TECHNICAL INFORMATION COMMUNICATION

United Technologies
Building & Industrial Systems

Quality and Continuous Improvement

Number: TIC2015-0007 **Date:** 4/1/2015

Title: Côr™ & Housewise™ Thermostats Temperature/Humidity Accuracy & Control

Product Category: Wall Controls

Products Affected

TP-WEM01, T6-WEM01

Situation

The factory has received reports from the field regarding temperature/humidity accuracy and control issues. Investigation has revealed the root cause to be air leakage from unsealed wiring holes.

Technical Information

Unsealed wiring holes behind the installed thermostat can result in air leakage through the thermostat when the system is operating. In some cases, the air leakage through the thermostat can affect the temperature and the relative humidity measurements and thus will affect the thermostat's ability to manage the conditioned space.

Figure 1 below shows an example of air leakage causing a thermostat to overshoot the desired temperature. When the indoor temperature drops below the differential temperature setting (0.5°F by default) the thermostat engages the equipment (A). If the wiring holes behind the installed thermostat are not properly sealed, air can leak into/out of the wall and across the thermostat when the blower begins running. The air leakage can cause the temperature reading to drop rapidly (B). The thermostat continues running the equipment until the indoor temperature reading, which is now lower than the actual indoor temperature due to the air leakage, reaches setpoint (C). With the equipment now off and air no longer leaking across the thermostat, the thermostat's temperature reading returns to normal and the overshoot of the actual indoor temperature above the setpoint can be seen (D). NOTE: Since relative humidity is inversely proportional to temperature, the humidity measurement is also affected during this process (See Figure 2).

