

VOLUME 36
SPRING 1999
NUMBER 2



THE M.C. GILL DOORWAY

New Vistas in Composites

M.C. GILL CORP., 4056 EASY ST., EL MONTE, CA 91731 • PHONE (626) 443-4022 • FAX (626) 350-5880 • <http://www.mcgillcorp.com>



*Composites
101?*

Welcome to Composites 101

*The material contained herein presents
basic information about reinforced
plastics, selected end use applications, and
the equipment used to manufacture our
products. We do this with the hopes of
increasing the reader's knowledge of the
subject and perhaps ignite another spark
similar to that generated nearly fifty-five
years ago in our founder, M.C. Gill.*

UNIQUE PROPERTIES OF COMPOSITES

Reinforced plastics consist of low pressure thermoset resins reinforced with synthetic fibrous material. We divide them into two categories: first, those with inherent properties (items 1-10 below) and second, those with unique properties (items 11-16 below) that have been tailored to specific end uses through the appropriate mixes of resins, reinforcements, and modifiers.

INHERENT PROPERTIES

1.
HIGH STRENGTH WITH LOW WEIGHT
specific strength—rigidity

2.
SUPERIOR FATIGUE RESISTANCE
(especially epoxy)

3.
LOW WATER ABSORPTION
(strength retention)

4.
NO FLARE OR SHATTER
when punctured—dent resistance
(yield and ultimate strength coincide)

5.
LOW HEAT CONDUCTIVITY

6.
LOW COST TOOLING
for "short run" large or small parts
(at low or no pressure—without a press)

7.
DIMENSIONAL STABILITY
over a wide temperature range

8.
**LOW SMOKE AND
LOW TOXIC EMISSIONS**
(true only of phenolics)

9.
**SOME TRANSPARENCY,
GOOD TRANSLUCENCY**
with high specific strength
true only of polyesters

10.
LIMITED POST FORMABILITY
(simple shapes with large radius)

TAILORED FOR END USE

11.
**SUPERIOR PUNCTURE AND/OR
IMPACT RESISTANCE**
with high mechanical strength

12.
RESILIENCY, SHOCK ABSORBENCY

13.
**SELF EXTINGUISHING OR ABRASION
RESISTANT OR WEATHER RESISTANT**
(choice of resin is governing)

14.
**RADAR TRANSPARENCY AND
EXCELLENT ELECTRICAL INSULATION**
(except phenolics)

15.
**HIGH RESISTANCE TO VIRTUALLY ALL
LABORATORY CHEMICALS, SOLVENTS
AND/OR CORROSION**
(chemically inert at ambient temperature,
except for phenolics)

16.
AESTHETICS
Color throughout or patterns fused into the skin
surface, i.e. Gillprint®, or resin rich surface, i.e.
Gillcoat®—polyesters only; flatness

Generally speaking, one does not select composites based on low first cost (not unlike titanium or magnesium). They are only cost justified when their special properties improve on ordinary structural materials or accomplish what no other material can.
Reinforced Composites...not just plastic

NOTE: Italic numbers in captions on pages 6, 7, 8, & 9 correspond with above properties.

HOW GILL COMPOSITES IMPROVE

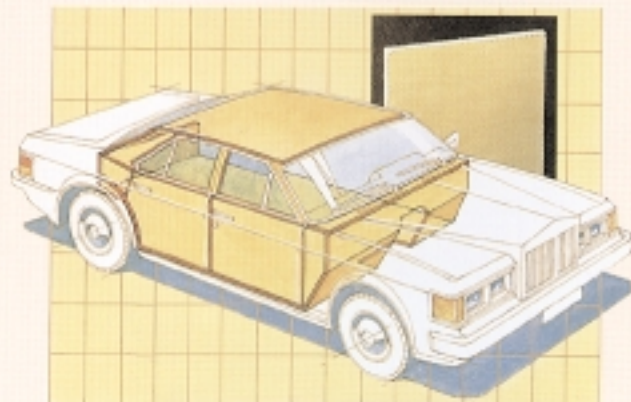


Fiberglass-faced Gillicore® HD (Nomex® honeycomb) is used in the sponsons of this racing boat. Replaced marine plywood / fiberglass facings sandwich panels.

Properties: 1. Specific strength, 3. Low water absorption, 4. Dent resistance, 12. Resiliency, shock absorbcency.



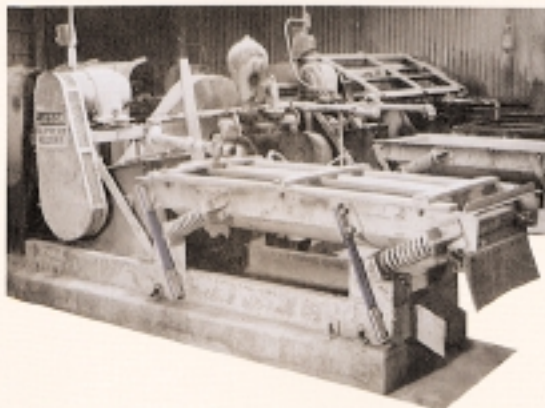
Laboratory counter tops and sinks made from Gillab® 990C polyester reinforced with chopped strand fiberglass mat. Replaced high pressure laminate, ceramic, stainless steel, painted chemical resistant board, or treated plywood because of its chemical resistance. *Properties: 3. Low water absorption, 13. Self extinguishing and abrasion resistance, 15. Chemical resistance, 16. Aesthetics.*



Ballistic laminate Gillfab® 1060 (illustrated in yellow) made from Kevlar® woven rovings with reinforced polyester resin. Replaced steel plate. *Properties: 1. Low weight, 4. No flare/shatter, 11. Puncture resistance.*

Observation balloon gondola floor is Gillflor® 5007A polyester fiberglass cloth facings and end grain balsa wood core. Replaced plywood and/or metal.

Properties: 1. Specific strength, 11. Puncture resistance, 12. Resiliency, shock absorbcency.



Gillfab 966 is used for spring legs (shown in blue) on shaker machines that shake out large particles from clay in moulding lavatory fixtures. These legs were still going strong after 300,000,000 cycles (vs 75,000,000 for steel). Made of epoxy-unidirectional fiberglass rovings. Replaced legs made of steel. *Properties: 3. Fatigue proof.*

PRODUCTS FOR MANY INDUSTRIES



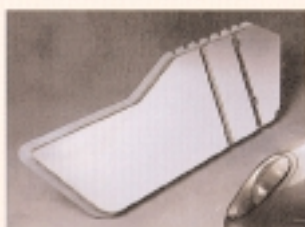
Facing for back-lighted street map made of Gillite® 1001 fiberglass reinforced polyester laminate. An innovation. *Properties: 1. Specific strength, 4. No shatter, 9. Good translucency, 11. High impact resistance.*



This food service cart is made in part from Gillfab 5019 woven fiberglass cloth reinforced epoxy facings and polyurethane core. Replaces aluminum and other lightweight metals. *Properties: 1. Specific strength, 3. Low water absorption, 5. Low heat conductivity, 11. Puncture resistance, 15. Chemical resistance, 16. flatness.*

