SFPE Standards-Making Committee on Design Fire Scenarios

Meeting Report – November 4, 2015

Present: Charles Fleischmann (Chair), Jason Floyd, Craig Hofmeister, Jason Smart, Piotr Tofilo, Don Turno, Collen Wade, Shaun Wrightson and Chris Jelenewicz (Staff).

Apologies: Jason Butler

1. Progress Reports – Both working groups gave a brief progress report.

The South Pacific Group has made progress on the stores and mercantile use group. Specifically.10 areas of origin were identified from NFPA data. The Group is focusing on three design fires: Kitchens, Sales or show rooms, and Office. It was noted that defining design fires in kitchens may be difficult as there are different sizes of kitchens in the occupancy. The Group is also making progress on the hotel and mercantile use groups.

The Americas Group has reviewed the data for the Education, Office and Industrial use groups. The group has a drafted a list of possible scenarios based on the area-of-origin data provided by NFPA. It was noted that it will be difficult to provide any detailed scenarios for specific industrial processes. It was agreed that the group will focus on Education and Office before working on the Industrial use group. It was also noted that arson is a big factor in the Education use group.

2. Paper by Holborn et al

The Chair shared a paper by Holborn, Nolan, & Golt that outlines an analysis of fire sizes, fire growth rates and times between events using data from fire investigations. It was a 5-year study looking at London Fire Brigade's real fire database. Committee members were asked to read this paper to see if the information could be useful when the Committee starts its work on developing design fires.

3. Expanded framework based on Nilsson et al

The Chair also shared a paper that provides a framework that looks at design fires quantitatively. The paper uses actual fire data and experimental data to predict distributions of the fire growth rate "α." Committee members were asked to review the methodology in this paper to see if it can provide a framework that could be used in defining design fires. To do this type of analysis, the committee would need "first-item-ignited" data for each of the "areas of origin" provided in the NFPA data.

4. Matters arising

A few issue were discussed that will have an impact as the committee moves forward:

- Disproportionate damage estimates -- is $5 million the right criteria?
- Standardized fire growth rate -- are we happy with the t-squared growth rate?
- Analysis of data – how do we analyze HRR date (e.g. time lag, etc).
- Do we simply adopt the researchers' interpretation or develop our own?
- Do we subdivide storage areas?
- Are industrial processes to be included?
- Do we include arson & at what level?

The Chair asked the committee members to forward any thoughts on these issues.

5. Way forward

Moving forward, the following items need to be complete.

- **Work toward a template for scenarios –** If anyone is interested in designing this template, contact the Chair.

- **Quantifying design fires for scenarios – what will be the framework –** Each Group was asked to discuss this issue as they move forward.

- **Explore Nilsson et al method with NFPA –** CJ will follow-up with NFPA to see if "fire-item-ignited" and "first-three-items-ignited" data is available.

6. Next meeting – Wil be scheduled for early to mid-February – CJ will send out a Doodle Poll.

The Chair thanked all who attended the meeting☺

- **End of Report –**