VOLUME 40
NUMBER 4
FALL 2003

THE M.C. GILL DOORWAY

HIGH-PERFORMANCE

Beyond Commercial

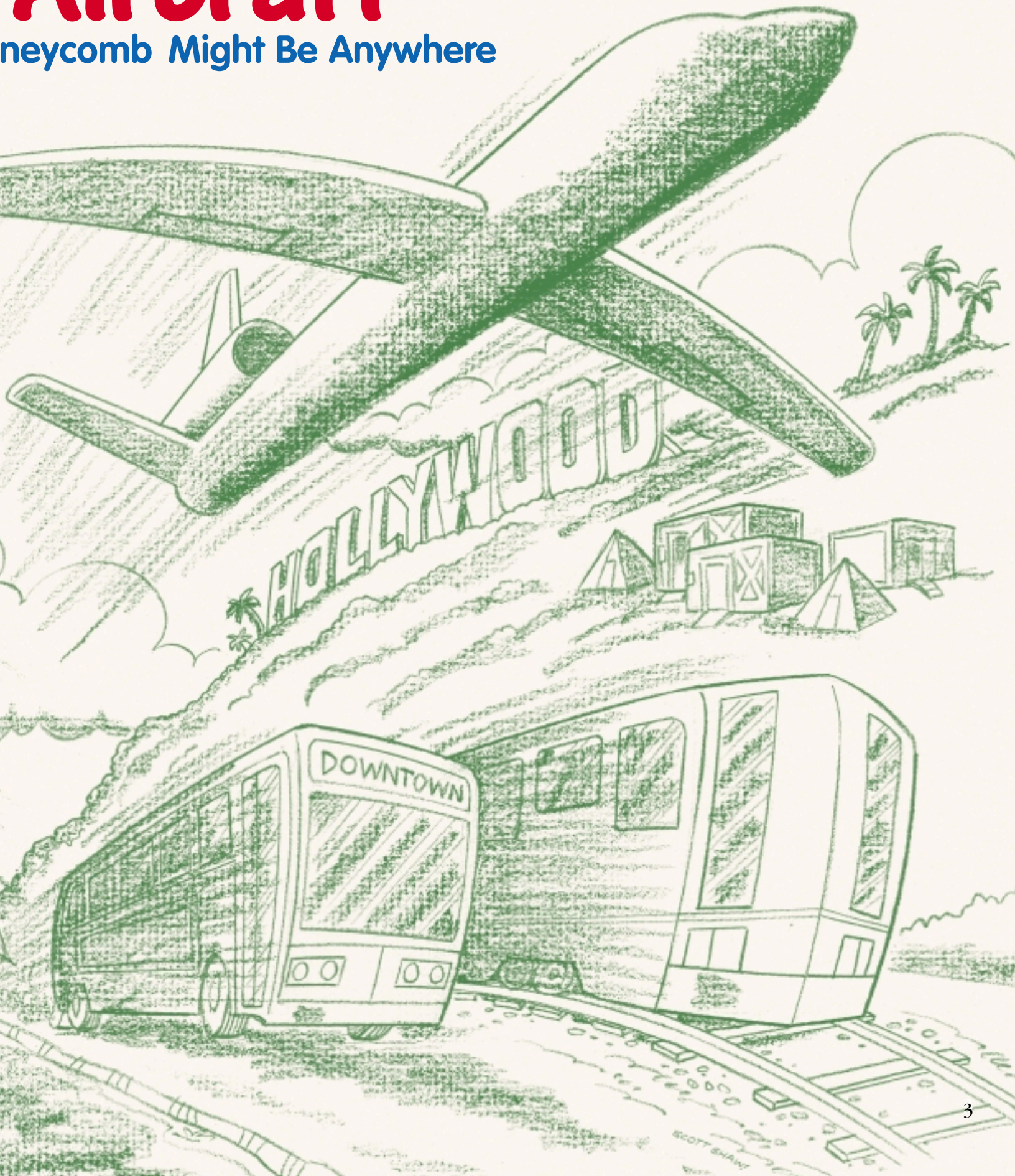
M.C. Gill Composites & Alcore Aluminum Ho

Products from the M.C. Gill Corporation Group of Companies are well-known throughout the world of commercial aviation. There is hardly a commercial aircraft flying that doesn't have a product on board that we made. It might be our Gilliner™ cargo liners in the baggage compartment, Gillcore™ honeycomb strengthening the overhead bin structure or Gillfab™ floor panels tailored for different areas of use throughout the passenger cabin.

Look for Alcore aluminum honeycomb products in everything from light railcars to motor coaches to high-speed ferries – and in many other applications where you might not expect to find them.

