

RAVEN

SUMMER 2018 | No. 29





Leib Oehmig
CEO

China is projected to be one of the biggest contributors to the world's GDP in 2018. As the world's second-largest economy, the country is projected to grow by nearly 6 percent this year, which The Economist reports represents a third of total global expansion. For Glen Raven, the projections solidified our decision to build the company's first manufacturing center outside of the U.S. in China to assist global customers with their sourcing needs.

In this issue of Raven, we take a closer look at today's complex global business environment, including the trend of U.S.-based companies locating their manufacturing centers in Asia. Pacific Casual, a customer of Glen Raven Asia, is one such example, and the company makes no apologies for manufacturing its entire line of casual furniture in China. For a broader look at global business operations, we talked to an associate dean of finance at UNC Kenan-Flagler Business School on how a rising middle class is fueling China's bullish growth rates.

To say that the outdoor furniture industry never stops evolving is an understatement. Yotrio Group, a family-owned company traded on the Shenzhen Stock Exchange, is in the midst of a transformation due in part to its successful efforts in staying abreast of customers. In an interview with Yotrio's vice general manager, we learn why the company has removed "patio" from its lexicon in favor of "outdoor room." Memos Bedding is equally committed to making life more fashionable and tasteful for consumers. This long-time Sunbrella® customer has made an impressive name for itself across Asia, Europe and North America. Great partners like Memos is why

Sunbrella continues to become as well known for design as it is for performance.

A generation is an impressive run for a family-owned business, and Academy Awning is poised for success for many more generations to come. The Los Angeles-based commercial awning and cabana company is known the length of California and its reach today, more than 25 years after the Richman family took ownership, extends to more than a quarter of the States and internationally. Once you read a cross section of the brands it serves, you will learn you have undoubtedly experienced the Academy difference.

In 1906, Marshall B. Lloyd opened the Lloyd Manufacturing Company in Michigan, where he developed a timeless and unique process for creating fine woven furniture. Lloyd Flanders furniture has since revolutionized the manufacture of wicker furniture, which, as our cover article notes, can be found in many historic places and fine hotels across the United States in a wide variety of fabrics, including Sunbrella.

Finally, we take a look at an infrastructure project with Geosynthetics Limited, the largest geosynthetics supplier in the United Kingdom. The firm partnered with Strata Systems on a significant tunnel project responsible for the water supply in Wales. The process was an engineering marvel given the challenges of Edwardian-era pipes in keeping up with 21st-century demand — a common theme throughout this issue.





Pacific Casual got its start in the outdoor furniture industry with a line of outdoor structures. Today, the company also offers dining, deep-seating and accessory product lines, including Barcalounger Outdoor Living, a division of Pacific Casual, LLC. | Page 20

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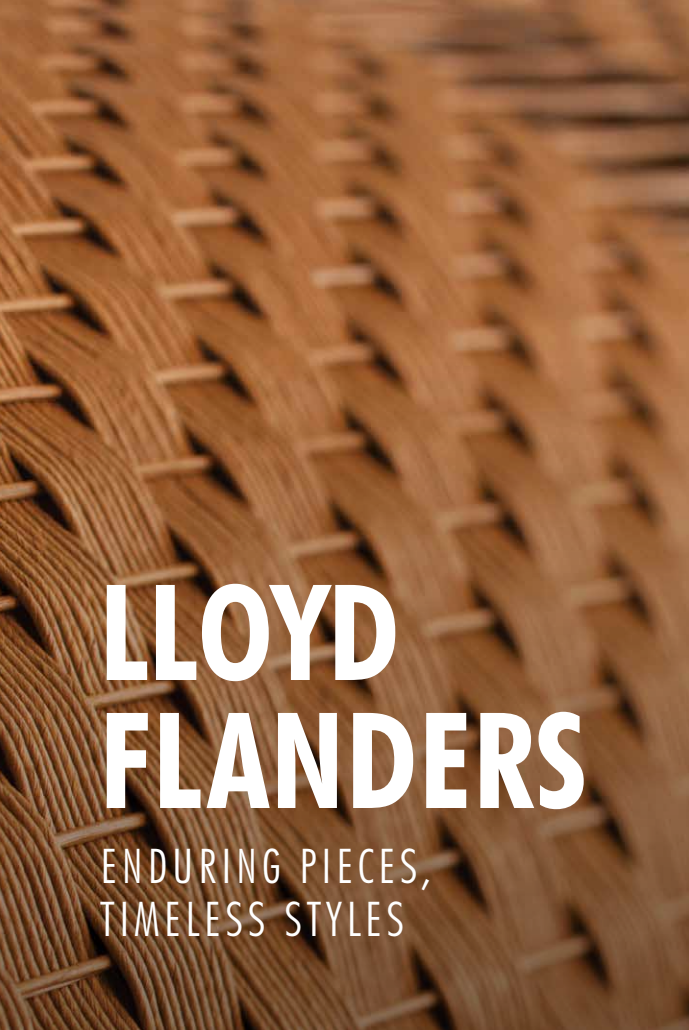
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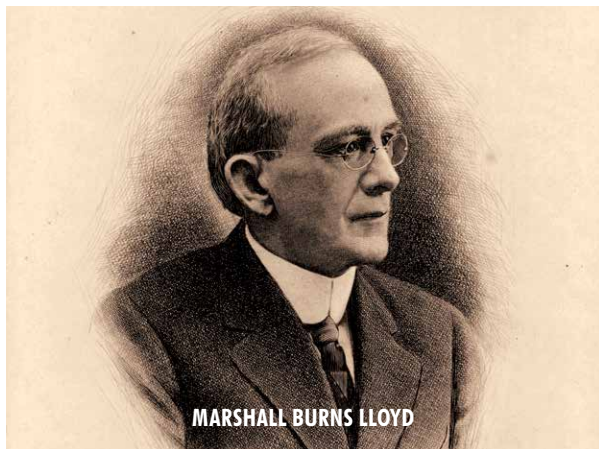
TIMELESSNESS AND DURABILITY ARE HALLMARKS OF THE LLOYD FLANDERS BRAND, WHICH WORKS WITH CUSTOMERS AND CLIENTS TO DESIGN THE EXACT FURNITURE REQUIRED FOR THEIR SPACE, FROM THE STRUCTURE TO THE FABRIC.





LLOYD FLANDERS

ENDURING PIECES,
TIMELESS STYLES





Since the 1980s, Lloyd Flanders has crafted and manufactured timeless and durable outdoor wicker furniture. When father-son duo Don and Dudley Flanders purchased the Lloyd Manufacturing Company and merged it with their own Flanders Manufacturing, their intention was to shut down the plant in Menominee, Michigan. But after visiting the site and witnessing the innovative wicker process developed over half a century before, they decided to keep the operation running. Today, Lloyd Flanders furniture can be found in many historic places and fine hotels across the United States.

