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THE M.C.GILL DOORWAY

New Vistas in Composites





M.C. GILL CORPORATION

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The M.C. Gill Corporation is the world's largest manufacturer of original equipment and replacement baggage compartment liners for passenger and freighter aircraft. We are one of the largest producers of composite sandwich panels used for aircraft flooring in these markets.

The company also excels in most other types of fiber-reinforced plastics including flat panel composites, bullet resistant ballistic laminates, interior panels for creating structures such as aircraft galleys and bulkheads, honeycomb core and related products.

The M.C. Gill Corporation Group of Companies:



Castle

Specializes in aircraft quality metal parts fabrication, engineering and design. If a piece of metal can be bent, pressed, punched, routed, shaped, molded, welded, profiled or fabricated into a high performance part, Castle has the equipment and experience to do it

Castle Industries of California, Inc.
601 South Dupont Avenue, Ontario, CA 91761-1502
phone: 909 390-0899 fax: 909 390-0898
email: castle@cogent.net



Insoleq – M. C. Gill Europe Ltd.

Manufactures aircraft insulation, details composite panels including various honeycombs and creates complex assemblies using advanced fabrication methods. It also provides warehousing for other M.C. Gill products for quick European delivery.

Insoleq
M.C. Gill Corporation -Europe, Ltd
23 Enterprise Road, Balloo Industrial Estate South
Bangor Co-Down BT19 7TA, N. Ireland
phone: 02891 470073 fax: 02891 478247
email: frank@insoleq.co.uk



Alcore

Manufactures a variety of metallic honeycomb cores for aerospace and other applications. Offers extensive special processing capabilities on metallic and non-metallic cores, from simple operations like chamfering to complex processes including roll-forming, 5-axis machining and splicing of different densities into core blankets.

Alcore
Lakeside Business Park, 1502 Quarry Drive
Edgewood, Maryland 21040 USA
phone: 410 676-7100 fax: 410 676-7050
email: sales@alcore.com

Alcore 24 hour Customer Service:
Alcore Overnight™ 888 252-6731
email: overnight@alcore.com.



Alcore Brigantine

Offers broad capabilities in structural core materials technology in Europe, including: Aluminum honeycomb, with special processing expertise and an in-house design office. Manufacture of sandwich panels from simple shapes to extremely complex parts. Advanced aluminum honeycomb shock absorption materials used as a kinetic energy absorber in everything from high-speed trains to automotive safety.

Brigantine propose une offre de compétences très large sur les technologies des matériaux d'âme structuraux en Europe. Fabrication de nid d'abeilles aluminium, expérience de l'usinage de précision de ce matériau, bureau d'études intégré. Fabrication de panneaux sandwich, des grandes séries aux pièces les plus complexes. Etude et fabrication d'absorbeurs de chocs en aluminium pour de nombreuses applications allant du ferroviaire à l'automobile.

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If you have comments about The Doorway or would like to change the address where you receive this publication, including adding and deleting a name to our mailing list, contact:

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Cover Photo: M.C. Gill Research and Development Group conducts preliminary tests on Gillfab Ballistic Laminate samples using a 44-caliber handgun. Final versions of the products are subsequently sent to an NIJ Certified Ballistics Laboratory for definitive testing.

The Doorway™ is a quarterly publication of the M.C. Gill Corporation.

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M.C. Gill Corporation Responds to the September 11th Events Crisis!

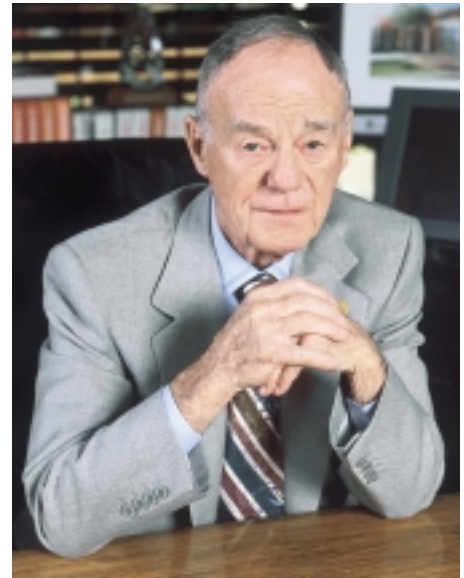
September 11th was the day that changed the life of M.C. Gill forever. That was in 1945 the day our company was founded. 2001 has brought another lifetime change on that date.

