# Business Jet interiors INTERNATIONAL

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EBACE PREVIEW

Turn to page 40 for show highlights and trend insights

# inside OUT

HOW TO MAKE THE MOST OF THE FUSELAGE'S BLANK CANVAS TO COMPLEMENT CUSTOM INTERIOR DESIGN SCHEMES

## BBJ MAX 7 DESIGN

All the details of a flexible concept marrying aviation, marine and automotive influences

## SUSTAINABILITY DRIVE

In the first of a series, experts discuss the development of sustainability-focused cabin material options

## MATERIALS REVIEW

The latest and greatest leathers, faux leathers, carpets, textiles and other new materials

# going green

DESPITE CHALLENGES AROUND DEFINITIONS, CERTIFICATION AND AESTHETIC REQUIREMENTS, THE MARKET OFFERS A GROWING RANGE OF SUSTAINABLE MATERIALS

*Words by Marisa Garcia*

MAIN AND INSET: A CONCEPT DESIGNED BY ALTEA WITH A FOCUS ON NATURAL MATERIALS
IMAGE: ALTEA

The push for greater sustainability in business aviation extends to the cabin, where innovations in textiles and surfaces have the potential to reduce the environmental impact of design. Robin Dunlop, founding partner, design and completion expert for aviation consultancy Altea, says the highest demand for sustainable materials in the sector comes from corporations and governments wanting to demonstrate commitment to sustainability. While biofuel is a big focus in this area, it's not the only consideration. "The supply chain can also make discernible differences," says Dunlop.

Material developments can lessen private aviation's environmental impact through reducing weight to lower the $CO_2$ footprint of flight; extending service life to reduce waste; or enabling the use of recycled or recyclable raw materials.

*Turn to page 26 for the annual materials review!*

Dunlop points out that sustainable design is never down to any single element. "It's not just one material; it never is just one thing," he explains. "You've got to factor in the depth of the production of these materials, the breadth of their utilisation and integration. You must look at a photo of a cabin and see how all the elements will interface and blend; they should work together. They all play a part."

He foresees more sustainable materials coming through. "I think the whole supply chain has a real foothold on R&D activities at the moment, which will allow suppliers to quite quickly – in the next two or three years – offer some scope around the actual substrate materials that we currently use," he comments. "That will be a game-changer."

## CERTIFICATION HOOPS

Of course there are challenges to overcome. "They have many certification hoops to get through," says Dunlop. "But I think there's work underway. Some of that work has largely been accomplished because they use the technology in other industries without such stringent safety and certification requirements. In the sports industry, automotive racing and similar applications, some of these materials are what we need in cabin interiors as substrates. We're on the cusp of them coming into our domain."

***"They have many certification hoops to get through"***

ABOVE AND BELOW: PERRONE PERFORMANCE LEATHERS & TEXTILES' SONOMA LEATHER IS MADE TO MAXIMISE THE USE OF THE PRIME SURFACE AREA, REDUCING WASTE AND SAVING RESOURCES

Defining exactly what constitutes sustainability and quantifying the benefits can be a challenge. "Making a thorough evaluation of the sustainability parameters is extremely time-consuming, especially considering that no widely accepted standard is available regarding sustainable interior materials for aerospace," says Mélanie Prince, head of innovation at F/List. "Another current limitation is to scale up new materials fast enough to meet the demand."

## DEFINITION DEBATE

The definition of sustainability is up for debate. For example, while some point to the unsustainability of leather, due to methane emissions from cattle, Perrone