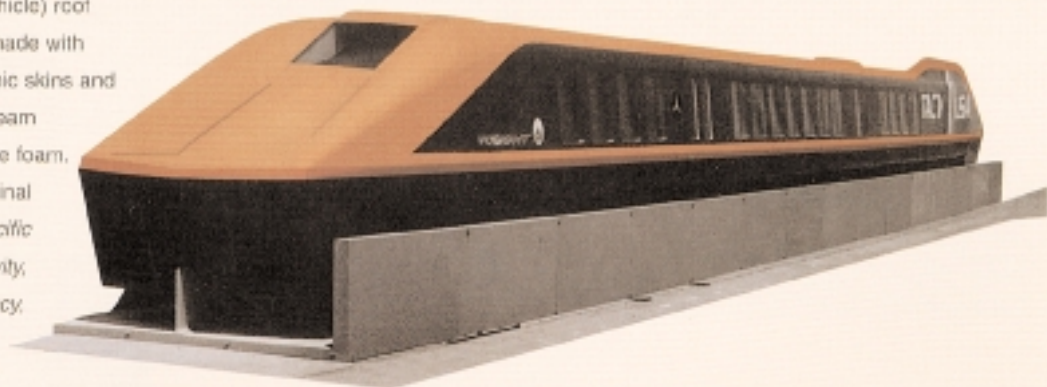
**98th Avenue
Oakland Airport
EXIT ↓ 1 MILE**

Highway signs Gillfab 5000 of fiberglass woven rovings/polyester facings (1010B) and paper honeycomb core. Replaced porcelainized steel or aluminum. *Properties: 4. Dent resistance, 7. Dimensional stability, 11. Puncture resistance, 13. Weather resistant, 16. Color throughout and flatness.*



Flooring panels for Carroll Shelby's Series One Cars are made from Gillfab 4030 aluminum honeycomb core and aluminum facings. Replaced aluminum plate. *Properties: 1. Specific strength, 16. flatness.*

TACV (Tracked Air Cushion Vehicle) roof panels are an innovation and made with Gillfab 5266 fiberglass monolithic skins and integrally molded fiberglass I-beam stringers filled with polyurethane foam. Innovative and installed as original equipment. *Properties: 1. Specific strength, 5. Low heat conductivity, 12. Resiliency, shock absorbency, 13. Weather resistant.*



HOW GILL COMPOSITES MEET THE NEEDS



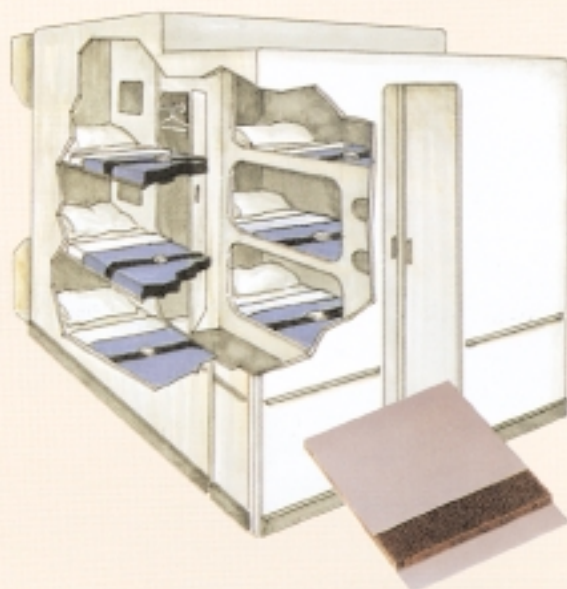
Light weight Gillfab 4409 sandwich flooring panel of carbon ribbon reinforced phenolic facings/Nomex honeycomb core, with modified epoxy adhesive, being installed. Replaces heavier composite.

Properties: 1. Specific strength,



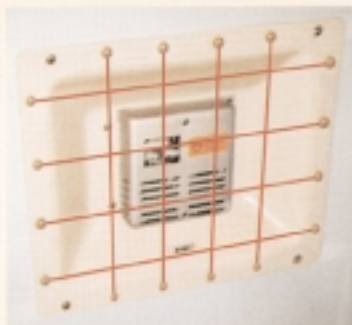
Galleys use Gillfab 4022 panels of low smoke woven fiberglass cloth reinforced phenolic facings with Nomex honeycomb core. Replaced heavier conventional metal and thermoplastic panels.

Properties: 1. Specific strength, 3. Low water absorption, 4. Dent resistance, 11. Puncture resistance, 15. Chemical resistance.



Crew quarters constructed with Gillfab 4122A sandwich panels of phenolic/fiberglass cloth facings, aramid fiber (Nomex) honeycomb core, modified phenolic adhesive. Installed as original equipment.

Properties: 1. Specific strength, 8. Low smoke, 13. Self extinguishing, 16. Flatness.



Smoke detector protective housing made from Gillfab 3667 fiberglass reinforced modified epoxy. Installed as original equipment. *Properties: 1. High specific strength, 6. low cost tooling, 8. Low smoke, 11. Impact resistance, 13. Self-extinguishing.*



OF THE AIRCRAFT INDUSTRY



Gillfab 1367A phenolic reinforced fiberglass cloth baggage compartment liner. Replaces aluminum and thermoplastic material. *Properties:* 1. Specific strength, 3. Low water absorption, 4. Dent resistance, no flare or shatter, 8. Low smoke, 11. Puncture resistance, 15. Chemical resistance, 16. Flatness.

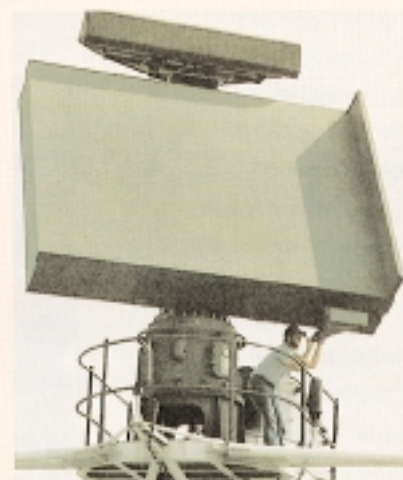


Also, Gillfab 5433C baggage compartment flooring of aluminum facings and epoxy resin impregnated fiberglass cloth core. Replaces solid aluminum sheet. *Properties:* 1. Specific strength, 4. No flare, 8. Low smoke, 11. Puncture resistance, 13. Self extinguishing. *Note: Gillfab 5033 is a similar product, but innovative and lighter because of its resin impregnated Kevlar cloth core.*

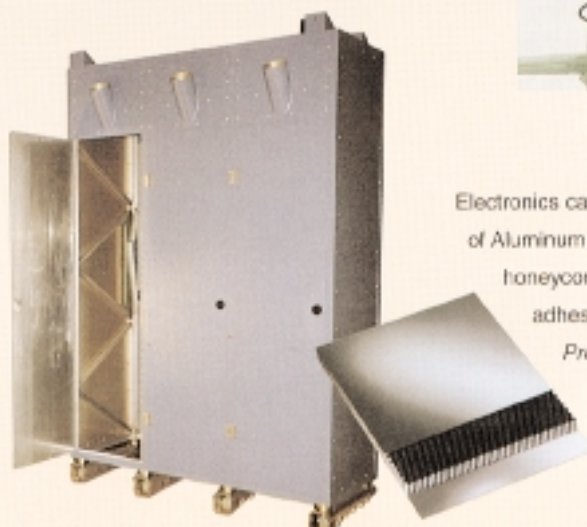


The walls of these LD-3 cargo containers use Gilliner® 1066 fiberglass cloth reinforced polyester laminates. Replaced aluminum. *Properties:* 1. Specific strength (saves weight), 4. Dent resistance, no flare/shatter, 11. Puncture resistance.

U.S. Navy's air surveillance radar system uses Gillfab 1004 polyester resin/fiberglass cloth laminate. Used as original equipment. *Properties:* 3. Low water absorption, 14. Radar transparency, 16. Flatness.



Window reveal uses very thin panels of Gillfab 5020 aluminum facings bonded to crushed aluminum honeycomb core. Replaces thermoplastic sheet. *Properties:* 1. Specific strength (rigidity), 8. Low smoke, 10. Post formable.



