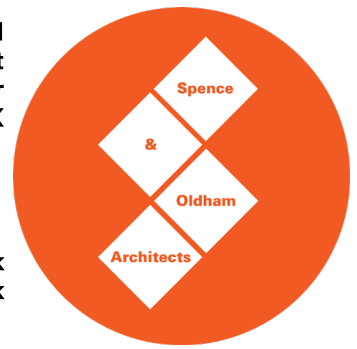




Ref:0011/01/Admin/LA.03 **Revision B**
27th April 2022

227 Moston Lane East, Manchester, M40 3HY New build end-terrace house ENVIRONMENTAL STANDARDS STATEMENT

1.0 INTRODUCTION

This document has been prepared to discharge condition 10 of application 129142/FO/2021 for 1 no. new build dwelling to land within the curtilage of 227 Moston Lane East which states:

"Notwithstanding details submitted, prior to above ground development commencing, an Environmental Standards Statement shall be submitted to, and approved in writing by, the City Council, as Local Planning Authority. The statement shall demonstrate measures to be incorporated into the development to achieve energy efficiency and approved measures shall be implemented in the construction of the approved development."

The following paragraphs demonstrate how the proposed dwelling at 227 Moston Lane East will comply with Building Regulation Part L1A (2013), and how the overall design considers sustainability and energy efficiency.

2.0 THE BUILDING FABRIC

The proposed new building's fabric elements shall be in compliance with the Approved Building Regulations Part L1A (2013).

New Thermal Elements for new build dwellings - Target 'U-value' by element:

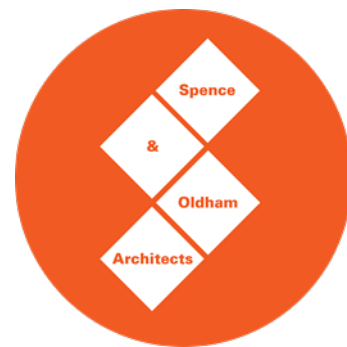
Pitched roof – insulation at ceiling level	0.12 W/m ² K
Pitched roof – insulation at rafter level	0.12 W/m ² K
Flat roof or roof with integral insulation	0.15 W/m ² K
Wall	0.14 W/m ² K
Floor	0.14 W/m ² K

The specification of the external envelope is to be as follows to achieve the above values:

EXTERNAL WALLS – NEW BRICK CAVITY WALLS

Wall construction to be approx. 325mm total thickness (not including finishes) comprising;

- 102.5mm facing brickwork. Coursing and colour to match existing. – samples to be submitted for approval prior to construction). Bond/Coursing and render to match existing.
- Wall at plinth level to be 102.5mm facing brickwork with 50mm blockwork to support external offset of plinth. Cant brick to top of plinth.
- 125mm cavity to be filled with 115mm Kingspan Kooltherm K106 Cavity Board (or equal approved) with 10mm residual cavity to be installed according to manufacturer's guidelines.
- 100mm block work (min 7N/mm²) inner leaf



- 12.5mm plasterboard on dot + dab (Moisture resistant board to be used to utility, WCs, bathrooms and kitchen).
- Cavity wall insulation to extend min. 300mm down in cavity beyond top of insulation to ground floor.

Overall wall construction to achieve a min U-Value of 0.14W/m²K

EXTERNAL WALLS – NEW TIMBER FRAME DORMER WALLS

Wall construction to be approx. 319.5mm total thickness (not including finishes) comprising;

- Slate roof tiles on 2no layers of 25x50mm vertical and horizontal timber battens over;
- Breathable membrane on 9mm OSB sheathing fixed to;
- Timber studs to structural engineer's specification.
- 100mm Kingspan Kooltherm K107 Pitched Roof Board (or equal approved) to be installed between studs in line with to manufacturer's guidelines.
- 82.5mm (70 + 12.5mm) Kooltherm K118 (or equal approved) insulated plasterboard to be taped as VCL.
- Skim finish.
- Dormer wall facing boundary with No. 227 to receive additional fire protection. 12mm Promat Supalux boards to be screxfixed over 9mm OSB prior to installation of breathable membrane and cladding. Composite cladding to achieve Min. B-s3, d2 Reaction to Fire rating..

