

WTC investigators resist call for collapse visualisation

WORLD TRADE Center disaster investigators are refusing to show computer visualisations of the collapse of the Twin Towers despite calls from leading structural and fire engineers, *NCE* has learned.

Visualisations of collapse mechanisms are routinely used to validate the type of finite element analysis model used by the investigators.

The collapse mechanism and the role played by the hat truss at the top of the tower has been the focus of debate since the US National Institute of Standards & Technology (NIST) published its findings (*NCE* 22 September).

NIST showed detailed computer generated visualisations of both the plane impacts and the development of fires within WTC1 and WTC2 at a recent conference at its Gaithersburg HQ. But the actual collapse mechanisms of the towers were not shown as visualisations.

University of Manchester professor of structural engineering Colin Bailey said there was a lot to be gained from visualising the



Fire development models were correlated with video records.

structural response.

“NIST should really show the visualisations; otherwise the opportunity to correlate them back to the video evidence and identify any errors in the modelling will be lost,” he said.

University of Sheffield professor Roger Plank added that visualisations of the collapses of the towers “would be a very powerful tool to promote the design code changes recommended by NIST.”

NIST told *NCE* this week that it did not believe there is much value in visualising quasi-static processes such as thermal response and load redistribution up to the point of global collapse initiation and has chosen not to develop such visualisations.

But it said it would ‘consider’ developing visualisations of its global structural collapse model, although its contract with the finite element analysis subcontractor was now terminated.

A leading US structural engineer said NIST had obviously devoted enormous resources to the development of the impact and fire models. “By comparison the global structural model is not as sophisticated,” he said.

“The software used has been pushed to new limits, and there have been a lot of simplifications, extrapolations and judgement calls.

“This doesn’t mean NIST has got it wrong in principle, but it does mean it would be hard to produce a definitive visualisation from the analysis so far.”

Dave Parker