

Around the world,
Gilbane
is committed
to making a
positive
impact on the
environment
through sustainable
practices and dedication
to the environment.

Our customers face many challenges
in the life cycle of their facilities and
long-term impact on the environment.
We are partnering with them on
solutions to reduce or eliminate
waste, promote sustainable outcomes
and advance environmental changes
to safeguard the environment.
Gilbane Building Company has gone
beyond the status quo to reach our
sustainability objectives and to reduce
environmental impacts on our projects.

IT'S THE RIGHT THING TO DO.



Gilbane

COLLECTIVE IMPACT

A LOOK AT THE MOST
SUCCESSFUL
COLLABORATIONS
FOR SUSTAINABILITY
IN THE BUILT ENVIRONMENT

BY
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ILLUSTRATIONS BY
CAROLYN SEWELL

Pictured:
The award-winning, LEED Platinum
California State University Associated
Students Sustainability Center
in Northridge, California.

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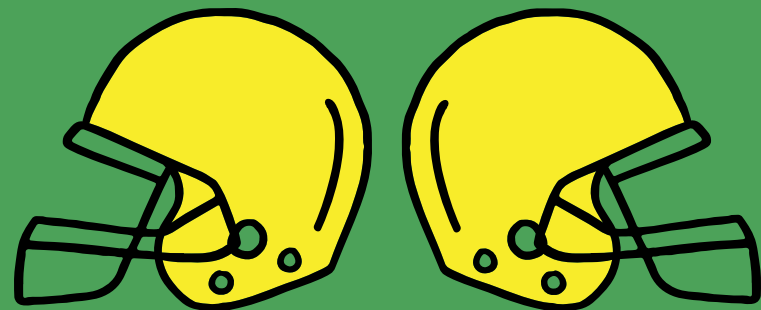
Google is in the business of glass, and we don't mean Glass of the high-tech optical variety.

In its partnership with **Building Product Ecosystems**, the tech giant is exploring the world of recycled glass, poured concrete, gypsum, wallboard, and the sustainability of its built environments. It's an inspiring collaboration with two parts:

The first is piloting the use of post-consumer glass as a cement replacement in concrete. If successful, the project would divert waste from landfills worldwide and help break the building industry's dependency on byproducts from fossil fuels.

The second wants to close the loop on the manufacturing of gypsum wallboard. By recovering some or all of the thousands of tons of wallboard scraps that end up in U.S. landfills each year, Google and BPE hope to minimize waste and the environmental impacts of gypsum mining. By recycling wallboard from construction and renovation sites, they hope to maximize product reuse within regional supply chains.

Post-consumer glass recycling, concrete, and gypsum wallboard don't sound nearly as sexy as the boundary-pushing technology Google is most known for, but the work is absolutely foundational. "Sustainability is Google's quiet moon shot. Tough problems, long bets, and innovation are part of the company's culture," says **Robin Bass**, lead of the Google team spearheading this collaboration. "If we can prove sustainable business techniques just make sense, we hope the industry—from manufacturers and suppliers to real estate developers—will decide to invest in these techniques as well."



MEET THE PLAYERS

BUILDING PRODUCT ECOSYSTEMS
+ AMANDA KAMINSKY

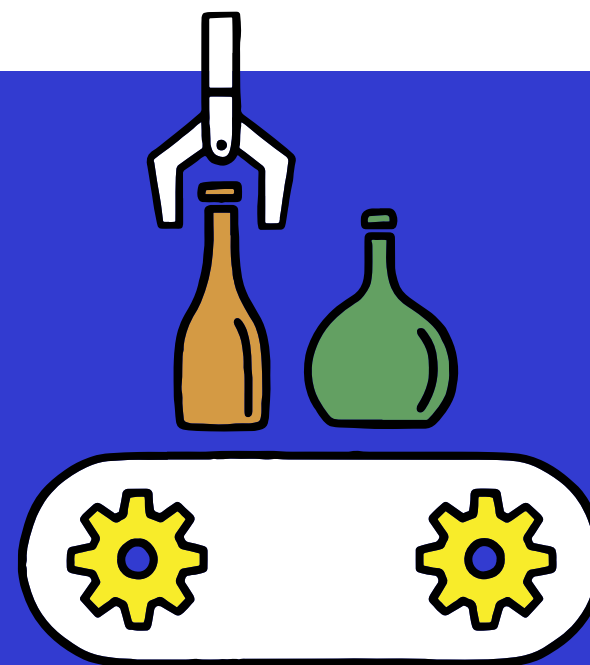
In 2014, **Amanda Kaminsky** founded Building Product Ecosystems with the Durst Organization, one of New York City's oldest and largest real estate firms. BPE was founded as a public-private partnership with City University of New York and The New School, among others. With Durst, BPE began its initial exploration of flame retardants and codes, evolving wallboard systems and using glass in concrete. Eventually the organization outgrew its one-building-at-a-time approach to change-making. In 2016, BPE expanded to become an independent LLC focused on collaborative consulting. This was around the same time Google came onboard.

