

Planning Verification Statement Energy & Sustainability

Planning Reference:

109304/FO/2015/S2
Green End – Mauldeth Road, Burnage, Manchester

Report Reference and Issue number:

CC190513-1 Issue 1, 13 May 2019

Report issued by:

M J Pickles, BSc MSc CEng MIMechE MCIQB
Constructive Compliance

- 1.1 Introduction – This statement has been prepared in support of an application for discharge of Condition 10 of the application 109304/FO/2015/S2.

Condition 10 of the application is reproduced here –

‘To provide a verification statement confirming the incorporation of specified measures at each phase of the construction to secure predicted carbon emissions and attainment of specified environmental efficiency and performance.’

The original planning condition 10 referred to the Code for Sustainable Homes 2010, subsequently rendered defunct by Government legislation. Consequently, this statement is concerned with verification of compliance with Part L1A 2013 of the Building regulations, both carbon emissions and environmental efficiency, which formed part of the Code. Broadly, compliance with Building Regulations Part L1A 2013 is equivalent to achieving Code level 3.

- 1.2 Statement – It has been confirmed, using the Standard Assessment Procedure (SAP 2012), that the 20 subject dwellings comply with Part L1A (2013) of the Building Regulations. The properties have been constructed in accordance with the Building Regulation specification included as appendix 1.

As part of the SAP methodology, the properties were grouped into blocks of either 2 or 4 semi-detached or terraced properties respectively. In appendix 2 the Block Compliance reports are included. Together, these reports summarise for all properties the Dwelling Emission Rate (DER - carbon emissions) and Dwelling Fabric Energy Efficiency (DFEE – energy efficiency). In appendix 3 an example SAP summary report for a typical property is included, which illustrates the SAP Rating (88B) and Environmental Rating (89B); the corresponding ratings are translated into the EPC's, which have been lodged at Landmark for each property.

Photographic and other evidence representative of the key aspects of the construction relating to carbon and environmental efficiency is included as appendix 4.

Within this report the 20 dwellings comprising the development are referred to as 'plots' with references P1 (for plot 1) etc. The corresponding allocated property addresses are;

Plot 1 290 Mauldeth Rd Burnage, Manchester M19 1DZ
Plot 2 292 Mauldeth Rd Burnage Manchester M19 1DZ
Plot 3 294 Mauldeth Rd Burnage Manchester M19 1DZ
Plot 4 296 Mauldeth Rd Burnage Manchester M19 1DZ
Plot 5 298 Mauldeth Rd Burnage Manchester M19 1DZ
Plot 6 300 Mauldeth Rd Burnage Manchester M19 1DZ
Plot 7 302 Mauldeth Rd Burnage Manchester M19 1DZ
Plot 8 304 Mauldeth Rd Burnage Manchester M19 1DZ
Plot 9 306 Mauldeth Rd Burnage Manchester M19 1DZ
Plot 10 308 Mauldeth Rd Burnage Manchester M19 1DZ
Plot 11 310 Mauldeth Rd Burnage Manchester M19 1DZ
Plot 12 312 Mauldeth Rd Burnage Manchester M19 1DZ
Plot 13 314 Mauldeth Rd Burnage Manchester M19 1DZ
Plot 14 316 Mauldeth Rd Burnage Manchester M19 1DZ
Plot 15 318 Mauldeth Rd Burnage Manchester M19 1DZ
Plot 16 320 Mauldeth Rd Burnage Manchester M19 1DZ
Plot 17 1 Crown Green Close Burnage Manchester M19 1TZ
Plot 18 3 Crown Green Close Burnage Manchester M19 1TZ
Plot 19 4 Crown Green Close Burnage Manchester M19 1TZ
Plot 20 2 Crown Green Close Burnage Manchester M19 1TZ

