## Arcraft interiors TERNA ERNATIONAL REVIEW OF AIRCRAFT INTERIOR DESIGN AND COMPLETION

ТЧРЕ

TEST NUMBER 07324-12

۲

SEPTEMBER2009

۲

EVENITC

### softmachine?

USING SOFTWARE RATHER THAN HARDWARE TO ASSESS THE SAFETY OF NEW SEAT DESIGNS PROMISES TO MAKE INNOVATION EASIER - OR SO THE THEORY GOES!

www.AircraftInteriorsInternational.com



the seat of innovation



۲

#### Design meets living space. RECARO Comfort Line 3610 for Qantas.



Winner of the "2009 Australian International Design Award of the Year".

۲

Keiper Recaro Group

۲

SAFETY OF NEW SEAT DESIGNS PROMISES TO MAKE

ISING SOFTWARE RATHER

THAN HARDWARE TO

ASSESS

NOVATION EASIER



ASSISTANT EDITOR Izzy Kington

ART EDITOR Anna Davie

ASSISTANT ART EDITOR Louise Adams

DESIGN Andy Bass, Andrew Locke,

Craig Marshall, Nicola Turner, Julie Welby, Ben White

PRODUCTION MANAGER Ian Donovan

**PRODUCTION TEAM** Joanna Coles, Lewis Hopkins, Carole Moyse, Emma Uwins

PROOFREADERS Frank Millard, Christine Velarde CONTRIBUTORS

Guy Bird, Klaus Brauer, Brendan Gallagher, James Wallace

#### CE0

Tony Robinson MANAGING DIRECTOR Graham Johnson ART DIRECTOR James Sutcliffe PUBLICATION MANAGER Simon Hughes Sally James CIRCULATION & SUBSCRIPTIONS MANAGER Suzie Matthews

#### published by UKIP Media & Events Ltd

Aircraft Interiors International Abinger House, Church Street, Dorking, Surrey RH4 1DF, UK Tel: +44 1306 743744 Email: aircraftinteriors@ukintpress.com



۲

Total Qualified Circulation: 13,296 (Average circulation January-June 2009)

#### Annual Subscriptions (5 copies) Worldwide Rate: £42/\$88

The views expressed in the articles and technical papers are those of the authors and are not endorsed by the publishers. While every care has been taken during production, the publisher does not accept any liability for errors that may have occurred.

Periodicals postage paid at Dover, NJ, 07801. US Mail Agent: Clevett Worldwide Mailers LLC, 7 Sherwood Ct, Randolph, NJ 07869 POSTMASTER: Send address changes to Aircraft Interiors International, 19 Route 10 East, Bldg 2 Unit 24, Succasunna, NJ 07876 USPS Periodicals Registered Number: 019–144

ISSN 1463-8932 Aircraft Interiors International September 2009. This publication is protected by copyright. ©2009

Printed by: Nuffield Press, 21 Nuffield Way, Ashville Trading Estate, Abingdon, Oxfordshire, 0X14 1RL, UK **Cover image**: Allan Sanders



#### upwardly**mobile**

'The only way is up' – not the recession, although the sooner we 'turn the corner' on that one, the better – instead I am referring to the cabin, or more specifically, the seating. In fact therein lies the problem, on long-haul economy flights at least. Most passengers would give their right arm to swap their seat for a bed several hours into a transoceanic trip – unfortunately passengers may well feel that they have indeed lost all use of one or other of their limbs in their attempts to find a comfortable sleeping position in the seats currently available, as they stretch, squeeze and squash their body parts in equal measure.

That's not to say that manufacturers, suppliers and airlines are not doing all they can to improve things – quite the opposite in fact – but memory foams and ultrathin structures that improve living space and overall comfort cannot disguise the fact that a seat does not make a bed, however comfortable it is as a seat. Of course to give passengers a bed, you need to provide them with a flat surface – but if the airlines stripped out seats to create the necessary space they'd go bust in the process, as there's no way price-sensitive consumers in economy would be prepared to make up for the loss of revenue caused by such a drastic reduction in seat inventory.

But there may yet be an answer – why not take advantage of unused vertical space in the cabin to provide tiered seating and sleeping structures that give passengers a seat for take-off and landing, but also a bed when they want to rest? Keeping with the body part theme, this idea (*see page 68 for more details*) seems to have grown 'legs' in recent months – it was interesting to note a number of established seating manufacturers using vertical space to deliver high-density business-class seat-bed solutions at the last Expo. Raising alternate seats using small platforms enables greater staggering, but what about the more radical 'bunk bed' style ideas proposed by those currently outside of the industry looking in?

Undoubtedly there are still many problems to be solved – how will such tall structures 'stand up' to the structural loads involved in current certification testing? Will the cabin feel too claustrophobic? How will passengers access second-tier accommodation? And what are the weight implications for such a fuel-price-sensitive industry?

As our report on virtual certification on page 58 suggests, at least those serious about taking these ideas further can take advantage of the latest computer modelling software to ensure far more accurate analysis before committing to production and ever-so-expensive, destructive testing.

In the mean time, long-haul passengers unable to sleep will just have to content themselves with the IFE system – some readers may notice a little 'extra' with this issue – *Airline Entertainment International* – a special supplement for our IFE readership. If you'd like to view a digital edition or sign up for next year's IFE supplement, simply visit www.AircraftInteriorsInternational.com for more details. Oh, and it's free, so it needn't cost you an arm and a leg....



Anthony James, editor

#### Valencia Indianapolis Dallas Korea China

۲

#### **Our Endless Vision.....**

Your Total Cabin Solution!



۲

Pristine Repair and Overhaul Services for Aircraft Interiors using FAA-PMA Parts ۲

#### ATL EWR JFK LAX MIA MCI SJU

۲



۲

#### 661 257.3000 www.regentaerospace.com

Seating • Galleys • Inserts • Cushions Covers • Carpet • IFE Inflatable's Windows • Lenses • ULDs Spare Part Distribution

Management Services Line Maintenance Engineering Services

#### regulars

011 news

The latest interiors news from around the globe

024 design briefs

Blue Sky's SleepSeat and Architecture and Vision's interior design for a 'rocket plane' destined for space tourism

028 fact file

۲

Etihad's fleet at a glance



۲



soft machine 058

Using software rather than hardware to assess the safety of new seat designs promises to make innovation easier – or so the theory goes! BERNARD FITZSIMONS, AIRCRAFT INTERIORS INTERNATIONAL



60

۲



۲



#### 032 hard sell

Etihad's award-winning Diamond (first) class now boasts individual suites and a luxurious changing room – but that's only half the story ANTHONY JAMES, AIRCRAFT INTERIORS INTERNATIONAL

#### 040 carte blanche?

Airlines are quickly catching on to the ancillary revenue streams to be made from à la carte fees for everything from checked baggage, food and IFE, but where should carriers seek to draw the line? BERNARD FITZSIMONS, AIRCRAFT INTERIORS INTERNATIONAL



#### 050 city slicker

British Airways' new all-business-class service between London City and New York JFK hopes to succeed where others have failed LIZ MOSCROP, AIRCRAFT INTERIORS INTERNATIONAL



# Celebrating Innovation

**For 20 years,** Telefonix<sup>®</sup> has been developing customized product solutions for its customers. From its inception, the company has designed cord reels and cable management solutions with a commitment to innovation, quality and reliability.

Today, Telefonix is a global engineering services and manufacturing company with broad experience in cabling, plastics and complex assemblies for the aviation industry. Partner with us for your future designs.





۲

More information | T: +1.847.244.4500 | www.telefonixinc.com © Copyright 2009. All Rights Reserved. Telefonix<sup>®</sup> and Telefonix<sup>®</sup> Logo are Registered Trademarks of Telefonix, Inc.

#### CONTENTS

۲



#### high rise 068

۲

Pie in the sky or inevitable long-haul product development conclusion? A new generation of tiered seating and sleeping schemes aim to turn headroom into bedroom BERNARD FITZSIMONS, AIRCRAFT INTERIORS INTERNATIONAL

#### future perfect 080

In-seat sensors, a powerful local area network, and a huge increase in connectivity bandwidth are at the heart of Thales's future cabin vision BRENDAN GALLAGHER, AIRCRAFT INTERIORS INTERNATIONAL



touchy**feely** 

futureperfect

#### touchy feely 090

Four aviation colour and trim experts share their thoughts on the latest soft furnishing trends, materials and technologies shaping cabin design ANTHONY JAMES, AIRCRAFT INTERIORS INTERNATIONAL



# Whatever your choice of interior, we'll fit in.

 $(\mathbf{0})$ 



Winner 2008 Greener Cabin, Health & Safety

( )

AWARD

SafTGIo is the world's leading photoluminescent emergency floorpath marking system and, as such,

boasts many outstanding features. Not least of these is that, when the lights are on, it won't stand out from your interior décor.

SafTGlo ColorMatch is the most reliable and discreet floorpath marking system available and it can be tailored to match perfectly with the décor of even the most luxurious first class cabin.

۲

Available in up to 300 colour options, and with a range of track designs that fit seamlessly within the carpet, SafTGlo ColorMatch is a completely sealed system that is both hard-wearing and low maintenance; making it the perfect, easy-to-fit low cost alternative to electrical floorpath marking systems.

With no bulbs, no batteries, and no wires to worry about, SafTGlo represents a welcome departure from



A unique ultra slim profile and an easy clip-to-fit installation, makes SaftGlo the leading choice in premium cabin design schemes

#### Make significant savings with SafTGlo.

- Return on investment possible pay-back within 3 months
- Used by hundreds of airlines on thousands of aircraft to drive down cost base
- Save up to 25% versus installation costs of electrical systems
- Many SafTGIo systems have notched up over 10 years of trouble-free service
- Huge savings in through-life costs
- Maintenance free technology no costly servicing
- SafTGIo is <u>the</u> low-cost alternative to electrical emergency floorpath systems.

more conventional systems and it offers 100% reliability. That's why, since SafTGIo's introduction as the world's

> first photoluminescent system back in 1995, it has become the preferred choice for Boeing, Embraer and many of the world's largest airlines.

> Another reason why SafTGlo is flying high in over 5000 aircraft with the world's biggest and best carriers is its inherent ability to reduce installation costs and drive down the cost of operating aircraft.

> So it's not hard to see how SafTGLo can benefit your airline, now and in the future.

However, thanks to its unique design, SafTGlo is something your passengers will hardly ever notice. Unless, of course, there's an emergency.

For more information on how your airline could benefit from SafTGlo. Visit us online at www.stgaerospace.com





#### Take a step up in cost-saving.

۲

Maintenance-free Guideline<sup>®</sup> ColourFit from Lufthansa Technik.

When it comes to technology, there's no easier maintenance than no maintenance at all—as with Guideline<sup>®</sup> ColourFit, the innovative non-electrical floor path marking system from Lufthansa Technik.

Once installed, it works perfectly and maintenance-free over the entire life cycle of the aircraft. This brings a smile to the faces of not only the technicians but also the financial controllers.

No wonder Guideline<sup>®</sup> ColourFit is being fitted to more and more aircraft types, from regional all the way to wide-bodied jets, as a shining example of intelligent, costsaving safety technology. It almost goes without saying that Guideline<sup>®</sup> ColourFit

۲

also looks fantastic, with a range of colours that fits perfectly with your corporate look. Let's talk about it.

Lufthansa Technik AG, Marketing & Sales E-mail: guideline@lht.dlh.de Visit us at www.guideline.aero **Call us: +49-40-5070-4240** 

More mobility for the world



#### Garuda Indonesia refreshes orand and equips new aircraft



Garuda Indonesia has unveiled its refreshed brand and two new aircraft at the official opening of its new management building at Soekarno-Hatta Airport, Cengkareng. The new Airbus A330-200 and Boeing B-737-800NG are fitted with a new audio/video on demand (AVOD) in-flight entertainment (IFE) system, and sport a modernised interior and exterior to reflect the refreshed brand.

The AVOD system offers all passengers a choice of 25 inflight movies, 10 TV programmes, a selection of 35 music albums and 25 interactive video games. Business class on the A330-200 is fitted with 180° reclining seats that can be turned into flat beds. Garuda Indonesia says these facilities are a precedent for its future fleet.

The airline's ongoing improvements also include a new logo. The concept was inspired by the reflection of a bird's wing on water and the shape of flower petals commonly found in Indonesia. The brand still maintains the two main elements of the old logo – the symbol (bird) and the typography. Compared to the cool natural colours (blue, green and aqua) of the old

logo, the refreshed brand uses a wider spectrum of colours and a modern typeface that complements the bird symbol. The choice of dark grey for the font bridges the transition to the new hues of brown, red and orange, which also appear in the interiors of the new aircraft. Garuda Indonesia's refreshed corporate identity was designed by Landor Associates, which was appointed based on the work it did on Garuda's previous and original identity in 1985.

In anticipation of an increasingly competitive business environment, Garuda Indonesia has laid down its strategies (called the Quantum Leap) for corporate development right up until 2014. The programme includes fleet rejuvenation and enhancement (from 56 to 116 aircraft); increased flight frequency (from 1,700 to 3,000 flights a week); and more routes. The plans for 2009 included the establishment of 18 new routes.

Garuda Indonesia has purchased 50 Boeing 737-800NGs and 10 Boeing 777-300ERs, which will join the airline's fleet in 2011. Four A330-200s are expected to arrive in mid-2009.

#### Hong Kong Airlines selects OnAir connectivity for new A330 fleet

Hong Kong Airlines has selected full Mobile OnAir and Internet OnAir services for its new fleet of twin-aisle A330 aircraft - four A330-200s and six A330-300s. These will be delivered starting November 2010, and operate on routes in Southeast Asia, China and North America. Passengers will be able to use their mobile phones or smartphones in flight to make and receive phone calls, send and receive text messages and emails, and access the internet. OnAir will provide both GSM/GPRS and WiFi internet. "As we expand our fleet of aircraft, this latest technology from OnAir helps us further differentiate our service," said Yang Jianhong, president of Hong Kong Airlines.

#### Aerolíneas Argentinas buys new B737-700NGs

Aerolíneas Argentinas has bought its first new aircraft for 17 years - two Boeing 737-700s. One of the aircraft is optimised for regional service, featuring 12 seats in business class and 116 in economy class, while the other is optimised for domestic routes, with a solely economy-class interior with 149 seats.

#### JetBlue updates live TV channel line-up

JetBlue Airways Corporation has announced enhancements to its 36-channel line-up of DIRECTV live television programming. New channels available to JetBlue passengers via their individual seatback IFE screens include: 24-hour news channel MSNBC; GolTV - the first US network dedicated fully to soccer with both Spanish and English programming; and SPEED, a racing channel for auto enthusiasts. "JetBlue was the first major US airline to broadcast live television at every seat," said Kim Ruvolo, manager brand for JetBlue Airways. "These new channels increase the variety of our programming, making the viewing experience even more enjoyable for even more customers. And the best part? Customers still have access to this in-flight entertainment without paying a cent."

**NEWS** 

۲

#### Singapore Airlines launches B777 cabin renewal programme

Singapore Airlines has launched an aircraft cabin retrofit programme that sees new interior products introduced on some of its Boeing 777s. The aim of the programme is to provide additional comfort and more space for passengers, and ensure greater product consistency across the fleet. The first of the refitted B777-300s began operating on 22 July.

The refit includes new seats in first- and business-class, improvements in economy class, and in-flight entertainment (IFE) system enhancements.

Through the end of this year, as more B777-300s are fitted with the new interior

#### Air France's Airbus A380s to feature 538 seats

Air France has revealed its A380s, the first of which is due to enter service in November, will feature three cabin classes offering a total of 538 seats: 80 in Affaires (businessclass) and 106 in Voyageur (economy) on the upper deck; and 9 in the Première (firstclass) cabin and 343 in Voyageur on the main deck. This compares to the 450 seats available on Qantas's A380s, while SIA offers 471 seats and Emirates has opted for 489 seats in total. The A380 will start operating a daily Paris (CDG) – New York (JFK) route in November 2009. products, selected services to Shanghai and Dubai, as well as flights to Riyadh and Istanbul from Dubai, will also be operated with these aircraft.

First class in the newly refitted aircraft offers eight 35in-wide seats that convert into fully flat beds, complemented with luxurious soft furnishings.

Business class features a leather incline lie-flat seat with a control panel allowing the passenger to personalise according to their seating preference or select from various preset options. The seat also features a six-way adjustable headrest and lumbar support.

#### The refurbished economy-class cabin includes seat covers specially designed by Givenchy, which are similar to those found on the airline's new A380 and B777-300ER aircraft.

۲

Enhancements to Singapore Airlines's KrisWorld IFE system are designed to provide improved audio/video on demand (AVOD) features in all cabin classes.

First-class seats are fitted with 23in screens, while business-class seats feature 15.4in screens. The system also boasts an updated, more intuitive and user-friendly graphical interface across all cabin classes.

#### A350 XWB to feature Goodrich cabin attendant seats

Airbus has selected Goodrich to provide cabin attendant seats for the new A350 XWB aircraft. With this new contract, Goodrich cabin attendant seats are featured on all Airbus aircraft including the A300, A320, A330, A340 and A380 family aircraft. The deal is expected to generate US\$100 million in original equipment and aftermarket revenue over the life of the programme. The seats will be produced by Goodrich's Interiors team in Colorado Springs, Colorado, USA. Production deliveries are scheduled to start in the first quarter of 2011.

۲

#### Qatar Airways selects TopSeries for its Airbus single-aisle aircraft

Qatar Airways has selected Thales's Top-Series in-flight entertainment (IFE) system for its fleet of 30 Airbus single-aisle aircraft. The airline will provide passengers with a comprehensive audio/video on demand (AVOD) entertainment and information experience in all classes of service with first aircraft delivery scheduled for November. Retrofit and line-fit installations are part of the programme requirement, and the airline has included the option for an additional 10 aircraft. Over 200 aircraft in the Middle East are committed to flying with TopSeries.

# DESIGN



LEADERS IN AVIATION DESIGN SINCE 1946.





Lanta

۲

The soul, they say, sometimes takes longer to travel to a destination than the body. That's because it seems to observe the outside world at its own pace. But for people who feel at ease,

the chances are good that they will arrive as one. Lantal is fully focused on the well-being of your passengers. Discover our convincing ready-to-install products as well as weight- and cost

**TRANSPORTATION FASHION** saving fabrics, carpets, and pneumatic comfort systems. Express yourself with Lantal's all-in-one soft interior solutions. Lantal Textiles, Switzerland, +41 62 916 71 71; Lantal Textiles, USA,

+1 (336) 969 9551, www.lantal.com.





#### Iberia upgrades economy-class meals

Iberia has upgraded its onboard food offering for economy-class passengers on long-haul flights. The airline says the new meal service features new and more elaborate dishes, with higher-quality ingredients and larger portions.

۲

Meals begin with a selection of salads such as couscous salad with crab, tuna and carrot salad, potato salad or cherry tomato salad. There is a choice of two hot entrees, including meatballs in tomato sauce, fideuá (noodle paella), vegetarian hamburger or pasta with mushrooms. Desserts, all made with natural ingredients, include red berry pie, brownies with raisins and cherries, cheesecake and orange or chocolate sponge cake.

Passengers can also enjoy a new breakfast and lunch service – a box filled with a sandwich or croissant with filling, breakfast rolls, fresh fruit and chocolate sweets. Between meals, passengers are offered water, fruit juice, nuts, chocolate sweets or sandwiches, depending on the flight time.

#### Bombardier chooses Panasonic CMS for CSeries

Panasonic's cabin management and passenger address system (CMS) has been chosen for the Bombardier CSeries aircraft. The CMS will allow control, monitoring and diagnostics of numerous aircraft cabin functions, including temperature and lighting. The CMS also provides a complete embedded digital audio solution, offering passenger address, interphone and prerecorded announcements and music (PRAM) capabilities. The CSeries aircraft is scheduled to enter service in 2013. "Together with Panasonic, we are introducing features that make flying more enjoyable for passengers and create real value for our customers, said Rob Dewar, vice president of the CSeries integrated product development team at Bombardier Commercial Aircraft.

#### Condor launches A320 Enhanced Cabin retrofit programme

Airbus and German low-cost carrier Condor have announced the first ever contract to retrofit A320 Family aircraft currently in operation with the new Enhanced Cabin previously only available on line-fit aircraft. The Condor fleet of 12 A320s will be the first in-service aircraft to benefit, with first installations planned for the fourth quarter of this year. The Enhanced Cabin provides 10% greater stowage volume for overhead baggage, more shoulder-level room for passengers, a fresh modern ambience and LED lighting, and a small weight reduction. Airbus will also integrate the installation of its CIDS (Cabin Intercommunication Data System) and a new IFE system on Condor's 12 Airbus A320 Family aircraft, including video and audio services.

#### US Airways signs up to Aircell's Gogo Inflight Internet

**NEWS** 

US Airways has signed up to Aircell's Gogo Inflight Internet service, which it will offer from early 2010, initially on A321 aircraft flying select domestic routes. Full internet access including instant messaging, email and VPN access will be available for purchase to passengers with laptops, smartphones and other WiFi-enabled devices. The pricing for Gogo Inflight Internet on US Airways will be announced closer to the launch date. Later next year, customers will be able to see if WiFi is available on a specific US Airways flight by looking for the WiFi icon while booking their flight on usairways.com. Aircell has also launched two new pricing options for Gogo. Gogo Flight Pass for short-haul flights costs US\$5.95, allowing passengers to connect to the internet using any WiFi-enabled device on equipped flights across thousands of weekly flights lasting approximately 1.5 hours or less. It is available on AirTran Airways, American Airlines, Delta Air Lines and Virgin America. Meanwhile the Gogo 24-Hour Pass costs US\$12.95 and allows internet access via any WiFi-enabled device during a 24-hour period on equipped flights on a single airline, and is initially available on AirTran Airways and Delta Air Lines. Aircell also offers the Gogo 30-Day Pass, which allows unlimited use of the service over a 30-day period on a single airline for US\$49.95. This pass is currently available on Delta Air Lines, Virgin America and AirTran Airways flights.

Aircraft Interiors International.com

 $\bigcirc$ 

**NEWS** 

۲



Jetairfly is the first customer for the digEplayer XLP – digEcor's newest addition to its line of handheld in-flight entertainment (IFE) devices. The airline was scheduled to retire its digEplayer 5500s, and wanted a new device to handle longer flight times without significant acquisition costs.

The digEplayer XLP is designed to support longer flights ('XLP' stands for Extra Long Play). The screen has also been upgraded to an LED backlit screen, which the company says increases brilliancy, yet is lighter and more power efficient.

"The digEplayer XLP was the perfect combination of extended battery life, aesthetic appeal, and price. Flying on several 767-300s, the new programme will launch later this month and is substantially larger than the discontinued 5500 programme," said Emmanuel Van Damme, Jetairfly's IFE manager, in July.

With the new programme, Jetairfly offers a large variety of films, TV shows, music, and music videos. Passengers in

#### Application period announced for Crystal Cabin Awards

The application period has been announced for next year's Crystal Cabin Awards, which recognise innovative cabin interior products and concepts. The application period runs from 19 October to 30 November 2009. Universities are also welcome to submit an application. The awards, donated by the Senate of the Free and Hanseatic City of Hamburg, were premiered in April 2007 during the Aircraft Interiors Expo. In 2009 more than 50 applicants from 14 countries entered the competition.

#### Jetairfly is first customer for digEplayer XLP

premium class have the players as an amenity and passengers flying in economy can rent a player, which will help to offset the programme costs.

The airline distributes and collects the players via digEcarts. Each cart is a custom-built, lightweight Driessen cart. "The digEcart is a key component of the programme as it simplifies player rentals, logistics, and provisioning. Flight attendants are able to seamlessly add the dissemination and collection of players to their regular duties," said Brad Heckel, president of digEcor.

#### AeroMobile completes certification on sixth aircraft type

AeroMobile has completed the certification of its inflight mobile communications system on the Boeing 777-300ER, its sixth aircraft type. The AeroMobile system, which allows passengers to make and receive calls, text messages and GPRS data services in flight, is now certified by the European Aviation Safety Agency (EASA) for use on six wide-body aircraft types. In addition to the B777-300ER, it is certified for use and installed on A330s, A340-300s and A340-500s, together with B777-200 and B777-300 variant aircraft.

