

FIRE MODELING: DEFENDING DR. BEARD

by Richard Schulte

The April 2008 issue of *Industrial Fire Journal* included an article titled "*Reliability of Computer Models in Fire Safety Design*" written by Dr. Alan N. Beard of the Civil Engineering Section of the School of the Built Environment, Heriot-Watt University, Edinburgh, Scotland. This article included the following excerpts:

"This concern covers all kinds of models, including computational fluid dynamics [CFD] models. Concerns centre around the degree to which such models may or may not have the potential to represent the real world reasonably accurately and the ways in which such models may be used and results interpreted."

"As a consequence of the poor showing of model use found in that study the report was not made widely available; because of this the results are not widely known."

"A similar "round-robin" a priori study has just been carried out by Edinburgh University in collaboration with Strathclyde Fire Brigade, centred on the Dalmarnock fire tests. . . As a general rule the predictions were not at all good: there was generally a wide scatter amongst the predictions by users and, also, predictions usually compared poorly with experimental results."

"The basic message was clear: a predicted result from a model cannot be assumed to be accurate; ie to reflect the real world. Further, consistency cannot be assumed; ie that a given model will consistently over-predict or consistently under-predict."

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“Whether or not a model may be reliably used as part of fire safety decision-making depends not only upon the conceptual and numerical assumptions in the model itself but also upon how it is used and how the results are interpreted. Using models as part of decision-making may be dangerous.”

Obviously, Dr. Beard’s commentary regarding fire modeling is at odds with the opinions of many, if not most, in the fire protection field.

Recently, I had occasion to discuss Dr. Beard’s article with a colleague and asked why Dr. Beard’s article was being ignored. The following is the response to that question:

“Let me just say that not all written articles or comments warrant reply. When statements or articles are extreme, wrong, or outrageous, they sometimes are not worthy of replies. Sometimes, it is simply best to ignore, unless one has nothing better to do. Besides, a reply is only worth it when we deal with people who can claim that they know enough to formulate opinions. I am not sure that Dr. Beard is knowledgeable enough about fire. . .

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However, it is a good exercise and fun to poke holes in everything that appear solid. Kids do that. . . without understanding the damage they probably are causing. I would simply call it, a futile intellectual exercise for people who beg for attention.”

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While Dr. Beard is fully capable of defending himself and his opinions, the above comments on Dr. Beard’s article does deserve a defense. Is Dr. Beard *“knowledgeable enough about fire”* to express a valid opinion on the subject of fire modeling? The answer to that question can be found doing a search on the terms “Alan N. Beard” and “fire”. Based upon what comes up in the search, it’s my opinion that most would agree that Dr. Beard is more than qualified to express an opinion on fire modeling.

Is Dr. Beard's article just "a *futile intellectual exercise for people who beg for attention*" or is Dr. Beard calling our attention to an issue which needs to be addressed? Given the fact that the "elite fire scientists" are doing their best to "duck" Dr. Beard's concerns, it seems obvious, at least to me, that Dr. Beard's commentary is "right on the mark". If Dr. Beard's commentary were not valid, the "elites" would simply crush Dr. Beard with the weight of the evidence and make a fool of Dr. Beard. It can only be assumed that that hasn't happened because Dr. Beard has a valid point.

Rather than "ducking" Dr. Beard's concerns, it time to have a frank discussion about fire modeling and whether or not we've reached the point where modeling can be considered to be a reliable tool in the fire protection field.

Dr. Beard deserves a commendation for his courage in risking the ridicule of his profession. Thank you for your courage, Dr. Beard. Your contribution to the fire protection field is immeasurable and quite refreshing.

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