Building Regulations Part L1B

Material Change of use

Flats 1 – 3

Tapping the Admiral

Castle Road

Camden

NW1 8SU

Amendments

Date	Change	Document Version
09/05/2018	Original Specification Issued.	Version 1

All changes are marked in blue

This Building Regulation L1B Material Change of Use Report Has Been Prepared

For: Flats

1 – 3
Tapping the Admiral
Castle Road Camden

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Building Regulations Part L Documentation

Property Particulars

The property is an existing public house and is to be converted into a 3 flats, therefore under the definitions of building regulations is termed a "material change of use"

To satisfy the requirements of part L1B, the Building Regulations Approved Document 2013 (amendments) paragraph 4.6 states:-

To provide more design flexibility SAP 2012 can be used to demonstrate the $C0^2$ emissions from all dwellings in the building as it will become are no greater than if each dwelling had been improved following the guidance set out in paragraph 4.15.

This report sets out to satisfy this requirement at design stage.

Method

A SAP calculation has been carried out on the proposed dwellings with the proposed specification and also on the dwelling with the notional specification (as detailed in Part L1B Building Regulations Approved Document 2010 / 2013 (amendments)

Details of the actual information used in each of the SAP calculations is shown on page 7 - Building Regulations Standards Table.

A summary of the carbon emissions for the actual dwelling and the notional dwelling are shown on page 9 - CO^2 Emissions Table.

Conclusions

As can be seen from the building regulations standards table on page 7, the actual U values for each of the thermal elements are compared to the required standard values as detailed in Part L1B Building Regulations Approved Document 2010 / 2013 (amendments).

This is demonstrated by the actual CO^2 emissions of the dwelling being lower than the notional CO^2 emissions, as detailed on page 8- CO^2 Emissions Table.

Based on the building regulations requirement to achieve an actual $C0^2$ emissions rate lower than the target $C0^2$ emissions rate - this property satisfies that requirement.

Specific requirements relating to compliance and offsetting

The corridors are unheated therefore the walls between the flats and the corridor / stairs need to be insulated. Details of the levels of insulation included in the calculations to demonstrate compliance are detailed in the build standards table below.

Building Regulations Standards Table

Element	Specification	Proposed U Value	Standard U Value	Building Regs. Achieved
Renovated wall	External Brick 25 mm batten 60 mm rigid foam insulation which has conductivity of 0.022 W/mK Plasterboard	0.29 W/m^{2}K	0.30 W/m^{2}K	Yes.
New Wall	Brick out skin 100 mm mineral wool insulation which has conductivity of 0.038 Thermal block which has a which has conductivity of 0.18 Plasterboard	0.29 W/m^{2}K	0.28 W/m^{2}K	No
Wall to Corridor	100 mm Rockwool flexible sound insulation between timber studs	0.36 W/m^{2}K	0.28 W/m^{2}K	No
Party Wall	Fully fill party wall with sealed edges	0.00 W/m^{2}K	0.00 W/m^{2}K	Yes.
New Floor	200 mm mineral wool between timber joists	0.10 - 0.20 W/m^{2}K	0.25 W/m^{2}K	Yes
New flat roof	115 mm rigid foam timber joists	0.18 W/m^{2}K	0.18 W/m^{2}K	Yes
Heating	The New mains gas combi boilers fitted to each dwelling. Via underfloor heating – Time and temperature zone controls	89% mains gas boilers	88% mains gas boilers	Yes
Lighting	Low energy light	100% low energy light	75% low energy	Yes
Renewables	0.5 kWp of solar panels are required to flats 2 1.5 kWp of solar panels are required to flat 1+3 Providing a total of 3.5 kWp for the development	NA	NA	NA
Door	New Door	1.40 W/m^{2}K	1.80 W/m^{2}K	Yes
Windows	New windows U value	1.60 W/m^{2}K	1.60 W/m^{2}K	Yes
	New window g value	0.62	-	-

Information used in the calculations: -

U Values for the new elements used in the notional calculation

New walls	0.28 W/m^{2}K
New flat roof	0.18 W/m^{2}K

U Values for the renovated elements used in the notional calculation

Renovated walls	0.30 W/m^{2}K
Renovated ground floor	0.25 W/m^{2}K

U Values for the main new elements used in the actual extension

New extension cavity walls	0.29 W/m^{2}K
New flat roof	0.18 W/m^{2}K
New windows	1.60 W/m^{2}K

Heating and hot water used in notional calculation for extension
Main gas boiler 88% efficient

Heating and hot water used in actual calculation for extension
Main gas boiler 89% efficient, make and model to be confirmed
No electric mat or panel heating included

Controlled Fitting U values used in the notional calculation

New windows (g value = 0.62)	1.60 W/m^{2}K

Controlled Fitting U values used in the actual calculation

New windows (g value = 0.62)	1.60 W/m^{2}K

Carbon Emissions Table

Flat	Actual CO^2 emissions (Kg CO2/m2/yr)	Notional CO^2 emissions (Kg CO2/m2/yr)	Achieved Building Regulations
1	**25.88**	**36.43**	**Yes**
2	**25.88**	**36.43**	**Yes**
3	**25.88**	**36.43**	**Yes**

Based on the building regulations requirement to achieve an actual $C0^2$ emissions rate lower than the target $C0^2$ emissions rate - this property satisfies that requirement.