Aircraft

neycomb Might Be Anywhere



You Know Us for Commercial Aviation Panels & Cargo Liners

We also provide composites elsewhere in aviation and aerospace

M.C. Gill composite products can be used in everything from blimp baskets – which house a complicated control center – to glider construction where light weight and durability are critical in a strong, agile aircraft. M.C. Gill composites and Alcore aluminum honeycomb are well-known in General Aviation, small jets and in experimental aircraft where there is no limit to the inventive shapes of the designs.

Helicopters have long used M.C. Gill composites, especially honeycomb because of its ability to add strength without significantly contributing to weight. M.C. Gill products are also finding their way onto more aircraft makes and models, especially those requiring specialized military capabilities such as stealth or impact resistance.

Our ballistic laminates in everything from cockpit doors and bulkheads to judges' benches offer protection from bullets. Additional ballistic laminate applications include everything from automobiles to naval vessels.

These composite products, which were developed for aerospace applications, are lightweight and strong and meet stringent FAA requirements. They typically cost more than conventional products they replace. But if they can improve your product, then the benefits of including high-performance composites in your application can be extraordinary! This is especially true when you compare ***first costs*** *to* ***total costs****.*

Unmanned Air Vehicles

(UAV) – Civilian Version

(UCAV) – Military Version

The burgeoning expansion of UCAV systems for military applications use will significantly increase air superiority as they lower the overall cost of combat. For civilian aviation activities and other operations such as border patrol activities, UAV aircraft have broad applications. A major advantage to them is that these unmanned aircraft are relatively small and do not require either

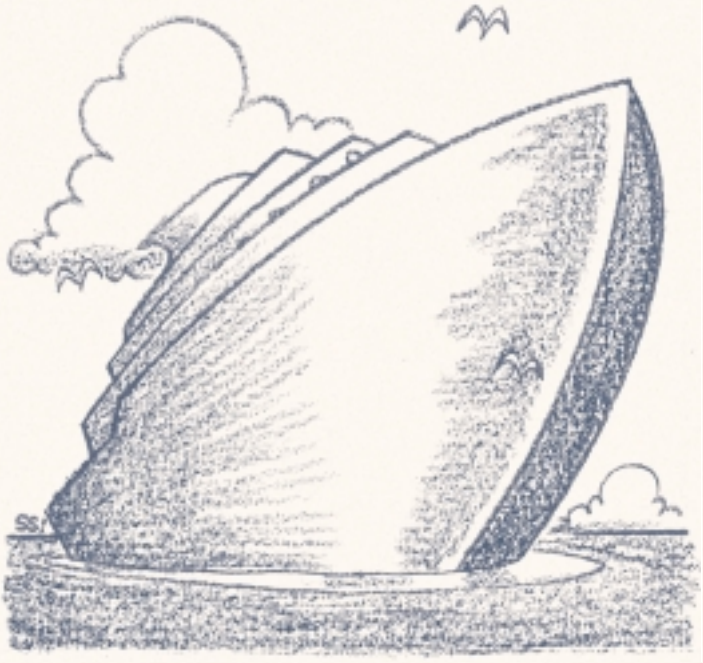
pilot interfaces or training and are far less demanding of personnel time. Their versatility allows them to be stored for a long time while awaiting use.

UCAV and UAV systems are projected to cost far less to produce than manned aircraft, with perhaps only 25% the cost to operate compared to existing units. These systems are trending to grow larger over time to accommodate fuel for long-duration flight. It is not uncommon for these craft to remain aloft for two straight days to complete their mission. M.C. Gill nonmetallic honeycomb, sandwich panels and laminates are natural additions to UAV and UCAV advanced designs. Alcore aluminum honeycomb can also create lightweight, durable structures that enhance performance, which it has successfully done in aerospace applications for decades.

Marine Applications

Ships, Boats, Yachts, Dinghies, Racing Shells

There are perhaps no devices that come in greater variations than boats. This must be because there is so much water on our planet and there are so many people continually dreaming up new ways to get across it. Not all that long ago, boats were made only of wood. It was less than 150 years ago that metal became the dominant material for marine vessels.



In the last 50 years, construction of all sorts of watercraft has rapidly evolved towards extensive use of composite materials and aluminum honeycombs. Smaller vessels are commonly made entirely of composites, while cruise ships use an increasing variety for everything from simple bulkheads to structural elements and everything in between.

This new era in boat construction using composites has M.C. Gill experiencing an upsurge in use of our products for marine applications. Also, Alcore aluminum honeycomb products are used for restoring classic boats, in state-of-the-art America's Cup yacht hulls and in other marine applications.

Alcore aluminum honeycomb panels are utilized extensively in the construction of competitive racing hydroplane boats. Alcore Brigantine panels are used in cruise ship balcony assemblies.

