



RESEARCH FOUNDATION

RESEARCH FOR THE NFPA MISSION

PROJECT SUMMARY

Prototype Fuel Load Survey Methodology

11 January 2019

Background: As the use of performance based methodologies evolve, it is becoming critically important to identify, characterize, and quantify design fires for buildings. NFPA 557, Standard for Determination of Fire Loads for Use in Structural Fire Protection Design, was developed to provide fire load data for structural fire protection design. NFPA 557 calls for the use of either occupancy-based fuel load data or surveying fuel load density. Fuel load surveys using current methodologies are a substantial undertaking, which has resulted in the availability of only very limited fuel load data. Thus, occupancy specific fuel load data is currently very limited within NFPA 557. More efficient fuel load survey methodologies are needed to develop fuel load data for a variety of building occupancies.

Research Goal: This project aims to develop a prototype fuel load survey methodology that can facilitate the development of fuel load data for a variety of building occupancies. The methodology is intended to consider the necessary accuracy of the fuel load data to allow for efficient data collection.

Project Tasks: This project will involve the following tasks:

Task 1: Literature Review

- Conduct a literature review of current fuel load survey methodologies (e.g. inventory, weighing, weighing and inventory combination method, questionnaire, website review, etc.).
- Review and discuss the purpose of conducting fuel load surveys for buildings.
- Identify the key parameters required for calculating the fuel load in a building.

Task 2: Develop a Prototype Fuel Load Survey Methodology

- Confirm the key data elements required for calculating the fuel load in a building.
- Based on the material gathered in Task 1, develop a prototype fuel load survey methodology to be field tested on an office building. The reasoning for all recommended approaches must be discussed and documented.
- How this methodology will be applied to various buildings should also be analyzed and appropriately documented.
- Document the findings from Task 1 and the prototype survey in a draft report and review it with project technical panel.

Task 3: Field Test the Prototype Fuel Load Survey Methodology

- Field test the prototype methodology by selecting an office building to serve as a representative sample of a typical office space.

- All data from the fuel load survey shall be recorded.

Note: The contractor is responsible for gaining access to conduct a fuel load survey on the selected office space.

Task 4: Review and Refine Survey Methodology

- Review the field test results with panel.
- Refine and modify the survey methodology based on panel feedback, challenges identified and any inconsistencies from the field tests on the first office building.

Task 5: Conduct Field Tests on at least Two Office Buildings using the Refined Survey Methodology

- Utilizing the refined survey methodology, field test the refined methodology on two additional office buildings.
- Document and record all data collected via the survey.

Task 6: Develop a final report

- Develop a draft final report including the literature review of fuel load survey methodologies (Task 1), a description of the proposed procedure of designing the fuel load survey methodology (Task 2, Task 4), and the results of the field tests utilizing the prototype fuel load survey methodology (Task 3, Task 5).
- Review the draft final report with the panel.
- Submit a final report after considering the panel comments.

Implementation: This research program will be conducted under the auspices of the Research Foundation in accordance with Foundation Policies and will be guided by a Project Technical Panel who will provide input to the project, recommend contractor selection, review periodic reports of progress and research results, and review the final project report.

Schedule: The final report will be published in December 2019.

About us:

About the Fire Protection Research Foundation

The [Fire Protection Research Foundation](#) plans, manages, and communicates research on a broad range of fire safety issues in collaboration with scientists and laboratories around the world. The Foundation is an affiliate of NFPA.



About the National Fire Protection Association (NFPA)

Founded in 1896, NFPA is a global, nonprofit organization devoted to eliminating death, injury, property and economic loss due to fire, electrical and related hazards. The association delivers information and knowledge through more than 300 consensus codes and standards, research, training, education, outreach and advocacy; and by partnering with others who share an interest in furthering the NFPA mission. [All NFPA codes and standards can be viewed online for free.](#) NFPA's [membership](#) totals more than 65,000 individuals around the world.

