

# The Doorway

M.C. Gill Corporation Group of Companies

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# PUSHING FORWARD

CASTLE

INSOLEQ

ALCORE

ALCORE BRIGANTINE

M.C. GILL  
CORPORATION

In today's tough economy, it isn't enough to hire competent employees, offer a high-quality product at a fair price and support your customer. To thrive in today's economy, you have to be nimble, intuitive, customer-centric, and armed with a strong work ethic. Those of us experiencing the Great Recession also know that it's critical to anticipate changes in market demand and react accordingly.

In 2005, Stephen Gill, Chairman and CEO, realized that to support the corporation's growth targets we needed to commit to a sizeable capital investment plan. In 2006, M.C. Gill Corporation launched an aggressive capital expansion project that would inject over 20 million dollars into the corporation.

In the Fall 2007 *Doorway*, we reported on the initial activities taking place at our facilities in El Monte, California.

State-of-the-art equipment was ordered, new positions were created and upgrades to the existing facilities began. A capacity plan was developed based on a model using historic data, aircraft build rates and future growth targets.

Implementing the plan would affect the entire corporation. The biggest challenge was setting up new equipment without interrupting daily production.



Upgraded heat-set oven to increase capacity.



A new press for curing honeycomb blocks.



Saws dedicated to slicing Gillcore HK™ Kevlar Honeycomb.

**The major equipment improvements in El Monte included:**

- A new high-efficiency oxidizer unit
- Two new hydraulic presses
- New sheeter/stackers using an advanced Vision system
- Large-capacity bake ovens
- New panel saws
- A new press for curing honeycomb blocks
- Saws dedicated to slicing Gillcore HK™ Kevlar Honeycomb
- Upgraded heat-set oven



New panel saws.



A new high-efficiency oxidizer unit that saved 30,000 dekatherms per year in natural gas by using vapors captured from the production process. The added efficiency from the unit increased capacity, reduced natural gas usage by 15% and eliminated over 98% of production vapors.



Two new multiple-opening presses.



New sheeter/stackers using an advanced Vision system that stacks honeycomb blocks faster and more accurately.



Large-capacity bake ovens that delivered a 25% increase in capacity.





The existing 110,000-square-foot facility was no longer sufficient. Management determined they would need to increase floor space in the manufacturing area by 40% to meet demand. In 2007, M.C. Gill Corporation and Alcore began negotiations to secure additional manufacturing space. After a 4-million-dollar capital investment, Alcore opened its second plant in June 2008. (The original building still houses all metallic products).

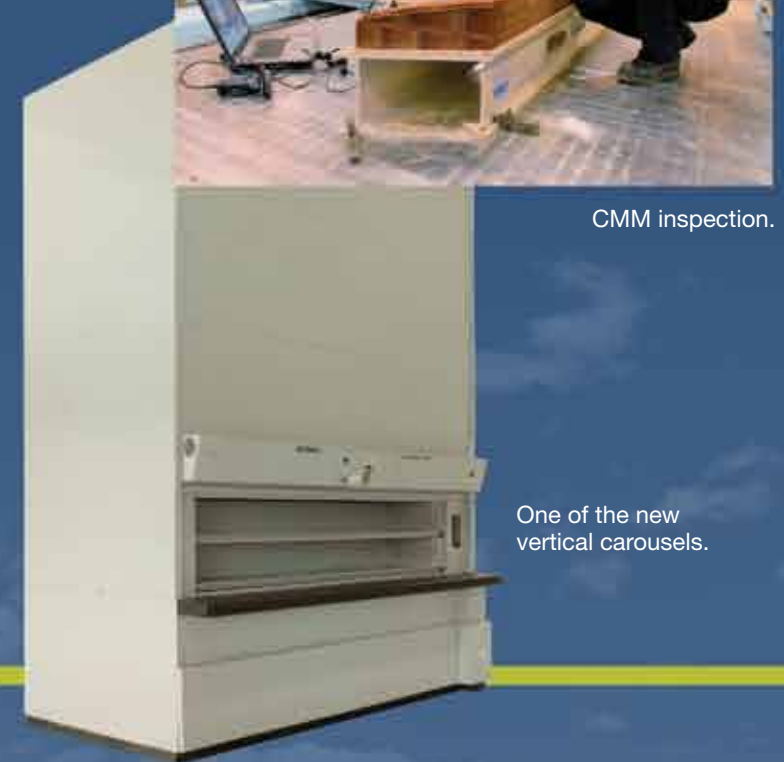
The second facility, known as "2204," is co-located in the same business park with an additional 44,000 square feet of manufacturing and office space. 2204 has its own engineering, quality and management staff and runs as a separate manufacturing facility. The separation means there is no cross-contamination of materials between the metallic and non-metallic operations.

