RELATIVE HUMIDITY (RH)

Humidity Levels (excerpt from ASHRAE Manual)

A natatorium requires year-round humidity levels between 50 and 60% for comfort, reasonable energy consumption, and building envelope protection. The designer must address the following concerns: humidity control, room pressure control, ventilation requirements for air quality (outdoor and exhaust air), air distribution, duct design, pool water chemistry, and evaporation rates. A humidity control system alone will not provide satisfactory results if any of these items are overlooked. See Chapter 24 of the 2008 ASHRAE Handbook—HVAC Systems and Equipment for additional dehumidifier application and design information.

Humidity Control

People who are wet are very sensitive to relative humidity and the resultant evaporation that occurs. Fluctuations in relative humidity outside the 50 to 60% range are not recommended. Sustained levels above 60% can promote factors that reduce indoor air quality. Relative humidity levels below 50% significantly increase the facility's energy consumption. For swimmers, 50 to 60% RH limits evaporation and corresponding heat loss from the body and is comfortable without being extreme. Higher relative humidity levels can be destructive to building components. Mold and mildew can attack wall, floor, and ceiling coverings, and condensation can degrade many building materials. In the worst case, the roof structure could fail because of corrosion from water condensing on the structure.