

# What's New in Airliner Interiors

by Luigi Vallero

The shape of things to come in aircraft interiors is on show annually at the Aircraft Interior Expo in Hamburg, Germany. Here, major aircraft and aircraft interior manufacturers gather to interest airlines in the latest developments, ideas, and designs that, they believe, will define the future air travel experience in terms of meal and beverage service, cabin layout, seating, and in-flight entertainment (IFE).

## Setting the Mood

Since the beginning of commercial aviation, the airliner cabin has been the focal point of the passenger's experience. Having moved away from airlines' early attempts to recreate luxurious Pullman railway coaches aloft, today's emphasis is on trying to convey as much as possible the feeling of being at home or in a boutique hotel. Reducing the stress of air travel to a minimum—especially for premium passengers—is a fundamental aim, so to improve cabin interiors, designers are today concentrating on such key elements as windows, sidewall panels, and mood lighting.

Flying and seeing the world from the air can still be an enthralling experience and most passengers believe they have the right to a window seat. Nowadays, aircraft manufacturers are returning to the super-size window dimensions and formats of the Fifties and Sixties, recreating the large 'portholes' of the Vickers Viscount and Sud Aviation Caravelle.

Gone, also, are the days of straight lines. Airliners of the future will boast rounded and sculptured side panels. Boeing has already developed a completely new design for its 787 Dreamliner (*Airways*, June 2006), and is now applying most of its features to the 747-8 Intercontinental as well (*Airways*, April 2006).

Vital in helping to create both a feeling of well-being and relaxing ambience in an aircraft cabin, lighting has been completely revised since when it was provided by white fluorescent tubes. Today's cabin lighting, especially in premium classes, is becoming a complex array of multicoloured LED (light-emitting diode)-type illuminations glowing through a series of changing



color tones as the flight progresses (*Airways*, 'Business Flyer', October 2007) mirroring the time of day or night, thereby helping passengers' body clocks to adapt better to the surroundings during long flights while minimizing the effects of jet lag.

The use of larger cabin areas for socializing or for new service products is also gradually being reintroduced (since the 'classic' days of the transoceanic flying boats, Boeing 377 Stratocruisers, and other types). Onboard lounges for premium classes are becoming increasingly popular, with Qatar Airways (*Business Flyer*, October 2007), for example, having recently adopted the feature in its new Airbus A340-600 flagships, where comfortable cream leather sofas with tables invite passengers to enjoy their meals or sip a cocktail. Virgin Atlantic Airways was a pioneer of this feature, at least in the modern era, when it launched a full-service stand-up bar complete with high stools.

On long-haul flights especially, passengers like to snack between main meals, so British Airways (BA) has revised its popular 'Raid the Larder' idea. The new 'Club Kitchen' recently unveiled by the airline has revolutionized the galley area. Starting with the notion that the galley was a place for stowing food items, the creative types at BA decided to place the items on display

instead of keeping them hidden away. The result is refrigerated transparent displays where passengers can see and choose from a wide array of snacks and drinks, as at a self-service kiosk.

The race to produce the best possible cabin environment is on between Boeing and Airbus, the latter having launched its 'cabin vision' ideas in a mockup that provides a sense of what passengers could expect when they board the A350 XWB. Divisions between walls and ceilings have been dispensed with, the cabin now characterised by a stylish seamless design blending overhead bins with the surrounding architecture. Airbus has now widened the A350's cabin by 12in (30.5cm) over that of the A330/A340. This compares favorably to the Boeing 787, being 5in (12.7cm) wider than the latter at eye level. The feeling of spaciousness is further improved by the adoption of windows that are 50% larger than the current standard, the use of improved mood lighting conditions, as well as by a central bar area that opens up the space in the middle of the cabin, while the flat ceiling enables a so-called 'virtual window' to be projected above the passengers.

Boeing's approach to develop its 787 cabin in conjunction with long-time business partner Teague has also been straightforward and aimed at enhancing passengers' perceptions of comfort and wellbeing. Here, wide open spaces and the largest windows installed on any airliner help to convey a feeling of light inside the cabin, aided by softer LED lighting. Window shades have been replaced by electro-chromic technology, enabling passengers to darken or lighten their windows at the touch of a button. A dimmable window panel inserted between the exterior cabin window and the interior plastic dust cover allows different amounts of external light into the cabin, granting the passenger total control over the extent of solar light and heat allowed into the cabin.

Vastly improved air purification systems provide cleaner air, while a lower cabin altitude and higher humidity levels will increase passenger comfort. The same features will be available for the 747-8.