"I never thought I would work in this industry," said Dudley Flanders, president of Lloyd Flanders. "I wanted to be a lawyer or a banker. Then I realized I liked work more than school. My father offered me a job at his manufacturing company in 1975, and that was that."

The manufacturing company produced folding metal chairs and stamped-steel metal lawn chairs, but over time, the folding chairs were phased out and replaced by outdoor furniture. That trajectory continued when Don and Dudley purchased Lloyd Manufacturing in 1982.

"My father's original idea was to buy the looms from Lloyd Manufacturing and bring them back to our headquarters in Fort Smith, Arkansas," said Jess Flanders, marketing manager for Lloyd Flanders and daughter of Dudley Flanders. "When he got there and saw the process, he realized we needed to buy the factory and keep it in production. We needed the people who had done the process for years and knew how it worked. Instead of moving the operation down south, we opened up shop there."

Lloyd Flanders may only be three decades old, but the patented Lloyd Loom process is much older, dating back to 1917. Developed by inventor Marshall B. Lloyd, the process revolutionized the production of wicker by creating the weave and the frame separately. Prior to this, wicker items were handwoven around a frame. With his machinery, Lloyd could weave the wicker fabric before nailing it onto a frame at a later time. This increased the speed of production, and Lloyd claimed he could do the work of 30 men with this innovative solution. Later, Lloyd Flanders combined it with its own patented process.

"In 1985, we debuted the Heirloom line with a new waterproofing technique that



TODAY, ALMOST EVERYBODY OFFERS SOME KIND OF OUTDOOR WOVEN FURNITURE, BUT WE WERE THE PIONEERS IN BUILDING THE OUTDOOR WICKER FURNITURE CATEGORY.

DUDLEY FLANDERS
President of Lloyd Flanders

offered the increased resilience that leaving furniture out in the elements demands," Jess Flanders said. "After the wicker is woven, it gets dipped into a resin emulsion while it's on the loom. The emulsion is baked on, and then the wicker is wound in giant spools for production. Before, you could put it outside, but it wouldn't have had the durability it does now."

Heirloom was Lloyd Flanders' first all-weather furniture collection. Released in 1985, it is no longer in production, but in 1987, it was followed by Reflections. Even though numerous transitional and contemporary lines have been created since that time, Reflections is still Lloyd Flanders' top-selling Lloyd Loom collection today.

"From the mid-1980s to the 1990s, we were building the category of outdoor wicker furniture," Dudley Flanders said. "Today, almost everybody offers some kind of outdoor woven furniture, but we were the pioneers in building the outdoor wicker furniture category. It's a testament to our design and quality that one of our earliest lines is still the most popular."

Timelessness and durability are hallmarks of the Lloyd Flanders brand. Featured



REFLECTIONS AND WILDWOOD COLLECTIONS



WILDWOOD COLLECTION



everywhere from governors' mansions and luxury hotels to movie sets and historic sites, the various uses of the collection speak to the wide spectrum of design and top quality synonymous with the Lloyd Flanders name.

"We've innovated and developed a wide variety of styles," Jess Flanders said. "We've had our furniture in a lot of really fun places. Several White House administrations have selected Lloyd Flanders furniture for the Truman Balcony, a testament that they want quality as well as style. One of our retailers also worked with the U.S. Open tennis tournament to create custom seating for the event."

Customization is another specialty of the company. Lloyd Flanders works with customers and clients to design the exact furniture required for their space, from the structure to the fabric. Jess Flanders said a customer favorite is the work they do for country music superstar Kenny Chesney.

"A fan favorite is Kenny Chesney's old blue chair," she said. "That is a Lloyd Flanders chair. He went into a bar in the Caribbean and fell in love with the chair — it just happened to be ours. Last year, he ordered a new old blue chair. He stands on it during the concerts, so we had to double reinforce the seat. He is great to work with, and we have had several people reach out wanting to buy 'the Kenny Chesney chair.'"

Despite the popularity of the old blue chair, Lloyd Flanders is always looking forward to the next trend.

"Something we've seen in recent years is the combination of mixed materials," Jess Flanders said. "We introduced a couple of collections that have seen continued growth: Catalina and Wildwood. Catalina has teak accents and Wildwood is teak with inset Lloyd Loom panels. They are both very unique. When you've been making wickers for over 100 years, you go through a lot designwise. We're always trying to see what's different, what's next."

Wherever the road takes Lloyd Flanders, they'll travel it with Glen Raven. The two companies have had a partnership from the beginning, and Jess Flanders says working with Glen Raven and Sunbrella® fabrics brings value to their products. "We

turn to Glen Raven for innovation — using yarns in different ways, creating fresh new looks that still have that timeless quality," she said. "We know that their fabrics are durable, that they will last as long as our furniture. A big part of what we do together is create exclusive colorways. That way, we can continue the same color palette from fabric book to fabric book. It makes our job easier, and the customers appreciate it."

"Sunbrella has been our partner since the beginning," Dudley Flanders echoed. "Even before we created Lloyd Flanders, we knew about Sunbrella. Back then, most outdoor fabrics were made from PVC-coated yarns. We wanted our furniture to look like furniture, not just outdoor furniture. Sunbrella didn't feel like an outdoor fabric, and people noticed. Over time, they've grown their pattern and floral offerings and built their brand name. Customers trust Sunbrella, and they want to invest in the quality it promises."



In fact, one customer has used the same Sunbrella fabric since the 1980s.

"We still have one fabric that was introduced back then that is still in our fabric book," Jess said. "A boutique designer hotel in Connecticut reached out to us about it a few months ago. They've been using it in a contract setting for over 20 years. The furniture still looks OK, but they wanted to repurchase, and they wanted the exact same thing. They sent a photo and it was one of our early white wicker collections with Safari, a Sunbrella green-and-white-striped fabric. I think it's unusual that decades later the look is still in style and that we can provide it."

Dudley Flanders sees that same dedication to customer satisfaction echoed in the Lloyd Flanders–Glen Raven relationship.

"I think, in our experience, Glen Raven has that same commitment to making sure the customer gets what they want without cutting corners," he said. "During our relationship, we've each seen tremendous growth — Sunbrella in the outdoor category and us with deep-seating wicker furniture. We've been together since the beginning, and I don't see that changing anytime soon."

