



# PERSPECTIVES

Newsletter

Issue 11-03

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The Following article was taken from Krueger's Air Distribution Blog and is proof that not all blogs are filled with celebrity gossip or other nonsense. No need to minimize your window on this one as your boss or other co-workers walk by.. The Blog containing his other articles can be found at <http://krueger-hvac.blogspot.com>

The author of this blog is Dan Int-Hout. Among his many accomplishments and contributions to the industry, Dan is the Chief Engineer for Krueger and is responsible for the presentation of technical data and advanced application engineering for the Grilles, Registers and Diffusers, as well as the VAV air terminals, produced by Krueger. Before that Dan worked at Titus, and at Environmental Technologies (ETI).

Dan has written over 40 technical papers and articles on VAV system performance, acoustics, air diffusion, controls and occupant comfort. He was recently Chairman of both ASHRAE Technical and Standards Committees on Thermal Comfort, is a past Chairman of several other related ASHRAE Technical and Standards Committees, as well as ASHRAE Standards, Technical Activities Committee (TAC). & Environmental Health Committees. Dan was installed as an ASHRAE Fellow at the Long Beach meeting in 2007, and is an ASHRAE Distinguished Lecturer and a Life Member. Dan was nominated to Chair the TRG7 Committee to rewrite the Underfloor Air Distribution Guide, at the Chicago ASHRAE meeting in 2009.



## LEED Calculations

We on the IE TAG of the USGBC, and members of ASHRAE SSPC 55 (Comfort) were recently tasked to assist some well meaning engineers in gaining the LEED 2009 point for designing for occupant comfort. As it turns out, there is a checklist now that requires the designer to predict/design the operative temperature, humidity, and air-speed in every type of space of their design. The question was asked, "Do we need to do calculations, or just a narrative?" A similar question has been asked about the proposed acoustical credits for New Construction posed in the draft of LEED 2012, which was out for public review in January.

While it would seem that there may be a future here for English Majors, especially those who specialized in creative writing, there are, in fact, many available tools to the engineer to do the necessary calculations.

The ASHRAE Comfort tool, which may be purchased from the ASHRAE bookstore, or even the Comfort Program available in the Krueger website, <http://www.krueger-hvac.com/tools/comfort.asp>, can provide the conditions which will meet the criteria, based on assumed metabolic rates and clothing.

Space conditions can be easily predicted using a number of load calculation tools. Radiant asymmetry is typically the most difficult to predict and very time consuming, but it is seldom an issue, unless one is using radiant panels, then many manufacturers have calculation programs available. Vertical temperature stratification will never be an issue with overhead air supply if one uses ADPI (maintaining a level >80%) to space and select air outlets. The Krueger K-Select program <http://www.krueger-hvac.com/kselect/>, has a robust ADPI calculation program that is able to

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graph ADPI as a function of air supply rate, which can be used (by the aforementioned English Major) to prove compliance to that part of the standard.

Acoustics for HVAC components is easily verified using the ASHRAE 885 Acoustical Application standard. The spreadsheet calculating those parameters is also available on the Krueger site ([http://www.krueger-hvac.com/lit/xls/885\\_08\\_calc.xls](http://www.krueger-hvac.com/lit/xls/885_08_calc.xls)).

Validating LEED requirements is likely a bit time consuming, but the resources are available to perform the necessary calculations to prove compliance.

Other resources available from [www.krueger.com](http://www.krueger.com) include



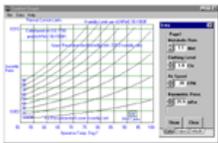
**K-Select Selection Software**

K-Select is our industry leading electronic selection program that assists you in design and selection of both our full line of air distribution products and VAV terminal units for HVAC applications.



**K-HIT Selection Software for Chilled Beams & Displacement Ventilation**

Krueger's HIT (K-HIT) program is an interactive tool that links complete product data, product selection, and CAD design support for Krueger by Halton Chilled Beam and Displacement Ventilation products.



**Comfort (Zip File)**

This program is based on an ASHRAE paper presented in 1989 on a consensus Thermal Comfort study and ISO Standard 7730. (Humidity limits are currently being modified by the ASHRAE 55-1993R.)



**SoundSpec (Zip File)**

This program assists you by providing a text specification for a VAV terminal unit. Sound Power is based on an industry standard. (ARI Standard 885-1998).



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