SIMILARITY REQUIREMENTS

- Match momentum ratio,

$$M_o = \frac{\rho_s}{\rho_a}\left[\frac{V_e}{U_H}\right]^2\left[\frac{d}{H_b}\right]^2 ; \qquad (1)$$

- Match density ratio,

$$\lambda = \frac{\rho_s}{\rho_a} . \qquad (2)$$

- Ensure that the stack Reynolds number exceeds 670 for buoyant plumes and 2000 for neutrally buoyant plumes, or include trip (3 diameters from exit) and visual documentation that the plume is fully turbulent.

- Include all buildings that will significantly affect the flow (at least out to 20 to 100 times the height of the tallest building). Typically a 500 m radius is adequate.

- Ensure Reynolds number independence. Maintain a building Reynolds number greater than 11,000 or conduct tests to demonstrate Reynolds number independence if testing is conducted at lower Reynolds number.

- Setup an urban or rural approach wind/turbulence profile.

- Simulate a neutral atmospheric boundary layer (Pasquill–Gifford C or D stability).