On the web at lloydflanders.com

**HOW DOES MEMOS STAY
AHEAD OF THE DESIGN
CURVE? 'IN A WORD,
SUNBRELLA.'**





Guangdong Memos Bedding Co. Ltd. is one of the leading furniture manufacturers in China specializing in the production and sale of bedding, mattress, sofa and polyester staple fiber. In the field of outdoor furniture production and sale, Memos is widely favored by consumers both domestic and abroad, including Europe and North America.

Seeking noble and elegant ambience, Memos' mission is to make life more fashionable and tasteful, which is why the company chooses Sunbrella® for its outdoor cushions and pillows. Memos also specifies Sunbrella to elevate the design and production of its outdoor furniture.

Glen Raven Asia (GRA) represents Glen Raven's commitment to providing performance fabrics for China and its product development center in Suzhou, China, is a focal point for Glen Raven's sourcing throughout Asia. Mo Xunjun, vice

general manager of Memos Bedding, first specified Sunbrella when GRA was under construction more than a decade ago, and in a recent interview, he recalled the significance of Glen Raven's operations in Asia to his company.

HOW HAS MEMOS EVOLVED SINCE ITS FOUNDING?

Our company was founded in 1984 with a single focus: The production and sale of beds, mattresses and bedding. With the continuous improvement of people's living standards, we established a cushion department in 2005. This was in response to the evolving needs of a growing number of consumers who were asking for matching cushions for outdoor furniture sets. Ten years later, we have become one of the most sought-after outdoor furniture producers in the industry. Our product categories extend from outdoor cushions to outdoor furniture (hardware customization),

indoor and outdoor sofas, dining chairs and dust covers for outdoor furniture, stoves and barbecues.

DESCRIBE HOW MEMOS' CUSTOMERS HAVE EVOLVED OVER THE LAST 30 YEARS.

Improvement in consumers' income level and consumption tastes since the 1980s has resulted in increased demands for outdoor furniture. The demand for personalized and high-end products has increased as well given an emphasis on comfort. From the original mission of furniture products with matching cushions to today's indoor and outdoor sofas, bedding and dust covers, our goal remains to meet the needs of modern consumers through a diversity of product offerings.

WHAT IS MEMOS' PRIMARY ADVANTAGE IN THE MARKETPLACE?

In a word, Sunbrella®. Sunbrella is preferred by our consumers for both indoor and outdoor applications because the fabrics enhance people's personal comfort and extend the life of their furniture products.

Memos also differentiates itself in the marketplace by closely tracking evolving consumer preferences. For example, product sales channels will be increasingly diversified. Outdoor leisure furniture and products sales channels are still dominated by large supermarkets, brand chain stores and other channel providers. In the future, e-commerce modes will become an effective supplement to existing sales channels and will promote more efficient circulation for the outdoor leisure furniture and supplies market. Memos must stay ahead of these trends and adapt accordingly.

WHAT ROLE DOES SUNBRELLA PLAY IN MEMOS' SUCCESS IN THE MARKETPLACE?

First, we will continue to offer Sunbrella fabrics as the main material for indoor and outdoor furniture. Sunbrella is synonymous with excellence, quality and extraordinary sense of design. We expect consumers to continue asking for Sunbrella, and Memos will respond in kind.

Second, we applied a Computer Automated Design system a few years ago, which has provided great help in product design and design drawing storage. In the process of production, mechanized production is adopted, which improves production efficiency and reduces labor cost. This allows Memos to remain nimble and stay ahead of the design curve.



THE CHARACTERISTICS AND DESIGN OF SUNBRELLA FABRICS CAN HIGHLIGHT THE ADVANTAGES AND BEAUTIFUL DESIGN OF OUR PRODUCTS.

MO XUNJUN

Vice General Manager, Memos Bedding





WHAT ARE YOUR GREATEST STRENGTHS AS A COMPANY?

We have accumulated more than 10 years of skillful production technology, so that occupies an important position in the local market. On personnel configuration, we keep strong domestic and international sales teams, which can quickly capture the market demand. In terms of raw materials, because we mainly use Sunbrella fabric for our products, the superior design of the products makes it easier for us to retain the trust of our customers.

HOW WOULD YOU SUMMARIZE YOUR LONG-TERM BUSINESS STRATEGY?

Under the current market environment, the sole original equipment manufacturer production cushion is not able to meet our development requirements and customer needs. We continue to increase the development of and investment in indoor and outdoor furniture. Our overall management strategy is still based on cushion production and sales, and we will continue to vigorously carry out the production and sales of indoor and outdoor furniture.

HOW DOES GLEN RAVEN SERVE AS A BUSINESS PARTNER TO MEMOS?

I am proud to say that we have been part of the Glen Raven and Sunbrella family for 13 years. In the field of high-end outdoor furniture, over the years, our company has adopted several series of Sunbrella fabrics. The characteristics and design of Sunbrella fabrics can highlight the advantages and beautiful design of our products. Sunbrella fabrics also give us a lot of confidence and provide great convenience for our product promotion.

As a long-term and friendly business partner, Glen Raven always provides us with the latest developments in the outdoor furniture industry and provides our company with the latest product information. This type of partnership greatly helps our R&D business. Glen Raven has also provided professional training for our employees, helping our company better understand Sunbrella fabric and providing great support for the sales of the products. Glen Raven is everything you want in a business partner and more.

On the web at memos.com.cn



AT HOME AROUND THE WORLD
YOTRIO GROUP COMPANY

Yotrio Group Company is one of the world's leading manufacturers of outdoor living products. The family-owned company was founded in China in 1992 as an umbrella creator and manufacturer and today is considered China's premier manufacturer of casual outdoor furniture for global customers.

Yotrio Group credits its success in the global marketplace to a relentless commitment to research and development. Yotrio invests 1.5 percent of its gross sales annually to R&D and the result is a deeper understanding of evolving customer tastes and an expanded product portfolio to meet those tastes.

In a recent interview, Robert Sayre, vice general manager of Yotrio Group, discussed the company's founding as an umbrella manufacturer, the impact of a growing middle class of China consumers to the outdoor furniture industry and how Sunbrella® was instrumental in Yotrio's mission of reinventing the patio umbrella experience.

WHAT IS THE ORIGIN OF YOTRIO GROUP?

Yotrio Group has been manufacturing fine outdoor furnishings since its family founding in the early 1990s. Our first product was market umbrellas, which were emerging as a popular item at the time. Over the years, we have added gazebos, furniture and, most recently, fire pits. Today, Yotrio Group is a public company traded on the Shenzhen Stock Exchange and the majority of shares are still family-owned. Under the leadership of the Xie family and its nearly three decades of industry experience, Yotrio can better understand its customers' needs and, more important, determine how they are changing the global marketplace.

HOW HAS YOTRIO EVOLVED ALONGSIDE EVOLVING CUSTOMER TASTES SINCE ITS FOUNDING?