Navy and Coast Guard vessels have the increasing need to be agile. Civilian craft such as high-speed ferries with fast turnaround schedules are increasingly seen scrambling across bays with commuter travelers and plenty of composite materials and aluminum honeycomb built into them.

Land Applications

Light Rail, High-Speed Trains, Freight Systems and Intermodal Service Innovations

The worldwide trend is to develop and renew rapid transit systems with railcars that are pleasing to riders and keep them coming back to ride again and again. This resurgence of light rail transportation comes after decades of dominance by the automobile resulted in negative factors, including everything from the frustration of jammed roads to freeways with high accident rates to undulating fuel prices.

The use of composite products continues to increase in all types of rail system design and engineering. Both aluminum and nonmetallic honeycomb can be formed into ceiling panels and used to reinforce other structures. High-performance composite products continue to lead to many engineering achievements. This includes many other benefits, including their reduced weight, which will help lessen wear on wheels and rails. We also have a project for a car manufacturer to provide a composite transmission support.

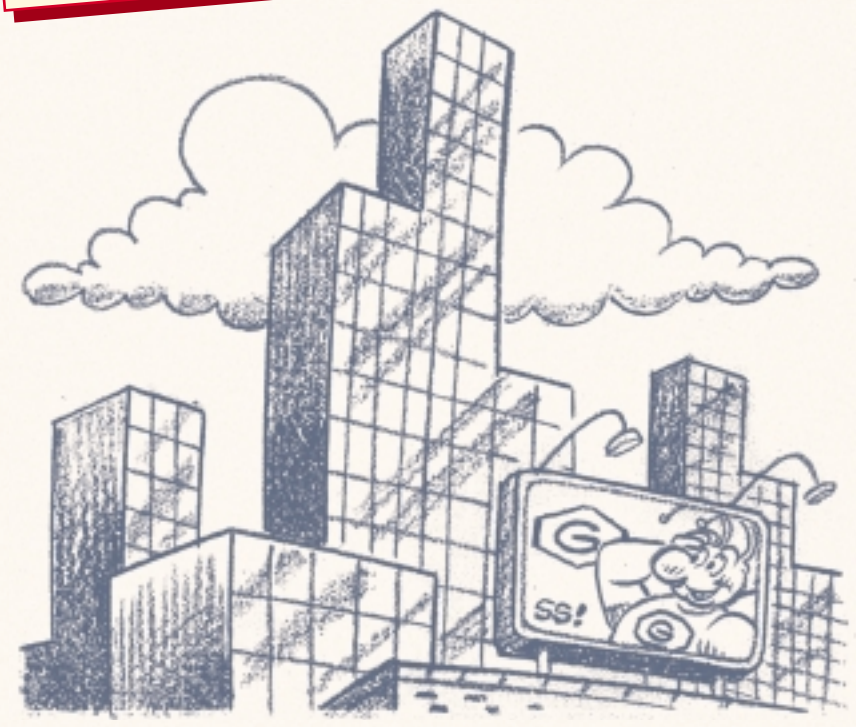
Cars, Buses, Luxury Coaches

How about an example of the applications for composites that might be appropriate when replacing conventional materials? Examine the cost-benefits of replacing plywood flooring in luxury motor coaches with our high-performance floor panels. Common plywood is a basic building material used throughout the construction industry and can't be beat cost-wise. But while plywood

is cheap, it's also monstrously heavy and doesn't have many characteristics that would make it preferred in a number of scenarios.

M.C. Gill has found that motor coach manufacturers need to reduce vehicle weight to meet highway use requirements at the same time their customers are asking for an increasing number of amenities that increase the weight. These include onboard Jacuzzis, entertainment systems and even gym equipment. Here is a situation where the additional cost of weight-saving floor panels may very well be worth the investment.

Building Facades, Elevators & Architectural Applications



Buildings continue to grow more innovative in their shapes and increasingly complex in their structural demands. There is also new interest in, and additional sets of regulations to provide, flame resistance and low-smoke materials for buildings. There have been similar requirements for commercial aircraft for a long time, so it is only natural that these materials find new earth-bound applications.