Electronics cabinet uses Gillfab 5120 panels of Aluminum facings bonded to aluminum honeycomb core with modified epoxy adhesive. Replaces heavier panels. *Properties:* 1. Specific strength (rigidity), 4. Dent resistance, 16. Flatness.

LEADERSHIP: FROM INNOVATIVE RESEARCH AND PROCESS IMPROVEMENT

The level of resources the M.C. Gill Corp. devotes to research and development is the most extensive in the industry.

Virtually every piece of manufacturing equipment is duplicated on a smaller scale in our lab. Therefore, our staff can repeat or vary processes similar to those in the plant.

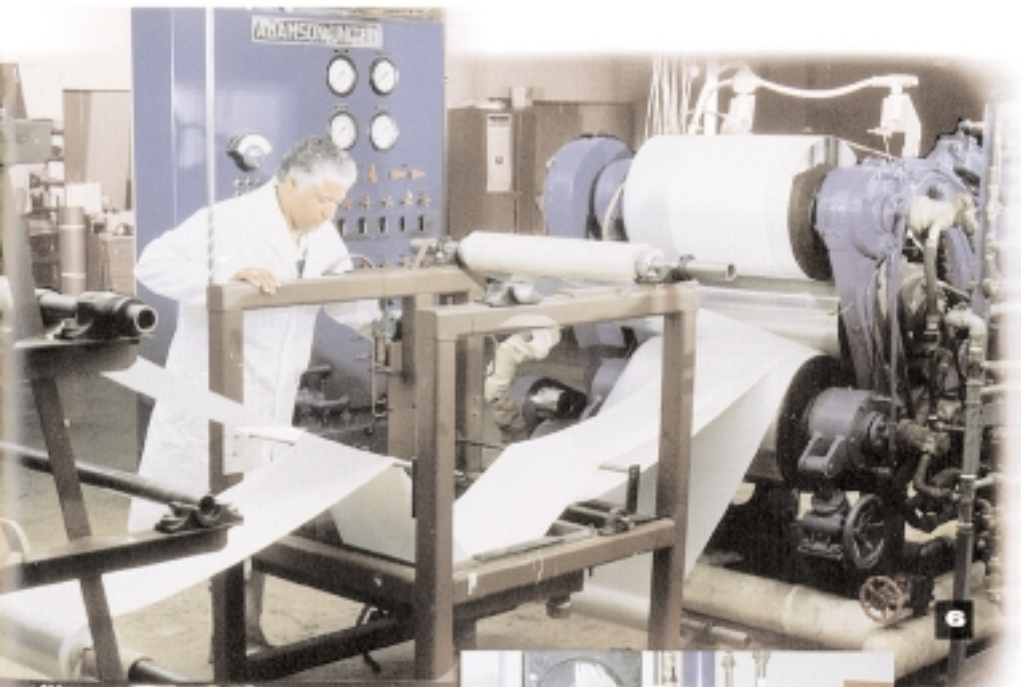
1. The NIST (NBS) smoke chamber measures the smoke emissions of materials exposed to heat and flame.

2. Water absorption test. Water absorption can drastically affect mechanical properties.

3. New resins and adhesives are continually being researched and developed to produce better composites.

4. The Differential Scanning Calorimeter (DSC) measures the actual quantity of heat generated by resins (exotherms) as they are cured at different temperatures. The rate of cure can materially affect mechanical properties.





5. Quality Control pH test.
Enables us to verify if a resin has the acidic content specified.



6. The lab's Rotocure will continually press laminates similar to production equipment in every respect but size. It enables us to design and improve different materials and production processes without shutting down production.

7. This is our very first hydraulic press purchased in 1953. It is still used for pressing small dimension products.

8. This microscope, when placed on Nomex adhesive print rolls, facilitates process control by identification of adhesive build-up, scratches, and other impairments that would lessen the roll's effectiveness.



9. This "rolling cart" tests fatigue resistance of aircraft flooring panels' core. One specification requires weights of up to 120 pounds on each of the tester's three wheels for 120,000 cycles, and then 158 pounds per wheel for an additional 35,000 cycles. Increased fatigue resistance results in products with lower replacement rates.

MANUFACTURING: FROM CONTROLLED PRIMARY MATERIALS

The M.C. Gill Corporation is a specialty manufacturer of raw stock materials whose success is due in no small part to responsible delivery commitment. To maintain relatively short turnaround times we make and stock many of the basic raw materials from which we manufacture several hundred types and sizes of products.

Our policy of controlling primary materials in-house, as explained and depicted by the text and pictures on these two pages, assures better control of quality and minimizes dependence on suppliers' scheduling.

1. Woven cloths for laminates of fiberglass, Kevlar, nylon, carbon and other fibers are stocked in many weaves, widths and surface finishes. Allows us to quickly utilize the appropriate materials for any given product and meet prompt and accurate delivery dates.

2. Pre-impregnating cloth is done for M.C. Gill's internal use only. We've been preparing our own prepregged cloth since the late 1960's, thereby assuring controlled quality and availability for use with our proprietary resin systems.





3. Nomex honeycomb loaves are sliced by computer controlled horizontal band saws. They cut loaves up to 60" wide to virtually any thickness with a $\pm .005"$ tolerance over the entire slice. Cutting our in-house manufactured core and facings helps ensure quality and delivery commitments.

4. Stocked, coiled aluminum can be cut to any length.

5. Production of our own honeycomb to military and customer specifications begins here where the glue has been imprinted on these sheets of aramid fiber paper (see insets).

6. Many alloys of aluminum for sandwich panel facings are purchased in 4,000 pound coils for economy and to enable us to better meet delivery commitments

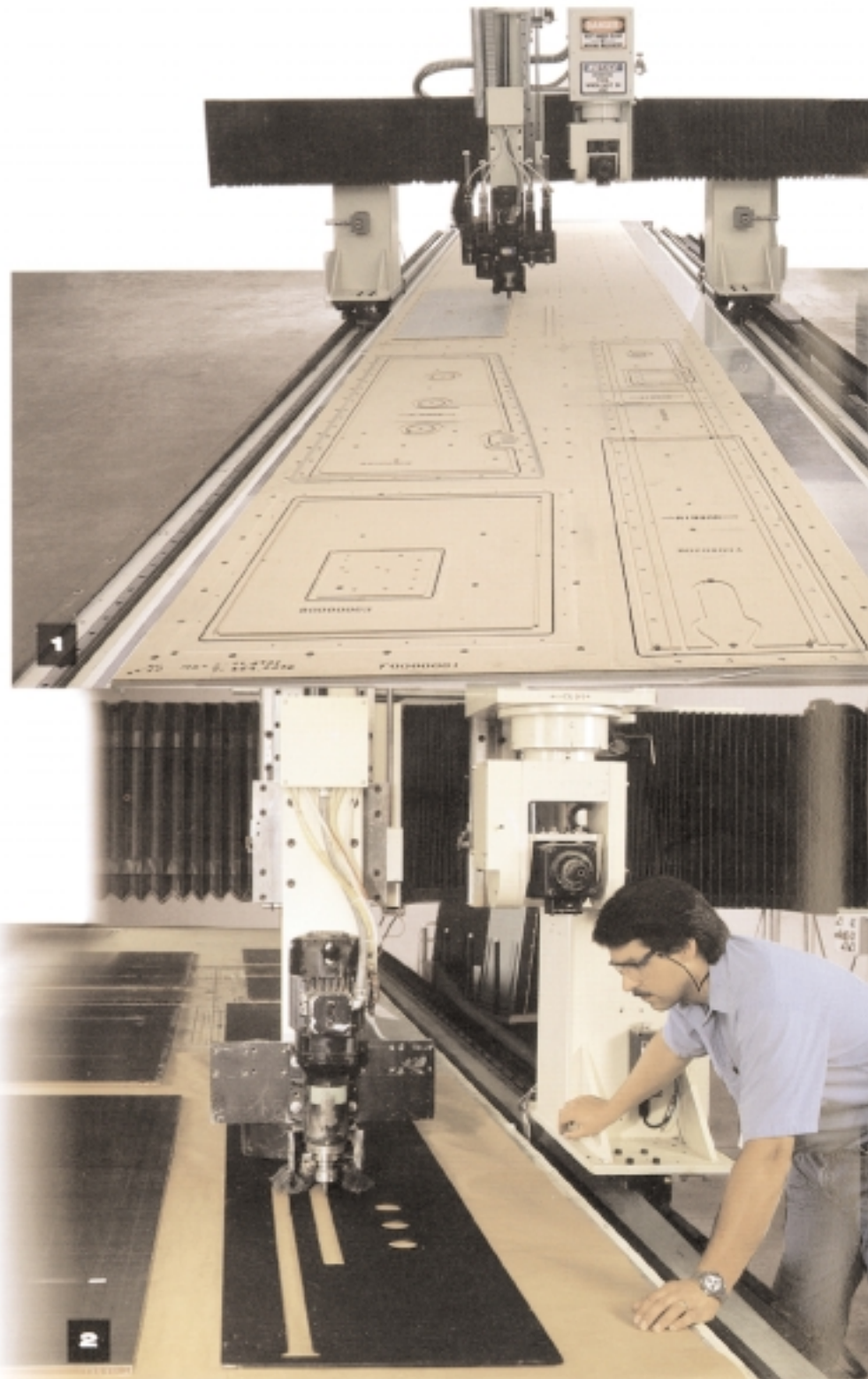
7. This saw, specially designed for M.C. Gill, cuts in-stock end grain balsa wood blocks to slices accurate to within $\pm .005"$.

