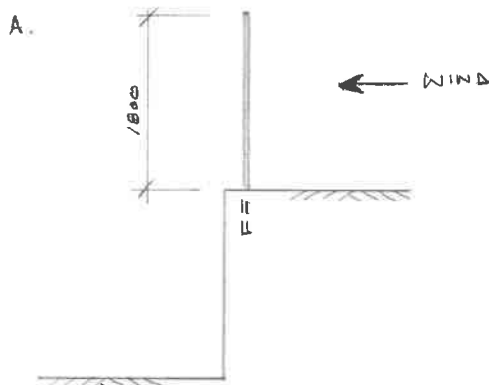


PROJECT : <i>Riva Homes Retaining Walls</i>	Job No. 48785	Date Dec. 2025
SUBJECT : <i>Wind Loading on Screen Wall (fixed to top of retaining wall)</i>	Prepared AJC	Checked CAW

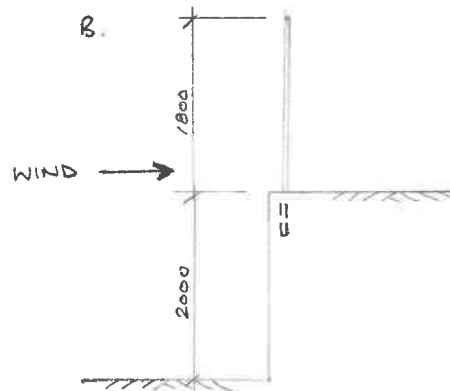
SITE CONDITIONS FOR WIND LOADING

1. Fundamental basic wind velocity: 22.7 m/s
2. Elevation above mean sea level: 188m
3. Site 100 km from shore.
4. Site inside town - refer to directional specific data.
5. Orography not significant.

WIND CASES



REFERENCE HEIGHT: 1.80m
 PEAK PRESSURE: $q_p(z) = 0.63 \text{ kN/m}^2$



REFERENCE HEIGHT: 3.80m
 PEAK PRESSURE: $q_p(z) = 0.78 \text{ kN/m}^2$

- SEE ATTACHED SHEET FOR DERIVATION OF PEAK PRESSURE
- CASE A - ONEROUS WHEN CONSIDERED WITH EARTH PRESSURES
 E.G. FOR OVERALL STABILITY
- CASE B - ONEROUS FOR LOCAL STRUCTURAL DESIGN
 E.G. MASONRY POCKET

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Site Basic Data

Location	St John's Place, East Bierley, Birkenshaw, Kirklees, West Yorkshire, England, BD11 2JD, United Kingdom
Base wind speed	Base wind speed, $V_{b,map}$ 22.65 m/s
Site Range	500 m
Altitude and Obstructions	Site altitude 188 m - Shelter effect from obstructions is included
Topographic Increments	Site altitude only - Topography not significant - assumed to be flat
Seasonal factor, C_{season}	Season length is All year - Seasonal factor, C_{season} 1.000
Annual risk and probability factor	Design annual risk 0.02 - Probability factor, C_{prob} 1.000
Heights (m)	Heights above ground 1.8;3.8
Building height, h (m)	For 0.6 h limit on h_{dis} - Taken from maximum height value

Direction Factors - Using UK direction Factors

Direction (°N)	0	30	60	90	120	150	180	210	240	270	300	330
Direction factor, S_d	0.78	0.73	0.73	0.74	0.73	0.80	0.85	0.93	1.00	0.99	0.91	0.82

Topography

Terrain Roughness

Distance to Sea (km)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	89.8	85.9	100.0
Distance in Town (km)	0.8	2.2	0.0	15.8	17.6	13.8	8.7	4.8	0.0	9.2	10.7	12.1

Obstructions

Obstructions Height, H_o (m)	10.0	10.0	0.0	10.0	10.0	10.0	10.0	10.0	0.0	10.0	10.0	10.0
Obstructions Spacing, X_o (m)	20.0	20.0	100.0	20.0	20.0	20.0	20.0	20.0	100.0	20.0	20.0	20.0

