



**13.3.1.1 Amplification with Height,  $H_f$**  For nonstructural components supported at or below grade plane, the factor for force amplification with height  $H_f$  is 1.0. For components supported above grade plane by a building or nonbuilding structure,  $H_f$  is permitted to be determined by Equation (13.3-4) or Equation (13.3-5). Where the approximate fundamental period of the supporting building or nonbuilding structure is unknown,  $H_f$  is permitted to be determined by Equation (13.3-5).

$$H_f = 1 + a_1 \left( \frac{z}{h} \right) + a_2 \left( \frac{z}{h} \right)^{10} \quad (13.3-4)$$

$$H_f = 1 + 2.5 \left( \frac{z}{h} \right) \quad (13.3-5)$$

where

$$a_1 = 1/T_a \leq 2.5;$$

$$a_2 = [1 - (0.4/T_a)^2] \geq 0;$$

$z$  = Height above the base of the structure to the point of attachment of the component. For items at or below the base,  $z$  shall be taken as 0. The value of  $\frac{z}{h}$  need not exceed 1.0;

$h$  = Average roof height of structure with respect to the base; and

$T_a$  = Lowest approximate fundamental period of the supporting building or nonbuilding structure in either orthogonal direction. For structures with combinations of seismic force-resisting systems (SFRSs), the SFRS that produces the lowest value of  $T_a$  shall be used.

For the purposes of computing  $H_f$ ,  $T_a$  is determined using Equation (12.8-8) for buildings. Where the SFRS is unknown,  $T_a$  is permitted to be determined by Equation (12.8-8) using the approximate period parameters for “all other structural systems.”

