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THE M.C. GILL DOORWAY

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Meet the New Additions to Our Family



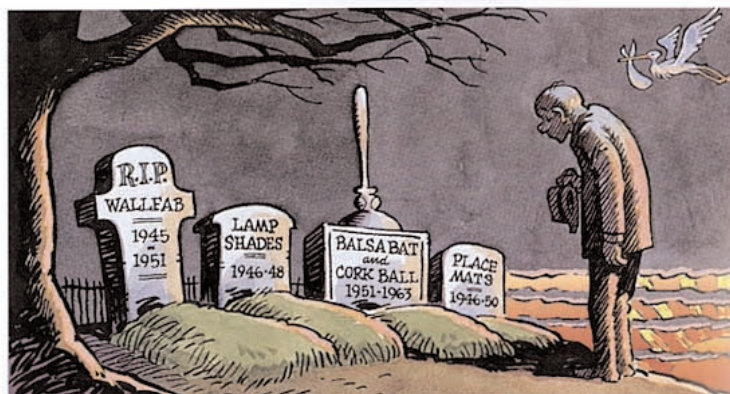
M.C. Gill is very familiar with birthings.

In addition to those of his three children, he has been intimately involved with more than he cares to remember over the past 47+ years – the family tree would probably dwarf a redwood. Some of the offspring left the crib and lived but a few years, others are well into their teens and a few are in their “thirtysomethings.” No matter their longevity, he has been a Proud Papa and has fond memories of each and every one. He can point with pride to the achievements of some and merely shake his head at those not so successful. And, he continues to produce new offspring.

Lest our readers draw the wrong conclusion, we hasten to add that we are referring to product births and primarily those concerned with reinforced plastics (composites).

Some of M.C.’s more recent offspring are off and running; some, having learned to crawl, are walking on their own two feet; and, a few are ready to leave the crib. No matter their stage of development, M.C. remains the Proud Papa and, as always, has something in the “hopper” with high hopes for all. The following paragraphs describe in depth those offspring for which M.C. has particularly high hopes. Cigars all around!

The early years saw the birth of Wallfab, a plastic impregnated cotton cloth in the pattern of your choice; Bat n Ball (a balsa bat and cork ball - a misdirected attempt to keep children off the street and windows in their homes intact); and place mats, coasters, and lamp shades (all of which sold about as well as Wallfab). These products have gone to their greater rewards. However, they served the purposes of producing a cash flow, albeit meager, until M.C. found his niche; and provided a technological basis that proved invaluable when the new dawn broke.



...and then came the dawn!



UP ON BOTH FEET AND RUNNING!

The first biography concerns an infant going on three-and-a-half years old. As with many of M.C.'s offspring it was conceived at the request of one of our customers. Boeing, a long-time and valued customer of the M.C. Gill Corporation, has been purchasing our low smoke cargo liner, Gillfab® 1367, as original equipment and requested we develop a more economical liner with similar physical and mechanical properties.

Boeing, like most other companies, is continually looking for cost reductions without sacrificing quality, and given world economic conditions the scrutiny was intensified. M.C. readily accepted the opportunity because it has long been his philosophy that "...you have to keep upgrading existing products while developing new ones. You can't sit there and die with things that are dated."

And so, Gillfab 1367A came into the world. It is constructed of woven glass cloth reinforced phenolic resin with a 1 mil Tedlar® overlay on the face side. It has the highest puncture resistance of our low smoke laminates, qualifies to FAR 25.853 and FAR 25.855, Appendix F, Part III and has good mechanical strength. It is qualified to BMS 8-223, Class 2, Grade B, Types 13 through 40.

This biography makes for a pretty good success story, but there's more.

McDonnell Douglas, another long time and valued customer, likewise is cost conscious and seldom misses an opportunity to pass a savings on to their customers, again, without sacrificing quality. In response to their query of obtaining a lower cost cargo liner, the M.C. Gill Corp. proposed 1367A. Not only was it less expensive than the product they were using, it was also lighter in weight. As a result, 1367A is now qualified to Douglas' DMS 2419, Class 1 and 2, all types.