Across the country, our subsidiary Alcore Inc. was also experiencing rapid growth. Alcore has three distinct business units. One manufactures aluminum honeycomb. The other two units machine honeycomb for applications such as engine nacelles and flight control surfaces. From 2003–2007, Alcore's demand for non-metallic honeycomb had risen dramatically. The increase in Boeing and other aircraft manufacturers' build-rates, the introduction of Boeing's 787 Dreamliner, as well as the emergence of the Joint Strike Fighter F35 program, all contributed to the growth. Alcore's unprecedented growth required an immediate response.



The new non-metallic facility was constructed based on lean manufacturing principles. Three separate "rooms" were constructed with climate control in mind to keep the hygroscopic material at the same level of moisture and temperature. Materials manufactured at 2204 include machined honeycomb for aircraft engine nacelles, thrust reversers, fixed leading edges of wings, slats, spoilers, flaps and winglets. One hundred percent of all work for the Boeing 787 program is produced in the new facility. The addition of space, equipment and 75 new positions has created significant improvement to Alcore's manufacturing efficiency, including:

- Additional 5-axis machines for machining honeycomb
- Advanced inspection methods using CMM technology
- Vertical carousels for tools and parts, another lean initiative
- State-of-the-art dust collection system
- Temperature and humidity control for working with Nomex and Kevlar honeycomb.



# PUSHING FORWARD



Multiple-opening press.

In the Fall 2008 *Doorway*, we continued the series on corporate expansion, highlighting changes that had taken place in the interim.

The next phase of the plan called for facility improvements largely involving an extensive remodel of 77,000 square feet under roof at the El Monte, California, complex.

A portion of the remodeled building became the repository for our inventory of standard (R stock) products, automated panel saws for cutting and trimming of sandwich panel products and the new home for two new 8-opening 5' x 12' platen presses. Construction of a 7,000 square foot controlled environment room was completed adjacent to the 8-opening presses for layup of new panel materials. Immediately outside the remodeled building is a new low-NOx boiler system, along with high-efficiency cooling towers. The state-of-the-art design minimizes waste water from the manufacturing process and will accommodate future growth.



Low-NOx boiler system.

Precision Process (PP3) workshop.



As work in California neared completion, our subsidiary in France was realizing *they* needed to raise the bar, as well. Since M.C. Gill Corporation acquired Alcore Brigantine in 2001, vertical integration has helped Alcore Brigantine to achieve some major milestones. Our Spring 2009 *Doorway* gave an in-depth look at Alcore Brigantine's operation in an industrial center near the Biarritz airport.

The manufacturing plant hosts dedicated cutting, profiling and heat-forming stations. There are two dedicated presses for block curing, four sandwich panel bonding stations, a 3-axis machine, five 5-axis machines and four heat-set ovens. Warehousing areas accommodate both raw materials and finished goods to assure closely controlled material flow.

In August 2008, Alcore Brigantine added a new Precision Process (PP3) workshop for non-metallic honeycomb machining with four dedicated milling centers and a new Contamination Control Area (CCA) workshop to process composite products in development, including thermal stabilization, forming, slicing and potting.

