



## Case Study: SAFDECK® & DURAGRATE®

### Ski Jump Lands Well with Composites

Located in Eau Claire, Wisconsin, the Flying Eagles Ski Club has been in operation for well over a century to promote recreational and competitive levels of skiing and ski jumping.

The facility recently unveiled a new and improved 55-meter ski jump to replace its wooden 40-meter predecessor. In designing its new cantilevered structure, the owners needed it to easily withstand the high winds and frigid winters common in Wisconsin. This feat was achieved through engineering with an impressive combination of steel, concrete, and composites. Over a period of three years, the project was designed, shipped, and installed for competition use.

Outfitted with two types of fiber reinforced polymers, the new ski jump uses Strongwell's SAFDECK® overlapping decking panels within the inrun track portion of the structure and DURAGRATE® molded grating and stair treads within the skier access and walking areas. Both products were manufactured with polyester fire-retardant resins. To aid in long term slip resistance, an epoxy grit surface was applied on the molded grating.

In addressing why FRP was used, the engineer noted that much of the superstructure uses galvanized cold formed steel. This eliminated the use of preservative treated lumber as most wood sold in the marketplace today can corrode steel. Structural FRP was sourced due to its inert nature and compatibility with galvanized steel.

In the previous wooden ski jump structure, maintenance concerns arose from the constant thermal cycling of wood. The introduction of FRP virtually eliminated all those concerns as FRP is dimensionally stable.

As is common with ski jumps, operations in the winter encourage ice build up throughout the structure. Tradeoffs with the previous wooden structure meant excessive snow buildup, leading



Photo courtesy Small Town Plus Size.



to the creation of slip hazards. With the use of gritted DURAGRATE® molded gratings, the designed openings allow snow to melt or disperse through the material.

Following up on the installation, the Flying Eagles Ski Club was extremely pleased with the ease of the installation. Multiple workers were able to easily collect and transport the lightweight FRP components via stairs for final placement. The ski club also commented on how the pultruded products met their expectations with regards to added traction and ease of snow removal. ●



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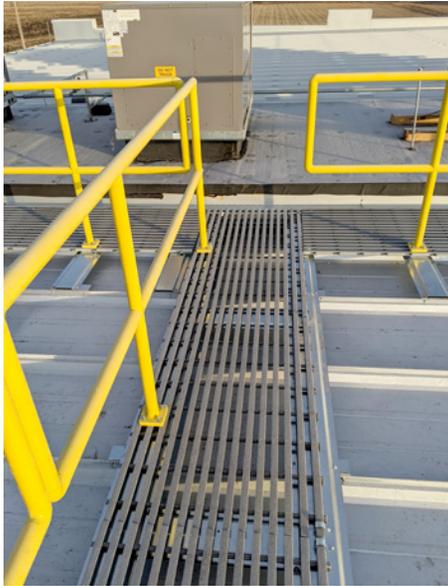
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## Case Study: DURAGRID® & SAFRAIL™

### Fiberglass Secures Rooftop Access

A manufacturer of freight truck parts in Owatonna, Minnesota, recently erected a new 85,000 square-foot facility as the market demands for its products outgrew



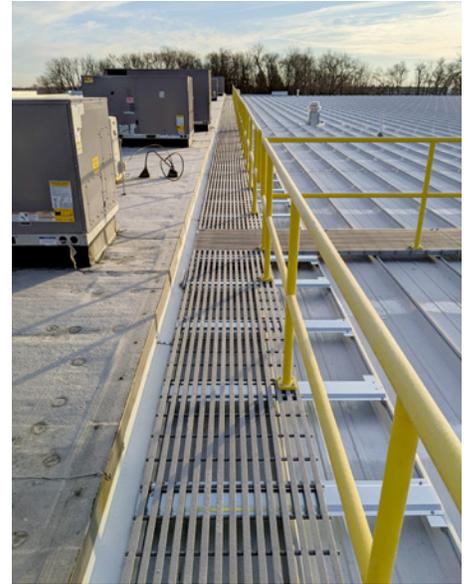
the capacity of its original factory.