۲

#### Online toolkit for passenger connectivity regulators

The Alliance for Passenger Connectivity (APC) has launched an online toolkit for regulators at www.stay-connected.org. The toolkit addresses the problems that in-flight entertainment and communications (IFE&C) providers face gaining approvals from national regulatory authorities. Practices vary from country to country, which means different rules are adopted by adjacent countries and within regions - and amongst those on the same flight path. "The toolkit initiative is a great example of how companies can work productively with regulators in an open dialogue," said Anita Kartic, chair of the APC. "Effective regulations are key to the success of this industry and it's our responsibility as service providers to ensure that fair and proportionate practices are adopted globally." The toolkit could also enhance the user experience: "With the adoption of harmonised licensing practices, airlines will no longer be forced to turn off the system as they fly overhead. This would enhance the user experience - as well as the revenues generated from innovative and commercially demanded services. This is why we are reaching out to regulators, to ensure that consistent approaches are taken to enable such services," said Kartic.

Aircraft Interiors International.com SEPTEMBER 2009

#### wheels up!

•



and the state of the second second

and the state of the second state of the second

reich Wert Spanische

> 2550 N. Great Southwest Parkway Grand Prairie, Texas 75050, USA Phone: 001 (817) 624 8400 Telefax: 001 (817) 624 9520 info@aeristo.com www.aeristo.com

#### for Belvedair®

Aeristo's newest bovine leather collection to celebrate 20 years of bringing time proven values from Europe combined with state of the art technical performance to aircraft interiors.

Belvedair is simply the finest Italian leather formulated and crafted to comply with Aeristo's extreme aviation specifications.

Hallmarks are the silky finish with a touch of satin sheen over a designer selection of soft and subtle colors that allow near endless combinations.

As always, special attention has been focused on ease of application, maintenance and durability. While some create impressive names to market more basic features of their leathers, at Aeristo we focus on delivering advanced technical specifications and let our leathers do the talking.

AERISTOF





A unique networking and supply chain event for the international and Americas aircraft interiors market

#### BE PART OF IT Book your booth now

www.aircraftinteriorsexpo-us.com

#### 14-16 SEPT 2010 LONG BEACH | CALIFORNIA













A unique networking and supply chain event for the international and Americas aircraft interiors market

#### **BE PART OF IT Book your booth now**

www.aircraftinteriorsexpo-us.com

#### 14 -16 SEPT 2010 LONG BEACH | CALIFORNIA





In association with







A unique networking and supply chain event for the international and Americas aircraft interiors market

#### BE PART OF IT Book your booth now

www.aircraftinteriorsexpo-us.com

#### 14-16 SEPT 2010 LONG BEACH | CALIFORNIA





Co-located with





The first new long-haul aircraft to join the British Airways (BA) fleet since 2001 has entered service. The Boeing 777-200ER was kitted out at the airline's maintenance base (BAMC) in Cardiff, UK, having arrived there two months earlier. Engineers have installed BA's World Traveller (economy class), World Traveller Plus (premiumeconomy class) and Club World (business class) flat beds on the aircraft, as well as the airline's audio/video on demand (AVOD) in-flight entertainment (IFE) systems, and an overhead crew rest area.

۲

More than 20 engineers worked on the project, which took eight weeks to complete. Air conditioning ducting and electrical looms in the ceiling had to undergo significant rerouting to accommodate the flight crew rest pod. The engineers also had to install underfloor plumbing. As part of the retrofit, engineers reconfigured a number of

#### BA's first new long-haul aircraft in eight years starts flying

galleys, toilets and closets and by doing so allowed the addition of another 12 Club World seats. BA says the projected financial return for these additional 12 seats will not only pay for the purchase and installation of the flight crew rest area, but also generate additional revenue through its future years in service.

BA said that typically a three-class 777-200ER would have 36 Club World seats (in a 2-4-2 configuration, with seats arranged in a fore and aft formation), 24 World Traveller Plus seats (in a 2-4-2 configuration) and 212 World Traveller seats (in a 3-3-3 configuration). The bed in Club World is 6ft long fully flat. Seat pitch is 38in in World Traveller Plus, and 31in in World Traveller.

#### Innovation pays off for ZIM GmbH

ZIM GmbH has been recognised as one of the top 100 most innovative small and mediumsized companies in Germany. The company has been awarded a seal of approval in the 17th Top 100 corporate benchmarking competition for its systematic and successful innovation management. In particular, ZIM scored highly in the categories of 'top management promotion of innovation', 'climate of innovation', 'innovative processes and organisation', 'innovation marketing' and 'successful innovation'. ZIM GmbH is the parent company of ZIM Flugsitz GmbH, the manufacturer and supplier of an economyclass seat that weighs less than 20 lb (9kg).

#### New Gate Gourmet flight kitchen

Gate Gourmet has moved its airline catering, production and provisioning operations at Newark Liberty International Airport to a new 31,000ft<sup>2</sup> flight kitchen at the airport. With its existing Newark facility essentially at capacity, Gate Gourmet leased and converted a larger, free-standing warehouse into a fullfledged production facility, complete with new offices, conference spaces and an extended 13-truck loading dock. The company also razed a single receiving dock and warehouse to build a 2,100ft<sup>2</sup> high-bay warehouse and receiving dock with two spaces. The company says the new facilities are equipped with high-precision, eco-friendly appliances.

#### Transaero Airlines receives new Boeing 737-800 NG aircraft

Transaero Airlines has received two new Boeing 737-800 Next Generation aircraft. Each aircraft can carry up to 176 passengers, and features Rockwell Collins's PAVES inflight entertainment (IFE) system. The business-class cabin has eight seats in a 2-2 configuration. The B/E Aerospace businessclass seat has a 42in pitch, 19.5in width, and 30° recline angle. Economy class features 168 Recaro seats (3410 - 756 series) in a 3-3 configuration, with 30in pitch, 19in width, and 15° recline angle. "Despite the complicated economic environment, our airline has not changed its development plans and continues full speed ahead with its fleet renewal programme," said Olga Pleshakova, general director of Transaero Airlines. "We are continuing with plans to commission next-generation aircraft, including Boeing 777, Boeing 747-400 and Boeing 737-800 into our fleet. The new aircraft will be operated on both tourist and regular routes such as flights to Greece, Egypt as well as to Irkutsk and some destinations in the Commonwealth of Independent States (CIS)." Currently the Transaero fleet includes 45 aircraft - 13 B747s, two B777s, 11 B767s, 17 B737s and two Tupolev 214s.

#### Cirrus Aircraft announces Xi individualisation programme

Cirrus Aircraft has announced an aircraft personalisation programme, an extension of its X Edition option, that allows customers to work with Cirrus designers to 'individualise' their new Cirrus aircraft.

"Many of our customers have asked us for a way to personalise and individualise their new aircraft even beyond the premium packages currently available. We have answered that desire with Xi," said Todd Simmons, vice president of marketing at Cirrus Aircraft. "Customers can now work directly with our most senior designers to create an aircraft as unique and individual as they are."

Within the Xi programme customers have a choice of instrument panel finishes (including carbon fibre, brushed aluminium, wood burl, sterling, arctic white and piano black); chrome, brushed aluminium and jet-black interior trim finishes and bezels; and seat pattern styles (from either predetermined options or completely new designs) including choice of materials, stitching colour and stitching pattern. Also included are choices for embroidered or embossed logos for the

seats, including personalised customer logos if requested.

For the exterior, customers have a choice of predetermined or newly developed paint and graphics schemes, including new wing painting options currently under development. Cirrus also offers personalised Xi badges. Other items in the programme may include luggage and other Xi-branded materials such as floor mats. ۲

"Xi was the reason I bought a new aircraft," said Gary Turchin, owner of the first Cirrus to get the Xi treatment.

#### 328 Support Services orders first WEPPS kit from STG

328 Support Services, which specialises in the maintenance and VIP conversion of Dornier 328 aircraft, has ordered five Wireless Emergency Primary Power System (WEPPS) kits from STG Aerospace. These will primarily be installed on VIP conversion aircraft, but this modification can also be retrofitted on standard 30-seat passenger versions of both the 328 Jet and Turboprop. 328 Support Services will certify the product through an STC modification. Through 328 Support Services, WEPPS will be available for any Dornier 328 aircraft worldwide.

#### Aircell ships first global SwiftBroadband solution

Aircell has received full certification for its new SwiftBroadband solution, and has begun customer shipments. The first installation is being completed by 328 Support Services GmbH in Germany, on an executive Dornier 328JET operated by Aviando Services, which is based in Venezuela. The SwiftBroadband solution, powered by Thrane & Thrane, allows passengers to use their personal laptops and smartphones for email and light internet services in flight. They can also use the system's integrated cabin handsets to make and receive voice calls.

#### Synergy Aviation revamps fleet to reflect new brand image

Charter company Synergy Aviation has revamped its fleet in line with its new brand image, which was developed by designer Andrew Winch in conjunction with Sophie Fenton Designs and Synergy Aviation founder Glen Heavens. Andrew Winch designed new interiors for two King Air 200s. One features iPod and HiFi speakers, air show, a 240V socket for laptops, and a Nespresso coffee machine, while the other features bespoke cream leather and a metallic paint scheme. Both King Air 200s boast satellite telephone and a refreshment centre.

•

#### EXPERT ENGINEERING, UNMATCHED RESOURCES, OUTSTANDING SERVICE

\*\*\*\*\*\*\*

CARGOLING CONTRACTOR IN

۲

#### True satisfaction is a warranty that never expires.

At L-3, we deliver the highest quality in VIP interior service to our customers. Our interiors are hand-crafted and built to the customer's specifications with an unmatched range of expertise and technology for a flexible completion process. From entertainment and global communications to security and self-protection, our in-house engineering and design teams deliver total systems knowledge and a wealth of aircraft modification and maintenance experience. We are ready to deliver the highest quality performance for your aircraft interior. Visit us at www.L-3vipinteriors.com. By appointment only, call 254-867-4244.

۲



AM&M > SPECIALIZED PRODUCTS > C<sup>3</sup>ISR > GOVERNMENT SERVICES Integrated Systems L-3com.com

**T** Departures

۲

cabin interiors galleys and galley inserts integration lavatories premium aircraft seating services ۲

۲



# <image>

۲

...the expertise to fill the space between

| C | O | N | T | O | U | R |



HEATHTECNA AIRCRAFT INTERIOR SOLUTIONS



Premium

www.paig.com

# tradingplaces

**BRIEF:** Blue Sky's CEO, Dominic Robinson, says the idea for SleepSeat came to him on an overnight flight to Hong Kong that left him feeling sore and numb. Designed initially to maximise space and comfort in the tight confines of economy seating and to eliminate the physical elements that can contribute to the onset of deep vein thrombosis, the design grew into a product that can change from an economy seat into a premium seat at the touch of a button. "This allows airlines to change the normally fixed cabin layout to accommodate varying numbers of premium passengers or provide upgrades according to demand, without physically changing the seat pitch," says Robinson.

**DESCRIPTION:** The aft beam has been raised above knee level so that knee room is only 1in less than seat pitch. Meanwhile the forward beam has been lowered to incorporate a mechanism that moves the seat pan forward and downward, permitting up to 6in more legroom and increasing the rake of the inside back to allow up to 40° of recline, within a fixed back shell that doesn't recline into the face of the passenger sitting behind. Yet the seat requires no more floor space than a conventional seat. The cantilever design means there is no under-seat structure to impede knee room, legroom or access to under-seat space.



۲

**VERDICT:** The seat has undergone FEA during development to prove its structural integrity and will shortly undergo 9g and 16g testing, with the product being available from early 2010. Although the weight is currently already under 10kg for the basic model and only 3kg more for the premium model, work is ongoing to reduce this even further. The concept won the British Invention of the Year Diamond Award in 2008.



#### Let your ideas take off.



CRYSTAL CABIN AWARD®

Be part of the Crystal Cabin Award 2010 – tell us about your aircraft interiors innovation and why it should win. Trophies will be awarded on the occasion of the Aircraft Interiors Expo in Hamburg.

Application period: 19 October - 30 November 2009

 $( \bullet )$ 



# True design freedom, whatever the vehicle

In planes, cars and even space shuttles, VELCRO<sup>®</sup> touch fasteners help bring innovative designs to life. They also meet down-to-earth goals like holding power and weight savings.

These hook and loop fastening solutions come in shapes, sizes and materials to suit most applications. And our Innovation and Technology Center specializes in custom solutions for unique assembly problems.

For true fastening flexibility, quality and global support, you can't beat **for an example to a support** the original: VELCRO<sup>®</sup> hook-and-loop fasteners. See why at www.velcro.com.

#### **VELCRO USA Inc.** Transportation Technologies Di Phone: +1 248-583-6060

۲

email: karenk@velcro.com

© 2009 Velcro USA Inc. VELCRO and VELCRO with FLYING V (design) are registered trademarks of Velcro Industries B V

## enterprisezone

**BRIEF:** Swiss-Italian design agency Architecture and Vision has designed an exclusive interior for Enterprise – a 'rocket plane' developed by Talis Enterprise, a German company that aims to offer suborbital flights to tourists and for scientific purposes by the end of 2013. Enterprise is Europe's first purely private space project without any government involvement. Architecture and Vision's founders Arturo Vittori and Andreas Vogler have already designed a Moon station, a Mars rover and first- and business-class cabins for Asiana Airlines.

**DESCRIPTION:** Enterprise will carry up to six passengers (or a scientific payload) to a maximum altitude of 125km. "A suborbital flight involves acceleration forces and five minutes of weightlessness," notes Vittori. "These extraordinary conditions have informed the construction and design of the spaceplane." As such, the interior features ergonomic seats that tilt downwards during the weightless flight phase. "We chose a light blue colour with glare-free materials to ensure an unobstructed view of the 'Blue Planet' below," he continues. The large windows are surrounded by a backlit, recessed handgrip, which allows passengers to restrain themselves during the microgravity phase while looking out of the window. "Special suits, as well as light helmets with oxygen masks, provide safety in case of a cabin decompression in high altitude," says Vittori. All cabin components were prepared in close cooperation with Talis Enterprise group engineers.

۲



VERDICT: It's a little early for final verdicts: Project Enterprise only began in 2004, with the first phase - the production of the first prototype - due to be completed this August. The project is backed by German aircraft manufacturer XtremeAir, as well as the Swiss Propulsion Laboratory, which is supplying its rocket knowhow. The renderings seen here are certainly eye-catching with their bulbous windows and quite comfortable-looking seats. Of course the devil will be in the detail - for example it's worth noting that both Marc Newson's interior for Astrium's rival spaceplane, and the cabin proposed by Philippe Starck for Virgin Galactic's spacecraft, feature what appear to be much smaller windows - a more realistic engineering solution in terms of the structural loads faced by spacecraft fuselages.



CONTACT Andreas Vogler Architecture and Vision +49 173 3570833 info@architectureandvision.com www.architectureandvision.com





•

## factfile:**etihad** 🔊

AIRCRAFT TY	PE	B777-300	B777-300 (NEW)	A340-600	A340-600 (NEW)	A340-500
Refurbishment		5 Feb-May 2006	I Dec 2009	5 Oct & Dec 2008	2 Aug & Sep 2009	4 Jun. Jul & Sep 2006
Total seats		378	424	292	292	240
	Number of seats	0	12	12	12	12
	Configuration	N/A	1-2-1	1-2-1	1-2-1	1-2-1
	Seat pitch	N/A	82in (208.2cm)	80in (203.2cm)	82in (208.2cm)	80in (203.2cm)
	Seat width	N/A	22in (55.9cm)	21in (53.3cm)	22in (55.9cm)	21in (53.3cm)
	Seat recline	N/A	Full flat	Full flat	Full flat	Full flat
	Bed length	N/A	80in (203.2cm)	72.9in (185.2cm)	80in (203.2cm)	72.9in (185.2cm)
	Seat supplier	N/A	B/E Aerospace	Aviointeriors	B/E Aerospace	Aviointeriors
	IFE system	N/A	i5000	i4000	eX2	i4000
First class	IFE supplier	N/A	Thales	Thales	Panasonic	Thales
	Number of seats	28	28	32	32	28
	Configuration	1-2-1	1-2-1	1-2-1	1-2-1	1-2-1
	Seat pitch	88in (staggered)	88in (staggered)	88in (staggered)	88in (staggered)	88in (staggered)
	Seat width	19in (48cm)	21in (53.3cm)	19in (48cm)	19in (48cm)	19in (48cm)
	Seat recline	Full flat	Full flat	Full flat	Full flat	Full flat
	Bed length	73.2in (185.9cm)	74in (188cm)	73.2in (185.9cm)	73.2in (185.9cm)	73.2in (185.9cm)
	Seat supplier	EADS Sogerma	EADS Sogerma	EADS Sogerma	EADS Sogerma	EADS Sogerma
	IFE system	i4000	i5000	i4000	eX2	i4000
Business class	IFE supplier	Thales	Thales	Thales	Panasonic	Thales
	Number of seats	350	384	248	248	200
	Configuration	3-3-3	3-4-3	2-4-2	2-4-2	2-4-2
	Seat pitch	31-33in (78.7-83.8cm)	32in (81.2cm)	32-33in (81.2-83.8cm)	31-32in (78.7-81.2cm)	32-34in (81.2-86.3cm)
	Seat width	17.8in (45.2cm)	17in (43.2cm)	17.3in (43.9cm)	17.3in (43.9cm)	17.3in (43.9cm)
	Seat recline	6in (15.2cm)	6in (15.2cm)	6in (15.2cm)	6in (15.2cm)	6in (15.2cm)
	Seat supplier	Weber	Weber	Weber	Weber	Weber
	IFE system	i4000	i5000	i4000	eX2	i4000
Economy class	IFE supplier	Thales	Thales	Thales	Panasonic	Thales

۲

02

۲



01. Pearl, Etihad's new business-class seat
02. The airline's new B/E Aerospace-suplied suite in Diamond (first) class



The market leader in the Asia & Asia Pacific region for the aircraft interiors industry, Aircraft Interiors Expo Asia is the regional showcase for tomorrow's designs, in-flight entertainment, connectivity and passenger services.

#### Flying in the 21st Century – Strategy Forum:

#### **Tuesday 8 September**

Streamlining for the future opportunities to drive down cost

13.00 - 14.00 | Keynotes Maximising the life-cycle of the cabin

Using smart technology to reduce cost

14.15 – 15.15 | Panel discussion How can airlines reduce costs by taking weight out of the cabin?

15.30 – 16.00 | Innovation case study

#### Wednesday 9 September

Bumping up profits – using the cabin interior for revenue enhancement

13.00 - 14.00 | Keynotes The future for cabin segmentation

Preparing for the upturn

14.15 - 15.15 | Panel discussion Making money from IFE and connectivity

15.30 – 16.00 | Innovation case study

#### **Thursday 10 September**

Visions for the future – the key trends that will shape the cabin and airline businesses

13.00 – 14.15	Future visions round table
14.30 – 15.00	Innovation case study
15.15 – 15.45	Innovation case study





Co-located with ER





AIR





# REGISTER<br/>FREENOW08 - 10 SEPT 2009<br/>ASIA WORLD | HONG KONG<br/>www.aircraftinteriorsexpo-asia.com

AIRCRAFT TY No. of aircraft Refurbishment	PE	<b>A330-200 (TYPE 1)</b> 6 Feb, May, Jun, Sep, Oct & Nov 2007	<b>A330-200 (TYPE 2)</b> 6 Mar, Apr, Jun & Sep 2006	<b>A320-200</b> * 10 2010	<b>A319-100**</b> 2 2010	<b>A330-300</b> 5 Dec 2009, Jan & Nov Mar & May 2011
Total seats		200	262	136	110	203
	Number of seats	10	0	0	0	12
	Configuration	1-2-1	N/A	N/A	N/A	1-2-1
	Seat pitch	80in (203.2cm)	N/A	N/A	N/A	82in (208.2cm)
	Seat width	21in (53.3cm)	N/A	N/A	N/A	22in (55.9cm)
	Seat recline	Full flat	N/A	N/A	N/A	Full flat
	Bed length	72.9in (185.2cm)	N/A	N/A	N/A	80in (203.2cm)
	Seat supplier	Aviointeriors	N/A	N/A	N/A	B/E Aerospace
	IFE system	i4000	N/A	N/A	N/A	eX2
First class	IFE supplier	Thales	N/A	N/A	N/A	Panasonic
	Number of seats	26	22	16	20	40
	Configuration	1-2-1	1-2-1	2-2	2-2	2-4-2
	Seat pitch	88in (staggered)	88in (staggered)	49in (124.5cm)	39in	N/A (staggered)
	Seat width	19in (48cm)	19in (48cm)	20.8in (52.8cm)	21in (53.3cm)	20in (50.8cm)
	Seat recline	Full flat	Full flat	10.2in (25.9cm)	5in (12.7cm)	Full flat
	Bed length	73.2in (185.9cm)	73.2in (185.9cm)	N/A	N/A	73.5in (186.7cm)
	Seat supplier	EADS Sogerma	EADS Sogerma	Recaro	B/E Aerospace	EADS Sogerma
	IFE system	i4000	i4000	i4000	N/A	eX2
Business class	IFE supplier	Thales	Thales	Thales	N/A	Panasonic
	Number of seats	164	240	120	90	151
	Configuration	2-4-2	2-4-2	3-3	3-3	2-4-2
	Seat pitch	32-34in (81.2-86.3cm)	31-32in (78.7-81.2cm)	31-32in (78.7-81.2cm)	32-33in (81.2-83.8cm)	33in (83.8cm)
	Seat width	17.3in (43.9cm)	17.3in (43.9cm)	17.2in (43.7cm)	17.9in (45.5cm)	18.1in (46cm)
	Seat recline	6in (15.2cm)	6in (15.2cm)	5in (12.7cm)	6in (15.2cm)	6in (15.2cm)
	Seat supplier	Weber	Weber	Recaro	Weber	Weber
	IFE system	i4000	i4000	i4000	N/A	eX2
Economy class	IFE supplier	Thales	Thales	Thales	N/A	Panasonic

۲

One of the ten A320-200s is currently fitted with this cabin, the rest will be retrofitted with it in 2010
 The two A319-100s will be retrofitted with this cabin in 2010

HEADQUARTERS: Abu Dhabi, UAE PASSENGERS CARRIED IN 2008: 6 million

۲

#### CONTACTS:

Peter Baumgartner, chief commercial officer, pbaumgartner@etihad.ae Claire Claxton, vice-president product and communication, cclaxton@etihad.ae Jurgen W Glasmacher, head of projects and research, jwglasmacher@etihad.ae Houda El Mektoumi, product development manager – cabin, helmektoumi@etihad.com Julie Small, product development manager – cabin, jsmall@etihad.ae Aisha Al Ameer, product development manager – cabin, aalameer@etihad.ae Rory John Hollard, IFE control manager, rhollard@etihad.ae Albert de Wet, IFE manager, adewet@etihad.ae Norman Tagle, manager cabin and projects, ntagle@etihad.ae Paulo Francisco Lay, manager cabin systems, play@etihad.ae Werner Ingmar Henning, manager cabin development, whenning@etihad.ae



The market leader in the Asia & Asia Pacific region for the aircraft interiors industry, Aircraft Interiors Expo Asia is the regional showcase for tomorrow's designs, in-flight entertainment, connectivity and passenger services.

#### Flying in the 21st Century – Strategy Forum:

#### Tuesday 8 September

Streamlining for the future opportunities to drive down cost

13.00 - 14.00 | Keynotes Maximising the life-cycle of the cabin

Using smart technology to reduce cost

14.15 – 15.15 | Panel discussion How can airlines reduce costs by taking weight out of the cabin?