Appendix 1

Building Regulation Part L1A Specification-As Built

Green End Mauldeth Road Burnage – Part L1A Specification As-built	
1	Property Types- semi-detached houses for all plots except 1-4 which are terraced. Front elevations face north for plots 1-16, front elevations face west for plots 17-18, front elevations face east for plots 19-20
2	Plots 1 to 16 are 2 storey, 17 to 20 are 3 storey
3	Planning or Build year: 2016 Part L1A 2013
4	Dwelling sheltered by dwellings to 2 sides for all plots except for plots 7&8, 9&10, 17&18 and 19&20, which are sheltered on 3 sides by dwellings.
5	Solar shading : average
6-9	Building geometry: Source taken as Ollier Smurthwaite drawings accessed via dropbox link 18.8.16
10	Main entrance door is insulated composite - U value = 0.61 W/m ² K.
11	All windows and highly glazed doors are uPVC, timber or Aluminium frame with low-E coating glazing units, cavity Argon filled. U values are 1.55 W/m ² K.
12	All roof lights are Velux – U value = 1.4 W/m ² K.
13	100% draught-proofing of doors/windows/roof-windows assumed.
14	Thermal bridging conform to Accredited Construction Details. Thermal bridge values have been calculated using appendix K. Accredited Construction Details assessed on site and ACD site audit sheets completed.
15	Air permeability test: Air pressure test certs provided for each plot type. Maximum permeability tested was 2.8 m ³ /h/m ² at 50 pascals.
16	No mechanical ventilation present. Trickle ventilators are fitted to all windows. Windows openable to prevent summer overheating.
17.0	Extract fans are fitted in ground WC, bathroom, 1 en-suite, and kitchen for plots 1-16. Extract fans to be fitted in Ground WC, kitchen and first floor bathroom for plots 17-20. No open flues present. No open chimneys present.
17.1	Low-energy internal lamps fitted in 100% of fixed light fittings. Any fixed external lighting is dedicated low energy or max 100W per fitting with daylight/motion switching.
18	Main external masonry heat loss walls have cavity of 125mm fully filled with Knauf Supafil 34 blown insulation. U = 0.24 W/m ² K. Brick outer leaf and Aglite 7.3N block inner leaf.
19	All sloping roofing insulated at rafter level with 125 mm K7 between 47 x 150 mm deep rafters at 400 centres, under-drawn with 52.5mm K18. U value = 0.14 W/m ² K. Flat roof to bay window and flat roofs of extensions (where applicable) are warm construction with 125mm Thermaroom TR31 over rafters, with single ply covering. U = 0.17 W/m ² K
20	Ground floor is beam and block with 150mm K3 solid insulation and 75mm screed. U value = 0.10 W/m ² K.
21	Main space heating is mains gas condensing combi boiler – ATEGA IC 24. Central heating is underfloor with pipes in thin screed to ground floors and wet rads to above ground floors.
21.1	No secondary heating.
22	Domestic hot water heated by main space heating system.
23	No thermal store fitted.
24	No hot water cylinder as combi boiler
25	No community heating provided.
26	Electricity Tariff: standard tariff
27	Solar PV panels fitted to some plots: Plot 1 - 0.75 kW peak SE facing. Plot 5 - 0.5 kW peak SE facing. Plot 7 - 0.5 kW peak SE facing. Plot 9 - 0.75 kW peak SE facing. Plot 12 - 0.75 kW peak SE facing. Plot 13 - 0.75 kW peak SE facing. Plot 15 - 0.75 kW peak SE facing. Plot 18 - 0.5 kW peak S facing. Plot 19 - 0.5 kW peak S facing.

Appendix 2

SAP Compliance Reports in Block Groupings

BLOCK COMPLIANCE

Calculation Type: New Build (As Built)



Block Reference	146-1-4	Issued on Date	25/03/2019
Block Name	P1 P2 P3 P4		
Assessor Details	Mr. Mark Pickles, Constructive Ventures Limited, Tel: 01455883250, mark@constructivecompliance.co.uk	Assessor ID	a500-0001
Client			

Block Compliance Report - DER

Block Reference: 146-1-4		Block Name: P1 P2 P3 P4		
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DER (kgCO ₂ /m ²)	TER (kgCO ₂ /m ²)
146 Green End Burnage P1-AB3	1	102.02	13.74	16.82
146 Green End Burnage P2-AB3	1	106.97	15.06	15.46
146-Green End Burnage P3-AB3	1	106.97	15.39	15.46
146 Green End Burnage P4-AB3	1	102.02	17.14	16.82
Totals:	4	417.98	61.33	64.56
Average DER = 15.33 kgCO ₂ /m ²			PASS	
Average TER = 16.12 kgCO ₂ /m ²				