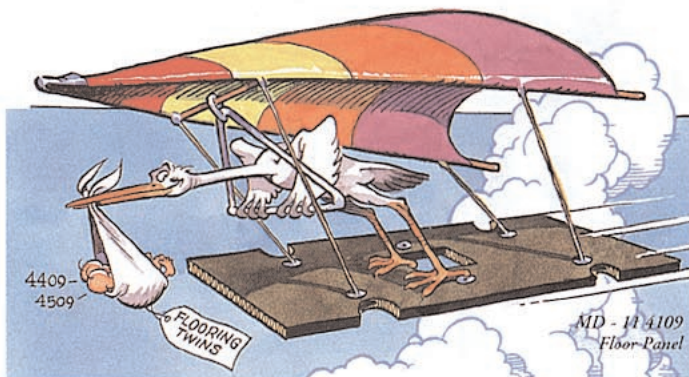
To the best of our knowledge, this is the first time that one cargo liner with the same construction has ever been qualified to the specifications of the two largest airframe manufacturers in this country! This is standardization.

These landmark qualifications should be good news to the many airlines in the world that fly both Boeing and Douglas equipment. They can comply with the Qualified Products List of both airframe manufacturers by purchasing only one cargo liner – Gillfab 1367A! They can reduce their inventories – both in terms of space required and, more important, costs.

No more stocking two different liners, one for MD-11's and one for 737's. No more reordering one when there is an ample supply of the other; no more having to place separate orders for what is often in the eyes of many, the same product; no more having to receive two separate shipments and the paperwork that goes with it. No more lots of things.

This is a win/win/win situation. Boeing's and Douglas' requests were answered with a quality cargo liner that results in cost savings – *they win*. Those airlines with both types of aircraft can reduce inventory costs, space, and paperwork – *they win*. And the M.C. Gill Corporation has capitalized on an opportunity to satisfy its customers, something we enjoy doing – *we win*.

Pretty good for one of M.C.'s kids!



NO MORE CRAWLING... AND WALKING QUITE WELL

M.C.'s long time goal of vertical integration has spawned several new arrivals – all of which have provided value for their existing and potential customer base. *The Three And Five Axis Heads CNC (Computer Numerical Control) Profiler is no exception.* Basically, a CAD (Computer Aided Design) program creates the profiling pattern of the surface(s), calculates a tool path for cutting the part, and transfers that program to the profiler, which then machines the part.

The profiler was purchased to provide such additional services as detailing raw stock panels for airframe manufacturers and commercial airline customers. The M.C. Gill Corp. sells raw stock panels to many customers who, using similar equipment, detail them for their own use or for resale. We

hasten to add that we did not acquire this CNC machine to compete with those customers. Rather, its purpose is simply to provide another service to those raw stock customers who want it and either don't have the detailing capability or don't want to handle a panel twice, i.e., receive a delivery of raw stock, send it out for detailing, and then receive the finished product.

In fact, one of the most recent projects we completed was for a customer who buys raw stock from M.C. Gill and who has comparable detailing equipment. However, their work load was such that they couldn't complete their order in a timely fashion for their end user and they asked us to share the detailing workload.

Needless to say, we were pleased to get the job and help out a customer at the same time. The customer was also pleased, to say the least. As of this writing we'd delivered almost 500 parts comprising 36 different designs with **NO** rejections. With that kind of record, this offspring is standing very steady on its own two feet!



JUST A TODDLER

Gillfoam™ 2019 (patent pending), a phenolic resin based foam, has had a particularly long gestation period and also has spent considerable time in the incubator. The development of a structural phenolic foam has been a difficult and often frustrating challenge.

