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DEPARTMENT OF CIVIL, CHEMICAL, ENVIRONMENTAL AND MATERIALS ENGINEERING

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AVVISO DI SEMINARIO/SEMINAR NOTICE

**SIMULATION OF
THE RESPONSE OF STRUCTURES
TO LARGE FIRES**

Prof. Asif Usmani

Head of the Research Institute for Infrastructure and Environment (IIE)
School of Engineering at the University of Edinburgh, Scotland, UK
on

Friday 12th June 2015, 11.30 am

auletta LAMC, piano terra/ground floor DICAM

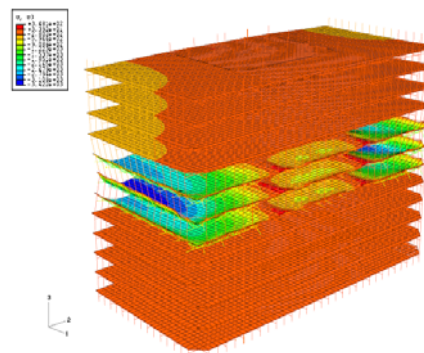
School of Engineering and Architecture, The University of Bologna
viale Risorgimento 2

Fire regulations require buildings to be designed to adequate *fire resistance* so that there is sufficient time for occupants evacuation and emergency intervention. This simple statement hides enormous complexity if applied outside the narrow bounds of structural systems covered by building regulations, such as tall buildings or bridges. More quantitative performance based approaches for fire resistance are beginning to be used for modern buildings. However this option is still in its infancy. Key features of structural response to elevated temperatures in a large (post-flashover) fire will be provided. The challenges and complexities of numerical modelling will be discussed. It will follow the

lesson learnt from the collapse of the WTC towers in NY on Sept.11, 2001, and how it could be applied in modern practice. Finally, current research on free SW allowing even small engineering practices to take on performance based fire resistance through sophisticated numerical analyses.

The Speaker

Asif Usmani is Professor of Structural Engineering and Computational Mechanics. In Edinburgh he initiated the research area of "structures in fire" leading to Europe's largest university based research group in this field. This work produced a breakthrough in understanding the behaviour of composite steel-frame structures under fire, and led to the development of new design methods. His research has led to over 200 refereed publications so far.



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