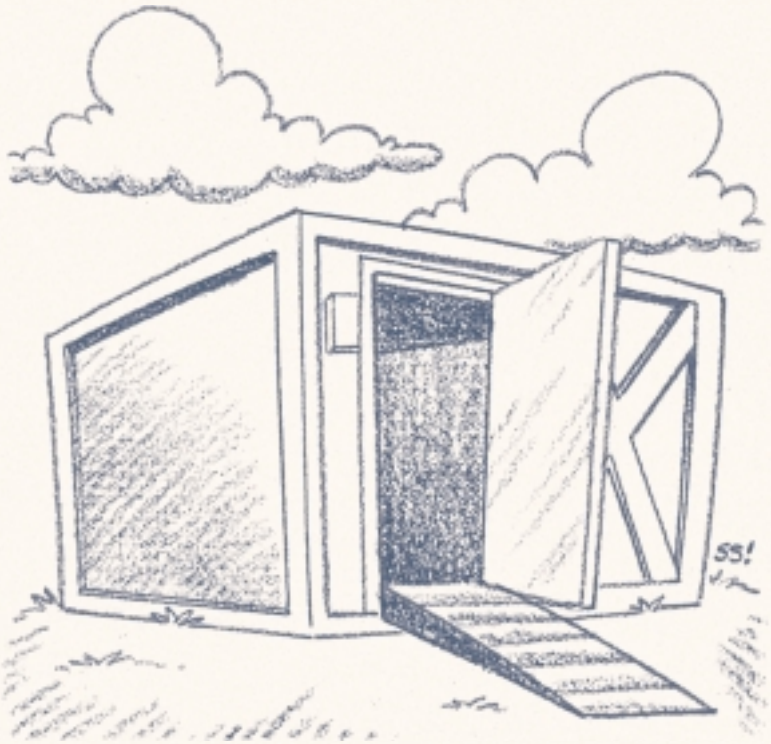
Awareness of the need for fire and explosion resistant building structures – including elevators – to be capable of holding up to aircraft qualification levels of durability, heat and smoke issues is more prominent than ever. M.C. Gill panels are finding increasing use in a broad range of building and architectural applications.

Similarly, scenery in the theatre is a natural environment for composite panels because of the flammability concerns – and the need for light weight so that set pieces are easy to move. Various types of zoo displays, such as the walls of small enclosures that might need to be reconfigured over time, make composites an innovative choice. At zoos, signage systems can provide interpretive information about the animals to help visitors enjoy their experience and better appreciate the exhibits.

Portable Structures

The military is always on the move and continues to look for ways to transport and assemble structures quickly. These portable structures include every sort of application, from administration units to mobile hospitals with operating rooms.

M.C. Gill and Alcore products are also useful in portable camping units, where the sides might fold open to create beds and rest space. Some designs are so neatly engineered that they are flown to their location, then a single lever is pulled and the entire structure immediately opens. Our products provide the combination of light weight and strength that helps make this possible.



From Tennis Rackets to Street Signs

Use of composites in sports equipment is something M.C. Gill has also been involved in. An early customer of ours made wooden tennis rackets that were reinforced with a laminate we supplied. We still fabricate panels that are turned into paddles for court games.

We even produced plastic-coated baseball bats for kids during the 1950s, but that's another story.

As knowledge of composite materials grows, the number of applications they are used for dramatically expands. We field a constant stream of requests to use our honeycomb, laminates, sandwich panels, and the related products we offer, in an even broader range of applications.

We hope that we've given you an imaginative spark to see M.C. Gill composites in new ways. Let us know about your innovative ideas and how we can apply our high-performance products to your brave new applications.

Let us know about your innovative ideas:

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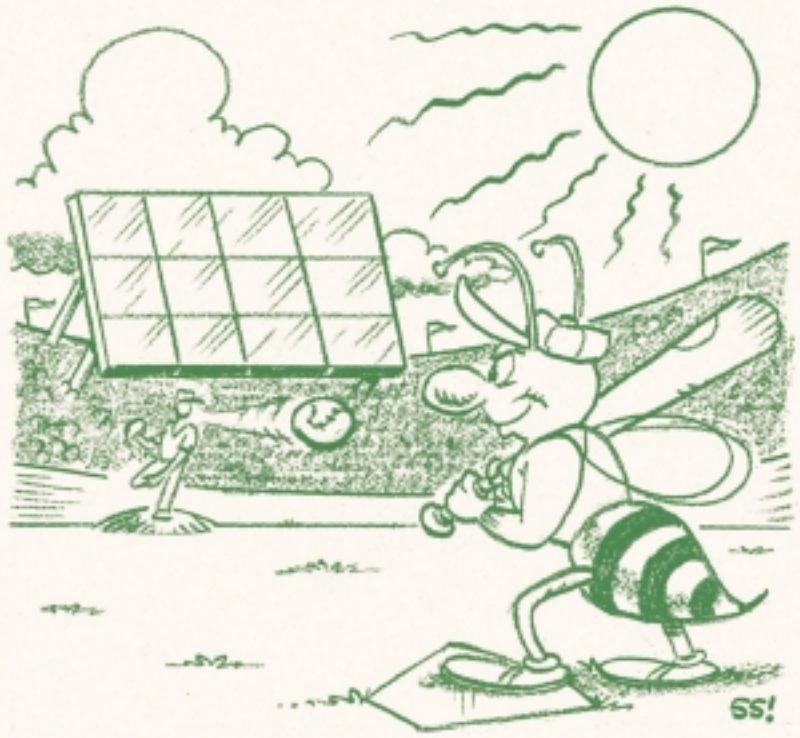
Alcore & Alcore Brigantine

Precision Detailing of Nonmetallic and Aluminum Honeycomb

Alcore and Alcore Brigantine uses 5-axis CNC systems to precision-machine aluminum and nonmetallic honeycomb bonded core blanket assemblies and detail parts for applications in aircraft slats, flaps, engine nacelles, thrust reversers, vertical and horizontal stabilizers, spoilers, landing gear doors, and other applications.