GOOGLE [E]TEAM
+ ROBIN BASS
+ KAREN BURBANO

"We focus on the people in our buildings the way Google engineers focus on the user," Bass says. In 2015, Google approached BPE about its work to use post-consumer glass in concrete, as [e]Team sought an alternative to the coal plant byproducts often found in concrete mixes. "Our glass-in-concrete pilot whet our appetite for circular economy solutions," Bass says. Google began working with BPE to close the loop on wallboard; procurement will begin in 2019. "Shaking up the status quo can be fun," says **Karen Burbano**, Google's wallboard team lead. "We need to reimagine how we produce every building product because resources are finite."

THE CHALLENGE

Google and BPE join major players looking at sustainability through collaboration by asking: Can finely ground post-consumer glass be used as an additional substitute material in concrete to reduce carbon footprints, minimize exposure to potentially toxic materials, and find a much-needed use for post-consumer glass?



THE FACTS

More than **60%** of generated glass in the U.S. ends up in landfills each year, the EPA says.

Cement is a fine powder produced by heating and grinding limestone and clay minerals and mixing them with gypsum.

About **84 MILLION TONS** of Portland cement were produced in the U.S. in 2017, according to the U.S. Geological Survey, resulting in approximately 84 million tons of carbon dioxide emissions.

Post-consumer glass can be used to produce glass pozzolan, which can replace cement in concrete.

2015

Google approaches BPE about its work to incorporate post-consumer glass in concrete.

AUGUST 2015

Google kicks off Global Partnership with the **Ellen MacArthur Foundation**, helping to broaden the company's involvement with glass-in-concrete.



MARCH 2016

Google and BPE host a glass-in-concrete work day with development project teams and performed a sidewalk pilot pour at Google's main campus in Mountain View.

JANUARY 2017

Google and BPE begin partnership to use gypsum from a Bay Area manufacturer to develop closed-loop wallboard; procurement to begin in 2019.



JULY 2017

Early stages of job site-generated debris being source separated at Google's Charleston East project.

LATE 2017

New glass pozzolan manufacturer **Sioneer** receives financing to set up shop in the Bay Area.

THE NEAR FUTURE

Small to medium glass-in-concrete pours around Google campuses to further familiarize concrete partners with the material.

THE NEAR FUTURE

Large hardscape flatwork pours (plazas, sidewalks) on Google's upcoming development projects.

PARTNERING WITH A COMPANY THAT CARES

GILBANE WORKS WITH STUDENTS TO CREATE A SUSTAINABILITY CENTER WITH A BIG IMPACT.



What is the right thing to do? At **Gilbane Building Company**, this question has driven interactions with clients around the world. At **Salisbury University** in Maryland, it meant diverting 90% of construction waste from landfills. At a high school in Washington, D.C., it meant ensuring more than 90% of classrooms and offices enjoyed natural light. At **California State University, Northridge**, this question led to the creation of a LEED Platinum, student-funded, student-driven sustainability center that is winning awards and attention throughout the design world for its community impact.

The collaboration behind the **CSU Associated Students Sustainability Center**—a 9,275-square-foot, \$4.5 million build—was an unusual one, involving campus leadership, the CSU Institute for Sustainability,

student groups, partners in architecture, construction, and consulting, and other community stakeholders. The goal was to create a multi-functional space to serve as a campus recycling collection station, a hub for student sustainability programs, and an administrative home to the Institute for Sustainability. In short, the vision was to become the focal point for the university's and surrounding community's environmental and sustainability programs.

Approximately 30 students participated in the programming phase of building the center, including members of the student government organization Associated Students and students who would be working at the center.

Gilbane Business Development Manager **Evan Synstad** says students pushed the sustainability aspects of the project, which included a gray water irrigation



Risk is challenging. Building manufacturers do not feel a need to change if the product performs. Communication, building trust are key.

Karen Burbano, Google [e]Team

system, composting toilets, and the building's solar roof system. "Those working at the sustainability center were driving for better work environments," Synstad

says. "What makes collaboration successful is having a common goal and working together to achieve that common goal."

