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**Investigations of the Effects of Distortion on Trajectory of Diesel Particulate Matter (PM)**[1] HAMID RAHAI[2], CEERS/California State University, Long Beach, EHSAN SHAMLOO TEAM[3] — Exposures to diesel PM within urban areas have resulted in elevated respiratory illnesses and risk of premature cardiac death. The present investigation is part of our continuous efforts to understand the relationship between diesel exhausts concentrations and local urban aerodynamics, in metropolitan areas where significant diesel vehicle activities are present. Wind tunnel experiments and field tests were performed to understand the effects of distortion caused by building structures on trajectory of the diesel PM, emitted from diesel engine exhausts in cross flows. Our previous similar investigations without distortion have shown a linear decay in PM concentration with a 10 percent slope. However, when the structures were present, PM concentration increased significantly up to 1d upstream of the object, before it decreases due to the blockage effect. A mathematical correlation based on experimental data has been proposed to estimate the concentration of the diesel PM with respect to the wind velocity at different distances upstream of the objects.

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