Through our design and sales teams, Yotrio works closely with all of our customers on their outdoor needs and keeps a careful eye on market trends to bring products that are innovative to

the marketplace every year. We are also relentless in researching better ways to design and produce our product. For example, Yotrio invests 1.5 percent of its gross sales annually to R&D, researching technical specifications and advances in materials and tracking design trends. We also employ more than 350 engineers and designers who evaluate and interpret data, analyze and test materials, and isolate what is most immediately useful. This research then gets transformed into development as Yotrio's designers and engineers produce more than 6,000 samples per month. The practical results of our conscientious R&D efforts are instantly recognizable — namely, durable, high-value leisure furniture at a reasonable price point, with the most popular, up-to-the-minute styling.

DESCRIBE THE MAJOR TRENDS WITHIN THE INDUSTRIES YOTRIO SERVES TODAY.

The outdoor furniture industry never stops changing. We started as a simple umbrella manufacturer. Today, our vast product lines include metal furniture,





synthetic wicker, dining, deep-seating sets, sling seating, cushion seating and, of course, market umbrellas and offset umbrellas. Gone is the word “patio” to describe an outdoor space. Today, it is an “outdoor room.” Yotrio also offers fire pits, gazebos and lighting to complement its outdoor furniture lines.

HOW IS YOTRIO ADDRESSING THOSE TRENDS?

To meet the demands of an ever-changing marketplace, Yotrio has established two new businesses to address key areas:

- **SunVilla** – Our SunVilla brand targets the high-end specialty outdoor furniture market in the U.S. Offering a selection of elegant, high-quality designs primarily in aluminum and synthetic wicker, SunVilla also strives for unparalleled ease of use and customer service. The brand is focused specifically on the specialty and club business at the high end of the category.
- **Royal Garden** – One of our newer brands, Royal Garden is specifically focused on the e-commerce side of the

business. Since its founding in 2011, Royal Garden has become a leisure furniture brand with a range of varieties and different materials. The brand also plays an important role in how Yotrio defines an outdoor room experience.

HOW DOES YOTRIO DEFINE QUALITY?

Yotrio is proud of the trust it has earned from customers since its founding and one of the ways we preserve that trust is through scientific testing, or verification of the most stringent sort. Our 1,200-square-meter Yotrio Product Testing & Inspection Center is a joint venture with Bureau Veritas Group, an independent authentication body that validates the precision of our testing procedures, confirms the accuracy of our testing equipment and corroborates that our standards are credible and valid. Our technicians also perform more than 100 kinds of analyses, including nine categories of testing that cover every conceivable aspect of a product and its materials and performance in a number of different environmental conditions.

HOW DOES GLEN RAVEN SERVE AS A PARTNER FOR YOTRIO?

We are proud to consider Glen Raven our business partner. They have been part of the Yotrio family for coming up on a decade. Our upper-end SunVilla brand works very closely with the design team at Glen Raven Custom Fabrics to come up with the best fabrics for our finishes. Glen Raven also works very closely with our major customers to help coordinate which fabrics will work best on the customers’ sales floor.

We feature solid Sunbrella® fabrics that allow the consumer to use them as a blank canvas to design and decorate with pillows that are colorful and full of life. We believe that each consumer can make their own best outdoor area with the use of solid neutral colors combined with colorful, patterned and textured pillow fabrics. This approach to fabrics selection has allowed us to reinvent our customers’ umbrella experience for their outdoor rooms.

On the web at yotrio.com

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GONE IS THE WORD
'PATIO' TO DESCRIBE
AN OUTDOOR SPACE.
TODAY, IT IS AN
'OUTDOOR ROOM.'

ROBERT SAYRE

Vice General Manager, Yotrio Group Company



SHARED VISION

ACADEMY AWNING, CABANAS BY ACADEMY
SHADING THE GLOBE



Because land and real estate in Southern California are at such a premium, businesses are always looking for creative ways to maximize the space they already have. Pacific Palisades-based Calvary Christian School did exactly that when it purchased tables for a courtyard adjacent to its athletic field for students to gather and eat lunch.

What the school didn't consider, however, were the weather elements that would come into play. When the sun was shining, students were exposed to harmful UV rays. When it was raining, students couldn't sit at the tables without getting wet. In need of a solution, the school turned to Academy Awning, Inc., a Los Angeles-based company with more than 100 years of experience providing shade solutions for some of the most well-known landmarks and Fortune 100 companies in greater LA.

"Working with the facilities team at the school, we made sure that all of the needs were understood before bringing in an Academy designer and engineer," said Michael Richman, vice president of Academy. "We collaborated with Calvary to design a structure that both covered the tables and included a shade panel to separate the athletic field from the tables."

Once the project moved into the rendering process, Academy designers used Computer Automated Design to show Calvary Christian exactly what the project would look like once completed. The process allowed

Academy to produce exact renderings of the project before manufacturing began, an approach that improved the customer buying experience and set expectations for the finished product.

"What sets Academy apart from the competition is we are a sales and marketing-driven company," Michael said. "The Calvary project is but one example of how we approach shade solutions for customers of every size across California, the United States and internationally."

Academy Awning is a leader in the custom manufacturing and installation of commercial awnings, canopies, umbrellas, shade structures and cabanas. Its customers in the restaurant, hospitality, retail and commercial industries are located in every state in the U.S. and in 15 countries. Academy's 30,000-square-foot facility in Los Angeles is where the company custom designs and manufactures each product to match exacting requirements.

"We've combined the quality of our products and service with experienced industry experts to produce exceptional designs for corporations worldwide," said Jim Richman, founder and president of Academy. "Forty percent of our business comes from outside of California, making us the No. 1 choice for cabana projects nationwide for restaurants, hotels and resorts, and retail/commercial applications."





For Jim, owning Academy Awning is a lifelong business dream come true. In 1984, Academy Tent and Canvas was thriving in Southern California as a manufacturer of tent structures for residential and commercial applications. The company did not specialize in awnings, and would not for nearly the next decade, but by the 1990s, awnings were rapidly increasing in popularity. The owners had a choice to make.

"It was really a simple choice," Jim recalled. "It was a matter of either adding an awning division or selling the business altogether. They chose the latter."

