



LEED® Platinum Pool
DRY-O-TRON®
DS-282 Dehumidifier



Indoor Pool at Overbrook School for the Blind, Kappen Aquatic Center, Philadelphia, PA

Nation's First LEED® Platinum Pool Features State-of-the-Art DECTRON Systems

A funny thing happened on the way to designing a green project; the design team racks up 53 LEED credits and goes for LEED Platinum.

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

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 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.,

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.

green strategy specifications were so effective that enough potential LEED credits had accumulated to qualify for the U.S. Green Building Council's (USGBC) highest distinction of LEED

and LEED consultant, Re:Vision Architecture, Philadelphia.

The energy efficient design saves an estimated 43-percent of the 25,000-square-foot facility's energy



DRY-O-TRON® Heat Recovery Dehumidifier at Kappen Aquatic Center

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 percent relative humidity (RH) with its environmentally-friendly R-134a 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. Manufacturer's representative, Sass, Moore & Associates, Woodbury, N.J., was instrumental as a liaison between the VPES design team's energy efficiency requests and the Dectron

factory's incorporation of them into the custom-manufactured dehumidifier.

One of several engineer requests was exhaust energy recovery utilizing the dehumidifier's glycol Smart Saver passive heat recovery system. The use of glycol as a thermal fluid allows the Smart Saver system to save substantial energy year-round by pre-cooling or pre-heating the outdoor air.

Also essential to the building's energy efficiency is the DRY-O-TRON® 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 Horgan, 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 rpm's without affecting cooling capacity," said Bill Moore, president, Sass, Moore & Associates.

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.

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Dectron Inc., an ISO Certified company, is a global HVAC industry leader. For more than three decades, Dectron's highly skilled engineers and technical staff have been designing and manufacturing innovative, state-of-the-art DRY-O-TRON® dehumidification equipment that use leading edge technology to recycle energy, conserve pool water, and CHLORAGUARD® filter natatoriums. Dectron Inc.'s DRY-O-TRON® line of products encompasses an extensive array of custom and semi-custom systems for industrial, commercial, and residential applications.



designer indoor air®

USA
10898 Crabapple Road
#103
Roswell, Georgia 30075
Tel.: (770) 649-0102
1 800 676 2566
Fax: (770) 649-0243

CANADA
3999 Cote Vertu
Montreal, Quebec
Canada H4R 1R2
Tel.: (1) 514 336-3330
1 888 DECTRON
Fax: (1) 514 337-3336



www.dectron.com