15.30 – 16.00 | Innovation case study

#### Wednesday 9 September

Bumping up profits – using the cabin interior for revenue enhancement

13.00 - 14.00 | Keynotes The future for cabin segmentation

Preparing for the upturn

14.15 – 15.15 | Panel discussion Making money from IFE and connectivity

15.30 – 16.00 | Innovation case study

#### Thursday 10 September

Visions for the future - the key trends that will shape the cabin and airline businesses

13.00 – 14.15	Future visions round table
14.30 – 15.00	Innovation case study
15.15 - 15.45	Innovation case study



Aerospace & Aviation Group

Sponsored by Aircrat Co-located with ÄËR








## **08 - 10 SEPT 2009** ASIA WORLD | HONG KONG REGISTER **FREE NOW**

www.aircraftinteriorsexpo-asia.com



## hardsell

Etihad's award-winning Diamond (first) class now boasts individual suites and a luxurious changing room – but that's only half the story ANTHONY JAMES, AIRCRAFT INTERIORS INTERNATIONAL

**ETIHADFIRST** 

۲

E-BO

۲

TV

1)

4

## 66

**ETIHADF** 

A DOWNTURN IS EXACTLY THE TIME WHEN AN AIRLINE NEEDS TO DEMONSTRATE ITS COMMITMENT TO THE VERY HIGHEST STANDARDS OF SERVICE EXCELLENCE ۲



In its short but dynamic history, Etihad Airways, the national carrier of the United Arab Emirates, has blazed a trail of glory, acquiring aircraft and new routes like a kid in a candy shop. The airline began life in November 2003 with flights from Abu Dhabi to Beirut. Since then it has added 50 destinations across the globe, and now revels in the title of "the fastest-growing national airline in the history of aviation".

Last year Etihad hauled in over six million passengers (a 34% increase on 2007), while average load factors increased from 68% to 75%. While other carriers have been forced to scale back their operations in light of the current economic situation, Etihad continues to push ahead, launching new services to Melbourne, Athens, Istanbul and Chicago this year. The airline also took delivery of nine new aircraft in 2008, boosting its fleet to a total of 42.

It has also continued to invest in its onboard product – the carrier announced the introduction of individual suites to its already impressive 'Diamond' first class at the Arabian Travel Market show in Dubai earlier this year. "A downturn is exactly the time when an airline needs to demonstrate its commitment to the very highest standards of service excellence," said James Hogan, Etihad Airways' chief executive, at the time of the launch.

"The economic turbulence that the aviation industry is currently experiencing will give way to calmer times, and when it does our investment and product innovation will ensure that we have not simply remained competitive, but that we are the market leader," he continued. This stance is echoed by Peter Baumgartner, Etihad's executive vice-president marketing and product: "Should we change our strategy because of an economic cycle? It's a question of strategy – and we stick to our strategy – the firstclass premium segment is very much a part of our long-term plans," he says. "As an airline from Abu Dhabi, we are very well-positioned when it comes to tapping premium markets and developing demand for that product segment."

Baumgartner also notes that the new first-class interior "is something that has been designed and planned since about two years ago" – a time of unprecedented growth in the airline industry.

DIAMOND DOZEN The new Diamond cabin contains 12 individual suites, supplied by B/E Aerospace, which have been designed to provide more privacy, greater comfort and increased storage. At the heart of the US\$70 million firstclass revamp is an extra-large seat that extends to a fully-flat bed some 80.5in long, with built-in massage, lumbar support and adjustable headrest, as well as power sockets for a laptop, iPod and other electronic devices. Spacious stowage compartments are also at hand around the seat.

Each private suite is accessed by its own sliding door and includes a personal wardrobe and mini bar, as well as a 23in-wide LCD screen – the AVOD IFE system boasts more than 600 hours of entertainment. Meals are served on an extra large wood finished table, with an ottoman providing a seat for a guest, if required – in fact a middle seat divider can be lowered to create a dining space for up to four people.

- 01. Diamond (first) class consists of 12 individual suites, each with a 23in-wide IFE screen
  02. Each seat features a leatherupholstered seat
  - that converts into an 80.5in flat bed



First class also features a luxurious changing room with a full-length mirror, a designer 'boutique hotel-inspired' wash basin and leather fold-down seat to allow passengers to freshen up and change after take-off and prior to landing.

**DESIGN INPUT** "The suite takes its inspiration from traditional Arabic design motifs and the subtle hues reflect the natural colours found in the region's landscape," explains B/E's Doug Rasmussen. B/E developed a unique finishing process for the sliding screens – the result is a mirror-like finish with custom etching and a perforation pattern creating a design that is reflective of the region.

Rasmussen says B/E's dedicated product development team used Finite Element Analysis (FEA) to predict areas of failure and identify ways to reduce weight, resulting in lower certification costs. "These tools and processes enabled us to bring to market a highly complex programme in 40% less time than conventional methods."

Craftsmen from luxury leather upholsterer Poltrona Frau, which provides interiors for Ferrari cars, were also instrumental in developing the new cabin, which includes luxurious soft furnishings and designer amenity kits.

**INDIVIDUAL SERVICE** In keeping with a new service style that seeks to provide both first- and business-class customers with a more individual service on the ground and in the air, the carrier has introduced a new cabin crew position – the food and beverage manager.

These new managers, most of whom have joined the airline from five-star hospitality backgrounds, are responsible for championing the quality, presentation and

### let's do a deal

Etihad began life with the largest-ever start-up fleet order, announced at the 2004 Farnborough Air Show, for 29 Airbus and Boeing aircraft with a total value of US\$8 billion. In July last year, it placed one of the largest aircraft orders in commercial aviation history with firm orders for 55 Airbus and 45 Boeing aircraft, and options and purchase rights for 105 more. The new aircraft are scheduled for delivery between 2011 and 2020 and when delivered will boost the carrier's fleet to more than 150 aircraft.

delivery of food and beverages on board to ensure consistent high standards. "We refer to the new service concept as 'the inspired service'," explains Baumgartner. "it's a concept that tries to treat you as a single individual according to your personal requirements – as you would be treated in a boutique hotel. And that has to do with a more strategic approach where we say our benchmarks are products and services that are the very best – quite often these are outside of the airline industry," he continues.

"The introduction of our F&B managers is less about creating a talking point or marketing gimmick, it is instead all about providing that skill and know-how that we need to live up to our own expectations of providing our customers with a five-star fine-dining experience. So we have recruited people with that background to provide that service excellence at 35,000ft."

First- and business-class customers can dine on demand anytime from an à la carte fine dining menu or opt for kitchen style snacks. 03. A spacious bathroom and changing room features finishes more often found on private jets or in a boutique hotel

Aircraft Interiors International.com SEPTEMBER 2009

U:37



#### **ETIHAD**FIRST



04. Etihad has opted for sliding doors to ensure total privacy for its passengers GROUND CONTROL First- and business-class customers flying from Abu Dhabi can take advantage of a dedicated concierge service, which ensures that their complimentary limousine is met kerbside and they are then escorted quickly inside to the airline's dedicated premium check-in zone.

The airline has also opened dedicated first- and business-class lounges at both Terminal 1 and Terminal 3 at Abu Dhabi airport, where customers can enjoy a range of services including all-day fine dining, boardroom-style meeting facilities, Six Senses Spa treatments, a champagne bar and even a cigar room.

"The check-in is reminiscent of a hotel lobby in a five-star luxury hotel rather than a traditional airport setup," says Baumgartner. "You don't queue in front of desks – you sit down in a Poltrona Frau leather chair and have a coffee and something to eat while we do the paperwork for you – and then you take a couple of steps and you are in the lounge," he continues.

"Again, the lounge is run and operated like a boutique hotel – you have a library, a spa, fine dining, a children's play area, even daybeds for power naps – whatever you want. And then you come on board the aircraft, which features a new interior design completely integrated with the ground experience. It's that consistency – from the limo interior, the premium check-in, the lounge and then the aircraft interior – it's all of the same quality. The same colour scheme and the same brand identity talking to you at every touchpoint along

WE HAVE THE OPPORTUNITY TO REINVENT, INNOVATE AND DEVELOP OUR PRODUCT ALONG THE ENTIRE TRAVEL EXPERIENCE

#### Key features

- 82in-long private suite with an 80.5in x 29.75in flat bed
- Arabic-styled sliding privacy doors
- AVOD IFE system offers up to 600 hours of films, TV, radio programmes, and video games
- Personal minibar
- Illuminated wardrobe with a personal mirror
- In-seat massage, lumbar support and adjustable headrest
- Spacious compartment areas where customers can stow their belongings
- Poltrona Frau leather upholstery
- Extra large (24 x 25in) wood veneer meal table
- In-seat power, iPod connector, USB ports, Ethernet port and audio jack
- Luxury changing room with full-length mirror, raised wash basin and leather fold-down seat
- Luxurious soft furnishings and designer amenity kits

the entire experience. This consistency is what will strike you most – the cabin interior is just another step towards providing that 360°, closed-loop consistent experience."

YOUTHFUL OUTLOOK Baumgartner believes the airline's 'youth' is key to its ability to constantly innovate: "Etihad has a great opportunity – an opportunity that to a certain extent no other airline out there has, because we are a such a young company," he says. "As a young brand, we have the opportunity to reinvent, innovate and develop our product along the entire travel experience simultaneously. It's not that we just look at our first-class cabin separately or that we look at refreshing our lounges at our hub – we look at everything. There is no legacy – there hasn't been anything in place before."

A total travel experience focused on both service delivery and product investment are key, he says: "It starts with our new global contact service and call centre, the new website, limousine transfer service to Abu Dhabi airport, to a completely new terminal built to our specifications. It also shouldn't be just all about the hardware. It is the hardware in combination with the software that is revolutionising air travel – and that's our ambition – no less than that – to really challenge accepted standards and push the boundaries even further."

The first aircraft with the new first-class cabin – a brand new Airbus A340-600 – is due to enter service at the end of August 2009. The full roll-out of the new suites in the airline's fleet is expected to be completed by the end of 2010. Meanwhile Etihad is also upgrading its business-and economy-class cabins, including improvements to the seats and the AVOD IFE system.

CONTACT Etihad, Web: www.etihadairways.com

## Ingenuity.

۲

Redefine the passenger experience.

Whether it's creating the ideal aircraft interior, re-imagining the way a seat works, reinventing gourmet catering or re-configuring interior spaces completely...BE Aerospace constantly refines every touchpoint between aircraft and people. Design, engineering, integration, program management, and customer support. Ingenuity is the force that takes your ideas to unexpected levels. *Visit us at www.beaerospace.com* MANY PARTS. *One* PARTNER.

۲



( )



**ANCILLARY**REVENUE

## carteblanche?

Airlines are quickly catching on to the ancillary revenue streams to be made from à la carte fees for everything from checked baggage, food and IFE, but where should carriers seek to draw the line?

BERNARD FITZSIMONS, AIRCRAFT INTERIORS INTERNATIONAL

"The airlines deserve to make some money," believes Klaus Brauer, recently retired director of passenger satisfaction and revenue with Boeing Commercial Airplanes. "So you can't take issue with attempts to catch more revenue." But if charges for meals and checked bags are, as he maintains, justifiable, logical and even beneficial, he thinks the airlines need to do more to explain the rationale behind them.

Much airline food is wasted, he says, while jokes about the poor quality of meals tarnish the image of carriers. "So I think it's potentially a very healthy thing that airlines charge for meals." As well as reducing waste, this would encourage passengers to value meals because they have chosen to pay for them, which in turn would motivate airlines to produce things that people will pay for. The challenge is to convince passengers that what they are being charged is reasonable, and explain the reasons for the change in philosophy.

Wale Adepoju, CEO and chief analyst at the Inflight Management Development Centre (IMDC) consultancy, sees much of the ancillary revenue growth as simply the unbundling of services that used to be part of the core activity. "If you look at the financial performance of the airlines in the US last year, ancillary revenues did quite well," he says, representing more than 7% of income. But carrying checked bags used to be core, and now passengers can find themselves charged even for checking in at the airport rather than online: "That income should still be reported as part of the core income of air travel," he maintains.

Looking at the airlines' overall financial performance, he concludes that ancillary revenues have not grown any more than in previous years: "it's just been the unbundling of core, so core's come down faster than it normally does and it's making ancillary revenue look impressive."

Brauer, though, believes baggage charges are reasonable. "As a business traveller I would travel for weeks with a small bag," he says. "I never checked a bag. At the other extreme there are passengers who use air transportation as an excuse for free air freight." It is entirely logical that the third bag should be dramatically more than the second, he says.

A





## www.AircraftInteriorsInternational.com

News & exclusives | Supplier directory | Recruitment Industry opinions | Image gallery | Read the latest issue online



۲

Aircraft Interiors International goes digital!

www.AircraftInteriorsInternational.com

 $(\mathbf{0})$ 

#### **ANCILLARY**REVENUE



۲



66

Passengers are buying transportation, says Brauer, and while it is reasonable to want fresh clothing when they arrive, having a fresh refrigerator is not part of what the airline is selling: "So if you want to carry that along you have to pay air freight rates," continues Brauer. "But I think the lack of communication is problematic – if people don't understand why, the airlines are seen as just being predatory."

A LA CARTE DINING Jay Sorensen, president of airline industry consulting company IdeaWorks, says the ancillary revenue movement originated with Laker Airways and People Express. Reinvented subsequently by Ryanair, easyJet and other European low-cost carriers (LCCs), it was given "a terrific boost in terms of financial activity" last year when US airlines started charging for checked baggage.

The problem, he says, was that the airlines used the high price of fuel as justification: "Now that the price of fuel has come down, customers are upset because they have not disappeared. We in the industry knew they wouldn't because they're just too attractive." The introduction of baggage fees, moreover, has "given airline management permission to consider even more". Now Sorensen sees US carriers "testing higher fees, thinking about adding fees, and the rest of the world, notably Europe, waiting to see what works in terms of network carriers implementing à la carte pricing".

## I SUSPECT YOU'RE GOING TO SEE FREE FOOD AND DRINK DISAPPEAR IN COACH WITHIN EUROPE

British Airways CEO Willy Walsh, for example, has been hinting that his airline is considering the introduction of charges. "And the hints he's been dropping have focused on food," Sorensen says, "so I suspect you're going to see free food and drink disappear in coach within Europe, and probably a pre-order scheme for meal upgrades on transatlantic flights."

Other straws in the wind are the charges for exit row seats introduced by Qantas and Singapore Airlines. "We're going to see more and more," Sorensen predicts. "Fuel has not dropped down to the levels we expected, plus we have a drop in demand. Those things are creating a higher cost situation and a revenue shortfall, which has got to be recovered somehow, and à la carte pricing is now a proven mechanism."

SPACE FOR SALE Space is the most valuable commodity on board, particularly for long-haul flights, and airlines have started to go beyond the conventional practice of dividing the cabin into separate classes of accommodation.



Aircraft Interiors International.com 043



Singapore Airlines now charges US\$50 for an exit row seat in economy class; on Qantas, an exit row seat costs the equivalent of more than US\$120 (or 20,000 frequent flyer points) on long-haul flights. But while the A380 boasts 18 such seats, there are only eight on a 747-400 or 777-300ER, four on a 777-300 and just two on the 777-200. Some regional European and domestic US carriers, though, have taken the idea much further.

Sorensen says Las Vegas-based Allegiant Air is now the world leader for both spend per passenger and the overall percentage of ancillary revenue. Once prospective travellers have detailed their origin, destination and preferred dates, they are offered a choice of available flights, a selection of hotels then a choice of rental cars complete with inclusive prices, then offers such as reduced-price photo products – a 100-image photo book for US\$59.99 or a DVD slide show for US\$29.99 – plus tickets to attractions at their destination.

The seat selection screen then offers seats at US\$14 for the premium seats in the first six rows, US\$13 for the next four, US\$12 for row 20 (actually the eleventh row), then US\$11 for the remainder, except for the US\$15 premium seats in the two exit rows. Priority boarding is offered for another US\$5 or US\$7.50, and only passengers who pay for a seat can take advantage of online check-in.

Spain's Vueling also majors on maximising the value of seats on its 35 A320s. Vueling's booking process includes an

VUELING'S BOOKING PROCESS INCLUDES AN OPTION TO SELECT THE NUMBER OF SUITCASES TO BE CHECKED option to select the number of suitcases to be checked, with the warning that every unregistered bag will cost  $\in$ 20 at check-in instead of the pre-registered fee of  $\in$ 10 per flight. Travel insurance is offered, then comes the optional seat selection: the middle seats are left empty in the first three rows where the aisle and window 'Duo' seats cost  $\in$ 30. 'Optimum' seats in the next eight rows cost  $\in$ 5, 'XL' seats in the exit rows cost  $\in$ 13 and 'Basic' seats in the rest of the cabin are  $\in$ 3.

۲

Cumulatively, seat and other fees can make a big difference. In the first quarter of 2009 the average scheduled fare on Allegiant's fleet of 41 MD-80s was US\$74.52. That was down 14.3% on the figure for the equivalent quarter of 2008. But the lower fares helped push the load factor for the quarter from 86.9% to 90.8%, and ancillary revenue per passenger grew nearly a third from US\$25.75 to US\$34.14. The result was that while seat revenue per available seat mile (ASM) fell from 8.19 to 7.42 cents, total revenue per ASM increased from 10.61 to 10.83 cents; allied to a more than 50% fall in the cost of fuel per passenger, the result was a near trebling of the operating margin and a record operating profit.

Allegiant's process, with boxes pre-checked to accept add-ons, would not go down well with the European Union. Nor would its 'convenience fee' of US\$13.50 for booking via phone or web, since EU rules require unavoidable charges to be included in the quoted price. And those rules do have an impact: Vueling's results for the second quarter of this



 $( \bullet )$ 

## THE CRÈME DE LA CRÈME OF IFE SOLUTIONS

#### Only the very best rise to the top. It's where you'll find Thales' In-Flight Entertainment solutions.

A world-leading aerospace company, Thales is perfectly placed to respond to the industry's exacting needs. From passenger personalisation and flight crew efficiency to airline revenue generation and air-to-ground connectivity: Thales offers total solutions airlines can count on for business success.

Our Top IFE

۲

offering includes:

**TopSeries –** Inflight <u>Entertainment</u> Systems

**TopConnect** – Suite of Connectivity Solutions

**TopEffects** – Digital Media and Services

TopServices - Global Support Network.

And, as the fastest growing company within the IFE sector, Thales is working harder to ensure every client and every passenger receives full in-flight satisfaction, every time.

Intelligent systems START WITH THALES.

## THALES

۲

# More than just a pretty face



 $( \bullet )$ 

## It's what's behind this face that sets it apart

With over 15 years of experience providing innovative, cost-effective, reliable in-flight entertainment solutions, the IMS Company is your total IFE solutions provider.

#### THE IMS COMPANY IS MORE THAN AN IFE INDUSTRY LEADER



 $( \mathbf{\Phi} )$ 

**ANCILLARY**REVENUE



۲

### better research

Klaus Brauer says there is a need for "better passenger research than I've seen on what the real impact is [of more charges]. When you get to the level of charging for a soft drink I frankly don't know if people value the soft drink any more because they paid for it. And at what point do you diminish the brand? There may be a level below which you don't want to go, but that would require some good research to understand."

year show a decline in ancillary revenues' weight within the overall revenue mix as the ancillary revenue per passenger dropped 14.9% to  $\bigcirc$  9.69. The airline attributes the fall to the EU opt-in policy on travel insurance, which, it says, "has affected conversion rates on this particular product."

ENTERTAINMENT REVENUES Frost & Sullivan senior consultant Diogenis Papiomytis has looked at the potential for IFE to increase the revenue streams for airlines. He believes making money from IFE is easier for LCCs, and that the key is not paying for equipment.

"At this point in time, with technology changing every two years so that you're going to be upgrading your equipment every couple of years, it's impossible to have IFE as a profit centre," he says. "It's always going to be a cost centre."

Digital media players that can be leased instead of owned will take away the risk of having high-value assets on the balance sheet, Papiomytis says. New connectivity solutions also offer revenue opportunities. "But again because they are all new technologies it's virtually impossible to charge to achieve a profit. It's simply a charge to recoup some of your costs."

Alaska Airlines, he says, "is just about breaking even on the digEplayer," which costs US\$6 or US\$12 to rent depending on the route, "but again it's not a profit centre." Virgin America sees IFE as a revenue generator, "but again, it's a question of simply reducing your costs. They've been very open about the fact that they're trying to make money out of [the Red system], but they don't want to be seen as charging for everything. It's more important to build your brand awareness rather than achieve profitability from IFE." LCCs flying longer sectors are also better positioned to benefit from player rental, and Papiomytis expects longhaul LCCs such as AirAsia X to be pioneers of revenue streams from IFE.

The priority, he holds, should be on "cutting costs and looking at asset management opportunities, ways of partnering with companies and ways of reducing your overall capital expenditure." In the past the pattern was for airlines to buy portable media players and source their own content. "Today more and more of these devices are being leased to airlines instead of being sold, the same company manages the content, and the airline doesn't carry the cost of the inventory in their balance sheet. That is the way forward."

"History doesn't show a great success rate at charging for IFE," agrees Klaus Brauer. "IFE can and does make a significant improvement to the passenger experience." But airlines pay extraordinary amounts to buy the equipment, acquire content rights, maintain the hardware and fly it around: "They're paying a tremendous amount, more than anyone would believe – up to US\$10 per seat."

Talking to airlines during the development of the 787, he says, Boeing detected a growing expectation of a sea change in the offering of entertainment. "The passengers will just furnish their own content," he predicts. "You can imagine having screens in the back of the seatback and you plug in your iPod or laptop and see your own content on a larger screen, and the airlines are out of the business of buying content and giving it away."

CASH FROM COMMS? Onboard telephone and internet connectivity should be considered more as a service to



#### **ANCILLARY**REVENUE



## THERE'S MORE SIMILARITY BETWEEN RYANAIR AND UNITED THAN THERE IS WITH SOUTHWEST NOWADAYS

passengers than a source of revenue, "because the reality is that they're not going to make much money back in the short term," says IMDC's Adepoju. "There is some ancillary revenue there, but no airline is going to earn enough from the usage of connectivity on board to seriously present that in an investors' meeting. Not yet, anyway."

IMDC has "gone through the numbers in a lot of detail," he says. "It's going to be like adding two or three new items to the duty-free cart from a financial perspective – that is all."

From a service perspective, though, "the value is incredible," says Adepoju. "If you have two airlines flying against each other on the same route and one starts to offer mobile phone or internet service, it is perceived to be a more business-oriented brand. So from a marketing perspective it makes a lot of sense."

The service providers' business model is a challenging one, Adepoju believes: "Technically, we're at a point in the market where we've always wanted to be. The antenna cost and weight for broadband now is half the price of what it was for Connexion by Boeing, the performance is about double, it's easy to install, and the technology is getting better all the time. But will it make money?"

He believes that only one or two people on average are likely to use the connectivity services, "and the trick is making the business model work with very small numbers." There will be a lot of flights with nobody using it and a few where a lot of people want to use it: "And when they do, they don't want to be waiting for a line or waiting for emails to synchronise." So there has to be the capacity for peak demand, "but you have to have a financial model that can cope with a lot of dead time. And that's really the challenge. I think it's really a struggle."

BIG CHEQUE Adepoju's team focuses on advising airlines on investment in cabin technology, media, telecoms and IFE, "so we're pretty much exposed to the value of advertising," he says. "Advertising is pretty much a volume business based on the number of eyeballs you get." It remains predominantly print-based, and "I don't see many changes there, just growing in terms of volume."

More important than conventional advertising, he believes, is brand alliances: "You can get a brand of coffee that decides it will put all the coffee on board an airline, so you've got cost reduction and they'll pay for their name to be in the magazine and in the aeroplane. That's what the smart airlines are doing, and they get a pretty big cheque for that."

The push to maximise ancillary revenue seems certain to continue, and there have already been some surprising consequences. For example, Sorensen asserts that United Airlines has become a world leader in branding à la carte features: "There's a whole array of services they have unbundled from the traditional coach product." Southwest Airlines, meanwhile, can boast of continuing to carry the first two bags free while bundling additional features such as priority boarding, more frequent flyer benefits and a free drink on board into a new business-oriented product.

The driver was the need to attract more business travellers, who value cabin stowage for their roll-on bags above almost any other feature. The result, Sorensen says, is "there's more similarity between Ryanair and United than there is with Southwest nowadays." ⊠

CONTACT Ideaworks, Web: www.ideaworkscompany.com IMDC, Web: www.imdc.net



## Panasonic | In-flight Innovation

۲



#### Delivering Innovation, Up and Down.

Today, more than ever, your airline needs to stand out from the crowd. The trick is to deliver a personalized experience while keeping your total cost of ownership down.