Overall wall construction to achieve a min U-Value of 0.12W/m²K

NEW BEAM AND BLOCK GROUND FLOOR:

Generally to be;

- Jet Floor Forterra or equal approved.
- 150mm Forterra pre stressed concrete beams with;
- 150mm Jetfloor infill insulation block between beams
- 1200 polythene DPM.
- Jetfloor 75mm overlay insulation
- 500g polythene separating layer.
- 75mm Structural screed over.
- 25mm Perimeter insulation strip to all edges of screed. All to be installed in line with manufacturers recommendations.
- All Jetfloor insulation to be Grey EPS 0.03 W/mK
- Min 250mm sub floor ventilation void.

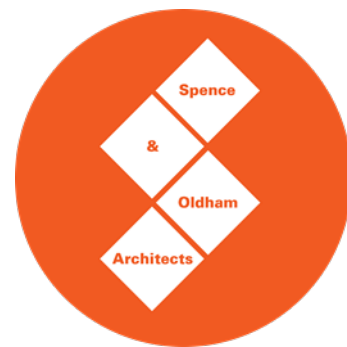
Overall floor construction to provide a target 'U' value of 0.14 W/m²K

PITCHED ROOF – NEW ROOF OVER GROUND FLOOR LIVING ROOM - WARM

Unventilated roof covering: to new pitched roofs

- Slate roof tiles to match existing (Exact specification to be confirmed between client and contractor) fixed to 25x38mm tanalised timber battens on;
- On Proctor Roof shield breathable membrane installed in accordance with the manufacturer's guidelines.
- Rafters - See Structural Engineers' calculations.
- Insulation to be 1no layer of 150mm Kingspan Kooltherm K107 Pitched Roof Boards (or equal approved) to be installed between joists. Min. 25mm clear ventilation gap to be maintained above insulation.
- 62.5 Kingspan Kooltherm K118 Insulated Plasterboard (50+12.5mm) insulated plasterboard (or equal approved) to be screwfixed to underside of rafters. Insulated boards to be taped as VCL.
- Skim finish.
- Where applicable, timber wall plates to be bedded on mortar and strapped to wall with 30x5x1000mm galvanised mild steel straps at 1200mm c/s.

Roof construction to provide a target 'U' value of 0.12 W/m²K.



PITCHED ROOF – NEW MAIN PITCHED ROOF- WARM

Unventilated roof covering: to new pitched roofs

- Slate roof tiles to match existing (Exact specification to be confirmed between client and contractor) fixed to 25x38mm tanalised timber battens on;
- On Proctor Roof shield breathable membrane installed in accordance with the manufacturer's guidelines.
- Rafters - See Structural Engineers' calculations.
- Insulation to be 2no layers of Kingspan Kooltherm K107 Pitched Roof Boards (or equal approved) (100+75mm. Total - 175mm) to be installed between joists. Min. 25mm clear ventilation gap to be maintained above insulation.
- 37.5 Kingspan Kooltherm K118 Insulated Plasterboard (25+12.5mm) insulated plasterboard (or equal approved) to be screwfixed to underside of rafters. Insulated boards to be taped as VCL.
- Skim finish.
- Where applicable, timber wall plates to be bedded on mortar and strapped to wall with 30x5x1000mm galvanised mild steel straps at 1200mm c/s.

Roof construction to provide a target 'U' value of 0.12 W/m²K.

FLAT ROOF - GRP FINISH TO NEW DORMER ROOF

Generally to be a Topseal system or equal approved.

- GRP finish by Topseal or equal approved (aesthetic finish to be confirmed by client) over 18mm OSB3 deck as appropriate all in accordance with manufacturer's instructions, on
- 150mm Kingspan Thermaroom TR26 LPC/FM or equal approved over;
- Vapour barrier on;
- 18mm external grade plywood mechanically fixed to;
- Timber roof joists, size to be confirmed by structural engineer all laid to Min. 1:40 falls to rainwater gutter.
- 12.5mm plasterboard fixed to underside of joists with plaster skim and paint finish.

Roof construction (over new extension) to achieve min. U-Value of 0.15W/m²K

WINDOWS, ROOF LIGHTS, EXTERNAL DOORS

Windows & Doors to be double glazed units. To achieve a U-Value no greater than 1.4 W/m²K.