FROM PRIMARY MATERIALS TO RAW STOCK PANELS

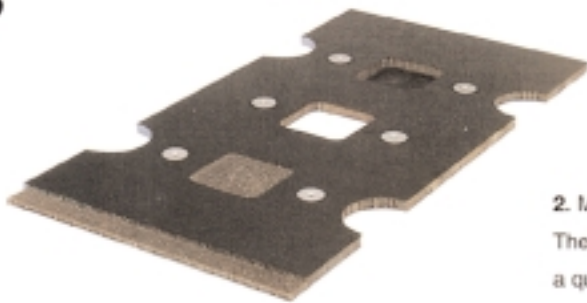
M.C. Gill's two CNC (Computer Numerically Control) profilers are a prime example of the vertical integration the company is always trying to achieve. CAD (Computer Aided Design) programs create the profiling patterns of the surface(s), calculate tool paths for cutting the parts, and transfer the programs to the profilers which then machine the parts.

Basically, the profilers detail raw stock panels for airframers and airlines. It becomes increasingly apparent that end use opportunities the CNC profilers provide are almost limitless. The only constraint is self imposed—not to violate long standing M.C. Gill policy of not competing with our customers.

1. CNC bed with gantry. The machined in-tool paths serve as a vacuum chuck to hold raw stock panels firmly in place for detailing, thereby allowing very close tolerances.



AND FINISHED PARTS



2. Monitoring work in progress. These periodic checks provide for a quality assured final product.

3. Design engineer utilizes the CAD/CAM system to create CNC programs.



4. Panel is adjusted on the roller table to ensure proper alignment of inserts which are then firmly set into the panel assuring an exact fit when final installation into an aircraft takes place.



5. After a two-part potting compound is measured and mixed it is applied with a pneumatic gun as edge fill. Thus the panel is sealed and protected from moisture absorption.



6. A reference number is stamped on the panel to ensure traceability.



7. Quality Assurance technicians routinely verify insert placement on the finished panel.

PROCESSING PRIMARY MATERIALS

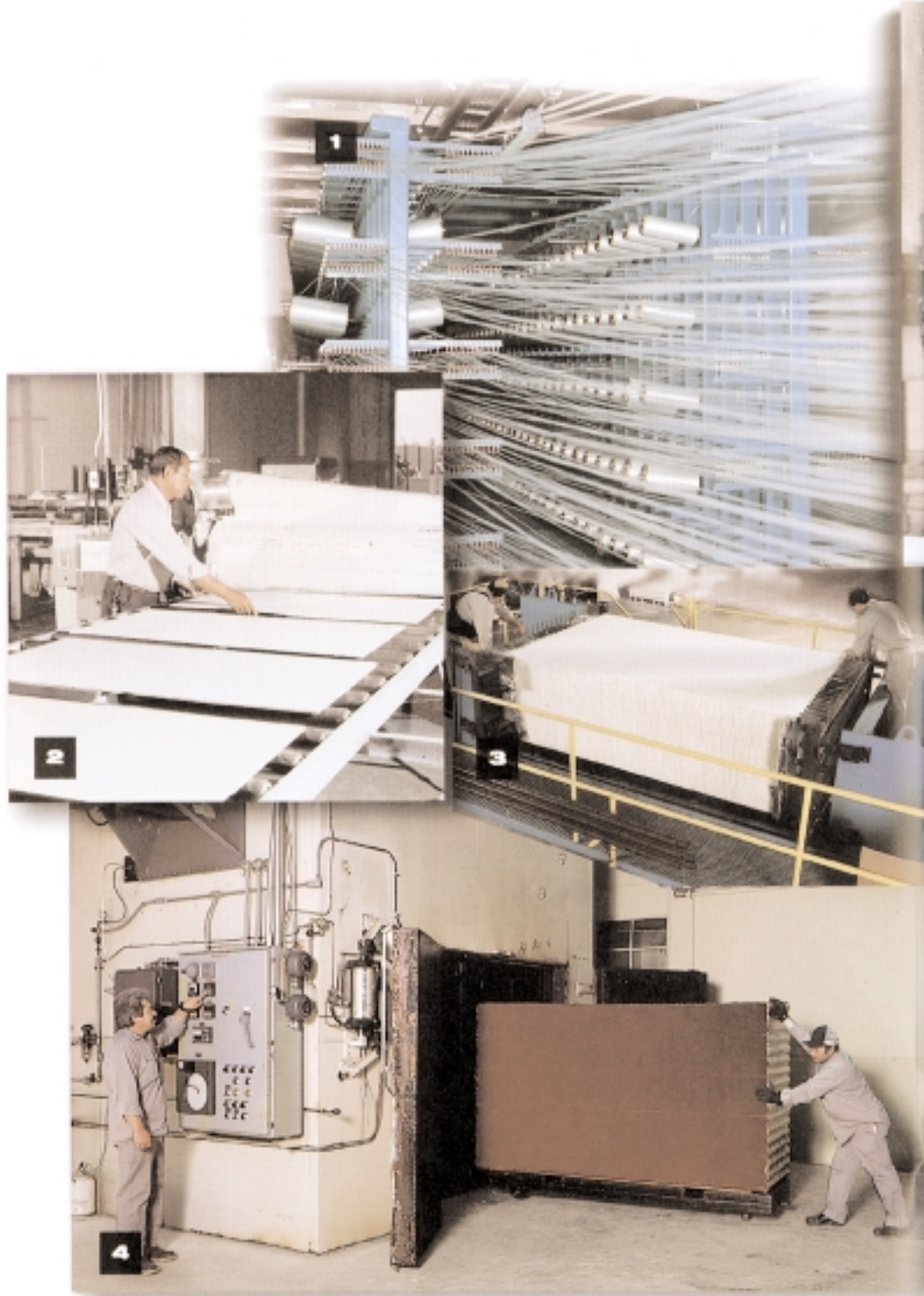
Raw materials are not necessarily "raw" in most cases; further in-house processing is required before they go into a press.

