Sustainable design drove the construction of the Sierra Nevada Brewery complex in Mills River/Asheville, North Carolina. The brewery complex consists of a brew house, recycle building, waste-water treatment facility, administration building, pub/restaurant, and a truckers’ office. Initially, the project involved creating a warehouse structure, and was then expanded upon seeing the benefits of the design. Facing a tight schedule and the need to provide a high-quality structure with long-term performance benefits, the design-build team turned to precast concrete components to create the structural shell and façade for the compound’s large warehouse. The owners of the Sierra Nevada Brewery were so impressed with the benefits of that approach, they used it for most of the rest of the buildings in the complex.

“For years, we’ve used the Leadership in Energy and Environmental Design (LEED) green-building program as a resource throughout the many expansions of our Chico brewery, although it has not been certified,” a company statement says. “Our second home in Mills River afforded us the opportunity to demonstrate our commitment to responsible building operations and pursue LEED certification from the beginning.”

The overall project contains eight structures, six of which feature a total precast solution. The first completed was the 150,000-square-foot warehouse. It was designed for completion prior to winter weather setting in so it could be used as protected storage space to subsequently construct the main brewery operation. Tindall Corporation fabricated the components for the project.

The precast concrete bulb double tees used for the warehouse, which contains space for bottling, packaging, and cold storage, provided clear spans of 91 and 100 feet. Those lengths eliminated the need for additional interior columns, providing flexibility in accommodating equipment. The bulb tees were designed to take the required snow loads, as well as an additional 25 psf hanging load.

The warehouse’s load-bearing 12-inch insulated precast panels provided an R-value in excess of R-25. That level aided energy efficiency for the specialized cold-storage rooms, which comprise three rooms at either 40° or 60° temperatures.

The result proved so impressive that the owners expanded their use of precast to the other facilities, including the R-25 insulated panels. Radiused architectural wall panels were cast for the complex’s main entry and for two precast concrete bridges.

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Russell, Galloway Associates Inc. served as the architect/engineer, while Modern Building Co. was the general contractor.

In all, more than 1,030 total pieces of precast concrete, encompassing 426,000 square feet, were fabricated for the project. This total comprised beams, columns, 28-inch double tees, 28-inch bulb double tees, 12-inch insulated architectural wall panels, 12-inch insulated interior wall panels, flat slabs, architectural wall panels, radiused wall panels, and fluted and scalloped flat slabs (for mezzanine walkways).

“Despite record rainfall and a harsh winter, the project was completed ahead of schedule, saving both time and money,” Smith reports.

The precast concrete designs also helped the projects achieve its desired status of LEED Platinum-Certified buildings. Its features include alternative transportation options via bike parking and charging stations, stormwater management, reduction of heat islands and light pollution, water efficiency, and solar-power use. The precast concrete components aided in several areas, including optimized energy performance, construction-waste management, use of recycled materials, and use of regional materials.

By including brewing equipment in energy model calculations, Sierra Nevada took the certification further than any other brewery has before, the company notes. “Many of the brewery's design aspects and construction innovations were simply the right thing to do and were part of the plan before we decided to pursue LEED certification,” the company says. “Having a third party organization verify and validate these efforts is essential in creating a more sustainable-built environment and recognizes Sierra Nevada’s founding commitment to environmental stewardship.”

By Craig Shutt, with:

Rob Smith
General Manager
Tindall Corporation, Georgia Division

Peter Finsen
Executive Director & CEO
Georgia/Carolinas PCI

All construction photos courtesy of the Tindall Corporation, Spartanburg, SC

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