



Case Study: EXTREN®

EXTREN® Reef-urbishes the Mesocosm at the Biosphere

Located on over three acres of land within the Sonoran Desert of Arizona lies the Biosphere 2. The construction of the facility was originally completed in 1991. At its highest peak, the glass and steel frame structure measures 91 feet in height with the glass panels blocking most UVA and UVB radiation. Today, it is the world's largest controlled environment used to study the effects of environmental changes on ecosystems.

Within the Biosphere 2 ecosystem is the Marine Mesocosm, a million-gallon ocean system designed to replicate the environment of a reef in the Caribbean. Supported with mechanical systems, it has been used to demonstrate how oceans have responded to environmental changes during the ice ages, periods of global modernization, and the future. Over the decades, scientists have been collecting data on the rates of photosynthesis and calcification on the ocean ecosystem.



Today, the system is undergoing a multinational revitalization effort to discover the best ways of scaling coral reef solutions. Over 60 aquatic species have been introduced into the tank in efforts to study best practices to implant and rebuild critical coral reef infrastructure.

To do so, lighting plays a critical role in inhibiting algae growth. The current location of the structure is drastically different in latitude than the Caribbean. To supplement environmentally accurate lighting for the raceway-created reef systems, the tank required an addition of almost 300 halogen and LED lights with a structure capable of supporting the wiring, equipment, systems, and accessibility requirements.

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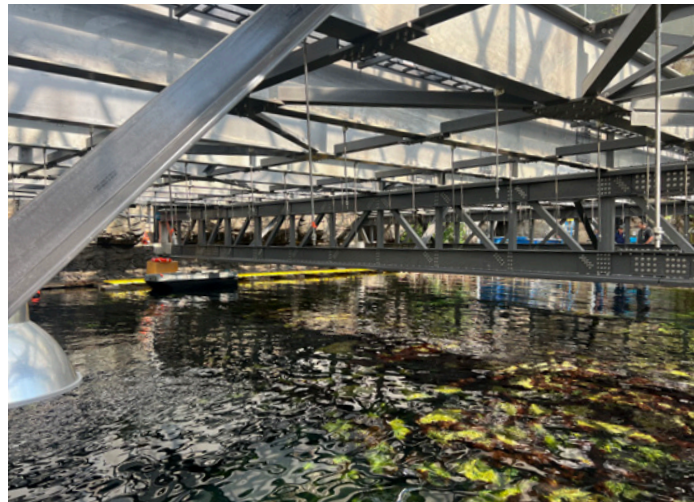
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Frost Engineering and Consulting was sourced by the owners to design and deliver a 4,000 square foot lighting truss system combining EXTREN® with stainless-steel columns, baseplates, and anchorage. In total, the system is made up of three 60-ft long, 6-ft deep built-up and field spliced pultruded FRP trusses with 24-inch-deep girt beams and cantilevered catwalks. Frost Engineering abided by the requirements of the IBC (International Building Code), City of Tucson, and the provisions of ASCE 7, ACI 318, AISC 360, and ASCE 74.



From design launch to installation, the project timeline was completed in under 18 months with full installation completed by the second quarter of 2025. The material upgrades coupled with abiotic systems will ensure decades of maintenance free service for the Marine Mesocosm. ●



Strongwell New Hires



Jeff Sheridan
Controls Engineer - Bristol

Jeff is responsible for designing, developing, implementing, and advancing automated machine technology. Jeff has a strong background with many years of valuable experience in controls engineering, equipment and facilities support, and machine installation. Jeff is a United States Marine Corps veteran.



Janet Phibbs
Assistant, Corporate Offices

Janet works closely with multiple departments to support company events, visitors, marketing efforts, sales initiatives, and a variety of other business functions. Janet has more than 24 years of administrative experience. She joins Strongwell from a global chemical company, where she supported health and safety programs across the organization. Her responsibilities included support for software implementation, safety engagement initiatives, compliance tracking, regulatory records maintenance, data management and reporting, and budgeting support.



David Linville
Buyer - Bristol

David has 40 years of experience across the electrical industry, plant maintenance, and indirect purchasing. He joins Strongwell after retiring with 20 years of service from a local tool manufacturer. His responsibilities included various roles of support for purchasing and plant maintenance. David is excited to begin this new chapter in his career.



Jamie Kirksey
Structural Drafter/Detailer - Bristol

Jamie brings with him over 30 years of experience in landscape design, project management, and drafting, having led numerous high-profile projects across the Southern Appalachian region. His extensive background includes expertise in AutoCAD, 3D modeling, and project management, along with collaborating across teams to bring complex design projects to life.



Cathy Williams
Estimator - Bristol

Cathy brings over a decade of experience in project estimation, project management, and customer service across commercial and residential construction. She has a strong background in blueprint reading and material takeoffs, skills that align closely with the responsibilities of her new role. Her attention to detail, focus on customer needs, and ability to manage multiple projects simultaneously make her a strong addition to the Strongwell estimating team.



Robin Wentworth
Administrator, Accounts Payable - Chatfield

Robin brings 12 years of corporate accounting experience, with a background in financial oversight, team leadership, and corporate-level financial reporting. Robin studied accounting at Arizona State University which laid the foundation for her successful career.



Steve Vang
Controller - Chatfield

Steve holds a degree in Accounting from Lenoir-Rhyne University and has over 20 years of finance and accounting experience. He joins Strongwell from a global specialty alcohol and bio-based chemical manufacturer, where he served as Controller and was responsible for managing the plant's accounting and financial operations. His career began in public accounting and has spanned various leadership roles in financial planning and analysis, managerial accounting, and risk management across the manufacturing, professional services, and healthcare industries.