Gillfoam 2019 is the result of a major multi-year research and development effort. One of the primary reasons for pursuing the development of this product was to take advantage of the exceptionally low flammability and smoke evolution characteristics inherent in phenolic chemistry. A second key objective was to produce a low smoke foam that also would offer structural capabilities suitable for a variety of aircraft operations. Finally, manufacturing a structural foam material whose characteristics are consistent from lot to lot was an

Table 1 – Selected Properties of Gillfoam 2019, Compared with Polyvinyl Chloride/Urea-Amide Alloy Foams and Polyurethane

Property	Unit	Polyvinyl Chloride/Urea-Amide Alloy	Gillfoam 2019		Polyurethane
Nominal Density	lbs/ft ³	7.0	7.0	18.0	18.0
Thickness	inch	.5	.5	1	1
Compressive Strength	psi	128	190	1257	877
Compressive Modulus	psi	2,591	3,799	22,935	8,750
Shear Strength	psi	199	83	428	548
Shear Modulus	psi	8,553	3,414	7,899	16,322

especially important task necessitated by compliance with existing quality control and assurance systems.

Gillfoam 2019 is a product whose time has come. The many features and benefits of a phenolic based resin system, low smoke emission being foremost among them, have been discussed at length in past Doorways. Airframe manufacturers and their subcontractors have sought for some time an acceptable substitute for the foams now used for a variety of such applications as environmental control system ducting, core material for partition bulkhead, and galley panels, edge close-outs in laminated honeycomb panels, and other uses where low levels of smoke emissions in a fire are desirable. Like our cargo liners, Gillfoam 2019 will not support combustion.

When compared to ordinary polyurethane or Polyvinylchloride (PVC) foam, Gillfoam 2019 produces a greatly reduced level of smoke emissions. Tests conducted in a NIST smoke chamber (which measures the density of smoke produced in a fire), showed that urethane foam produced more than 15 times as much smoke as Gillfoam 2019 and PVC/urea-amide thirty times as much. To put these measures in perspective, the amount of smoke produced by Gillfoam 2019 is comparable to light haze whereas the urethane foam smoke emissions are dense enough to obscure vision at a distance of ten feet or less. PVC smoke emissions, twice as dense as urethane, would make it almost impossible to see at all. Moreover, OSU heat release values of Gillfoam 2019 are less than either polyurethane or PVC and it meets the requirements of FAR 25.853, whereas the other two do not. Table 1 above, compares properties of Gillfoam 2019 with PVC and polyurethane foams.

Gillfoam 2019 is in the pilot plant stage and is available in sufficient quantities and dimensions for testing, prototype samples, and small production runs. If you are interested in additional information, contact your M.C. Gill sales representative or call or fax our Customer Service Department at the numbers listed on the cover of this Doorway.

OTHER OFFSPRING LEARN TO WALK

In addition to Gillfab 1367A, the CNC profiler, and Gillfoam 2019, two other new offspring are worthy of at least a brief mention. First is *Gillfab 1367B*, like 1367A, a derivative of Gillfab 1367. Constructed from a woven fiberglass reinforced phenolic resin, 1367B was developed for Boeing's new 777 aircraft. Although lighter in weight than its phenolic counterparts, it still meets the requirements of Boeing's BMS 8-223, C1 4, Gr B, Ty 13, 20, 30, and 40.

Second, Gillcore® HD has a new baby brother – *Overexpanded Honeycomb*. Instead of the traditional hexagonal shaped cell, the new configuration is overexpanded in the transverse, or W, direction... resulting in a rectangular shape. In so doing, the honeycomb becomes flexible in that it can be curved in the ribbon, or L, direction. M.C. has high hopes for the new configuration because it provides a degree of flexibility not previously available to the company and can be used for such new contoured part applications as ducting.

