

SAP & EPC Specification Document

Robin Hood Street, Cheetham Hill, Manchester, M8 9GH

Prepared on behalf of:
Tang Associates

BE15905

Build Energy Ltd
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Issue	Issue Date	Written by	Notes
VI	07/07/23	Liam Rushton	For Energy Statement use ONLY. Do not use for Building Regulations.

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Low
Carbon Energy
Assessor



Company No. 07833780 VAT Reg.126036639

SAP & EPC Specification Document

Guiding you through Part L Compliance

Build Energy Ltd is committed to guiding our clients through compliance to Part L of the Building Regulations. This document has been designed to provide you with a single point of reference and transparent communication of the development's constructive and HVAC specification for both design and completion stage SAP calculations, photographic and documentary evidence requirements, Building Regulations compliance and EPC lodgement.

Compliance to Part L of the Building Regulations is dependent upon the data provided within this document. **Any deviation from this specification will inevitably result in changes to the results, EPC rating and overall compliance.**

Please take a moment to read the below information which outlines details provided within this document.

SAP Calculation Process Overview

All new-build developments are required to submit two sets of SAP calculations – one at design stage (“As Designed”), before building work commences on site, and one at build completion (“As Built”), prior to Building Control sign-off. The second calculation is used to produce an Energy Performance Certificate (EPC) – a legal document required before occupancy.

Building Regulations Part L 2021 has seen the introduction of two new additional requirements – the BREL Compliance Report and the compilation of both photographic and documentary evidence requirements. The latter of which forms confirmation that the specification outlined in the SAP calculations has been carried out on site.

As Designed & BREL Compliance

Upon completion of the design stage SAP calculations, we will supply you with the compliant Part L SAP & EPC Specification Document and request confirmation from you that the proposed specification, as outlined in this document, will be built/installed on site.

Upon receipt of your confirmation, the SAP assessor will be responsible for signing the design stage BREL Compliance Report. You will then be supplied with the relevant SAP calculation reports, Predicted Energy Assessment (PEA) and signed BREL Compliance Report for submission to your Building Control.

Compiling Photographic & Documentary Evidence

During the build, the developer will be responsible for compiling the necessary photographic and documentary evidence outlined within the SAP & EPC Specification Document. Developers are encouraged to compile the evidence throughout the build. The developer must conform with Approved Document (AD) L: Volume 1 2021, Appendix B (in England) for the type and quality of photographs required. Further information is supplied later in this document.

As Built, BREL Compliance & EPC Lodgement

Upon completion of the build, you must request your “As Built” SAP calculation reports and EPC from us. Both sets of documents are required for Building Control sign-off. At this stage, we will request that all information outlined in the SAP & EPC Specification Document is confirmed and the required evidence is submitted. We will review the evidence and “As Built” SAP calculations and confirm compliance to Part L. The SAP assessor will sign the As Built BREL Compliance Report, issue the required SAP calculation reports and lodge the EPC. It is the developer's responsibility to collate the required photo report, BREL Compliance Report and EPC and provide to their Building Control.

About this document

Assumptions & Recommendations

Where we have been required to assume or recommend an item, this will be highlighted in yellow. Your SAP assessor will outline why this assumption or recommendation has been made in separate communication.

You must confirm or request an amendment to these items at the earliest opportunity – required BREL and SAP calculation reporting will not be supplied until all items are confirmed.

Design Stage Confirmation – BREL Compliance

When the specification has been agreed, and the required amendments have been calculated in SAP software, we will request confirmation of the specification from you prior to signing the Design Stage BREL Compliance Report and issue of the required Design Stage SAP calculation reports and PEAs.

In confirming this document at Design Stage, you are agreeing that the specification as outlined in this document will be built, or installed, on site. Build Energy Ltd will only accept written confirmation in the form of an email or, you can use the 'Design Stage Confirmation' page in this document and return to us.

Changes to the Specification

We understand that changes happen throughout the build. We strongly recommend that all amendments that occur are communicated to us at the earliest opportunity and, ideally, before procurement and installation on-site. Your SAP assessor will be required to re-calculate the SAPs to confirm compliance to Part L and re-issue the SAP & EPC Specification Document when changes to the specification occur.

Failure to advise us of these amendments may result in the calculations not complying to Building Regulations, affect the EPC rating or change the overall results. Build Energy Ltd will not be held responsible for issues in compliance or changes to EPC ratings if we have not been advised of amendments.

We will request the confirmation process is repeated whenever an amendment is requested.

Evidence Requirements

All required evidence is outlined within this document. Evidence will be listed clearly in a separate column, next to the relevant element, titled "Evidence Required".