Regan Harvey
Process Engineer - VA Operations

Regan graduated in May 2025 with a Bachelor of Science degree in Composite Materials Engineering from Winona State University. In her role, Regan will be responsible for enhancing processes and systems, driving productivity improvements and waste reduction efforts.

Strongwell Promotions

Jason Rieke
Manager, Engineering - Chatfield

Jerome While
Manager, Purchasing and Production Control - Chatfield

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Case Study: EXTREN®

Fiberglass Shines Bright Over Parking Lots

For years, the conventional approach to building solar farms has been to build them on acres of undeveloped land. These types of developments and buildouts created competing challenges for the preservation of farmland, biodiversity, housing developments, and ongoing energy generation initiatives.

As more utility companies and communities adopt new methods for capturing renewable energy, so have the demands for land acquisition, transforming undeveloped land into a dwindling resource. Taking a utilitarian approach, urban developers and city planning departments have taken an unorthodox approach in combining urban design with pragmatic engineering.

A major retailer in New Jersey reached out to Northstar Technologies Group for a parking canopy system capable of capturing solar power. Northstar's SOLARGLAS product line is a high-performance composite racking system for photovoltaic panels. This system is a 100%-FRP structure dedicated to the solar energy market, and can be designed for canopies, ground mounts, or as a roof mount structure.

This project utilized Strongwell products to create a dual-purpose solar car canopy that not only provides shading for vehicles and harnesses the power of the sun but also represents a significant capital improvement for the developer's real estate asset. These structures can be easily installed and grounded as FRP has low electrical conductivity.

Strongwell's EXTREN® channels, square tubes, angles, and plates were sourced as structural materials for columns, trusses, and purlins for this all-composite structure. The components were manufactured, flat shipped, and assembled quickly for delivery and installation in New Jersey within a time frame of four months. Being that FRP is resistant to rot and corrosion, this structure is designed to last at least 25 years with the ability to sustain 130-mph wind loads and 60 psf snow loads throughout its service life.



All the project partners and end users shared glowing reviews of Strongwell and Northstar Technologies Group. With the installation of this project and others, Strongwell's fiberglass structural components continue to shine with their proven durability, delivery support, engineering resources, and time-tested installations. Northstar Technologies Group is redefining what's possible in renewable infrastructure. In partnership with Strongwell, their FRP-based solutions offer unmatched strength, resilience, and rapid deployment—empowering architects, developers, and utilities to build smarter, more sustainable systems. From solar and structural applications to defense and disaster-resilient housing, Northstar is engineering the future—one composite innovation at a time. ●



Literature Updates:

- *Baffle Panel Brochure*
- *Baffle Wall Panel Specification*
- *Design Manual Section 12 (I&M)*
- *DURAGRID® Phenolic Brochure*
- *DURAGRID® Phenolic vs. Aluminum Flyer*
- *Oil & Gas Industry Brochure*
- *SAFPLATE® Flyer*
- *STRONGIRT® Brochure*
- *STRONGIRT® Technical Data Sheet*
- *STRONGIRT® Specification*
- *STRONGDEK® Brochure*
- *Visual Defects: Cause and Effect* **NEW**
- *Wind Energy Market Brochure*

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Literature Updates



STRONGDEK® Delivers Lasting Aesthetics

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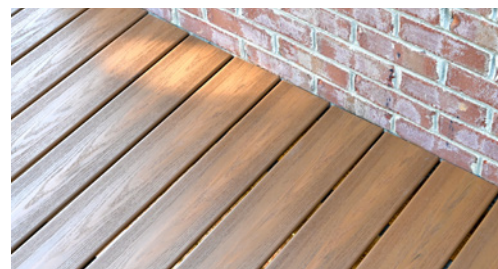
Case Study: **STRONGDEK®** STRONGDEK® Delivers Lasting Aesthetics

Although designed primarily for more demanding commercial applications like hotels, boardwalks, marinas, and docks, more homeowners have begun to select the STRONGDEK® Structural Composite Decking System to break the cycle of maintenance and replacement of more traditional options. This case study looks at two recent installations in the Southeastern U.S. where homeowners replaced failing wood decks with STRONGDEK.

Like most residential deck construction in the Southeast, the original decks for these homes were constructed using pressure-treated

pine deck boards screwed to treated 2x8 and 2x10 joists. Despite annual maintenance by the homeowners, the decks were plagued by decay and warped, splintered boards due to exposure to the elements over the years. After considering hardwoods like ipe and cumaru, and looking at wood fiber and cellular PVC composite options, these homeowners were sold on the benefits of choosing STRONGDEK, with its patented combination of an FRP plank with a snap-on vinyl hybrid composite top cap.

In addition to its aesthetics, the straightforward installation, simple maintenance, exceptional strength, and lifetime residential warranty for STRONGDEK made it a solid choice too good to pass up. While STRONGDEK is more expensive than pressure treated wood, it is generally in line with other high-end decking options.



After replacing all the old failing structural components, STRONGDEK planks were screwed to each joist through the integrated hidden fastener grooves. Once all planks were fastened, installers cut caps to length and secured them to the planks using a non-marring mallet. Installers reported that the installation time was comparable to installing other hidden-fastener-based composite decking systems and, "once we got the hang of it, it went way faster than we expected." The homeowners were pleased with the end result, especially glad to have a deck that won't require ongoing maintenance and should last for decades.

For residential owners investing in premium outdoor spaces, STRONGDEK is proving not just as an alternative, but as a step forward in design and performance. These case studies suggest that the decision to move beyond wood and other composite options is no longer driven purely by novelty, but by practical experience of what lasts, what looks good, and what delivers long-term value. ●

