

Precision Comfort and
Dehumidification for

Indoor Swimming Pool Environments

Complete Packaged
Dehumidification Systems
2-240 Tons





The Natatorium Challenge

Improperly controlled humidity and temperature in a natatorium, or indoor swimming pool facility, creates more than swimmer discomfort. Wide occupancy swings, varying activity levels, extreme humidity loads, and the constant presence of corrosive pool chemicals combine to create one of the most demanding commercial HVAC environments. The equipment you specify must be able to handle these conditions while also being purpose-built to outlast them.

Engineered for the Application, Not Adapted for It

Unlike competitor off-the-shelf units, AAON packaged rooftop units can be designed specifically for the natatorium application. With over a decade of continuous refinement in the indoor pool space, AAON has developed a targeted set of features, control sequences, and options validated against the real-world demands of natatorium environments. From humidity precision to corrosion resistance, every specification has been developed and proven in the field.



CHALLENGES EVERY NATATORIUM MUST SOLVE

The indoor pool environment presents a unique convergence of HVAC demands. Any equipment selection must address:

- Controlling humidity precisely year-round
- Maintaining comfortable indoor air temperature
- Protecting against corrosion, mold, and mildew
- Preserving safe, clean indoor air quality
- Containing high operating costs

For each of these challenges, AAON has a direct approach.



Precision Temperature and Humidity Control

Indoor pools are unique because they require warm water and comfortable air temperatures. However, the warm water drives constant evaporation, which leads to high amounts of moisture in the air that must be continuously removed. AAON natatorium units utilize simultaneous heating and cooling to solve these two competing demands at once: maintaining comfortable air and water temperatures while also constantly removing moisture.

Humidity control is the defining performance requirement in any natatorium. Too little and operating costs climb unnecessarily. Too much and the building faces mold, corrosion, and occupant discomfort. AAON units are engineered to hold ideal conditions year-round, regardless of occupancy load or outdoor conditions.

Modulating hot gas reheat delivers precise dehumidification without overcooling the space, maintaining target humidity levels. Variable capacity and variable speed compressors match refrigeration output exactly to the load, eliminating the inefficiency of on/off cycling and enabling tighter temperature control.

Even at lower ambient conditions, head pressure control is used to allow the unit to provide cooling and dehumidification for the space. VFD and ECM fans provide adjustable airflow for better environmental control and improved energy efficiency across varying load profiles.

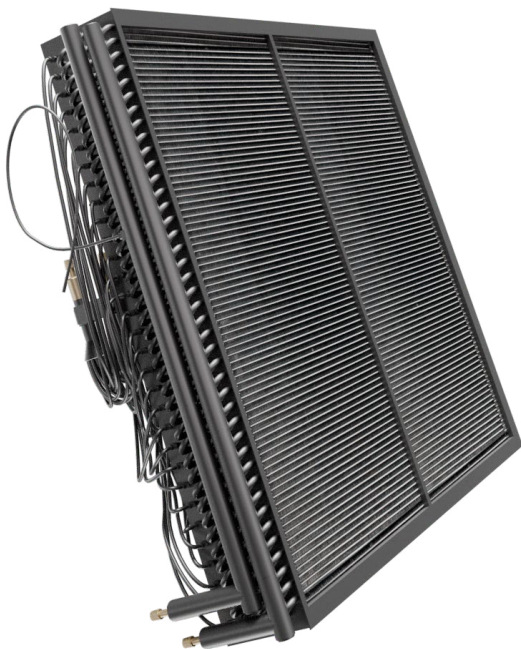
Over-dehumidification drives up energy bills and accelerates equipment wear. Under-dehumidification invites mold, corrosion, and discomfort to the occupants. AAON units are designed to provide balance.

BUILT TO RESIST CORROSION

Safe pool water contains harsh chemicals that can aggressively wear down your HVAC systems. AAON pool units are constructed with corrosion protection inside and out.

- Exterior and interior 2,500-hour salt spray tested polyurethane paint standard in cabinets
- Polymer e-coated cooling coils rated to 10,000-hour salt spray testing
- Polymer-coated modulating hot gas reheat coil for corrosion resistance in high-humidity airstreams
- Stainless steel condensate drain pan
- TEFC motors to shield windings from corrosive pool air
- Full interior corrosion-protection coating
- Corrosion-resistant space temperature and humidity sensors available

When the wrong equipment is installed in an indoor pool environment, the consequences extend beyond the HVAC unit itself: structural degradation, shortened building system lifespan, and costly emergency replacements. AAON is designed to protect both the unit and the facility it serves.