I'm keeping cool. After all, I've lived through epidemics, smallpox, polio, diphtheria, influenza and scarlet fever. We survived before and will survive this one too. One of the many advantages of living the long life I've been blessed with is the perspective it provides. When a devastating series of events hits America – the way they did on September 11th – it harkens back to memories of other catastrophes the world has faced. Surprise attacks, protracted wars, the loss of popular leaders whose potential was never realized stunned the world when they occurred.

Let me remind everyone that each time such tragedy confronts us we have faced it down. The incredible resilience of both the United States and good people in every country can not be underestimated. We want you to be assured that we understand what our industry is going through and that we are here to help!

In coming issues of *The Doorway* you will read about the ways the M.C. Gill family of companies is responding to assist the aircraft industry in coping with the current crisis. We are continuously searching for ways to reduce costs and improve every aspect of the products and services we offer. At all times we will do this while listening and responding to your changing needs. The M.C. Gill Research and Development team is also testing new versions of bulletproof composites with the potential for use in a range of applications, including increased cockpit safety. You can read about these and other innovations in *The Doorway*.

And, just one more time, let me remind you that the entire team at M.C. Gill Corporation supports you all the way.



M.C. Gill—Chairman

A handwritten signature in green ink, appearing to read 'M.C. Gill'.

M.C. Gill



Gillfab® Ballistic Laminates

M.C. Gill has a long history of developing bullet resistant materials that dates back to World War II and have been used in applications from judges' benches to armored cars to aircraft bulkheads. For over 50 years we have been a leader in this field.

The tragedies in New York and Washington, D.C., made it clear that tighter cockpit security would be a major issue. M.C. Gill Corporation rapidly responded to requests for a selection of bullet resistant materials with an offering of state-of-the-art laminates. These laminates are highly capable of helping reduce the possibility of forced entry while offering resistance to bullets.

Irv Freund, VP of Sales and Marketing, explained. "In response to the September 11th events, a major emphasis was given to

the creation of a new generation of ballistic laminates that would address the need for bullet resistance. Our goal was to quickly provide Gillfab laminates that respond to the reduced weight demands in aircraft while maintaining stringent flammability and toxicity requirements."

"We fast tracked ballistic laminates that are capable of protecting the crew and potentially saving the lives of passengers. We believe that they are the best available," Freund said.

The Air Transport Association (ATA) has made recommendations regarding intrusion and ballistic resistance that are based on National Institute of Justice (NIJ) test procedures and Threat Level IIIA performance.



.44-caliber bullets stopped by Gillfab ballistic laminates demonstrate bullet resistance.



Currently No Standard

However, there is currently no established bullet resistance standard for ballistic laminates of the hard armor type used in aircraft or a standardized analysis system to evaluate them.

In the absence of such criteria we are conducting a variety of tests by submitting samples to an NIJ-certified ballistics laboratory. In the process M. C. Gill is helping the industry establish standards that will be both comprehensive and more easily measured.

The laminates have already been tested for flammability, smoke and heat release criteria and continue to be among the few in the industry to meet all of these requirements simultaneously.

Gillfab ballistic laminates provide a major advantage to aircraft operators as they respond to all of these FAA requirements. Having a selection allows the customer to pick one that best meets their needs.



Added Capabilities

Castle Industries of California is a member of the M.C. Gill Corporation group of companies. Castle can provide framing, hinges, latches and other aviation certified expertise in metals to provide for entry-resistant doorways and other components. This includes integration of Gillfab panels into their product designs.

If it is made of metal, Castle can craft it.

(909) 390-0899 • castle@cogent.net

Gillfab® Ballistic Laminates

Choose from these Gillfab Laminates

Our greatest concern is to deliver products capable of protecting the crew and saving the lives of passengers. So that we can best help you do this, we offer a range of ballistic laminates. These have the flexibility to be customized to your needs.

Gillfab 1360A

Material: Woven Kevlar Fabric/Phenolic Resin
Certified NIJ III-A compliant by an independent ballistics laboratory.

Kevlar fabric is a globally recognized material used in an endless number of ballistics applications. This long-trusted, highly adaptable fabric combines high strength with low weight. Kevlar fiber is 5 times stronger than steel on an equal weight basis. This is the lightest Gillfab ballistic laminate choice.