Block Compliance Report - DFEE

Block Reference: 146-1-4		Block Name: P1 P2 P3 P4		
Property-Assessment Reference	Multiplier	Floor Area (m²)	DFEE (kWh/m²/yr)	TFEE (kWh/m²/yr)
146 Green End Burnage P1-AB3	1	102.02	44.22	49.75
146 Green End Burnage P2-AB3	1	106.97	37.24	43.38
146-Green End Burnage P3-AB3	1	106.97	38.67	43.38
146 Green End Burnage P4-AB3	1	102.02	45.64	49.75
Totals:	4	417.98	165.78	186.26
Average DFEE = 41.36 kWh/m²/yr			PASS	
Average TFEE = 46.49 kWh/m²/yr				

BLOCK COMPLIANCE Calculation Type: New Build (As Built)			 Design SAP elmhurst energy	
Block Reference	146-5-6	Issued on Date	29/03/2019	
Block Name	P5 P6			
Assessor Details	Mr. Mark Pickles, Constructive Ventures Limited, Tel: 01455883250, mark@constructivecompliance.co.uk		Assessor ID	a500-0001
Client				
Block Compliance Report - DER				
Block Reference: 146-5-6		Block Name: P5 P6		
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DER (kgCO ₂ /m ²)	TER (kgCO ₂ /m ²)
146 Green End Burnage P5-AB3	1	106.97	15.59	17.03
146 Green End Burnage P6-AB3	1	106.97	17.12	16.98
Totals:	2	213.94	32.71	34.01
Average DER = 16.36 kgCO ₂ /m ²			PASS	
Average TER = 17.01 kgCO ₂ /m ²				
Block Compliance Report - DFEE				
Block Reference: 146-5-6		Block Name: P5 P6		
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DFEE (kWh/m ² /yr)	TFEE (kWh/m ² /yr)
146 Green End Burnage P5-AB3	1	106.97	47.78	51.62
146 Green End Burnage P6-AB3	1	106.97	46.50	51.85
Totals:	2	213.94	94.28	103.47
Average DFEE = 47.14 kWh/m ² /yr			PASS	
Average TFEE = 51.73 kWh/m ² /yr				

BLOCK COMPLIANCE			 Design SAP elmhurst energy	
Calculation Type: New Build (As Built)				
Block Reference	146-7-8	Issued on Date	29/03/2019	
Block Name	P7 P8			
Assessor Details	Mr. Mark Pickles, Constructive Ventures Limited, Tel: 01455883250, mark@constructivecompliance.co.uk		Assessor ID	a500-0001
Client				
Block Compliance Report - DER				
Block Reference: 146-7-8		Block Name: P7 P8		
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DER (kgCO ₂ /m ²)	TER (kgCO ₂ /m ²)
146 Green End Burnage P7-AB3	1	106.97	15.47	16.89
146 Green End Burnage P8-AB3	1	106.97	17.34	16.84
Totals:	2	213.94	32.81	33.73
Average DER = 16.41 kgCO ₂ /m ²			PASS	
Average TER = 16.86 kgCO ₂ /m ²				
Block Compliance Report - DFEE				
Block Reference: 146-7-8		Block Name: P7 P8		
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DFEE (kWh/m ² /yr)	TFEE (kWh/m ² /yr)
146 Green End Burnage P7-AB3	1	106.97	47.29	50.86
146 Green End Burnage P8-AB3	1	106.97	47.44	51.10
Totals:	2	213.94	94.73	101.96
Average DFEE = 47.36 kWh/m ² /yr			PASS	
Average TFEE = 50.98 kWh/m ² /yr				

BLOCK COMPLIANCE Calculation Type: New Build (As Built)			 Design SAP elmhurst energy	
Block Reference	146-9-10	Issued on Date	31/10/2018	
Block Name	P9 P10			
Assessor Details	Mr. Mark Pickles, Constructive Ventures Limited, Tel: 01455883250, mark@constructivecompliance.co.uk		Assessor ID	a500-0001
Client				
Block Compliance Report - DER				
Block Reference: 146-9-10		Block Name: P9 P10		
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DER (kgCO ₂ /m ²)	TER (kgCO ₂ /m ²)
146 Green End Burnage P9-AB3	1	105.6	14.57	16.93
146 Green End Burnage P10-AB3	1	105.3	17.28	16.65
Totals:	2	210.9	31.85	33.58
Average DER = 15.92 kgCO ₂ /m ²			PASS	
Average TER = 16.79 kgCO ₂ /m ²				
Block Compliance Report - DFEE				
Block Reference: 146-9-10		Block Name: P9 P10		
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DFEE (kWh/m ² /yr)	TFEE (kWh/m ² /yr)
146 Green End Burnage P9-AB3	1	105.6	48.91	51.67
146 Green End Burnage P10-AB3	1	105.3	46.45	49.24
Totals:	2	210.9	95.36	100.91
Average DFEE = 47.68 kWh/m ² /yr			PASS	
Average TFEE = 50.46 kWh/m ² /yr				

