABINET TECHNOLOGY: PROMISE OF TOMORROW, TODAY

In terms of cabin technology, the promise has always been a seamless transition from the home or office to the business jet, with the availability of Wi-Fi and high-speed Internet connections, e-mail access on your Blackberry, in-flight use of your cellphone, a couple of hundred channels of satellite-direct in-flight television on a big, high-definition screen, a multiple-disc DVD/CD player and, best of all, a cabin-management system to tie all these elements together in a neat, user-friendly package in the form of a single, wireless remote.

‘That’s what we’re talking about. But it’s a little bit like the “tomorrow” that never comes. It’s always just around the corner. No matter how good it gets, there’s always something coming that’s a little better–faster, brighter, more reliable, more easily maintained, less expensive or just plain prettier.’

Wireless Internet access, long available in coffee shops and FBOs, will soon be available in the aircraft cabin. Thane ’n’ Thane’s new Aero-SB+, introduced at EBACE this spring, delivers built-in Wi-Fi and voice over Internet protocol (VoIP) connectivity. Combined with SwiftBroadband, Aero-SB+ is expected to provide speeds of up to 432 kbps and comes with four channels for global voice, one flight-deck datalink and up to two data channels. The Danish communication specialist also claims the service will dramatically lower the cost of in-flight telecommunications.

Last month, Rockwell Collins and Arinc signed an agreement for the reintroduction of Rockwell Collins eXchange broadband connectivity, featuring Arinc’s SkyLink network service. Under terms of the agreement, Rockwell Collins will supply airborne broadband hardware and after-sales support, while Arinc SkyLink will provide the Ku-band satellite service. The eXchange package provides broadband speeds of up to 3.5 Mbps to the aircraft. Coupled with SkyLink satellite service, eXchange customers will have access to the Internet and corporate intranet e-mail, a flat-rate VoIP global telephone service and video-conferencing. Rockwell Collins hopes to have the package available this fall.

Rosen Aviation of Eugene, Ore., has taken the core map capability of its RosenView moving-map display and combined it with a stand-alone DVD player to create the RosenViewVX. The new package, including amplifier and internal switching, is the size of the DVD player and weighs just 3.5 pounds. Among other features, it offers auxiliary audio input for XM radio interface, allowing the user to listen to music while viewing the moving-map display. The RosenViewVX, said Jeff Unger, v-p of engineering, is priced at less than $10,000 and was designed with the very-light and light-jet market in mind. The new unit will be in full production by the middle of this month. Rosen is also developing a new 24-inch LCD monitor to replace its current model. The new monitor is high-definition capable and will accept input from the new high-definition Blu-ray or HD-DVD players. It also has an RGB computer monitor input feature. Target availability is late this month. The retail cost is expected to be $16,875.

Moving toward an April 2008 certification date for its multi-role Grob 520 light jet, Grob Aerospace has selected Honeywell’s Ovation C Series cabin management system for the $7.8 million aircraft. The Ovation C will allow for the optional integration of DVD/CD players, XM satellite radio, MP3 interface, LCD monitors and Honeywell’s JetMap II moving-map display. Customers will also have the option of a 10.4-inch bulkhead-mounted master cabin monitor or individual 8.4-inch “hot-plug” monitors for each passenger with individual control panels with headphone jacks.

Continues on page 34

NOT YOUR TYPICAL ‘RUNWAY’ MODEL

The “dress” is by Gianni Versace, but this model weighs a less-than-svelte 137,790 pounds, and the only runway you’ll see her on is about 6,000 feet long.

The “model” is an Airbus A319CJ (ACJ) executive jet, the first to get the haute couture treatment from the Italian design house, in partnership with global aviation services specialist TAG Group of Switzerland.

The Versace/TAG alliance was formed in April last year and formally announced three months later at the Farnborough Air Show.

In May this year, at the European Business Aviation Convention & Exhibition (EBACE), TAG Group introduced its new aircraft interiors division, and in a joint press conference with Versace announced that it had signed to do its first project, the interior of an ACJ for a European private owner.

The airplane will be delivered green to an unidenti- fied independent completion center this year and is expected to enter service late next year. Based on early design specs, it will seat 16 in a four-compartment configuration that will include a galley, salon and an office/stateroom with private lavatory. Each executive seat will be embossed with the Versace emblem.