Meanwhile, to close the gap until 787s are delivered, Boeing's Commercial Aviation Services is offering airlines the opportunity to upgrade the cabin interiors of 767s with a package that dramatically improves the older airplanes' Eighties look. The kit, inspired by the streamlined 777 interior, includes softer lines on storage bins, improved headroom, upgraded interior finishes, lighting, and seats. Already, a number of airlines such as LAN, Kenya Airways, and First Choice have chosen to upgrade.

When it comes to passengers' private space, significant developments have been taking place in the last few years, with Emirates one of the first to update first class seating with the introduction of 'Skysuites' on its ultra-long-range A340-500s. Although based on a retrospective look at the so-called 'Golden Age' when



air travel was the exclusive province of the wealthy, the new-style suites have become an instant success, and accordingly a number of companies are developing comparable products.

Airbus has commissioned what can easily be described as a revolutionary new 'home onboard' product featuring modular individual suites for installation in the cabins of wide-body aircraft, especially the A380 (*Airways*, May 2006). Each 4m<sup>2</sup> (43sq ft) suite, featuring an improvement of 25% over the standard first class passenger area, is laid out as a mini compartment containing a 'lazy boy'



style chair and sofa which can double as a comfortable 2m (6.6ft)-long bed. During daytime, by collapsing the armrest between seat and sofa, an 'L'-shaped divan results. A movable table, as well as several other features including drawers, closets, and individual lamps, convey the sense of being inside a small replica of an upmarket hotel room. Moving farther away from typical airline 'sameness', each suite is identified by a botanical name, instead of a number, while great care has been expended on the choice of materials and colors.

Passengers have full control over the 'ambience', with the possibility to change mood lighting using simple touch screen controls, while flat-panel speakers embedded in the walls provide high-quality sound from the IFE system while eliminating the need for headsets. Noise-absorbing materials have been widely used in order to prevent sounds intruding from other cabins and sections. Each individual, self-contained compartment is a module capable of easy installation in the A380, and is suitable for the A340 and A350 XWB cabins as well.

The lounge between each compartment is intended as an area for socialising, and has been appointed like a homely living room, with spaces for large TV monitors, libraries, and other amenities for relaxation.

### **Bums on Seats**

The life cycle of business class cabin 'furniture' has reduced to between five and seven years because of the pressure on airlines to keep up with the increasingly competitive environment. This translates into a bonus for cabin interior manufacturers, which are now experiencing a period of renaissance with new ideas and designs being favorably received by airlines willing to differentiate their product from that of the competition. For example, older-style mechanical reclining seats, and even full-flat seats, are being replaced by electric lie-flat seats such as those introduced by British Airways. Other examples are the latest models for Cathay Pacific and Etihad Airways, a far cry from equivalent seats of five to six years ago.

As with other aspects of airliner cabin interiors, seats are often designed in secrecy, with airlines, design consultants, and manufacturers working together, often borrowing ideas from the automotive, maritime, and hotel industries. These are evaluated, tested, and translated into versions that would fit the confined spaces of an aircraft cabin, with natural materials like leather, fabrics, and wood being incorporated in most new products.

British Airways has invested £100 million (\$200 million) in a new product which maintains the previous 'yin and yang' layout (paired seats facing forward and aft) with a 25.25in (64cm) pitch, 25% wider than before, 4in (10cm) of extra legroom, more personal stowage space in a special under-seat locker, and affording improved privacy thanks to an electronically-operated screen between seats. The screen is built from a translucent material, Lumisty, hitherto not used in aviation applications. It allows a flight attendant to see through it, in order to anticipate and attend to a passenger's needs, while the monitor appears opaque to the passenger in the adjacent seat. The combination of seat and footstool can be moved to a new 'Z' bed configuration, permitting reclining in a position similar to a zero gravity situation, ideal for relaxing or watching movies. With cabin space always an expensive commodity, such an innovation has been accomplished within the 'footprint' of earlier designs.



Singapore Airlines (SIA), another leader in premium class travel, has adopted a different approach, producing what, at 30in (76.2cm), is currently the world's widest business class seat, rivalling many opulent armchairs. The seat, which converts into a fully-flat bed with passengers lying diagonally across the aircraft axis, has been taken to an extreme in first class—where the seating is now 35in (89cm) wide—allowing the passenger to host a fellow-passenger on the same settee for sharing a meal or watching a movie. On SIA's Boeing 777-300ERs, both business and first class cabins share a 1-2-1 seating layout. An enlarged wooden, height-adjustable dining table improves the dining experience, while a 15.4in (39cm) LCD (liquid crystal display) monitor enables perfect

viewing of the extensive Krisworld IFE programs. In first class this feature is taken further, with a 23in (58.4cm) Panasonic LCD monitor—the largest of its type currently in airliner use—plus a private vanity area.

Starting with its luxuriously appointed A340-500s, and now across the whole Airbus fleet, Etihad Airways has reintroduced swivel seats—a popular Lockheed L-1011 TriStar feature from the Seventies—for its Diamond Zone (first class) cabin, allowing passengers travelling together the opportunity to chat or socialise in groups of four.