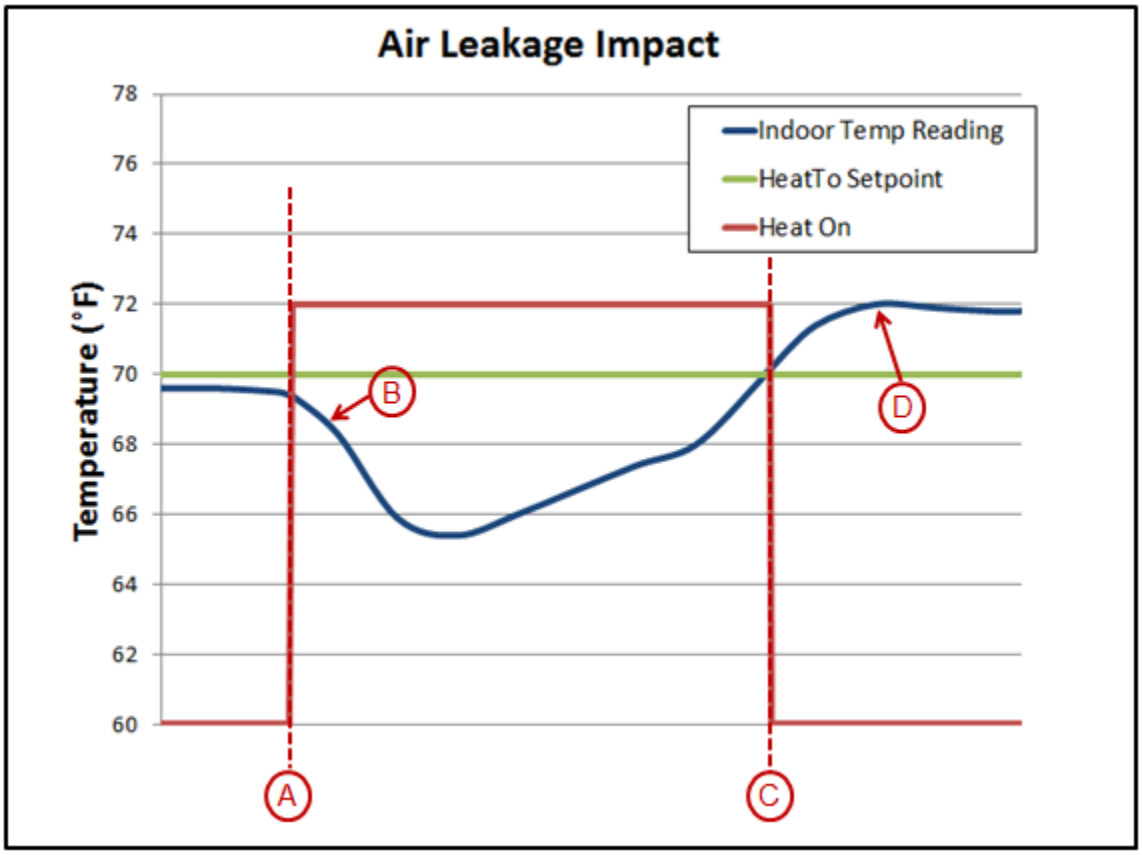

Figure 1: Example of the impact of air leakage on indoor temperature control

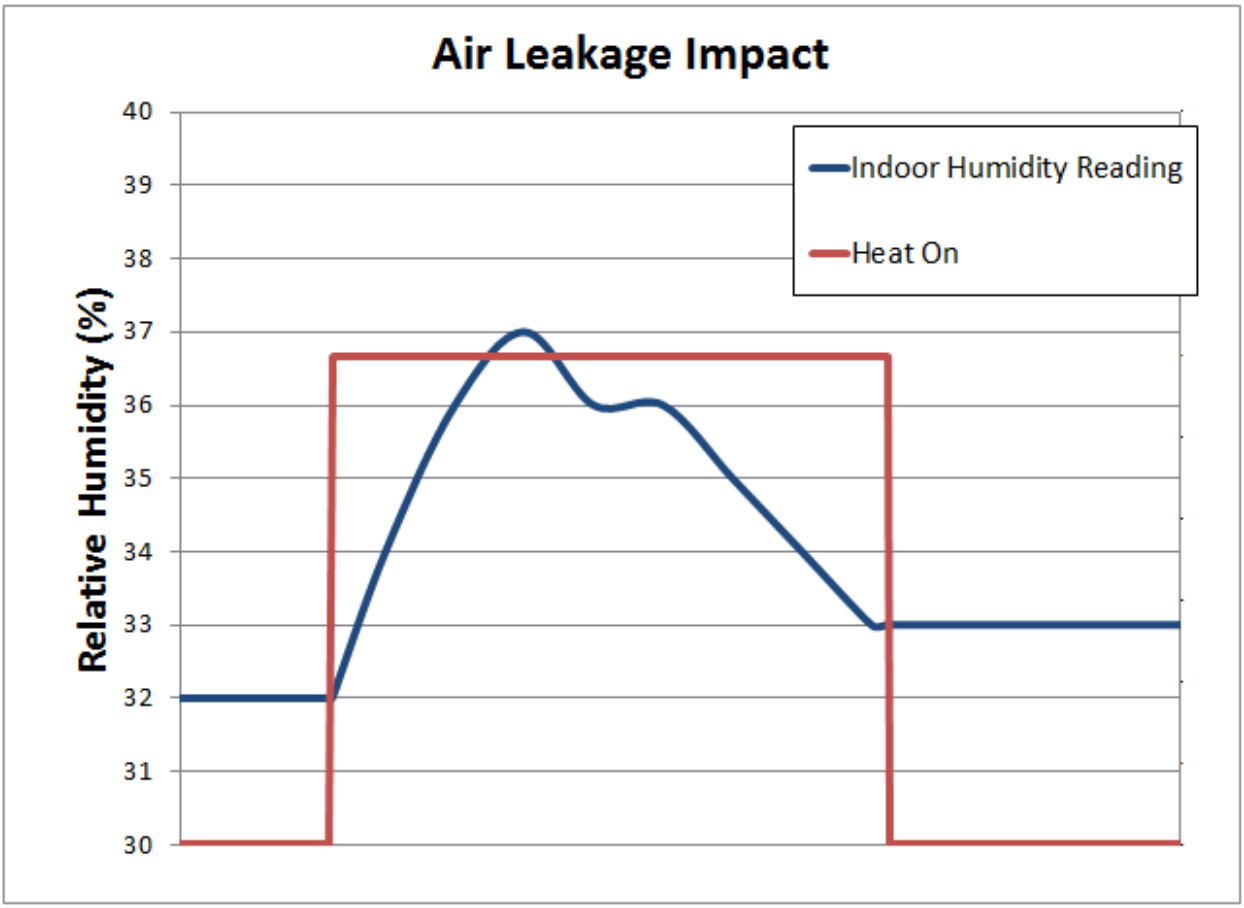

Figure 2: Example of the impact of air leakage on humidity measurement

As a best practice, excess wiring should be pushed into the wall and the hole should be sealed to prevent air leakage.

Solution

For future installations of the Côr™ and Housewise™ thermostats, the factory has taken action and added two gaskets to the thermostat to help reduce the impact of air leakage on thermostat performance. To identify products with the gaskets, verify the serial number date code is on or after the 10th week of 2015. For example, a serial number of 1015Wxxxxxx indicates the unit was manufactured during the 10th week of 2015.

IMPORTANT NOTE: While the gasket will help, it is not a suitable alternative for sealing the wiring hole.