Note

In order to issue the final EPC at completion the following information wil be required

Make and model of boiler
Confirmation building has been built to the plans provided.
Confirmation that the thermal properties detailed in the build standards above have been achieved
Window, door and roof light U values certification

The SAP calculations are carried out at design stage with the information provided. Where information is not available or the specification does not satisfy the regulations: changes / assumptions are made in order to complete the process, finalise the calculations and demonstrate compliance. If any of the changes / assumptions are not acceptable or incorrect let us know and we can make the required changes.

As this is a design stage calculation it is the responsibility of the Developer / Builder to ensure the relevant documents are provided to Building Control to prove compliance at completion. This includes but is not limited to: confirmation of construction details and U value calculations for all new, renovated, refurbished or upgraded elements (floor, wall, roof, windows, doors), along with any details on heating efficiency.

The SAP calculation is a Building Regulations Compliance Tool only and is not to be used for heating design and solar gain / overheating calculations and condensation risk analysis.

Although the above process is defined in the Building Regulations Part L1B Approved Document as a method to demonstrate compliance approval of the above calculations is at the discretion of building control. Therefore, it is recommended that approval of the calculations is received before commencing work on site.

U-value Construction

User Details

Element type: Timber Floor Over Garage

Standard u-value: BS EN ISO 6946

Construction Details

Layer Index	Material Name	Thickness (mm)	Conductivity (W/mK)	Fraction	Resistance (m²K/W)
1	Timber - Chipboard	19.00	0.130	1.00	0.146
2	Timber - Softwood	200.00	0.130	0.11	1.538
+	Mineral wool batt	N/A	0.038	0.89	5.263
3	Plasterboard	12.50	0.210	1.00	0.060

Total Thickness **231.50**

Upper Resistance **5.095**

Lower Resistance **4.902**

Interim U-value

Interim U-value : 0.200

U-value Fixing Corrections

Total Fastening Correction : 0.0000

U-value Air Gaps Corrections

Total Airgap Correction : 0.0000

Unheated Space

Unheated space : 0.33

U-value

U-value (Corrected) : 0.200 W/m²K

U-value (Rounded) : 0.20 W/m²K

U-value Construction

User Details

Element type: Timber Wall between studs in room in roof v3

Standard u-value: BS EN ISO 6946

Construction Details

Layer Index	Material Name	Thickness (mm)	Conductivity (W/mK)	Fraction	Resistance (m²K/W)
1	Plasterboard	13.00	0.210	1.00	0.062
2	Mineral wool batt	100.00	0.038	0.85	2.632
+	Timber - Softwood	N/A	0.130	0.15	0.769
3	Plasterboard	12.50	0.210	1.00	0.060

Total Thickness **125.50**

Upper Resistance **2.904**

Lower Resistance **2.722**

Interim U-value

Interim U-value : 0.355

U-value Fixing Corrections

Total Fastening Correction : 0.0000

U-value Air Gaps Corrections

Layer Index	Air Gap Corrections
2	Airgaps with no air circulation

Total Airgap Correction : 0.0047

Unheated Space

Unheated space : 0.50

U-value

U-value (Corrected) : 0.360 W/m²K

U-value (Rounded) : 0.36 W/m²K

U-value Construction

User Details

Element type: Solid wall

Standard u-value: BS EN ISO 6946

Construction Details

Layer Index	Material Name	Thickness (mm)	Conductivity (W/mK)	Fraction	Resistance (m²K/W)
1	Brickwork (outer leaf)	200.00	0.770	1.00	0.260
2	Cavity (unventilated)	25.00	0.000	0.85	0.180
+	Timber - Softwood	N/A	0.130	0.15	0.192
3	PU foam board	60.00	0.022	1.00	2.727
4	Plasterboard	13.00	0.210	1.00	0.062
Total Thickness		**298.00**			
Upper Resistance					**3.401**
Lower Resistance					**3.401**

Interim U-value

Interim U-value : 0.294

U-value Fixing Corrections

Total Fastening Correction : 0.0000

U-value Air Gaps Corrections

Total Airgap Correction : 0.0000

U-value

U-value (Corrected) : 0.294 W/m²K

U-value (Rounded) : 0.29 W/m²K

U-value Construction

User Details

Element type: Flat roof

Standard u-value: BS EN ISO 6946

Construction Details

Layer Index	Material Name	Thickness (mm)	Conductivity (W/mK)	Fraction	Resistance (m²K/W)
1	Bitumen - Felt/Sheet	6.00	0.230	1.00	0.026
2	Timber - Plywood	18.00	0.130	1.00	0.138
3	Rigid Foam Insulation	115.00	0.022	1.00	5.227
4	Cavity (unventilated)	150.00	0.000	0.90	0.160
+	Timber - Softwood	N/A	0.130	0.10	1.154
5	Plasterboard	12.50	0.210	1.00	0.060

Total Thickness **301.50**

Upper Resistance **5.837**

Lower Resistance **5.766**

Interim U-value

Interim U-value : 0.172

U-value Fixing Corrections

Total Fastening Correction : 0.0000

U-value Air Gaps Corrections

Layer Index	Air Gap Corrections
3	Airgaps with no air circulation

Total Airgap Correction : 0.0081

Roof Corrections

U-value

U-value (Corrected) : 0.180 W/m²K

U-value (Rounded) : 0.18 W/m²K

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