Submitted (6/2907) by Mark Cherniack, New Buildings Institute

Chris: the following comments are submitted related to those submitted by Mr. Steve Tom, Automated Logic Corporation, of which I received a copy from Mr. Tom, on the **Nonresidential Fault Detection and Diagnostics for Air Handling Handling Units, VAV Boxes, and Rooftop Air Conditioners (6/29/07)**

Following the number of his pdf format:

2. The algorithms do not require any additional hardware in the sense of a computer, processor, network interface, etc. The algorithms were designed to use sensors that are generally already installed for control, but the two Steve mentions are sometimes omitted. There are versions of both APAR and VPACC for systems without mixed air temperature sensors or discharge air temperature sensors, respectively. This is documented in NISTIR 7365.
Also, FDD may provide enough of a reason to install these sensors - this is not an expensive addition.

3. VPACC can detect drift in both room temperature sensors and airflow (DP) sensors. This is documented in NISTIR 6964.

4. There is a difference between detecting a fault and diagnosing it. Each of the faults mentioned in this comment (disconnected inlet duct, disconnected or slipping damper actuator, blocked duct, or faulty flow sensor) would result in a VPACC alarm of "airflow out of control - low." The faults would be detected, in that VPACC would indicate that a fault was present, but not diagnosed, since the same list of possible causes would be presented for each case.

5. This is correct, it is preferable to use the term "unitary air conditioners and heat pumps" instead of "rooftop unit" or RTU.

6. NIST is researching an FDD algorithm for unitary conditioners and heat pumps.
Contact: Dr. Piotr Domanski (301) 975-5877 piotr.domanski@nist.gov