1. Unidirectional glass or carbon rovings (all fibers parallel to each other) are prepregged prior to laminating. Interior view of the creel room is shown here.

2. The 5' microgrinder sands flat stock as well as balsa wood and foam to dimensions of $\pm .003$ ".

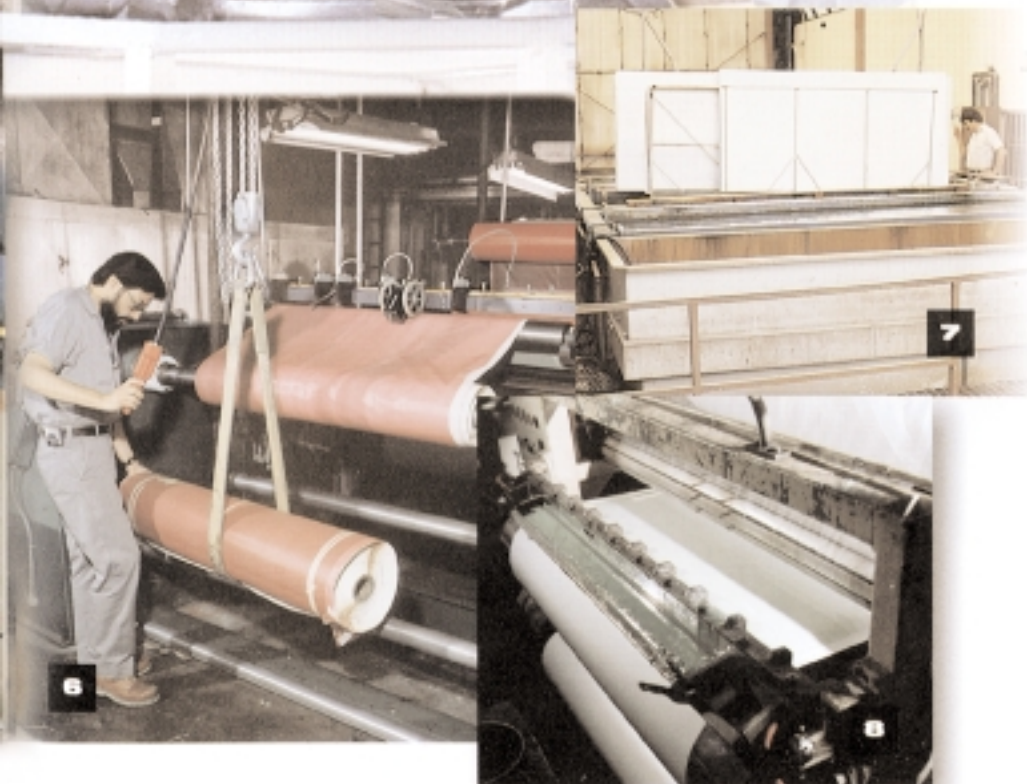
3. After pressing the glue-imprinted Nomex sheets into leaves, the latter are expanded to the proper length to achieve the dimensional cell size and configuration specified.

4. Once expanded and heat set in an oven to hold its shape for dipping, the Nomex loaf is dipped, drained and placed in a bake oven where hot air is blown through the cells to cure (polymerize) the resin. Sometimes, 20 or more cycles are needed to attain the specified density.





5. Monitoring the viscosity of the resins is critical during its manufacture as well as subsequent processing operations such as dipping and prepregging.



6 & 8. The input and output of our adhesive coating line converts our proprietary adhesives into a thin film used solely for internal consumption. We have the capability to match the appropriate adhesive formulation to the intended end use and control its availability. All our adhesives meet the two common adhesive specifications, MMM A 132, Type 1, Class 2 & 3, and MIL A 25463A.

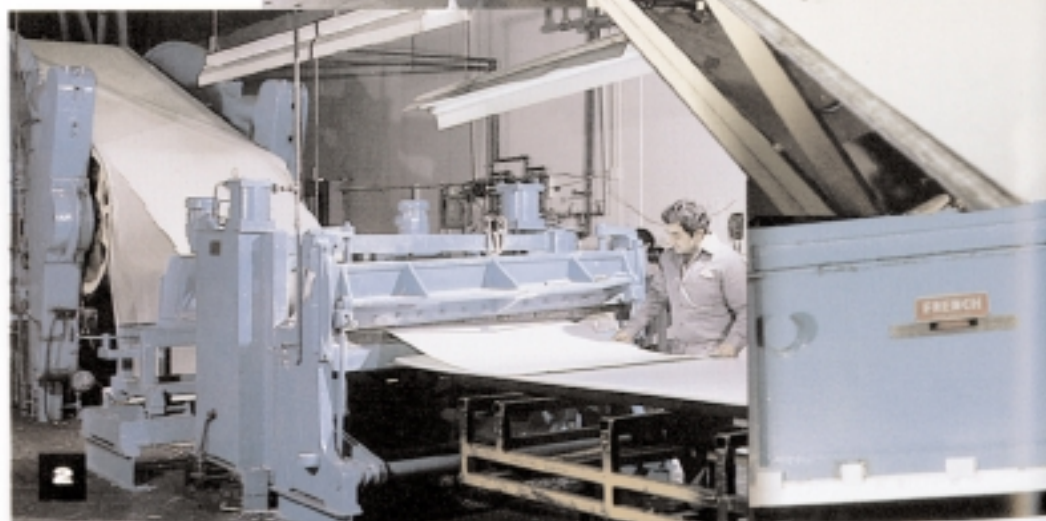
7. A good bond requires clean surfaces. Aluminum facings are cleaned in a series of 54" x 174" x 114" deep tanks. This cleaning cycle produces contamination free surfaces for bonding.

FROM 50+ YEARS OF EXPERIENCE: PRESSES DESIGNED FOR AIRCRAFT QUALITY

Flat bed, "low pressure" hydraulic press laminating is at the heart of M.C. Gill operations. Our presses have been modified to our flatness, temperature and pressure control specifications to satisfy aircraft quality standards. Multiple platen production presses range in size from 50" x 100" to 106" x 170"; with up to 900 psi pressures over the platens; and ambient to 360°F uniform platen temperature during heating and cooling. No matter what the customer requires, we have a press that meets demanding specifications.

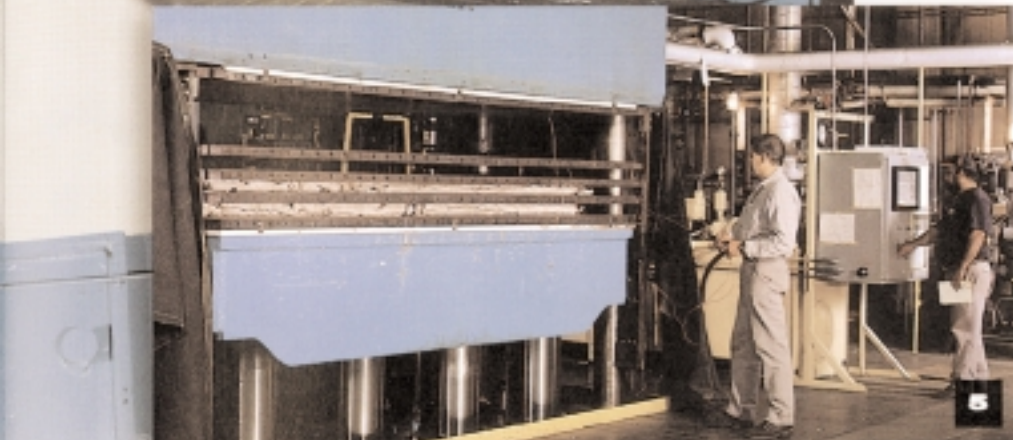
1. Press 5, in operation since 1958, was upgraded recently with new platens and a new temperature control system. With five openings each 50" x 100", press 5 is used principally for bonding smaller sandwich panels.

