REFRIGERATION REVIEW

REHEAT IN AIR UNITS

The control of humidity in a room can be a challenge, particularly for coolers and dock areas where environmental temperatures greatly affect the need for refrigeration. When these higher temperature room temperatures are satisfied and the refrigeration basically is turned off, additional humidity in the room will not be removed and the humidity will climb unabated. The two common ways to address this situation are to use desiccant units and the use of reheat.

Desiccant units can be very effective in isolated areas such as around doorways that experience a lot of infiltration, and they are used quite often around spiral freezer inlets and outlets to minimize infiltration.

Reheat can be very effective in maintaining humidity in high temperature rooms and is quite often employed in air conditioning systems in super market stores where a wide variety of temperatures are experienced.

There are occasions where both are used: reheat is used in a process area as well as desiccant units in the same area for spiral freezer applications. Generally, reheat is more cost effective and can be provided by adding a couple rows of reheat circuits to an air unit that might have six to ten circuits of cooling.

Reheat is provided in refrigerated rooms “naturally” in the following way. Air from air units will almost always discharge over product adjacent to the ceiling or roof. After air leaves the cooling coil, where it comes out muggy and with high humidity, it almost immediately picks up heat from the roof transmission heat as well as the electrical lights positioned along the ceiling.

Depending on the SHR of the cooling coils, typically, this will provide a room with humidity in the 70% range. The design of the coil can affect the humidity as well. Air units with a high temperature difference (15°) will produce air at a lower humidity than a coil at a 5° or 6° TD. So selection of air units, and their seasonal influence, are factors in whether additional reheat coil is needed to maintain the desired conditions in the space.