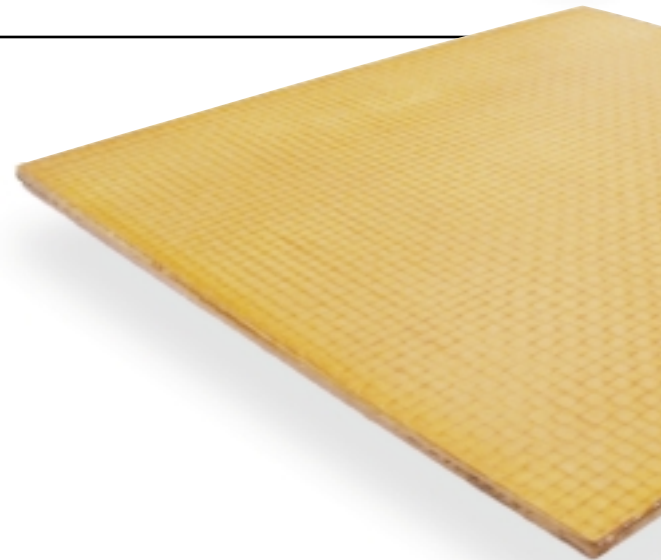
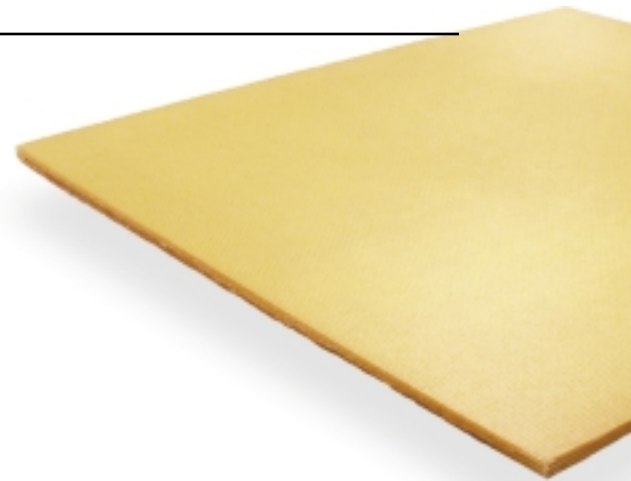
Gillfab 1394

Material: Woven S-2 Glass Fabric/Phenolic Resin
Certified NIJ III-A compliant by an independent ballistics laboratory.

This panel offers great strength. It is constructed of well-accepted S-2 Glass that doesn't suffer from moisture sensitivity and has good UV resistance. It will not support fungus growth, is easy to machine but difficult to cut to further help prevent intrusion. S-2 Glass demonstrates significant capabilities for standing up to sustained high temperatures from heat sources such as direct flame.

We are also exploring the use of other materials, weaves and resin formulations to develop additional ballistic laminate offerings.

M.C. Gill Corporation will custom manufacture these laminates as raw stock or to your specification, and can increase their bullet resistant capabilities to meet other NIJ threat resistance levels for specific custom design applications.





Gillfab Surpasses Critical Property Requirements

Gillfab ballistic laminates meet or exceed the following requirements:

■ Flammability

FAR Part 25 appendix F part I and vertical burn FAR 25.853 requirements. This is a vertical flammability test where a direct flame is applied to the bottom of the laminate.

■ Smoke

FAR Part 25 appendix F part V. These involve radiant and direct flame tests.

■ Heat Release

FAR Part 25 appendix F part IV, a test applying radiant heat and direct flame.

Let us tell you more about your choices in Gillfab ballistic laminates and help you determine how to best address your application requirements.

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Gillfab Interior Panels 5071 and 5072

Lightweight with Advanced Structural Integrity



What's significant is that M.C. Gill scientists were able to meet these requirements by such a wide margin that a variety of decorative finishes can be applied to these panels and still meet these specifications. For example, they can be painted or covered with laminates to create a particular atmosphere. Having the latitude to add design elements allows for many types of additional decorative treatments. This includes the opportunity to use both Gillcoat® covering and Gillprint® material, our patented processes which fuse the color and/or design into the face skin, and therefore saves weight and provides a more durable surface. These options would not be possible with panels that do not pass these flammability requirements with room to spare.

