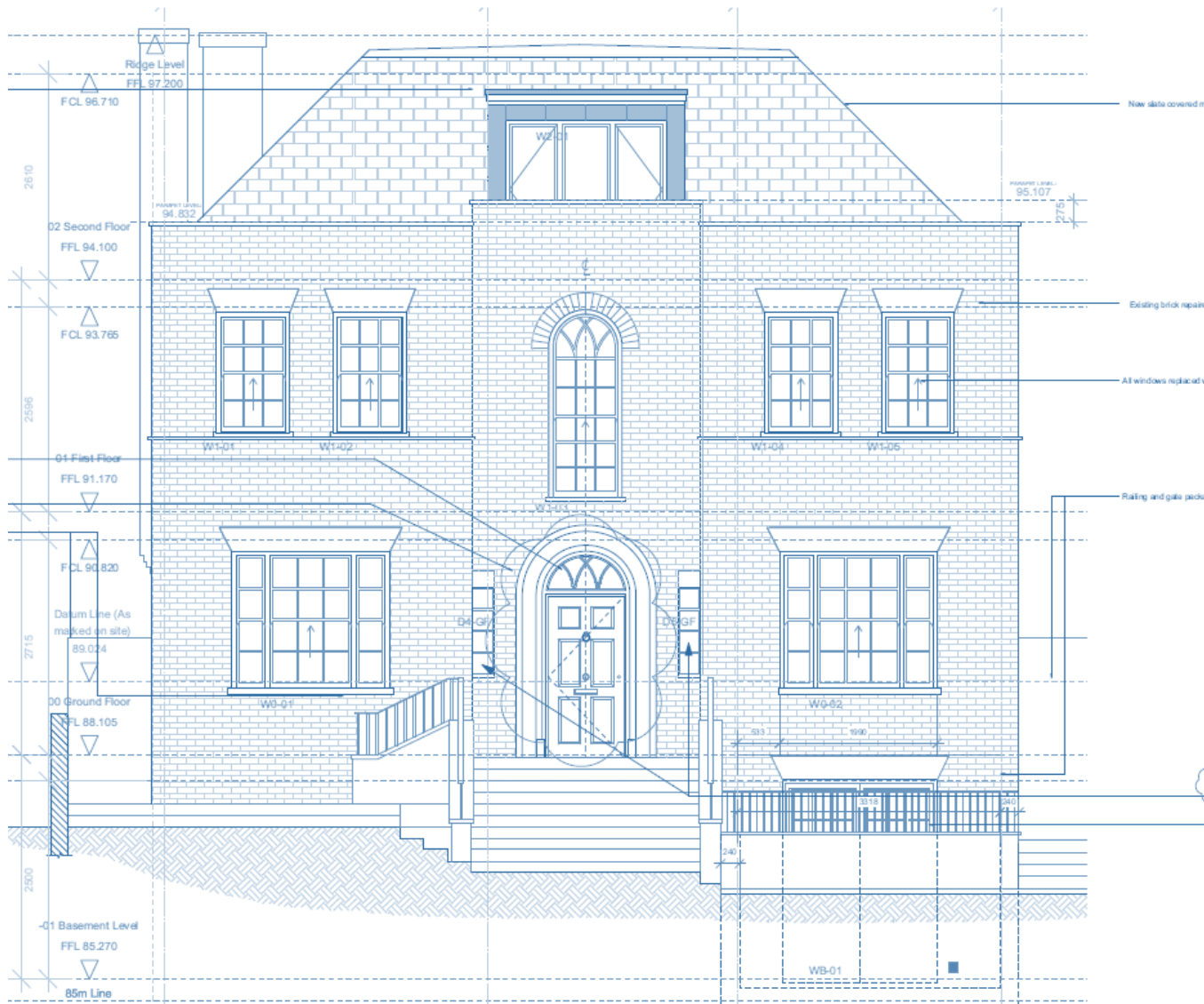




M&E Services & Consulting Engineers



Ackroyd Lowrie

72 Maresfield Gardens New Dwelling Overheating Strategy

Limiting the Effect of Heat Gains in Summer Months

An assessment has been undertaken to determine the risk of summertime overheating and consider measures for the minimisation of cooling demand.

