

SFPE Standards-Making Committee on Design Fire Scenarios

Meeting Report – October 11, 2016



Present: Charles Fleischmann (Chair), Dorota Brzezińska, Jason Floyd, Laura Hasburgh, Craig Hofmeister, M.C. Hui, Martin Nilsson, Rob Plonski, Jason Smart, David Stroup, Piotr Tofilo, Collen Wade and Shaun Wrightson and Chris Jelenewicz (Staff).

Apologies: Kees Booth, Jason Butler

- 1. Review on Current Committee Status** – The committee completed an analysis of the NFPA “area of origin” data for several occupancies/use groups and has compiled a list of possible scenarios. The committee’s next step is to use NFIRS data to examine a few more occupancies that do not have adequate NFPA data. For example, when examining assembly occupancies, the NFPA data does not have detailed info on the number of fires in convention centers vs stadiums vs ballrooms.

Once all of the possible scenarios are determined, the committee will examine the NFIRS data to obtain Item First Ignited (IFI) data for all of the scenarios that will be examined. Based on this IFI data, the committee will use its expert judgement to develop fire growth distributions and other fire data such as Heat of Combustion, Species Production and Fire Duration. Then the committee will use @Risk Software to carry out Monte Carlo simulations to create cumulative distribution functions for the fire growth rates for each occupancy and room of origin.

- 2. Occupancy Analysis of NFIRS** – The Chair presented a list of Use Groups identified in the NIFRIS dataset. It was determined the committee will focus on eight Use Groups:
 - a. Assembly -- Variable-use amusement & recreation
 - b. Assembly -- Eating & Drinking
 - c. Educational – high school, junior school & middle school
 - d. Health Care – Hospital
 - e. Residential – Hotels/Motels
 - f. Mercantile – retail/department stores
 - g. Storage – Parking
 - h. Storage -- Warehouse

Each working group (Southern & Northern Hemisphere) was asked to confirm the Use Groups in the above list as priorities for analysis by placing them in a prioritized list and ranking each use group on a scale of 1 through 3. Priority 1 has the highest priority.

- 3. Item First Ignited (IFI) Analysis** – A listing of IFI categories from the NFIRS dataset was presented. The working groups will start developing the fire growth distributions for the categories listed as follows:

The Northern Hemisphere Group was assigned:

- a. Soft Goods, Wearing Apparel (NH-1)
- b. Adornment, Recreational Material (NH-2)
- c. General Materials (NH-3)
- d. Structural Component, Finish (NH-4)
- e. Liquids, Piping, Filters (NH-5)

The Southern Hemisphere Group was assigned:

- a. Furniture, Utensils (SH-1)
- b. Storage Supplies (SH-2)
- c. General Materials Continued (SH-3)
- d. Organic Materials (SH-4)

Before determining the fire growth distributions, each working group will review the IFI category list and determine if the item should or should not be analyzed.

If adequate data is not available to report a statistical distribution, a fire growth rate (Alpha) should be estimated.

Danial will provide the committee with a Swedish report that looked at estimating a statistical distribution for peak HRR.

- 4. Schedule** – Moving forward, the following schedule was presented:

a. January 2016

- List of all occupancies to be analysed
- Draft fire growth rates for Items First Ignited (IFI)
 - Species research for scenarios
 - Heat of Combustion
 - Fire duration
 - Decay
- Start statistical analysis

b. July 2017

- Statistical analysis completed for occupancies
- Completed list of fire growth rates of IFI
- Start design fire growth PDF & CDF analysis
- Continue research on design fire components
 - Species research for scenarios
 - Heat of Combustion
 - Fire duration
 - Decay
 -

c. **December 2017**

- Draft Standard

d. **December 2018**

- Start standard review process

5. Sharedrive – The committee now has a Group Page where committee members can share data and committee information. Instructions on how to access this page were sent to each committee member. Charley will start populating the page with data. Each committee member was asked to try to access this page.

6. Next meeting -- The next meeting will be scheduled for first part of December. CJ will schedule via Doodle Poll.

- **End of Report** -