Innovation in seat design applies not only to premium class cabins but has a flow-on effect in the back of the airplane too. The revolutionary 'Freedom' addresses a major drawback to seat utilization in a pair, namely the arm rest. Because a human body's widest point is at shoulder height, by placing occupants of adjacent seats facing in opposite directions, their shoulders overlap, thus enabling the elimination of the intermediate armrest. This, in turn, translates into a 2in (5cm) reduction in overall width per seat pair. In a wide-body cabin, the gain allows the inclusion of an extra seat across, increasing from nine to ten abreast.

While this layout may look odd, it could be beneficial to both airlines and passengers, and encourage development of further combinations for greater capacity and comfort. For example, such seats in a 777-300 would give an airline the choice of a high-density option, increasing aircraft capacity from 261 at 32in (81.3cm) pitch to 282 at a more generous 34in (86.4cm), or in a very comfortable configuration, with capacity almost unchanged at 260, but seat pitch enlarged to a luxurious 36in (91.4cm), especially appealing for ultra-long-range services.

In a 3-4-3 layout, by placing the central pairs of seats opposite each other, airlines could create special 'family' zones, to offer a more private environment. This futuristic-looking seat also has a fixed-back shell, another feature borrowed from business class, preventing interference to passengers seated behind when the seat is reclined. Small privacy screens are integrated in the headrest ears.

Already addressing the problem of seat recline in economy class, Cathay Pacific has introduced a new model with a fixed clam back, where the seat bottom moves forward while the seat back moves down without encroaching on the personal space of the passenger immediately aft. SIA also is seeking to improve the comfort of its economy customers by adopting seats that provide a higher level of recline and an enhanced perception of pitch.

Another remarkable innovation is an inflatable cushion seat. Air pressure in the cushion can be infinitely varied, enabling the passenger to choose the optimum level of comfort.



## IFE

Most air travellers perceive the idea of spending ten or more hours in the limited personal space of an aircraft cabin, without contact with the outside world, as somewhat of a semi-claustrophobic experience. Airlines are, therefore, becoming increasingly mindful of the importance of creating an experience that is not only as comfortable as possible, but gives passengers the freedom to replicate their normal land-based activities as far as is practicable.

According to Elvira Buis, product strategy manager of KLM, today's passengers are "digital nomads." Estimates indicate that, on average, 95% of passengers carry a mobile phone, and 42% a PDA or laptop PC. Business travellers, especially, crave connectivity, and want to communicate with associates, friends, and family even while en route.

Hard and painful plastic headsets, and single cabin movie screens, are almost universally things of the past,



and today's long-haul standard of excellence in IFE has become the AVOD (Audio Video on Demand), enabling passengers to choose from a wide library of movies, music CDs, live satellite TV (a feature provided by a few airlines like Qatar Airways, and even US low-cost carriers JetBlue and Virgin America), onboard mobile phone connectivity (currently being tested by Emirates, Ryanair, Air France, TAP, and others), and web browsing.

In the near future, this trend could extend to BYO (Bring Your Own), enabling passengers to connect their own electronic devices to the aircraft's systems. Thus, the next logical step in IFE could see a combination of airline and personal entertainment, with all IFE being BYO style. Meanwhile, IFE is becoming an integrated airline marketing tool. Air France-KLM is already considering introduction of dedicated interactive 'plazas' where passengers could browse among four different themes—entertainment, retail, research, and trip guide—even allowing them to place orders for products online. In five years' time personal messages from the airline could be specifically addressed to passengers on their individual screens, while they could easily network with fellow travellers seated elsewhere in the aircraft.

Peter Weber of Frog Design foresees a time when passengers would start interacting long before the flight takes place, by inputting personal information in a specific database to enable the airline to treat them with a completely customised product. Not only will they be welcomed at the seat by a personal welcome message, but cabin crewmembers would know their preferences, for example in food and drink choices, much as is the case today with members-only bizjet operations. According to Weber, IFE is presently lagging behind choices offered by standard consumer electronics products and systems readily available, and the airline industry is therefore trying to catch up with the various gadgets and gimmicks available in the home and office. With the advent of iPapers, traditional printed literature could disappear from seat pockets, and Weber feels that with the current status of electronics part of the glamour that used to accompany the 'classic' age of air travel will return in the form of such amenities as gyms, cinemas, discos—Weber believes this is the ideal way to prevent DVT (deep vein thrombosis)—and even theaters on ultra-long-haul airliners.

As a whole, the travel experience of the future will likely be more sophisticated and civilised once passengers board the jetliner, thus going a long way toward alleviating the hardships of long lines and strict security procedures. →