It should be noted that the second row of cribs on the cover shows three unmade cribs, each labeled with M.C. Gill part numbers. The M.C. Gill Maternity Ward crew hadn't even had time to remake the cribs as the three "babies" (Gillfab 4205, Gillfab 4322, and Gillfab 4323) were leaving the Ward, having made their appearance in Airbus Industrie's Structural Repair Manual (SRM), than the name tags for Gillfab 1667, and twins Gillfloor® 4409 and 4509 were put in place. M.C.'s not quite ready to send out the formal birth announcements, but 1667 is a new concept in advanced cargo liner and the twins are second generation of the carbon facing/aramid honeycomb core flooring panels. More about these new arrivals in an upcoming Doorway.

Editor's note: After reading this article, M.C. noted the following on the final draft. "We must let our customers know that composites didn't start with M.C. Gill. However, as pioneers and the oldest in the industry, my two sons and I have devoted the choice middle years (and beyond for M.C.) of our lives to reinforced plastics (composites). We have striven to find new end uses and focused on making products better (not cheaper or barely meeting a customer spec) – products of which we are proud to affix our names. Impress on our readers that when a pioneer lasts 48 years, there is a reason – customers get their money's worth!"

OLDER KIDS NEED LOVE, TOO!

News of newborns is always welcome, but lest we slight some of M.C.'s more mature offspring, the following provides a brief update on some of his older and more successful progeny.

Gillfloor 5007A, B, and C – Polyester facings fused into end grain balsa wood core. The demise of this construction was widely (and very prematurely) predicted with the increasing popularity and use of honeycomb cores and lighter weight facing materials. Been around since the mid-60's and still going strong.

Gilliner® 1066 – First of the truly puncture resistant polyester cargo liners conceived by and proprietary to M.C. Gill. Did not fare well in the testing facilities of major airframe manufacturers, but airlines throughout the world loved it as replacement liner because of its durability and strength. Introduced in the early 60's and remains the benchmark of all cargo liners for service to this day.

Gillfab 1009 – M.C. Gill was the first to prepreg and hot press this flat sheet laminate of acrylic resin and nylon fabric. Bonded to acrylic windshields and canopies as reinforcement when bolting to an airframe, this product is also a member of the 70's generation.

Gillab® 990C – Laminate of special chemically resistant polyester resin and fiberglass, it has been used as laboratory counter tops in junior high and high schools, and colleges throughout the United States since 1954. Resistant to more than 60 chemicals, its maintenance-free, non-porous, and durable characteristics have contributed to its continuing success. Many of these counter tops are still going strong some 40+ years after installation.



M.C. GILL GETS AWARD FROM GENERAL DYNAMICS *for Meeting an Emergency Need*

TEAMWORK REDEFINED

The word went out on Saturday, December 12, 1992. McDonnell Douglas needed in excess of 1,500 replacement flooring panels (raw stock manufactured by M.C. Gill Corp.) from their prime fuselage contractor for the MD-11s that were in various stages of assembly at the Douglas Long Beach plant. And they needed them yesterday.

PARTY (?) TIME

A planning session was scheduled for 11:00 a.m. the following morning, Sunday, at General Dynamics' Imperial, California facility and it fell to Joe McManus, GD's Material Acquisition Director to notify all concerned. When McManus started trying to reach appropriate M.C. Gill personnel late Saturday afternoon he was unaware that the company's annual Christmas party was being held that evening.

Had he known, it would have explained the many busy signals and no-answers he was getting. As a last resort, after he had exhausted his list of contacts without success, he called El Monte information and asked for the number of M.C. Gill's personal residence. The operator explained there was no listing in El Monte but that there was one in the same area code.

ENTER M.C.

