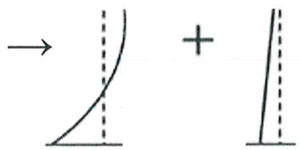

(b) Superposition of moments

! cantilever with uniform load
:he maximum positive and
1-cantilever member with uni-

urs at 3/8 L down from top of post)
urs at ground line)

er with point load P
n Δ_{eave} at building mid-length,[1]
would cause that deflection

d then substituting $M = PH_1$,
ıg moment caused by eave

on statics. These equations yield identical results to that of the preceding equations.

Calculating eave deflection

Calculating eave deflection is required to determine the maximum post moment. Pope, Bender and Mill (2012) present a three-term equation to predict diaphragm deflection that includes deflection contribution from bending of the diaphragm framing and chord slip which is presented as

$$\delta_{dia} = \frac{15vL^3}{4EAsn(n+1)} + \frac{.25vL}{1000G_a} + \frac{\Delta_c}{W}\Sigma xi$$

where

- v = applied unit shear (lb/ft),
- L = diaphragm length (ft), – BUILDING LENGTH?
- E = modulus of elasticity of the diaphragm chords (psi),
- A = cross-sectional area of the chords (in²),
- s = chord spacing (ft),
- n = number of chords
- W = diaphragm width (ft), – BLDG WIDTH? (7.5 – 10 k/in)
- G_a = apparent shear wall stiffness (k/in),
- Δ_c = diaphragm chord slip (in), and
- x = distance from chord splice to nearest support (ft). ?

The three terms account for deflection due to diaphragm framing bending, shear, and chord slip, respectively. This

SDSWS-2008, in AF&PA, 2008):

$$\delta_{sw} = \frac{8vH_1^3}{EAb} + \frac{vH_1}{1000G_a} + \frac{H_1}{b}\Delta_a$$

where v, H_1, G_a defined previously, and E are t elasticity of the end posts (psi), A is the cross-se the end wall posts (in²), b is the shear wall leng is shear wall anchorage slip (in). Similar to the tion for diaphragm deflection, the three term wall deflection equation above account for def framing bending, shear, and wall anchorage slip Because the posts are embedded in the ground construction, it is assumed that no wall anchora therefore eliminating the third term of the equat

Embedded post foundation design

Once the ground line moment is determined, th ment depth can be calculated using Equation 1 1807.3.2.2 of the 2009 International Building C should be noted that this equation applies to the s there is ground line constraint, such as provided slab on grade. The posts on the leeward side of th commonly tied into the concrete slab with steel r

$$d = \sqrt{\frac{4.25M_g}{S_3b}}$$