2. The Rotocure (output end shown) is different from flat bed presses; it continually presses laminates up to 60' wide, and sheeted or coiled to the desired length. It was installed and re-engineered to produce woven web rigid laminates up to .045" thick and specifications to meet aircraft and military quality standards.

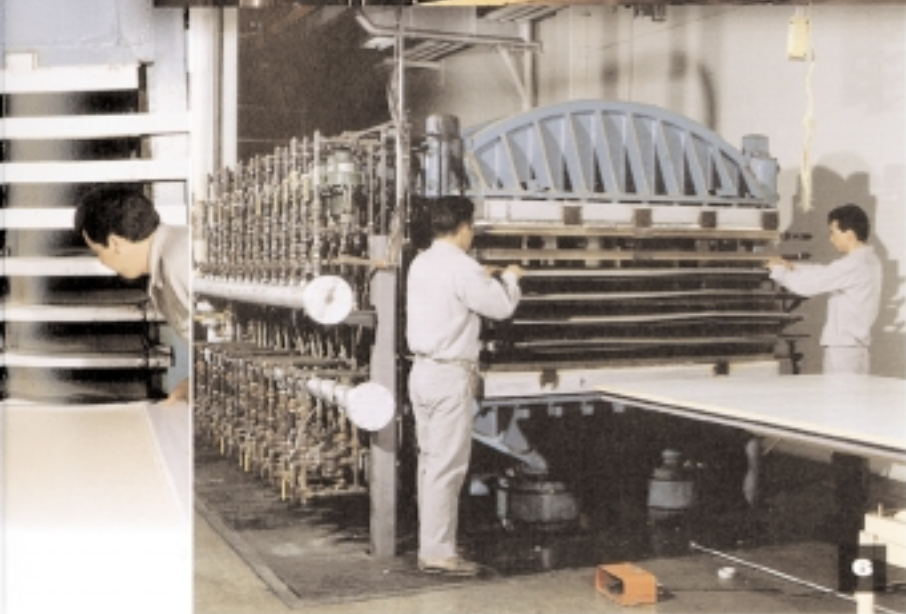




3. Press 11, custom built new to our specifications, is a seven-opening press with 3" thick platens parallel to .004" T.I.R. over the 62" x152" platen area. With 3500 tons rated pressure it provides 700psi over a 60" x 144" panel. Temperatures are controlled to $\pm 4^{\circ}\text{F}$ over a 60°F range with uniform rapid heating and cooling capability.



4. Press 6 is a huge versatile workhorse for sandwich panel production. It has an exceptionally deep 4' stroke. A total of 16 temperature control zones, accurate to $\pm 4^{\circ}\text{F}$, and 3" thick platens parallel to .006" T.I.R. over a platen area of 106" x 170", results in consistently high quality products.



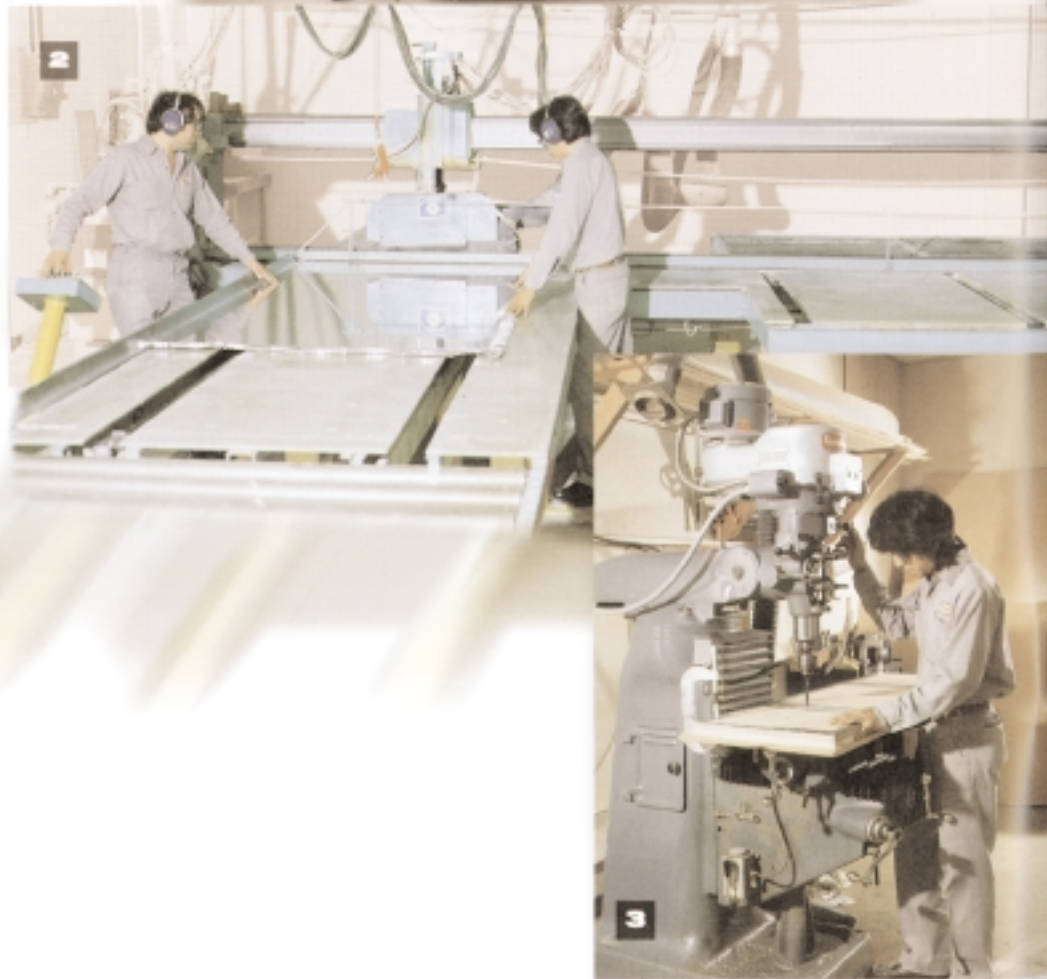
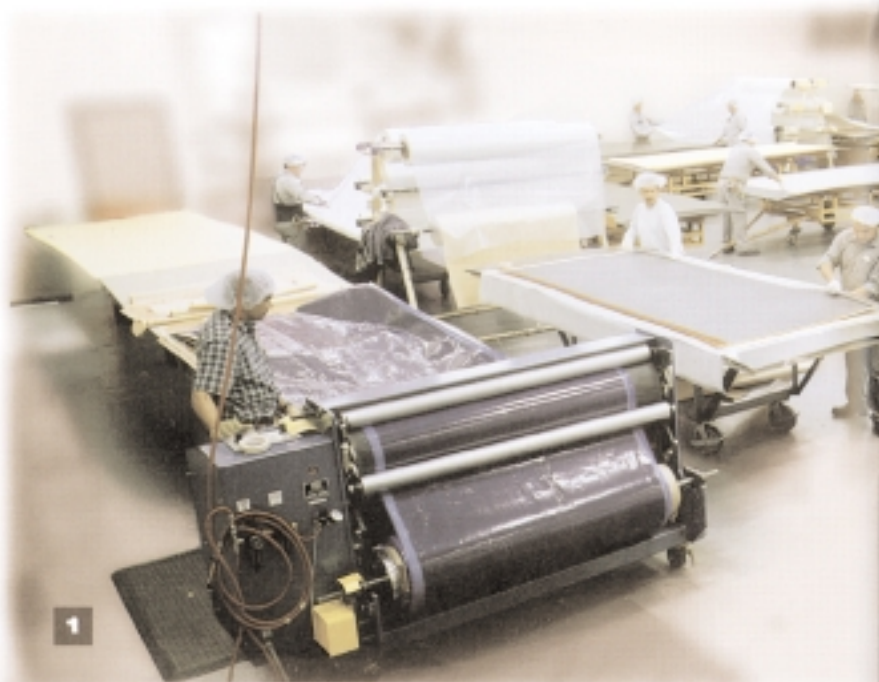
5. Press 16 heats stacks of offset, parallel printed glue line adhesive printed aramid paper under high pressure to bond the sheets together into a solid block preparatory to the expansion, heat set and dipping phases of honeycomb production.

