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EXPERT GUIDE TO
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QUEST FOR
QUIETER CABINS

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THE ULTIMATE
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THE QUEST FOR QUIETER CABINS

By: Joseph Reaney

Private jets have long been adorned with luxurious features, from king-sized beds to fully-stocked minibars, sparkling crystal chandeliers to golden bathroom fittings. Yet for all the fancy five-star features of private jet cabins throughout the years, one consistent annoyance has been the sky-high noise levels. A regular interior can expose its passengers to more than 70 decibels, rendering cross-cabin conversations all but impossible.

Now an increasing number of billionaire jet owners are recruiting interior designers to minimize noise levels within their existing cabins, while new planes are expected to include noise reduction features as standard.

Jean-Pierre Alfano, Creative Director and Head of AirJet Designs, believes it is due to quieter environments elsewhere. “Noise reduction has become important simply because owners are now used to having a quiet environment in their homes and cars,” he says. “They expect the same level of comfort in a private plane.”

However, it isn't all to do with customer demands – there are now also wider industry requirements related to cabin noise levels. “You start by defining what the standard industry decibel levels for the aircraft at hand – with the standard depending on the type of aircraft – and work at achieving that,” says Jean-Pierre. Then, if noise reduction is a particularly high priority for the plane owner, interior designers like AirJet Designs will look at how they can make it lower. “It can be either with passive noise reduction or active noise reduction.”

Passive noise reduction depends primarily on sound absorbing or damping materials, effective in reducing high-frequency sounds. “Passive noise reduction is dealt with in several stages of the design process,” Jean-Pierre says. “In the preliminary design phase there's the cabin layout. For example, areas located behind the engines are significantly noisier than at the front, so if an owner wants an especially quiet bedroom, you put this room in the front. Next there is the design phase, where you carefully select materials, as some absorb sound more than others. Then there's the engineering





DESIGN



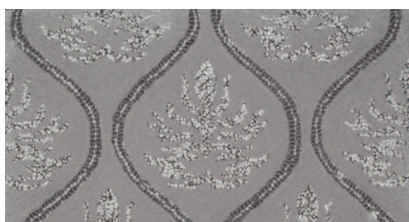
phase, with the addition of noise insulation features like blankets and isolators between the fuselage and cabin lining. Then you add noise-absorbing decorative materials such as thick carpets and Deconel – foam-backed covers that are cosmetic but also reduce sound.

The active noise-reduction systems are more effective in dealing with low-frequency sounds. “Active noise reduction control systems use digital technology to ‘actively’ cancel out noise. These systems are composed of microphones and speakers positioned throughout the cabin interior; the microphones register the noise and a software working in real time with a computer will generate the same sound, so canceling the noise.”

Both types of noise reduction have downsides. “Passive technologies means adding more sound insulation features, so more weight and cost to the overall design,” says Jean-Pierre,



Supplied by www.kalogridis.com, “Motion III” DP060440A Deconel (above) was used on the walls of the aircraft and “Charlotte” 17463-D carpet cover the floor (below) in all of the rooms. Elsewhere in the rooms are acoustic blankets, mechanical isolators and active noise reduction systems..



while active technologies can be even more costly. “Noise canceling systems are an expensive option for a private jet, as the system must be designed specifically for the aircraft and interior – no readily available, standard systems exist. Considering we’re talking about electronic systems and technology, it also adds maintenance costs and upkeep issues.”

A full, state-of-the-art soundproofing can lower cabin noise to between 45 and 55 decibels, which is a more normal range for human speech, but still far from silent (0 to 20 dB). And with full refurbishments costing millions of dollars, the question for every private jet owner is what price they put on a more comfortable conversation. ✈

Find out more about leading aviation design studio AirJet Designs and their services at airjet-designs.com