According to Roberto Selva, director of Versace’s home collection division, the cabin will be distinctly Versace but customized to meet the customer’s desires. “We are extending the Versace lifestyle into an aircraft cabin and have a team dedicated to this project.”

TAG Aircraft Interiors managing director Bijan Khezai concluded, “Versace is composing the music, and TAG will be directing the symphony.”

He added that this ACJ interior is the start of what both companies expect to be a “long and productive alliance.”

A Global Express XRS cabin rendering bears the Gianni Versace imprint as part of a design research project that preceded the ACJ contract.

Continues on page 34

REGIONAL LINERS GETTING EXECUTIVE FACELIFTS

One of the more unconventional boosts to the refur- bishment side of the business has been the recent run on regional airliners for conversion to executive and corporate shuttle configuration. The Canadair CRJ200, a 50-passenger twinjet, is particularly popular. As of last month, Midcoast Aviation had done four CRJ200 refurbishments, an impressive and formalized three months later at the Farnborough Air Show.

As of last month, Midcoast Aviation had done four Canadair CRJ200 conversions and was expecting more. At Flying Colours in Peterborough, Ontario, the finishing touches are now being put on an executive CRJ200 for an Indian customer and, added director of sales and marketing Sean Gillespie, “We’re finalizing contracts on a bunch more.”

PATS in Wilmington, Del., might be the biggest ben- eficiary of the run on CRJ200s. The DeCrane Aerospace company has just signed a contract to do five in executive configuration for “a major U.S.-based company” and is in discussions with four other customers, each of whom wants one.

“If you’re looking for a large-cabin aircraft and don’t..."
need the 6,000-nm range of a Global or Gulfstream and aren't going to pile a lot of weight into the interior, it's a great choice," said Mark Anderson, director of sales at PATS. Another advantage, he added, is that there are a lot of pilots who are type-rated in the CRJ200.

Sources in the industry say a used CRJ200 will cost in the $7 million to $9 million range. Add to that another $3 million for the interior and about $1.3 million or so for auxiliary fuel tanks to bring the range up to about 3,000 nm, "and you've got a pretty nifty airplane for about half the cost of a new Challenger 850 and about a third the cost of a Global or Gulfstream G550."

In the European market, BAE Systems is marketing executive versions of its BAE 146 and Avro RJ, which in regional airline configuration carry 70 and 100 passengers, respectively.

"It's a niche product," said a BAE Systems spokesman in Prestwick, Scotland. "It's not the fastest airplane (about 400 knots), nor does it have the longest legs [1,500 nm], but it has extremely good short-field and hot-and-high performance characteristics and it's the largest jet certified for operations at London City Airport. For the money, it's a considerable piece of real estate into which you can put some very nice options."

A used BAE 146 regional airliner sells for about $2.5 million. An executive interior would run another $3 million or so, although some might overrun that figure somewhat. Amini Flight of Abu Dhabi in the United Arab Emirates recently put about $6 million into an executive version of the RJ70 variant completed by Jet Aviation in Basel, Switzerland.

Oberpfaffenhofen, Germany-based 328 Support Services sees a bright future for the Fairchild Dornier 328 jet in its Envoy guise as a corporate shuttle and as a private executive transport. The company recently delivered a third executive version to Mikado Capital in late May, and the 14-passenger twinjet has already been sold. Two executive 328s delivered earlier to Mikado are now in service with its Icelandic charter operator and subsidiary, IceAir of Reykjavik, Iceland. "We're getting an increasing number of requests for the 328jet in an executive role, especially when fitted with long-range tanks," said 328 Support Services CEO Dave Jackson. "We're currently responding to requests for interior conversions from a number of new customers for up to 10 more aircraft."

Also in that niche market between the larger ACJs and BBJ bizliners and the smaller large-cabin Globals and Gulfstream is Bombardier's Challenger 850. The Canadian OEM has contracted with Lufthansa Technik in Europe and Miccoast Aviation in the U.S. to do the interior completion work on the standard-cabin 850 line.

The A318 Elite is priced at about $47 million, the Lineage 1000 at about $40.95 million and the Challenger 850 at $25.5 million. All prices are for a finished airplane with typically equipped standard cabin.

NEW NICHE-MARKET BUSINESS JETS GAINING FAVOR

Niche-market business jets at more reasonable prices have found much favor in the past couple of years, and they are providing more than a little work for independent completion centers.

