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THE SDOM TOCHANCE

THE WISDOM TO CHANGE

With age comes wisdom and the ability to admit that, although you've been successful doing things a certain way for a very long time, there might be a better way. Instead of putting energy into proving you are right, you care more about *doing* what is right. As a pioneering manufacturer of advanced composites with over 74 years' operating experience, The Gill Corporation is uniquely qualified to capitalize on the wisdom that comes with age. However, acknowledging alternative ways of conducting business comes with a price: the willingness to embrace change.

Some changes are easy to adopt and painless to implement, but the type of changes that deliver strategically impactful improvements can be costly, resourceintensive and taxing for even the most seasoned professionals.

To ensure that change happens, it is critical that corporate leadership exhibits a real commitment to the process. That's exactly what happened in 2007 when Chairman and CEO Stephen Gill tasked his senior management team and the employees at all Gill divisions to identify opportunities for improvement. The company had adopted a variety of conserving practices reaching back to the 1990s, but he felt there was room to do more. The goal was to shrink our carbon footprint while still building quality products that exceed customer expectations in a safe environment. A rather tall order, but everyone at The Gill Corporation was on board.

After the furor of Y2K faded, there was a renewed sense of urgency to adopt practices designed to protect our natural resources. This paradigm shift became known as "going green." As the "green movement" gained momentum, the aerospace industry reacted with everincreasing demands for greater aircraft efficiencies like those inherent in aircraft like the Boeing 787 and Airbus A380. This demand required manufacturers to evaluate their products, processes and facilities from a different perspective to bring them more into alignment with the goals of conservationists.

Our first step was determining how to bolster efficiency and maximize the use of our existing space. We identified aging, wasteful machines and implemented a plan to upgrade the existing facility with more efficient equipment and processes. The El Monte Engineering Department approached the shareholders with a request to upgrade three older oxidizer units. The older units were replaced with two new regenerative oxidizers that would significantly reduce volatile organic compound emissions (VOCs) including CO2, and potentially reduce natural gas use. In addition, the new technology would allow the El Monte facility to re-channel the heat produced in the process towards heating the honeycomb bake ovens. This upgrade resulted in:

- savings of over 300 million cubic feet of natural gas (a reduction of more than 25% natural gas usage)
- increased capacity
- elimination of 98% of production vapors

The shareholders also agreed to the purchase of additional high-efficiency equipment. While that equipment was en route, we began an extensive remodel of the building that sits in the center of our El Monte complex (B7). This building offered 77,000 square feet under roof. Obviously, increasing capacity was critical to meet growing industry demand, so two new eight-opening (5 ft. x 12 ft.) platen presses (Press 30 and 31) were installed. Powering the new presses required that we upgrade our utility infrastructure, so we also invested in a new low-NOx boiler system along with highefficiency cooling towers. The state-of-theart design resulted in reduced waste water from the manufacturing process.

Simultaneously, construction of a 7,000-square-foot environmentally controlled room was completed adjacent to the new presses.

Once the installation of equipment was complete, 9,000 square feet of new office space was constructed to house Human Resources, Manufacturing/ Facilities Engineering, Production Control, Procurement and the Quality Departments. The relocation of these five departments from other areas of the El Monte complex created room for much-needed expansion of our honeycomb core manufacturing. Pleased with ourselves for a job well done, we were ready for "back to business as usual" when the winds of change came gusting back to the El Monte campus.

In 2017, our R&D group achieved a breakthrough in development of a new product that offers exceptional noise and vibration attenuation. Instead of seeing this as a setback, we saw an opportunity that necessitated that we redraw the B7 layouts yet again.

Equipment was moved to create room for a new unidirectional prepreger (PP4) and new production lines.

After nearly eight years of experimentation, testing and old-fashioned hard work, we completed the



production line for GillVANA and two ancillary sander stations. An important process improvement project (kerfless) was then located adjacent to the GillVANA line, so that both the GillVANA and kerfless lines could utilize the same ovens.

In the midst of what sometimes felt like controlled chaos, Stephen Gill was approached with the opportunity to acquire another building near the El Monte complex. The new building would meet LEED (Leadership in Energy and Environmental Design) Silver specifications. "LEED, or Leadership in Energy and Environmental Design, is the most widely used green building rating system in the world. Available for virtually all building, community and home project types, LEED provides a framework to create healthy, highly efficient and cost-saving green buildings. LEED certification is a globally recognized symbol of sustainability achievement."¹

The shareholders realized that the chance to secure additional space adjacent to the existing campus was an opportunity too good to pass up. The new building (B8) would allow us to create a dedicated shipping and receiving department. In addition, the new building provided us with the needed space to expand our floor panel fabrication product line. Corporate-wide, Gill personnel were eager to help, and suggestions for energy efficiencies came flowing in including:

- Re-lamping the original sevenbuilding campus with new electric ballasts and energy-saving T5 fluorescent lights.
- Installation of multiple skylights above internal office space to take advantage of natural light.
- Replacing little-used hardscape areas with organic landscaping whenever possible.