Outfitted with a standing seam metal roof, the owners of the facility needed a corrosion resistant and lightweight solution for rooftop maintenance access. Designed with only a single hatch serving as a point of entry and exit, a connecting walkway system was needed to join the hatch with each of the nine rooftop HVAC units along with supporting equipment.

As this was an exterior application with long span capability, excellent corrosion and UV resistance, and weight minimization were all listed as mandatory requirements for the procurement of building materials for construction design.

Smidt Construction worked with the owners of the facility in designing and procuring Strongwell's FRP products for their proven performance and FRP's corrosion resistant characteristics.

This project required (43) DURAGRID® 1" T-5000 panels and (43) SAFRAIL™ 2" round railing sections to be delivered onsite. As recommended for exterior applications, an



optional polyurethane coating was applied on the SAFRAIL™ sections prior to installation. The contractor was able to fabricate onsite without the use of heavy machinery or hot works.

Now complete, the entire walkway structure provides about 2,150 square feet of walking surface area and 860 linear feet of SAFRAIL™ handrail.

The general contractor was pleased with the overall ease of installation and fabrication process with FRP. The owner of the manufacturing facility was pleased with the aesthetics and minimal worksite interruptions or restrictions during the installation. ●



## Spotlight on Strongwell Talent



### Josh Maggert

General Manager, Minnesota and Mexico Operations

Josh Maggert has been promoted to General Manager, Minnesota and Mexico Operations. He replaces Mike Jaszewski, who recently retired from the position of Vice President, Minnesota and Mexico Operations. Josh will assume responsibility for the operational management of the Chatfield, MN, and Apodaca, Mexico manufacturing facilities and will report to the President and CEO. Josh began his career with Strongwell as a Process Engineer in 2007 after receiving a Bachelor of Science degree from Winona State University in Composite Materials Engineering. He was promoted to Engineering Manager in 2013, followed by a further promotion to Manufacturing & Engineering Manager in 2016. His most recent position was Plant Manager of the Chatfield facility.



### Rodney Banks

Estimator - Bristol

Rodney Banks has accepted the position of Estimator in the Bristol Fabrication Sales Department. Rodney will report to the Chief Estimator. Rodney joined Strongwell in 2014 as a Drafter in the Fab Sales Department and is now the Drafter Lead. Prior to his job at Strongwell, Rodney worked with various companies performing detailing and design of industrial equipment, as well as structural steel detailing. He also has experience with sales and project management.



### Michaela Carter

Purchasing Specialist - Virginia Operations

Michaela Carter has joined Strongwell as Purchasing Specialist, Virginia Operations reporting to the Purchasing Manager. Michaela has a Bachelor of Science degree in Business Administration from Bluefield College. She graduated with Cum Laude honors and was a recipient of the Outstanding Business Student Award. Michaela has several years of purchasing experience and was a Global Procurement Specialist for the PBE Group.



### Skip Barker

Systems Engineer - Bristol

Skip Barker has joined Strongwell as Systems Engineer. In his new role, he will report to the Corporate Director, Information Technology. Skip comes to Strongwell with over 15 years of experience in information technology services. Most recently, he was a Systems Engineer for K-VA-T Food Stores, Inc. in Abingdon, Virginia, where he was responsible for infrastructure, security, and communications systems.



## Literature Updates:

- Corporate Profile
- Wind Energy Market Brochure **NEW**
- Baffle Panel Brochure
- Baffle Wall Panel Products and Fabrications Specification
- DURASHIELD® & DURASHIELD HC® Brochure
- Design Manual Section 14 (Imperial + Metric)
- Fire Retardant Material Rating Flyer **NEW**
- Company Portfolio

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## Case Study: EXTREN® & DURAGRATE®

### FRP Carves its Own Way

In 2015, a composite footbridge was fabricated and installed within the central region of Tuscany, Italy. The City of Pitigilano commissioned a complete bridge replacement for one that had deteriorated beyond refurbishment. The challenge of this particular project was that both the bridge and connecting walkways are adjacent to steep cliffs.

