In SI: $I_{\bar{z}} = c\left(\frac{10}{\bar{z}}\right)^{1/6}$

where $I_{\bar{z}}$ is the intensity of turbulence at height $\bar{z}$ where $\bar{z}$ is the equivalent height of the structure defined as $0.6h$, but not less than z_{min} for all building heights h. z_{min} and c are listed for each exposure in Table 26.9-1; g_Q and g_v shall be taken as 3.4. The background response Q is given by

$$Q = \sqrt{\frac{1}{1+0.63\left(\frac{B+h}{L_{\bar{z}}}\right)^{0.63}}} \qquad (26.9\text{-}8)$$

where B and h are defined in Section 26.3 and $L_{\bar{z}}$ is the integral length scale of turbulence at the equivalent height given by

$$L_{\bar{z}} = \ell\left(\frac{\bar{z}}{33}\right)^{\bar{\varepsilon}} \qquad (26.9\text{-}9)$$

In SI: $L_{\bar{z}} = \ell\left(\frac{\bar{z}}{10}\right)^{\bar{\varepsilon}}$

in which ℓ and $\bar{\varepsilon}$ are constants listed in Table 26.9-1.

26.9.5 Flexible or Dynamically Sensitive Buildings or Other Structures

For flexible or dynamically sensitive buildings or other structures as defined in Section 26.2, the gust-effect factor shall be calculated by

$$G_f = 0.925\left(\frac{1+1.7I_{\bar{z}}\sqrt{g_Q^2Q^2+g_R^2R^2}}{1+1.7g_vI_{\bar{z}}}\right) \qquad (26.9\text{-}10)$$

g_Q and g_v shall be taken as 3.4 and g_R is given by

$$g_R = \sqrt{2\ln(3{,}600n_1)} + \frac{0.577}{\sqrt{2\ln(3{,}600n_1)}} \qquad (26.9\text{-}11)$$

R, the resonant response factor, is given by

$$R = \sqrt{\frac{1}{\beta}R_nR_hR_B(0.53+0.47R_L)} \qquad (26.9\text{-}12)$$

$$R_n = \frac{7.47N_1}{(1+10.3N_1)^{5/3}} \qquad (26.9\text{-}13)$$

$$N_1 = \frac{n_1L_{\bar{z}}}{\bar{V}_{\bar{z}}} \qquad (26.9\text{-}14)$$

$$R_\ell = \frac{1}{\eta} - \frac{1}{2\eta^2}\left(1-e^{-2\eta}\right) \quad \text{for} \quad \eta > 0 \qquad (26.9\text{-}15a)$$

$$R_\ell = 1 \quad \text{for} \quad \eta = 0 \qquad (26.9\text{-}15b)$$

where the subscript ℓ in Eqs. 26.9-15 shall be taken as h, B, and L, respectively, where h, B, and L are defined in Section 26.3.

n_1 = fundamental natural frequency
$R_\ell = R_h$ setting $\eta = 4.6n_1h/\bar{V}_{\bar{z}}$
$R_\ell = R_B$ setting $\eta = 4.6n_1B/\bar{V}_{\bar{z}}$
$R_\ell = R_L$ setting $\eta = 15.4n_1L/\bar{V}_{\bar{z}}$
β = damping ratio, percent of critical (i.e. for 2% use 0.02 in the equation)
$\bar{V}_{\bar{z}}$ = mean hourly wind speed (ft/s) at height $\bar{z}$ determined from Eq. 26.9-16:

$$\bar{V}_{\bar{z}} = \bar{b}\left(\frac{\bar{z}}{33}\right)^{\bar{\alpha}}\left(\frac{88}{60}\right)V \qquad (26.9\text{-}16)$$

In SI: $\bar{V}_{\bar{z}} = \bar{b}\left(\frac{\bar{z}}{10}\right)^{\bar{\alpha}}V$

where $\bar{b}$ and $\bar{\alpha}$ are constants listed in Table 26.9-1 and V is the basic wind speed in mi/h.

26.9.6 Rational Analysis

In lieu of the procedure defined in Sections 26.9.3 and 26.9.4, determination of the gust-effect factor by any rational analysis defined in the recognized literature is permitted.

26.9.7 Limitations

Where combined gust-effect factors and pressure coefficients (GC_p), (GC_{pi}), and (GC_{pf}) are given in figures and tables, the gust-effect factor shall not be determined separately.

26.10 ENCLOSURE CLASSIFICATION

26.10.1 General

For the purpose of determining internal pressure coefficients, all buildings shall be classified as enclosed, partially enclosed, or open as defined in Section 26.2.

26.10.2 Openings

A determination shall be made of the amount of openings in the building envelope for use in determining the enclosure classification.

26.10.3 Protection of Glazed Openings

Glazed openings in Risk Category II, III or IV buildings located in hurricane-prone regions shall be protected as specified in this Section.

26.10.3.1 Wind-borne Debris Regions

Glazed openings shall be protected in accordance with Section 26.10.3.2 in the following locations: