



Building Regulations Part L Volume 1 – SAP
Francis Road, Withington

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Executive Summary

Francis Road, Withington - Part L Compliance

This document sets out a services and fabric specification used to achieve compliance with Part L Volume 1 2021 of the building regulations (via SAP 10 calculations) for the proposed new build apartments on Francis Road, Withington.

The calculations referenced in this document reflect the stage 3 P02 'FOR PLANNING' Layouts and elevations by Southgate & Sarabia, received on 12/7/2022.

The fabric specification used in the SAP calculations is based, in part, upon the values found in the Southway Housing Employers Requirements and, in part, on the estimated details provided by Southgate & Sarabia and Stepples.

The service specification used in the SAP calculations are based upon the strategy previously put forward by QED services.

Additionally, a solar PV array is required to achieve building regs compliance. A PV array of 8.4kWp is required (0.35kWp per apartment).

Manchester Planning policy EN6 requires a 15% carbon reduction over the Part L 2010 TER (equivalent to a 9% reduction over the current Part L 2013 with 2016 amendments TER). A similar comparison cannot be drawn between the Part L 2010 TER and the Part L 2021 TER because carbon emission factors have been greatly altered between the two versions of the regulations. However, what we can say is that the scheme as detailed in this report achieves a 59% carbon reduction compared to the Part L 2021 Target emission rate and it is expected that this would more than meet the requirements of Policy EN6.

The detailed specification required to meet Part L Volume 1 is set out in section 3 of this report and any deviation from the proposed specification should be checked to ensure compliance (and the carbon reduction target for planning) can still be achieved.

1.0 Introduction

Seven Consulting have been engaged by Step Places Ltd to carry out SAP 10 (Part L 2021) calculations for the proposed new build apartments on Francis Road in Withington.

This document sets out one fabric and services specification that ensures Part L compliance is achieved. A 59% carbon reduction over the Target emission rate (Part L 2021) is achieved.

Alternative specifications could achieve compliance. This document sets out a starting point for discussions about compliance specification options.

2.0 Legislation and Standards

Building Regulations Part L

Building regulations Part L 2021 (Volume 1, 2021) deals with the conservation of fuel and power in new buildings. Part L Volume 1 2021 addresses the requirements of new build dwellings and the main compliance method is via SAP 10 calculations.

For dwellings, Part L1 SAP 10 calculations set a 'Carbon target', a 'Primary Energy Target' and a 'Fabric Target', all of which must be met or improved upon. We are not aware of any more onerous targets that must be achieved, other than to meet the minimum requirements of Part L Volume 1.

Building compliance models are built using SAP 10 software for residential schemes. The proposed service and fabric specifications are input into the models and a simulation determines whether or not the proposals meet the carbon targets and fabric targets.

This document sets out a fabric and services specification that achieves Part L SA10 compliance. Other routes to compliance are possible.

Local Policy

The scheme is subject to the Manchester adopted Core Strategy 2012. With respect to carbon reduction, policy EN6 requires that a 15% carbon reduction is achieved when compared to building regulations Part L 2010. This is equivalent to a 9% reduction in carbon emissions when compared to the current building regulations Part L 2013 (with 2016 amendments).

A similar comparison cannot be drawn between the Part L 2010 TER and the Part L 2021 TER because carbon emission factors have been greatly altered between the two versions of the regulations. It is expected that carbon emissions for projects assessed in Part L 2021 SAP10 will be lower than projects assessed in previous versions of Part L as a result of the decarbonization of the grid. Schemes that comply with Part L 2021 will very likely have emissions lower than a 15% reduction over Part L 2010, on which the local policy is based.

3.0 Basis of the Calculations

The Part L calculations have been carried out in July 2022 and the SAP10 calculations set out in this report are based on the following information

Drawings

The drawings that the calculations are based upon were provided by Southgate and Arabia Architects. They are the stage 3, P02 'FOR PLANNING' issue drawings, dated 4/7/2022, as follows;

- A22056-SASA-20101 – Ground Floor
- A22056-SASA-20102 – First Floor
- A22056-SASA-20103 – Second Floor
- A22056-SASA-20201 – Elevations
- A22056-SASA-90100 – Proposed Site Plan

Façade Specification

The façade performance has been taken from the Southway Housing Employers Requirements and information provided after discussions between Step Places and Southgate and Sarabia Architects. This information is listed in table 1, section 4.

M&E specification

The services strategy is based upon information previously provided by QED Ltd, with the addition of a PV array. The specification used in the calculation can be found in table 2, section 5.

4.0 Fabric Specifications

The Fabric specification used in the SAP10 calculation is set out in the table1 below.