6. Press 15 is our latest panel press and is a twin to press 2. The platen size on this six-opening press is 74" x 150", with pressure up to 200 psi, uniform heating and cooling temperatures to 350°F with platens parallel to .005" T.I.R.

FINISHING TO SPECIFIC REQUIREMENTS

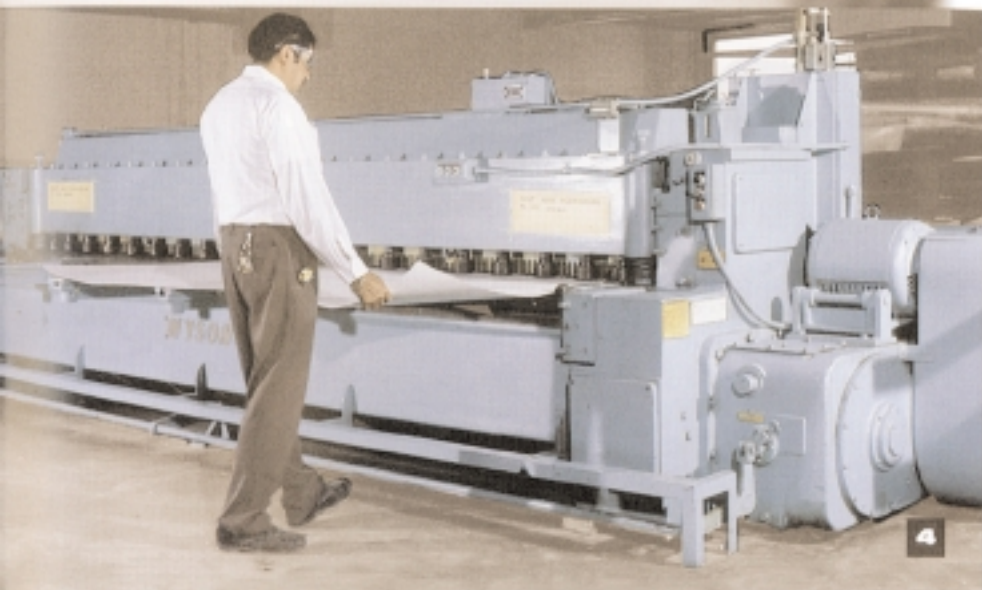
Accuracy is paramount in the final finishing operations of our products. Our range of equipment and expertise provide customers with many optional finishing steps which go beyond the standard large raw stock laminates and sandwich panels.

1. Rubber gloves and hair nets are required in our state-of-the-art new clean room with a climate controlled environmental area virtually free of contaminating materials. Strictly speaking, we realize this is not a "finishing" process, but it is an important, essential process in the manufacturing of aircraft and military specification quality sandwich panels.





2. This custom built panel saw cuts sheet laminates and sandwich panels as much as 15' long, straight to .001" per lineal foot, at up to 80' per minute. It is a premium piece of equipment built new to our design specifications.



3 & 6. Equipment for both milling and routing gives us the necessary capability for short run fabrication of raw stock sheets and panels into final configurations.

4. This 14" precision shear is used for trimming fiberglass laminates or sandwich panel facings such as composites, aluminum, stainless, or cold-rolled steel.

5. Steel rule die cutting is used to cut our famous Gillpatches and other finished articles up to 30" x 34" in size.

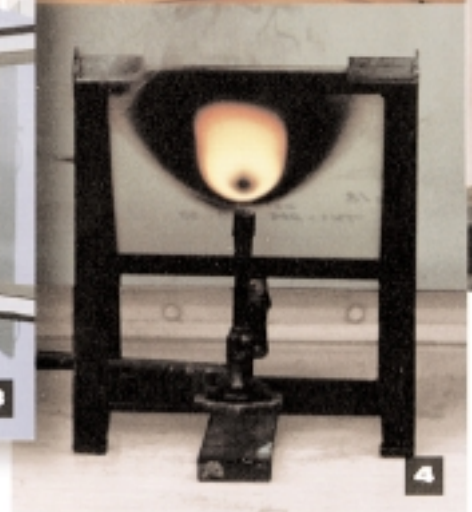
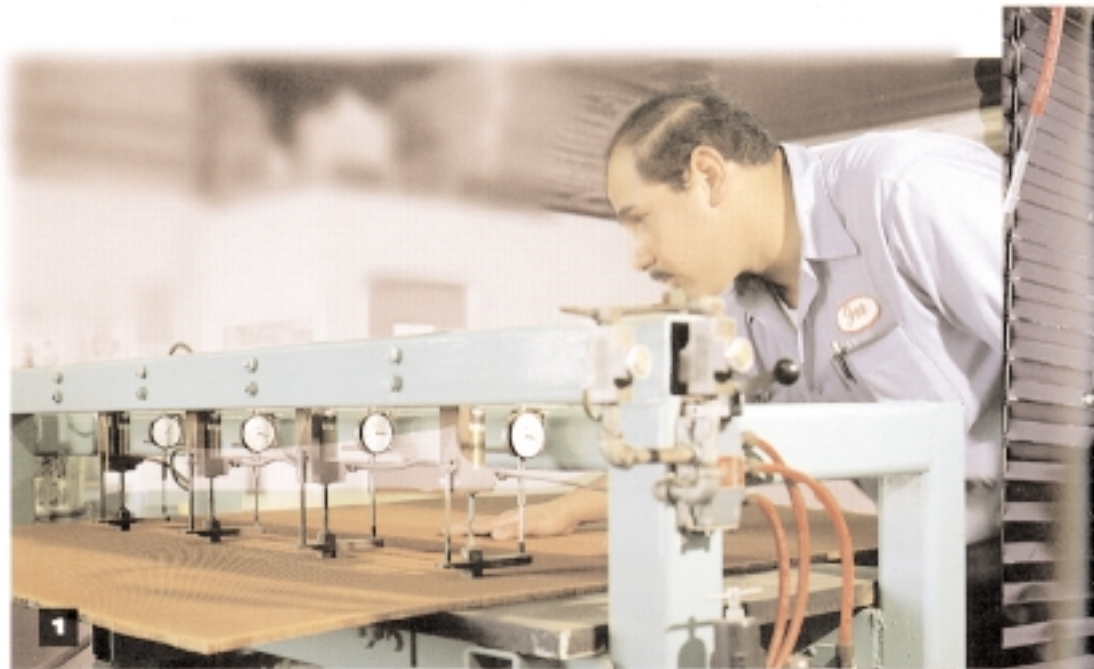


TO ENSURE QUALITY

Virtually every product we manufacture is made to at least one commercial aviation, OEM or military specification which encompasses several mechanical, physical, accoustical, or electrical properties. In addition, most products must pass at least one of the FAA's Federal Airworthiness Requirements (FAR) before it can be installed. Our Quality Assurance personnel routinely test for compliance to OEM specifications and FARs. Finally, we extensively utilize SPC (Statistical Process Control) to chart key product characteristics. SPC is an integral part of our commitment to continuous product quality improvement.

