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## Nation's First LEED<sup>®</sup> Platinum Pool Features State-of-the-Art Dectron<sup>®</sup> Systems

Philadelphia's Kappen Aquatic Center at the Overbrook School for the Blind (OSB) is the nation's first LEED<sup>®</sup> platinum natatorium. Interestingly, the \$11-million project for OSB's 200 visually impaired and handicapped children wasn't conceived as a LEED<sup>®</sup> project.

Instead, OSB officials had simply requested a green, energy-efficient aquatic facility to replace the campus' 102-year-old former pool building. Half-way through the project the design team realized their creative green strategy specifications were so effective that enough potential credits had accumulated to qualify for the U.S. Green Building Council's (USGBC) highest distinction of LEED<sup>®</sup> Platinum.

"Our original goal was just a very efficient green building, so we were surprised to discover our final design strategies could accumulate 53 credits, which would qualify it as the first LEED<sup>®</sup> Platinum natatorium in the country," said Amie Leighton, AIA, LEED AP, project manager, Daley + Jalboot Architects, Philadelphia.

Besides Daley + Jalboot Architects, other design team members included construction manager, W.S. Cumby, Springfield, Pa., and mechanical engineer, Vinokur-Pace Engineering Services (VPES), Willow Grove, Pa., and LEED consultant, Re:Vision Architecture, Philadelphia.

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Vortechs Automation*

The energy-efficient design saves an estimated 43-percent of the 25,000-square-foot facility's energy costs compared to a conventional natatorium. A good portion of the savings comes from the Dry-O-Tron® model DS-282 HVAC dehumidification system by Dectron that uses heat recovery from its dehumidification cycle to partially-heat/cool the space while also providing free pool water heating to the 75 x 50-foot competition pool and large therapy pool. Other factors racking up LEED® credits were water-efficient landscaping and other construction features.

The Dry-O-Tron® model DS-282 by Dectron dehumidifies the space to 50% relative humidity (RH) with its dual refrigeration circuits, heats or cools the space, has built-in exhaust, two-inch insulated casing, and uses a hot gas heat recovery method to provide both free air and pool water heating prior to any heat rejection to the outdoor condenser. An estimated 100,000 gallons of recovered condensate from the dehumidification process is sanitized and returned to the pool annually as a water conservation strategy.

One of several engineer requests was exhaust energy recovery utilizing Dectron's glycol heat recovery system, which extracts heat from the exhaust airstream to preheat outdoor air and save significantly on energy costs.

Also essential to the building's energy efficiency is the on-board SupervisAire® microprocessor that controls and monitors the natatorium's environmental conditions. The BAS system employs a demand control strategy to reduce energy costs that's incentivized with reduced energy rates by the local utility. "Because it's a school with a residential component, all the buildings aren't in full use at one time," said Walter Horigan, president, Vortechs Automation. "Therefore we can limit equipment operation during unoccupied high-peak energy periods and then ramp up to optimum indoor conditions during off-peak hours."

Many of the project's contractors, including mechanical contractor Tracey Mechanical, helped contribute to LEED® credits because of their Green Advantage® certification, an environmental program that certifies contractors in green building techniques and materials.

Since touch and hearing are important to the school's vision-impaired students, the design team incorporated several non-energy related features. The dehumidifier, for example, was built with the two fan/motor/blower assemblies on springs to isolate any mechanical vibration from the building structure.

Likewise, mechanical noise is also an issue for blind students. VPES specified a Dectron low-sound outdoor condenser to run at 560-rpm and a sound pressure rating of 62-dba at 10 feet from the unit, as compared to a conventional unit's 1,140-rpm and 77-dba. The condensers were built by Dectron to accommodate the lower revolutions without affecting cooling capacity.

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The specification of fabric duct also complemented noise attenuation efforts. The softness of the fabric versus metal duct reduces mechanical equipment noise reverberation and fabric duct's nozzle flow strategies tend to produce less airflow sound versus metal duct with registers, according to Leighton.

The architects also accommodated visually-impaired students with window and lighting placements that eliminated glare and direct, high contrasting light conditions. Utilizing tactile floor treatments that help students navigate away from pool edges or obstacles, such as walls and handrails, is a revolutionary approach for handicapped aquatics.

Wall panels were also used to suppress noise throughout the facility.

The OSB is an example of a design team that set out to fulfill energy efficiency and green requests, but gave the client much more than it had asked for: LEED® Platinum. ■



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