LETTER TO THE EDITOR

Analysis of Heat Flux Data for a Cone Calorimeter

A recent paper by Au Yeung and Chow [1] discusses the application of cone calorimetry to furnishing materials. Experiments are referred to which use 50 kW m^{-2} radiative flux and are compared (page 62) with the 'flashover heat flux of 20 kW m^{-2}'.

Perhaps in effect the statement is being made that in a cone calorimeter heat transfer radiative flux can be equated to the total flux. The authoritative description of cone calorimetry by V. Baubraskas [2] addresses this point. Baubraskas says:

A significant convective component would negate the purpose of having a radiant ignition test. Rather low convective fluxes can be achieved for specimens oriented horizontally, face up, and with the prevailing airflow pointing upwards.

If this point was addressed in the work [1] under discussion in the planning of the experiments well and good. However, it is important that in the statement on page 62 linkage of the terms 'radiative flux' and 'flashover heat flux' is not taken to mean that in practical situations the heat transfer at flashover is purely radiative. The detailed analysis of flashover by such workers as Quinitere and Thomas, a summary of which is to be found in [3], incorporates convection as well as radiation and in no way assumes the former to be insignificant.

REFERENCES

1. H.W. Au Yeung and W.K. Chow, "Necessity of testing furniture material with a cone calorimeter", International Journal on Engineering performance-Based Fire Codes, Vol. 4, No. 3, pp. 60-67 (2002).

2. B. Baubraskas, "The cone calorimeter" in Handbook of Fire Protection Engineering, 2nd edition, SFPE, Boston (1995).

3. J.C. Jones, Combustion science: Principles and practice, Millennium Books, Sydney (2003).

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AUTHOR'S RESPONSE

Thanks Dr. Jones for pointing out this part.

It is true that flashover heat flux would include convective component. However, main idea of the paper was to point out that fire behaviour of materials should be tested, at least, with thermal radiative heat flux, in using a cone calorimeter and others.

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