Since he took the helm, Stephen Gill made sure that everyone knew his personal pet peeve was scrap, so every division was encouraged to aggressively identify and adopt ways to significantly reduce scrap. Less scrap results from better process management, from raw materials to finished goods. Controlling waste lowers our impact on our landfills.

Our Maryland division responded with upgrades to its facilities, installation of a state-of-the-art dust collection system and an ongoing comprehensive recycling program for aluminum, paper goods, and other metal by-products.

Saving resources is everyone's job, and operating clean and green is more than adopting changes to our facilities, equipment and manufacturing processes. It starts at the core of the business, so the scientists at The Gill Corporation began a systematic review of every recipe, raw material and chemical used in the creation of our finished goods.

Over 50 years ago, Gill scientists recognized that rising fuel costs and concern about safety issues would become a driving force behind new



product development. Our chemists and engineers produced the first cargo liners on the market with phenolic resins and various fiberglass substrates to meet smoke, flammability, toxicity and punctureresistance requirements.

The Gill Corporation's scientists are vigilant in making sure our products meet stringent flammability requirements while reducing the use of hazardous chemistries, and we are particularly interested in the use of alternate resins and flame retardants.

Working with customers worldwide requires we understand the properties, effects and end results that come from the raw materials and chemicals we use in the manufacture of our finished goods. Testing and evaluation of virtually every ingredient we employ isn't something done once and considered complete.

We are continually studying, experimenting, testing and retesting to make sure our goods are safe, comply with specifications and perform beyond requirements.

Most recently, the chemists in our R&D department initiated projects dedicated to a number of ingredients in formulations considered unfriendly to the environment and/or harmful to human health:

The expanded recycling program at the El Monte facility includes:



Recycling poly film: 10,000 lbs. per month.



Recycling misc. paper: 55,000 lbs. per month, the equivalent of saving six trees a month.



Recycling solid aluminum: 500 lbs. per month.



Recycling mixed aluminum: 5,000 lbs. per month.



Recycling mixed steel: 3,000 tons per month.

Antimony Trioxide Replacement -

Antimony trioxide is a well-known, flameretardant synergist. It is widely used in a variety of resin systems to meet flammability requirements. Gill cargo liners, epoxy prepregs and some phenolic prepregs contain antimony trioxide. Recently, antimony trioxide was included in the Airbus BTR (banned, targeted, and restricted) substances list. Hence, the suppliers made the decision to cease production. The Antimony Trioxide project objective is to determine a suitable replacement for antimony trioxide.

Styrene – HHS (The U.S. Department of Health and Human Services) added styrene to ROC (Report of Carcinogens) in 2011. California then listed styrene as a carcinogen under Prop. 65 in 2016. Styrene is a precursor chemical used to make several plastic materials including polystyrene (a popular package material). The Gill Corporation uses styrene in the formulation of polyester liner products. Styrene is a diluent which reacts in the matrix resin. The concern is the exposure of styrene to plant operators. The challenge is to remove styrene and replace it with a styrene-free resin that works equally well in production and meets all the requirements of stringent mechanical, impact and flame tests. The polystyrene project goal is the development of styrene-free prototypes for cargo liner applications.

Solvents: Xylene and Toluene – Toluene is under the REACH Annex XVII Restricted List. Toluene and xylene are considered hazardous, have limited applications and are not necessarily critical to finished goods formulations. Removal of these solvents from several products is ongoing in the lab.

Green – Restriction of halogenbased materials has spread from the electronics industry due to concerns of toxic chemicals (dioxin, furan) generated from the halogenbased material when incinerated at the end of product life. Halogenated flame-retardants are very effective and widely used in composite materials for aerospace applications. The 600-19 Green project has developed prototypes of halogen-free prepreg and film adhesives to make green honeycomb sandwich panels.

In addition to the above projects, Gill R&D scientists are working to make materials more environmentally friendly, compliant to regulatory rules and to improve equipment capacity and operational efficiency and reduce cycle time and cost.

Stephen Gill takes great satisfaction in seeing how the small business his family started over 74 years ago has grown into the world-class operation that he oversees today. The substantial investment in facilities, equipment, personnel and exploration into exciting new ways to manufacture advanced composites is a testament to a lifetime of hard work, dedication and well-earned wisdom.