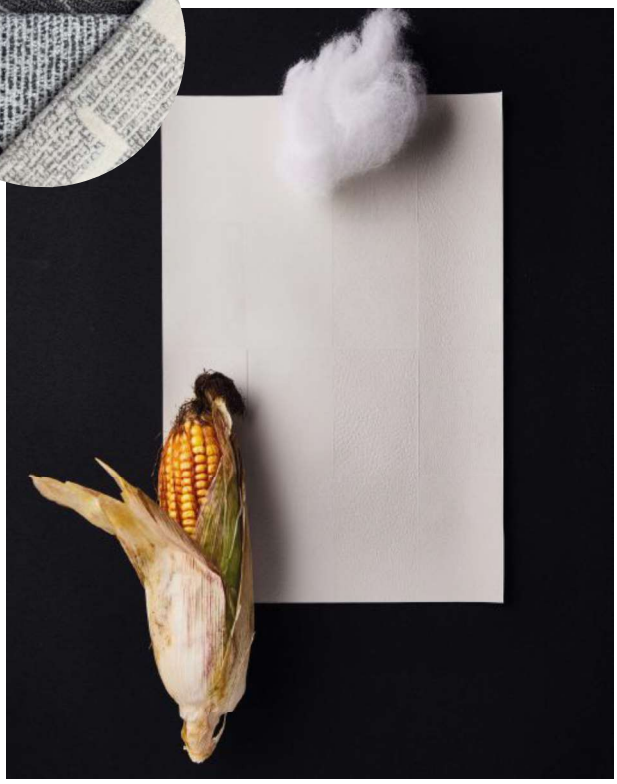
## CUTTING *waste*

**Perrone Performance Leathers & Textiles offers a cut parts service that William Perrone says is "a way to achieve additional sustainability, as well as reduced shipping costs while also reducing emissions and transfer fuel costs".**

**Using a laser-guided water-jet cutting system, the company can produce intricate patterns with tolerances of within four thousandths of an inch. "The cut parts are 100% quality controlled, enabling clients to pay only for the portions used rather than scrap or waste," says Perrone. "The waste portions can be upcycled to other industries or donated to our various social enterprise organisations."**

ABOVE INSET: LEONICA, WHICH CHARACTERISES LEATHER TANNING AS "THE OLDEST ART OF RECYCLING", HIGHLIGHTS THE MATERIAL'S DURABILITY AND RECYCLABILITY. THE COMPANY RECENTLY INVESTED IN A NEW SOLAR PANEL SYSTEM TO GENERATE SUSTAINABLE ENERGY, AND NATURAL WOODEN DRUMS TO REDUCE WATER CONSUMPTION, WHILE MORE AND MORE NATURAL TANNING AGENTS ARE USED

ABOVE RIGHT INSET: THE GAIA COLLECTION FROM KALOGRIDIS INTERNATIONAL IS CREATED BY BLENDING UNDYED NATURAL FIBRES, ELIMINATING WATER USAGE



LEFT: F/LIST'S WHISPER LEATHER, PRODUCED FROM PLANT-BASED RAW MATERIALS

BELOW: F/LIST LINFINIUM, A LINSEED-BASED COMPOUND

Performance Leathers & Textiles offers a different perspective. "Leather hides are a by-product of the beef industry, and use of leather worldwide reduces 7.3 million tons of landfill waste globally each year," says William Perrone, president at the company.

The argument is that unless beef consumption was reduced worldwide, moving away from leather as a material would not be beneficial. But there are elements of leather production that are also environmentally problematic, and Perrone's focus has been to reduce that impact.

"Our Sonoma leather maximises the use of the prime surface area, resulting in increased uniformity and dimensional stability," says Perrone. "The reduction in the surface area decreases leather processing chemicals by 46%, and means the process uses 91% less fresh water, creates 89% less waste, uses 2 lbs [0.9kg] less plastic, and uses 20% less transfer fuel per passenger place, resulting in lowered costs for shipping and transportation."

Because of the safety regulations governing aviation, developing alternative sustainable materials for aircraft can be more complex than for other applications. "Certification is required for all materials, and sustainable materials must meet the same rigorous standards as traditional materials, though it can be challenging to develop sustainable materials that meet these standards while maintaining affordability and durability," says Perrone.