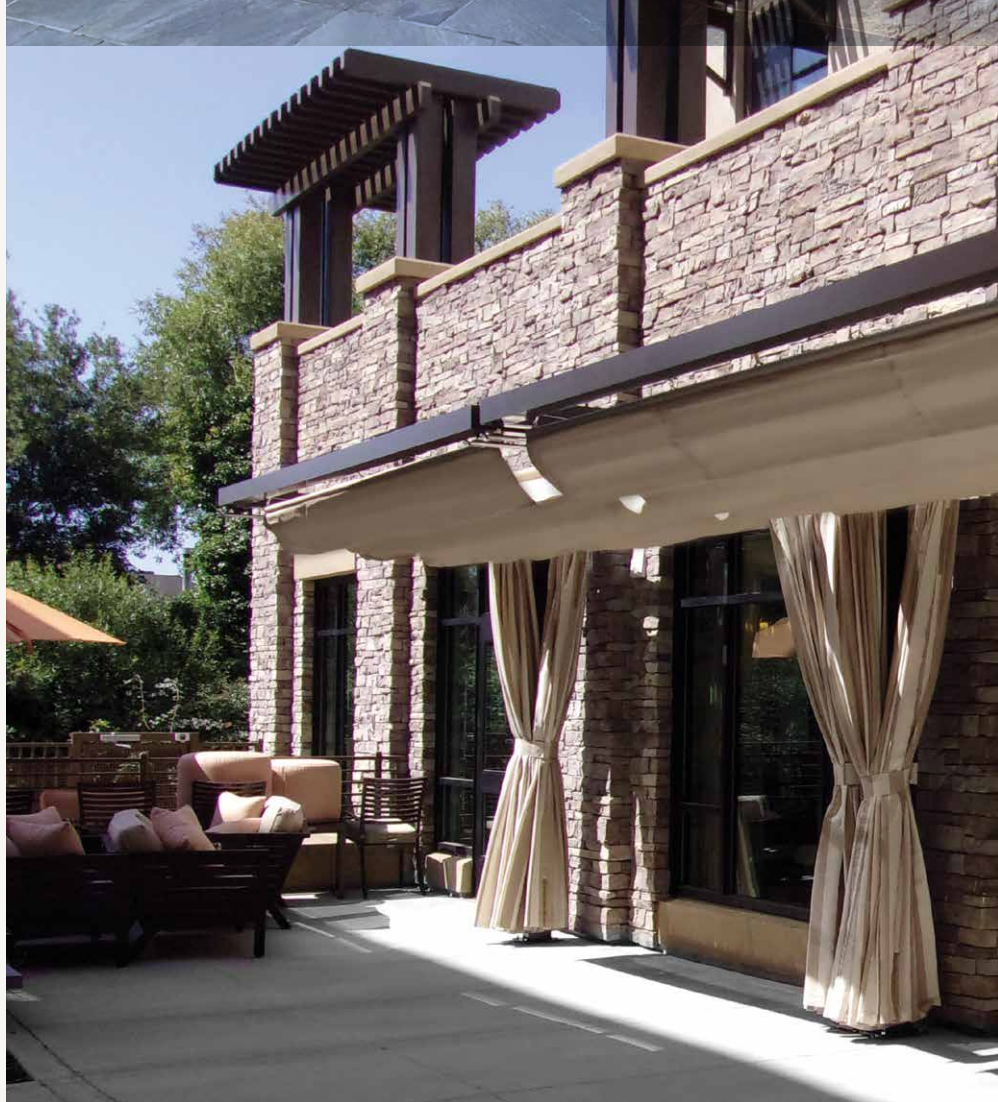
A Fortune 500 executive at the time, Jim was introduced to the owners by a mutual friend. He had never owned his own business, but as 40-something executives are sometimes wont to do, it was a thought that had long intrigued him. He bought into the business in 1990 and, 20 years later, would take complete ownership after the previous owners decided to manage their tent business.

With a nod to the company's rich history, Jim named the new company Academy Awning and streamlined its operations into two main product lines for commercial-only applications: awnings and cabanas, the latter of which would operate as Cabanas by Academy. His son Michael became a partner in the privately held company in 2011 after a career in finance, and both have a shared vision for the company that just marked its 25th year in business.

"Cabanas by Academy is a design and fabrication house that crafts custom cabanas and shade structures, translating our customers' vision into an interactive and transformational outdoor experience," Jim said. "We are passionate about our clients, and we work tirelessly to ensure that our product optimizes the utilization of their space and enhances the relationship between the environment and those who occupy it."

The Ritz-Carlton and Four Seasons are but two of the international customers that rely on Cabanas by Academy for cabanas that include custom design, fabrication and installation. The company also works with Starbucks, the Westin, Hotel Wilshire, Beverly Hills Plaza, Trader Joe's and Whole Foods, among other international brands.

"What drives the success of our business is a marketing mindset and customer service that is second to none," Michael said. "Our designers are fully involved at the inception of each project, and





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WE'VE COMBINED THE QUALITY OF OUR PRODUCTS AND SERVICE WITH EXPERIENCED INDUSTRY EXPERTS TO PRODUCE EXCEPTIONAL DESIGNS FOR CORPORATIONS WORLDWIDE.

JIM RICHMAN

Founder and President, Academy Awning

they also stay abreast of the latest fabric trends in multiple industries reaching disparate customers.”

Academy Awnings and Cabanas by Academy also have another ace up their sleeves when it comes to the latest in fabrics trends — Sunbrella®.

“The Sunbrella brand is legendary in our industry,” said Jim, who has known about the brand for nearly 30 years and has specified it since he launched his company. “If customers know only one fabric, it’s Sunbrella.”

Glen Raven’s distribution subsidiary, Trivantage®, provides the fabrics the company needs, and senior account representative Lydia Kauffman leads a team that offers the Richmans and their designers new design and business-building ideas, while also keeping them abreast of evolving customer tastes.

“We are a stronger company because of our relationship with Trivantage,” Jim said. “I consider Lydia an extension of our design and marketing teams. She keeps her ears to the ground for us and is constantly providing counsel on the latest trends and colors.”

On the web at academyinc.com



GEOSYNTHETICS

BRINGS MODERN SOLUTION TO OUTDATED AQUEDUCT PROJECT

In 1918, the world was a different place. The United States created time zones and approved daylight saving time; South African president Nelson Mandela was born; and World War I came to an end. And around that time, nearly 100 years ago, the Elan Valley Aqueduct was installed to provide water from Elan Valley in Wales to the city of Birmingham, England.

Edwardian-era pipes can't keep up with 21st-century demand. Today, the aqueduct supplies water to 1.2 million residents, discharging nearly 300 million liters of water per day. Severn Trent Water, a private water company, realized that the capacity of the pipes was far below the city's current and future needs. They embarked on a project to refurbish and replace the pipes. But this wasn't an easy task. The topographical layout of Elan Valley — which features six reservoirs nestled between rolling hills — presented some challenges that Severn Trent could not solve themselves. They turned to

Geosynthetics Limited, Strata Systems' United Kingdom distributor, for a solution. "Basically, we had an old tunnel providing water from the Elan Valley Aqueduct to the city," said Phil McGoldrick, international geotechnical director for Strata. "Severn Trent needed to drill a bypass conduit in the side of the mountain. That meant bringing in heavy machinery, which needs a level, reinforced platform to work on. That's a tough thing to find in a hilly and mountainous region."

