

Energy - Docket Optical System

From: John Phillip Brown [jbrown@ewcccontrols.com]
Sent: Wednesday, December 12, 2012 2:28 PM
To: Energy - Docket Optical System; Roy, Aniruddh; Mike Reilly; Brook, Martha@Energy; Stan Plepis
Subject: 12-BTSD-06
Categories: Ready to Docket



To whom it may concern,

EWC Controls shall go on record, as having several concerns over the proposed changes to the CEC's 2013 Alternative Calculation Method:

- ***The default 260cfm/ton for zonal control with ducted single speed compressor systems, 350cfm/ton is mandatory minimum for all other ducted systems.***
 - This proposal appears to allow a 25% difference in measured Supply volume versus measured Return volume in zonal mode.
 - Is this remaining value of 25% reserved for the anticipated Bypass Algorithm? $350 - 260 = 90$ divided by $350 = .25$
 - The formula works for other CFM values per ton, so long as the minimum *true* return duct flow (measured upstream of the bypass connection) is specified at 75% of the total system CFM.
 - Will a Zonal Cooling credit be allowed so long as field verification (HERS) confirms a bypass volume that is lower than 25% or does not exceed 25%?
 - As it pertains to HERS verifications; *Airflow verification or return duct sizing is mandatory except for Zonal control with ducted single speed compressor systems.*
 - This seems to conflict with a possible zonal cooling credit if the minimum 260cfm or higher return duct flow is achieved on single stage systems, or are we misinterpreting the statement?
 - What about 2 speed compressor systems where the system capacity can be limited (via the zone controller's ability) to match the zone(s) demand?
- ***Supply Air Dampers must be manufactured and installed so that when they are closed, there is no measurable airflow at the registers.***
 - Will the CEC repeat a dis-allowance of air leakage past the inactive damper(s) serving a *non-occupied zone*?
 - (Zone Mfr's **never** advocate leaking air into any unconditioned area)
 - Mr. Wilcox agreed with me (during our face to face meeting in Sacramento) that the current Title 24 prohibition against damper leakage had been a mistake that exacerbated the excess bypass flow issue.
 - Mr. Proctor and Mr. Wilcox have both stated that "A small percentage of damper leakage may be an effective means of reducing bypass flow"
 - ACCA Manual Zr advocates a maximum 20% leakage past the control damper, as a means of reducing bypass flow and reducing air stratification, in air zone control applications.
 - Controlled air damper leakage reduces bypass flow, reduces air stratification in all areas of the home and increases true return flow from the home.
 - The correct amount of air leakage can produce "*anticipation effect*" and delay the next heating/cooling operation by off-setting the heat loss or heat gain in a satisfied zone.

- To continue this prohibition against air leakage past the inactive damper, in our opinion, would be illogical and directly impacts the CEC's efforts to reduce bypass flow.
- ***An algorithm will be developed to model the impact of bypass ducts on cooling system performance.***
 - EWC would like to be involved and assist in the CEC's efforts to create an algorithm that correctly reflects the effect, of a properly designed and functioning bypass on the HVAC system's EER.
 - EWC plans to Zone and Instrument two or more homes in Sacramento California.
 - The Design, Installation and Commissioning will be performed by EWC Controls and/or supervised by EWC Controls.
 - The EWC zoned homes will be tested by one or more independent PE firms, including ACCA, to determine any loss of EER.
 - EWC plans to complete this work by early Summer 2013.
 - EWC intends to show that a properly designed air zone system (with a properly designed bypass) has a negligible effect on cooling EER.
- ***EWC may have other valid concerns that are not listed or identified here, as we continue to review the 2013 ACM.***

--

Best Regards,

John Phillip Brown
 Chief Engineer
 EWC Controls, Inc.
 385 State Route 33
 Englishtown, NJ 07726
 800-446-3110 ext.462

Confidentiality Notice

This electronic transmission and any files or documents transmitted with it are private and confidential and are solely for the use of the addressee. It may contain material which is legally privileged. If you are not the addressee or the person responsible for delivering it to the addressee, be advised that you have received it in error and that any use of it is strictly prohibited. Notice: Confidential Information: All information included in this E-mail is proprietary and must be treated as such. The data supplied can only be used and produced for EWC Controls and their products.