BLOCK COMPLIANCE Calculation Type: New Build (As Built)			 Design SAP elmhurst energy	
Block Reference	146-11-12	Issued on Date	31/10/2018	
Block Name	P11 P12			
Assessor Details	Mr. Mark Pickles, Constructive Ventures Limited, Tel: 01455883250, mark@constructivecompliance.co.uk		Assessor ID	a500-0001
Client				
Block Compliance Report - DER				
Block Reference: 146-11-12		Block Name: P11 P12		
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DER (kgCO ₂ /m ²)	TER (kgCO ₂ /m ²)
146 Green End Burnage P11-AB3	1	105.3	17.06	16.79
146 Green End Burnage P12-AB3	1	105.6	14.21	16.93
Totals:	2	210.9	31.27	33.72
Average DER = 15.63 kgCO ₂ /m ²			PASS	
Average TER = 16.86 kgCO ₂ /m ²				
Block Compliance Report - DFEE				
Block Reference: 146-11-12		Block Name: P11 P12		
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DFEE (kWh/m ² /yr)	TFEE (kWh/m ² /yr)
146 Green End Burnage P11-AB3	1	105.3	45.53	50.00
146 Green End Burnage P12-AB3	1	105.6	47.38	51.67
Totals:	2	210.9	92.90	101.67
Average DFEE = 46.45 kWh/m ² /yr			PASS	
Average TFEE = 50.84 kWh/m ² /yr				

BLOCK COMPLIANCE Calculation Type: New Build (As Built)			 Design SAP elmhurst energy	
Block Reference	146-13-14	Issued on Date	08/01/2019	
Block Name	P13 P14			
Assessor Details	Mr. Mark Pickles, Constructive Ventures Limited, Tel: 01455883250, mark@constructivecompliance.co.uk		Assessor ID	a500-0001
Client				
Block Compliance Report - DER				
Block Reference: 146-13-14		Block Name: P13 P14		
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DER (kgCO ₂ /m ²)	TER (kgCO ₂ /m ²)
146-Green End Burnage P13-AB3	1	115.8	14.82	17.07
146 Green End Burnage P14-AB3	1	115.8	17.39	17.07
Totals:	2	231.6	32.21	34.14
Average DER = 16.11 kgCO ₂ /m ²			PASS	
Average TER = 17.07 kgCO ₂ /m ²				
Block Compliance Report - DFEE				
Block Reference: 146-13-14		Block Name: P13 P14		
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DFEE (kWh/m ² /yr)	TFEE (kWh/m ² /yr)
146-Green End Burnage P13-AB3	1	115.8	50.60	54.75
146 Green End Burnage P14-AB3	1	115.8	49.61	54.75
Totals:	2	231.6	100.22	109.50
Average DFEE = 50.11 kWh/m ² /yr			PASS	
Average TFEE = 54.75 kWh/m ² /yr				

BLOCK COMPLIANCE Calculation Type: New Build (As Built)			 Design SAP elmhurst energy	
Block Reference	146-15-16	Issued on Date	31/10/2018	
Block Name	P15 P16			
Assessor Details	Mr. Mark Pickles, Constructive Ventures Limited, Tel: 01455883250, mark@constructivecompliance.co.uk		Assessor ID	a500-0001
Client				
Block Compliance Report - DER				
Block Reference: 146-15-16		Block Name: P15 P16		
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DER (kgCO ₂ /m ²)	TER (kgCO ₂ /m ²)
146 Green End Burnage P15-AB3	1	115.8	15.04	17.07
146 Green End Burnage P16-AB3	1	115.8	17.30	17.07
Totals:	2	231.6	32.34	34.14
Average DER = 16.17 kgCO ₂ /m ²			PASS	
Average TER = 17.07 kgCO ₂ /m ²				
Block Compliance Report - DFEE				
Block Reference: 146-15-16		Block Name: P15 P16		
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DFEE (kWh/m ² /yr)	TFEE (kWh/m ² /yr)
146 Green End Burnage P15-AB3	1	115.8	51.07	54.75
146 Green End Burnage P16-AB3	1	115.8	49.25	54.75
Totals:	2	231.6	100.32	109.50
Average DFEE = 50.16 kWh/m ² /yr			PASS	
Average TFEE = 54.75 kWh/m ² /yr				