One of the best known is the A318 Elite from Airbus. The first, configured for 18 passengers, was delivered this year by Lufthansa Technik to Comlux. A second Comlux Elite is scheduled for delivery this year and three more are on order. At EBACE, Airbus announced a firm order for five more Elites, and an optional sixth airplane, from U.S. launch customer Petters Group Worldwide.

Lufthansa Technik has taken in its second A318 and a third is due into the Hamburg completion center next year. The company plans to expand its A318 completion process to two interior assembly lines capable of turning out six aircraft a year. In the U.S., Associated Air Center and Gore Design Completions have received Airbus approval for A318 interior completions.

Embraer last year announced the launch of the executive Lineage 1000, based on its E190 one-hundred-passenger airliner. The order book is approaching 10 aircraft, and PATS expects to begin work on the first interior next month. To date, PATS has the exclusive contract for Lineage interiors. The twinjets will be flown green to the facility in Wilmington, Del., for installation of the interior, then returned to Brazil for exterior paint and installation of auxiliary fuel tanks.

THE OEMs ARE BUSIER THAN EVER

Few OEM completion centers are working harder than Bombardier to keep up with the delivery schedule. "We're extremely busy now," said Eric Martel,
A380 and a Boeing 787-8, as well as a number of midsize business jets. The project includes space for additional back shops and a two-story office structure to accommodate engineering and interior design departments, administrative staff and additional customer offices. When the facility opens next spring, Jet Aviation plans to move its bizliner completions business there and shift use of its existing eight hangars to support its maintenance business and interior completions for select aircraft from Dassault Falcon.

AeroQuest Intros ‘AeroStone’
Hard-as-Rock Surface Material

What’s as hard as stone, looks like stone, has a deep gloss finish, but weighs only about a pound per square foot—50 to 60 percent lighter than existing countertop materials? It’s AeroStone, a new patent-pending solid-surface material from AeroQuest of Lawrenceville, Ga., introduced in April at Aircraft Interiors Expo 2007 in Hamburg, Germany. According to the company, the material can be molded easily to create integral seamless features from bullnoses and splash panels to sink bowls, and the finish can be created to match customer samples.

Take a Seat and Make Yourself Comfortable

Helitowcart has a new way to make helicopter passengers more comfortable. The Canadian company calls it the HeliCushion kit, and it is designed for “instant refurbishing” of Eurocopter AS 350 and AS 355 seats. The “ready-to-go” kit consists of molded foam buildup and cover and is designed to slide into place in seconds and fit all seating positions. Included in the foam buildup is a special layer of viscoelastic, better known as “memory foam” that is pressure and temperature sensitive and molds itself to the human form without pushing back to create uncomfortable pressure points. It also provides superior impact protection. A HeliCushion kit good for six seats is priced at $2,743.

The Bizliner That Never Was—the Envoy 7

On display at the Lufthansa Technik booth at the Aircraft Interiors Expo 2007 in Hamburg, Germany, in April was this interior mockup model of an Envoy 7 (right), the executive version of the Fairchild Dornier 728 twinjet regional airliner. Lufthansa Technik, in anticipation of demand, created a model of a cabin proposal. In the end, Fairchild Dornier went bankrupt in 2002 and the airplane never flew.

Shhhhh. Quiet Helicopter Cabin at Work

At Heli-Expo 2007 earlier this year, Sikorsky introduced an S-76D mockup with its new “Silencer VIP Interior” thermal/acoustic and quiet-mount package. According to a spokesman, the Silencer cabin reduces noise levels to about 81 dBA and weighs approximately 100 pounds less than the typical
general manager for Bombardier’s Challenger and Global lines.

Martel said that despite late deliveries last year, the completion process is “catching up very nicely.”

The Global 5000 cycle time is about 28 weeks, he said, and “heading down toward 24 weeks by the end of this year.” Introduced last year, the Global Express XRS has a cycle time of 34 weeks, longer than desired, but Martel said the company expects that to be down to 28 weeks by the end of the year. Martel said the company has a team working full time on how to reduce the Global cycle times even more.

To help move aircraft through the completion process, Bombardier has also contracted with independent completion specialists Midcoast Aviation and Savannah Air Center. Midcoast is doing both Global variants as well as the Challenger 605 and the Challenger 850. Savannah is providing completion work on both Global models, having delivered its first Global 5000 last October and its first Global XRS in May this year.

On the other side of Montreal’s Dorval Airport, Intech Aviation is gearing up to begin doing Global 5000s and Global XRSes by this fall.