To support the machines, Geosynthetics recommended reinforced soil walls (RSW) composed of StrataGrid® and on-site won material, soil recovered from the site excavation. The RSW was 160 meters long with a maximum height of 14 meters and a slope angle of 85 degrees. A reinforced working platform was constructed on top of the nearly vertical soil wall to support a 1,000-ton crane used to assemble a Tunnel Boring Machine (TBM) and the 150-ton TBM, which was used to drill the bypass.

"In order to accommodate all the equipment, we had to maximize the working area platform for those machines on top of the reinforced soil wall," McGoldrick said. "Therefore, we went for a vertical face."

To construct the vertical reinforced soil wall, 43 layers of uniaxial StrataGrid were combined with on-site won material gathered from the tunnel excavation.

"This project was in the center of Wales," McGoldrick said. "The nearest stone quarry was many miles away, so bringing in rock would have been extremely expensive and not very environmentally friendly — blasting the rocks, trucks coming from the quarry to the project. The big thing just now for geogrids in the United Kingdom is that we can work normally with soils that we can get on the project site itself. This is a classic example of how StrataGrid can be used with soils of poor quality to ensure sustainable reuse."



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AT STRATA, OUR GOAL IS ALWAYS TO BRING INNOVATIVE, COST-EFFECTIVE AND ENVIRONMENTALLY FRIENDLY SOLUTIONS.

PHIL MCGOLDRICK
International Geotechnical Director, Strata Systems

Besides reducing the carbon footprint, using on-site won materials with StrataGrid also shortened the project timeline and decreased the overall cost.

“The other option for this type of structure was to build a 14-meter-high concrete wall,” McGoldrick said. “That would have been around 40 percent more expensive and, again, there’s no concrete in the area, so it would need to be brought in. The transportation would increase the carbon footprint and the cost, and the time to build a concrete wall would double the project duration. Building a concrete wall of that height and length would take about four months, and we built ours in eight weeks.”

Even though it didn’t take long to build, the vertical wall has staying power.

“StrataGrid is made from a polymer called polyester, which gives you very high tensile strength per weight of the polymer,”

McGoldrick said. “For example, if you have a concrete beam, it is good in compression. But when you add tension, it breaks. That’s why you have steel rods inside. If the soil is the concrete, StrataGrid is the steel reinforcement. Using the geogrid in vertical layers within the soil creates a composite structure. Polyester has very high tensile strength and long-term durability. A structure like this has a 120-year life.”

This is the first project of its kind in the United Kingdom, and McGoldrick believes this is just the beginning for the model. “Not only is this the first project that combines geogrid with site-won materials, but it’s also the highest structure of its kind in the U.K.,” McGoldrick said. “We’ve been asked to replicate this on the global market. At Strata, our goal is always to bring innovative, cost-effective and environmentally friendly solutions. This project epitomizes that promise.”

On the web at strataindia.com

THE COMPLEXITY OF THE GLOBAL BUSINESS ENVIRONMENT





Barcalounger Outdoor Living, a division of Pacific Casual, LLC

In 2003, a team of executives from Glen Raven, Inc., stood on a tract of farmland in southeast China to determine the feasibility of building Glen Raven Asia (GRA) in Suzhou, a key economic city in Jiangsu province linked economically to the most populous city in the world, Shanghai. Suzhou was one of several cities Glen Raven visited in China as it sought the most strategic location to build the company's first manufacturing center outside of the U.S. The decision came down to Suzhou's status, then as it is now, as an emerging city whose location would help Glen Raven meet a growing customer demand for quality performance fabrics in China and all of Asia.

"In today's complex global business environment, companies must operate closer to their current and potential customer base," said Leib Oehmig, CEO of Glen Raven. "Our presence in Asia solidifies our position in the global marketplace and nods to Glen Raven's untapped potential in the decades ahead."

Economists remain bullish on the global outlook in China, the world's second-largest economy. According to The Economist, which has tracked the rise of the world's most populous country for decades, Asia's largest economy is expected

to grow by nearly 6 percent in 2018, eclipsed only by India, the world's fastest-growing large economy with growth expected to approach 8 percent. These projections bode well for companies poised to capitalize on new markets, business opportunities and trade partners.

"The volatility of the global business environment is challenging at best, but companies have to first be in the arena if they want to succeed over the long term," Oehmig said. "Our facility in Suzhou not only gives us the best opportunity to expand and innovate closer to our customers, but it also offers the best strategic location to assist customers with their sourcing needs in Asia, Europe and beyond."

Today, nearly 15 years after GRA was still farmland, the multifaceted business center leads Glen Raven's product development, marketing, sourcing and manufacturing activities in China and throughout Asia for the Sunbrella® and Dickson® brands of performance fabrics. Many of GRA's customers are North American-based companies with manufacturing operations in China, such as Pacific Casual, LLC.

Pacific Casual is headquartered in Camarillo, California, with production facilities in Hangzhou, China, and offices in Shanghai and the Philippines. The

company got its start in the outdoor furniture industry by producing garden houses and structures and soon expanded to offer dining and deep-seating casual furniture. Pacific Casual recently partnered with the storied Barcalounger brand to launch Barcalounger Outdoor Living (BOL), a new line of casual furniture for the specialty market. Each BOL collection features signature motion items such as three-position recliners, swivel rockers and swivel gliding lounge chairs.

Early on, Pacific Casual's leaders recognized the need to build a manufacturing center in China, both to remain competitive in the U.S. mass market and to supply the emerging middle-class consumer demand in countries outside of the United States.

"The growth in this category of customer in China and across Asia is fueling a demand for quality outdoor products," said Dale Boles, CEO of Pacific Casual. "Our manufacturing facility in China allows us to respond quickly to current orders and at the same time strategically position ourselves for continued expansion across the Pacific Rim, Taiwan and Australia."

Dr. Christian T. Lundblad, professor of finance and associate dean at UNC Kenan-Flagler Business School, said success in today's sometimes-complex



On the web at barcaloungeroutdoorliving.com

world of global business operations often requires companies to have its headquarters in one country and manufacturing operations in another. However, he added, companies that employ this approach must be prepared to navigate the difficulties and advantages of doing so in a worldwide economy.



DR. CHRISTIAN T. LUNDBLAD

"The complexity of these types of arrangements is incredibly high and intersects deeply with what you want to do in another country," Lundblad said. "The challenge to companies that are based in the U.S. or Western Europe and manufacture elsewhere is to properly prepare for the differences in how the other country regulates locally based businesses."

