



SFPE Standards-Making Committee on Calculating Fire Exposures
Risk Working Group
Meeting Report – February 14, 2017

Present: Kevin LaMalva (Working Group Leader), Farid Alfawakhiri, Jeff Halpert, Craig Hofmeister, Panos Kotsovinos, Colleen Wade, Jonathan Weigand, Craig Beyler (Committee Chair) and Chris Jelenewicz (Staff)

Apologies: Charley Fleishmann, Barbara Lane

The following was discussed:

Currently the working group is finalizing its scope and is exploring three options:

Option 1 (Compose report to NFPA 557 Committee): In this option, the working group would compose a report to the NFPA 557 committee that suggests additional risk factors be incorporated into NFPA 557. These risk factors could be related to criticality of performance objective (mandatory vs. discretionary) or the risk of fire sprinkler system malfunction. It was noted that first draft comments for NFPA 557 are due in June 2017.

Option 2: (Define a risk-informed extent of heating): Would explore considering the risk of multi-compartment involvement and risk for multi-floor involvement in S.01.

Option 3: (Define a Risk-Informed Fire Curve for Enclosure Fires): Would be dependent on available data on the fire growth rate, maximum temperature, fire duration and decay rate.

It was agreed that exploring Option 1 is not viable at this time as the due date for comments on NFPA 557 is fast approaching and the working group did not want the method to be in the hands of an external committee.

It was agreed that the working group would focus its energy on Options 2 & 3.

There was a broad discussion on the best way to approach defining a risk-informed fire curve. For example, the following issues were discussed:

- Would the standard define a confidence level?
- How is the HRR curve determined? The first version of S.01 assumed all fires were ventilation controlled.
- How does the standard incorporate ventilation effects and enclosure characteristics as input variables? How would error bounds for ventilation be defined?
- The Eurocode method focuses on the reliability of inputs irrespective of temperature. In the development of the 1st version of S.01, the Eurocode method was shown to be the best predictor but was not conservative for all cases.
- How do we determine uncertainty in estimating fire load, ventilation, thermal properties of enclosure, and error in methodology?
- Should the Database Working Group examine the different methods and determine the associated errors.

To help address these questions, Kevin and others (Task Group volunteers are encouraged) will organize a white paper examining current risk-based methods pertaining to the input fire curve and the extent of exposure. This white paper would also examine the basis of Load and Factored Resistance Design (LRFD) in structural engineering. This whitepaper would help memorialize discussions to date, and help chart a path forward.

For the next committee, the working group will discuss the types of data that is needed from the Database Working Group (e.g. cooling phase data). The working group will also discuss the end product.

Next Meeting – CJ will schedule the next working group meeting.

End of Report