A design air permeability rate has been set at 4m³/m²/hr at 50Pa.

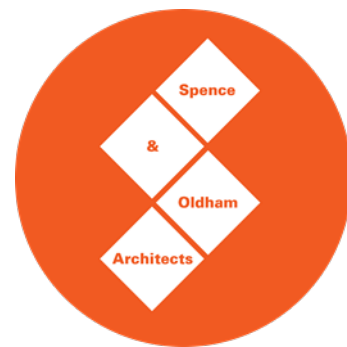
3.0 HEATING

The residential premises will utilise an efficient gas boiler such as a Worcester Bosch Greenstar 24i boiler, or equal approved, located in the utility room serving the full space heating load utilising underfloor solutions and warm air heating. It will also serve the domestic hot water demand. Subject to how the space heating will be provided this will be sized to cover load, a provisional allowance for background heating in the region of 13 kW. The areas within the building shall be suitably zoned for space heating provision.

The hot water generation shall be supplied by the same efficient gas central heating system that serves the building heating systems.

4.0 LIGHTING & VENTILATION

All habitable rooms throughout the new property have external windows which provide natural light whilst being openable via manual operation for natural ventilation.



To the rear of the property the living room, and principal habitable space, utilises rooflights to maximise natural light ingress and reduce the need for artificial lighting, whilst the snug and bedrooms make use of tall openable windows which extend to ceiling height to allow as much natural light into these spaces as possible.

All windows proposed are to be double glazed, achieving Part L1A U-Value requirements as set out in section 2.0.

5.0 CYCLE PARKING

Cycle parking is to be provided in line with the proposed designs and as outlined in condition 8. A purpose-built external store for storage of bicycles will be provided, promoting the use of this sustainable mode of transport.

6.0 RENEWABLE TECHNOLOGY ASSESSMENT

An assessment of multiple renewable technologies has been carried out in order to determine the suitability of their application at this site.

Renewable Technology	Feasibility	Reason
Photovoltaics	N	Insufficient roof space available at optimal angle for panels
Solar Hot Water	N	Insufficient roof space available at optimal angle for panels, load will be sufficiently supplied by energy efficient gas boiler
Ground Source Heat Pumps	N	Insufficient external site area and cost inhibiting
Air Source Heat Pumps	N	Gas boiler can accommodate heating load more efficiently
Wind Turbines	N	Insufficient wind speeds and space available at site
Combined Heat and Power	N	Heat load throughout the year is not consistent enough to justify use of CHP plant
Biomass Boilers	N	Location does not lend itself practically to either regular delivery of fuel, nor for the storage space needed

The above table demonstrates that whilst renewable technology has been considered at this site, most will not be cost effective or feasible for a dwelling of this size within an urban environment such as this. Instead, the design opts for use of an energy efficient boiler and passive design measures such as maximum natural light ingress and ventilation to minimise the energy usage of occupants.

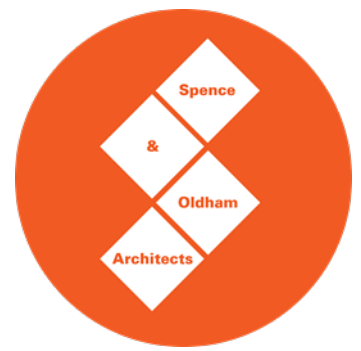
6.1 REQUESTED PART L IMPROVEMENTS (Requested by MCC Planners)

It has been requested by the Local Authority planners to achieve a '9% uplift' on the building regulations approved document L1A (2013).

Consultation with energy assessors presents several options for achieving this improvement. Either of these options will provide a 9% uplift in line with the proposed design over building regulations approved document L1A (2013). One of the following options will be implemented, which is tbc:

Option 1: Use aluminium framed windows (double glazed), fit a delayed start thermostat and achieve an air permeability rate of 4.7

Option 2: Replace concrete blocks with thermal blocks to achieve a lower λ -value.



7.0 CONCLUSION

This brief report has outlined the compliance of the design with approved document L1A and additional design measures taken to ensure the proposed dwelling meets energy efficiency standards, and has demonstrated how active technologies have been considered and disproved as providing any energy efficiency benefits to this site.