Panasonic is the pacesetter in in-flight entertainment innovation and knows how to help you do both—offering your passengers more entertainment and communications options and providing you with new ways to reduce operating costs and drive ancillary revenue.

۲

To learn more about how Panasonic can help you with the ups and downs, visit us online.

#### Panasonic

#### **Panasonic Avionics Corporation**

© 2009 Panasonic Avionics Corporation. All Rights Reserved.

www.panasonic.aero



۲

## cityslicker

-11

۲

British Airways' new all-business-class service between London City and New York JFK hopes to attract executives looking for greater convenience, connectivity and comfort LIZ MOSCROP, AIRCRAFT INTERIORS INTERNATIONAL

Aircraft Interiors International.com 051

#### **BA**LONDON-CITY

## 66

۲

BA HAS GIVEN THE FLIGHTS THE BAOOI AND BAOO2 CODES, PREVIOUSLY USED ON ITS TRANSATLANTIC BAC-AEROSPATIALE CONCORDE SERVICES

.....

۲

•



British Airways is boldly going where no other airline dares this autumn. The UK flag carrier has fixed a 29 September 2009 date to start its London City-New York JFK all-business class service. It will operate two 32-seat Airbus A318s on the route, starting with a daily service and scaling up to twice a day in mid-October. Fares range from £5,625 for a fully flexible business ticket, down to £1,900 for a weekend lead-in leisure trip. Letting the market know it means business, BA has given the flights the BA001 and BA002 codes, previously used on its transatlantic BAC-Aerospatiale Concorde services.

02

۲

With the airline business-class sector in tatters, establishing a new premium service would seem to be madness. Not so, according to BA's chief executive Willie Walsh. "In the harshest trading environment airlines have experienced, we believe it is more important than ever to embrace the future and innovate," he says.

The new route's main selling points are central London access, 15-minute check-in times and quick boarding and deplaning at either end. Christopher Stubbs heads up the product management team for BA's Club World and is shaping the customer experience on the flights. "The service is still of interest to people," he says. "We have had outstanding feedback."

According to Stubbs, BA will pick up refugees from the ailing private jet segment as executives find it increasingly difficult to justify paying for private air travel to their shareholders. Other potential customers will be businessclass and first-class customers who find the central London location more convenient.

He adds: "Customers can leave London City and arrive in Manhattan in time for a client dinner, work the next day then catch the evening flight back which gets them into London City for just after 7 and the office by 8." BA's philosophy is to minimise the usual inconveniences of a transatlantic trip for its target market - customers based in London's Canary Wharf. Passengers can arrive at LCY 15

- 01. The all-businessclass cabin features just 32 seats
- **02.** British Airways will operate two A318s between London-City and New York-JFK

Aircraft Interiors International.com SEPTEMBER 2009



For those who say... LUXURY VALUE & DURABILITY can't coexist.

## GET TO KNOW TapiSuede<sup>™</sup>

LUXURY: Unmatched appearance and performance...plus a WIDTH OF 56"

**COLOR-MATCHING:** New China White and Classic Grey ensure consistent color schemes across different fabrics

**STRETCH:** Allows for effortless perfection in installation

**OPTIQUE:** The only FAA certified printing process for faux suedes

**CUSTOMIZATION:** Will meet your specifications for color and texture

۲

**CERTIFIED:** Meets all FAA requirements for flammability in commercial, corporate, and VIP aircraft

**PROVEN:** Can be found in service worldwide in nearly every type of passenger aircraft

**GREEN:** Made of 100% high-purity polyester fibers, which reduces its carbon footprint... and 100% yield means low waste.

 $\bigcirc$ 



 $(\mathbf{b})$ 

Ultraleather<sup>™</sup> | Ultrasuede<sup>®</sup> | TapiSuede<sup>™</sup> | Grospoint | Geneve | Silks | Optique'

www.tapiscorp.com

۲

28 KAYSAL COURT • ARMONK, NEW YORK 10504 • 800.275.0275 • 914.273.2737 • info@tapiscorp.com

### Bold decision

So far at least, all-business-class airlines have had a somewhat chequered history. All-premium start-ups Eos, MaxJet and Silverjet all nosedived rapidly, citing difficulties with negotiating fuel contracts and too few aircraft. However, BA is evidently a believer in the concept. Last summer it acquired French transatlantic all-premium carrier L'Avion, which operates two 90-seat Boeing 757-200 aircraft on a Paris-Orly to Newark route. Rebranded as OpenSkies, the airline offers all-business class travel between the two cities and doubled its market share on the route last year. It is the first airline created as a result of the EU/US Open Skies Agreement, which allows airlines to fly between any US and EU destination. For a short period, L'Avion flew between Amsterdam and New York, however BA suspended services for the city pair this August. CEO Dale Moss said: "While OpenSkies developed more than 16% market share during only nine months, it was not enough to sustain a profitable service [between New York and Amsterdam] at this time."

Meanwhile rivals have exercised caution. Virgin Atlantic postponed its plans for an all-businessclass airline and Lufthansa is downscaling some of its premium services. It will adopt a 92-seat mixed-

minutes before departure, are connected to the internet in flight and can clear customs in Ireland en route, thus limiting 'dead' time during their journeys.

One of the aces BA holds is the pre-clearance customs and immigration facility it offers at Shannon, where it will refuel after departing LCY. The refuelling is necessary to give the A318 the necessary range over the Atlantic on the westbound route (eastbound is non-stop). Shannon is the only airport outside of Canada and the Caribbean that offers full pre-clearance and BA pays a premium for it to run the service. However, the facility should prove fruitful for customers. Stubbs says: "We will arrive at JFK Terminal 7 and passengers will go straight to the domestic baggage reclaim collection area."

KEEP IN TOUCH Travellers can work throughout the flight as a result of connectivity provided by the OnAir Airbus/SITA partnership. This taps into Inmarsat's higherbandwidth SwiftBroadband service, offering GSM/GPRS and internet. Passengers can access the web via their own laptops, as well as send and receive emails. Since the service is offered via agreements between their own network providers and OnAir, the price to log on is in line with normal roaming charges.

Although the aircraft are enabled for mobile phone voice coverage, BA has switched the facility off for the



class configuration, including an economy cabin, on some of its PrivatAir business aircraft that fly to the Middle East from Frankfurt. PrivatAir operates three jets on behalf of the German flag carrier, normally fitted with an all-business layout of about 48 seats. PrivatAir also operates business-class-only services between Frankfurt and Pune and Munich and Mumbai for Lufthansa; between Amsterdam and Houston for KLM; and between Zurich and Newark for Swiss.

03. OpenSkies' Boeing 757-200s feature an allbusiness-class cabin with restyled Club World seats

initial flights and will ask its customers for their feedback before making the decision to go ahead with voice calls. There are concerns about noise disturbance. Stubbs says: "With most phones you can turn up the volume on your headpiece, so theoretically it should be no worse than anywhere else. The cabin crew will discreetly deal with the situation should there be a problem."

WEIGHT LOSS To entice customers further, in addition to installing OnAir and portable IFE, BA worked intensively with Airbus at Toulouse to design the premium cabin. Reducing weight was a critical factor. The aircraft is constrained by the short runway at London City, so minimising weight to maximise fuel lift was paramount. B/E Aerospace provided the lie-flat seats. Stubbs says: "We got B/E to take out an unnecessary structures without damaging the integrity of the seat. For example, there were substructure drip trays in the standard seat, which were not relevant to us." In addition to eliminating surplus parts B/E created a reclining seat with no preset positions - i.e. it can stop at any point in the recline/upright process, so passengers can set it to their own requirements. The seat has a motorised leg rest and an ottoman at the bottom of the 6ft flat bed. There are also two power points, which can take UK, US and EU plugs so passengers do not need to lug an adapter on board.

#### **BA**LONDON-CITY

04. London City airport offers executives central London access in minutes



56

### BA IS COMPETING WITH THE PRIVATE AVIATION SECTOR SO HAS UPPED THE ANTE WITH EXTRA FLIGHT CREW TRAINING

The carpet is an extra light wool and nylon mix designed for longevity. Nylon notoriously creates static, so the designers wove in anti-static loops to the blend.

BA wanted to create a comfortable roomy cabin and chose a white gloss outer shell for the seat, which opens up the space with easy to maintain reflective surfaces. The result is a light and airy atmosphere with a colour scheme in keeping with BA's Club World product. The seat interiors are bronze and grey with a brown herringbone weave in a blue fabric, creating a warm environment. Stubbs says: "We wanted a snug feel – a space to work and sleep." Herringbone is a key feature throughout the design, appearing on the seats, bulkhead and sidewalls.

There is mood lighting on board, including a five-minute 'wake up' programme, which gently acclimatises passengers to daylight on the overnight flight. Blue accent lighting illuminates the grab rail running the length of the cabin.

Meals are another important product differentiator. The aircraft sport brand new steam ovens in fore and aft galleys. There are two small galleys at the front and a larger workspace at the back. Although the airline has not yet selected a catering provider, it is working on menus with its specialist taste teams, headed by the likes of celebrity chef Michael Roux. Stubbs says that most passengers are likely to want to sleep on the evening inbound flight, so there will be an appetiser service on offer, with a full meal on request. Those customers wishing to maximise their rest will be offered a take-away breakfast rather than eating on board.

BA is competing with the private aviation sector, so has upped the ante with extra flight crew training. Staff will be 'semi-dedicated' to the route. Stubbs says: "We are having a deep soak in our customer profile and targeting a small niche. We expect the majority of passengers will be regular customers, so personal service and indepth training will give us a good understanding of their needs."

Several new all-business class services have had their wings clipped over the last few years, not least as a result of trying to operate new routes with a limited number of aircraft. BA is fielding just two A318s on its new service. Stubbs says that the airline will avoid some of the worst problems with grounded aircraft because of the large number of flights it operates to JFK from other London airports. He says: "We have ten flights a day going from Heathrow so if the worst comes to the worst, we can easily get our customers to New York."

BA believes its revenue projections will hold up, even factoring in fuel price fluctuations. Despite the recession, the carrier is forging ahead with its new service. Thanks to economies of scale and strong fuel buying power, it might just succeed where others have not.  $\boxtimes$ 

CONTACT British Airways, Web: www.britishairways.com



One plus one results in more than two:

- > Corporate Synergy.
- > Fresh ideas for aircraft interiors.
- > Individual textile concepts.
- > Creative, flexible and customer focussed design teams.
- > Local contacts worldwide.

ROHI – a premier supplier of high-quality aircraft textiles for seat covers, curtains and headrests. Geretsried, Germany / +49-8171-9354-0 / info@rohi.com / www.rohi.com

ANKER-TEPPICHBODEN – a leading European producer of commercial textile floor coverings. Dueren, Germany / +49-2421-804-216 / aircraft.carpets@anker-dueren.de / www.anker-carpets.com

## softmachine

Using software rather than hardware to assess the safety of new seat designs promises to make innovation easier – or so the theory goes! BERNARD FITZSIMONS, AIRCRAFT INTERIORS INTERNATIONAL

Certifying passenger seats is an expensive and time-consuming activity. Now efforts to use simulation instead of physical testing are approaching the point where the techniques and the models used will be accurate enough to be acceptable for certification. But there is a lot of work still to be done, both in refining the models and simulations and in winning acceptance by aircraft manufacturers and certification authorities.

The starting point for the current effort is a Federal Aviation Administration advisory circular published in 2003. AC 20-146, Methodology for Dynamic Seat Certification by Analysis, provides guidance on how to simulate a test, which essentially involves detailing the areas in which a computer model must demonstrate correlation with a physical test.

Dr Gerardo Olivares, technical director of the Computational Dynamics Lab at the University of

Wichita's National Institute for Aviation Research, told an FAA technical meeting in July that physical testing is increasingly being replaced by numerical simulation models because they offer a more rapid and less expensive way to evaluate design concepts and design details.

۲

In aerospace, numerical simulation methods are applied primarily at the end of the product development process, Olivares says. They are often used to confirm the reliability of an existing design or to improve it by optimisation. And there are various computer-aided engineering (CAE) tools, such as LS-Dyna and Madymo, that could be used for solving aircraft crashworthiness problems.

LS-Dyna is already used widely to simulate bird strikes and engine blade containment and to analyse structural failures. Embraer has used Madymo to support certification of new seat layouts, often eliminating testing costs of £300,000 or more, according to the software's





## **AEROLUX** FOR DISCERNING AIRLINES

۲



## ENHANCE YOUR INFLIGHT SERVICE WITH AEROLUX GALLEY INSERTS

INCLUDING:

COFFEE MAKERS, ESPRESSO COFFEE MAKERS, TOASTERS, SKILLETS, RICE COOKERS, REFRIGERATORS, WINE CHILLERS, OVENS, BUN WARMERS.

AEROLUX LTD Chorley Road, Blackpool, Lancashire, FY3 7XQ England Tel: 44(0) 1253 396670 • Fax: 44(0) 1253 300074 • Email: sales@aerolux.co.uk • www.aerolux.co.uk



developer, TASS. When it comes to seat design, Olivares suggests, these tools are most usefully applied in a systems approach that uses a combination of CAE analyses, component tests, and sled or full-scale tests.

HARDWARE PUSH "When AC 20-146 was published," says Alfons Stachel, director of certification at Recaro Airline Seating, "neither the tools nor the hardware were advanced enough to make rapid progress." Now, though, "the hardware is absolutely sufficient to cope with the challenges we have in current programmes."

To achieve a result that will be acceptable to the airframers or the certification authorities involves comparing the outcomes of real dynamic tests and simulations. There should be no more than a 10% difference between the actual and predicted results in specific measurements, which range from the performance of seat belt anchor points to femur loads. Then the mathematical model can be used to predict the test results of changes to the physical structure.

"That is the structural branch of the problem," Stachel comments. Much more difficult, he says, is the problem of head injury criteria. "These are the tests you have to carry out from row to row," he explains. "It's very difficult to deal with carbon fibre-reinforced plastic or pure plastic, because the plastic material is extremely velocity-dependent." That means the mechanical characteristics change with the speed of impact, "so you have to do a lot of material testing before you start the simulation."

So far, Stachel says, Recaro has achieved the ability to predict whether components will pass or fail a test from the pure structural point of view: "We did a lot of material tests with the aluminium alloys and plastic compounds we use, so this problem can be solved nowadays."

Obtaining acceptable results from HIC simulation, though, is an area where "we still have to fight," he says. Using a crash test dummy model from First Technology Safety Systems, which is regarded as acceptable, and LS-DYNA simulation software, Stachel says, "we cannot really hit the HIC value described in the AC. But what we can do is when we have a failed test, we simulate the test with the HIC and then we make a change and can tell by how many per cent we will bring down the HIC value. That means we can predict a change, but we are not so far advanced that we can take these results to the authorities and certify a HIC programme."



۲

**VIRTUAL**CERTIFICATION









THE BIG ATTRACTION IS THAT YOU REALLY CAN SAVE MONEY – AND YOU CAN CARRY OUT PROGRAMMES MUCH QUICKER

> The HIC problem is being addressed by standards body SAE International's aircraft seat committee, which has drafted ARP 5765 – Analytical Methods for Aircraft Seat Design and Evaluation, and by a parallel European programme. The ARP aims to identify industry recommendations and best practice methods in the simulation of aircraft seat and occupant finite element models. Finite element modelling is the mathematical technique for reconciling multiple simultaneous equations.

> "When this ARP is fixed I guess more and more seat suppliers will try to certify seat programmes by simulation," Stachel says. The big attraction is that "you really can save money," he says. "And you can carry out programmes much quicker."

> BOTTOM UP The real challenge in the future, Stachel believes, will be the teamwork between the seat suppliers and the authorities' certification departments. The

authorities do not have the capability needed to check that a model is acceptable, he says, so they will need additional personnel who can interpret the results of the simulation to enable the authorities to decide whether to accept them.

To achieve the goal of certification by simulation, there must be an internationally accepted quality standard, he says: "That means the acceptable level of quality must be communicated throughout all seat suppliers, understood and implemented into their development." That will take at least a year or two.

Not every seat supplier is represented at the meetings, he says. While B/E and Contour are among the attendees along with Recaro, the absence of others suggests they have a different approach to future certification. But the participants share the same philosophy for the future, "and this makes the pressure on the authorities very high and means the authorities see the necessity."

The crunch is likely to come in 2012 or 2013, he believes, when the current crisis should be over, renewed growth in demand is likely and there will be new aircraft to be certified. "In order to be prepared for that rise in certification work all seat suppliers should be capable of simulation to a certain level of percentage of all programmes."

The ultimate challenge, Stachel says, will be to certify a programme which needs both structural and HIC



 $( \bullet )$ 

OG2 Aircraft Interiors International.com SEPTEMBER 2009



## Innovation in Aircraft seating.

- ⇒ Suitable for all Aircraft
- ➡ Modular Seat Concept: same basic structure for all different ECO seats
- ➡ Low weight
- ⇒ Available for Short, Medium, Long Range and Premium Economy



ZIM Flugsitz GmbH Röntgenstraße 7 88677 Markdorf Tel. +49 (0) 7544 9572-0 infoldzim-markdorf.de

#### www.zim-flugsitz.de

## automotive hteriors EXPO 2010

The car and truck interior design, development and construction showcase

## 22, 23, 24 JUNE 2010 NEW MESSE STUTTGART, GERMANY

Automotive Interiors Expo will be launched in Stuttgart in June 2010 to provide the automotive design, development, engineering and manufacturing community with a first-class international showcase exhibition for car and truck interiors.



Created by the founders of the market-leading Aircraft Interiors Expo and Railway Interiors Expo and the five hugely successful and highly focused European automotive trade Expos that take place in Stuttgart every year, this new event will give the automotive interiors community a level of visibility for their products and innovations that has been amazingly lacking within the European automotive industry.

#### For more information on exhibiting at the event please contact:

Jason Sullivan Sales Manager Automotive Interiors Expo 2010 UKIP Media & Events, Abinger House, Church Street, Dorking, Surrey RH4 1DF, UK Tel: +44 (0)1306 743744 Email: jason.sullivan@ukintpress.com

## www.automotiveinteriorsexpo.com

**VIRTUAL**CERTIFICATION



substantiation: "When the supplier can achieve that then the supplier has reached the top of the challenge." Recaro's own programme started three years ago "and now we have reached a level where we really can predict structural failure very well, but the next two years we have to work very hard and concentrate on the challenge to predict HIC value."

۲

One thing Recaro has found is that "we cannot do it alone," he says. "It's absolutely not possible. We need the SAE meetings, we need communication between seat suppliers, and we need a strong back-up from the authorities." The airframers' certification engineers are very cautious in their attitude, and once they are persuaded the authorities still have to be convinced. Consequently, he says, the speed at which certification by simulation can be introduced depends not only on the capability of the seat suppliers, but also on the readiness of the airframers to accept it and the support of the authorities.

Pressure from the authorities can be beneficial in pushing the manufacturers to adopt new approaches, he says. But in this case the pressure is coming not from the top down but from the bottom up, "so we have to ignite the authorities to [apply] pressure to the airline industry to accelerate the process."

### WE HAVE TO IGNITE THE AUTHORITIES TO [APPLY] PRESSURE TO THE INDUSTRY TO ACCELERATE THE PROCESS

Stachel is impatient with the rate of progress: "We are not quick enough. We could be quick enough, but we have not enough pressure from the top. This can be accelerated when authorities would encourage the aircraft industry and the airlines to give the suppliers the chance to do the certification by simulation."

He detects very different attitudes on the part of EASA in Europe and the FAA on the other side of the Atlantic. At the recent meeting, he says, "FAA was extremely conservative, EASA was conservative but they opened the door a certain amount: 'show me your simulation so I can build up trust, and when I can have enough trust I would like to help you to do that'."

Once there are enough comparisons of test and simulation results and a big enough database to convince the authorities, "then I think the error is broken – the error

۲

**VIRTUAL**CERTIFICATION

WE NEED ABOUT TWO OR THREE YEARS TO HAVE A GOOD DATABASE FOR THIS COMPARISON BETWEEN TEST AND CERTIFICATION, AND TO BUILD UP A LEVEL OF TRUST WITH THE AUTHORITIES



of being cautious, of not trusting the simulation. This is the real problem. A change in mentality must appear in each person dealing with certification, from the company where you work to the authorities at the top."

Building up that trust means developing the tools and accepting a common way to build up the model. "I guess we need about two or three years to have a good database for this comparison between test and certification, to build up a level of trust with the authorities, and establish a common sense of how to do the simulation," Stachel concludes. "And we have to do a lot of work to convince people to trust it – this is not an easy task."

But it will be worth it, he insists. The seat industry is faced with constantly changing and growing requirements which mean "we cannot live with the processes from the past."

**TOLERANCE MANAGEMENT** The potential benefits extend well beyond simulation, which can be applied to improve realiability and even the assembly process, Stachel says: "The complete tool scenario must be pushed forward in every company to cope with the challenge in the future." CAE can be used to make parts cheaper, and tolerance management tools from the automotive industry can help reduce costs even during the initial production phase.

"When you enter production," he elaborates, "you might measure three or four or five parts and every part is green, every part is good. But when you assemble them then you get a terrible shape or you get a bad fit. To avoid that you must do tolerance management during the development process." Tolerance management has been used for years in the automotive industry, is being used more and more in aerospace and is "absolutely necessary" when it comes to more complex seats, he says: "In our business-class seats we see a necessity to do tolerance management."

The benefits of simulation listed by Olivares include reduced certification costs, reduced development cycles and improved products design. He even envisages a future process in which a computer-aided design library of interior components can be used to feed an interactive virtual reality model of the complete cabin that can be modified in real time and then certified by analysis.

CONTACT

Joint Advanced Materials & Structures Center of Excellence, Web: www.jams-coe.org










•

### **GET THERE. IN STYLE!** PREMIUM MOBILITY TEXTILES FROM ONE SINGLE SOURCE.

MADE IN SWITZERLAND.

- Seat cover, curtain, headrest and pillowcase fabrics ••
- Wilton woven and tufted carpets ••

۲

- •• Hand-tufted and hand-woven carpets
- >> Embroidered carpets; seamless wool carpets in any shape and color a world-wide exclusivity



Customized products are manufactured with very short delivery times and little minimum order quantities! A wide range of collections is available on stock with no minimum order quantity!



TISCA Tischhauser & Co. AG | Grüt 163 | CH-9055 Bühler AR | Switzerland | Tel +41 (0)71 791 01 11 | Fax +41 (0)71 791 01 00 | mobility@tisca.ch | www.tisca.ch



# highrise

Pie in the sky or inevitable long-haul product development conclusion? A new generation of tiered seating and sleeping schemes aim to turn headroom into bedroom

BERNARD FITZSIMONS, AIRCRAFT INTERIORS INTERNATIONAL

Both Airbus, on the A350, and Boeing, on the 747 and longer range 777s, have exploited the space in the crown of their aircraft fuselages, above the cabin ceiling, to provide crew rest areas. When it first revealed its overhead crew rest options, Boeing calculated that they would save up to four passenger seats and four cargo containers on the 777-200ER/LR, while the -300ER would save as many as seven seats and six cargo containers. Even in 2003, when Boeing revealed the scheme, that represented estimated savings of US\$4.9 million to US\$11.25 million over 20 years.

Boeing subsequently offered a SkyLoft option on the 747-8 Intercontinental, suggesting that the space in the crown to the rear of the aircraft could be used for first-, business- or even economy-class suites, additional main deck seats, a lounge, exercise area, galley or crew rest. The galley option, which made room for 12 more seats on the main deck, was the only one to find favour with potential airline customers, though some private buyers of 747-8s have opted to use the space – all 75m<sup>2</sup> of it – for berths and lounges.

However, a growing number of innovators are proposing to exploit the only unused volume left on a wide-body airliner – the overhead space available within the cabin itself. Approaches range from using small steps to squeeze a few more flat beds into business class through  $( \bullet )$ 



TO AVOID COMPROMISING SEATING DENSITY, IT STAGGERS THE BEDS VERTICALLY (USING A SERIES OF PLATFORMS) SO THAT THEY OVERLAP

to a new generation of two-tier sleeping accommodation that could provide A380 economy-class passengers with their own beds.