Calculation Results

Height Above Ground = 1.8 m

Direction (°N)	0	30	60	90	120	150	180	210	240	270	300	330
Altitude factor, C_{alt}	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188
Basic wind speed, V_b (m/s)	21.0	19.6	19.6	19.9	19.6	21.5	22.9	25.0	26.9	26.6	24.5	22.1
Effective height, H_e (m)	0.72	0.72	1.80	0.72	0.72	0.72	0.72	0.72	1.80	0.72	0.72	0.72
Displacement height, H_{dis} (m)	1.08	1.08	0.00	1.08	1.08	1.08	1.08	1.08	0.00	1.08	1.08	1.08
Orography factor, C_o	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Exposure factor, C_e	1.407	1.407	1.407	1.407	1.407	1.407	1.407	1.407	1.407	1.411	1.412	1.407
Exposure adjustment factor, C_{eT}	0.712	0.661	1.000	0.593	0.590	0.596	0.610	0.630	1.000	0.608	0.604	0.600
Roughness factor, C_r	0.724	0.724	0.724	0.724	0.724	0.724	0.724	0.724	0.724	0.725	0.725	0.724
Rough. Correction, C_{rT}	0.606	0.584	1.000	0.553	0.551	0.554	0.561	0.570	1.000	0.560	0.558	0.556
Dynamic Pressure, $q_p(z)$ (N/m ²)	270.7	220.1	332.8	202.7	196.3	238.4	275.4	340.4	624.6	373.5	313.5	252.0

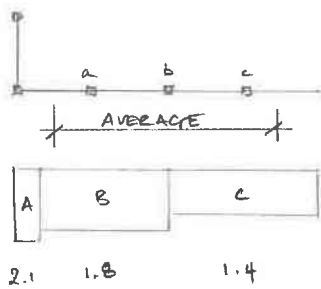
Height Above Ground = 3.8 m

Direction (°N)	0	30	60	90	120	150	180	210	240	270	300	330
Altitude factor, C_{alt}	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188
Basic wind speed, V_b (m/s)	21.0	19.6	19.6	19.9	19.6	21.5	22.9	25.0	26.9	26.6	24.5	22.1
Effective height, H_e (m)	1.52	1.52	3.80	1.52	1.52	1.52	1.52	1.52	3.80	1.52	1.52	1.52
Displacement height, H_{dis} (m)	2.28	2.28	0.00	2.28	2.28	2.28	2.28	2.28	0.00	2.28	2.28	2.28
Orography factor, C_o	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Exposure factor, C_e	1.407	1.407	1.748	1.407	1.407	1.407	1.407	1.407	1.748	1.411	1.412	1.407
Exposure adjustment factor, C_{eT}	0.712	0.661	1.000	0.593	0.590	0.596	0.610	0.630	1.000	0.608	0.604	0.600
Roughness factor, C_r	0.724	0.724	0.835	0.724	0.724	0.724	0.724	0.724	0.835	0.725	0.725	0.724
Rough. Correction, C_{rT}	0.606	0.584	1.000	0.553	0.551	0.554	0.561	0.570	1.000	0.560	0.558	0.556
Dynamic Pressure, $q_p(z)$ (N/m ²)	270.7	220.1	413.4	202.7	196.3	238.4	275.4	340.4	775.8	373.5	313.5	252.0

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PRESSURE COEFFICIENTS

- NET FORCE PRESSURES ARE TO BE IN ACCORDANCE WITH CI.7.4.1 BS EN 1991-1-4
- ASSUME WALL IS STIFF ENOUGH TO DISTRIBUTE LOADS FOR PER METRE DESIGN
- CONSIDER 3 INTERNAL POSTS



POST A: 1.82 (FROM LOCAL PRESSURE, SEE ABOVE)

POST B: $\frac{1.80 + 1.40}{2} = 1.60$

POST C: $\frac{1.40 + 1.40}{2} = 1.40$

$\therefore c_{pinet} = \frac{1.82 + 1.60 + 1.40}{3} = 1.61$

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WIND LOADS - SUMMARYFOR OVERALL STABILITY :WIND ON FACE OF WALL: $F_w = 1.61 \times 0.78 = 1.26 \text{ kN/m}^2$ WIND FROM RETAINED SIDE: $F_w = 1.61 \times 0.68 = 1.01 \text{ kN/m}^2$ 