Here are a few uses for these products outside aerospace:

- Aluminum honeycomb panels filled with ceramic inserts for lightweight ballistic armor doors in high-speed lightweight troop carrier combat vehicles. In tests, the panels withstand high-velocity antitank rounds.
- Alcore supplies expanded and corrugated honeycomb energy-absorbing products. The applications include automotive impact protection, energy-dampening devices for military missile launch systems, bolt catching devices for the NASA Space Shuttle, containers for the transport of radioactive materials and skids for aerial delivery of heavy equipment and supplies.
- A new application has recently been identified for specially coated aluminum honeycomb as an ozone reduction filtering material for air conditioning condenser units. Initial tests are now being run with the goal of reducing the ozone content of air passing through the filter by 50%.
- Use of aluminum honeycomb as RFI/EMI filtering material for various airborne electronic cabinet installations, most often in military applications.



- Powder-coated aluminum honeycomb panels for light dampening and glare reduction on the walls of baseball stadiums. The initial installation was at Safeco Field for the Seattle Mariners. It appears to be helping raise the team's batting average. This sparked interest for similar applications.

For more information, contact:

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NEW Gillite™ 1401 Transparent Laminate

A Structural Laminate You Can See Through

El Monte, California – 1 October 2003

M.C. Gill Corporation announces development of a transparent laminate for use as a see-through cargo liner allowing visual inspections without removal. Such inspections are routinely carried out by airlines to check for mechanical problems, assess damage and locate contraband. Unlike previous transparent plastics, Gillite™ 1401 transparent laminate offers improved strength using fiberglass reinforcement and exceptional flammability properties, including compliance with FAA burn-through requirements.

"Beyond cargo liner applications, Gillite™ 1401 transparent laminate will find use in a range of products. It could be used to construct a cargo container, making the contents readily evident," said Irv Freund, VP Sales and Marketing. "Other uses might include ceiling panels in commercial transport vehicles which rely on natural lighting, equipment housings and architectural applications. It should be considered for applications anywhere transparency, strength, light weight and low flammability are important. Increased safety and Homeland Security concerns are expected to create significant opportunities for this innovation."

The laminate is very clear, making it possible to read through it with a four-inch space between the laminate and letters – four inches being the distance between the cargo liner and fuselage in most aircraft.

A 4" space between the Gillite 1401 transparent laminate and an eye chart.

