



## **SFPE STANDARDS-MAKING COMMITTEE ON CALCULATING FIRE EXPOSURES**

### **Local Fire Exposures Working Group**

#### **Meeting Report – February 19, 2018**

**Present:** Ulf Wickström (Working Group Leader), Sean Hunt, Brian Lattimer, and Chris Jelenewicz (Staff).

#### **The following was discussed:**

- **Sub-Task 1 – Expressing boundary conditions - continuing discussions on definitions and measurements.**

**Paper re-submitted to Fire Technology** – The paper ‘Technical comments on the Ten Principles’ was re-submitted to Fire Technology. The paper was reorganized and additional text was added.

**White Paper, ‘On the discussion on how to express thermal exposure’** – The paper will describe how thermal exposure shall be expressed in the standard. Specifically, it will discuss how boundary conditions can be translated into well-defined input data to FE-programs such as ABAQUS or TASEF.

It was determined that the working group will need to decide how emissivity ( $\hat{\epsilon}$ ) and the heat transfer coefficient ( $\hat{h}$ ) should be specified in the calculation standard when as in the current standard the boundary condition is expressed as an ‘incident flux’ including radiation as well as convection.

Another problem when analyzing test results is to consider the problem of measuring devices and surfaces having different emissivities? What will be the error? Will the standard need to provide some level of uncertainty?

For the next meeting Brian will provide suggestions on how the standard will deal with uncertainty and choice of ( $\hat{\epsilon}$ ) and ( $\hat{h}$ ) or any other way of prescribing well-defined boundary conditions that can be applied by users of the standard.

- **Sub-Task 2 – Local fires – available formulas.**

Sean has experimented with FDS to generate peak heat flux data (and/or adiabatic surface temperatures) that will supplement experimental data for different configurations (wall, corners, ceilings). This will lead to a methodology on how to generate data needed to perform an engineering analysis. He will continue his work and report back at the next meeting.

- **Sub-Task 3 – Façade fires – available formulas.**

Jonathan indicated that possible test data from façade tests may be available from the University of Melbourne. He will report back at the next meeting.

Ulf shared a report from a Master's Thesis that was authored by Markus Nilsson from Lund University "Validating FDS Against a Large-Scale Fire Test for Façade Systems." The purpose of the report was to validate FDS for estimating external fire spread. Based on this report, it was decided that Jonathan will use FDS to run a few simulations. He will work on tracking down the input files that were used for the Nilsson study.

- **Next meeting** – CJ will schedule via a Doodle Poll for April

**End of Report**