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HUMIDITY RANGE

Implications of the New OR Humidity Range

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In July 2010, ANSI/ASHRAE/ASHE released Addendum “d” to Standard 170, which reduces the minimum design humidity for short-term patient care spaces from 30 percent to 20 percent. ASHE has published a number of other documents describing the background and rationale for this forward-thinking evolution to the Standard, but this brief article focuses on the design and operating implications that must be considered when implementing the expanded humidity range.

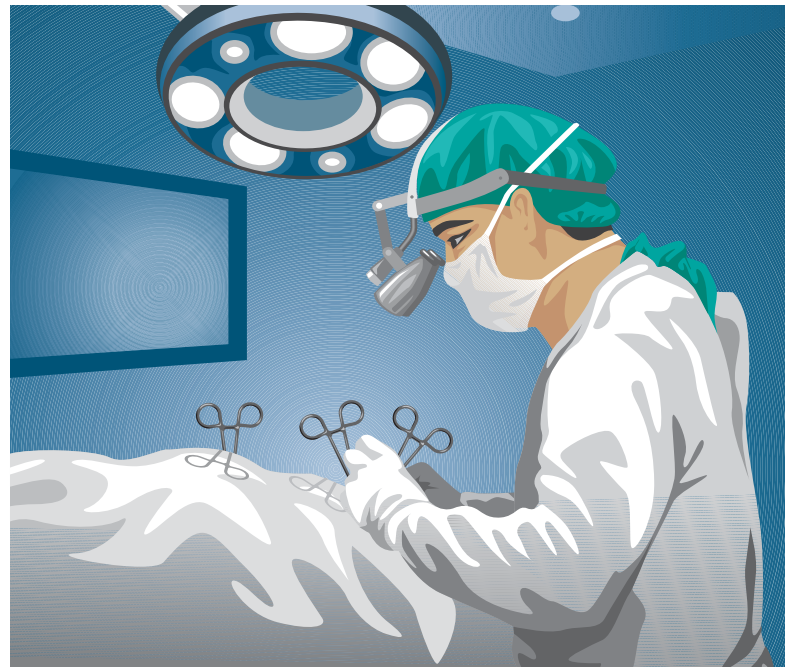
What’s at Stake?

Regulatory agencies have been known to levy steep fines on facilities whose logs show that their operating parameters have fallen outside the prescribed acceptable humidity range. In one documented case, the California Department of Public Health fined a health care provider \$100,000 for allegedly performing three Cesarean sections below the 35 percent minimum prescribed by the Centers for Medicaid and Medicare Services.

The shift down to 20 percent is a particularly positive development for existing facilities that previously had difficulty meeting the prescribed 35 percent minimum humidity. However, no facility wants to find itself in a position where it has implemented systems that are unable to maintain the new prescribed range. The added nuance to the new 20 percent minimum is that the space must *always* be maintained at or above this minimum condition.

Design Implications

ASHRAE 90.1 prescribes design requirements for sizing equipment. Equipment capacities are sized based on the 99.6 percent heating design temperatures and 1 percent dry-bulb and mean coincident wet-bulb cooling design temperatures. With ANSI/ASHRAE/ASHE 170’s Addendum “d” humidity revision, systems now need to be designed based not on the 1 percent temperatures, but the extreme temperature condition. In other words, the system must meet a minimum of 20 percent relative humidity in *all* conditions. This means designers must understand the extreme condition (per local climate data) and build in the appropriate factors of safety to meet 20 percent minimum relative humidity in *all* conditions.



Operating Implications

Most humidists cycle relative humidity around a setpoint. In order to ensure that the room never drops below 20 percent relative humidity, the system operator will want to set the minimum humidity above this absolute minimum—perhaps 22 percent or higher—to accommodate typical operating tolerances of room control devices.

Summary

The lower limit humidity change is a positive one that will lead to appreciable equipment and operating cost savings without compromising occupant health and safety. Both design engineers and facility managers must understand, though, that accompanying this positive development is zero tolerance—in any conditions—for falling below the new minimum. Understanding this fact, and adapting design and operating strategies to accommodate this absolute limit, will protect members from the financial and health risks of falling outside these new limits.