For additional information:
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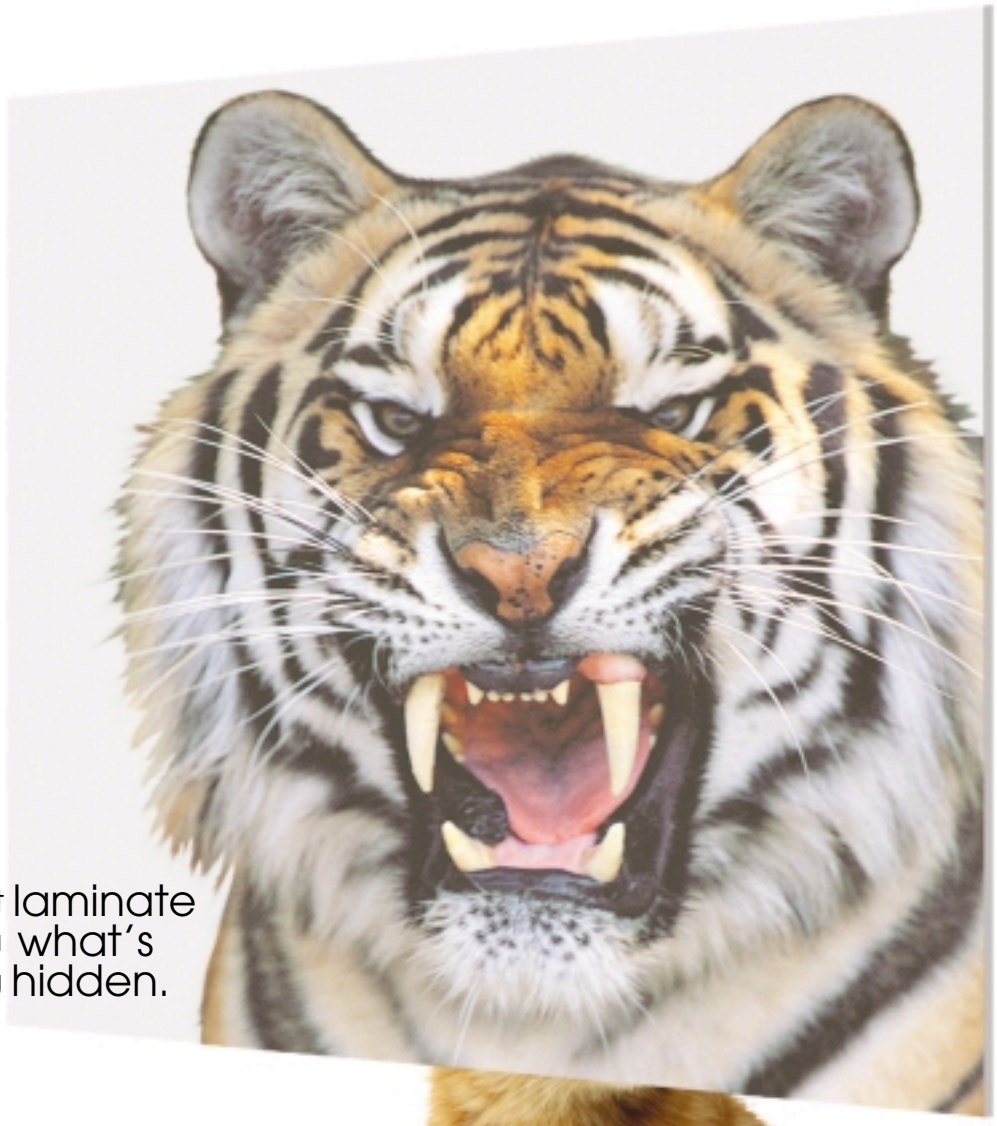
PRESS



Transparent laminate shows you what's being hidden.

"Increased safety and Homeland Security concerns are expected to create significant opportunities for this innovation."

Meet the Alcore
Sales Organization

Bill Justus

Bill Justus has 20 years' experience in the Aerospace business and related Industries, with a background in Manufacturing Engineering. Bill's previous eleven years with Alcore have been with the Sales and Marketing Group as customer liaison and account management from engineering sales to product qualifications with Alcore's customers.

Bill has over nine years' experience in operations management for the production and processing of metallic and nonmetallic honeycomb cores. The past five years have been spent as Sales Director for the Western Region and Pacific Rim Countries for Alcore.

Phone: 562 864-0899
Fax: 562 864-1640
Email: bjustus@alcore.com

Dennis McGuinness

Dennis McGuinness, East Coast Sales Manager for Alcore, has been serving the aerospace and commercial industries for 40-plus years. Most of his service was as owner of machine shops in New York and Vermont. Dennis was hired to use his composite tooling experience as well as his management experience to serve the many customers Alcore is proud to serve.

Dennis will use his Connecticut location as his primary office.

Phone: 203 268-3447
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Email: dmcguinness@alcore.com

David N. Cross

Dave was born in Pietersburg, South Africa, and attended the University of the Witwatersrand, graduating as an Aeronautical Engineer. He later achieved Professional Status as an Aeronautical Engineer and completed Certificate Courses in Management at the Graduate School of Business Administration.

He served in the South African Air Force for two years, gaining the rank of lieutenant, then worked at South African Airways in the design and analysis department for aircraft interiors. Dave Cross has been representing M.C. Gill Corporation in Africa since 1993 while operating an aircraft interior refurbishment. He has recently moved with his family to Alcore in Maryland where he assumes the responsibilities of VP Sales and Marketing

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Castle Industries of California

Dan Johnson

Castle Industries' new Director of Sales is Dan Johnson. Having spent the majority of his 21-year sales career working for Ancra International LLC, Dan has worked with a variety of customers serving aerospace. In addition, he has worked with companies such as Harley-Davidson and Kawasaki Motors promoting aftermarket accessories to the Power Sports industry. Dan pursues new opportunities in the commercial and military aerospace sector, and develops business in non-aerospace markets that require the broad resources Castle offers.

Phone: 909 390-0899 x221
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New Materials Scientist Developing Breakthrough Products

Hongbin Shen

Hongbin (or simply "Hong") joined M.C. Gill in July 2003 after graduating from the University of Southern California with a PhD degree in Materials Science. He grew up in the city of Dangyang, near the world-famous Three Gorges Dam on the Long River.

