

Environmental Control of Spectator Areas in Natatoriums

TB-003

There are generally three ways to condition natatorium spectator areas.

1. Isolate the spectators in their own environmental zone. This solution requires a dedicated HVAC system for this zone. It guarantees comfort conditions for the spectators regardless of the conditions in the natatorium. This solution is the most expensive for both architectural and mechanical equipment perspectives. This solution is used occasionally.
2. Include the spectator area in the same general area as the pool area and provide a dedicated HVAC system for the spectator area and another HVAC (pool dehumidifier) for the natatorium. When a meet is being held, the spectator HVAC system is activated and attempts to keep this space about 10 degrees cooler than the general pool room. This system is deactivated when there is no meet and the natatorium dehumidifier conditions the spectator space.

The first cost and operating cost of this approach is very high. The success rate for this approach has been low. One facility that used it had difficulty getting cool air to the spectators as that HVAC system “fought” with the natatorium’s HVAC system. The ceiling areas where the spectator diffusers were located were always covered with condensation from humid air that migrated from the pool room area. They had a dropped ceiling and the suspension wires were corroding due to chlorine compounds and condensation forming on them. This method of conditioning the spectator area is done very rarely.

3. The most prevalent method of conditioning the spectator area is to run a supply air duct from the poolroom’s dehumidifier above and in front of the spectators. Diffusers are aimed at the faces of the spectators so they feel the driest supply air blowing across their bodies. In this way they get the evaporative cooling effect from the supply air. The return grills must be placed on a wall opposite from where the spectators are sitting to prevent the humid return air from coming in contact with the spectators.

During meets the pool has less evaporation than during general swim sessions because of the smaller number of people using the pool. The resulting lower evaporation rate usually results in the dehumidifier having some “excess” cooling capacity. Therefore, during swim meets the space temperature setpoint can be lowered a few degrees for the benefit of the spectators. After the meet the air temperature setpoint can be put back to the original design temperature.

This approach to controlling the spectator area environment is the lowest first cost and operating cost of the three solutions. This approach has an excellent success track record.