

# The Doorway™

A Publication of The Gill Corporation

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FOSTERING  
CUSTOMER  
RELATIONSHIPS  
IN THE MODERN AGE



# FOSTERING CUSTOMER RELATIONSHIPS IN THE MODERN AGE





We live in a fast-paced world where it has become the norm to communicate electronically, rather than face-to-face. We text, we skype, we email, we tweet and we get the latest news about our relatives, friends and colleagues on Facebook and LinkedIn. The fine art of conversation may be a dying practice, but the folks at The Gill Corporation know the importance of shaking hands, sitting down together and taking the time to get to know our customers and the day-to-day challenges they face.





It's all too easy to let time slip away and that was certainly evident to 30-year Gill veteran Candi Burdick when she stepped into her new role as Director of Aftermarket Sales. Candi understood it was time to reconnect with customers who may have fallen into the "e-communication" trap, a task she has prioritized while building her team.

The Aftermarket team's goal is to develop a solid working relationship with our airline and MRO customers to ensure that all commercial and technical requirements are met. This begins with delivering a high-quality product, within a short lead time, at a competitive price.

Our support often extends to include product training, fabrication support and working together to develop innovative solutions to support even the most stringent product requirements.

A critical factor in reconnecting with the aftermarket was recognizing that significant changes have occurred with regard to how this market segment does business. Most notably, activities that historically were performed in-house, are now contracted to MRO providers, adding a level of complexity in understanding airlines' needs. Many Gill designs have been developed in response to our airline customers' requests for improved alternatives to OEM and competitor products, so maintaining this input is key to our ongoing product research and development. The Gill Corporation works closely with both operators and MRO providers to offer value solutions.



Although The Gill Corporation offers an extensive portfolio of OEM-qualified floor panels and cargo liners, it also has a longstanding history working with airlines to develop and tailor products to withstand even the most stringent in-service conditions. Even across the same aircraft model, these conditions can vary significantly depending on routes, environmental conditions, cargo loading systems, types of cargo, etc. Thus, airlines commonly look to upgrade OEM materials which tend to be more focused on cost and weight rather than long-term durability. Some airlines have developed their own floor panel specifications in an effort to harmonize floor panel designs across their fleet while upgrading to a more robust design. As a preferred supplier to both OEM and aftermarket programs, The Gill Corporation is well positioned to support these efforts.

While The Gill Corporation's history in supporting the aftermarket is replete with new product innovations and product performance enhancements across all product lines, many recent requests for support have related to cargo liners.

The primary purpose of a cargo liner is fire protection. It is installed in the ceilings and sidewalls of cargo holds to create a sealed environment to prevent fire, smoke or extinguishing agents from spreading to areas occupied by crew or passengers. In order to maintain this functionality, the cargo liner must be capable of withstanding the in-service environment which can be challenging – particularly in a bulk environment. Common modes of failure include punctures, tears, hole tear-out at the attach points and wear-through.