HOME FRONT Sicma Aero Seat started working on its Make Yourself At Home (MYAH) arrangement of seats and beds as a concept demonstrator for this year's Aircraft Interiors Expo in Hamburg. "We wanted to show what the future could be," says marketing and innovation director Laurent Stritter. "And the more we worked on it the more we realised it was something feasible."

MYAH overcomes what Stritter says is a fundamental problem – the impossibility of making a seat that is equally comfortable in the upright, reclined and flat-out positions. It does so by combining a seat optimised for sitting with a dedicated bed located alongside the seat. And to avoid compromising the seating density, it staggers the beds vertically (using a series of platforms) so that they overlap.

The concept went down well in Hamburg, Stritter says, with three or four airlines asking for follow-up studies. He foresees no certification problems. "It's very straightforward in terms of dynamic testing," he says. "The passenger will be sitting on the seat for take-off and landing, so the innovation with the bed doesn't impact the dynamic certification." In fact, he says, the only area where further work is required is to ensure that there is adequate airflow for proper ventilation of the beds: "It's really a matter of optimising the space vertically. So it could turn into reality quicker than we expected."

THIRD DIMENSION Aviointeriors has sought to increase the density of flat-bed business class seats while maintaining the same level of comfort. Compared with existing arrangements, whether conventional or staggered, Swiss-style, opposed, facing or herringbone, the company reckons to be able to fit more of its new Third Dimension seats: 21 in a cabin length of 187in, for example – five more than can be accommodated in an opposed or herringbone configuration and nine more than is possible with a staggered arrangement.

Technical director Gaetano Perugini says the motive is to provide a fully flat sleeping position without increasing seat pitch. In a conventional cabin configuration a fully flat





01. Sicma Aero Seat's MYAH provides a separate seat and bed
02. Aviointeriors'

( )

Third Dimension staggers seats vertically to deliver a flat bed at a competitive pitch

# Reliable Materials for Passenger Comfort & Safety BISCO<sup>®</sup> Silicone Foams

۲

#### Lightweight Solutions for Acoustic & Fire Barrier Applications

۲

**BISCO**<sup>®</sup> **Silicone Foams** offer a wide range of performance materials that ensure passenger comfort and safety.

BISCO Silicone materials are formulated to meet international standards for low flame, smoke and toxicity and provide long-term performance for sealing, vibration isolation, and noise reduction applications.

For a safe and sound solution to your aircraft interior design challenges, learn more about BISCO Silicones by requesting a copy of Rogers' Aircraft Interiors brochure at www.rogerscorp.com/air

Fire Safe Solutions for Alrcraft Interiors

The world runs better with Rogers.®

USA 607.786.8112 EUROPE +32.9.2353611 CHINA +86.21.63916088 JAPAN +81.52.682.5851

BISCO is a licensed trademark of Rogers Corporation.



### **BISCO®** Silicones

¥

# **ANYONE FOR CHESS**

۲





European Skybus in conjunction with Chameleon Products Ltd we are proud to present our new 16G seat "CHESS".

Utilising the Chameleon Decorative Process we have been able to offer customers a truly unique Business Class seat.

The Chameleon technology has enabled us to utilise the traditional meal table and change it into a chess board.

In addition to the Chess board, once again utilising the technology we have been able to add unique Bamboo and Fabric inserts into the table also.

The C2C Chess seat compliments our C2C range of business class seats currently installed in many commercial and VIP Aircraft.

We currently have over 2000 pax places in stock and can provide a bespoke business class seat in approx 6- 8 weeks at a considerable saving over new manufactured seats.

# IF YOU WANT QUALITY, VALUE AND ORIGINALITY THEN CONTACT US

# "CHECK MATE"

**EUROPEAN** SKYBUS LIMITED

۲

**EUROPEAN SKYBUS LTD**, BROMYARD ROAD, LEDBURY, HEREFORDSHIRE, HR8 1LG, ENGLAND Email: trevorw@euroav.com | Tel: +44(0) 1531 633000 | **www.euroav.com** 



bed suitable for a 95th percentile occupant requires a 77in pitch, he says, and other variations compromise density or privacy.

The Third Dimension seat combines forward-facing, aft-facing and elevated seats to enable the seats to overlap at different heights when fully reclined. The result, says Perugini, is that a bed equivalent to that available in a first-class seat with an 80in pitch can be provided in seats pitched at 63-67in. The seat's weight is comparable to that of a current full flat seat, with the same comfort solutions, a length of 78in and a width in the shoulder area of 25in.

The manufacturer had completed preliminary definition of the seat design and installation by the time of the Hamburg Expo. By June, Aviointeriors was finalising the specification of the necessary customised actuators with two potential suppliers. A static demonstrator mock-up was due for completion by mid-July, and an initial prototype by September.

For certification, the company adds, the standard forward-facing seat is comparable to a current seat and the standard aft-facing seat will have to satisfy established criteria for such seats. The central seat, which is about six inches higher than the others, presents higher floor track interface loads, but they will be neutralised by increased distance between the front and rear studs along with an adequate energy absorber.

DOUBLE UP Mexico City-based Airborne Hotel Systems (ABH) brought a full-scale mock-up of its 'abh' sleeper concept to Hamburg, with six seat-beds in four modules representing part of a premium-economy installation on the upper deck of an Airbus A380.

( )

ABH traces the idea of two-tier passenger beds back 75 years to the Douglas Sleeper Transport, a variant of the

## THE DESIGN ENABLES MULTIPLE ANCHOR POINTS TO BE USED RATHER THAN A SINGLE FLOOR ATTACHMENT

DC-3 whose 14 seats converted to seven beds while another seven bunks were folded down from the cabin's upper sidewall. Its own take on the concept is optimised for the A380 cabin.

The design enables multiple anchor points to be used rather than a single floor attachment so that the structure can be of lighter materials: each two-tier module is claimed to weigh the same as a conventional seat. Detailed threeclass configurations developed for the A380 accommodate up to 580 passengers and the three aisles that are integral to the concept increase aisle space by 50% and mean 70% of economy-class seats would be next to an aisle. An ergonomically designed four-rung ladder provides access to the upper level without obtruding into the aisle, and each module incorporates its own baggage bin behind the video screen.

The company was formed in 2005, but the principals have been working on the concept since 1996 and patented it in 2002. Company president Carlos Martinez-Celis says visitors' reactions to the replica cabin section were generally favourable and enthusiastic.

Contrary to expectations, he says, "not one person mentioned feeling confined or ill-at-ease with their surroundings. Instead, they welcomed the prospect of having a certain degree of privacy." Opinions on specific 03-05 The Airborne Hotel sleeper concept features an ergonomically designed ladder  $( \bullet )$ 



Aircraft Interiors International.com 073



06

# BI-LEVEL CONFIGURATIONS OFFER FAR MORE EFFICIENT USE OF SPACE, WHILE ENHANCING THE PASSENGER EXPERIENCE

06. The abh concept includes single seat units next to the windows

07. MmillenniumM Group's AirSleeper concept parts of the overall design, such as video screen and service table location and premium-economy/business-class differentiation, will help with fine-tuning of the design's features and technical details, he says.

Martinez-Celis adds that Airborne Hotel Systems has also built and evaluated modules designed for economyclass cabins, and that the design can be adapted for other wide-body airliners from both Airbus and Boeing. The company anticipates that floor-level seats, which account for over 50% of the accommodation, would be designated as preferential seating for the elderly and handicapped.

Certification of any bi-level seating system is likely to pose a demanding challenge, Martinez-Celis accepts, but "we are also confident that careful designing and engineering will ultimately produce technical solutions that can overcome this issue," he says. In practical terms, he says, bi-level configurations offer far more efficient utilisation of the available space within commercial aircraft passenger cabins, while enhancing the passenger experience.

HUMAN FACTOR US-based MmillenniumM Group has set itself the ambitious goal of developing two-tier sleeping accommodation that will provide flat beds at between two

۲

and three times the density of existing business-class seats and the same density as regular seating in economy and premium economy. Moreover, it aims to certify its patented AirSleeper for take-off and landing in any position, from fully reclined to upright.

MmillenniumM's starting position is the view that an increasingly efficient infrastructure for business jets will drive the top tier of commercial air travellers towards fractionally owned private aircraft as airport congestion becomes a factor in their choice over the next 20 years. Consequently, the company believes, the mainstream commercial airline industry will focus more on the value segment. At the same time, says MmillenniumM Group founder, chairman and chief executive Dr Arjuna I. Rajasingham, accommodation of human factors is lagging the long-haul performance of aircraft.

The AirSleeper aims to respond to those trends by offering the same comfort in a smaller volume so that passenger density can be increased, and by providing a new value attribute it terms 'on-call sleep'. There's no requirement for modification to the aircraft, and the modular structure allows rapid redeployment of alternative architectures to allow a single aircraft to service diverse markets without significant down time, according to Rajasingham.

The design also addresses the ergonomic needs of cabin crew, he says, by optimising hearing proximity and reach for service at both levels. Most important, he stresses, is the fact that the AirSleeper is designed for safety, with a structure designed to withstand crash loads using standard seat tracks. All passengers would have immediate aisle access, making evacuation possible within the required 90 seconds.

STEP UP When Boston-based inventor Emil Jacob of Jacob-Innovations decided it was time to do something about the sleep deprivation he had suffered as an airline passenger, one of his first moves was to review existing ideas. He found patents going back decades, he says. "But none of them used steps."

That, he believes, is the obvious way to provide access to above-the-floor passenger accommodation: "There are dozens of schemes that use ladders," he says. "But to me





### LET YOUR IMAGINATION FLY



# Delivering value, business and knowledge

# Flying in the 21st Century – strategy forum

#### DAY 1

DAY 2

DAY 3

Streamlining for the future – opportunities to drive down cost

Bumping up profits – using the cabin interior for revenue enhancement

Visions for the future – the key trends that will shape the cabin and airline businesses

### **REGISTER FREE NOW AT**

www.aircraftinteriorsexpo-asia.com

08 - 10 SEPT 2009

ASIA WORLD EXPO | HONG KONG















۲

Most people don't think of the importance of wire and cable when flying...

We do.



The #1 Source in High-Performance Wire & Cable

Commercial & Military Wire and Cable Solutions for your high-temperature harsh-environment needs. ۲

Visit us at NBAA 2009 Booth #964

۲

Aerospace | Military | Transportation | Industrial | Specialty

USA 800-423-5873 • Asia & Other International +1-661-295-3100 • www.thermaxcdt.com

**VERTICAL**SPACE



the simplest thing is just to step up in the same way you do in daily life."

Three years on he has developed a suite of variations on the theme. His Flex-Seat, which uses cabin height to its fullest advantage, has a full upper tier of seats cum fully flat beds, each accessed via its own flight of five steps. The arrangement promises enhanced privacy, provides additional lateral space for laptop, papers or even babychanging, and could include space for hold-size baggage.

"Each person will have a private space of their own," says Jacob of the Flex-Seat, "which is why I say it's superior to the business-class seat of today." Better still, from the airline point of view, "the density would be about double a typical business class with fully reclining seats."

Jacob's Business-Flex1, which raises alternate rows of seats two steps so that the passengers sitting at floor level can extend their legs under the seat in front when fully reclined, increases density to a lesser extent but may pose less of a technical and certification challenge. Business-Flex2 – developed for an airline client who wanted 2m-long beds – combines the first two ideas, with two complete tiers down the centre of the cabin and alternate raised seats in the window columns. Another variation accommodates the same length of bed on the upper deck of a Boeing 747.

Designs that Jacob has developed for economy class include the Economy-Comfort, which raises alternate rows a single step of about 7in and enables seats to be reclined 45° while maintaining typical economy pitch. "This model is superior to premium economy designs in terms of recline," he says. "But it offers the same density as regular economy."

STACKED SLEEPER London-based design firm James Park Associates (JPA) came up with its stacked sleeper design, which effectively elevates alternate rows of seats so that they are above and slightly forward of the rows on the floor, in 2001. "It was originally done in conjunction with a client," says JPA's senior designer Ben Orson. "It's not something we've developed much further for production,

# THE BOTTOM LINE IS IT INCREASES DENSITY WHILE MAINTAINING A GOOD SET OF PASSENGER FEATURES

but it seems to be gathering more interest and momentum at the moment."

 $(\mathbf{\Phi})$ 

Stacking the pods or compartments, which individually mimic the function of a standard business-class seat, "allows you to effectively compress the rows longitudinally," Orson says. "It gives you a very dense arrangement of fully functional seats, it gives the passenger a unique and nicely controlled environment to spend their time in. The bottom line is it increases density while maintaining a good set of passenger features."

One advantage of the stacked sleeper is that it gives passengers a familiar environment, Orson says: "They're not being asked to sit in a different position or have a peculiar view of the cabin, and I think some of the other concepts out there are compromised in that respect. If you look at the space available it's reminiscent of a luxury car, with a relatively close ceiling and a screen in front of you, although it's a TV rather than a windscreen."

Turning the concept into in-service hardware would require some impetus form a customer with enough influence to persuade the airframers to consider it, Orson believes. "Getting this sort of thing certified and attached



08. Jacob Innovations' Flex-Seat uses steps to reach the upper level
09. BusinessFlex1 raises alternate rows of seats

#### **VERTICAL**SPACE



# 66

### WE'VE TAKEN THIS TO A REASONABLY DEVELOPED LEVEL AND WE'VE NOT HAD ANY SIGNIFICANT SHOWSTOPPER FEEDBACK

11

10-11 James Park Associates began exploring the idea of stacked sleeper seats back in 2001 to the aircraft would be quite a big challenge." Certification aside, though, "we've taken this to a reasonably developed level now and we've not had any significant showstopper-style feedback from any of the airlines we've spoken to." Any installation would probably be on a forward fit basis, he considers. "If you look at how you'd engineer it, ideally you'd be looking at not just attaching it to the floor of the aircraft," he says. And that might be too radical to be achievable as a retrofit.

NO SEAT? Another radical scheme, one that has recently attracted the attention of Ryanair chief executive Michael O'Leary and consequently of designers such as JPA, is the standing seat. Unlike the others considered here, this would exploit the more limited vertical space in a narrow-body airliner, and would invite passengers to trade comfort for lower fares.

"Again, you're asking passengers to do something unfamiliar, and people on aircraft like to be in familiar surroundings," Orson says. But it is certainly feasible, he believes: "It's a perch seat with a backrest. It takes the bulk of the weight off your legs and allows you to support your back as well to make a short flight bearable. It's actually a lot more akin to a traditional economy-class seat than the stacked sleeper is to anything else, so from the technological perspective I can't really see any significant challenges in terms of making the seat itself."

More problematic, he thinks, might be reinforcing the seat track attachments to cope with the additional crash load imposed by an increased number of passengers with their centre of gravity at a higher level. But such a design might actually make it easier to meet the constraints of head injury criteria: "With a conventional seat you're only restrained at the waist and your head's free to travel forward about 25in into the thing that eventually stops it. If you move that thing in front of you closer, you're giving the head less chance to accelerate during a crash and it would probably reduce the potential damage from that seatback. You'd have to make the seat back sympathetic to being head-butted, but it might actually improve that situation."

#### CONTACTS

Airborne Hotel Concept, Web: www.airbornehotel.com.mx Jacob Innovations, Web: www.jacob-innovations.com MmillenniumM Group, Web: www.airsleeper.info



0

۲

# The YOUNG ENGINEERS, Inc. engineering • manufacturing • aerospace fasteners

### **Composite Fasteners**

۲

Loret Isolator Inserts™

Loret Latches™

۲

25841 Commercentre Drive | Lake Forest | California 92630 | Phone 949.581.9411 | Fax 949.583.7662 | www.youngengineers.com

0

# futureperfect

In-seat sensors, a powerful local area network, and a huge increase in connectivity bandwidth are at the heart of European avionics giant Thales's future cabin vision

BRENDAN GALLAGHER, AIRCRAFT INTERIORS INTERNATIONAL

It's the year 2030 and all is tranquil in the cabin of the transpacific airliner. The dinner service has come and gone, and many passengers have turned to the in-seat electronics for work, rest and play. Others have decided to call it an evening and are pleasantly surprised when flight attendants appear as if by magic to wish them goodnight and offer extra pillows and blankets. On the flight deck, the pilots systematically scan their panels, monitoring the aircraft's position and the status of its systems.

At first sight the environment for passengers and crew seems to have changed little since 2009. But closer inspection reveals that some huge technological steps forward have wrought a transformation in the long-haul travel experience. Twenty years earlier, in-flight entertainment (IFE) and connectivity meant watching a movie, checking email and favoured websites, perhaps playing a two-dimensional game on the 10in seatback screen. Now hundreds of megabits, even gigabits, of data can flow into and out of the cabin, allowing passengers to interact in real time with virtual realities on the ground – conferences and meetings, work sites, multi-player 'total immersion' games, evening schools and university classes. ۲

Anticipating the needs of the individual traveller depended on the experience and good judgement of each flight attendant. Now a combination of in-seat sensors, a powerful local area network and some very smart software can almost read the passenger's mind, prompting cabin staff to check on a restless unaccompanied child, for





۲



۲







DEDICATED TO HELPING BUSINESS ACHIEVE ITS HIGHEST GOALS.

WWW.NBAA.ORG



example, or gently suggest some stretching exercises to a sixty-year-old.

Oceanic flight was a tedious business for the pilots. Effectively locked into a fixed course and altitude for hour after hour, they could do little to react to en route weather changes and save time, fuel, dollars and carbon emissions. Now the aircraft is an information node plugged permanently into a network embracing controllers and operations centres on the ground, and all the other aircraft within a couple of hundred miles. Knowing the exact location of nearby traffic, and completely visible to controllers watching from thousands of miles away, they are free to fly as efficiently as possible.

PRESENT DAY Back to the year 2009, and avionics giant Thales, supplier of the TopSeries IFE system and TopFlight satellite communications, is working hard to realise a vision that calls for up to a hundredfold increase in connectivity bandwidth, a fluid, always-on flow of data between air and ground, and a completely new way of looking at the cabin local area network. "I expect the pressure for more bandwidth to come from new passenger applications like virtual presence," says Barry Trimmer, technical director at Thales Aerospace UK. "Virtual presence is fundamentally interactive – you can't load applications on to the aircraft server at the gate and run them later. Supporting that kind of interactivity in flight would need up to 2Mbit/sec of streaming video per user. Assuming 100 simultaneous users, that's a peak demand of 200Mbit/sec."

Even that might prove to be an underestimate, Trimmer suggests. "Up to now, every time anyone like me has tried to predict the demand for bandwidth, we have got it wrong on the low side," he says. "It's hard to see today's air-toground connectivity systems, with their maximum capacity of single-figure megabits to the aircraft, ever being able to meet the need."

Trimmer believes that physics will ultimately limit the ability of the satellite systems that currently provide broadband connectivity over the oceans and wilderness areas to supply the bandwidth that could be needed in the future. "Putting it very simply, to obtain that sort of capacity you

have to use electromagnetic frequencies much higher than today's L-band and Ku-band," he explains. "Higher frequencies imply larger numbers of narrower beams between satellite and aircraft, to the point where there would be so many that they could be impossible to manage."

PICTURE THIS Among the possible solutions that Trimmer and his team are looking at is something called 'mobile ad hoc networking' (MANET). Under this approach every aircraft in flight would be a node on a mesh network, equipped to receive air-to-air communications traffic from nearby aircraft and relay it towards its final destination. "Depending on the frequencies you used, this could deliver not megabits but gigabits to the aircraft," says Trimmer.

A MANET solution for aircraft has already been demonstrated by the US Federal Aviation Administration (FAA), which used Ku-band frequencies to deliver 45Mbit/ sec air-to-air. But Trimmer believes that the definitive answer could be laser – tightly focused beams of light capable of carrying enormous volumes of information.

"Aircraft-to-aircraft laser links have already been done in the military sphere," he says. "The question is when will it be possible to do it at a price that's acceptable to the airlines. Research is under way to bring down the cost of the equipment, and I believe we should be able to start deploying reasonably priced aircraft-to-aircraft lasers from about 2020."



I BELIEVE WE SHOULD BE ABLE TO START DEPLOYING REASONABLY PRICED AIRCRAFT-TO-AIRCRAFT LASERS FROM ABOUT 2020

Exotic as the technology sounds, developing it may not be the main stumbling block for this way of providing cabin bandwidth galore. More problematical could be the need to have a large proportion of the aircraft in a particular route system equipped before any kind of service can be launched. "You've got to have a certain mass of aircraft all equipped and ready to go at the same time," says Trimmer. "How do you persuade airlines to equip without any prospect of immediate benefits? In a steady state it would be a very effective thing – but how do you get it started?"

DOMAIN ISSUES However the data reaches the aircraft, it must then be delivered by the onboard networks to the

# sky power – More Power per Seat

For more than 20 years KID-Systeme has been creating and supplying innovative and reliable electronic cabin systems. Our pioneering and market leading SKYpower product delivers power to passengers portable electronics and IFE seat equipment, setting the standard for an added-value cabin experience. Furthermore, the vision of On-board Mobile Telephony has become reality with KID-Systeme's GSM on Board system. **www.kid-systeme.de** 

۲

۲

See you at WAEA in Palms Springs, booth # 319

۲









۲



# 

Sennheiser completes the link from your IFE system investment to your passenger's memorable audio experience with high quality sound, professional noise reduction, and comfort. The PXC 150i and the HDC 350 are the latest in premium IFE sound and noise canceling.

۲

www.sennheiser-aerospace.com



( )

consumers – not just passengers but also the pilots and the cabin crew. Improvements to that process, notably the use of a single onboard network to handle not only passenger communications but also safety-critical air traffic control and operations management information for the crew, are high on the agenda of Pierre Fossier, deputy VP research and technology at Thales Aerospace.

"Current aircraft have four separate electronic domains," he says. "There's the flight control domain, the innermost temple of safety and criticality. Then there's the flight deck avionics; the airline's own operational communications; and finally the systems used to deliver passenger services like IFE and connectivity. Traditionally, and for good reasons, they have been kept rigidly apart – now there's general agreement that they should be integrated."

Along with emerging passenger demand for connectivity, says Fossier, the drivers include the need to facilitate the flow of data between the aircraft and the air traffic management systems of the future, as well as the operations centres of airlines looking to operate their



# IN AN AIRCRAFT YOU CAN'T DO THINGS LATER – IT HAS TO BE DONE NOW AND IT HAS TO BE DONE CORRECTLY

aircraft on a leaner, more efficient basis. "Take the avionics domain," he says. "Up to now it has not been an open world – it's limited to the aircraft. Now we have to open it up to accommodate the datalinks that will support optimised air traffic management in the future."

66

The ideal is a single, unified communications and information-processing infrastructure on the aircraft to support all four domains and, except for the still sacrosanct flight control domain in the short term, integrate them with air-to-ground connectivity. What are the benefits and challenges, and how soon might it be achieved?

"The benefits are twofold," Fossier asserts. "First, you can share hardware resources, saving weight, volume and cost. Second, you can communicate data in a much more fluid way, as we already do on the ground as a result of Internet Protocol. You can access a public website wherever it might be located and in an entirely transparent way. We're aiming for something similar in the air."

SAFETY AND CERTIFICATION Many people are still uneasy about the prospect of flight-critical data and passenger communications sharing the same network. "There are worries about the possibility of a passenger putting a USB stick into the slot at his seat and introducing a virus that would threaten flight safety," Fossier acknowledges. "But that's not the issue – we know how to deal with the threat from viruses and hackers."

The bigger challenge, says Fossier, is certification of the resulting open system – convincing the airworthiness authorities that there is only the remotest chance of data being corrupted as a result of a software fault. "If you're trying to buy something on the internet, it's frustrating if a bug prevents you from completing the transaction," he explains. "But you will always have another chance to do it later. In an aircraft you can't do things later – it has to be done now and it has to be done correctly."

WE'VE ALL HEARD THE STORIES ABOUT PEOPLE USING FORKS AND PENS TO INTERACT WITH TOUCHSCREENS

> Software certification holds no fears for Thales. The company has already tackled a similar challenge in developing the Integrated Modular Avionics suite for the Airbus A380. "This was really something new," recalls Fossier. "Suppliers worked independently to develop software functions to run on our operating system and physical platform. We specified extra features in the application software to ensure that when it was eventually integrated into our platform the whole thing would be certifiable. This was a new way of doing things and it has since been adopted as an industry standard."

