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California Energy Commission
Attention: Docket No. 12-BSTD-1
Dockets Office
1516 Ninth Street, MS-4
Sacramento, CA 95814

DOCKET	
12-BSTD-1	
DATE	<u>MAY 30 2012</u>
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Subject: Response to Doug Scott-Vacom and the California Building Energy Efficiency

Comments Dated March 30, 2012 on the Standards, California Code of Regulations,
Title 24, Part 1 and Part 6 2013 Building Energy Efficiency Standards

Dear Energy Commissioner:

We appreciate the prepared response developed by HMG, PECl, VaCom with input from Jon McHugh. However, the response still does not clearly address key points presented in our March 8, 2012 letter and appears to be taking a position that industry consensus on condenser efficiency levels is not required.

Dictated efficiency levels would be precedent setting for the California Energy Commission or any standards development organizations. For example, the procedure to determine efficiency levels for cooling towers in the current Table 110.2-G included industry input, with efficiency levels submitted to the ASHRAE 90.1 committee, they were agreed upon, voted on and incorporated into the ASHRAE 90.1 and subsequently Title 24 standards. Specifically responding to your March 30 reply:

Point 1a: EVAPCO and other manufacturers of evaporative condensers feel it is relevant to compare Title 24 air-cooled condenser efficiencies to evaporative cooled condenser efficiencies. To establish a starting point for air cooled condensers at 12 Btuh/W over the "average below base case" compared to evaporative condensers at 85 Btuh/W above the "average below base case" figure is a cause for concern.

Point 1b: We are adamant about this issue for many reasons as outlined in our March 8, 2012 letter. In addition to those points, EVAPCO manufactures the

evaporative condensers used in the refrigerated warehouse market at our facility located in Madera, CA. We are concerned that the disparity in the proposed specific efficiency levels between air cooled and evaporative cooled condensers will adversely affect our business in California.

Point 2: EVAPCO is not opposed to the use of small capacity air cooled ammonia condensers, we confirmed this in our March 8, 2012 letter. If it makes financial sense with low utility rates or if used in conjunction with charging thermal ice storage systems at night, air cooled seems practical. It is rare to find a water or water chemistry that cannot be treated in order for an end-user to incorporate evaporative heat rejection systems that will save California four (4) times the amount of energy compared to air-cooled.

Point 3: Regarding Figure 71, in Appendix F Savings by Design, we incorrectly assumed the figure of 350 shown under the column of specific efficiencies was an average value. However, I would not assume the design conditions for all of these facilities would be the same at 100F SCT and 70F WBT.

2007	PG&E	Warehouse	Kerman	Axial-Fan Evaporative	35,000	213
2010	PG&E	Warehouse	Santa Maria	Axial-Fan Evaporative	68,000	206
2007	SCE	Warehouse	Visalia	Axial-Fan Evaporative	38,000	205
2010	SCE	Warehouse	Delano	Axial-Fan Evaporative	18,980	182
2007	PG&E	Warehouse	Bakersfield	Axial-Fan Evaporative	36,000	150
2008	SCE	Warehouse	Commerce	Axial-Fan Evaporative	76,000	118
2006	PG&E	Warehouse	West Sacramento	Axial-Fan Evaporative	45,000	102
Base Case						350
Avg. Below						
Base Case						265

Figure 71: Axial-fan evaporative-cooled ammonia condenser database

Finally, EVAPCO recommends reducing the specific efficiency values to a more realistic starting level for this code. We respectfully propose the following specific efficiency for Outdoor/Indoor Evaporative Cooled Condensers:

<u>Description</u>	<u>Specific Efficiency¹</u>
Vane-Axial/Outdoor	225 Btuh/Watt
Centrifugal/Indoor	150 Btuh/Watt

¹The specific efficiency above is based on 100°F condensing temperature at 70°F entering air wet bulb design condition.

These proposed efficiencies will address the stated goals of the CEC without requiring manufacturers to obsolete a significant number of existing models while enabling the purchaser to effectively optimize selections, address project specific layout issues and procure the most cost effective solution.

In summary, EVAPCO respectfully requests your consideration of the proposed specific efficiencies shown above which will result in a reasonable baseline for this section of the code at this time. This is proposed with the understanding that

future code revisions will likely include thermal performance certification and higher minimum specific efficiencies.

Best regards,



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