

The Doorway™

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FORGING NEW CONNECTIONS





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Once upon a time the business world was a far simpler place. An individual would identify the need for a product or service, gather the resources to turn that need into reality and then work hard to bring the product or service to market. Ultimately, the success of a business was largely dependent on clientele within its local community, so forging strategic relationships could make or break its future. For the lucky few with the right stuff at the right time, meteoric growth could follow, resulting in widespread brand recognition. Far more common were the mom and pops, cornerstones of the business community who could be counted on to consistently deliver high-quality goods and services. They might not be the biggest name in town but took satisfaction in their role; a small fish in the big pond.



Since the inception of the commercial aerospace industry, manufacturers and suppliers have plied their wares in the never-ending race for brand awareness and the bottom line. The “local clientele” have become customers in every country and postal code across the globe. This changed dynamic provides the opportunity for unlikely partnerships and the chance for the “little fish” to shine right alongside those whales.

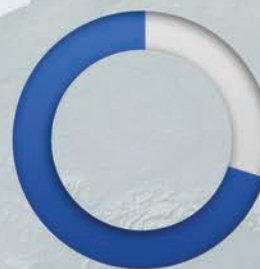
The Gill Corporation is one of the world’s largest manufacturers of honeycomb, high-performance floor panels and cargo compartment liners for passenger and freighter aircraft. The company also excels in many other types of reinforced plastics, including interior sandwich panels for creating structures such as galleys and overhead stow bins. In the world of advanced composite manufacturers, we’re one of the big fish but we maintain the quality standards, personal accountability and down-home values like the little guys.

The Gill Corporation is vertically integrated with subsidiaries worldwide that provide a vast array of capabilities. This puts us in a unique position. As a corporation, we have decades of successful manufacturing expertise, state-of-the-art equipment, unparalleled research/development and testing labs, relationships with major airlines and OEMs, global sales reach, and customer support.





The Gill Corporation Europe, Ltd



30% COMPOSITE
IRKUT MC-21



15% EFFICIENCY
OVER A320

In 2012, our subsidiary located in Northern Ireland, The Gill Corporation Europe, Ltd (TGCE) began a dialogue with Irkut Corporation.

The Irkut Corporation is a large Russian aircraft manufacturer and member of the United Aircraft Corporation (UAC). Irkut is best known as the manufacturer of a family of military aircraft with its company headquarters located in Moscow.

Irkutsk Aviation Plant, where the Irkut MC-21* is assembled, became the first enterprise in Russia to receive both EN9100 standard approval and obtain official Airbus Supplier status. Since the end of 2007, the plant has been supplying components for the A320 of family airlines in the framework of international industrial cooperation.

Irkut announced plans to release a new Russian twin-engine, short- to mid-range jet aircraft, the MC-21. This new aircraft offered a seating capacity of 150-211 passengers and was intended to compete with the Airbus A320 NEO, Boeing 737 MAX and Bombardier C Series. The original MC-21 design called for more than 30% composite materials with a plan to eventually increase composite materials to more than 50%. The resulting design would offer 10-15% more efficiency than either the Airbus or Boeing (same class) aircraft, a 20% lower operating cost and almost 15% lower fuel consumption than the A320.

* www.wikipedia.org, Irkut MC-21

Irkut assembled a group of more than 40 major suppliers and then approached TGCE about supplying fully finished composite panels (floor/sidewall/partition/ceilings) for the passenger cabin and cargo compartments, galley and vestibule areas (approximately 220 panels in total).

TGCE epitomizes the small cornerstone entities that serve the European Aerospace market. They excel at detailing composite sandwich panels, creating complex assemblies, manufacturing aircraft insulation bags and fabrication services. They also provide stocking and distribution of cargo liner and flooring materials for immediate European delivery. The company is also committed to exploring new opportunities from unexpected places, so working with Irkut was a welcome surprise.

Materials for the MC-21 aircraft will be fabricated at the TGCE site in Northern Ireland. Once complete, the fully finished panels will be shipped to Irkutsk for final assembly. Each panel will be machined on a 3-axis CNC router for insert holes, cut-outs and edge rebates for edge filling. The panels will then be edge filled before insert installation with the application of silicone foam edge tape and part labels.





TGCE's broad capabilities gave the development team confidence to successfully fulfill Irkut's needs. However, they wisely understood that vertical integration provided access to The Gill Corporation's significant resources, so they turned to the El Monte R&D group to provide critical sandwich panel mechanical testing and insert shear/pull-out testing results.

For the galleys and vestibule, Irkut selected our light-weight flooring panel made from unidirectional fiberglass-reinforced epoxy facings bonded to Nomex® honeycomb core.

The under-seat areas required material designed for use as flooring in passenger compartments of commercial aircraft where weight, durability