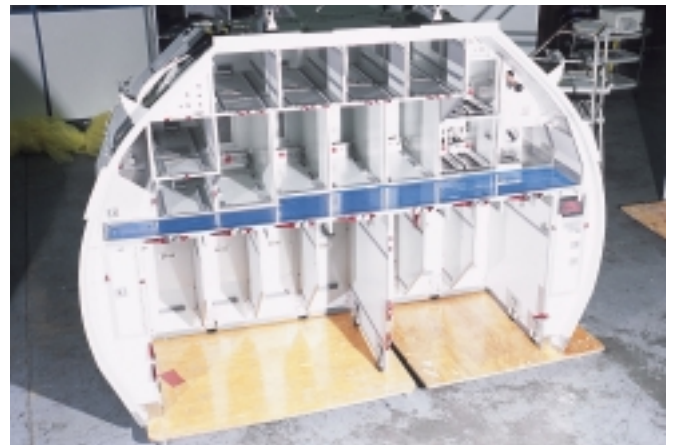
M.C. Gill Corporation is a world leader in commercial aircraft floor panels and baggage compartment cargo liner. Our line of Gillfab panels have also provided a highly satisfactory response to many interior panel needs. We listen hard to customers and, as requests grew for a broader line of interior panels, we turned the assignment over to our R and D team.

Because we have a heavy emphasis on Research and Development, two new offerings are now available. These initiate a new generation of interior panels from M.C. Gill that are lightweight and strong.

New Gillfab 5071 and 5072 panels can be used to fabricate a wide variety of interior structures within an aircraft, while saving weight. Their high specific strength allows you to design them into the construction of galleys, lavatories, closets, class dividers, bulkhead partitions, crew rest areas and many other interior components.

Excellent Flammability Properties

Laboratory testing confirms that Gillfab 5071 and 5072 interior panels easily meet requirements for flammability and other critical properties. These include FAA heat release requirement regulation FAR 25.853 appendix F part IV.



New Gillfab 5071 and 5072 panels can be used to fabricate a wide variety of interior structures.





To sum it up, Gillfab 5071 and 5072 panels:

- Accept tinting and overlay easily.
- Provide smooth, nonporous surfaces requiring minimal prep for painting.
- Provide Excellent Mechanical Properties for their Weight
- Have high Specific Strength
- Are Easily Machined and Fabricated into the Desired Structures
- Meet Flammability Requirement by a Wide Margin to allow for a variety of decorative finishes.
- Meet Heat Release And Other Critical Requirements
- Are Competitively Priced

At M.C. Gill our objective is always to keep the initial cost low, yet realizing it is subordinate to the true cost, while optimizing the advanced structural and low flammability requirements that deliver the highest quality product, at the lowest possible weight.

Choose from these remarkable Gillfab panels:



Gillfab 5071

Material: Fiberglass Cloth with modified phenolic resin

Low-density aramid honeycomb core that is custom made to meet customer strength, weight and thickness requirements. Facings are composed of fiberglass cloth impregnated with a proprietary-modified phenolic formulation. Facing thickness increases in .010 inch increments from a minimum .010 inches. Construction can be adjusted to specific customer requirements.

Gillfab 5072

Material: Fiberglass Cloth with modified phenolic resin

Low-density aramid honeycomb core that is custom made to meet customer weight and thickness requirements. This panel is the same basic construction as Gillfab 5071, but for applications requiring thicker facings a heavier fiberglass cloth with the same weave pattern can be used. This enables the panel to achieve similar properties with fewer plies. Of course, you can build up the plies for special applications or change the skin thickness upon request.

Call us and let's discuss what you'd like to fabricate with Gillfab Interior Panels.

Take a A Castle Ob

Castle Industries, Inc. of California, located in Ontario, California, is part of the M.C. Gill family of companies. Castle specializes in machined and formed metal parts, and aircraft assemblies for commercial and military programs. Whatever needs to be done with metal, especially the



fabrication of parts that meet the rigorous standards of the aircraft industry, they can do.

Castle maintains a staff of steel and aluminum welders, as well as specialists in a wide range of other areas of metal parts manufacture. And, when outside experts are needed in fields such as stress analysis and design evaluation, Castle has a considerable group of professionals to call upon.

Located in Ontario, California, near the Ontario International Airport, Castle is helmed by Eldon Swanson who brings over 25 years of direct experience to the business.

Eldon reports, "Rapid turnaround of parts, including expedited deliveries when needed to meet both JIT requirements and last-minute timing are everyday demands that we meet. I believe we are just the right size to respond to these expedited requirements. The Castle team is

Four Observer Seat Models

Aircraft observer seats are one of the product lines Castle is known for throughout the industry. One or two observer seats are wall mounted behind the pilots in commercial airplanes, for use by FAA observers and other airline personnel. For comfort, the seats are padded with sheepskin and have fold-down armrests.

