



HVAC ZONING and FRESH AIR VENTILATION

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October 31, 2011

To: California Energy Commission

Subject: October 13 and 14, 2011 Workshop - 2013 Building Energy Efficiency Standards

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10-BSTD-01

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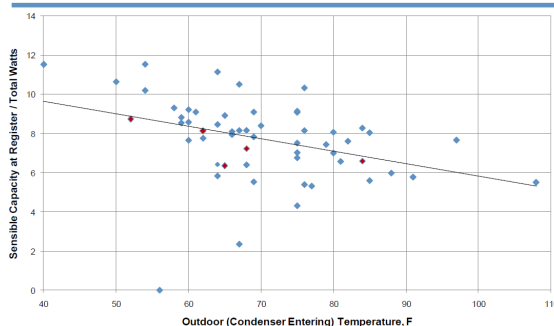
I am writing to vehemently oppose the new revised rule making that disallows the use of by-pass dampers directed into the return air duct and to insure that the Title 24 Credits for Zone Damper Systems remain.

By-pass dampers have been successfully used for 50 years in residential and commercial duct systems. I cannot believe, after the literally millions of zoning systems installed with by-pass ducted into the return, that there has not previously been an industry backlash that would have prevented this sooner. All of the major manufacturers of HVAC Equipment, Carrier, Lennox, Trane, York and others have used by-pass as an effective means of relieving excess air. If these affected their system efficiency they would have stopped the use of by-pass years ago and not continued the practice.

The data supplied in the prior workshops regarding by-pass are not representative of properly designed duct systems. The zoning examples studied and presented to the CEC in the April 12, 2011 report, all had other significant system flaws that adversely affected the findings. I have always stated that adding zoning to a good system will make the overall system better, while zoning marginal or poorly designed and installed systems worse. From the photos supplied, in this report, it was obvious that flex duct was crimped and not properly supported, which will greatly affect airflow. The location and adjustment of the by-pass damper was never addressed. I believe many of these systems had undersized or poor return ducting that will also greatly affect the data.

Zoned A/C

Zonal Systems (red) Have Low EER



CA Utilities 2013 Title 24 Stakeholder Meeting for Proposed Code Changes

04/12/2011

By viewing this slide, from the April 12, 2011 meeting, it is obvious there were many systems that fell, not only below the line but even lower than the zoning systems. I look at this chart and three of the zoning systems are at or very close to the median with one slightly below and one more significantly below the median. A quick look at this chart, would make it appear that almost as many non-zoned systems fell below the line as were above it.

I personally offered Mssrs. Wilcox, Proctor and Chitwood to view a couple of properly designed and installed systems. Only Mr. Chitwood, I understand made it to one of these installations, however did not have the time or instruments to test these systems.

I believe there is a great bias against zoning and by-pass based on the poorly designed systems presented as examples. The overall energy savings benefit that zoning provides and has been documented in four studies presented Mssrs. Wilcox, Proctor and Chitwood have been ignored in favor of their findings.

I have offered to show how correcting the test systems would show the benefit of zoning and lessen any impact on the operating efficiency of the units. This offer has not been responded to along with any other proof offered to contradict the previous zoning study.

Members and Supporters the following Industry Associations:



In addition to the proposed elimination of the by-pass and zoning credit, the proposal of mandating 350 CFM per ton as a minimum standard is outdated with today's high efficiency equipment. Almost every major manufacturer of high efficiency equipment is currently using variable speed motors. These motors modulate to vary the delivered amount of air and often will fall below the proposed mandated minimum of 350CFM. If CEC accepts the new proposed language, you are in effect outlawing any HVAC High Efficiency furnace and air conditioner with an ECM Motor.

This is ludicrous to think that by the time this new regulation takes effect, CEC has virtually outlawed all high efficiency equipment, with or without zoning. The proposed changes are behind the times now and will be further behind as the HVAC Industry moves more and more to variable speed equipment and zoning. Those who propose these changes are totally out of step with continual improvement the HVAC Industry is making to reduce heating and cooling energy costs.

I implore you not to accept the findings of this study, which has studied systems that did not work as designed. It's the old computer adage, "garbage in is garbage out". If CEC were to eliminate zoning and by-pass, it might as well say you don't need a light switch in every room, just turn'em all on and off with one switch. Zoning is like having a light switch in each room. Each room doesn't need a lot of energy to raise or lower the temperature a few degrees. This is what zoning does and it does it with a very efficient furnace and air conditioner, vs. the alternative of individual room units.

On the contrary, CEC should be mandating HVAC Zoning for all homes and offices and follow the design standard of the soon to come ACCA Manual Zr. Just as ACCA's previous Manual J has been the industry standard for calculating heating and cooling loads, Manual Zr will do the same for zoning system design.

Please do not ignore the energy saving studies that prove substantial savings with zoning. These are the systems done correctly. Mandate that systems should be installed properly, and not follow the design of the test cases submitted.

Sincerely,



Richard N. Foster
President

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