Before coming to the U.S., he had been a senior research engineer working in the Chinese aerospace industry. He joined the USC Composites Center in 1998 and started research on toughening phenolic foam, which was also the subject of his PhD thesis. At M.C. Gill, Hongbin will be responsible for researching and exploring innovative materials and processing technologies to develop the company's long-term product innovations.

The 2003 SAMPE Israel Annual Conference

held at the Tel Aviv Sheraton as hosted by Aerospheres, Inc., who represents M.C. Gill and Alcore in Israel. M.C. Gill and subsidiary Alcore Inc. were proud to help sponsor the event and be presenters. The festivities drew over 150 attendees.

Candi Burdick, Marketing Manager at M.C. Gill, spoke about Kevlar® Honeycomb while Bill Justus, Alcore Sales Director for the Western Region and Pacific Rim Countries, presented information on PAA-CORE® aluminum honeycomb at the meeting.

Back row: Henry Zak – Aerospheres, Inc; Jacob Assif; John Tauriello – Fibercote, Inc; Candi Burdick – MCG; Bill Justus – Alcore; Gad Lipshitz – Aerospheres, Inc

Front row: Dr. A.K. Green – Israel Aircraft Industries; David da Silva – Airtech International, Inc; Dr. Hans Rosenthal – Israel Aircraft Industries

Gillshots

Boeing Commercial Airplanes Supply Management & Procurement presented M.C. Gill with a Continuous Cost Improvement Process Supplier Recognition Certificate.

USC Student Visit. Left to right, Lev Vaikhansky, Emily Chen, Puneet Jain, Amit Desai, Shankar Rajaram, Steve Nutt, Derek Willis, Steve Madsen, Paul Draghi, Brian Tung.

The May 2003 issue of *Composites Fabrication* magazine featured M.C. Gill, with a lengthy story tracing the history of his company. Thanks to writer-editor Andy Rusnak for the great article.

THE M.C. GILL GROUP OF COMPANIES

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

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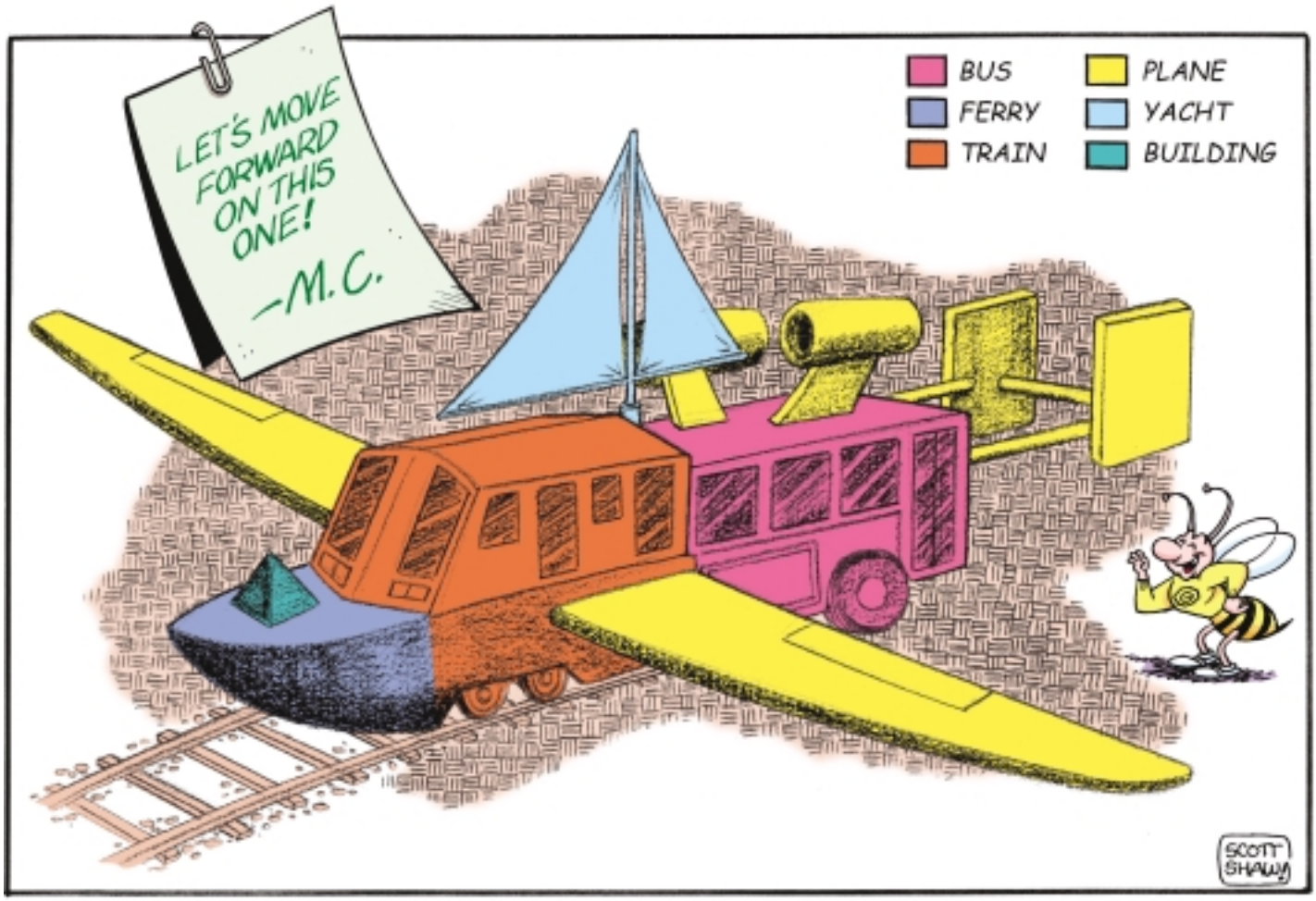