Challenger 300 interiors are being built at a C&D Aerospace facility near the airport and taken as shipsets to the nearby Bombardier facilities for installation.

As for the 605, Bombardier has created a “lean line” approach, borrowing from Japanese auto manufacturer techniques. A U-shaped interior assembly line holds five different stations, and each airplane progresses clockwise through the line at the rate of about 10 days per station.

According to 605 program director Stephan LeBlanc, the first five Challengers are already moving through the completion line. “We’re committed at this point to cycle times of 26 to 30 weeks, but we expect over the next two years to get it down to 22 weeks (including paint, flight test and delivery).

CESSNA AVOIDS THE ‘ME TOO’ CABIN

At Cessna Aircraft in Wichita, the cabin completion process is more than ever one of “a fully equipped approach,” said Cindy Halsey, v-p of interior design engineering and development. “Most items are standard rather than optional [and] if we don’t have it, we’ve wired to install it. Even the entertainment package and the moving map are standard.”

The CJ4, said Halsey, will be the company’s first fully integrated cabin, from front to back, so the customer has more rather than less flexibility.

According to Halsey, Cessna saw this tremendous ramp-up long before it started and “we began preparing ourselves and our partners, thinking of the interior as part of the entire airplane’s lifecycle. We have designers involved at every step, from the earliest stage of planning an airplane.”

A major goal at Cessna in the coming years will be to identify and adapt to “disruptive technology.”

DASSAULT RAMPS UP FOR 7X INTERIORS IN LITTLE ROCK

 Summers in Arkansas are hot, and for Dassault Falcon’s Little Rock Completion Center, it’s going to get even hotter as the facility ramps up to meet burgeoning demand for the French airframer’s newly certified Falcon 7X while continuing to meet commitments for the Falcon 900DX, 900EX and Falcon 2000EX.

The completion center sprawls across some 75 acres at Little Rock National Airport on the city’s east side. Hangars and shops and other spaces total 700,000 sq ft where approximately 2,000 employees do cabin finish work on aircraft that are assembled in France and flown green to Little Rock. It is by far the largest Dassault facility, in the U.S. or France.

Much of the growth has come in the past several years, on the heels of Dassault’s decision to do all Falcon 7X interiors in Little Rock. In fact, four hangars totaling 99,000 sq ft are set aside solely for 7X completions.

Considering the current demand and expectations of future sales, the expansion appears to have been a smart decision. Dassault Falcon president and CEO John Rosanvallon paints a rosy picture of the company’s future. In a recent interview, he noted that in 2003, while the industry was in a recession, Dassault sold 40 airplanes. Last year, as the economic recovery gathered momentum, that number jumped to 158. And in the next 12 to 18 months, Rosanvallon added, the company anticipates selling a total of 120 aircraft. That is no small number, considering that 23 of the aircraft sold last year are going to fractional operator NetJets.

As of mid-June, the Little Rock facility had accepted its seven 7X and was expecting to deliver 15 aircraft by year-end. Once the completion process matures, said Robert Smith, senior v-p of operations at Little Rock, Dassault expects to be able to deliver 20 airplanes a month, including Falcon 900EXs, 900DXs and Falcon 2000EXs.

Dassault is forecasting that the Little Rock Center will deliver 61 aircraft this year and more than 80 next year. The manufacturer also has an agreement with Jet Aviation in Basel, Switzerland, as a subcontractor to handle interior completions of about 20 Falcons a year.

EDELMANN TAKES SHEARLING TO THE BACK OF THE AIRPLANE

“We pamper the pilots, why not the passengers?” said John Edelman, president of Edelman Leather, when asked why the company was introducing an executive seat with a shearing panel.

The New Milford, Conn. company formally introduced the seat at the European Business Aviation Convention & Exhibition in Geneva this spring.

Edelman said for years people have asked why sheepskin seems to be the overwhelming choice for the pilot’s seats, and the answer is always “because it’s so comfortable.” And it is, for two reasons. First, the natural fibers have “memory” and quickly return to their normal state after being pressed down. And second, sheepskin will keep the user cool in a warm environment, and warm when it’s cool.

“And so we thought, if we’re going to spoil the pilot, doesn’t the passenger deserve at least as good?” explained Edelman.

But Edelman made a few adjustments. Rather than sheepskin, the company opted for shearing, which is sheepskin that has been “sheared” to obtain a uniform depth of fiber for a more tailored look and feel. The company uses only skins from younger sheep, which make for a softer, stronger product. And to ensure that the shearing panel will complement the leather, Edelman offers it in nine colors, from lime green to dark brown.

