



Cold gold

The Sports & Exhibition Authority of Pittsburgh and Allegheny County is hoping to have its new multipurpose arena, which will be home to the city's NHL franchise, certified as a LEED Gold building. Keith Regan learns how racking up LEED points for a hockey arena has had its share of unique challenges



The Sports & Exhibition Authority of Pittsburgh and Allegheny County (SEA) has gained significant experience in building new stadiums and facilities. In recent years, the Pennsylvania city has added a new professional football stadium, Heinz Field, the home of the Pittsburgh Steelers; a new baseball stadium, PNC Park, where the Pittsburgh Pirates play; as well as a new waterfront convention center and adjacent public park.

Each of these projects has sparked a revitalization in the surrounding areas of the city, but as it tackles its latest project, the construction of a new multipurpose arena in the downtown area, it has taken on some ambitious additional challenges that will reflect and grow upon Pittsburgh's reputation as a green city.

The Pittsburgh Penguins, which will operate the building on behalf of the owner (the SEA) and the development team on the building hope to have the facility certified as meeting the LEED Gold standard of the US Green Building Council. That has proven a difficult road at times because the LEED standards are aimed mainly at office buildings and similar projects, says Doug Straley, project executive for the SEA.

"It's a different type of facility," Straley says of the \$321 million project. "We've worked hard to get as many points as we can, and we're hopeful of attaining the Gold level." The arena would be the first NHL arena to be LEED Gold certified. The SEA believes it has enough points to secure Gold certification and is constantly working with the construction team to keep sustainability at the forefront.

"Allegheny County, the City of Pittsburgh and SEA, working with Governor Edward G. Rendell and the commonwealth, have made it part of the region's reputation to build green projects, and we want this arena to be another example of that. The Commonwealth took the lead in arranging and providing the bulk of the funding for the arena and they continue to be our partner in pursuing LEED certification."

Pittsburgh has been recognized as one of the United States' premier green cities with many developers increasingly taking into account issues like natural resource conservation, energy efficiency to control expenses, and sustainability. The city is among the top 10 nationally in the number of



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Architectural Innovations is pleased to have been selected by HOK Sport as an architectural consultant for the design of the new home arena of the Pittsburgh Penguins.

Collaborating with HOK Sport, we utilized our "ThinkTeam" process of design charrettes to develop several design options for significant components of the new arena. We also contributed to the selection of building materials that are easily maintained and help to preserve the environment.

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buildings and square feet that are LEED certified.

The original design by architecture firm Populous (formerly known as HOK Sport) included extensive energy modeling that confirmed the energy usage would be reduced by 27 percent, and regular meetings involving contractors (the general

contractor on the project is a joint venture between local firm PJ Dick and national company Hunt Construction) and key subcontractors that construction waste from the demolition was recycled. Architectural elements were salvaged and donated to a local building supply company. The topography posed additional challenges, requiring adaptations to retain



Architectural Innovations

Architectural Innovations was selected by HOK Sport to provide architectural consulting services for the new home arena of the Pittsburgh Penguins. As a women's business enterprise, Architectural Innovations partnered in the design by providing preliminary planning, multiple design studies, and concept renderings and produced construction drawings for building exteriors, the Igloo and main clubs, concession areas, and the conference center.

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have tracked progress on the sustainable elements of the project. “We have buy-in from all the players, and the companies that have worked on our earlier projects are now used to the fact that this is the way we do things,” Straley adds.

Christen Cieslak, PE,

and treat stormwater and the construction of retaining walls. A rain garden is planned for a public space outside the arena as well.

The Consol Energy Center 18,087-seat arena (a 1,000-seat increase over the existing Mellon Arena, where the Penguins now play) will feature a reflective roof that will reduce the heat island impact as well as low water usage fixtures inside. Indoor air quality will be a major focus, with CO2 monitors in each of the suites and with the Penguins planning a fan

comfort survey to judge the proper temperature to keep the environment within the building.

Cieslak says a design-assist approach that engaged subcontractors early on enabled the steel structure of the facility to be sized properly to handle the HVAC systems, allowing for a reduction in the amount of steel and ductwork

was not an issue, especially as the economy and building market slowed. “Everyone who came to the table with bids knew that we were looking for experience and comfort with building green, so we had a lot of interest that reflected that.”

Other sustainable elements include the heavy use of regional materials (something the City of



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on the project. “We were able to size the structure to meet the demands of the systems and not overbuild, because we didn’t yet know what those systems were going to look like,” she adds. Finding subcontractors fluent in LEED requirements

Pittsburgh is well positioned to utilize) as well as low VOC-emitting paints and other materials and a best-practice lighting control system. The building operators will also implement a green cleaning plan once the building is occupied.

Construction began in mid-2008, starting with the site work required to level the site and prepare it for construction, which required the installation of caissons and retaining walls. The project is slated for completion and delivery in August 2010, with the Penguins slated to play the 2010-11 season in the building, which will also host concerts and other events as well. Under the terms of the lease and development agreements to build, operate and maintain the arena, the Penguins have signed a 29.5-year lease to play in the facility.

The sports arenas and other work have already helped drive significant private investment in the downtown Pittsburgh area, particularly the city's North Side. The SEA expects more of the same in the lower Hill District section of Pittsburgh once the new arena is completed. A master plan is in the works for the area that

includes the site of the old hockey arena. The new arena is able to take advantage of significant existing parking facilities in the area, requiring only a small parking garage to be added. That garage, which will hold 500 cars on a relatively small footprint, will also feature a reflective roof to reduce heat absorption.

Once the arena is complete, all of the city's three major professional sports teams will have relatively new and state-of-the-art homes, part of a vibrant downtown that will attract visitors from the area and outside the city year round. "We've seen our projects spark significant private investment, and we're excited about the possibilities around the new arena as well," Straley says. "We think this project is poised to become another jewel in the city's landscape."

– Editorial research by Michael Fretwell ■



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