> Now Thales is working to extend the IMA concept into connectivity with its Integrated Modular Radio. This softwaredefined radio will give aircraft operators a single box capable of switching effortlessly among all the different air-to-ground (ATG) services offered in a particular frequency band. Aircraft thus equipped will be able to exploit the different ATG networks that they overfly in order to obtain the best possible connectivity at every point along the route.

> Fossier expects to see the first steps towards the single network taken in the Airbus A350 from around 2013 and

۲

the concept fully implemented around 2020. Thales's thinking about some of the most radical things that could be done with a powerful, flexible local area network on the aircraft is being led by Brett Wells, director for strategy and business development at Thales Aerospace Services Worldwide.

As an IFE manufacturer, Thales is well aware of what it takes to support equipment that has to face the worst the travelling public can throw at it. "We've all heard the stories about people using forks and pens to interact with touchscreens," he says. "Well they're all true – I've seen the damaged screens to prove it."

Wells is very interested in how an advanced cabin network could further enhance the handling of IFE system serviceability issues in flight. "We're thinking about a form of overall system health management under which details of problems would be recorded and stored, and notified to the crew only if they had a possible bearing on the safe operation of the aircraft or the smooth running of the cabin," he says.

More radically, Wells believes, the same infrastructure could also be used to transform cabin service. "Temperature and motion sensors and cameras with biometric software mounted in the seat would give the cabin crew early warning of an unhappy or uncomfortable passenger," he explains. "It would allow a very active form of cabin service – most of us are impressed when someone arrives to answer a need almost as soon as you have thought of it yourself."

Virtual reality entertainment, empathetic seats and flight attendants that can read your mind – it sounds like science fiction but Thales is already working to transform its vision of the cabin of the future into hard fact.  $\boxtimes$ 

CONTACT Thales, Web: http://thales-ifs.com

# WORLD CLASS ENGINEERING SOLUTIONS



# LET'S TALK ABOUT COMMUNICATIONS

WASP offers Seat and Suite Control Units with a choice of communications options using serial communications which reduce your wiring requirements and increase functionality. Future changes are easily catered for as the overlay can be redesigned while the buttons themselves can be reprogrammed to suit new requirements. The cost effective units, incorporating the necessary electronics and software, can be fitted to a seat arm, a fixed lead or a retractable cord reel leaving you with nothing to do except decide how to use the protocols provided. WASP also offers a full qualification and documentation service.

Wessex Advanced Switching Products Ltd Southmoor Lane, Havant, Hants PO9 1JW UK Tel: +44 (0)239 245 3711 Fax: +44 (0) 239 247 3918 email: sales@wasp-ltd.co.uk www.waspswitches.co.uk

۲



( )



# touchy**feely**

Aircraft Interiors International asks four aviation colour and trim experts for their thoughts on the latest soft furnishing trends, materials and technologies shaping cabin design ANTHONY JAMES, AIRCRAFT INTERIORS INTERNATIONAL



(

۲

How you are treated by staff before, during and after your flight, the presence or absence of any delays and/or baggage problems, the comfort of your seat, the quality of the food, and a fully functioning IFE system that offers a good choice of films all have a dramatic impact on passenger perceptions when recalling airlines and flight experiences.

However one shouldn't overlook the importance of more subliminal considerations – the look and 'feel' of the cabin in terms of the colours and designs on display, and the impression of quality (or lack of) suggested by the materials that passengers interact with. These can have a huge influence on all-important first impressions – do I feel safe, cared for, pampered? Is this airline all about cutting costs or providing those little extra touches that on a long, stressful journey can really make the difference?

With the current economic climate, airlines obviously need to keep an eye out for potential savings – material finishes, cushion covers, curtains and carpets are an important cost consideration, but ultimately carriers also need to factor quality, durability and sustainability into the equation. It can be tough, but fortunately there are some experts at hand who specialise in providing independent advice and finding or creating solutions that reinforce critical brand values while still respecting the budget. And we've managed to track down four of the best...



# DESSO FUELMASTER®

NEW

A NEW AND INNOVATIVE "FREE CARPET"



 $( \mathbf{\Phi} )$ 

The new aviation carpets from DESSO offer the same hight standards of quality and design but are 25% lighter than the standard carpet weight currently available in the market. Based on a year of usage, the reduced weight of the carpet ensures that the savings in fuel costs are higher than the original spend on the carpet, giving a whole new meaning to 'travelling light'.

For further information, or a customized product trial please contact us at **aviation@desso.com or call the DESSO Aviation Team on +31 416 685 476** 



#### **COLOUR**AND**TRIM**

How did you get started designing and specifying interior soft furnishings? I first got started while working at Weaveplan in the 1990s – a textile design studio based in London. It specialised in woven textiles and carpets for a wide range of market sectors, including office, contract, residential – and aircraft interior textiles. Whatever the sector, as a designer, you have to be able to visualise 3D structures, and build in all the technical features required by the brief, which for the airline industry, would include wear and tear, flame-retardancy and smoke emissions.

#### What are the key properties of a good aircraft fabric or

**leather?** Apart from passenger comfort, which goes without saying, it has to enhance the personality of the airline and the overall look and feel of the cabin. The largest surface component in an aircraft cabin is the seat – the material it is finished in must signify the brand! A good fabric or leather finish has to 'touch you' in some way, evoking an emotional response. I don't mean it has to be loud and in your face but it should fit the environment and add to the sensorial experience. I like to create finishes that enhance the design language of the cabin, while also connecting to the 'bigger picture' of wider design trends.

#### What are the current trends in aircraft soft furnishings?

Trends from the domestic environment and fashion industry are increasingly more relevant. The boundaries of public and private space have blurred. Passengers like to be able to have a moment to relax – 'me time' – wherever they are, whatever the time. So the aircraft interior has to reflect and facilitate this. Hence the influence of home living, fashion, accessories and personal electronics is becoming stronger, giving a more personalised feel. Another important trend is all about authenticity, craftsmanship and 'connoisseur-ship' – the new hallmarks of future luxury. And sustainability is something we ignore at our peril, particularly in the airline industry.

Where do you look for design inspiration? I love visiting and reporting from trade exhibitions like the Milan furniture fair and the IAA automotive show in Frankfurt. You always learn something new by looking beyond your immediate horizons.

#### How does certification impact upon your choice of materials?

Personally I love working with wool and wool-rich fabrics as they are inherently flame-retardant, produce low smoke emissions and give greater passenger comfort. Because wool is naturally breathable it keeps you cool when it is hot, and hot when the ambient temperature is cold. It is also anti-microbial, which means it dispels dirt and odour. Have you noticed how all highperformance sport under (skin) layers are 100% merino wool these days? Just take a look at Howies! Additionally wool, as well as leather, are of course natural materials – 100% recyclable and therefore sustainable.

What is the most frustrating element of your job? Time constraints! To develop an original design from scratch takes time, and often it is not scheduled into the programme at an early enough stage.

What is your message to suppliers? In my opinion the ability to offer a flexible service for design development and to generate prototypes quickly are the keys to winning new business.

6



Name: Elina Kopola Company: TrendWorks Experience: 20+ years Recent clients: Virgin Atlantic, Virgin Australia Email: kopola@trendworks.co.uk

#### Case Study: Virgin Atlantic Premium Economy & Economy

The key feature of the brief was to develop a textile with a geometric pattern and a sense of 3D depth. We looked at men's fashion prints from the 1950s as a source of inspiration. I created initial design concepts in CAD and print formats, which were then reviewed by Virgin's design team. We finalised several textile designs and had the prototypes woven by Botany Weaving Mill. It was really important to see the design as an actual textile as the yarn types used to create the 3D effect had different light-reflective qualities, which could never be represented properly in CAD or paper format. Meanwhile, we developed a hard surface (Schneller) for the seatback that featured a microgeometric 3D structure with a metallic colour effect. The carpet (Axminster) pattern was more random and less geometric to ease pattern matching, easing installation and reducing wastage. Colours were guided by the Upper Class Suite (UCS) - red is a key element of the Virgin Atlantic brand, while a more neutral mink and an aubergine from the UCS added a calmer and more sophisticated note.



#### **COLOUR**AND**TRIM**



Name: Catherine Barber Company: Self-employed Experience: 12+ years Recent clients: Korean Air, Air Berlin/ LTU, Delta Airlines, British Airways Email: catherine.barber@cbarber.co.uk

#### Case Study: British Airways Boeing 747 washrooms

I was called in to work with UK design agency Forpeople on a British Airways refurbishment of its Boeing 747 washrooms, which were a cause of significant passenger dissatisfaction after years of service. The budget did not allow for any new fixtures and fittings beyond a new rack for toiletries and a new flower vase, and we could not change anything that would effect the original certification. We worked with BA's material specialists directly, who also researched and developed an underfloor barrier to help reduce odours, while ensuring maintenance was fully prepared to accept the new materials and any special handling required. We developed a backlit decorative/information strip for the sink unit in back-printed Lexan, and selected metallic paint (Mankiewicz),

embossed Tedlar walls and brushed metal-effect flooring (Schneller). We also removed all mirrors from areas other than over the sink. These were originally supposed to make the space feel bigger, but just reflected all the mess of a washroom in use during a long flight – making it seem even more cluttered. Since the refresh. customer satisfaction has gone up by over 30%.



۲

How did you first get involved in aviation colour and trim projects, and what did you do before? I trained as a woven textile designer and worked in trend forecasting and consultancy for fashion and interiors sectors before my first airline project. I have continued to work as a design consultant in many sectors, which I believe keeps my approach to aircraft interiors fresh and allows me to explore transferable technologies.

Why are colour and trim so important? Major European and Asian carriers value cabin interiors as an expression and extension of their brand positioning. As such it can emphasise the hospitality elements of the travel experience and engage the customer on an emotional level, contributing to brand loyalty.

#### What are the essential rules - the do's and don'ts as it were?

It's always dangerous to observe too many do's and don'ts in design as the only rule that really matters is the one that says the rules are there to be broken! However, I believe you should always design for longevity and durability, while simultaneously creating as much comfort and luxury as possible. One 'don't' that springs to mind is: beware over-designing in such a constricted space – it makes a cabin look cluttered and ill-considered.

**Textile or leather?** I'm a textile designer so naturally I prefer the aesthetic qualities and possibilities of textile seat covers. As seat suites evolve to give more privacy in premium classes, they have much larger surface areas to consider. If the seat is in leather there is very little visual or textural break between the soft and hard parts of the seat and this can look bland and uninviting.

#### What outside trends are currently most relevant to our

**industry?** Businesses everywhere are supporting a more responsible approach to all business processes. The airline industry is often portrayed as ecologically damaging – but airlines are responding by altering their approach. This has had minimal effect on colour and trim so far, but I believe it is possible to drive through real differences here. For example, Desso has made a start in this direction with its Cradle-to-Cradle programme.

And what are the latest aviation material trends? The latest trend has been to minimise pattern in the cabin, especially in textile elements. Like any trend it provokes an equal and opposite reaction, so watch out, pattern is back!

What new materials have caught your eye recently? A French company called Metal Composite uses a special process to coat surfaces with metals – it is not paint but real metal (see photo example on page 87). Materials that can be coated include composites or Corian and finishes include titanium, pewter, copper, brass, bronze, iron and zinc. The metal surface itself can be textured with patterns, using various processes. At the moment it is only used in yachts and private jets, but it could be used to create a really special bar or monument for the right airline.

Where do you seek inspiration? I pick up ideas from everything and everywhere. Many of my clients are global but I am not always able to visit them before I start work on their schemes. So I use museum research to bring a cultural heritage element to the work, rather than just adapting contemporary trends.

# Of Course Some Leathers Are Cheaper Than Others

There's something innately superior about Muirhead leather.

۲

It comes from privileged beginnings, being sourced from hides raised on lush Scottish pastures. It is treated with respect to bring out its natural richness. It is lavished with every benefit modern technology can bestow.

 $\odot$ 

The result is a lasting quality that, in terms of whole-life cost, can work out more economical than leathers of a cheaper appeal.

Muirhead leather. Doesn't your product deserve it?



www.muirhead.co.uk



# The unspeakable words in design:

۲

# **Cost & Compliance**

Let's face it: No one likes to talk about cost and compliance. But the fact is, they have a huge impact on what you can (or can't) do in aircraft interior design.

Thankfully, there's KYDEX<sup>®</sup> FST—a **high performance**, **aviation grade** thermoplastic sheet. Specially formulated to meet all of the critical FAA flame, smoke, and toxicity requirements, KYDEX<sup>®</sup> FST can be thermoformed to provide deep draw parts with crisp details, minimizing rejections due to unacceptable part quality. Plus, KYDEX<sup>®</sup> FST has **Microban<sup>®</sup> antimicrobial protection** built-in to the sheet so it won't wash or wear away and lasts for the lifetime of the product. In addition to KYDEX<sup>®</sup> FST, KYDEX<sup>®</sup> 5555 and KYDEX<sup>®</sup> 6565 were also developed specifically for aircraft applications. KYDEX has the ability to offer **small runs, short lead times**, and custom colour matching making it the perfect solution for your aircraft interior needs.

So, KYDEX<sup>®</sup> thermoplastic sheet lets you design without worrying about you-know-what.





 $\ensuremath{\mathbb{C}}$  2009 KYDEX, LLC. All rights reserved. KYDEX\* is a registered trademark of KYDEX, LLC.

See the possibilities! Visit KYDEX in Stand #9B12

Phone: +1.570.387.6997 x542 www.kydex.com

۲



 $( \bullet )$ 



The global market place for the aircraft

WWW.AIRCRAFTINTERIORSEXPO.COM

# place for the aircraft interiors industry

# THINKING OF EXHIBITING? First time exhibitor rates available\*

\* only applies to first time exhibitors. Defined as a company who did not participate in Aircraft Interiors Expo 2008 or 2009.



In association with



In Co-operation with





# ENQUIRIES OR TO BOOK YOUR STAND NOW

VISIT www.aircraftinteriorsexpo.com/exhibit

**OR CALL** +44 (0) 208 910 7126

#### **COLOUR**AND**TRIM**

How did you get started designing textiles and materials for aircraft interiors? Working in the design and manufacture of high-performance and innovative contract furnishing fabrics during the 1980s in the USA (Knoll, Herman Miller, Maharam), when the US market was especially exciting and fresh, led naturally into the aircraft interiors industry, which shares the same demand for top standards in fibre and performance requirements.

What are the key properties of a good aircraft interior finish? It has to respond to the passenger's needs, as well as the airline's. For the traveller this includes visual appeal, as well as 'creature comfort'. For the airline it means durability and appearance retention, as well as supporting its key brand values.

What are the current trends shaping the market? Today's travellers appreciate an element of relaxation and informality, and current trends in aircraft soft furnishings reflect this mood, which is derived directly from domestic/residential interiors. It might include a strategic placement of vibrant pattern, or a simple combination of colour and texture with interesting finishes in matt and sheen, which can be particularly effective when textiles are combined with quality leather finishes in the cabin. Specialist paint effects can also provide a rewarding diversity of finishes. Softness of handle (touch) is increasingly important too, which is a trend that originated in the fashion industry and has radiated out into all areas where textiles are used, giving an added challenge to spinners, weavers and finishers. Colour plays a key role, and smaller items such as antimacassars, pillows/cushions and blankets can all bring a 'rapid refresh' to the cabin through a quick hit of contemporary colour.

Where do you look for design inspiration? We visit and report on most major European trade fairs, including the Milan Furniture Fair and the London Design Festival. These are key forums for design innovation that set a pattern of creative thinking. And we travel widely across Europe and the Far East for our clients in Korea and China. Fortunately London is also a hub for inspiration: from everyday street culture to the influential London Fashion Week, so much is happening here.

How does certification impact upon your choice of materials? With any material we always have to balance design with performance. Wool is a great example of this. Woven in the right constructions the natural properties of wool can achieve the highest specifications for upholstery fabrics, especially when enhanced with a specialist finish. It is also the most comfortable fibre to sit on for a long journey, having inherent breathable and absorbent properties too.

What is the most frustrating element of your job? It's a frustration when the trend directions we are tracking do not materialise as swiftly as we would like! Timing is key, and being too early in the marketplace with a new product is as bad as being too late.

And the most rewarding? Seeing the British Airways World Traveller blanket still being stolen off flights 10 years after I designed it! Purchasing may hate this, but Branding loves it! It's the ultimate proof we got it right!



Name: Emma Rickards Company: West 6 Experience: 20+ years Recent clients: First Choice, Cathay, British Airways (OpenSkies) Email: emma@west6.com

### Case Study: OpenSkies for BA

Working with Davies and Baron, West 6 provided colour, finish and material directions for a total refurbishment of the original Club World 'herringbone' seats for OpenSkies' unique all-business-class cabin. To achieve a lighter and more spacious interior, we replaced tan leather with a high-gloss paint finish (Mankiewicz) for the outer shell of the seat, and a tactile, matt soft-touch paint finish for internal areas. Working with Botany Weaving Mill, we recoloured the existing high-performance navy blue wool/nylon upholstery fabric designed by West 6 for the original seat, into a harmonious palette of warm greys and soft taupes to create a more understated and relaxing environment. Five subtly different yarn shades and two different yarn counts give an impression of layering and an added depth and softness. A woven, rib-effect, flame-retardant Nomex fabric was developed into a more restrained colour palette for the sidewalls. Textile elements are complemented by soft sheen leather (Andrew Muirhead & Spinneybeck) in strategic areas, suggesting high performance and added value. Crisp cool cottons for antimacassers and cushions (Orvec) were combined with super-soft, tactile blankets (John Horsfall). The textural effects in a colour-and-weave construction initially challenged the blanket weavers, but were well worth the effort in the end, achieving an unusually fresh and contemporary look and feel within the cabin.



#### **COLOUR**AND**TRIM**



Name: Annette O'Toole Company: JPA Design Experience: 10+ years Recent clients: First Choice Airways, Gulf Air Email: annette.otoole@jpadesign.com

### Case Study: Gulf Air Economy

In 2003, when I was called in to work with Gulf Air on an economy-class overhaul, the colour palette had already been established, with Pantone references specified for each cabin item. The seat fabric was required in two colours - turquoise and a surprisingly light pearl. However, they could not remain a flat Pantone colour - they needed a pattern and texture to link them together. Initially, I looked at the lattice patterns used in the architecture of the region, but these were too structured and rigid, and made too strong a regional statement - a more 'international' design was required. Inspired by contemporary furniture, I built a design using linear elements of regional patterning, but fragmenting it until it became a texture. This pattern was applied to the economy seat fabric and both the turquoise and the pearl went through many stages of development. I slowly introduced more texture and built layers of pattern with subtle combinations of colour - introducing turquoise flecks to the pearl and pearl to the turquoise - and by greatly increasing the scale of the design. The resultant pearl fabric had moved a long way from the original Pantone shade, yet remained unusually light for an economy-class textile. And as we darkened the lighter colour, we deepened the turquoise, maintaining the contrast level and ensuring that the turquoise had a richness achieved by the combination of the many shades within it.



How did you get into aviation colour and trim? Early in my career I designed textiles for design agencies involved in establishing trends for the fashion industry, the emphasis being on innovation and exploring new developments in yarns. From this I moved into the contract furnishings industry. With two seasons a year rather than four, I had the opportunity to develop a more resolved design, requiring greater textile construction expertise. My introduction to the airline industry offered exciting opportunities to resolve just one design at a time and to develop this through to implementation. One of my first projects was to design an economy-class seat fabric for Cathay Pacific.

Why are colour and trim so important? Colour has a powerful psychological effect and can prompt many responses. Similarly, texture and patterns can inform our reactions, which are also influenced by our own experiences, our culture, nationality and aspirations. Colour and trim are the packaging of the product, informing the passenger and reinforcing the brand.

What are the essential rules (do's and don'ts)? I have two rules at two extremes. Firstly, to pay attention to the detail, to re-look, to revisit and to build layers within a design. Secondly, to stand back and evaluate from afar.

**Textile or leather?** My own preference is for textile, as it offers a fantastic opportunity to reinforce the brand. Particularly in business and first-class cabins, with the emphasis on the furniture, the 'soft' aspect of a textile can be crucial in delivering the aesthetic desired by the passenger, who wishes to feel at home in his seat environment.

#### What trends are currently most relevant to the airline

**industry?** I am finding inspiration from sculptural surfaces, forms and finishes, inflatable products and curved, sculptural detailing where the pattern is formed by the structure rather than an applied pattern. It is a challenge to find opportunities to implement this in the cabin.

And what are the latest trends from the airline industry in terms of colour and trim? Lighting developments offer the opportunity to bring drama to the cabin interior, using 'colour' to define personal space, draw attention to feature areas and change the ambience of the cabin during the journey. In contrast to this, and to the flamboyant use of pattern and colour seen in the 1970s, materials and finishes are understated, sophisticated and contemporary, with more decorative elements used to add drama to feature areas.

What new materials have caught your eye in recent months? Isovolta's range of laminates, with their reflective, metallic and iridescent surfaces, are inspirational. The products reflect the research and development that has been invested.

Where do you seek inspiration? I seek new ideas and inspiration continually. I am a 'magpie' for materials, colour and pattern, drawing from many sources, such as architecture, contemporary furniture, and surface materials, and from trade fairs such as New Designers. I also follow textile trends from the fashion industry.

# At first we had nothing to go on...

۲



# but look what we have produced!

- Chameleon Process changes plastic or any substrate to appear as woods,fabric,marbles
- 300 percent lighter than wood veneer
- Passes full smoke and toxicity testing
- Process applied by EASA Sub Part 21G Organisation.
- Over 1000 different designs available.
- Applied to VIP, and many commercial aircraft.
- Recycling existing parts to look like new
- Applied to Seats, Galleys, Sidewalls, Tables, Bar Units, Sinks, Toilets,

### Changing the way we see things

#### www.chameleonproducts.net

**Decorative Film Technology** • **Decorative Interior Solutions** Chameleon Process in partnership with AIM Composites



sales@chameleonproducts.net alanbyrne@aimcomposites.com Tel: +44(0) 7887 907635 Tel: +44 (0)1223 441000





18 - 20 MAY 2010 HAMBURG MESSE | GERMANY WWW.AIRCRAFTINTERIORSEXPO.COM

# The global market place for the aircraft interiors industry

# THINKING OF EXHIBITING? First time exhibitor rates available\*

\* only applies to first time exhibitors. Defined as a company who did not participate in Aircraft Interiors Expo 2008 or 2009.

Reed Exhibitions Aerospace & Aviation Group In association with Aircraft interiors

In Co-operation with




## ENQUIRIES OR TO BOOK YOUR STAND NOW

VISIT www.aircraftinteriorsexpo.com/exhibit

**OR CALL** +44 (0) 208 910 7126 **EXPO**PREVIEW





## Welcome to Aircraft Interiors Expo Asia 2009

This year's Aircraft Interiors Expo Asia will be held at the AsiaWorld-Expo in Hong Kong from 8-10 September. The event, which is held every two years, is once again co-located with Asian Aerospace.

۲

"Aircraft Interiors Expo Asia is a regional event for the interiors market providing a great opportunity for international suppliers to meet with the region's airlines," says John Hyde, marketing manager at Reed Exhibitions, which organises the show. "At the time of writing we have five weeks still to go and we already have over 30 airlines registered to visit, including some that don't currently visit Aircraft Interiors Expo in Hamburg. We are anticipating an attendance of between 1,500 and 2,000 for Aircraft Interiors Expo Asia, which does not include attendance from Asian Aerospace or other co-located events."

Also on site will be a freeto-attend 'Flying in the 21st Century' strategy forum, which was originally launched at Aircraft Interiors Expo USA in 2008. The forum will feature key speakers from the interiors industry including airlines, suppliers, OEMs and even specialists in hospitality and customer service from outside the industry.

"The most well-attended section of our Americas forum included a speaker from the Disney Corporation who presented a session on 'delivering superior customer service' to airline attendees," says Hyde. "By inviting experts from outside the industry we are able to gain an insight into how other sectors deliver excellence to their customers."