Castle observer seats come in four models for use on 757 and 767 models. The seats are also used in the crew rest area of some 747s. They all have either 4- or 5-point harnesses. This chart identifies the part numbers, airplane models and observer seat locations.

Boeing Part Number	Castle Part Number	Airplane Model	Location
S232N301-9	0801801-10	757 and 767	2nd Observer
S232N301-10	0801801-11	757 and 767	1st Observer
S232N301-11	0801801-12	757 and 767	2nd Observer
S232T305-1	17-001-1	767	2nd Observer

Armrests: Castle part numbers 0801801-10 and 0801801-11 have folding armrests, and part numbers 0801801-12, 0801801-12 and 17-001-1 do not have armrests.

Upholstery: Castle part number 0801801-11 has all-wool seat and backrest covers. Part number 0801801-10, 0801801-12 and 17-001-1 have sheepskin seat and backrest covers.

Replacement covers and cushions can be ordered directly from Castle Industries.

Seat – server Seat



excellent, full of competent, conscious, talented individuals who work together to deliver an outstanding product. Working together is really our secret, with the ability to blend the skills of each individual so that a quality product is delivered every time.”

Customer recognition of these capabilities includes several awards of excellence, including the Q100 Club at Boeing, which recognizes Castle for being among its top 100 suppliers.

Castle also produces a crew rest seat for the C-17 military cargo aircraft. The design for this seat is complicated as it integrates oxygen lines and communications wiring. To streamline C-17 crew

seat production, Castle engineers redrew the original plans to make them more practical for manufacture.

This demonstrates Castle design strengths, and the machining capability for big and small parts. Projects like these exhibit the flexibility to adapt to customer needs while creating a practical, durable product.

For additional information on Observer Seats and other Castle products and capabilities contact:

Valerie Williams – Customer Service Manager
Phone: 909 390-0899 x 228 • Fax: 909 390-0898 • castle@cgent.net
Visit the Castle web site page: www.mcgillcorp.com

THE FUNNY SIDE

Q: What carries 'round a sack and bites people?

A: Santa Jaws

★ ★ ★

Q: Why is perfume so obedient?

A: Because it's scent everywhere it goes.

★ ★ ★

Q: What do you get if you cross an elephant and a kangaroo?

A: Big holes all over Australia!

★ ★ ★

Q: What lies on the ground, 100 feet in the air?

A: A dead centipede.

★ ★ ★

Q: What's a flea's favorite way to travel?

A: Itch-hiking.

★ ★ ★

Teacher: Billy, name two pronouns.

Billy: Who, me?

Teacher: Very good!

★ ★ ★

The child comes home from his first day at school. Mother asks, "What did you learn today?" The kid replies, "Not enough. I have to go back tomorrow."

When the mother returned from the grocery store, her small son pulled out the box of animal crackers he had begged for. Then he spread the animal-shaped crackers all over the kitchen counter.

"What are you doing?" his mom asked.

"The box says you can't eat them if the seal is broken," the boy explained.

"I'm looking for the seal."

★ ★ ★

A man walks into the sheriff's office...

"I want to become a deputy!"

"Good, I want you to catch this man" says the sheriff handling the man a wanted poster.

The poster reads: "Last seen wearing a brown paper hat, brown paper shirt, brown paper pants, and brown paper boots."

"What's he wanted for?" asked the hopeful young man.

"Rustling."

Trivia

Emerson Moser, who was Crayola's senior crayon maker, revealed upon his retirement that he was blue-green colorblind and couldn't see all the colors. He molded more than 1.4 billion crayons in his 37-year career.

★ ★ ★

Catherine II of Russia kept her wigmaker in an iron cage in her bedroom for more than three years.

★ ★ ★

Napoleon suffered from ailurophobia, the fear of cats.

★ ★ ★

Kuwait's name is derived from kut, the Arabic word for "fort."

★ ★ ★

The peacock is the national bird of India.

★ ★ ★

King James VI and the Privy Council issued an edict in 1603 banning the use of the surname MacGregor.

★ ★ ★

The taboo against whistling backstage comes from the pre-electricity era when a whistle was the signal for the curtains and the scenery to drop. An unexpected whistle could cause an unexpected scene change.

★ ★ ★

A law in Illinois prohibits barbers from using their fingers to apply shaving cream to a patron's face.

★ ★ ★

A local ordinance in Atwoodville, Connecticut, prohibits people from playing Scrabble while waiting for a politician to speak.