Pitigilano was originally established as a village about a millennia ago. Over time, its settlers transformed the village into a city by carving it out of limestone. The location of this project and its environmental surroundings posed maneuverability challenges for machines associated with traditional bridge erections.

A more modular and subtle installation was suggested with the use of Strongwell's FRP products for its weathering durability

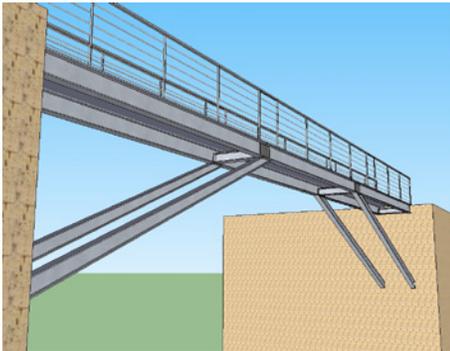
and excellent strength-to-weight ratio. The fabricators used vacuum resin infusion with EXTREN® flat sheet to give the bridge an exterior wooden façade. This aesthetic design helped the bridge blend with the natural cliffside surroundings and seasonal foliage changes. The decking material of the bridge was outfitted with DURAGRATE® molded fiberglass grating and EXTREN® I-beams, channels, and plates were used for structural support and spans.

The pedestrian bridge measures almost 70 feet in length and approximately three feet in width. It serves as a vital travel artery for businesses, government offices, residents, and tourists. It also serves as a direct detour for those not wanting to navigate



through the town's multiple squares, terraces, and main roads.

The end user and fabricators were all extremely pleased with the overall experience of building with Strongwell's products, as well as the design, shipping, and fabrication experience. ●



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### STRONGWELL NEWS & APPLICATIONS



### How Strongwell FRP Contributes to Total Job Cost Savings

#### Staying on Schedule and on Budget

Each construction project has unique challenges, but two that seem to plague every project is staying on schedule and staying on budget. Choosing the right materials and calculating installed cost vs. just material cost are seemingly simple choices – but ones that can result in huge savings in time, manpower, and total project costs.

Strongwell's pultruded fiber-reinforced polymer (FRP) composite structural materials have a proven track record of saving customers time and money – often realizing those savings before the project is even complete. Once you factor in the long-term maintenance savings and longer life span of FRP vs. most traditional materials, structures built using FRP are a clear winner.

#### How Much?

As you might imagine, the answer to how much can be saved varies quite a bit. However, there are several case studies, where Strongwell FRP was compared with traditional materials, that offer a good starting point for your analysis.

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**Water Treatment Operator Upgrades Stairway**



### **Case Study: EXTREN®, DURAGRID®, SAFRAIL™**

#### **Water Treatment Operator Upgrades Stairway**

Hydrogen sulfide is one of the most prevalent gases produced through the processing at water treatment plants. The colorless gas is a byproduct of decaying organic matter and can be easily detected through the olfactory scent of rotten eggs. Prolonged human exposure to this gas can be acutely toxic. In addition to its toxicity, the gas can be corrosive once it is introduced to a moisture-rich environment, which is common in water processing.

To combat the prevalence of this gas, water treatment operators reduce the gas through oxidation processes.

A water treatment operator in Wisconsin recently replaced a metallic stairway with a fabricated fiberglass version made entirely with Strongwell's products. This specific stairway was experiencing corrosion issues resulting from

higher concentrations of hydrogen sulfide exposure and its effects on the metal.

The new fiberglass stairway has a 15' rise and a 19' run. Outfitting the structure are EXTREN® 525 structural shapes, 21 stair treads fabricated from 1-1/2" I-6000 DURAGRID® pultruded grating, and round SAFRAIL™ handrail.

Upon installation, the end-user commented that they were drawn towards Strongwell's FRP products because of the facility's two previous positive experiences with Strongwell materials. Those projects received overwhelmingly positive reviews of the durability and performance of those retrofits and rebuilds which replaced metal components. ●