As for cleaning, Edelman recommends frequent vacuuming and an occasional shampoo cleaning.

The cost of the shearing-panel seat is about the same as for an all-leather seat.

The seat on display in Geneva drew considerable attention, said Edelman, but he conceded that the jury is still out as to whether the market will accept it. On the other hand, he said, “We have already sold a set of seats with the shearing panel to a Falcon 900 owner.”

Also at the EBACE exhibit was a new “quilted” leather seat. The idea, Edelman admitted, came from a similar seat offered by luxury automobile manufacturer Rolls-Royce. “We stitched the leather to a foam backing, and the result is a slightly softer, more comfortable sensation.”

Edelman admits that such expansions of the design envelope are not for everyone. On the other hand, he added, “Our job, as we see it, is not merely to give people what they want, but to inspire them to something better.”
Disruptive technology, explained Halsey, is technology that changes the entire game—for example, when automobile manufacturer Lexus focused on eliminating the need for transmission-fluid changes, while other manufacturers were continuing simply to make them easier.

After listening to customers who had just gotten out of their new Lexus or similar upscale automobile ask why they couldn’t get the same kind of comfort and convenience in their new airplane, Halsey and her team took a close look at what the automotive industry was doing right and adapted it to their own use. “We have a new generation of first-time owners who are not inclined to accept ‘no’ for an answer. These people didn’t get where they are because they’re stupid. They’re technologically savvy, and we’ve discovered that simply doing it their way is far easier than doing it our way and then trying to convince them that it’s their way.”

Cessna is now developing what it is calling its “Large Cabin Concept” (LCC) jet, unveiled at last year’s NBAA Convention. It is a concept that began to move in 1995, and Cessna design and completions teams were involved from the beginning, “flirting with a wider cabin.”

Halsey said the airplane’s cabin will most definitely not be a “me too” area. The team wanted a cabin with its own personality. “We have a lot of tricks up our sleeves that we will unveil as we go forward that will differentiate it from the ‘me too’ cabin.”

One of the most important facets of the cabin is comfort, and a key element, if not the key element, is seats. “One of the metrics we were given is that people need to walk into this product, sit down in the chair and say, ‘Ah, they get it. They get it!’”

In doing the mockup, Cessna took to heart criticism from European customers who felt U.S. interior designs were too bland. European tastes are different, said Halsey, “they lean toward a more robust palette of colors, a richer environment—lime greens, bright rust—the same European couture we’re now seeing spill into the U.S. market.”

Halsey feels the design of the new LCC cabin has gone in the right direction. After looking at the mockup, said Halsey, “Two of the staunchest critics I have ever worked with said, ‘This is just fabulous…very chic. This is so not Cessna.’” Among the improvements in the LCC cabin are:

- a more spacious foyer type entrance at the cabin door;
- a large galley;
- larger windows more ergonomically placed;
- a new lavatory design with storage that doesn’t look like storage, and additional divider storage for small items.

Dassault Falcon is moving into a new era at its Little Rock, Ark. completion center. The ultimate goal is 120 aircraft completions a year, of which Jet Aviation in Basel, Switzerland, is expected to do about 20. New Falcon 7Xs are arriving at Little Rock and entering the completion process.

As of mid-May, the Little Rock facility was working on its seventh 7X and was expecting to deliver 10 aircraft by the end of the year. Once the entire completion process has matured, said Robert Smith, senior v-p of operations at Little Rock, Dassault expects to be capable of delivering 20 airplanes a month, including Falcon 900EXs, 900DXs and Falcon 2000EXs. (See Falcon completion ramp up story on facing page.)
ECLIPSE WORKS TO REDUCE CABIN COMPLETION TIME

After receiving both the type certificate and production certificate for its Eclipse 500 light jet, Albuquerque, N.M.-based Eclipse Aviation is working to catch up on promised delivery dates. “We’re behind, but we’re catching up fast,” said Matt Brown, director of product marketing. C&D Aerospace in California is building the interiors and shipping them in kit form (including carpet, sidewalls, panels, fittings, hardware, bracketry and trim) for installation by Eclipse. The seats come from Northstar Aerospace in Duluth, Minn.

According to Brown, “The install times have gone from three days to 55 hours, and the most recent was 30 hours.”