THE *ULTIMATE* "COMPOSITE PRODUCT"

The Funny Side

A pirate was talking to a landlubber in a Singapore bar. The landlubber noticed, as is the case with most well-traveled pirates, that the man had a peg leg, a hook in place of a hand and a patch over one eye. The landlubber's curiosity got the best of him, and he had to find out how the pirate got so shopworn.

So, he asked the pirate, "How did you lose your leg?"

The pirate cinched up his pants and proclaimed, "I lost me leg in a battle off the coast of Madagascar!"

His new acquaintance looked impressed and asked, "What about your hand? Did you lose it at the same time?"

"Naw," replied the pirate. "I lost it to a Great White off Sydney."

"Yikes!" The landlubber proclaimed, "I see you also have an eye patch. How did you lose your eye?"

The pirate answered, "I was sleeping on a beach when a seagull flew over and plopped me one right in me eye."

The landlubber asked, "How could a little seagull plop make you lose your eye?"

The pirate snapped, "It be the day after I got me hook!"

★ ★ ★

What did the hat say to the tie?

"You hang around here…
I'll go on a head."

★ ★ ★

An insecure young businessman had just started his own company. He'd rented a beautiful office and had it furnished with fine furniture. While sitting at his desk, he saw a man who looked like a potential customer come into the outer office. Wishing to appear busy, the novice businessman picked up the phone and started to pretend he was working a big deal. He threw around some big financial numbers and made fake commitments for gigantic deals.

Finally, he hung up and asked the visitor, "Can I help you?"

The man said, "Sure. I've come to install the phone!"

★ ★ ★

Sherlock Holmes and Dr. Watson went on a camping trip. As they lay down for the night, Holmes said: "Watson, look up into the sky and tell me what you see."

Watson said, "I see millions and millions of stars."

Holmes: "And what does that tell you?"

Watson: "Astronomically, it tells me that there are millions of galaxies and potentially billions of planets. Theologically, it tells me that God is great and that we are small and insignificant. Meteorologically, it tells me that we will have a beautiful day tomorrow. What does it tell you?"

Holmes: "Somebody stole our tent."

★ ★ ★

A woman took her dog to the vet "Doctor," she said, "I think my dog is dead." The doctor laid the dog on the table and reached down and took a cat out of a box. The cat walked all over the dog and the dog didn't move.

"Yes, your dog is dead," said the doctor.

"How much do I owe you?" the lady asked.

"$345," said the doctor.

"$345!" the lady asked.

"Yes. $45 for the office visit and $300 for the cat scan."

Trivia

The first surface vessel to reach the North Pole was the Russian icebreaker Arktika in 1977.

★ ★ ★

2.2 million person/years are spent each year in North America on cutting grass

★ ★ ★

A shrimp's heart is located in its head

★ ★ ★

A giant redwood tree contains more water than wood. A trunk 200 feet high holds 4,700 gallons.

★ ★ ★

The Atlantic Ocean is saltier then the Pacific Ocean.

★ ★ ★

An ear of corn never has an odd number of corn rows.

★ ★ ★

The hypodermic needle was invented in 1853. It was initially used for giving injections of morphine as a painkiller. Physicians mistakenly believed that morphine would not be addictive if it bypassed the digestive tract.

★ ★ ★

The footprints left by astronauts on the Moon will last about 10 million years.

★ ★ ★

One out of every seven birds in the world is a finch.

★ ★ ★

The Greeks in the time of Alexander the Great liked blond hair as much as we do today. Men and women alike bleached their coiffures with potash water and herbal potions.

★ ★ ★

In Turkey, in the sixteenth and seventeenth centuries, anyone caught drinking coffee was put to death.

★ ★ ★