BLOCK COMPLIANCE Calculation Type: New Build (As Built)			 Design SAP elmhurst energy	
Block Reference	146-17-18	Issued on Date	28/02/2019	
Block Name	P17 P18			
Assessor Details	Mr. Mark Pickles, Constructive Ventures Limited, Tel: 01455883250, mark@constructivecompliance.co.uk		Assessor ID	a500-0001
Client				
Block Compliance Report - DER				
Block Reference: 146-17-18		Block Name: P17 P18		
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DER (kgCO ₂ /m ²)	TER (kgCO ₂ /m ²)
146 Green End Burnage P17-AB3	1	61.2	21.96	20.90
146 Green End Burnage P18-AB3	1	61.2	17.69	20.56
Totals:	2	122.4	39.65	41.46
Average DER = 19.83 kgCO ₂ /m ²			PASS	
Average TER = 20.73 kgCO ₂ /m ²				
Block Compliance Report - DFEE				
Block Reference: 146-17-18		Block Name: P17 P18		
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DFEE (kWh/m ² /yr)	TFEE (kWh/m ² /yr)
146 Green End Burnage P17-AB3	1	61.2	55.23	58.69
146 Green End Burnage P18-AB3	1	61.2	52.70	56.84
Totals:	2	122.4	107.93	115.53
Average DFEE = 53.97 kWh/m ² /yr			PASS	
Average TFEE = 57.77 kWh/m ² /yr				

BLOCK COMPLIANCE Calculation Type: New Build (As Built)			 Design SAP elmhurst energy	
Block Reference	146-19-20	Issued on Date	28/02/2019	
Block Name	P19 P20			
Assessor Details	Mr. Mark Pickles, Constructive Ventures Limited, Tel: 01455883250, mark@constructivecompliance.co.uk		Assessor ID	a500-0001
Client				
Block Compliance Report - DER				
Block Reference: 146-19-20		Block Name: P19 P20		
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DER (kgCO ₂ /m ²)	TER (kgCO ₂ /m ²)
146 Green End Burnage P19-AB3	1	61.2	17.89	20.54
146 Green End Burnage P20-AB3	1	61.2	21.96	20.90
Totals:	2	122.4	39.85	41.44
Average DER = 19.93 kgCO ₂ /m ²			PASS	
Average TER = 20.72 kgCO ₂ /m ²				
Block Compliance Report - DFEE				
Block Reference: 146-19-20		Block Name: P19 P20		
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DFEE (kWh/m ² /yr)	TFEE (kWh/m ² /yr)
146 Green End Burnage P19-AB3	1	61.2	53.45	56.93
146 Green End Burnage P20-AB3	1	61.2	55.23	58.69
Totals:	2	122.4	108.68	115.62
Average DFEE = 54.34 kWh/m ² /yr			PASS	
Average TFEE = 57.81 kWh/m ² /yr				

Appendix 3

SAP Summary Performance Report for a typical plot

SUMMARY FOR INPUT DATA						Design SAP elmhurst energy	
Calculation Type: New Build (As Built)							
Property Reference	146 Green End Burnage P1				Issued on Date	25/03/2019	
Assessment Reference	AB3		Prop Type Ref				
Property	290, Mauldeth Road, MANCHESTER, M19 1DZ						
SAP Rating	88 B	DER	13.74	TER	16.82		
Environmental	89 B	% DER<TER	18.33				
CO ₂ Emissions (t/year)	1.16	DFEE	44.22	TFEE	49.75		
General Requirements Compliance	Pass	% DFEE<TFEE	11.10				
Assessor Details	Mr. Mark Pickles, Constructive Ventures Limited, Tel: 01455883250, mark@constructivecompliance.co.uk				Assessor ID	a500-0001	
Client							
SUMMARY FOR INPUT DATA FOR: New Build (As Built)							
Orientation	North East						
Property Tenure	Owner-occupied						
Transaction Type	New dwelling						
Terrain Type	Suburban						
1.0 Property Type	House, End-Terrace						
2.0 Number of Storeys	3						
3.0 Date Built	2016						
4.0 Sheltered Sides	2						
5.0 Sunlight/Shade	Average or unknown						
6.0 Measurements							
		Heat Loss Perimeter	Internal Floor Area	Average Storey Height			
	Ground Floor:	17.50 m	35.03 m ²	2.40 m			
	1st Storey:	16.60 m	34.49 m ²	2.60 m			
	2nd Storey:	16.10 m	32.50 m ²	2.90 m			
7.0 Living Area	15.60		m ²				
8.0 Thermal Mass Parameter	Precise calculation						
Thermal Mass	214.01		kJ/m ² K				
9.0 External Walls							
Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area (m ²)	Nett Area (m ²)	
external wall total area	Cavity Wall	Other	0.23	83.30	116.80	101.49	
9.1 Party Walls							
Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)		
Party Wall 1	Filled Cavity with Edge Sealing	Other	0.00	83.00	63.72		
9.2 Internal Walls							
Description	Construction			Kappa (kJ/m ² K)	Area (m ²)		
Internal Wall 1	Plasterboard on timber frame			9.00	116.66		
10.0 External Roofs							
Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area (m ²)	Nett Area (m ²)	
external roof area	External Slope Roof	Plasterboard, insulated slope	0.14	9.00	50.47	49.28	
flat roof	External Flat Roof	Plasterboard, insulated flat roof	0.17	9.00	0.20	0.20	

