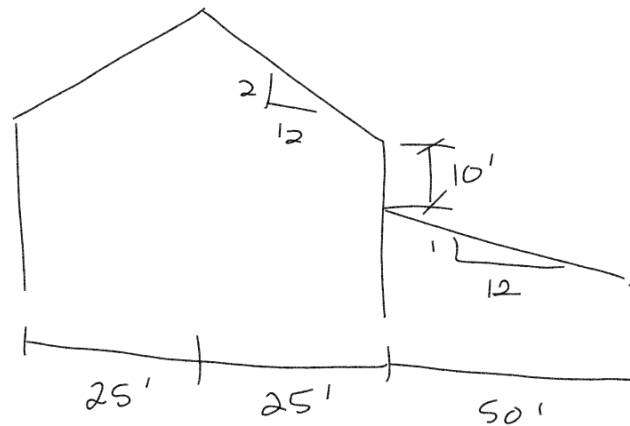Design Loads
Snow Loads
Example 2

Given the following building and conditions find the drift surcharge load and width for wind going to the right and wind going to the left:

RISK CAT = II

SURFACE CAT = B

ST. ANTHONY, ID
(SAME AS
    EXAMPLE #1)

PROBLEM #1 $\longrightarrow$ $P_s = 25.9$ psf, $\gamma = 18.8$ pcf

FOR DRIFT SEE SECTION 7.7 & FIGURE 7.7-2

CHECK TO SEE IF DRIFT NEEDS TO BE APPLIED

IF $\dfrac{h_c}{h_b} < 0.2$ DRIFTS DON'T NEED TO BE APPLIED

$h_b = \dfrac{P_s}{\gamma} = \dfrac{25.9 \text{ psf}}{18.8 \text{ pcf}} = 1.38 \text{ ft}$

$h_c = (\text{HEIGHT DIFFERENCE}) - h_b = 10 \text{ ft} - 1.38 \text{ ft}$
                                                        $= 8.6 \text{ ft}$

$\dfrac{h_c}{h_b} = \dfrac{8.6 \text{ ft}}{1.38 \text{ ft}} = 6.3 \; > 0.2$ ∴ APPLY DRIFT
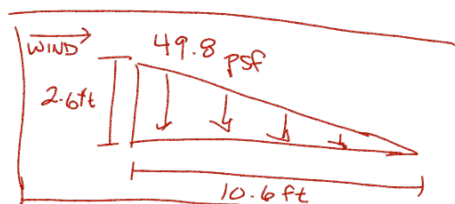
LEEWARD DRIFT

FIG. 7.6-1 $\longrightarrow$ $h_d = 0.43 \sqrt[3]{l_u} \sqrt[4]{P_g + 10} - 1.5$

$= 0.43 \sqrt[3]{50} \sqrt[4]{37 + 10} - 1.5$

$= 2.6 \text{ ft}$

$0.6 (\text{LOWER ROOF}) = 0.6(50) = 30 \text{ ft} > 2.6$ ∴ $h_d = 2.6 \text{ ft}$

$h_d < h_c$ ∴ $W = 4 h_d$
                    $= 4(2.6 \text{ ft})$
                    $= 10.6 \text{ ft}$

$P_d = h_d \gamma = 2.6 \text{ ft} (18.8 \text{ pcf}) = 49.8 \text{ psf}$

$\boxed{P_d = 49.8 \text{ psf} \qquad \text{WIDTH} = 10.6 \text{ ft}}$

WINDWARD

USE FIGURE 7.6-1

$$h_d = 0.43 \sqrt[3]{50} \sqrt[4]{37+10} - 1.5 = 2.6 \text{ ft}$$

$$\text{DRIFT HT} = \frac{3}{4} h_d = \frac{3}{4}(2.6 \text{ ft}) = 2.0 \text{ ft}$$

$$h_d < h_c \quad \therefore \quad w = 4 h_d = 4(2.0 \text{ ft}) = 8 \text{ ft}$$

$$P_d = h_d \gamma = 2.0 \text{ ft} (18.8 \text{ pcf}) = 37.6 \text{ psf}$$