Elements	U Value	Notes
External Walls	0.14 w/m2/k	Southgate and Sarabia
Party Walls Between Dwellings	0.0 w/m2/k	Party Walls to be Fully Filled with Insulation and Sealed in-line with MIMA guidance, or solid.
Party Walls Between dwelling and stair cores	0.0 w/m2/k	Communal space assumed to be heated, and should be either a solid wall or party wall with full fill insulation and fully sealed in-line with MIMA guidance.
Roof	0.09 w/m2/k	Southway Housing ER's
Heat Loss Floor (ground floor apartments and first floor apartments over unheated spaces)	0.09 w/m2/k	Southway Housing ER's
Windows	0.89 w/m2/k	Southgate and Sarabia BRE Certified Product 602503 CCG Opus Aluclad
Air Permeability	4m ³ /hm ² @50Pa	Southway Housing ER's
Thermal Bridge details	BRE Certified Products and Details as listed below:	Southgate and Sarabia/ Step Places
	Lintels (Sap Ref E1/E2)	BRE Product 600002 – Psi 0.004 Xtratherm UK
	Cill (SAP Ref E3)	BRE Product 600004 – Psi 0.013 Xtratherm
	Jamb (SAP Ref E4)	BRE Product 600007 – Psi 0.003 Xtratherm
	Ground/ Wall (SAP Ref E5)	BRE Product 600377 – Psi 0.030 XPS Thermoblock
	Separating Floor (SAP ref E7)	BRE Product 600013 – Psi 0.048 Xtratherm
	Wall/ Roof (SAP Ref E14)	BRE Product 600017 – Psi 0.041 Xtratherm
	Corner (SAP Ref E16)	BRE Product 600019 – Psi 0.048 Xtratherm
	Corner Inverted (SAP ref E17)	BRE Product 600020 – Psi - 0.074 Xtratherm
	Party Wall (Junction E18)	BRE Product 600021 – Psi 0.094 Xtratherm UK

Table 1 – Fabric Performance

5.0 M&E specifications

The M&E specification used in the SAP calculations is as listed in table 2 below.

ITEM	Description	Efficiency
DHW Generation	Electric Immersion Heater	120 ltrs, standing loss of 0.96 kWh/24hrs
Heating & Control	Electric Panel Heater with programmer and timer	
Lighting	Low Energy Lighting throughout	
Ventilation	MVHR	Lo Carbon Sentinel Kinetic Advance S
PV	8.4 kWp	0.35 kWp per apartment

Table 2 – M&E specification

6.0 Part L calculation results

The 'Carbon Emission' , 'Primary Energy' and 'Fabric Efficiency' Compliance results are tabulated below in table 3.

Francis Rd	Carbon Emissions				Primary Energy				Fabric Efficiency		
	TER	DER	Improvement (%)		TPER	DPER	Improvement (%)		TFEE	DFEE	Improvement (%)
	4.89	11.92	59.0%		51.83	59.28	12.6%		17.27	23.43	26.3%

Table 3 – Part L calculation results

The 'Carbon Compliance margin' is 59%. If any aspects of the fabric or services specification change and the next stage of design development, then the Part L calculations should be revisited to check that the scheme will still comply.

Appendix A SAP Block Compliance results

Francis Road

Calculation: SAP10 Part L 2021

Date: '21/07/2022

Iteration: Report Issue 01

Unit	Area (m ²)	CARBON			PRIMARY ENERGY			FABRIC EFFICIENCY			Estimated EPC
		DER	TER		DPER	TPER		DFEE	TFEE		
1	70	5.05	12.43	✓	53.41	61.93	✓	21.36	30.51	✓	79 C
2	50	4.99	12.85	✓	53.25	64.38	✓	17.35	24.38	✓	81 B
3	65	4.8	12.02	✓	50.95	59.75	✓	19.27	27.16	✓	80 C
4	75	4.53	11.21	✓	48.19	55.35	✓	16.79	24.71	✓	81 B
5	53	4.72	12	✓	50.52	59.81	✓	13.77	20	✓	82 B
6	61	5.33	13.48	✓	56.38	67.57	✓	22.41	32.7	✓	79 C
7	50	4.98	12.82	✓	53.17	64.26	✓	16.93	24.13	✓	81 B
8	50	4.65	11.49	✓	49.81	57.09	✓	13.45	17.42	✓	82 B
9	50	4.65	11.49	✓	49.81	57.09	✓	13.45	17.42	✓	82 B
10	65	4.32	10.42	✓	46.2	51.1	✓	14.88	19.33	✓	82 B
11	50	5	12.54	✓	53.35	62.72	✓	17.09	22.76	✓	81 B
12	70	4.32	10.27	✓	46.11	50.47	✓	14.79	19.61	✓	81 B
13	53	4.42	10.48	✓	47.48	51.63	✓	10.66	13.73	✓	82 B
14	61	4.21	9.87	✓	45.16	48.17	✓	11.83	15.16	✓	82 B
15	62	4.4	10.56	✓	46.99	51.86	✓	14.09	18.86	✓	82 B
16	50	5.77	13.99	✓	61.12	70.57	✓	22.49	29.23	✓	79 C
17	50	5.28	12.91	✓	56.24	64.71	✓	18.83	23.8	✓	80 C
18	50	5.28	12.91	✓	56.24	64.71	✓	18.83	23.8	✓	80 C
19	65	5.09	11.85	✓	53.92	58.81	✓	20.39	25.69	✓	79 C
20	50	5.76	13.95	✓	60.98	70.3	✓	22.39	29	✓	79 C
21	70	5.4	12.88	✓	53.35	64.47	✓	19.9	31.62	✓	79 C
22	53	4.91	11.84	✓	52.38	58.95	✓	15.9	20.13	✓	81 B
23	61	4.79	11.35	✓	51	56.14	✓	17.2	22.02	✓	80 C
24	62	5.07	11.93	✓	53.73	59.27	✓	19.3	25.22	✓	79 C
TOTAL	1396	4.89	11.92	59.0%	51.83	59.28	12.6%	17.27	23.43	26.3%	

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