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PROCEEDINGS TITLE

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ABSTRACT

This guide has been prepared for authors of papers to be presented at the 4th Thermal and Fluids Engineering Conference (TFEC), April 14–17, 2018, Las Vegas, NV, USA. The abstract summarizes key findings in the paper and should be a paragraph no more than 250 words. The abstract summarizes key findings in the paper and should be a paragraph no more than 250 words. The abstract summarizes key findings in the paper and should be a paragraph no more than 250 words. The abstract summarizes key findings in the paper and should be a paragraph no more than 250 words. The abstract summarizes key findings in the paper and should be a paragraph no more than 250 words.

KEY WORDS: select up to 10 key terms for a search on your document

1. INTRODUCTION

$$R(E) = \frac{\kappa}{2\eta} \int_{\Omega} \left(\nabla E \cdot \nabla E + \varepsilon \right)^{\eta} \, d\Omega \tag{1}$$

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2. MODELING OVERVIEW

The results described in this abstract were obtained from simulations in the software package Fire Dynamics Simulator (FDS), which is a large-eddy simulation (LES) code for low speed flows with an emphasis on smoke and heat transport from fires []. Because this work will precede experimental validation, the FDS cases were configured to resemble the facility in which the tests will take place. A schematic of this facility is shown in Figure 1.

The compartment shown in Figure 1 was modeled in the software Fire Dynamics Simulator (FDS) as a 3.65 m by 3.8223 m by 2.692 m box with gypsum walls that were held at a fixed 25^o C. The supply and return vents were also modeled according to their specified geoemetry as openings to the atmosphere at a temperature of 22^o C. This was done to ensure there was sufficient ventilation in the compartment to prevent the fire from being extinguished prematurely due to lack of oxygen. The radiant cooling panel was also modeled according to the specified geometry as an aluminum surface held at at a fixed boundary temperature of 16^o C. All other artifacts of the compartment, such as the fan box and the radiant heating panel were deemed irrelevant for the purposes of the project and were therefore not modeled. A smokeview visualization of the simulated compartment is shown in Figure 2.

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Table 1 Injected fuel mass

injection duration Δt [µs]	**injection pressure** [MPa]	**fuel mass** [mg]
300	1	1.7
300	2	3.0
300	3	4.0
300	4	4.7
300	5	5.4
300	6	6.0
300	7	6.5
300	8	6.9
300	9	7.2
300	10	7.6
300	11	7.7
300	12	8.0
100	10	0.6
200	10	4.3
400	10	10.3

3. CONCLUSIONS

Submission Deadline: Full paper PDF should be submitted before **January 13, 2019**.

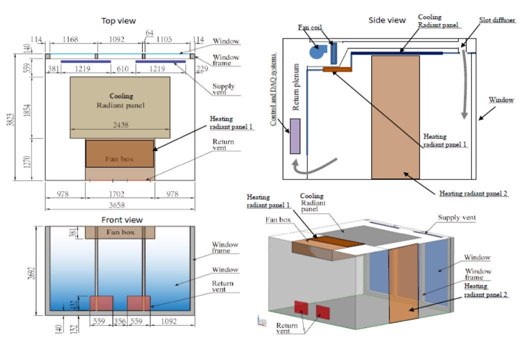

Fig. 1 A schematic of the experimental facility that served as the basis of the FDS models. All dimensions are in meters.

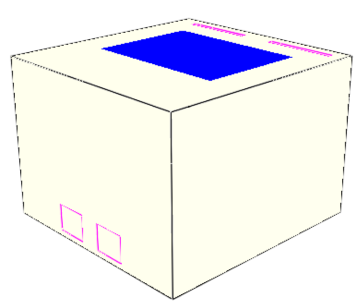

Fig. 2 A Smokeview visualization of the simulated compartment, showing the geometry from Figure 1 that was considered. Namely, the radiant cooling panel, the walls, the supply and return vents were modeled according to the dimensions provided.

ACKNOWLEDGMENTS

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NOMENCLATURE

Be	dimensionless variable	(-)	Q_A	third variable	(kJ)
C	second variable	(s^2)	w_x	fourth variable	(m^2/s)

REFERENCES