The first day will focus on opportunities to drive down costs, including a panel discussion chaired by Robert Lange of Airbus on how airlines can reduce costs by taking weight out of the cabin. The other three sessions maximising the lifecycle of the cabin; using smart technology to reduce cost; and a case study of Airbus's SPICE galley project - will all be chaired by Vern Alg, industry consultant and former director of project management at Continental Airlines; and will feature speakers from Cathay Pacific, Row 44 and Airbus.

The focus of the second day will be using the cabin interior to enhance profits, including a panel discussion on how to make money from IFE and connectivity, featuring representatives from Panasonic, Row 44, AeroMobile, OnAir, and

۲

V Australia. The other sessions – on cabin segmentation; preparing for the upturn; and Boeing's Sky Interior for the 787 – will include speakers from Boeing, Airbus and Teague.  $( \bullet )$ 

On the final day, industry experts will outline their visions for the future - the key trends that will shape the cabin and airline businesses - over a round table featuring Duncan Palmer of Langham Hotels International and The Langham Hong Kong; Ingo Wuggetzer of Airbus; and Michael Young, interior, furniture and industrial designer at Michael Young Studio. The day will also include case studies from Blake Emery of Boeing (on the design of economy-class seats), and from Magnus Aspegren of BMW Group DesignworksUSA's Singapore studio.

### light lunch

Diethelm Keller Aviation (DKA) will exhibit its Ultra Lightweight (ULW) inflight service carts. The company says that since the product launch in late 2008, it has sold thousands of units. With increasing importance on being 'weight savvy', DKA expects more airlines to switch to using lighter carts. Made of aluminium alloy, DKA says its ULW carts retain the same strength and rigidity as conventional designs. A full-size ULW cart can weigh just 16.5kg, with a certified gross weight of 113.4kg. Thermal performance features include thicker sandwich panels and small, rounded extrusions designed to reduce thermal conduction. Door seals are now available as an additional thermal enhancing feature. Other options include an ergonomic flip handle, and pull-out tables to increase user friendliness.



#### HOT PROPERTY

۲

**Franke Aquarotter** will present some of its washbasin solutions for the A380. The various product solutions were designed in response to specific requirements from several international airlines, and were driven by special spatial and installation conditions in the individual lavatory modules. In addition to the standard solutions, these optimised variations will be applied in business- and first-class lavatories. The wall-mounted faucets are designed to facilitate easy temperature selection by means of two touch sensors and an LED temperature display. A separately controlled electromechanical thermostat maintains the required water temperature and at the same time provides safety against scalding by keeping the temperature at a maximum of 40°C. Water flow is triggered by an optoelectronic user sensor. The faucet facilitates a water consumption of 1.5 litres per minute, while an energy-efficient heater ensures there is always hot water available. An integrated controller monitors the faucet functions continuously.

### Exhibitors:

**3STARS MANUFACTORY LTD** AAR Adams Rite Aerospace Inc AeroMobile **Aircraft Belts** AmSafe Inc Astronics/Luminescent Systems Europe BVBA **Axminster Carpets Ltd Boltaron Performance Products Botany Weaving Mill Bucher Leichtbau AG Desso Aviation** Diab (Kunshan) Co Ltd **Diethelm Keller Aviation Pte Ltd** EAD Aerospace EADS Sogerma **Flight Focus** Franke Aquarotter AG Geven srl Hansair Logistics GmbH Hypercoat Enterprises Pte Ltd Iacobucci HF Electronics Spa Imagik International Corp. **Inseat Solutions LLC** INTHEAIRNET **KYDEX LLC** Long Prosper Enterprise Co Ltd Madelec Aero **Marion Aircraft Supply Panasonic Avionics Corporation Replin Fabrics ROW 44** Sabert (Zhongshan) Ltd Skandia **Starr Aircraft** The IMS Company **The Shephard Group Topcast Aviation Supplies Co Ltd Unison Industries LLC** 





## www.airdata.ca

۲

# Avionics

✓ ADC
 ✓ Pitot Probe
 ✓ Power Solutions
 ✓ Specialized Avionics

Bio Protection

5939 Côte-de-Liesse Rd. Mont-Royal, QC, Canada H4T 1C9

۲

AIR DATA

#### **EXPO**PREVIEW

### big noise

Long Prosper Enterprise (LPE) will demonstrate its LPE-502S product (pictured) – surround-sound headphones for in-flight entertainment (IFE). LPE produces three million headphones monthly, with a product line that includes pneumatic headsets, low-cost headsets for economy class, and electronic headsets incorporating noise cancellation (NC) technology for premium and business classes. It has also added a new mid-size noise cancellation headphone product (SF-07NC) and surround sound and noise cancellation headphones to its range. The company says that by combining surround sound with noise cancellation, it can eliminate the space-restraint perception that normally coexists with noise cancellation.





### Daniel Baron

MANAGING DIRECTOR,

**How would you define Asian airline style?** Asia is home to a huge selection of airlines of every size, shape and flavour. Is there a common link? Not really, until we group them by popular image or ranking. The top-rated legacy airlines in Asia spend a huge amount of time and energy on market research, cabin interior design, inflight product development and service delivery. These carriers take a traditional approach to service – in front of the customer, front line staff perform in 'customer interface mode' – every action and utterance is focused on service delivery. This goes a long way to protect the brand image when seat hardware or in-flight entertainment (IFE) fails to live up to expectation.

In terms of colour and pattern, the cabins of Asian airlines tend to reflect not only the brand identity, but also the country of origin. In most cases, the airline is a flag carrier, and selling the country as a destination is part of the vision of management and/or the owners. The desire for a dose of local flavour means that one is less likely to see the insanely boring generic look found in the cabins of many Western countries. For a designer, this is one of the most rewarding aspects of working with Asian carriers, as there is a huge amount of variety in this vast region.

Related to this is the challenge of finding the right balance of 'modern' versus 'ethnic' in the cabin. Much of Asia is made up of developing or recently developed countries, whose airlines are seeing explosive growth in passenger numbers as incomes rise (present crisis excepted). Many of the new local fliers expect the cabin to appear 'contemporary'; in all likelihood they see traditional patterns every day and thus perceive them as nothing special or even cheap looking. In countries with a tropical climate, where high humidity accelerates corrosion and bright sunshine causes colour fading, certain colours may carry negative associations among locals. The long-haul tourist coming from outside the culture, however, might be expecting to have an ethnic-infused "I've already arrived" feeling from the moment he or she steps on the aircraft. So one must find the right balance of 'wow' while reflecting the brand. And then the top management may have yet a different view or set of priorities.

### Standing still is simply not a part of the DNA in Asia

#### Why are Asian airlines known for product innovation?

During their formative years, the largest and highest-rated carriers in Asia were government-funded or supported, and the image of the country or territory as a tourist destination or business hub was linked with the flag carrier. Intense competition among Asian airlines, and between them and established Western carriers, fuelled an obsession with becoming top performers in product. In a few cases, such as the ones with no domestic market, being ahead was necessary for survival. As their size increased and the ratings went up, the airlines came to understand the link between product and profit, and the tremendous brand equity resulting from continual investment in cabin interior and inflight product. Even in the extraordinarily challenging climate today, the top players in the market are looking ahead toward the next innovations, the next trends. Standing still is simply not a part of the DNA in Asia.

### What are the key opportunities for Asian airlines

going forward? Historically, many countries in Asia enjoyed government protection of varying levels and/or access to cheap loans for aircraft. This helped the carriers gain and maintain an edge in product. Market liberalisation has been slow but it is definitely happening. New carriers have popped up throughout the region, and the notion that Asian travellers would never embrace the low-cost carrier approach has been negated by the success of several new entrants. As competition increases, we will likely see even greater segmentation and differentiation with cabin interior hardware and soft product. This is particularly so in mainland China, where the proposition used to revolve mostly around price. The mainland now has hundreds of thousands of millionaires who can afford to fly in the premium cabin and expect hardware and service delivery to be on par with the highest-ranking carriers in the region. The Chinese carriers are likely to rise to the task with large investments in both cabin hardware and soft product.

## IMAGIK The Airline Monitor Company

Providing the most technologically advanced monitors in the industry.

Best-in-class Picture Quality

Low Weight

۲

Low Power

**High Reliability** 

PMA Approval

S145 Repair Station

Monitor Bracket and Shroud design and manufacture

6 IMAGIA INTERNATIONAL CORP ۲

In-Flight Entertainment Systems

www.imagikcorp.com

Retrofits | Ceiling Mount | Bulkhead | In Arm | In Seat | Projector Replacement



### customer care

**Bucher Leichtbau AG** is devoting special attention to its 16g New Generation Stretcher (NGS) system (pictured). The product weighs 38kg and is quickly ready for patient transport. Folded together in a box, the stretcher saves space in the cargo area and can be transported easily. The company reports that the product has enjoyed sustained success on the market, even more so since it has been available with full 16g compatibility. The company will also display a folding table for the Maybach luxury car – a product that the company says typifies its expertise in realising highquality interior fittings, particularly for VIP and corporate customers.





### CREAM OF THE CROP

Andrew Muirhead and Son will show Arisaiq, its new leather product. Made from traditional British beef cattle, Arisaig is designed for corporate and highend interiors. Arisaig has been developed to have excellent aesthetic and tactile qualities but also deliver to the highest performance and durability specifications. The company says that after choosing the bestquality hides, these are put through a wet process that gives a rich through dyeing and then finished with a specially formulated resin topcoat. The leather is created with specifications that exceed BS6608. Crib 5 and CAA Airworthiness, and is available in 16 colours.

۲

#### ELIXIR OF LIFE

Imagik has developed a line of large screens, retractors and in-arm monitors, along with brackets, shrouds and enclosures, to replace aging in-flight entertainment (IFE) monitors. "In these difficult economic times airlines are extending the life of their aircraft, which among other things has had a significant impact on sustaining and repairing rapidly aging IFE monitors and projectors," says Guy Kennett, vice president of sales and marketing at Imagik. "Many of the parts for these monitors and projectors are obsolete and the downtime caused by failure is now becoming unacceptable, not to mention the ongoing deterioration in the passengers' viewing experience. Finding suitable FAAapproved and compatible replacement monitors at reasonable prices without jeopardising quality and reliability is not always easy. This is further compounded by the need to provide in-fills, brackets and shrouds that allow for an easy and aesthetically pleasing installation." Imagik says its retofit monitors improve the viewing experience for passengers, upgrade the look of the cabin, save power and reduce weight - all while requiring no maintenance for up to 50,000 hours.

#### STRONG STUFF

Axminster Carpets Group will present Durawool, a technological process for producing durable carpet yarn. The process starts at the company's processing plant with the selective grading and blending of the raw wool fleece, and continues through to the spinning and dyeing of the yarn substrate. The company says that the yarn is the most important aspect of the carpet as it is the performing component. It also says that the process makes its carpets up to 60% more durable, and enables them to achieve a higher grading for appearance retention. Onboard trials have resulted in the company winning a contract from a major low-cost carrier, and it has secured three other in-service trials. The company says the development is fully compliant and available for almost any colour or design scheme with total carpet weights starting from 1,300gms/m<sup>2</sup>. "The benefits of the product are very clear - extended carpet life, enhanced longer term appearance, reduced replacement/trim costs and potential weight reductions," says Steven Keast, business development manager at Axminster Carpets Group.



### catch the sun

**EADS Sogerma** will show Solstys (pictured), its forward-facing premium business-class seat that converts into a fully flat bed. Solstys was developed following on from the success of the Pearl seat designed for Etihad Airways, and was launched at the 2008 Aircraft Interiors Expo in Hamburg. The seat is designed for privacy, and provides each passenger with direct access to the aisle. The company will also present Ultimate 17, its new luxury lounge concept for first class, and Evolys, its core business-class seat. Evolys flies on over 10 airlines and is certified for A320, A330, A340, A380, B777 and B747-400 aircraft.



۲

### Nicholas Ionides vice-president public affairs, singapore airlines

Is the recession having an impact on cabin strategy

at Singapore Airlines (SIA)? Like other airlines around the world, we are not immune to the effects of the global economic downturn. However, despite the challenges that accompany it, we continue to enhance our products and services – we see this as an investment in further improving our customers' travel experience.

We have just launched an aircraft cabin retrofit programme that will see new interior products introduced on some of our Boeing 777s. In maintaining a focus on service, innovation and product leadership, an initial batch of seven B777-300s will be refitted with the airline's most recent cabin offerings. This will include the installation of new seats in first and business class, improvements in economy class and in-flight entertainment (IFE) system enhancements. The programme will provide customers with additional comfort and more space, while there will also be greater product consistency across the fleet.

We are also continuing to take delivery of new A380 aircraft, which feature our latest product offerings. In addition, in January this year, we took delivery of the first of 19 A330-300 aircraft, which also feature new product offerings. This includes a new businessclass seat specially designed for regional and medium-haul routes, and new-generation economy-class seats ergonomically designed to provide customers with an unsurpassed level of comfort. All seats also feature our award-winning IFE system, KrisWorld, and in a world first, iPod and iPhone connectivity in every seat, including economy class.

#### What trends are shaping SIA's cabin strategy? We

always try to offer the best product for the sector or route. For example on our long-haul A380 routes i.e. Singapore-London or Singapore-Paris, we feature the widest full-flat business-class seat in the industry, measuring 34in in width. The seat is almost 50% wider than most products in this class. The wide seat, together with its recline, leg rest and ottoman features, allows customers the freedom to relax in the seating and lounging postures that they

# Customer service is essentially the cornerstone of SIA's mission

most prefer throughout the flight. The product can be converted into one of the largest full flat beds in its class – 76in long.

۲

On the other hand, the seats on our A330-300 aircraft are designed specifically for regional and medium-haul routes. They have been designed so that they are fully adjustable and capable of transforming from seat to bed mode, and any position in between, easily at the touch of a button. For added convenience, there are also four preset seat positions – dining, working, lounging or sleeping – whilst the adjustable lumbar and headrest support ensure the customer is at his/her most preferred resting position.

Above all, we develop our cabin interiors with the comments and feedback of our customers and frequent fliers. And for many of our cabin designs e.g. for our A380, customers have been involved in every step of the process, from the initial conceptualisation and the review of design ideas to the testing and evaluation of the prototypes through workshops, focus groups and surveys.

Our aircraft are equipped with the in-seat telephony service and we remain potentially interested in other inflight connectivity services, although there are no concrete plans at present.

#### How do the expectations of Asian consumers

**influence your business?** Customers in all our markets are important to us. In fact, customer service is essentially the cornerstone of Singapore Airlines' mission, directing and guiding every single one of us in whatever we do and in whichever division we are in. The importance of service is not only manifested in our mission, which is to provide air transportation services of the highest quality, but is also reiterated in one of the Singapore Airlines Group's six core values – 'Customer first'; our customers are foremost in our minds all the time and we go the extra mile to exceed their expectations. Much emphasis is placed on service (and innovation) because we believe it is an important differentiating factor and even more so when the global economy is not at its most robust.



**N-SEAT** 

POWER

SYSTEMS

۲

## POWER PLAY. WHEN YOUR PASSENGERS ARE IN THE AIR, GIVE THEM ALL THE POWER THEY WANT

۲

ARE IN THE AIR, GIVE THEM ALL THE POWER THEY WANT WITH EMPOWER<sup>®</sup> IN-SEAT POWER SYSTEMS. • THE LEADER IN AIRCRAFT IN-SEAT POWER, OUR COMPACT, LIGHTWEIGHT EMPOWER<sup>®</sup> SYSTEMS DELIVER SELECTABLE DC POWER FOR HANDHELD IN-FLIGHT ENTERTAINMENT (IFE) UNITS AND IN-TEGRATED IFE SYSTEMS, AND 110VAC POWER TO OPERATE AND CHARGE COMPUTERS, PDAS, PHONES, DVD PLAYERS AND OTHER PASSENGER ELECTRONICS. • RELIABLE, EASY TO INSTALL AND FAA/EASA-APPROVED, EMPOWER<sup>®</sup> SYSTEMS MAKE YOUR CABIN A FRIENDLIER PLACE WITH PATENTED POWER MANAGEMENT TECHNOLOGY AND A VARIETY OF SAFETY AND CONVENIENCE FEATURES. • TO DELIGHT YOUR PASSENGERS AT WORK AND PLAY, CONTACT US TODAY.



ASTRONICS ADVANCED ELECTRONIC SYSTEMS | US Office +1.425.881.1700 | Europe Office +41.61.303.8828 www.astronicsaes.com



۲

Long lasting encased in sleek style >

Call today! 1-801-489-2022 www.digEcor.com/air

( )

Aeristo is defying the state of the global economy by focusing more than ever on development

۲

Christian Schmidt +1 817 624 8400 cschmidt@aeristo.com Reader Enquiry No. 501

# surviveandthrive

On 1 January 2010, aviation leather specialist Aeristo will celebrate the 20<sup>th</sup> anniversary of its incorporation. Despite the current state of the global economy, the company says business remains strong. And it's putting its money where its mouth is by opening a new facility, launching a new leather product and investing in inventory.

"Over the years we have developed a solid customer base – in North America and abroad – of over 400 aviation businesses who understand and appreciate the long-term benefits of our products and the ease of working with them," says Christian Schmidt, president of Aeristo. "In addition to introducing a new product in a fragile economy and backing it up with substantial investment in inventory, we are in the middle of expanding our business to a 50,000ft<sup>2</sup> facility less than 10 minutes away from Dallas/Fort Worth International Airport's terminals [in Texas, USA] – a multimillion dollar investment in our company's future in the aviation industry."

The new product is 'Belvedair', a luxury leather made in Italy and named after Vienna's Belvedere Castle. Schmidt says the name reflects the company's focus on traditional leather-making techniques – which are combined with the stateof-the-art processes used by Aeristo to ensure its products meet stringent aircraft specifications.

Rather than using top coats and impregnations to improve its leathers' durability, Aeristo has

always worked closely with a few carefully selected tanneries early on in the production process to ensure its leathers meet flameretardancy specifications from the outset. "This eliminates the need for topical application of flame-retarding chemicals and results in softer, lighter weight, better looking and performing leathers," says Schmidt.

Aeristo spent around eight months researching and developing Belvedair, drawing on the company's market knowledge and production technology, and enlisting hands-on aircraft interior designer input.

Starting out with top-quality South German bull hides selected for their tight grain structure and cutting yield factors, Aeristo has built a collection of leather in 15 designer colours based on technical principles honed in creating its Aeronappa, Volaero and Aerolino brands.

Belvedair has a silky finish and subtle satin sheen designed to bring out the rich character of the natural full grain leather. It is available in a range of colours that reflect the current trend towards natural, warm, yet clean hues that lend themselves to the creation of soothing combinations across the range. Custom colours will also be available, produced to customer specifications, as well as a leather maintenance kit developed and tested by Aeristo specifically for its products.



## Innovations for efficiency, safety, and comfort



Diehl Aerosystems combines many years of experience in the fields of cabin interiors, avionics expertise, and lighting with a high degree of creativity and effectiveness.

۲

Our permanent striving for innovative solutions and new possibilities paves the way for our success. Now the two subsidiaries Diehl Aerospace and Diehl Aircabin are combining their competencies to guarantee unique holistic and integrated concepts in the cabins of modern passenger aircraft. Diehl Aerospace and Diehl Aircabin are Joint Diehl Thales Companies.

www.diehl-aerospace.com www.diehl-aircabin.com



New German seat manufacturer ZIM FLUGSITZ is now ready to start production

۲

Michael Linnig +49 754 495 7222 michael.linnig@zim-markdorf.de Reader Enquiry No. 502

# takingoff

 $( \mathbf{\Phi} )$ 

After two years of development, German company ZIM FLUGSITZ, the new player in the aircraft seating market, is ready to start production of its first product – ECO-01, an economy-class seat.

The company has now gained all the necessary certifications from EASA and German civil aviation authority the LBA for the development, manufacture and maintenance of ECO-01: ETSO C127a and C39b, Part 210 ETSO Design Organisation, Part 21G Production Organisation, and Part 145 Maintenance Organisation. ZIM FLUGSITZ will begin production at its assembly shop for its first customer in September.

ZIM FLUGSITZ was establshed in 2008 by Zim GmbH, which itself was set up by Peter and Angelika Zimmermann to take advantage of their expertise in aircraft engineering and stable lightweight structures. The Zimmermanns used this experience to begin developing their own hardware product – a lightweight economy-class seat designed to meet growing market demand for cost- and eco-efficient products.

Following many discussions with airlines and aircraft producers, it became obvious that the market need was for a product that was fuel saving, flexible but robust, easy to maintain and comfortable. It was also identified that customers valued the idea of being able to obtain seats (whether standardised or customised) in small ship-set quantities. ZIM FLUGSITZ fulfils this requirement using a modern production concept

۲

that offers the required flexibility. Last but not least the discussions highlighted a strong demand for spare parts to be available at affordable prices. The company then developed the seat concept to meet these requirements.  $( \bullet )$ 

The resulting seat structure is based on modular architecture, so that every variation of seat width and seat leg distance is easily adjustable to customer requirements. In addition, a new, patented primary structure means that the seat spreaders do not interfere with the seat legs. Consequently, every seat configuration within all current layouts is adjustable using standard parts without any adaptors – reducing the number of parts needed and therefore effecting maintenance costs directly.

Because of its modular architecture, the seat can be adjusted for double, triple or quadruple seat configurations on single-aisle or wide-body aircraft, and the company says it is suitable for new and retrofit projects.

ZIM FLUGSITZ offers four versions of the ECO-01 seat: short-range, medium-range, and longrange models for economy class; plus another model for premium economy.

**Correction statement:** The June 2009 issue of Aircraft Interiors International incorrectly stated that ZIM GmbH was 'founded by former Recaro engineers'. ZIM GmbH was actually founded by Peter and Angelika Zimmermann.





Call us for more details on the ACCORDIA window shade systems.

۲

(210) 590 6100 (210) 590 6884 fax MSAAIRCRAFT.COM

۲

**PRODUCTS**SERVICES



TISCA TIARA's new generation of cabin interior textiles is designed to help airlines lower their operating costs

> Matthias P. Tischhauser +41 717 910 125 m.tischhauser@tisca.ch Reader Enquiry No. 503

# materialmatters

TISCA TIARA has developed a new generation of cabin interior textiles designed to minimise lifecycle costs, and therefore help airlines to realise higher profits.

"Our smarter textiles will enable airlines to reduce operating costs by lowering kerosene consumption, maintenance costs, replacement costs and refurbishment costs, and by ensuring the lowest total lifecycle costs," says Matthias Tischhauser, division manager, mobility textiles, at the family-owned and run TISCA TIARA group. "Moreover, our products will further support our customers' efforts to become greener, more environmentally friendly airlines."

Earlier this year the company introduced a non-woven carpet that it says offers a weight reduction of about 30% over standard aircraft carpets – and therefore saves the airlines a lot of kerosene. "Thanks to the special production process this non-woven carpet can be offered at very competitive prices," says Tischhauser.

The company also produces a woven ultralightweight carpet designed to give a 25% weight saving compared to regular carpets.

Customers are free to choose any design and colour. TISCA TIARA can weave carpets in any width from 1-4.60m exactly according to clients' specifications. This allows airlines to minimise offcuts and waste. Additionally, minimising the consumption of resources and kerosene helps to conserve the environment. "In addition to these savings, airlines will also be able reduce operating costs by minimising replacement intervals due to the outstanding robustness, durability and long lifecycle of our carpet," says Tischhauser. "Our new carpet achieves the best possible test results regarding durability, wear and tear. This results in lower refurbishment and maintenance costs, reduced aircraft on the ground times and minimised lifecycle costs for our customers."

TISCA TIARA also offers a line of seat cover, curtain and headrest fabrics that it says are light in weight and offer lower maintenance costs as they are easy to care for and clean, as well as highly durable. A major benefit is that these fabrics can be washed (in short cycles) instead of dry-cleaned, therefore consuming less energy, water and detergent – an environmental benefit as well as an economical one. TISCA TIARA says that all the functional properties of these fabrics (such as flame-retardancy) are permanent and can't be washed out, worn out or removed. Moreover airlines face no restrictions when it comes to customisation.

