**Data Dictionary for Data Set D-dz0v**

(Including dispersive shear stress in urban environments for single column dispersion models, Retter et al. 2025, *Boundary Layer Meteorology*)

**Figure 1**

No data

**Figure 2**

No data

**Figure 3**

U/Uref Streamwise velocity normalized by a reference velocity

uw/Uref Vertical Shear Stress normalized by a reference velocity

uu/Uref Normal Stress normalized by a reference velocity

z/H Normalized height

color Color of line to aid comparison to the figure in the paper

type Either LES or PIV (simulation or experiment)

model Uniform or Nonuniform

**Figure 4b**

x Model row

y normalized dispersive over Reynolds stress

variance uw, uu, vv, or ww

model Uniform or Nonuniform

**Figure 4c**

x Pressure gradient (dP/dx)

y normalized height (z/H)

row row number in the model

**Figure 4d-4e**

x Velocity (m/s)

y normalized height (z/H)

type no building data or flow angle

velocity u(z) or v(z), as in axial or lateral velocity as a function of height

**Figure 4f-4g**

x Normalized variance over the reference velocity squared

y normalized height (z/H)

variance uw, uu, vv, or ww

type Reynolds only or Reynolds and dispersive (denoted as dispersive)

**Figures 5 and 6 (all subplots)**

x Normalized kinematic stresses

y normalized height (z/H)

color matches that from the figure in the paper, please see the legend

shape matches that from the figure in the paper, please see the legend

type Individual block or average, also the variable plotted

**Figure 7a**

x friction velocity from Reynolds stress only

y friction velocity from Reynolds and Dispersive stresses

model uniform or nonuniform

angle 0, 10, 30, or 50 degrees

type center or first row of the model

**Figure 7a insert**

x flow angle

y friction velocity

model uniform or nonuniform

type dispersive and Reynolds stress or Reynolds stress only

**Figure 7b**

x frontal area fraction

y ratio of dispersive shear stress to Reynolds shear stress

model uniform or nonuniform

angle 0, 10, 30, or 50 degrees

type center or first row of the model

**Figure 8**

x domain of property, dependent on the “type” category

count number of occurrences

model uniform or nonuniform

color Reynolds or Dispersive stresses, matching the figure in the paper

type property plotted

**Figure 9**

zo surface roughness (m)

u\* friction velocity (m/s)

color Reynolds or Dispersive stresses, matching the figure in the paper

shape uniform or nonuniform

**Figure 10 (all subplots)**

x surface roughness (m)

y velocity variance normalized by the friction velocity

angle 0, 10, 30, or 50 degrees

variance sigma-u, v, or w

**Figure 11 (insert)**

x normalized friction velocity

y normalized concentration

angle 0, 10, 30, or 50 degrees

model uniform or nonuniform

**Figure 11**

x row number in the model

y normalized concentration

angle 0, 10, 30, or 50 degrees

model uniform or nonuniform

**Figure B1**

x height of matching velocity between upstream and downstream flow

y exponent for power law model

shape solid or open

color matches the scheme in the figure from the paper

**Figure B2a-b**

x Velocity (m/s)

y height (m)

color matches the scheme in the figure from the paper

**Figure C1a-d**

x normalized x-position

y normalized y-position

dispuw normalized product of the axial and vertical velocity fluctuations