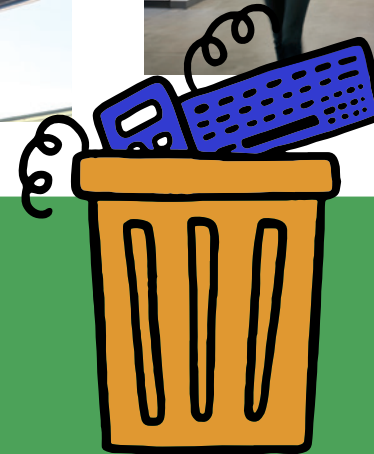
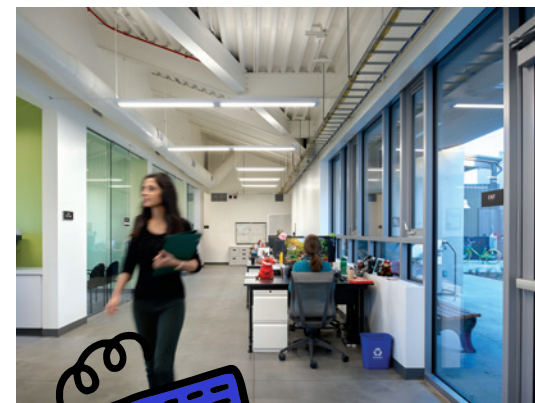
This student-driven project, which was recently awarded a silver honor for sustainability by the *Los Angeles Business Journal*, has become a point of inspiration for Gilbane's work, especially in corporate environments. "There will be challenges on the way, but through rough waters we have to keep thinking of what's best for the project," Synstad says of taking sustainability to commercial construction.

Often the biggest challenges are budgetary constraints. Or at least the way we think of them. When it comes time to line-item project plans with a red pen, the solar panels, bike racks, and showers start to look a little superfluous. "They're thought of as a luxury, rather than a necessity to move the bar and shift to a new normal," Synstad says.

A good partner, he says, is tough-minded—someone who can encourage partners to remember they're creating opportunities for a

GILBANE's sustainability push is led in part by its Sustainability Council, which works in partnership with construction project teams and project owners to make sure goals like construction waste diversion hit max impact. In 2017 Gilbane diverted more than 90% of construction waste.

The company has completed more than 300 LEED certified buildings, including several at the platinum level.



"Innovation is equal parts optimism and realism," says **Amanda Kaminsky, BPE founder**. "Meeting regularly to establish trust among collaborators is important."

building's occupants to lead healthier lifestyles as well as opportunities to lower carbon footprints. "Corporate projects are usually very budget-driven," he says. "You have to get them to look at the bigger picture, and at Gilbane we take that approach. It's understanding that sustainability is the right thing to do and educating clients that it's possible."

Currently Synstad and the Gilbane team are fired up about another CSU project, one that also focuses on collaborative design and build. Scheduled to be finished in late 2019, the new Student Union building at **California State University Monterey Bay**

will house activity and retail spaces, meeting rooms, lounges, dining services, bookstores, and student organization spaces as well as administrative areas. If all goes as CSU students and their partners plan, the new student union will meet both LEED and Living Building Challenge Petal certifications.



Sustainability Center LEED Platinum Design Features



Solar panels cover a 5,000-square-foot yard space, providing 25 kilowatts of energy, enough to meet the building's needs and support the university's goal of becoming a carbon-neutral campus.

The **solar roof** provides hot water for the center's sinks and showers.

Used water feeds into a **gray water collection tank** that irrigates native and drought-tolerant landscaping around the building.

The center's **air conditioning system** uses a **connection to windows** to maximize ventilation.

Restrooms include **composting toilets** that convert waste into clean compost.



Approximately one-third of all the nylon 6 yarn made by Aquafil is made with ECONYL.

A MODEL OF COLLABORATION

HOW ONE SUPPLIER FOR CARPET MANUFACTURERS IS MAKING RADICAL CHANGES TOWARD A CIRCULAR ECONOMY

Fifty-three years ago, few could have guessed that a company founded to create yarn for textile flooring in Arco, Italy, would become an international leader in creating sustainable, circular economies. Even fewer may have guessed that organization would become a model for creative partnerships.

“At the beginning it was quite a traditional business,” says CEO **Giulio Bonazzi**, second generation leader of the family-owned **Aquafil**, a top supplier for commercial and residential carpet manufacturers. As the business expanded, Bonazzi moved quickly up its leadership chain. He started first as an assistant production manager at the Arco plant before taking over division management and then moving on to spearhead the company’s move into its Slovenia operations.

Bonazzi soon reached the helm of the family business, where, in 2011, he had the idea to combine waste reduction with the production of nylon, Aquafil’s primary product. At that point, the company morphed into something decidedly nontraditional.

NEW MODEL(S)

Nylon 6—or polycaprolactam—is one of the most commonly used nylon products across industries, from aircraft to electronics to clothing and construction.

Aquafil’s standout product, **ECONYL®**, is a nylon 6 fiber derived fully from regenerated waste materials. It’s been loudly featured in products like **Speedo** swimsuits and designer **Stella McCartney**’s Falabella



Q&A WITH GIULIO BONAZZI

Q: Over your years of working on diverse projects with diverse groups, when have you found collective action and partnerships to work best or to be most beneficial?

A: The most beneficial collaborations are the ones that are connected to the business

models of partners. Everyone does what they know best and what they need to do from a business standpoint. All together, they are also helping the environment and improving production processes.

Q: What makes a good sustainability partnership? What makes a bad one?

A: It goes back to a connection to a partner’s business model: So the partnership is not something special that you do once and then forget about. It’s something that brings a profound change in the way you manufacture your product and in the way you do business.

Business culture is also important. It’s fundamental that people in the partnership have a similar DNA and a common, clear goal that is beneficial for everyone and for the community. This leads to longer commitment, which is what is needed for a real system change.

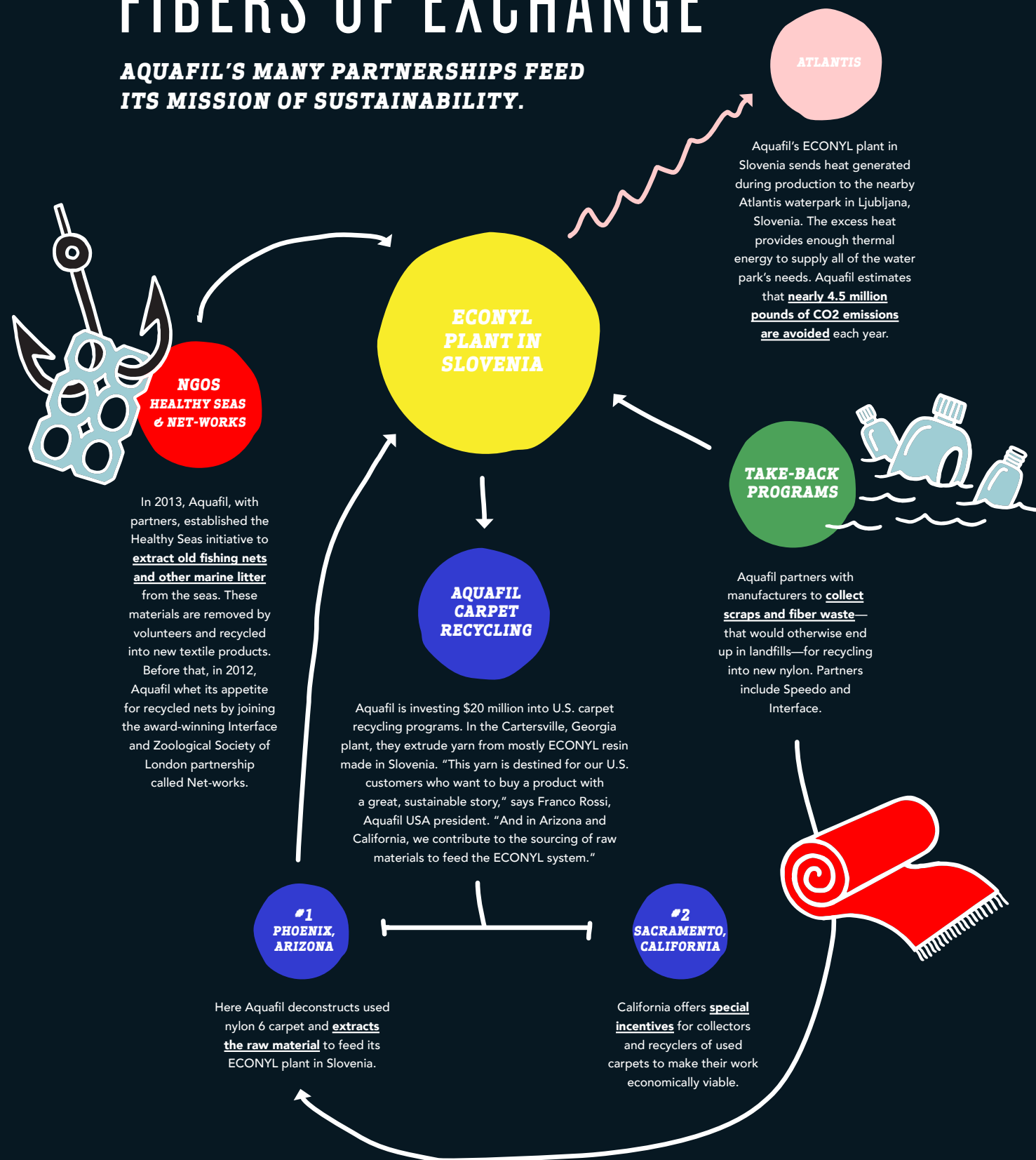
Q: What about these partnerships keeps you inspired?