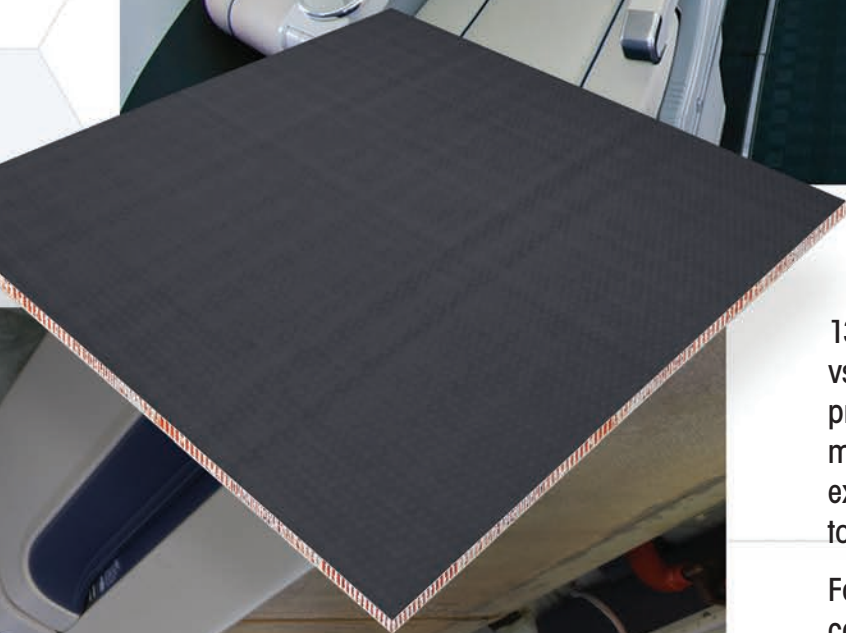
and strength are major considerations. Our light-weight flooring panel made from unidirectional carbon fiber-reinforced epoxy facings bonded to Nomex® honeycomb core was selected. It is a versatile high-strength panel ideal for the MC-21 aircraft.

The MC-21 main aisles were another high traffic area, so mechanical properties were of special concern. Our extremely light-weight flooring panel made from unidirectional carbon fiber-reinforced epoxy facings is bonded to Kevlar® honeycomb core. The outer panel surfaces feature light-weight fiberglass overlay to help protect against galvanic corrosion. This high-strength panel offers good impact strength,





MS-21 cabin mock up. Photo by Alex Beltyukov



13-20% weight savings (depending on type) vs. carbon Nomex® panel having comparable properties. The material has excellent machinability and bonding surfaces with excellent strength-to-weight and stiffness-to-weight ratios and negligible panel deflection.

For Irkut's final decision involving the selection of cargo compartment materials, it chose a high-strength sandwich panel composed of woven cloth fiberglass-reinforced phenolic skins bonded to a Gillcore™ HD Nomex® aramid honeycomb. This material is ideal for cargo compartment flooring where high-impact strength, abrasion/corrosion resistance and low smoke and toxicity emission properties are critical.

Our lightweight, low smoke cargo liner panel made from woven fiberglass-reinforced phenolic facings bonded to Nomex® honeycomb core is used for cargo compartment lining in sidewalls, ceilings and partition walls. A good fit for the MC-21.





Several years of development collaboration are near completion and final testing for the MC-21 is underway with four of six development aircraft already delivered. Discussions on a subsequent Serial Production Contract are also in the final stages, thus securing a long-term relationship between Irkut and The Gill Corporation.

The MC-21 project was an opportunity for TGCE to forge new alliances, share resources, exceed customer expectations and work alongside some whales while dipping its machining toes in a brand new pond.

THE GILL GROUP OF COMPANIES



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Alcore does not sell sandwich panels. Contact

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THE DOORWAY IS PRINTED ON 10% POST-CONSUMER RECYCLED PAPER
AND SHOULD BE RECYCLED

THE FUNNY SIDE

Trivia

If procrastinators had a club, would they ever have a meeting?
If practice makes perfect, and nobody's perfect, why practice?
Why is there always one in every crowd?
If all the world is a stage, where does the audience sit?
Is it possible to have déjà vu and amnesia at the same time?
Who decided "Hotpoint" would be a good name for a company that sells refrigerators?
How do you know when it's time to tune your bagpipes?
I went to a bookstore and asked the saleswoman, "Where's the self-help section?" She said if she told me, it would defeat the purpose.
Sponges grow in the ocean. I wonder how much deeper the ocean would be if that didn't happen.
After they make styrofoam, what do they ship it in?
Experience is something you don't get until just after you need it.
Borrow money from pessimists — they don't expect it back.

GREAT SCHOOL EXCUSE NOTES

(from parents, including original spelling)

Dear School: Please excuse John being absent on Jan. 28, 29, 30, 31, 32, and also 33.

Irving was absent yesterday because he missed his bust.

Please excuse Jennifer for missing school yesterday. We forgot to get the Sunday paper off the porch, and when we found it Monday, we thought it was Sunday.

THE FOUR STAGES OF LIFE:

- 1) You believe in Santa Claus.
- 2) You don't believe in Santa Claus.
- 3) You are Santa Claus.
- 4) You look like Santa Claus.

American car horns beep in the tone of F.
One in every four Americans has appeared on television.
Oak trees do not produce acorns until they are fifty years of age or older.
A Boeing 747's wingspan is longer than the Wright brothers' first flight.
Venus is the only planet that rotates clockwise.
The first CD pressed in the U.S. was Bruce Springsteen's "Born in the USA."
The plastic things on the end of shoelaces are called "aglets."
Barbie's full name is Barbara Millicent Roberts.
Betsy Ross is the only real person to ever have been the head on a Pez dispenser.
Walt Disney was afraid of mice.
Pearls melt in vinegar.
It takes 3,000 cows to supply the NFL with enough leather for a year's supply of footballs.
Average life span of a major league baseball: seven pitches.
A duck's quack doesn't echo and no one knows why.
There are approximately ten million bricks in the Empire State Building.
The WD in WD-40 is an abbreviation for Water Displacer.
The Bank of Vernal, in Vernal, Utah is the only bank in the world that was built from bricks sent through the mail. In 1919 the builders realized that it was cheaper to send the bricks through the United States Postal System (seven bricks to a package) than to have them shipped commercially from Salt Lake City.