For example, he noted, legal, intellectual property and environmental protections are vastly different in Asia than they are in the U.S.

"Certain business protections that we often take for granted in the U.S. are incredibly complex, one might say arcane, in other countries," Lundblad said. "It's certainly not like moving from one state to another in the U.S. The nuanced, granular differences of locating operations in another country must be addressed to make the move successful."

Asked why textile companies are bullish on China over the long term, Lundblad noted that the country, like much of Asia, is seeing a rise in a middle class of consumers that comes with growth rates close to double digits.

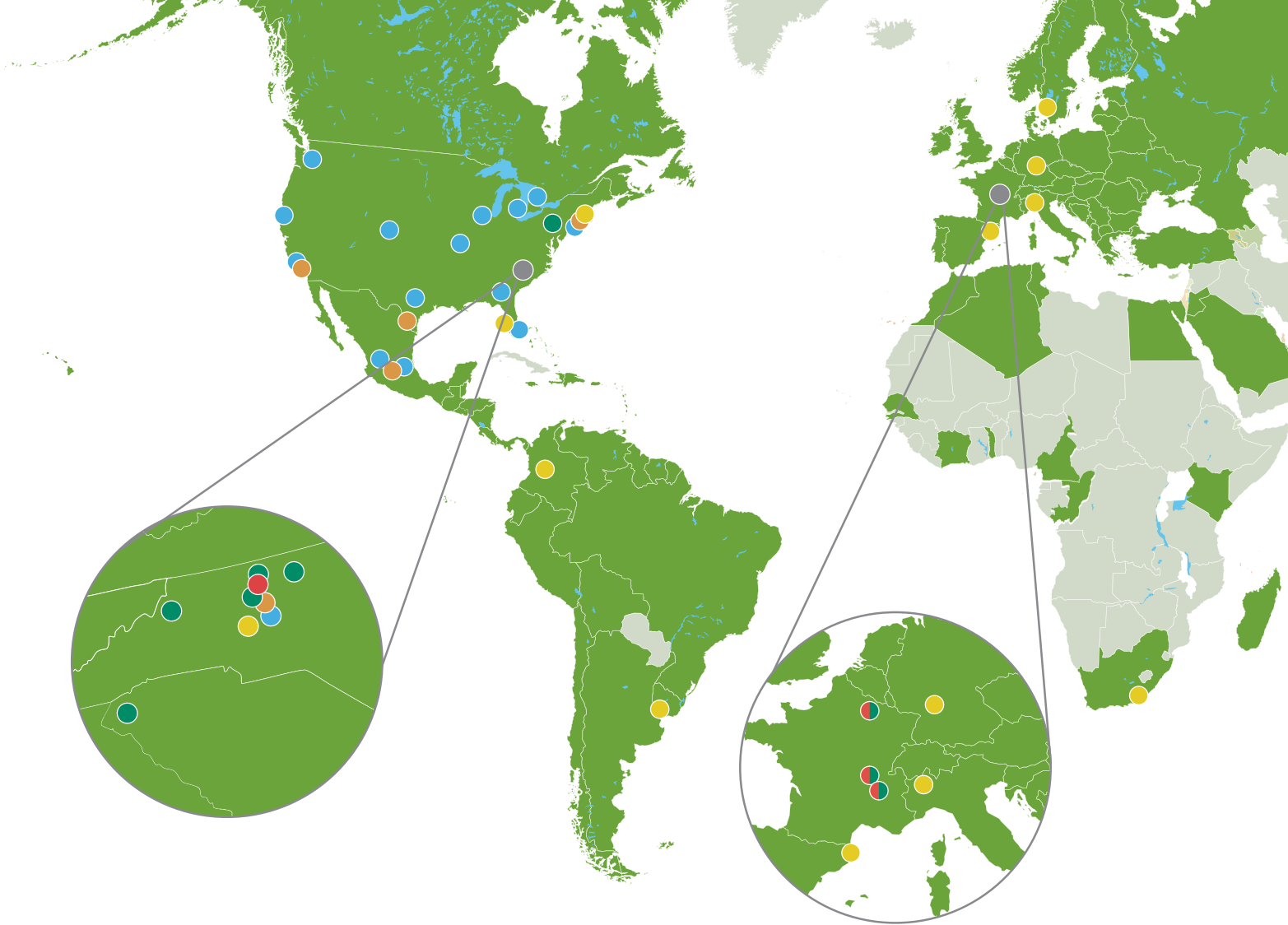
"The middle class in China today is demanding more interesting kinds of products, including those that place a premium on quality," he said. "There are, of course, always limits to how any economy can sustain such high levels of growth, but China continues to emerge as a world economy because it is nimble and ready to react."

Pacific Casual, which has partnered with Glen Raven since its inception, sees vast growth potential in Asia for well-designed, high-end performance fabrics. As a result, Boles said, this validates Pacific Casual's manufacturing strategies and desire to maintain key relationships with its suppliers.

"Glen Raven Asia's Suzhou facility is hugely important to us," he said. "Customers in China have become more design conscious and therefore require patterns, textures and materials that are of a higher quality and on-trend. To have access to Sunbrella fabrics manufactured in-country reduces our lead time and allows us to meet the demands of this burgeoning market."

What is the likelihood that U.S.-based manufacturers will continue to look abroad for locations for their manufacturing centers? According to Lundblad, expect the trend to continue alongside the emergence of more middle-class consumers in many pockets of the world — but with a caveat.

"There continues to be greater degrees of interconnectedness and growth in the emerging world, but the risk to sustaining economic growth comes from shifting political forces in Western economies," he said. "We may look back on the current spread of populism, including a move away from globalization, as a footnote in history. As of today, what this means for the emerging world in the short term remains to be seen."



GLEN RAVEN GLOBAL LOCATIONS

GLEN RAVEN, INC.

