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1	Name of the Candidate	Dr M.K. Krishna
2	Address of the parent institution	Assistant Professor and Head Dept. of Environmental Engineering, P.E.S. College of Engineering, Mandya - 571 401
3	PhD Thesis Title	“Vehicular Emission Dispersion in Urban Areas Comparison Between Field Measurements and Wind Tunnel Simulations”
4	Research guide Name	Dr. R.M. Mahalinge Gowda
	Department and Designation	Professor, Department of Civil Engineering
5	Date of Registration for PhD	VTU/Exam/2005-06/CV06/7704, 1/11/2005
	University /Branch	Visvesvaraya Technological University Belgaum – Karnataka, India
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7	<p><u>Brief synopsis</u></p> <p>The main contribution of the present study was to analyze the problem of plume dispersion around urban buildings and has been investigated by physical modeling using arrays of obstacles with two types of building models configuration in a boundary layer wind tunnel. The particular effect of obstacle width-to-height ratio (S/H) was examined for a fixed obstacle packing density. The study was carried in a single storied buildings model obstacles which represent having a height (H) of 35 mm with a spacing (S) between elements of 85 mm, and the plan area density was found to be 8.5% (or $S/H=2.4$). On the other hand, for double storied buildings, cubical blocks having a height (H) of 70 mm with a spacing (S) between elements of 140 mm, and the plan area density was found to be 11.0% (or $S/H=2.0$). The wind tunnel results are reported and discussed in detail, and some comparisons are drawn to the outdoor field trial and previous studies of plume dispersion within obstacle arrays, as well as open terrain. The analysis covers a wide range of concentration statistics and other quantitative descriptions of plume behavior, involved in the development of a dispersing plume within an urban-like environment. Emphasis is placed on the description of concentration fluctuations within the wind tunnel. Some discussion is also centred on the physical similarities and differences between scaled model simulations and wind tunnel dispersion experiments. It was concluded that from the present study, distribution of concentration and dispersion of contaminants very little in the vicinity of groups of obstacles embedded in an array of cubes in line and staggered array configurations single storied buildings model. Compared to the wind tunnel double storied buildings model inline and staggered array configuration, there was more scatter in the field result due to the effect of larger scales of turbulence.</p>	