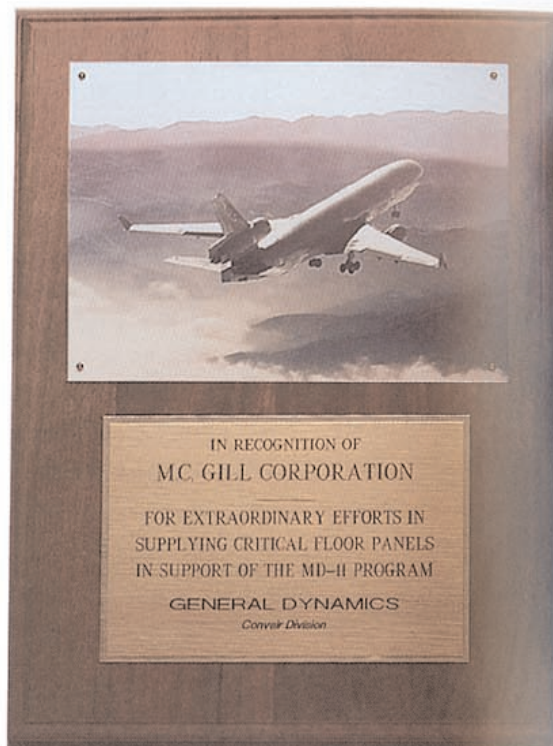
A few minutes later, McManus was explaining the problem to M.C. Gill himself, who assured him the

company would be represented at the Sunday meeting in Imperial. So, at 11:00 a.m. the next morning, bright eyed but not quite bushy tailed, M.C. Gill's Production Mgr. and Sales Director were sitting down with their GD counterparts to map out the strategy necessary to resolve the question of how to increase production sixfold—from 20 to 120 panels per day!

Douglas needed the panels in their Long Beach facility by January 15 and the solution was relatively straight forward—put both the GD and the Gill plants on a 24 hour day, seven day week until the job was done. Simple? Yes, but the logistics of implementing it were a bit more complicated. The holidays were fast approaching as well as the concurrent annual hiatus of many companies' operations, including many of our raw materials vendors. Furthermore, M.C. held steadfast that ship dates for the company's other customers' orders would be met. The crunch began: work orders were shifted; personnel and equipment requirements rescheduled; and, raw materials suppliers were informed of the problem and cajoled into meeting seemingly impossible delivery dates.

FINALLY, A HAPPY ENDING...

When the drop dead date rolled around, raw stock panels had been made, fabricated, and installed in the MD-11s. We are pleased to report



Larry Russell, M.C. Gill Sales Director, introducing the speakers.



Joe McManus, General Dynamics Material Acquisition Director thanks Gill employees.



Stephen Gill points out that we were just doing our primary job — satisfying the customer.



Art Vietch, General Dynamics V.P. & General Mgr. presents award to M.C. and Stephen Gill.

STRAIGHT FROM THE HORSE'S MOUTH

...M. C. Speaks Out

that Douglas was able to meet every delivery date to all their customers with no delays attributable to the flooring panels.

A happy ending, yes, but one that made for a feverish four weeks in El Monte, Imperial, and Long Beach. Along the way, the ground rules seemed to be constantly changing. Probably based on a customer request, Douglas would notify General Dynamics of a schedule change and GD would pass the word to Gill. The phones were so busy we could have been justifiably accused of insider trading on telephone company stock. Source inspectors were in and out of our Easy Street facility with such regularity that many employees thought we had expanded our work force. Nevertheless, the crisis passed and all parties were satisfied with a job well done.

A VERY HAPPY ENDING

Then, in mid-February, we received a call from General Dynamics that they had been so pleased with our efforts, that they wanted to show their appreciation and could we schedule a company-wide meeting on Tuesday March 9th. We could

and did, and played host to Joe McManus, Art Veitch, Vice President and General Mgr., and Laurie Grossman, Senior Buyer. Mr. Veitch presented us with a plaque which expressed their gratitude to the M.C. Gill Corporation for working so closely with General Dynamics. His and Mr. McManus's comments were well received and focused on the teamwork aspect of our efforts.

Mr. McManus spoke to the fact that we "...got further faster, and succeeded, working as a team."

Mr. Veitch observed that, "...we put aside the paperwork and bureaucracy, and working as a team we accomplished more than either of us thought possible."

Stephen Gill, M.C. Gill Corp. President and CEO, put it best as he accepted the plaque and stated, "All we want is the opportunity to make the customer happy. That's the philosophy on which the M.C. Gill Corporation was founded; it is the one that has kept us in business for almost 48 years; and, by continuing to follow it, will keep us at the forefront of our industry for years to come."



