

## VALIDATION? WE DON'T NEED NO STINKING VALIDATION! Part 3

By Richard Schulte

On Jul 8, 11:00 am, Stephen Olenick . . .wrote [on the FDS/Smokeview Bulletin Board]:

*“Fire dynamics are governed by the laws of science. . .I guess my overall problem with the [judicial] opinion is that instead of simply excluding this particular expert and the use of computer fire modeling in this particular case (correctly or incorrectly), the judge took the stance that computer fire modeling is inappropriate for fire investigation and reconstruction as a whole. I couldn't disagree more.”*

Olenick's comments above, elicited the following response:

*From: fds-smv@googlegroups.com  
On Behalf Of Kevin [McGrattan]  
Sent: Thursday, July 08, 2010 11:08 AM*

*“In my opinion, fire modeling and fire science are inseparable. . .I agree with Stephen that the court should consider how the model is being applied, the same way that it would consider any other form of evidence. This blanket dismissal, based largely on one person's opinion, sends the wrong message.”*

Dr. McGrattan's comment that *“this blanket dismissal, based largely on one person's opinion, sends the wrong message”* is, of course, in error. There are far more than just one person who questions how the Fire Dynamics Simulator (FDS) is being utilized in the fire protection profession.

Dr. McGrattan's comment that *“this blanket dismissal, based largely on one person's opinion, sends the wrong message”* is, of course, in error. There are far more than just one person who questions how the Fire Dynamics Simulator (FDS) is being utilized.

An article titled *“Reliability of Computer Models in Fire Safety Design”* written by Dr. Alan N. Beard, Civil Engineering Section, School of the Built Environment at Heriot-Watt University in Edinburgh, Scotland appeared in the April 2008 issue of *Industrial Fire Journal*. Excerpts from this article include the following:

*“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.”*

*“It is often stated in research articles that a model has been “validated” and a reader may think that this means that the model has somehow been “proven correct” and that use of the model will accurately represent the real world; . . . ”*

*“It is crucial, therefore, to conduct a priori comparisons with well instrumented experimental tests, but very few indeed have ever been performed.”*

*“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.”*

*“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. The results were presented at a meeting in Edinburgh in November 2007. In these tests a fire was started on a sofa in a two-bedroomed flat in Dalmarnock, Glasgow. . . The big question was, as with the CIB study: how would the predictions by model users compare with each other and with experimental results? Ten model user teams took part, eight using the same CFD model and two using a zone model. . . . 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.”*

*“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.”*

*“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.”*

*“A “knowledgeable user” must be capable of using an acceptable methodology to apply a particular model to a particular case in a comprehensive and exhaustive way, making all assumptions and procedures explicit, and interpreting results in a justifiable way.”*

In my opinion, not a whole lot more needs to be said regarding the use of fire modeling in a court of law. Dr. Beard’s comments published in April 2008 speak for themselves.

Perhaps the judicial ruling will finally get the fire modelers attention.

What is most interesting is how the fire modelers want to ignore Dr. Beard’s comments, rather than address these comments “head-on”. What the FDS/Smokeview Bulletin Board really needs is a frank discussion of Dr. Beard’s comments, but I doubt that will happen. I am no longer permitted to post on the FDS/Smokeview Bulletin Board because the “true believers” objected to my pointed questions regarding the issue of “validation” and my comments regarding the misuse of fire modeling by a “renowned expert” on fire modeling.

Perhaps the judicial ruling will finally get the fire modelers attention.

\* \* \* \* \*

Copyright © 2010  
Richard C. Schulte