Basis of the Study

The London Plan Policy 5.9 (Overheating and Cooling) requests that Development’s should reduce potential overheating risk and reliance on air conditioning systems. A ‘cooling hierarchy’ is provided and the Development has sought to follow this hierarchy.

Cooling Hierarchy

The following cooling hierarchy has been followed to limit the effects of heat gains in summer:

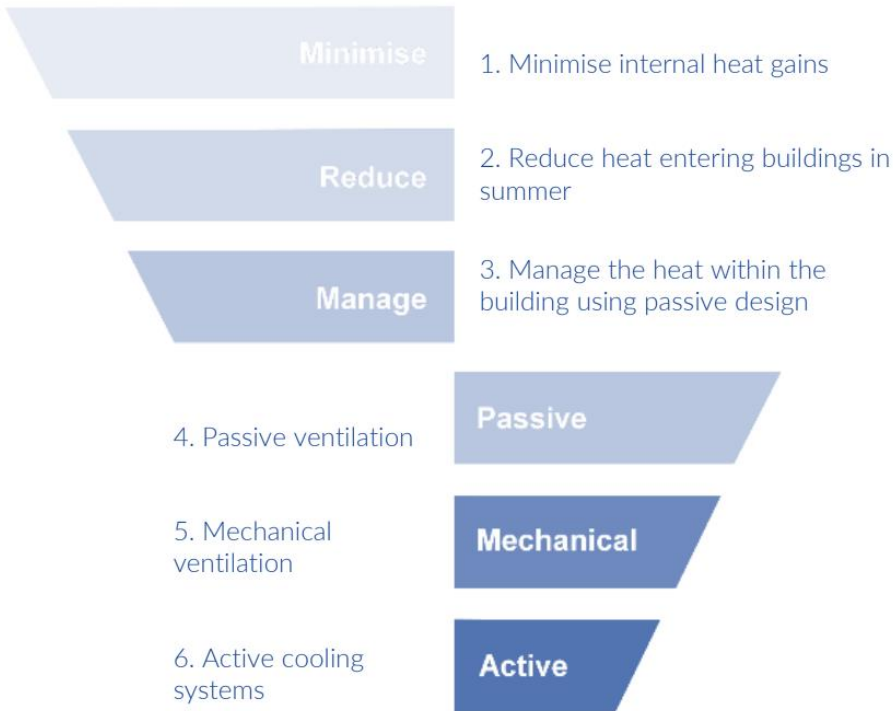


Figure 9: Mayor of London Cooling Hierarchy.

Measures of Mitigation Measures – Internal Gains

The following mitigation methods will be implemented at the Development to minimise internal heat gains.

Energy Efficient Lighting and Equipment

Energy efficient lighting will be provided with low heat output, such as LED or compact fluorescent lamps. Equipment will be selected in accordance with the Energy Rating as per the EU product Energy Labelling scheme. Where possible, preference will be given to ‘A’ rated goods and above.

Pipework Insulation

All necessary space heating and hot water pipework will be insulated in accordance with the requirements of the Building Regulations. This is necessary in order to minimise heat gains and losses to / from distribution pipework and assist in maximising system efficiency. Careful attention will also be paid to insulating joints and knuckles to minimise standing heat losses. Ductwork will be insulated to minimise heat gains and losses, and will be of suitable construction to minimise air leakage.

Measures of Mitigation Measures – External Gains

The following mitigation methods will be implemented at the Development to minimise external heat gains.

Glazing Ratio, G-value and Light Transmittance

The glazing ratio has been optimized to manage limiting summertime solar gains to reduce space cooling demands and ensure good levels of natural daylight. The window dimensions proposed strike a good balance between beneficial winter solar gain, daylight levels and unnecessary solar gain. The total glazed proportion of the Development is approximately 36%. Additional solar gains received by each space has been controlled through an appropriate g-value (currently expected $g=0.40$), whilst having regard for adequate daylight transmittance.

Insulation and Fabric Air Permeability

High levels of insulation and low fabric air permeability are targeted, demonstrating significant improvements over the Building Regulations Part L limiting values and the notional building.

Ventilation

The building will incorporate highly efficient mechanical ventilation to all areas.

Summary of Calculation Results

Dynamic modelling for Part L compliance has been carried out for the Development. The analysis includes a Criterion 3 compliance check. The cooling demand is shown for both buildings to be less than the notional building, according to the Part L methodology.