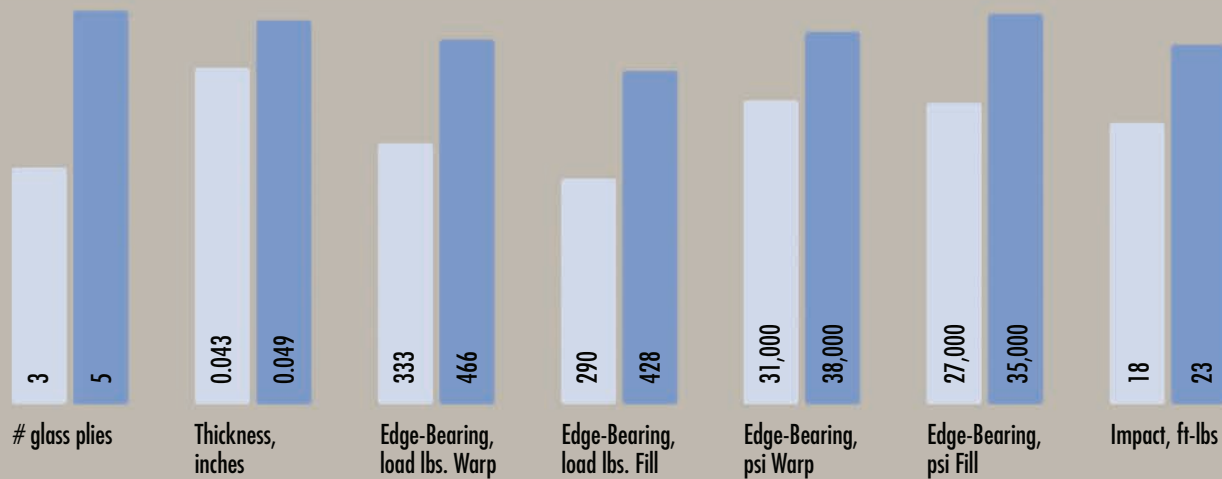
Virtually all cargo liner materials used today are produced using fiber-reinforced plastic (FRP) which consists of a reinforcement and a resin matrix. Generally speaking, the mechanical properties are primarily driven by the type and amount of reinforcement.

Fiber-reinforced plastics offer considerable design flexibility. A product can be tailored to meet a specific set of requirements by modifying the type of reinforcement, the amount of reinforcement, the orientation of the fiber and the resin matrix.





## Comparison of BMS 8-2 Class 3 Type 45 Constructions



□ = Competitor

■ = Gillfab™ 1076D

\* Substituting S-glass for E-glass plies can achieve higher impact resistance at no weight increase or equivalent impact resistance at a reduced weight.



Based on our experience, there are some common misperceptions regarding cargo liner design. Most notably, that thicker gauges will always be stronger. This fallacy often leads airlines to use thicker, heavier cargo liners that may have a substantially lower strength-to-weight ratio. When evaluating cargo liner designs, it is important to understand that strength depends on the ratio of glass to resin as well as the type of glass reinforcement (e.g., E-glass, S-glass or a combination). If an FRP thickness is increased only by increasing the resin content, the improvement to mechanical strength will be negligible.

Conversely, if the ratio of glass to resin is increased, or a higher strength glass reinforcement is used, the mechanical properties can increase substantially. When comparing different cargo liner designs, it is also important to note that OEM specifications establish minimum requirements; actual properties and in-service performance may vary.

*Understanding the differences between cargo liner designs and how these differences translate to in-service durability is fundamental to selecting the optimum product.*



Reinforcement	Thickness	Weight, psf	Impact Strength*
E- Glass	.023	.23	10 ft-lbs
	.030	.30	14 ft-lbs
	.045	.45	18 ft-lbs
	.060	.60	23 ft-lbs
Combination of E- and S-Glass	.020	.20	16 ft-lbs
	.030	.30	20 ft-lbs
	.045	.45	32 ft-lbs

Example 1: Substituting 1366 .020" for 1066 .030" = 33% weight reduction with  $\geq$  impact strength.

Example 2: Substituting 1366 .030" for 1066 .030" = 43% increase in impact strength and is weight neutral.

One of the most recent products developed by Gill in response to airlines' request for an improved alternative to OEM and competitor products is Gilliner™ 1366D. This effort was launched after receiving reports from multiple B737 operators who were experiencing early and frequent failures, primarily related to impact, hole tear out, and wear through damage. Although a service letter authorizing operators to utilize specified alternative materials and thicker gauges had been issued, these airlines sought Gill's assistance to determine the best solution.





Our evaluation began with an analysis of the damaged material. By understanding the failure mode, we were able to focus on the specific material properties that required improvement. Once candidate materials were identified, data and samples were provided for testing and in-service evaluation, both of which helped to validate the proposed design. In summary, Gilliner 1366D offers exceptional impact, abrasion and edge-bearing strength making it ideal for use in bulk cargo compartments. While competitor products rely on a high resin-to-glass ratio to achieve

abrasion resistance, Gill has developed a proprietary process which allows for a resin-rich surface while maintaining a high fiber content to achieve a maximum strength to weight ratio.