TISCA TIARA designs and manufactures all sorts of premium textiles so airlines can source soft furnishings for the entire cabin under one roof. "We can satisfy any textile need without having to subcontract or source from other companies. This results in cost and many other benefits for our customers," says Tischhauser.



### **MONOGRAM SYSTEMS - TIA DIVISION**

CABIN INTERIORS

۲

Visit us at Stand # 7B28 Asian Aerospace, Hong Kong, 8–10 Sep., 2009

TIA.Sales@zodiacaerospace.com | +1 703 471 8600 www.tiaproducts.com

۲





Request more details about advertisers in this issue of Aircraft Interiors International online at: www.ukipme.com/recards/aiicard.html



Andrew Muirhead and Son has added to its list of accreditations

۲

James Lang +44 141 554 3724 sales@muirhead.co.uk Reader Enquiry No. 504



# faircredit

Andrew Muirhead and Son, which specialises in the production of technically advanced seating leathers, principally for the aviation sector, has added to its list of accreditations for quality and safety with one from United Kingdom Accreditation Service (UKAS).

Quality standards achieved to date include ISO 9002, ISO 14001:2000, and BS 6608:1985. The company is also a Boeing Qualified Leather Supplier, an Airbus Approved Leather Supplier, and is TUV tested and approved.

UKAS is the sole national accreditation body recognised by the UK government to assess, against international standards, organisations that provide certification, testing, inspection and calibration services. Andrew Muirhead has been regularly evaluated on its equipment, product testing and quality management systems.

"We can now ensure that purchasers and specifiers have confidence in the quality of goods and in the provision of services throughout the manufacturing process," says James Lang, director at Andrew Muirhead. "Our accredited testing labs are a superb vehicle for knowledge sharing and product development."

The company, which has been in the leather business since 1840, now supplies over 150 airlines in 40 countries across a wide variety of aircraft types from its factory in Glasgow, Scotland. It has developed leathers that do not burn and have low smoke density and toxicity properties to meet the ever-increasing demands of the aviation industry.

Andrew Muirhead also prides itself on its control and measurement processes, which it says are vital to producing a quality product. The company has full control over the whole process – from choosing its own hides, manufacturing its own leather on its own premises, and having the final say in whether or not the hides meet its quality standards, right down to delivery.

At the heart of its operations is the belief that leather is an investment rather than just a purchase – and therefore should offer longevity and a high level of quality. "Hard-wearing leather lasts a long time and matures with age, and is easy and quick to clean – so keeping aircraft turnaround and downtime to a minimum," says Lang. "Inferior leathers can cause skin complaints and allergic reactions, so Muirhead rigorously tests all dyes and other treatments to ensure the highest level of quality. Gimmicky products are avoided if they are going to compromise quality and performance, essential in today's competitive market."

The company's latest product, Arisaig, will get its Asian launch at the Aircraft Interiors Expo Asia in Hong Kong on 8-10 September. Arisaig is a soft and buttery leather, which has been developed to have excellent aesthetic and tactile qualities and is highly durable. Its specifications exceed BS 6608, Crib 5 and CAA Airworthiness.

# The Other Reason Napa is Famous

۲

THE HIDE AND LEATHER HOUSE

## VINTAGE LEATHERS FROM THE NAPA VALLEY

The Finest Quality Leathers Available in Myriad Colors for Executive Jets, Yachts & Coaches

> 1-888-HIDE-HOUSE (888-443-3468)

www.hidehouse.com

595 Monroe Street • Napa, CA 94559 USA • Phone (707) 255-6160 • Fax (707) 226-8527

### CAN YOU FIND VT MILTOPE IN THIS PICTURE?





Multi-Function Access Point (above ceiling)
 Telephony Server (in overhead compartment)

- n Printer (on flight deck)
- Network Control Panel (in galley)
- Network Server, Ethernet Switch
- and Application Server ( in electronics bay)

A company of VT Systems

### [ Scalable — Upgradable — Interchangeable ]

You'd never know we were there, yet we're ubiquitous. Our end to end cabin network components and systems serve passengers, flight and maintenance crews worldwide with thousands of certified units flying on all major airframe types. Our open architect design utilizes a building block approach to give you an industry based solution for whatever you bring on board for years to come.

۲

www.miltope.com · 1.800.645.8673 (1800MILTOPE)



Developing materials to help reduce aircraft cabin noise is a balancing act

۲

Adith Suian +1 630 784 6211 adith.sujan@rogerscorporation.com Reader Enquiry No. 505

# olease

 $(\mathbf{\Phi})$ 

There are two modes of noise typically found on FAR25.856. The composite structure often aircraft: structure-borne and airborne. Structureborne noise is made by the vibration of interior components, while airborne noise is from the sound of the engines or aerodynamic flow over the fuselage. "Good acoustic design mitigates both noise modes by using various design techniques that often require targeted materials. From an engineering perspective, a system design approach is necessary to accomplish this," says Adith Sujan, senior materials development engineer at Rogers Corporation.

In addition to reducing noise, the materials must meet the strict flammability, smoke, toxicity, weight and durability requirements demanded by the aircraft industry. Materials used to isolate the vibration of interior components or block outside noise must meet FAR25.853 and FAR25.856. While many materials meet the 12second and 60-second vertical burn requirements of FAR25.853, there are fewer material choices for the radiant panel FAR25.856 test.

"The typical noise level in the economy section of a commercial aircraft is about 75dBA." says Sujan. "A variety of materials have been developed to meet the needs of this noise level on common commercial aircraft. The systems design approach, using isolation and barrier materials, typically improves noise levels to 65dBA or better."

Acoustic insulation is located between the aircraft skin and the interior side panels. For improved performance a noise-blocking (mass) layer such as a flame-retardant silicone rubber is used in a composite commonly referred to as an 'insulation blanket'. This material acts as a noise barrier by virtue of its mass, and must meet includes both a noise barrier and an absorbing material (fibre-glass batting or foam).

Silicone materials and composites are often an excellent choice for aircraft applications because of their excellent flame, smoke and toxicity performance," says Sujan. "Also, siliconebased polymers maintain physical properties over a wide temperature range (temperature stability) and have great environmental resistance, specifically very low water absorption. Silicone properties have shown very little ageing effect, making them a reliable choice for installations that will be in place over an extended lifetime."

Sujan says that the systems design approach involves developing materials that balance flammability, acoustic performance, durability and weight. Formulating silicone rubbers for high-performance applications typically involves using customised fillers to provide properties such as improved flammability, reduced smoke or improved acoustic properties. "The challenge when developing a material to pass demanding flammability tests such as FAR25.856 is finding a balance between fire performance and mechanical properties," says Sujan.

Rogers Corporation recently launched the BISCO A2 solid silicone sound barrier for use on aircraft interior components to reduce cabin noise. This material has already gained approval at Airbus on the ABS5708 specification. Rogers Corporation says it is designed to offer excellent barrier performance while exceeding aircraft industry standards for flammability, smoke density and toxicity. The A2 material meets FAR25.856 (a), and is available in a variety of areal densities from 1.2-8.2kg/m<sup>2</sup>



PASSENGER ENTERTAINMENT TECHNOLOGY AND PRODUCTS

۲



۲

# JETLINER CABINS

*By* Jennifer Coutts Clay *Published by* J. Wiley & Sons Laminated softcover edition — 450+ pictures, most in colour

★★★★ "Everything you can possibly want to know about cabin interiors, presented in a well designed and highly illustrated volume." — Amazon.co.uk

 $\Rightarrow$   $\Rightarrow$   $\Rightarrow$   $\Rightarrow$  "Going even further than the previous edition in the number of chapters and photographs, *Jetliner Cabins* is the most up-to-date book currently available." — *Amazon.com* 

"Jetliner Cabins is now available as a paperback. The revised edition boasts an extra feature focusing on next-generation interiors ... as well as a host of fascinating images." — Aircraft Interiors International

"You won't find a more comprehensive look at aircraft interiors anywhere else." — Aviation for Women Magazine

*"Jetliner Cabins* is a magnificent book featuring everything you'd ever want to know about the aesthetic, design, and service of airlines. I recommend the book highly." — *Airchive.com* 

"The first and only comprehensive survey of commercial aircraft design from the '70s to the new Millennium." — ATW Air Transport World







Tapis has designed its Ultraleather faux leather product to help airlines save weight

Kara Codio +1 914 273 2737 info@tapiscorp.com Reader Enguiry No. 506

# lighten**the**load

Tapis, which specialises in high-performance fabrics for the aviation industry, believes that in the current global economic climate, airlines need products that offer it all – a light weight, durability, availability and value.

Perhaps of special importance to airlines looking to cut fuel costs is the issue of weight, and Tapis says that while genuine leather weighs 700-800g/m and most imitation leather products weigh 370-400g/m, its Ultraleather faux leather product weighs just 310 g/m.

Ultraleather is available in various colours, patterns and textures, including Contour, a multistretch fabric that extends around curves for a tight, seamless fit. Then there is the new Promessa variant, which was created for highwear use, for example for seats on regional jets and in economy class, and for cabin crew.

Tapis also offers a multitude of other fabrics, including TapiSuede and Ultrasuede – suede products that are available in a range of textures. The Ultrasuede Embossed collection includes three embossed patterns that the company says satisfy aesthetic demands without sacrificing performance. TapiSuede Strie, the latest in a long line of TapiSuede variants, is a patterned suede with the look and feel of a fine-wale corduroy. Customers can also take advantage of unlimited

6

printing options on Ultrasuede and TapiSuede with the company's Optique programme.

 $( \bullet )$ 

Despite the economy, the company has avoided cutting its inventory to save costs – and has maintained an extensive range in stock to provide quick turn-around for customers. It also offers to customise any fabric to match any colour a customer should choose.

The Tapis team prides itself on quality control, including colour matching, product consistency and flame-retardancy expertise. Its products are designed to comply with FAA flammability requirements for many different applications on commercial, VIP and corporate aircraft. The textiles can be used for applications including seating, headliners, bulkheads, upholstery, sidewalls, headrests, trim and more.

The company was founded in 1977 by Al Caputo, and is still family run – by Caputo's daughter Karen (now president) and son Bob. As well as achieving ISO 9001:2000 (w/o design) certification for its operations, the company is also a qualified vendor for Bombardier, Falcon, Gulfstream, Hawker and Lear. Tapis's fabrics can be found in VIP and regional aircraft around the world, as well as on airlines including Singapore Airlines, Japan Airlines, ExpressJet, Emirates, Qantas, Korean Airlines, Etihad and more.

### www.magnuspower.co.uk



۲

۲



۲

## Customised Coffee, Roasted in Switzerland

Blasercafé specialises in roasting and packaging coffee for airlines. We will design your own coffee blend and produce customised coffee pillow packs for your filter coffee machines as well as standardised E.S.E. pods. As a long-established supplier to international airlines, we know your requirements and will provide comprehensive and professional guidance for you and your crew. We join with you in aspiring to the heights of coffee enjoyment for your passengers.

### www.blasercafe.ch/airlines





The application period has been announced for next year's Crystal Cabin Awards

CRYSTAL

NINNER 200

۲

Carmen Krause +49 402 270 1928 carmen.krause@ luftfahrtstandort-hamburg.de Reader Enquiry No. 507

# chance**to**shine

۲

The application period has been announced for next year's Crystal Cabin Awards, which were set up by the Free and Hanseatic City of Hamburg to award excellence in aircraft interior design and technologies, and recognise outstanding cabin products and concepts. The application period runs from 19 October to 30 November 2009. Universities are also welcome to submit applications. Next year's ceremony will take place on 18 May 2010 at the Aircraft Interiors Expo, which is moving from its traditional March slot.

The awards were premiered in April 2007 at the Aircraft Interiors Expo. In 2009 more than 50 applicants from 14 countries entered, and were short-listed to three nominees in each of the five categories – greener cabin, health and safety; entertainment and communication; industrial design/interior concept; passenger comfort; and materials and components. In addition, the judges' commendation prize is awarded to the entry that the judges agree deserves special mention.

"We are convinced that it is now fully established – the press coverage was impressive, with hundreds of articles published worldwide," says Walter Birkhan, project director, Crystal Cabin Awards. "Every finalist and winner should make the best of it and use the award as a marketing tool with particular resonance."

The 2009 awards were announced at this year's Aircraft Interiors Expo in Hamburg. In the passenger comfort category, Recaro won for its

CL 3620 seating generation, which has a singlebeam, lightweight aluminium structure. Recaro also won in the industrial design/interior concept category with its SL 3510 economy-class seat, which weighs less than 10kg. ۲

In the greener cabin, health and safety category, the judges selected Boeing's Recyclable Aircraft Carpet as the winner. Produced without using harmful chemicals, the 100% recyclable carpet is returned to the manufacturer at the end of its useful service life and completely recycled into a new carpet.

First place in the material and components category went to B/E Aerospace. The US-based company has introduced an advanced series of designs for vacuum toilet assemblies, generators and waste tanks, designed to provide weight savings of up to 30% and eliminate the need for hardware removals.

In the entertainment and communication category the winner was Lufthansa Technik with its niceview infotainment system. The system gives passengers a high-resolution, virtual 3D view from a window seat or from the cockpit.

A young designer – James Lee (aged 25) from Hong Kong – clinched the judges' commendation prize for his Paperclip Armrest Concept. Lee's concept is a double-level armrest that allows two adjacent arms to occupy the same vertical space without clashing. Lee holds a Masters degree in aeronautics.



#### **PRODUCTS**SERVICES

# advanceguard

ADHETEC has over 25 years experience in supplying the aircraft industry with adhesive solutions based on pressure-sensitive adhesives (PSA).

The company's main activities include supplying adhesive tapes and films for applications in masking, protection and bonding; manufacturing customised decals, placards, stencils and spray masks; and developing new solutions based on its expertise in PSA technologies.

ADHETEC's attention is currently focused on bringing new products to the market, in particular marking for the aircraft exterior, and surface protection for the cabin. Its latest developments include a flame-retardant PE foam for the protection of plastics, laminates and composites inside the cabin. This 2mm thick black foam is coated with an acrylic emulsion adhesive. ADHETEC recommends it for all types of surfaces, smooth or rough, matt or glossy, and says it can also be used for outdoor applications.

Pierre Boisselier +33 562 517 880 commercial@adhetec.com Reader Enquiry No. 508



## madetomeasure

Baumann Dekor, based in Gmünd, Austria, has supplied woven and printed upholstery and curtain fabrics for the contract business for more than 20 years, and has amassed experience from over 530 prestigious hotel and cruise liner projects, both newly constructed properties and refurbishments.

The company carries out all stages of production in-house – including weaving, printing, dyeing and finishing. These facilities, combined with its service-minded and experienced staff, means that it can show flexibility in complying with individual customer requirements. Baumann Dekor says that its main focuses are customised design, excellent quality, professional project management and consulting, individual assistance in every product stage and timely delivery.

The company provides a large variety of Trevira CS fabrics, which it says offer easy care properties, are extremely stain-resistant, and show the required buckling resistance.

"We have started to develop some special fabrics with a leather appearance that feature 50-60% less weight per square metre than authentic leather," says Maximilian Baumann, CEO of Brüder Baumann GmbH. "It is an extremely attractive alternative for existing materials in aircraft interiors. Several large airlines have already shown interest in our new concept and we are confident that we will furnish and reconfigure our first aircraft cabins shortly."

Maximilian Baumann +43 285 290 08 maximilian.baumann@baumann.co.at Reader Enquiry No. 509



# **Engineered Solutions for Aircraft Interiors.**



 $( \bullet )$ 



# inprint

Green Sky Europe is a young French company that for several years has provided carpeting and curtains to carriers in Europe, Asia and the Americas. The company prides itself on the environmental credentials of its products – which it says are low in weight to reduce  $CO_2$  emissions, and are also fully recyclable.

One of the main benefits of the company's products is that they can be used by airlines as a communication medium – any design that can be produced on an ink-jet printer at home can be printed on the fabric and used in the cabin.

For example, an airline could use this to promote its brand image discreetly by having its logo repeated in all the aircraft's carpeting. Another airline might choose to promote its new destinations on the aisle carpet and curtains. Meanwhile, an airline might even use the soft furnishings as advertising space for third parties – as Air Europa has done with its Euro Disney-themed A320, pictured.

Laurent Dubois + 33 156 732 885 Idubois@greenskyeurope.com Reader Enquiry No. 510

You can request more details about advertisers in this issue, including the companies and products listed in the Products & Services section, by visiting the following online address: www.ukipme.com/recard/aiicard.html

## indextoadvertisers

ADHETEC	124
Aeristo	17
Aerolux	60
Air Data Inc	104
Aircraft Interiors Expo Asia	30, 75
Aircraft Interiors Expo Hamburg	100
Aircraft Interiors Expo USA	18
Aircraft Interiors International Online	
Reader Enquiry Service	36, 116
Andrew Muirhead & Son Ltd	95
Astronics Advanced Electronic Systems .	109
Automotive Interiors Expo 2010	64
B/E Aerospace Inc	
Baumann Dekor Austria	124
Blaser Café AG	122
Bucher Aerospace Corp	112
Chameleon Products Ltd	99
Crystal Cabin Awards	25
Desso – FSCC	92
Diehl Aerospace GmbH	112
DigEcor	110

EADS Sogerma	110
European Skybus	72
Green Sky Europe	126
Imagik International Corp	106
IMS Inflight	
Inflight Device and a ltd	120
Inflight Peripherals Ltd	120
III - Enidine Incorporated	126
J Clay Consulting	120
KID-Systeme GmbH	85
Kydex LLC	96
L-3 Integrated Systems	21
Lantal Textiles	14
Lufthansa Technik	10
Magnus Power	122
Mark IV-Luminator	114
MSA Aircraft Products	114
NBAA	82
Panasonic Avionics Corporation	
PGA Electronic	OBC
Premium Aircraft Interior Group Ltd	22
PECAPO Aircraft Spating CmbH & Co KG	
RECARD AIRCIAIL Sealing GINDH & CO KG	IFC

Regent Aerospace2
Rogers Corporation71
Rohi Stoffe GmbH57
Sennheiser ASG86
STG Aerospace8
Tapis Corporation54
Teague
Telefonix, Inc
Thales Airborne Systems45
The Hide & Leather House Inc118
The Young Engineers Inc79
Thermax CDT
TIA Galley Products116
TISCA TIARA (TISCA Tischauser and Co AG)67
Velcro USA26
VT Miltope
WASP Switches Limited
www.AircraftInteriorsInternational.com
Yokohama Aerospace America Inc IBC
ZIM GmbH 63
2



# alan<mark>pellegrin</mark>i A

Want to know more about key industry individuals, but haven't got the time to search for their Facebook profile or linkedin page? September's 'FaceSpacer' is in-flight entertainment (IFE) industry veteran and technology guru Alan Pellegrini, who is currently vice-president and general manager of Thales's IFE business.

**How DID YOU FIRST GET INTO IFE?** Completely by accident! I joined Hughes Aerospace in a management development programme after receiving an MBA from USC. After a couple of years in various assignments, I was asked by a mentor to join a modest subsidiary called Hughes Avicom as its marketing and sales director. At the time, I knew a fair amount about aircraft, but nothing about IFE. It was eye-opening to say the least. The opportunities were obvious and enormous, and very exciting, but the technical and business challenges were equally as substantial. But I was hooked from day one. It was just so creative and there were so many opportunities, like when we first demonstrated live satellite TV on a Delta aircraft in 1996 using DirecTV services. It was groundbreaking and I remember the thrill of being on the first test flight – I was hooked!

WHAT'S GREAT – AND NOT SO GREAT – ABOUT YOUR JOB? Working with airlines is great. The industry is so diverse, each airline having its own brand and personality. And with IFE, we have an opportunity to help an airline underscore that brand identity. The people you work with within the airlines span the range from the super creative to the ultra-geek! You travel all over the world, and develop relationships with extremely interesting people with very diverse backgrounds. However, while the global nature of the business and the associated travel experiences are great, it can also be physically exhausting. Balancing the desire to visit customers with the need to spend quality time in the office with staff can pose a lot of stress on a schedule - and there's the weekends away from home and nights spent on an aircraft instead of in your own bed. Most trips are fly in/fly out. I've done trips to Europe where I barely needed a bag at all - just the bare essentials! It's a strange existence at times, where I feel more at home at the Le Meridien Etoille then I do in my native OC (Orange County, California)!

**HOW'S THE FUTURE LOOKING FOR IFE?** Despite the economic downturn, I believe our industry has a very bright future. The integration of IFE with connectivity and other aircraft cabin systems, including lighting and structures, presents interesting possibilities for truly game-changing premium cabins. I also believe the industry has reached the level of business maturity required for companies to continue to invest, while being able to produce positive business results.

#### IS THERE A PARTICULAR TECHNOLOGY THAT REALLY

**EXCITES YOU?** I look forward to seeing the industry realise the vision of 'connected' passengers in flight. This was started by Tenzing (which I played a role in) and Connexion by Boeing some years ago, and companies today, including Thales, continue to push for this vision. Satellite communications and onboard electronic systems now make the possibility economically viable, and we see more and more airlines implementing some form of passenger connectivity, including GSM or WiFi. At Thales we have been integral to over 15 such programmes and I envision a proliferation in the not-too-distant future.

WOULD YOU DESCRIBE YOURSELF AS A GEEK? I respect and am amazed by technology but can't say I obsess over it per se. What gets my blood pumping is thinking about the possibilities of using advanced technologies to delight passengers and build businesses. For example, I see so many possibilities within Thales to join forces with our colleagues building cabin structures and aircraft lighting systems to create a revolutionary cabin experience.

**TECHNOLOGY HAS CHANGED OUR LIVES – BUT NOT ALWAYS FOR THE BETTER?** Technology has allowed us to become more efficient – our lives have become so fast paced and full of activity. I recently had a meeting in our corporate office in Paris. I flew in to CDG, took a taxi to the office, on my Blackberry the entire time, then after the meeting left and did the exact same. I was back to my home office in a couple of days and stayed 100% current with emails. But I didn't even stop to look at Paris let alone have a decent meal! The most magnificent city in the world, totally missed and taken for granted.

IF PASSENGERS CAN USE THEIR OWN DEVICES IN FLIGHT, WHY BOTHER WITH IFE? Good question, and a challenge to those of us making our living in IFE. But airlines that fully utilise their IFE system can provide a much richer experience then that available on passengers' own devices. A modern IFE system can store hundreds of titles. I recently found an independent film called 'Bella' which was wonderful. I never would have thought to load it on my iPod but it turned out to be a highlight of my trip. And it's not just movies, but games, CDs, connectivity, even shopping. Picture quality is another important difference - it's easier to enjoy incredible cinematography on a 17in display. And if you want to view your own content, IFE systems today allow you to do so on the larger screen - it's important that we embrace personal devices and explore ways for the IFE systems to enhance the experience, not compete with it.

WEBSITES... NAME AND DESCRIBE YOUR IDEAL ROBOT? 'Mario' – as in Mario Batali, the famous chef, and it would be my personal cook. I love his food and restaurants – very traditional Italian dishes – almost as good as Mom's!

FINALLY, A QUESTION MORE IN THE SPIRIT OF SILLY

Aircraft Interiors International.com

### LAV SPACE. THE FINAL FRONTIER.

۲

The new Yokohama B757 lav retrofit is modern, stylish, and most of all spacious. Our new B757 retrofit lav incorporates organic shapes into the overall design, including the industry's first certified curved bi-fold door. Passengers enjoy more spaciousness and comfort.

۲

#### Selected by American Airlines.

The Yokohama lav has been successfully piloted on an American Airlines premium B757. Additionally, it has common parts with Yokohama B737 lavatories.

YOKOHAMA

See it here: www.yaainc.com/B757lav

Or contact Kelly Stolle, VP of Marketing & Business Development: Kelly.Stolle@yaainc.com Tel: 253.893.0130



## **Comfort & Entertainment** Innovative Management Systems See us at ASIAN AEROSPACE, French pavilion Booth 5F25

۲



# Lighting

۲



111111

۲

### www.pga-avionics.com

PGA ELECTRONIC SA ZI La Malterie - Avenue Jean Monnet 36130 MONTIERCHAUME - FRANCE Near Châteauroux / Déols Airport Phone : 332 54 07 90 90 Fax : 332 54 07 91 91