Healthy Air for Swimmers and Spectators

Indoor pools create dynamic environments. Swimmers exert themselves in chemically treated water while spectators sit at rest - two occupant types with distinct comfort and air quality needs sharing the same space. Add the buildup of chloramines and the chemical byproducts formed when chlorine reacts with ammonia from perspiration, and you have a real indoor air quality challenge that standard ventilation strategies are not designed to address.



Chloramine buildup presents three risks if left unmanaged:

- **Respiratory irritation** for both swimmers and spectators
- **Strong, persistent chemical odors** throughout the facility
- **Degraded overall air quality** that drives away return visitors

Ideal environmental targets for natatoriums

Maintaining a healthy, inviting natatorium requires precise control of:

- **Humidity:** 50–60% relative humidity per ASHRAE 62.1 and an industry best practice
- **Air temperature:** 2–4°F warmer than the pool water surface temperature
- **Ventilation:** Consistent airflow to dilute and exhaust chloramines and other contaminants

HOW AAON DELIVERS

- Modulating hot gas reheat for precise humidity control year-round
- Simultaneous heating and cooling for maintaining comfortable, dehumidified air
- Outdoor air supply with building pressure control to dilute contaminants
- Energy recovery wheels to capture exhaust heat and reduce energy usage
- High-efficiency filtration options for cleaner air

The result is reduced odors, less skin and eye irritation, and a more comfortable experience for both swimmers and spectators.





Energy Efficiency

MANAGING THE COST OF YEAR-ROUND OPERATION

Natatoriums operate year-round, often daily for long hours. High ventilation requirements and continuous dehumidification loads make energy cost a top concern.

AAON KEY ENERGY-SAVING FEATURES

The AAONAIRE energy recovery wheel captures heat from exhaust air and transfers it to incoming outdoor air, reducing energy usage. A powder-coated casing is available for corrosion protection.

Occupied and unoccupied mode automatically adjusts operation to match facility scheduling, reducing conditioning load during off-hours while maintaining safe minimum conditions. Variable capacity compressors paired with backward-curved, direct-drive plenum fans eliminate fixed-speed inefficiency and delivers the exact output the space demands.

Dual minimum outdoor air control reduces outdoor air intake during unoccupied periods to the minimum necessary for space protection, offering energy savings.



Standard Features

INCLUDED ON EVERY AAON POOL UNIT

- Double-wall cabinet and access door construction with polyurethane exterior paint exceeding a 2,500-hour salt spray test
- Compressors, controls, and heating components located in a single compartment isolated from the airstream for ease of service and longevity
- Interior coating for corrosion protection
- Polymer e-coated cooling coils passing a 10,000-hour salt spray test
- Polymer-coated modulating hot gas reheat
- TEFC motors to protect motor windings from corrosive natatorium air
- Head pressure control for dehumidification mode below 55°F ambient temperature
- High-efficiency variable capacity (digital) or variable speed compressors
- R-454B environmentally friendly, low-GWP refrigerant
- Thermostatic expansion valves on all DX systems for improved performance
- Stainless steel condensate drain pan
- Advanced refrigeration control for energy optimization and precision
- Run test report, wiring diagram, installation manual, and startup form located in the control access compartment

Premier Options

CONFIGURABLE FOR YOUR EXACT REQUIREMENTS

- AAONAIRE energy recovery wheel, with optional powder-coated casing
- Polymer e-coated condenser coils
- Refrigerant-to-pool-water heat exchanger
- Power exhaust for building pressure control
- Compressor isolation valves
- Second stage compressor lock-out
- Phase and brown-out protection
- Occupied / unoccupied mode for energy-saving operation
- Horizontal configuration for applications requiring horizontal ductwork
- Simultaneous heating and cooling
- 10,000-hour salt spray rated exterior paint upgrade
- Corrosion-resistant space temperature and humidity sensors
- Electric preheat available in select rooftop models and sizes



READY TO SPECIFY AAON FOR YOUR NATATORIUM PROJECT?

AAON sales reps are available to support your selection process, from early design through submittal and commissioning. Whether you are evaluating a new facility or replacing aging equipment, AAON reps will work with your team to identify the right configuration for your specific load profile, climate zone, and project requirements. AAON pool units are available from 2 to 240 tons.

Contact your local AAON representative today.

Find Your Rep



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Engineered and built in America.

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