1. This dial indicator table monitors consistency of honeycomb thickness over its entire area. Uniformity is paramount if 100% of the core area is bonded to the skin.

2. Whatever the type of test, it requires the selection of a representative sample and that it be prepared, labeled and identified for testing.





3. The NIST (NBS) smoke chamber measures the smoke emissions of materials exposed to heat and flame. It allows for selection of low smoke density, and therefore safer materials.

4. Testing 45° burn, per FAR 25.855, on the flame tester. Cargo liners *must* pass appropriate FARs prior to installation.

5. The climbing drum peel test measures the force required to separate (peel) a sandwich panel facing from its core; it is a measure of the bonding strength of the adhesive.

6. The Boeing dart tester is used to check baggage compartment liner resistance to puncture. Along with flame resistance and smoke emission characteristics it is probably a cargo liner's most important property.

7. A sandwich panel in a test fixture designed to measure flexure, i.e., its load-bearing/deflection capabilities.

8. The Instron mechanical tester is one of three universal testing units kept busy by QA, and R&D.

SERVICE WORLDWIDE

A list of our company sales persons,
distributors, and sales agents
throughout the world.

U.S.A.

M.C. GILL CORP.
4056 Easy Street, El Monte, CA 91731
Phone: 626-443-4022
Fax: 626-350-5880
Contacts:
In Freund, Dave Anderson and Cindy Walker
Customer Service: Carol Burdick,
Shirley Jamer, Renee Santos
e-mail: rfq@mcgillcorp.com

U.S.A.

M.C. GILL CORP.
545 Rainier Blvd. North, Ste. 8
Issaquah, WA 98027
Phone: 425-392-1434
Fax: 425-392-1437
Contacts: Larry Russell
e-mail: lmcg@gte.net

France

L.S.E.
11, rue de Provence
75008 Paris, France
Phone: 331-452-34133
Fax: 331-452-34129
Contact: Dick Motte
e-mail: dmotte@ibm.net

Israel

AEROSPHERES, INC.
P.O. Box 184
1 Hamasger Street
Raanana, 43101
Israel
Phone: 972-9-744-0765
Fax: 972-9-741-2065
Contact: Gad Lipsitz

Italy

AEROSPACE ENGINEERING
Via Rimassa 41/6
16129 Genova
Italy
Phone: 39-010-553-5253
Fax: 39-010-576-1710
Contact: Paolo Bandelloni
e-mail: aegsri@village.it
www.village.it/aerospace

Japan

PACIFIC RIM CONSILIUM
470-0112 Fujieda Okuhazama 1237-29
Nissinshi, Aichi, Japan
Phone & Fax: 05617-3-4076
Contact: Tetsuya Yamamoto
e-mail: ted_yamamoto@msn.com



Middle East/North Africa

YELLOW SEA COMPANY
Villa 19, Ahmed Zeen St. Cox. Mohd.
Aly Zaynal St., Al-Rawdah District 3
Jeddah 21423
Saudi Arabia
Phone: 966-2-683-5882
Fax: 966-2-682-9506
Contact: Ahmed N. Sharabi
e-mail: yescojeddah@zajl.net

Singapore/ROC/ Indonesia/Thailand/PROC/ Hong Kong/Malaysia/Australia/ New Zealand

AIRPORT METALS
6099 Triangle Drive
Commerce, CA 90049 USA
Phone: 323-722-2500
Fax: 323-722-2626
Contact: Gary Hayward
e-mail: gary4tr@aol.com

South Africa

COMPOSITE AIRCRAFT
STRUCTURES (Pty) Ltd.
Unit 14, Industrial Park
P.O. Box 1067, Jukskei Park
2153 South Africa
Phone: 27-11-708-3000
Fax: 27-11-708-3001
Contact: Dave Cross
e-mail: cas@global.co.za

Spain/Portugal

EUROSPACE CORPORATION, S.A.
Juan de Villanueva, 17
28820 Coslada (Madrid) Spain
Phone: 34-91-671-58-80
Fax: 34-91-673-99-50
Contact: Jose Luis Mamolar

United Kingdom/Ireland

INSOLEQ-SEMAFOUR Ltd.
Quarry Heights, North Road
Newtownards, Co. Down BT23 3SZ
Northern Ireland
Phone: 44-12-47-822-800
Fax: 44-12-47-822-811
Contact: Frank Thompson
e-mail: insoleq@dnnet.co.uk

Bahamas/Caribbean, Central America/South America/Mexico

UNITED AEROSPACE CORPORATION
6965 N.W. 46th Street
Miami, FL 33166 USA
Phone: 305-592-0600
Fax: 305-594-0141
Contact: Abelardo Centillo
e-mail: abelardo@aol.com

Austria/Benelux/Germany/ Switzerland/Czech Republic/ Scandinavia/Russia/Hungary

ZURBRUEGGEN AEROSPACE PRODUCTS
Geroweg 10
33014 Bad Driburg
Germany
Phone: 52-53-98810
Fax: 52-53-988181
Contact: Hans Zurbueggen
e-mail: zapaero@aol.com

South Korea

SAMHEE COMPANY
5th floor, Samhee Building, 219-4
Nonhyun-Dong, Kangnam-Ku
Seoul, Korea
Phone: 82-2-542-7905
Fax: 82-2-542-7907
Contact: Howard Eun
e-mail: sahe@unitel.co.kr

NEWS FLASH

In a giant step upwards from the long established "modus operandi" of made-to-order materials the M.C. Gill Corporation is pleased to announce our new Express Services program. It offers customers a one-week lead time on our most widely used products. Express Services also offers these products on a 24 hour premium service basis for AOG requirements. In conjunction with this new program, M.C. Gill accepts Visa and Mastercard for payment on many orders. Our Sales Department has all the details. Be sure to see the Summer Doorway for complete information on this exciting new program.

THE FUNNY SIDE

If all we've ever found was their bones, how do we know what color dinosaurs were?

★ ★ ★

Give me ambiguity or give me something else.

★ ★ ★

"Very Funny Scotty. Now beam down my clothes."

★ ★ ★

There are three kinds of people. Those who can count and those who can't.

★ ★ ★

Women who seek equality with men lack ambition.

★ ★ ★

Why does sour cream have an expiration date?

★ ★ ★

Buffet: French for, "Get up and get it yourself."

★ ★ ★

All men are fools for at least five minutes per day.

The smart ones don't exceed the limit.

★ ★ ★

Sometimes the road less travelled is less travelled for a reason.

★ ★ ★

Sometimes you have to have both feet on the ground to get a leg up.

★ ★ ★

Unicellular: One telephone.

★ ★ ★

On the first day there was nothing, so God created light. On the second day there was still nothing but you could see there was nothing.

★ ★ ★

Trivia

63 percent of Americans want to hear the bad news first.

★ ★ ★

Only three percent of inventors make a profit from their inventions.

★ ★ ★

The olive tree is mentioned 37 times in the bible.

★ ★ ★

One-third of the U.S. Population over 14 cannot swim.

★ ★ ★

One out of 33 Americans never eat candy.

★ ★ ★

The difference between a pig and a hog is weight.

The former weighs less than 180 pounds; the latter, more.

★ ★ ★

Most people put their left sock on first.

★ ★ ★

Almost two-thirds of all Americans choose to live in the state where they were born.

★ ★ ★

The windshield wiper, fire escape, bulletproof vest, and laser printer were all invented by women.

★ ★ ★

The TV show "60 Minutes" has never had a theme song.

★ ★ ★

The Secret Service employs 35 dogs; the CIA, 7; and the U.S. Customs Service, 450 (all beagles).

★ ★ ★

If you received all the presents mentioned in the carol "The 12 Days of Christmas", you'd get 364 gifts.

★ ★ ★