Until a couple of years ago Embraer could offer business aviation only the Legacy 600, an executive version of its EJ-135 regional airliner. Today, however, the Brazilian aircraft manufacturer has broadened its business jet offerings significantly. The first flight of the Phenom 100 very light jet is imminent, and the Phenom 300 light jet will fly next year. The order book for its Lineage 1000, an executive derivative of the E190 regional jet, is approaching 10 airplanes.

A 128,000-square-foot facility at Gaviao Peixoto will house the completion facility for the Phenom lines, and a new paint shop is to be completed by the end of the year.

The company expects to be able to install Phenom 100 interiors in a single day. Including modifications, said Brown, “we’re seeing a lot of European influence on interior designers. Said Halsey, “We were spec’ing more for large-cabin business jet interiors, and bizliner cabin specialist Associated Air Center are seeing more European buyers.”

“We’re seeing a lot of European influence on interior designers,” said Associated’s Bosque, agreeing with Cessna’s Smith. “We were up 14 percent over 2005, and based on the first quarter of this year we don’t foresee any change.”

Savannah Air Center, which does medium- and large-cabin business jet interiors, and bizliner cabin specialist Associated Air Center are seeing more European buyers.

“We’re seeing a lot of European influence on interior designers,” said Associated’s Bosque, agreeing with Cessna’s Smith. “We were up 14 percent over 2005, and based on the first quarter of this year we don’t foresee any change.”

Savannah Air Center, which does medium- and large-cabin business jet interiors, and bizliner cabin specialist Associated Air Center are seeing more European buyers.

“We’re seeing a lot of European influence on interior designers.”

“We're also working on systems to permit in-flight use of everything that goes into a Falcon interior, from individuals to Galley monuments. In the completion process for the 7X, as many as 15,000 computer models may be produced.

CatiaVirtual, said Paresh Buch, v-p of engineering, does not merely represent a computer-generated picture. “It is real Catia data using real engineering data.”

Even as PLM takes hold in the completion process at Little Rock, Dassault is keeping up with the latest technology and planning improvements.

“Customers want technology,” said Smith, “and you can count on [a demand for] satcom, high-speed Internet access, including wireless local area network [LAN] and the latest in entertainment products.”

“We’re also working on systems to permit in-flight use of personal cellphones and personal data accessories such as the BlackBerry,” he added.

“The best is yet to come,” said Rosanvallon, but he declined to provide many details about the company’s next airplane, noting only that the engineering team that had been engaged in getting the 7X to market “is now free for other things.”
“cocoon” type installation. An added benefit is the simplification of the scheduled maintenance process, allowing access points for inspections rather than removing the entire interior. It is currently available as standard only in the production S-76D.

A shower? In a helicopter? Why not?

The question isn’t so much why, as why not? And the answer to both questions is simple. It’s what the customer wanted. And so Heritage Aviation created a custom shower surround stall in its own composites shop, had a faux finish applied by a vendor and installed the finished package in the aft lavatory of an unidentified customer’s S-92. Water storage was a bit of a problem, solved by two specially designed, cross-fed clean-water tanks and two gray-water catch basins on each side of the aircraft. With crossed clean-water tanks and gray-water tanks on each side, the question of a changing lateral center of gravity was also solved. The total capacity of the clean-water tanks is 40 gallons.

Fokker Services Opens More ACJ and BBJ Completion Slots

Fokker Services Conversion & Completion Center, which officially opened its doors last October in The Netherlands, already has two projects under way. A Bombardier CRJ700, in for conversion to executive configuration in partnership with Mann Aviation Group (Engineering) of the UK, was scheduled for delivery last month, and an A319 ACJ is slated for delivery to the Stumpfl Group of Austria before the end of the year. Fokker is opening completion slots for 2008 and

Open since last fall, Fokker Services Conversion & Completion Center is at work on a green ACJ and a Bombardier CRJ700, above, for conversion to an executive configuration.

2009. The facility at Woensdrecht has five hangars and more than 170,000 sq ft of space, in addition to back shops.

Down the Aisle…

International Water-Guard Industries of Burnaby, British Columbia, has received a Top Performer Award from Gulfstream Aerospace as one of its suppliers of the year. The award recognizes IWG for its achievements as a sup-

«Continued from page 35
Barbara Cesar described activity at her shop as “as much as we can handle” and added, “we’re hiring.”

