**Project: B212533 - Homefield Rise 18-28**

**Client: Ubique Architects**

**Roof Name Main Roof**

**Wind Load Calculation**

The calculations have been carried out in accordance with the requirements of NA to BS EN 1991-1-4:2005 the UK National Annex to Eurocode 1 – Actions on structures Part 1-4: and DG 489 Wind loads on roof-mounted photovoltaic and solar thermal systems

Site data for TQ 46358 66075

**Basic Wind Velocity**

| | | |
|---|---|---|
| $V_b = V_{bmap} \times C_{alt} \times C_{dir} \times C_{season} \times C_{prop}$ | 23.0 | m/s |
| Wind Speed ($V_{bmap}$) | 21.6 | m/s |
| Altitude Factor ($C_{alt}$) | 1.06 | Site Altitude 61m |
| Direction Factor ($C_{dir}$) | 1 | |
| Seasonal Factor ($C_{season}$) | 1 | |
| Propability Factor ($C_{prop}$) | 1 | |

**Basic Velocity Pressue**

| | | |
|---|---|---|
| $q_b = 0.613 \times V_b^2$ | 0.32 | kN/m$^2$ |

| | | |
|---|---|---|
| Distance to Sea 88km | Distance in Town 3km | Effective Height 9.6m |
| Orography factor $C_o(Z)$ | 1.00 | |
| Exposure Factor $C_e(Z)$ | 2.31 | |
| Correction Factor $c_{r,T}$ | 0.85 | |

**Peak Velocity Pressure**

| | | |
|---|---|---|
| $q_p$ | 0.64 | kN/m$^2$ |

**Wind Loads** PV Units

| | Zone F | Zone G | Zone H |
|---|---|---|---|
| $p_e = q_p \times C_{pe.net} \times C_s$ | -1.02 | -0.70 | -0.26 |
| $C_{pe.net}$ is the external pressure coefficient | -1.6 | -1.1 | -0.4 |
| Load Factor | 1.35 | 1.35 | 1.35 |
| Load on PV Units kN/m$^2$ | -1.38 | -0.95 | -0.35 |
| Ballast Required kg/m$^2$ | None | None | None |
| load capacity limit | | | |

**PV Units**

| | | | |
|---|---|---|---|
| Size | North/South | 1.134 | m |
| | East/West | 1.708 | m |
| Number of Units | | 24 | |
| Numbe of Fixing points | | 39 | |

| | | |
|---|---|---|
| Membrane | BauderTHERMOFOL U18 | |
| Fixing Strength | 2.36 | kN |
| Uplift Resistance | 2.08 | kN/m$^2$ |



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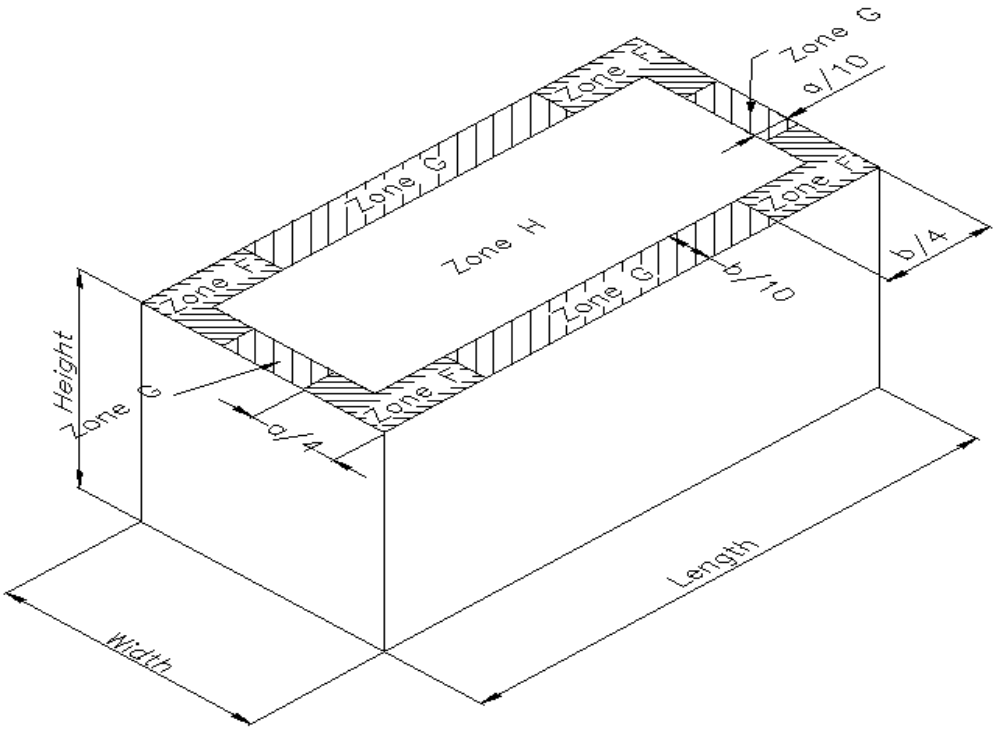


b = Length or 2 x Building Height whichever is the smaller
a = Width or 2 x Building Height whichever is the smaller

| | | | |
|---|---|---|---|
| Building Height | 9.6 m | b = | 19.2 m |
| Building Width | 17.5 m | b/10 = | 1.92 m |
| Building Length | 29.8 m | b/4 = | 4.8 m |
| | | a = | 17.5 m |
| | | a/10 = | 1.75 m |
| | | a/4 = | 4.375 m |

Notes

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