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The buildings, equipment, people, materials and processes may have changed over the years, but The **Gill Corporation** remains a customercentered organization respectful of the environment and the industry it serves now and well into the future.



THE DOORWAY IS PRINTED ON 10% POST-CONSUMER RECYCLED PAPER AND SHOULD BE RECYCLED



WHAT ARE STATES FAMOUS FOR

ALABAMA ... Was the first state to have 9-1-1, started in 1968.

ALASKA ... One out of every 64 people has a pilot's license.

ARIZONA ... Is the only state in the continental U.S. that does not follow Daylight Savings Time.

ARKANSAS ... Has the only active diamond mine in the U.S.

CALIFORNIA ... Has the highest and lowest points in the continental United States.

COLORADO ... In 1976, it became the only state to turn down the Olympics.

CONNECTICUT ... The Frisbee was invented here at Yale University

DELAWARE ... Has more scientists and engineers than any other state.

FLORIDA ... At 874.3 square miles, Jacksonville is the largest city in the U.S.

GEORGIA ... It was here, in 1886, that pharmacist John Pemberton made the first vat of Coca-Cola.

HAWAII ... Hawaiians live, on average, five years longer than residents of any other state.

IDAHO ... TV was invented in Rigby, Idaho, in 1922.

ILLINOIS ... Was the first state to ratify the 13th Amendment to the Constitution, abolishing slavery.

INDIANA ... Home to Santa Claus, Indiana, which gets a half million letters for Santa every year.

IOWA ... Winnebago RVs get their name from Winnebago County. It is the only state name that begins with two vowels.

KANSAS ... Liberal, Kansas has an exact replica of the house in "The Wizard of Oz."

KENTUCKY ... Has more than \$6 billion in gold underneath Fort Knox.

LOUISIANA ... Has parishes instead of counties.



MAINE ... It is so large that it covers as many square miles as the other five New England states combined.

MARYLAND ... The Ouija board was created in Baltimore in 1892.

MASSACHUSETTS ... The Fig Newton is named after Newton, Massachusetts.

MICHIGAN ... Fremont, home to Gerber, is the baby food capital of the world.

MINNESOTA ... Bloomington's Mall of America is so big, that if you spent 10 minutes in each store, you'd be there almost four days.

MISSISSIPPI ... President Teddy Roosevelt refused to shoot a bear here. That's how the teddy bear got its name.

MISSOURI ... Is the birthplace of the ice cream cone.

MONTANA ... A sapphire from Montana is in the Crown Jewels of England.

NEBRASKA ... More triplets are born here than in any other state.

NEW HAMPSHIRE ... Birthplace of Tupperware, invented in 1938 by Earl Tupper.

NEW JERSEY ... Has the most shopping malls in one area in the world.

NEW MEXICO ... Smokey Bear was rescued from a 1950 forest fire here.

NEW YORK ... Is home to the nation's oldest cattle ranch, started in 1747 in Montauk.

NORTH CAROLINA ... Home of the first Krispy Kreme doughnut.

NORTH DAKOTA ... Rigby, North Dakota, is the exact geographic center of North America.

OHIO ... The hot dog was invented here in 1900.

OKLAHOMA ... The grounds of the state capital are covered by operating oil wells.

OREGON ... Has the most ghost towns in the country.

PENNSYLVANIA ... The smiley :) was first used in 1980 by computer scientists at Carnegie Mellon University .

RHODE ISLAND ... The nation's oldest bar, the White Horse Tavern, opened here in 1673.

SOUTH CAROLINA ... Sumter County is home to the world's largest gingko farm.

SOUTH DAKOTA ... Is the only state that's never had an earthquake.

TENNESSEE ... Nashville's Grand Ole Opry is the longest-running live radio show in the world.

TEXAS ... Dr. Pepper was invented in Waco in 1885. The hamburger was invented in Arlington in 1906.

UTAH ... The first Kentucky Fried Chicken restaurant opened here in 1952.

VERMONT ... Montpelier is the only state capital without a McDonald's.

VIRGINIA ... Home of the world's largest office building, The Pentagon.

WASHINGTON ... Seattle has twice as many college graduates as any other state.

WASHINGTON, D.C. ... Is the first planned capital in the world.

WEST VIRGINIA ... Had the world's first brick-paved street, Summers Street, laid in Charleston in 1870.

WISCONSIN ... The ice cream sundae was invented here in 1881 to get around Blue Laws prohibiting ice cream from being sold on Sunday.

WYOMING ... Was the first state to allow women to vote.

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SCOTT SHAW!