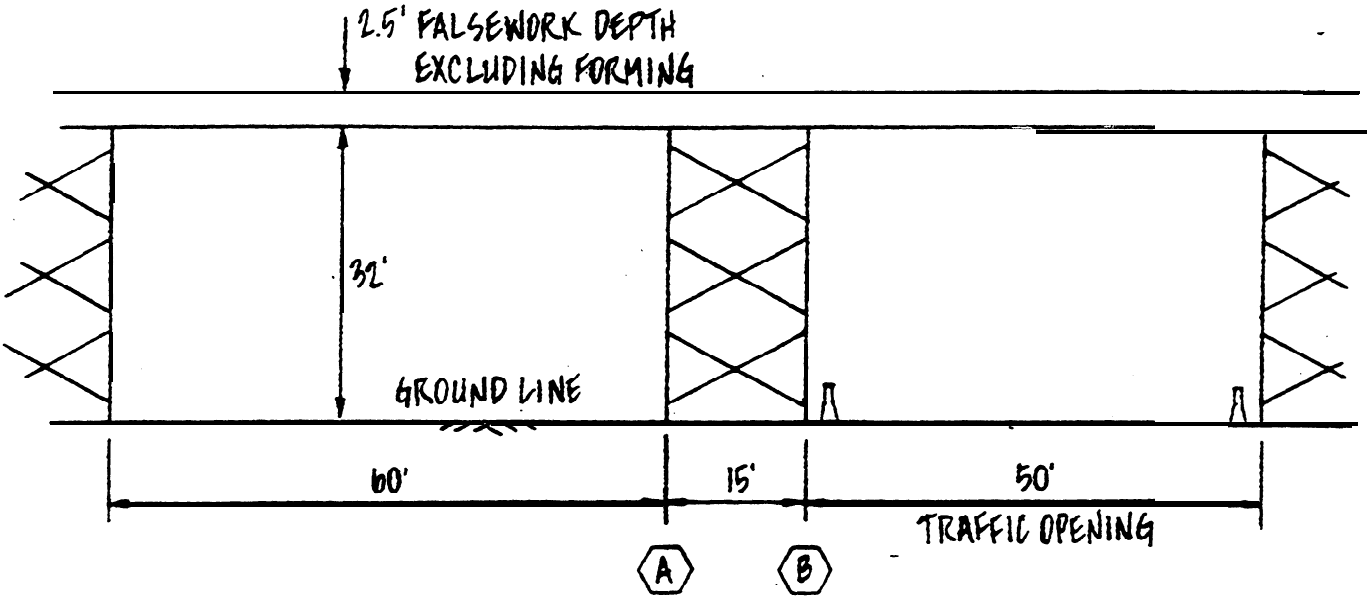
EXAMPLE NO. 1
WIND LOADS ON CONVENTIONAL FALSEWORK



TRANSVERSE WIDTH OF FALSEWORK = 58' (INTO PAPER)

DETERMINE THE HORIZONTAL DESIGN WIND LOAD FOR BENTS (A) AND (B)

1. DETERMINE THE WIDTH OF THE FALSEWORK SYSTEM IN THE WIND DIRECTION. $W = 58'$
2. CALCULATE THE DRAG COEFFICIENT Q. $Q = 1 + 0.2W = 1 + 0.2(58) = 12.6 > 10$

   $\therefore Q = 10$

HEIGHT ZONE	BENT (A)	BENT (B)
0-30	$1.5Q = 1.5(10) = 15$ PSF	$2.0Q = 2.0(10) = 20$ PSF
30-32	$2.0Q = 2.0(10) = 20$ PSF	$2.5Q = 2.5(10) = 25$ PSF
32-34.5	$2.0Q = 2.0(10) = 20$ PSF	$2.5Q = 2.5(10) = 25$ PSF

3. CALCULATE THE WIND PRESSURE VALUE FOR EACH HEIGHT ZONE USING THE WIND VELOCITY COEFFICIENT FOR EACH HEIGHT ZONE LISTED IN SECTION 51-1.06 OF THE STANDARD SPECIFICATIONS.

HEIGHT ZONE	BENT (A)	BENT (B)

4. CALCULATE THE WIND IMPACT AREA FOR EACH HEIGHT ZONE

0 – 30	$30' \times 15'/2 = 225$ SF	$30' \times 15'/2 = 225$ SF
30 – 32	$2' \times 15'/2 = 15$ SF	$2' \times 15'/2 = 15$ SF
32 – 34.5	$2.5' \times \left(\frac{15'}{2} + \frac{60'}{2}\right) = 93.75$ SF	$2.5 \times \left(\frac{15'}{2} + \frac{50'}{2}\right) = 81.25$ SF

5. CALCULATE THE TOTAL WIND LOAD FOR EACH HEIGHT ZONE

0 – 30	15 PSF × 225 SF = 3375#	20 PSF × 225 SF = 4500#
30 – 32	20 PSF × 15 SF = 300#	25 PSF × 15 SF = 375#
32 – 34.5	20 PSF × 93.75 SF = 1875#	25 PSF × 81.25 SF = 2031#

6. CALCULATE OVERTURNING MOMENT

0 – 30	3375# × 15' = 50625'#	4500# × 15' = 67500'#
30 – 32	300# × 31' = 9300'#	375# × 31' = 11625'#
32 – 34.5	1875# × 33.75' = 62344'#	2031# × 33.25' = 67531'#
TOTAL	122269'#	146656'#

7. CALCULATE THE HORIZONTAL DESIGN WIND LOAD

$\frac{122269'\#}{32'} = 3821\#$	$\frac{146656'\#}{32'} = 4583\#$