



DRY-O-TRON® DS SERIES DEHUMIDIFIERS



Custom Design Offers Huge HVAC Operational Savings at the Mizzou Rec Center

Custom configuration specifications on natatorium dehumidifiers will save the University of Missouri millions of dollars in operating costs over the life of the building.



Columbia, Mo. — Visitors to the new \$49-million Rothwell-Brewer Student Recreation Center Complex are usually in awe of one of the nation's top five recreation projects and Missouri's largest aquatic complex. Equally awesome is the behind-the-scenes energy

savings that has been built into the state-of-the-art project, which will save the University of Missouri millions of dollars in operating costs over the life of the center's dual natatoriums.

Rather than ordering a conventional economizer to take advantage of approximately 1,500 hours of cooler outside air during the spring and fall seasons, energy saving configurations were specified for each of the five commercial dehumidifiers supplying the competition pool and leisure pool natatoriums.

The custom-manufactured equipment configuration by

indoor air quality manufacturer, Dectron Inc., Roswell, Ga., places 4,100-cfm (minimum code) and 22,900-cfm (purge) exhaust fans *before* the evaporator coil, and relies solely on the supply air fan to re-circulate natatorium air during unoccupied hours, at a significantly reduced energy rate. The minimum exhaust fan operates only during occupied periods, as opposed to a conventional economizer, which operates a full-size return fan in conjunction with the 24/7-supply fan.

The configuration specification, which was overseen and facilitated with Dectron by the manufacturer's representative, is capable of introducing 100% outside air to purge the space effectively during super-chlorination periods. Splitting the two exhaust fans makes each dehumidifier more efficient with both net sensible cooling

and fan operation. In comparison to conventional economizer operation, the resultant annual fan energy savings from the 37,800-sq. ft. competition natatorium's four DRY-O-TRON® DS-242 dehumidifiers is \$62,000, plus another \$14,400 for the 8,000-sq. ft. leisure pool's single DRY-O-TRON® DS-282.

Dectron's technology allows for smaller compressors than those used in comparably sized dehumidifiers, thus saving energy while delivering equal moisture removing capacities. When combined with Dectron's glycol Smart Saver option that recovers heat from exhaust air to preheat or precool outdoor air for space heating/cooling,



The Lazy River attraction in the club pool.

diameter threshold, which is a National Fire Protection Association (NFPA) code related to sprinkler system placement.

The Rothwell-Brewer project is the largest recreation project in the history of Missouri higher education, and will

All totaled, Dectron's specification saves the project more than \$130,000 in annual operating costs and millions of dollars over the life of the facility.

the large and small natatoriums save an additional \$46,000 and \$12,000, respectively, in annual compressor operation and air heating savings.

All totaled, Dectron's specification saves the project more than \$130,000 in annual operating costs and millions of dollars over the life of the facility.

The installation savings associated with one large unit for the competition pool had been considered; however, for redundancy, it was decided to divide the dehumidification load into four units. Additionally, one large unit would have complicated the air distribution design, which is divided into zones and now supplied by each unit. Four DRY-O-TRON® units also allowed the ductwork size to remain below the 48-inch

All air distribution is from ceiling-hung ductwork, as the preferred method of adding under deck air distribution was physically impossible in both the Rothwell Gymnasium and Brewer Fieldhouse buildings' retrofits due to their existing foundations.

Another energy saving option employed was recovering compressor heat to provide free pool water heating for up to 9 months of the year.

The design also saves significant energy, while simultaneously providing air comfort to the 1,000-seat spectator section. The large 7,000-sq. ft. area uses a supplemental chilled water-cooling coil in a Dectron unit that supplies cooler, dehumidified air to spectators via a single duct run.

undoubtedly influence future natatorium designs in the 21st Century, especially in light of growing energy saving demands.

Dectron Inc., an ISO-Certified company, is a global HVAC industry leader. For nearly 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
Suite 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.: (514) 336-3330
1 888 DECTRON
Fax: (514) 337-3336



www.dectron.com

Dectron Inc. is a subsidiary of Dectron Internationale Inc.