There will always be challenges in managing the maintenance of aircraft, but partnering with an industry leader committed to providing value solutions can go a long way in alleviating product issues. The Gill Corporation's legendary customer support extends from product development through after-sales support and is echoed in the Quality Policy our Chairman and CEO, Stephen Gill, stands by.

"The Gill Corporation's top priorities are to provide products and customer service that always meet or exceed customer requirements and continually improve the effectiveness of the Quality management system."

When we work together, we become more efficient so we can better support our customers; they can better serve *their* customers and we are *all* more profitable.







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# Trivia

- Q. Which country gave us the words "shampoo" and "pyjamas"?
- A. India
- Q. Does the word "clandestine" mean noisy, secret, or colorful?
- A. Secret
- Q. In which year was public cinema born: 1846, 1896 or 1946?
- A. The first public shows of "motion picture" started in 1896
- Q. Which is taller: The Eiffel Tower or the Statue of Liberty?
- A. The Eiffel Tower (320 metres tall) is taller than the Statue of Liberty (93m tall)
- Q. Does the name "coyote" (an Aztec word) mean "wild," "proud," or "trickster"?
- A. The name "coyote" means "trickster."

- Q. In which year did Coca Cola launch their first recyclable plastic bottle: 1978, 1988 or 1998?
- A. Coca Cola launched their first recyclable plastic bottle in 1978.
- Q. Ascorbic Acid is another name for which Vitamin? A, B or C?
- A. Ascorbic Acid is another name for Vitamin C.
- Q. If you hug a "guling," are you hugging an animal, a toy or a pillow?
- A. If you hug a "guling," you are hugging a pillow.
- Q. Which country is home to half the world's 100 highest bridges: China, USA, or Russia?
- A. China is home to half the world's 100 highest bridges.
- Q. In which year did Mount Vesuvius erupt and destroy Pompeii: AD79, 1079 or 2079?
- A. Mount Vesuvius erupted in AD79, burying the Roman cities of Pompeii and Herculaneum.

- Q. If an Anglo-Saxon had an "angon," what did they have: A weapon, a vase, or a fruit?
- A. In Anglo Saxon times, an "angon" was a spear.
- Q. Where would you find "stellar winds": Stars, oceans or deserts?
- A. A stellar wind is a flow of gas from a star.
- Q. The "oval pigtoe" is a type of crab, snake, or mussel?
- A. The "oval pigtoe" is a type of freshwater mussel.
- Q. Which fingernail grows the fastest?
- A. The nail of the middle finger.
- Q. What percentage of our body weight is water: 40%, 60%, or 80%?
- A. Approximately 60% of our body weight is water.
- Q. Where do the Canary Islands get their name from: Birds, dogs or lizards?
- A. The Canary Islands get their name from dogs (the canary bird is named after the islands)

## THE FUNNY SIDE

- What do you do with dead elements?
- Where do fish keep their money?
- What do you get when you cross an automobile with a household animal?
- What walks all day on its head?
- Mary's father has four children; three are named Nana, Nene, and Nini. So what is the fourth child's name?
- From what heavy seven-letter word can you take away two letters and have eight left?
- The more of them you take, the more you leave behind. What are they?
- What three numbers have the same answer when added together and multiplied together?
- It lives without a body, hears without ears, speaks without a mouth, and is born in air. What is it?
- I fasten it and it walks. I unfasten it and it stops. What is it?
- What goes around and around the wood but never goes into the wood?

1. Barium! 2. In a riverbank.  
3. A carpet! 4. A nail in a horseshoe.  
5. If Mary's father had four children, with three named Nana, Nene, and Nini, then the last child's name would have to be Mary! 6. Freight or weights! 7. Footsteps. 8. 1, 2, 3, 9. An echo. 10. A sandal.  
11. The bark of a tree.



SCOTT SHAW