## THE DEMAND IS THERE

Even so, material and finish manufacturers are investing in developing sustainable materials because they anticipate demand. "We expect that sustainable requirements are

## ENIGMATIC INTRIGUE

**F/List recently introduced materials including Aenigma, which are designed to be sustainable while offering aesthetic freedom. "We have an almost infinite customisation possibility for our sustainable materials, which is a definite advantage for the customer," says Mélanie Prince of F/List. "We can build components using customer-supplied materials that perhaps have an emotional value and tell a unique story – for example, sand from the area where I was raised, pebbles from my favourite location, stones, plants, and more." The materials have several use cases, including as decorative surfaces for bulkheads, dado panels, sidewalls, sideledge trims, countertops, flooring and corporate logos. "The neutral-coloured materials can also be painted, and we've showcased side panels with work from a well-known Austrian artist," says Prince. "We are bringing so many more opportunities to the design community. The sustainable materials are durable and do not compromise on quality, which means that owners and operators can have a much more sustainable cabin interior designed that looks equally stylish and elegant and can be customised as much as the client needs. The materials can also be recycled at the end of life, supporting their circular use."**

## *"The interior is the best ambassador to showcase sustainability"*

going to be the standard for aviation materials in the future," says Perrone.

"A big issue that usually comes into play with sustainable materials is that they come at a higher price than traditional materials," comments Lauren Kenealy, marketing manager at Tapis. "In the business jet market, it's positive to see that they are willing to spend a couple of extra dollars to have that traceability, sustainability and peace of mind."

"It's not a short journey," Kenealy adds. "There are going to be more bio-based product offerings available within the next three to five years. We have said that 100% of our stocked product line will contain at least 50% recycled or renewable resources. Those are big challenges that we set for ourselves. We have to ensure that we maintain the lower weight and that the quality doesn't tear because changing the composition of these materials changes how it tests, how you can treat it, and other attributes."

*The 2023 Sustainable Design Summit – focused on hotel, cruise and aircraft interior design – will be held on 28 November in London, UK*

### LOOKING GOOD

Sustainability innovations can go hand in hand with aesthetic excellence. "The interior is the best ambassador to showcase sustainability and raise awareness in an elegant manner," says Prince of F/List. "We promote sustainability as an added benefit of our offering, as some customers may be attracted by the customisation potential and unique features first. Sustainability certifications would be helpful and provide a much-needed push in the right direction. Just as the industry is coming together to promote the use of SAF, we would like to see the formation of an alliance or best practice standards to guide the industry forward."

## RENEWABLE RESOURCES

**One of Tapis's offerings is Ultrasuede, a non-woven material composed with 30% plant-based polyester.**

**"It's produced from different renewable resources, like sugar cane," says Lauren Kenealy of Tapis. "Once the sugar we consume is extracted from the sugar cane, 80% of the raw material goes to waste. The company that makes the weave has found a way to break that sugar cane down and make it into plant-based polyester."**

ABOVE: VOLAR BIO, THE FIRST ULTRAFABRICS BIO-BASED COLLECTION, FROM TAPIS

BELOW: TAPIS'S TAPISUEDE, MADE FROM 100% RECYCLED POLYESTER

BELOW LEFT: ULTRALEATHER PROMESSA AV, FROM TAPIS

### GREEN CABIN ALLIANCE

Tapis has joined the Green Cabin Alliance, formed by experts in the commercial aviation sector. "We've started to see more private aviation sectors be interested in the Green Cabin Alliance," says Kenealy. "Organisations are coming together to develop ideas for changing the future aircraft cabin's sustainability. It is great to see that we can be a part of all of this and work on this together, sharing ideas. So I do see, not only from the consumer side, that people are more concerned over sustainability from the side of aviation companies, manufacturers and OEMs. They are looking for ways to advance in this area."

To persuade more private jet owners to select sustainable materials, the key is raising awareness. "It's the responsibility of the completion centres, the designers and anyone involved within the industry to make prospective customers aware of what might be available to them," says Dunlop of Altea. "Owners don't want to spend their money or waste their time on drawn-out R&D to get a particular innovation on board their aircraft. Yet, they might want it if you can offer some immediate solution. There's an appetite – more willing – to be more environmentally responsible than in the past."