A: Entities in different industries and with different backgrounds coming together for a common goal!

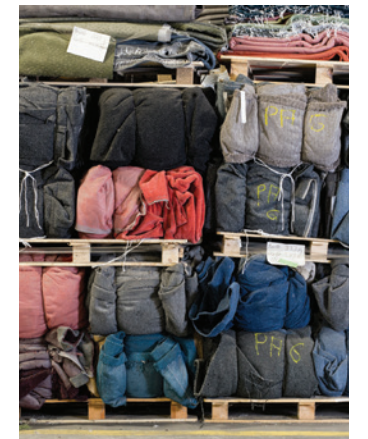
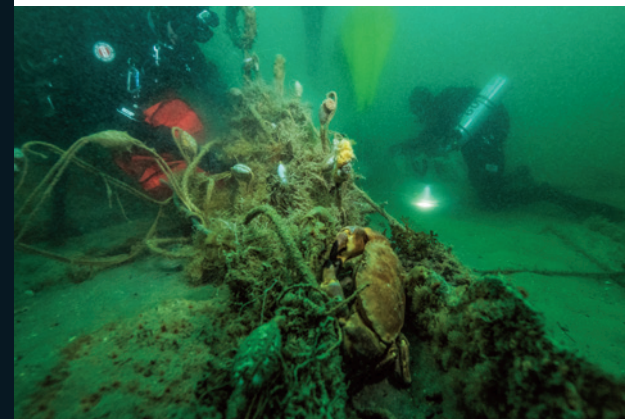
PHOTO: COURTESY OF AQUAFIL

FIBERS OF EXCHANGE

AQUAFIL'S MANY PARTNERSHIPS FEED ITS MISSION OF SUSTAINABILITY.



"These problems are enormous; it can make it hard to know where to start," Google's Robin Bass says. "My advice is just to start."



GO bags. More quietly, ECONYL fabrics meet almost every need across the residential and commercial building sectors: **Interface, Milliken & Company, Desso, and Modulyss** are all using ECONYL fibers.

Today, approximately one-third of all the nylon 6 yarn made by Aquafil is made with ECONYL. This is no side project.

But despite his vision for a closed-loop nylon economy, or perhaps because of it, Bonazzi knew Aquafil couldn't collect and recycle nylon on its own. The story of ECONYL's development is also the story of Aquafil's breakout into the world of sustainability partnerships. "We needed to find partners outside of our supply chain to develop a reverse logistic that could assure a constant supply of waste material to a plant running 24-7-365," Bonazzi says.

As it turns out, Bonazzi's team found many.

“We want to solve problems in a way that extends into our communities, hometowns, and around the world.”

Robin Bass, Google

WHAT'S NEXT

Aquafil's success with its ECONYL partnerships are exciting, but they aren't the end of Bonazzi's vision.

He's mostly secretive about what's coming down the line, but he is excited about the upcoming partnership with **Genomatica**, a San Diego-based biotechnology company and manufacturing innovator.

The two companies have announced a multi-year agreement to create sustainable caprolactam, an organic compound and an ingredient integral to producing 100% sustainable nylon. The collaboration will work to develop a commercially advanced

tageous caprolactam using plant-based renewable ingredients, instead of the fossil fuel-based materials more traditionally used by the nylon industry.

"This is a project we will be involved in for the next several years and we are very excited about," Bonazzi says, underscoring his real goal: radically transforming the carpet industry through partnerships and circular economy. **gb&d**

PHOTO: COURTESY OF AQUAFIL