**FINDING GOOD PEOPLE AND KEEPING THEM**

While no one admits to being negatively affected by a building shortage of skilled technicians—upholsterers, design engineers, installers—everyone is hiring.

“We’re hiring,” said Zacharius in Savannah. “We’ve teamed with the state and are supporting the Quick Start program to move people into the airframe and powerplant pipeline. When you find good people, you hire them, and you do your best to keep them.”

In Europe, shops are also hiring. A Jet Aviation spokesman in Basel said the completion and refurbishment giant is “looking for 20 to 30 skilled technicians and craftsmen a month.” But he noted as well that “while there is a shortage of experienced engineers and licensed mechanics, it has not affected the company’s performance.”

At Lufthansa Technik, a spokesman said the German market to date has been an adequate source of good, skilled labor. Nonetheless, he added that the company would benefit if Airbus laid off some of its employees.

Also to be considered is the balance of capacity and human resources. “It’s easy to build a simple hangar in about nine months,” said Lufthansa Technik’s Heerdt. “But you can’t fill it with people so quickly.” And he pointed out that people are more than a resource; they are a responsibility, and when times are not so good, “We don’t have the luxury of simply saying, ‘We don’t have any more work for you; please go home.’”

The question is whether all this activity in the completion and refurbishment industry is an indicator of the future. Despite the demand for aircraft that promises to keep manufacturers busy well into the next decade, many completion and refurbishment facilities are taking a somewhat cautious approach when it comes to expanding facilities and hiring.

If there is an unflinchingly optimistic outlook, it comes from Dassault Falcon president and CEO John Rosanvallon. In a recent interview, he identified two long-term trends that will serve to limit the impact of a regional economic recession, such as that experienced by the U.S. from 2001 to 2004.

First, there is a broader geographical market spread. He noted that while Western Europe has become Dassault Falcon’s number-two market, there is also growth in Eastern Europe and Russia. He commented that the company was fortunate that when perestroika came in the old Soviet Union in 1991, there was no real competition in terms of business aviation. Now, nearly two decades later, amid an emerging oligarchy with a taste for private aircraft, Western business aircraft manufacturers are happy to fill the orders. In fact, he added, “two or three” of the recent orders for executive versions of Boeing’s 787 are from Russia.

He also pointed out that in 2005, for the first time, Dassault sales were divided about evenly between the U.S. and the rest of the world. Last year that percentage jumped to 40/60. The first four or five months of this year appear to confirm that trend, said Rosanvallon, and he added, “I am convinced that it is a long-term trend.”

Rosanvallon’s contention would appear to be backed up by Boeing Business Jet orders. According to a spokesman, “The BBJ order base four years ago was 35 percent U.S., and today that number is down to 29 percent.”

As further evidence of a greater market spread, virtually every aircraft manufacturer (Dassault among them) is identifying Asia as another emerging market. However, said Rosanvallon, the French manufacturer sees Asia in terms of “macro-markets,” such as Hong Kong and Macao. As for Asia as a whole, “It remains as yet an unfilled promise.”

The second factor that will serve as a buffer against another recession, or a recession in some other major region, said Rosanvallon, is a new customer profile made up primarily of successful mid-level businesses that are creating a new market for business aircraft.

There was a time when the only business jet orders from the Middle East came from members of the royal families, he pointed out. Now there is a growing market of second-tier businessmen who are buying business aircraft.

“All this does not make the market ‘recession-proof,’” warned Rosanvallon, but, he added, “it does make it more stable.”

---

Krand in Russia is doing major VIP refurbs on older Russian airliners.

Nonetheless, he added that the company would benefit if Airbus laid off some of its employees.

Also to be considered is the balance of capacity and human resources. “It’s easy to build a simple hangar in about nine months,” said Lufthansa Technik’s Heerdt. “But you can’t fill it with people so quickly.” And he pointed out that people are more than a resource; they are a responsibility, and when times are not so good, “We don’t have the luxury of simply saying, ‘We don’t have any more work for you, please go home.’”

The second factor that will serve as a buffer against another recession, or a recession in some other major region, said Rosanvallon, is a new customer profile made up primarily of successful mid-level businesses that are creating a new market for business aircraft.

There was a time when the only business jet orders from the Middle East came from members of the royal families, he pointed out. Now there is a growing market of second-tier businessmen who are buying business aircraft.

“All this does not make the market ‘recession-proof,’” warned Rosanvallon, but, he added, “it does make it more stable.”