Appendix 4

Photographic and other evidence of key Energy-related features of the dwellings



Insert 1: Solar Photovoltaic Panels installed to selected roof areas.



Insert 2: Insulation Board installed between roof rafters.



Insert 3: Velfac double glazed window with U value 1.55



Insert 4: Velfac composite insulated entrance door



Insert 5: Mains Gas Boiler Identification label



Insert 6: Central Heating – Under Floor Heating Manifolds

Energy Statement

Dyson Energy Services Ltd

Dyson House
Armytage Road
Brighouse
HD6 1PT

Accounts Tel: 01484 406075
Trade Tel: 01484 406070
Fax: 01484 406076

VAT Number GB 361647545



Invoice

Invoice Address

Tower House Systems Ltd
7 Leegate Close
Heaton Moor
Stockport
SK4 3NN

Dyson Order No. 0000009170
Invoice No. 0000009130
Document Date 22/11/2018
Cust Ord No.
Account No. 5239

Item Code	Description	Quantity	Unit	Unit Price	Net
	Cavity wall Insulation			0.00000	
	Plots 19 & 20 - 100% Complete	1		830.00000	830.00
	Supafil party wall Insulation			0.00000	
	Plots 19 & 20 - 100% Complete	1		230.00000	230.00

VAT				DELIVERY/SITE ADDRESS	
Cod	%	Net	VAT	Tower House Systems	
2	0.00 Zero Rated	1060.00	0.00	The Green End	
				Mauldeth Road	
				Manchester	
				M19 1WL	

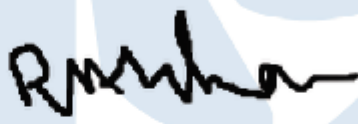
NET	1060.00
VAT	0.00
GROSS	1060.00

Insert 7: Confirmation of Supafil cavity wall insulation

Air Permeability Test Certificate



This is to certify that the following test and results have been produced in compliance with England and Wales regulation 43 of the Building Regulations 2010, Scotland Section 6 of the Domestic and Non-Domestic Handbook, Northern Ireland Technical Booklet and Isle of Man The Building Control (Approved Documents) Order 2014. A full report in line with the current approved procedures can be requested from the iATS tester.

Unique Certificate Number Date of Test Building name / Plot number Building Address r^2 (Correlation ≥ 0.98 - ≤ 1.00) n (Slope ≥ 0.5 - ≤ 1.0) Envelope Area of Building m^2 Report Reference Tester's Name Company Name iATS Tester No. Tester's level of competence Signed	10087322 17th November 2018 Plot 12 (312) Mauldeth Road, Burnage, Manchester, Greater Manchester M19 1DZ 0.9988 0.607 267 2-17-11-18 Rob Hushion Test Air Solutions Ltd 0032 Level 1: Buildings < 4000m³ 
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Independent Airtightness Testing Scheme
16 St Johns Business Park,
Lutterworth,
Leicestershire, LE17 4HB

e: certificate@iats-uk.org
t: 0300 888 0016
w: iats-uk.org
Company Registration No: 09309058

Measured Air Permeability

2.80

$m^3/(h.m^2) @ 50 Pa$

Insert 8: Air Pressure Test certificate for the plot with highest (worst) permeability (significantly better than the design target of 5.0 max)