



**DRY-O-TRON® DS-202 DEHUMIDIFIER**



## YMCA Saves Costs with Custom HVAC Equipment and Value Engineering

**Heat recovery for pool water heating, fabric ductwork for airflow alternatives, and HVAC equipment modifications add up to savings.**

**Plainfield, Ill.** — Client requests for state-of-the-art energy efficiency and value engineering of the HVAC systems at the C.W. Avery Family YMCA produced ingenious “outside the box” innovations. The 52,000-square-foot facility had the watchful eyes of a generous donor, plus the high profile status as the first YMCA internationally to be a collaborative effort between a school board, a hospital, a city, and a park district. The imaginative HVAC design helped

facility tens of thousands in construction costs, were used.

The Avery Y project, honored by Dectron Inc., Roswell, Ga., as the milestone 400<sup>th</sup> dehumidifier sold to YMCAs internationally, uses a custom-manufactured DRY-O-TRON® DS-202 dehumidifier with a heat recovery process to heat the 8-lane indoor pool’s water to 80°F. It simultaneously keeps the 9,100-square-foot natatorium’s relative humidity and space temperature

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provide more value for the \$10.1-million recreation center as heat recovery options, air distribution designs that afforded smaller and more efficient blower motors, plus many other innovative HVAC value-engineering solutions to save the

at a comfortable 50-percent and 82°F, respectively, which will result in annual operational savings of up to tens of thousands of dollars. It was also estimated that Dectron’s unique pool water heating feature on the dehumidifier, which is also



The 8-lane indoor pool at the C.W. Avery YMCA.

uniquely fitted with a factory-installed natural gas back-up boiler, would cut energy usage by 20 to 25 percent, versus using a standard swimming pool water heater with no heat recovery.

The specification of this feature saved thousands of dollars in piping, equipment placement labor, and mechanical room space. Since the boiler is located on the roof with the dehumidifier, it is also safer because the combustion process is far removed from interior mechanical rooms, where flammable and corrosive pool chemicals are present.

As Dectron is capable of custom manufacturing, another energy-saving specification places 3,300-cfm (minimum code) and 16,100-cfm (purge) exhaust fans *before* the evaporator coil, and relies solely on a supply air fan to recirculate 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 is capable of introducing 100% outside air to purge the space effectively during super-chlorination periods. Splitting the two exhaust fans makes

the dehumidifier more efficient with both net sensible cooling and fan operation. In comparison to conventional economizer operation, the resultant annual energy savings from the 9,100-square-foot natatorium's dehumidifier is over \$40,000 annually, for the fans alone.

Further energy efficiency comes from the specification of Dectron's Smart Saver heat recovery coil option, which extracts heat from the exhaust airstream to preheat the outdoor air, thus requiring 50% less energy for make-up air heating.

Moreover, the synergy between the HVAC design and the architecture assured the building orientation of windows on the south, west, and east sides would promote more solar gain in the winter and less in the summer months, resulting in a smaller-sized dehumidifier compared to other similar-sized natatoriums. Smaller blowers will also produce significant long-term energy savings over the life of the building.

Aesthetically, the ample use of floor-to-ceiling windows and the request for an open architecture ceiling, versus a drop-ceiling design, subconsciously give swimmers the more open feeling of swimming outside rather than in an enclosed area.

Collaboration between the architect and engineer is also evident in the

The custom-manufactured DRY-O-TRON® DS-202 installed at the C.W. Avery YMCA is Dectron Inc.'s milestone 400<sup>th</sup> dehumidifier sold to YMCAs internationally.



rooftop dehumidifier positioning, which is in close proximity to the 6-foot higher outside wall of the natatorium. Instead of a large amount of costly fabrication and installation labor associated with rooftop equipment, the rooftop ductwork merely projects 5 feet laterally out of the unit and through the natatorium wall to the interior perimeter duct connection. This short ductwork run with no elbows also reduced static pressure and allowed for smaller horsepower motor/blowers that saved approximately 5 percent in air distribution operational costs.

While controlling costs helped make the project successful and more functional, subliminally the HVAC design created a comfortable swimming environment that will ultimately pay off in attendance figures.

Dectron Inc., an ISO-Certified company, is a global HVAC industry leader. For 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.



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