From left, Laurie Grossberg, Joe McManus, M.C. Gill, Larry Russell, Art Veitch, and Stephen Gill basking in the glow of a job well done.

I closed my last column with, "Had 47 years of doing our best culminated in the Boeing award?" Apparently not, for along comes another award from General Dynamics for Outstanding Customer Service.

Now, I don't want you to think I do not pay attention while an awardee is saying nice things about us, but as Messrs. McManus and Veitch were speaking, it crossed my mind... "if customers appreciated our help when they are in trouble, I wonder if they'd like to know how we're able to do it."

I reflected that since our earliest days it's been paramount with us to be "hard to shut down" from an equipment/materials/personnel standpoint.

We have known that even with the best preventive maintenance, breakdowns are not totally within our control. However, we build in substantial duplication and flexibility of equipment in the areas we can control. These include presses; compressed air; steam; aluminum etching; panel, honeycomb and balsa cutting, dipping honeycomb; and, individual hydraulics for presses, ovens, prepreggers, spray booths, and refrigeration. Much of our equipment was built to our design so we can service it and not be dependent on outsiders who may have different priorities and lack spare parts.

Regarding inventory, it has always been our policy to anticipate unexpected raw material demands. So we won't be caught short, we intelligently overstock materials with long lead times and then systematically check our records against what's actually in our stock.

Cross trained and willing production workers, some with 40 years' experience, just about guarantee a steady flow of high quality product and meeting delivery dates.

If this reads like something out of the book on World Class Manufacturing, it's coincidental - we've been doing it "our" way for many years.

I concluded that our friends from General Dynamics were not as interested in how we accomplished what we did as the fact that we did it. It's just as likely they'd prefer to believe that we'll be around to fall back on for at least another 48 years.

Therefore, my speech was a short, "Thanks for the opportunity to help."

Trivia

Japanese companies own 45 percent of the manufacturing plants in Tennessee.

★★★★

109 National Geographic subscribers canceled their subscriptions to protest the magazine's use of metric measurements.

★★★★

The Smithsonian Institute added 942,000 items to its collection in 1986.

★★★★

31 percent of Iowans say they would rather spend a weekend in Des Moines than San Francisco.

★★★★

Three U.S. cities and towns are named Santa Claus. 32 are named Moscow.

★★★★

In terms of real shipments, the U.S. plastics industry grew twice as fast as all domestic manufacturing during the past twenty years.

★★★★

In 1987 it was estimated that there were 100 privately owned cars in China.

★★★★

There are 600,000 cheerleaders in the United States.

★★★★

Women say the maximum amount of time they want to spend cooking a meal is 30 minutes. Men say the maximum they want to spend is 15 minutes.

M.C. says "CAUTION!"

Composites is not a field for beginners.

The aerospace slow down has brought forth a host of them.

Be wary of suppliers not qualified by OEM's or the FAA (or anyone).

Avoid pretenders making knock-offs of qualified products.

Don't get yourself in trouble.

THE FUNNY SIDE

Jim and Gil were in a convenience store when a hoodlum, gun in hand, shouted, "this is a holdup!"

While the other patrons were being searched for valuables, Gil nudged Jim. "Take this," he whispered.

"Take what?" hissed Jim.

"The \$25 I owe you."

★★★★

Mosquito: the original skin diver.

★★★★

An insurance claims adjuster was teaching his daughter to drive when the brakes suddenly failed on a steep hill. "What do I do now?" screamed the young driver. "Brace yourself," the nervous father replied, "and try to hit something cheap."

★★★★

A woman standing in a supermarket checkout line was pushed aside by another woman who demanded that the checker "ring up my ten cans of cat food, quick!" Turning to the startled woman the rude customer said, "I hope you won't mind waiting." "Oh no," the woman replied. "Not if you're that hungry."



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