



SFPE Standards-Making Committee on Calculating Fire Exposures
Risk Working Group
Meeting Report -- June 20, 2016

Present: Kevin LaMalva (Working Group Leader), Farid Alfawakhiri, Charley Fleishmann, Craig Hofmeister, Panos Kotsovinos, Collen Wade, Ineke Van Zeeland, Jonathan Weigand and Chris Jelenewicz (Staff)

Apologies: Hosam Ali, Jeff Halpert and Barbara Lane

The following was discussed:

1. **Introductions & welcome** -- Introductions were made and Kevin welcomed all members to the working group.
2. **Background/context** – This working group was asked to identify how the standard should represent uncertainties in predictions to best integrate with other standards to form a probabilistic, risk-based structural fire engineering methodology.

Additionally, it was noted that currently an adequate amount of data may not be available to perform a risk-based methodology. As such, the working group was asked to proceed as if enough data is available.

3. **Prospective industry-consensus framework for structural fire engineering** -- ASCE/SEI 7 (2016) will be released in the fall of 2016. It will now have two options in regards to structural fire protection (no other options are allowed, and a combination of both approaches is not permitted): Follow prescriptive requirements in the governing code or perform a Structural Fire Engineering (SFE) approach in accordance with the new Appendix E. Appendix E of ASCE 7, includes reference to SFPE 01 and SFPE 02. However, the SFPE documents are not mandatory.

ASCE/SEI 7 requires mandatory performance objectives that are related to life safety. The required scope of analysis requires calculation of a) demand (temperature and induced forces) and b) capacity (structural endurance accounting for change in material properties). Also, the ASCE/SEI 7 requires the engineer to determine structural design fire scenarios; those that are not controlled by active fire protection systems.

It was noted that SFPE is also in the process of developing a design fire scenarios standard (SFPE S.03) that is looking at developing a methodology to identify fire scenarios and estimate design fires as part of a performance-based design. The committee is chaired by Charley Fleischman. The committee is using a risk-informed approach as there is a lack of data to perform a complete risk assessment.

4. **Development of probabilistic methodology** – The working group will look at uncontrolled fires that do not consider sprinklers to stay in line with ASCE 7. Additionally, the working group will focus on developing a risk-informed fire exposure input (demand) but will not focus on determining the load effect and capacity (usually calculated by structural engineers). At the same time, if the type of construction contributes to the fire as in the case of timber construction, the working group will consider looking at these impacts.

It was also noted that the probability of exceedance will be dependent on occupancy, fire protection systems, construction type and tolerable risk. The working group will also consider building resiliency and first responder response.

The working group would also like to provide a method to account for uncertainty. This will be determined at a later date.

It was suggested that the working group look at the methodology used in Eurocode 1. It was suggested the working group should contact Dr. Mario Fontana.

5. **Moving forward** – The working group will develop a one-page mission statement. It will list what the working group will do and how it will do it. Kevin will draft this document for the next working group meeting. After that, the working group will moving on to developing specific tasks.
6. **Next Meeting** – The next working group meeting will be held in mid-July/early-August. CJ will schedule via a Doodle Poll.

End of Report