- Corporate Office
Glen Raven, NC
336.227.6211

GLEN RAVEN CUSTOM FABRICS

- Corporate Office
Glen Raven, NC
336.227.6211
- Anderson Plant
Anderson, SC
864.224.1671
- Burlington Plant
Burlington, NC
336.227.6211
- Burnsville Plant
Burnsville, NC
828.682.2142
- Norlina Plant
Norlina, NC
252.456.4141
- High Point Showroom
High Point, NC
336.886.5720

- New York Sales & Design Office
New York, NY
212.925.4600

- Sunbury Plant
Sunbury, PA
570.286.3800

GLEN RAVEN TECHNICAL FABRICS

- Corporate Office
Glen Raven, NC
336.227.6211
- Park Avenue Plant
Glen Raven, NC
336.229.5576

TRIVANTAGE

- Corporate Office
Glen Raven, NC
336.227.6211
- Consolidated Distribution Center
Mebane, NC
877.540.6803
- Texas Distribution Center
Irving, TX
800.786.7610
- Washington Distribution Center
Tukwila, WA
800.213.1465

- Southern California Distribution Center
City of Industry, CA
800.841.0555

- Northern California Distribution Center
Hayward, CA
800.786.7607

- Colorado Distribution Center
Denver, CO
800.786.7609

- Florida Distribution Center
Miami, FL
800.786.7605

- Georgia Distribution Center
Lithia Springs, GA
800.786.7606

- Illinois Distribution Center
Elmhurst, IL
800.786.7608

- Ohio Distribution Center
Middleburg Heights, OH
800.786.7601

- Missouri Distribution Center
Maryland Heights, MO
800.786.7603

- New Jersey Distribution Center
Somerset, NJ
800.786.7602

TRICAN CORPORATION

- Mississauga, ON
Canada
800.387.2851

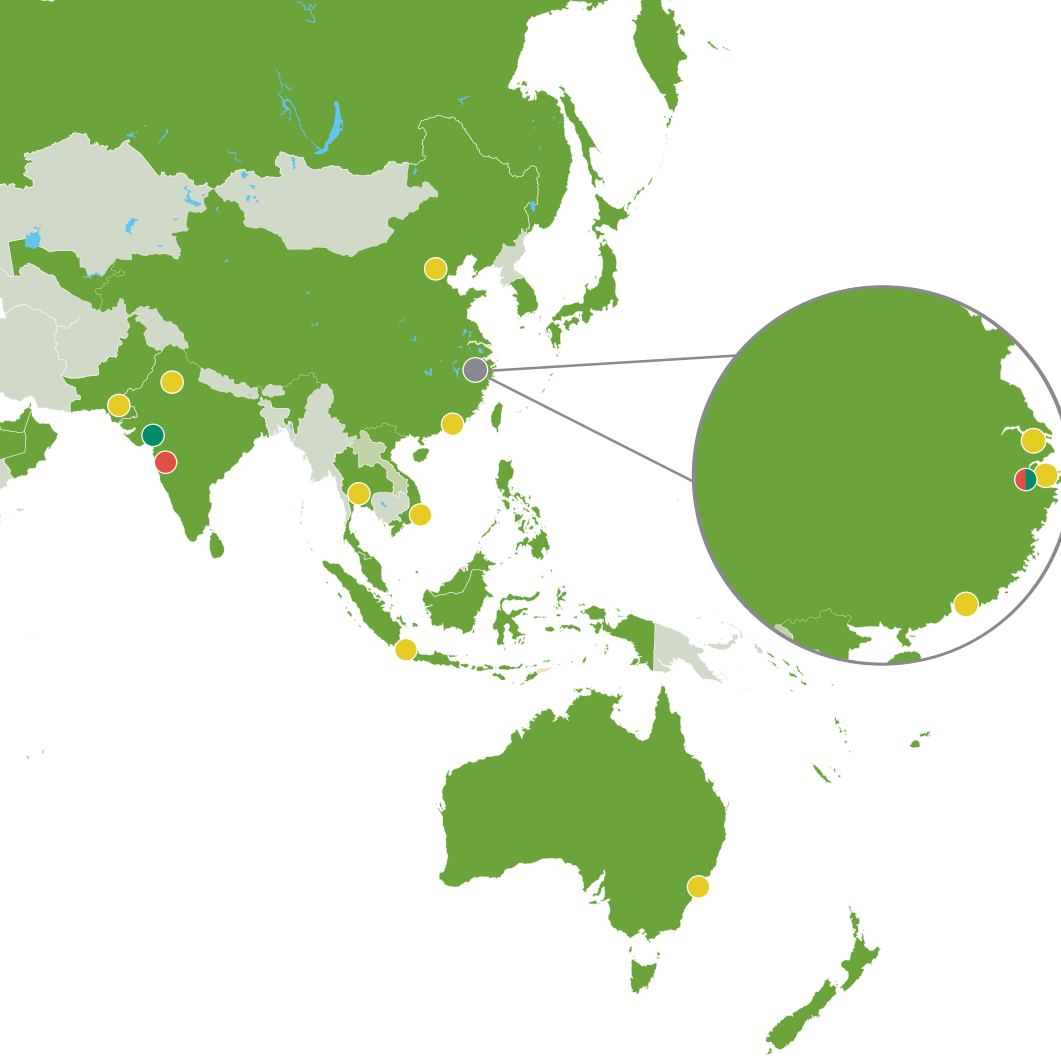
TUNALI TEC

- Tunalı Tec Cuernavaca
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- Corporate
- Manufacturing
- Corporate/Manufacturing
- Distribution
- Sales/Service
- Logistics
- Countries Sold Into

- Dickson-Constant Nordiska AB
Frölunda, Sweden
46.31.50.00.95
- Sales Office
Barcelona, Spain
34.93.635.42.00

DICKSON COATINGS

- Dickson PTL
Dagneux, France
33.(0)4.37.85.80.00
- Dickson Saint Clair
Saint Clair de la Tour, France
33.(0)4.74.83.51.00

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STRATA GEOSYSTEMS (INDIA)

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- Daman Plant
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- Hyderabad Sales Office
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91.9949.361.706
- Gurgaon Sales Office
Gurgaon, Haryana
91.9871.102.146

GLEN RAVEN ASIA

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86.512.6763.8151
- Sales Office
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86.21.5403.8385
- Sales Office
Xicheng District, Beijing
86.10.8836.5210
- Sales Office
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SUNBRELLA/DICKSON GLOBAL

- Northern Latin America Sales Office
Bogota, Colombia
57.310.461.0776
- Southern Latin America Sales Office
Montevideo, Uruguay
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- Northern Pacific Rim Sales Office
Xuhui District, Shanghai
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- Vietnam Sales Office
Ho Chi Minh City, Vietnam
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- Indonesia Sales Office
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- South Pacific Rim Sales Office
New South Wales, Australia
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- South Africa Sales Office
Port Elizabeth, South Africa
27.(0)41.484.4443
- Central America Sales Office
Fort Myers, FL
239.466.2660
- Thailand Sales Office
Bangkok, Thailand
66.87.515.8866

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800.729.0081
- Laredo Office
Laredo, TX
956.729.8030
- Mexico Sales Office
Mexico City, Mexico
011.525.55.561.9448
- New Jersey Terminal
Avenel, NJ
800.729.0081
- California Terminal
City of Industry, CA
800.729.0081
- Texas Terminal
Laredo, TX
800.729.0081