Concurrently, Alcore Brigantine enhanced its certification portfolio by successfully passing NADCAP audits for Quality Systems and Composite Core Processing and achieved EN9100 certification.



The scope of the projects at M.C. Gill Corporation's El Monte facility, Alcore, Inc. and Alcore Brigantine would stagger most, but there was sound reasoning behind the expansion plans. Many global industries fell victim to the Great Recession while M.C. Gill Corporation patiently executed its growth strategy, and we are thankful the commercial aerospace industry has continued to grow.

## CARGO TRAFFIC 3X 20-YEAR PROJECTION



Boeing management reported "passenger air travel rose 8% in 2010, after declining about 2% in 2009. The persistent resilience of air travel is expected to sustain 6% growth in 2011 and keep the growth rate at or above the historical trend through the middle of the decade."<sup>1</sup> Boeing also acknowledges similar potential in world cargo markets, saying, "demands for air cargo transport rebounded sharply in 2010 after a calamitous 18-month decline that began in May 2008. In spite of this downturn, world cargo traffic will triple over the next 20 years, averaging 5.9% annual growth."<sup>2</sup> In early spring 2012, [www.Reuters.com](http://www.Reuters.com) reported that Boeing is raising production rates on all its commercial airplane programs, while Airbus COO John Leahy acknowledged on May 25, 2012 that "long term rates are likely to go up."<sup>3</sup>

Clearly the early capital investments will pay off. Alcore and Alcore Brigantine still have a few unfinished upgrades, but their plans are nearly complete.

1. [www.boeing.com](http://www.boeing.com), Current Market Outlook 2012-2013, 6/13/2012  
 2. The Boeing Company, World Cargo Forecast 2010-2011, pg. 2  
 3. [www.aviationweek.com](http://www.aviationweek.com), Airbus to Maintain Current A320 Build Rate, May 25, 2012

Alcore has been able to increase its engineering capacity and plans to add another 40,000 square feet of manufacturing space near its existing facility.

Alcore Brigantine has identified new opportunities due to a combination of Airbus and Boeing build rates and expansion of other non-aerospace applications. Enhancements to *its* facility slated for completion by August 2012 include:

- New ovens
- New 5-axis machines
- A new 6,000-square-foot building extension



Alcore Brigantine's new building extension.





The latest upgrades at M.C. Gill Corporation El Monte are near completion. In Q1 2012, we began construction to accommodate additional new equipment and to upgrade our power supply. This phase of construction would allow us to meet the growing market demand and have a dramatic impact on our honeycomb and sandwich panel business.

The project began with crews replacing the existing asphalt near two of our manufacturing buildings with a new reinforced concrete foundation and driveway. The significant weight of the new equipment required this improvement and took nearly two months to complete. Simultaneously, our facilities' engineering staff were working closely with Southern California Edison to coordinate the critical upgrade to our existing power. The new 1,600 amp/480 volt service would provide sufficient power for two additional new honeycomb bake ovens and a fourth thermo oxidizer unit. The thermo oxidizer allows us to meet air quality requirements and produce energy-conserving process heat for the bake ovens.

These new ovens allow us to fully utilize the capacity of honeycomb processes, reduce lead times and cut costly overtime requirements. Most importantly, they increase our existing capacity. To ensure a smooth transition from old service to new, we created a plan which involved intercepting the 16,000-volt Southern California Edison main with our existing transformer.



Once connected, we can then switch to the new transformer and remove the old without interruption to on-site production.

After the old transformer is offline, we will take advantage of the vacated space to install a backup power generator to protect our data from future unexpected power loss.

In another building on our campus, a new unidirectional prepregger that incorporates the latest in technology will be installed. The prepregger will improve product consistency, product quality and support the demand we know is on the way.



Regardless of what is just over the horizon, M.C. Gill Corporation is poised and ready for new challenges and meeting whatever comes our way.

