

BELGARD® Belgard Permeable Interlocking Concrete Pavers (PICP) Sierra Nevada Brewing Company - Mills River, NC



Brewery Permeable Pavement System on Tap to Protect Purity of Local Water Supply

Landscape construction goals:

- LEED certification
- Protect the neighboring water supply
- Pavement system that can withstand heavy vehicular traffic
- Mature landscaping at the completion of the construction
- Low possibility of heat island effect
- ADA compliance

Pavement Solution: In planning the hardscapes area for a Sierra Nevada Brewing Company brewery near Asheville, N.C., Drake Fowler from Design Workshop knew the only solution to meet the environmental and aesthetic needs of this conscientious, high-standards company was Belgard Permeable Interlocking Concrete Pavers (PICP). The chosen blend of Aqua Roc II pavers satisfied all of the construction goals with the ability to withstand heavy vehicular traffic, reduce stormwater runoff, meet ADA requirements for foot traffic, and offer long-lasting solar reflectance index, SRI.

The story behind the project

Named after the favorite hiking grounds of founder Ken Grossman, the Sierra Nevada Brewing Company has had a commitment to the environment since day one. With a firmly held belief that the best beer is born of the purest ingredients, their environmentally conscious business model holds particular respect for the purity of mountain water, since it is their principle water source and makes up more than 90% of their beer products. When planning their second location that sits above the French Broad River in the Appalachian Mountains, the Grossman family insisted the facility take the utmost care in protecting the neighboring water supply, both during and after construction.

"We worked to set up not just a porous pavement system, but something that linked the pavers to the rain garden that linked to the underground system," described designer Drake Fowler. "By using these different systems, the same natural drainage that existed before they were here is maintained, and even water from the rooftop feeds into the system so that most stormwater gets reused, like for irrigation or flushing toilets."

The PICP system was only the first part of a coordinated stormwater management system that incorporated rain gardens, a cistern, and an overflow dry stream bed with a series of 20 checked dams, all designed to filter water to make sure no sediments or pollutants get to the river.

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"It's an amazing system. Surface water is not an issue. With Belgard PICP, you can shoot a fire hose at it, and it permeates. But if the cistern overflows due to heavy rain, we want to treat that water and control its route to the river," Fowler said.

One particular project goal was especially challenging to meet. Sierra Nevada wanted to protect the beauty of the surrounding viewshed and look as though their brewery had always existed as a part of the surrounding natural landscape. Creating a landscape design that already looked mature and natural required the hardscape and landscaping phases to be pushed to an earlier part of the overall construction schedule.

"We were putting driveways in while they were still framing the buildings," said landscape contractor Rob Atema of Rivertop Contracting. "It was a logistical challenge, but we got it done."

According to Atema, the heavy construction traffic would have caused unsightly and costly damage to traditional pavement, but because the Belgard system was constructed of individual pavers that distribute weight differently than traditional pavement and can be easily replaced if individually damaged, construction traffic was not an issue.

However, weather complications did wreak havoc on the production schedule when twice the amount of usual rainfall occurred during construction. *"We had delay after delay, but Belgard stored the material until we were able to work,"* said Atema, whose crews worked weekends to make up the time.

Current hardscape applications on the property include driveways, parking lots, crosswalks, and a plaza. For the overwhelming majority of the project, the Limestone paver color was selected due to its SRI index and ability to reduce the possibility of creating a heat island effect, which could otherwise increase the temperature of runoff and potentially harm the ecosystem.

The parking lot design incorporated a herringbone pattern that called for the use of half-sized pavers for the parking stalls and lines.

"When you cut PICP, it's hard to keep a consistent joint, so using those half pavers here was good," Fowler said. The team used the leftover half-sized pavers to create a beer bottle-shaped design in the employee break area.

Additional work is still in the design phase for a pub and music venue that will include an outdoor terrace, beer garden, and amphitheater. The expansion project will incorporate an estimated additional 15-20,000 square feet of pavers and is planned to begin construction in the Spring of 2015.

About Rivertop Contracting

We provide consistent, comprehensive landscape management and landscape construction. We do this by building relationships and delivering what we promise in a professional, respectful manner. Our Mission is to be an industry leader in commercial landscape management and construction, through building lasting relationships with our employees, clients, and vendors.

MANUFACTURED BY:
A dams

PRODUCT:
Belgard Aqua Roc II

COLORS:
Ardennes – 5,000 sf (4 x 8 x 80mm)
Slate – 5,000 sf
Westerwood blend 27,000 sf
Limestone – 110,000 sf

PROJECT TYPE:
Commercial

LOCATION:
Mills River, NC

INSTALLATION SIZE:
147,000 sf

INSTALLATION METHOD:
Machine installation

**APPROXIMATE VALUE OF
INSTALLED HARDSCAPING:**
\$1 million

PROPERTY OWNER:
Sierra Nevada Brewing Company

CONTRACTOR:
Rivertop Contracting, Inc.

LANDSCAPE ARCHITECT:
Drake Fowler, Design Workshop

ENGINEER:
WGLA Engineering, PLLC

LEED:
On track to earn LEED gold or platinum

AWARDS:
2014 HNA Hardscape Project Awards –
1st Place PICP Commercial Design
2014 PLANET National Landscape
Awards of Excellence – Merit Award Commercial

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