# M.C. Gill Corporation Gillfab™ 4523 Receives Airbus Approval

Recently, Irv Freund, Vice President Marketing and Business Development for M.C. Gill Corporation, announced that Airbus will be including Gillfab 4523, a bulk compartment floor panel, in the next Structural Repair Manual (SRM), which is scheduled for release in July 2012. Although original qualification was completed in early 2008, the FAA's recent adoption of upgraded flammability standards necessitated further evaluation to validate Gillfab 4523's resistance to flame penetration (burn through) as described in FAR 25 Appendix F Part VII. Prior to the release of the SRM, Airbus has advised that operators will be able to receive approval to use Gillfab 4523

by applying for a Technical Adaptation (TA). Airbus has further advised that the TA will be provided at no charge to the operators.

Gillfab 4523 is a low-smoke sandwich panel with facings of modified phenolic resin reinforced with a combination of woven and unidirectional glass fibers and Nomex® honeycomb core. Our asymmetrical design (e.g., .060"/.020" facings) provides a robust top surface without the added weight and cost of a balanced construction. This panel has superior impact resistance and is qualified to Airbus Technical Specification No. 5360 MIM 000500, Issue 6, FAR 25.853 and ABD 0031, Type BCC3. This remarkable new panel exhibits a 71% increase in impact strength over its predecessor, Gillfab 4223. Its impact resistance far

exceeds anything else on the market, making it the most durable product of its kind. Gillfab 4523 is ideally suited for the stringent in-service conditions of a bulk cargo environment, meaning more flights between repairs. Rigorous testing shows that Gillfab 4523, our next-generation bulk cargo floor panel, is a step ahead of similar products and exceeds Airbus Specification impact requirements by 33% with minimal increase in weight. More information will be available by mail, on our website and at our trade show booth at upcoming industry shows.

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Alcore does not sell sandwich panels. Contact M.C. Gill for these products.



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# THE FUNNY SIDE

## The Rookie

A rookie pitcher was struggling at the mound, so the catcher walked up to have a talk with him. "I've figured out your problem," he told the young southpaw. "You always lose control at the same point in every game."

"When is that?"

"Right after the National Anthem."

## What Gators?

While sports fishing off the Florida coast, a tourist capsized his boat. He could swim, but his fear of alligators kept him clinging to the overturned craft. Spotting an old beachcomber standing on the shore, the tourist shouted, "Are there any gators around here?"

"Naw," the man hollered back. "They ain't been around for years!"

Feeling safe, the tourist started swimming leisurely toward the shore.

About halfway there he asked the guy, "How'd you get rid of the gators?"

"We didn't do nothin'," the beachcomber said.

"The sharks got 'em."

## Bumper Stickers

A flashlight is a case for holding dead batteries.

When there's a will, I want to be in it!

Ever stop to think, and forget to start again?

## Ice Fishing

One day a rather inebriated ice fisherman drilled a hole in the ice and peered into the hole and a loud voice said, "There are no fish down there."

He walked several yards away and drilled another hole and peered into the hole and again the voice said, "There's no fish down there."

He then walked about 50 yards away and drilled another hole and again the voice said, "There's no fish down there."

He looked up into the sky and asked, "God, is that you?"

"No, you idiot," the voice said. "It's the rink manager."

## Unlicensed Fisherman

No one in this town could catch any fish except this one man.

The game warden asked him how he did it, so the man told the game warden that he would take him fishing the next day. Once they got to the middle of the lake, the man took out a stick of dynamite, lit it, and threw it in the water. After the explosion, fish started floating to the top of the water. The man took out a net and started picking up the fish. The game warden told him that this was illegal. The man took out another stick of dynamite and lit it. He then handed it to the game warden and said, "Are you going to fish or talk?"

## Things to Ponder

Why do they put Braille on the drive-through ATM bank machines?

Never underestimate the power of stupid people in large groups.

Before they invented drawing boards, what did they go back to?