Separately, we have listed the format of each piece of evidence required at the end of this document. You can use this as a checklist throughout the build.

We strongly suggest that you familiarise yourself with the evidence requirements prior to the development progressing and, wherever there may be an issue in supplying such required evidence, that you alert us at the earliest opportunity so that we can investigate and advise.

We cannot produce As Built BREL Compliance, SAP calculation Reports or EPCs until all required evidence, in the format and quality required, is received in full. Build Energy Ltd will not be held responsible for any issues that arise should you not be able to supply the evidence required.

As Built Confirmation

Upon completion of the development, you will be required to supply final As Built architectural drawings and specification documents, as built on site. These documents must accurately reflect the specification we have developed with you.

We will review all documentation, amend calculations where necessary, and make ready the SAP Calculations for EPC lodgement and completion, pending any required evidence. If issues arise with results, EPC ratings or overall compliance, your SAP assessor will discuss this, and any possible solutions, with you.

The SAP & EPC Specification Document will be amended where necessary and re-issued to you for As Built confirmation. You will be required to confirm all elements of the specification within the “As Built Check” column. Finally, you will be required to provide signatory declaration that the specification is accurate to that built on site and return this document to us as confirmation.

We will then be able to move forward with signing the As Built BREL Compliance Report, produce As Built SAP Calculation reports and EPC lodgement.

Part O - Overheating

From June 2022, new homes in England are expected to comply with Part O of the Building Regulations for overheating risk. Overheating risk is influenced by many of the specification items below.

We have not yet been instructed to assess this development against the requirements of Part O. Please ensure this is addressed as the specification or design decisions required for Part O may influence the Part L results.

We feel it is our duty to provide clear communication to our clients regarding successful compliance to Part L of the Building Regulations 2021. We recommend that you contact us as soon as possible to discuss any concerns so that we can review and advise solutions at the earliest opportunity. Our aim is to mitigate any potential issues that could arise at completion stage when it is generally too late in the process to make amendments.

SAP Specification

For Energy Statement use only. Do not use for Building Regulations.

Project Details					
Project Address	Robin Hood Street, Cheetham Hill, Manchester, M8 9GH				
Client	Tang Associates				
BE Reference	BE15905	Issue Date	7 th July 2023	Version Number	V1
Stage	Planning		Assessor Name	Liam Rushton	

Building Regulations Part L Compliance Overview							
Planning Conditions	20% of energy usage to be provided through renewable/low carbon technology			Part L Compliance		PASS	
Building regulations date	N/A			Assessment type		New Build	
Average Predicted EPC Rating	B (81)	Average TPER/DPER kWh/m ² /year	61.93/51.44	Average TER/DER KgCO ₂ /m ² /year	11.77/4.94	Average TFEED/DFEE kWh/m ² /year	27.67/27.60

Wall Constructions				
External Walls				
Element	U-value W/m ² K	Kappa value kJ/m ² K	Construction	As Built Check
External Wall	0.17	60.00	Target U-Value	Tick to confirm
Party Walls				
Element	U-value W/m ² K	Kappa value kJ/m ² K	Construction	As Built Check
Party Wall/Corridor Wall	N/A	N/A	N/A	Tick to confirm
Internal Walls				
Element	Kappa Value kJ/m ² K		Construction	As Built Check
Internal Partition Wall – Timber	9.00		Plasterboard on timber frame	Tick to confirm

Roof Constructions				
External Roofs				
Element	U-value W/m ² K	Kappa value kJ/m ² K	Construction	As Built Check
Pitched Roof	0.12	9.00	Target U-value	Tick to confirm

Floor Constructions				
Party Floors				
Element	Kappa Value kJ/m ² K		Construction	As Built Check
Party Floor	N/A		N/A	Tick to confirm

Openings						
Type	U-value W/m ² K	G-value	Frame Factor	Frame and Glazing Details	Evidence Required	As Built Check
Windows	1.20	0.45	0.70	UPVC-framed, double glazed, low-e soft 0.05, 16mm gap (or more), Argon-filled.	Manufacturer U-value calculations / data sheets showing “Uw” whole frame U-values. Window and doorset positioning photos.	Tick to confirm

Thermal Bridging		
Scheme Details Used	Evidence Required	As Built Check
APA & SAP Appendix R Thermal bridging Psi values have been used to demonstrate compliance for the Energy Statement and application and are indicative for a specific construction method. Thermal bridging & bespoke Psi value calculations MUST be reviewed in full at Building Regulations stage. All junctions identified, their scheme detail and applicable Psi value are listed in the following table.	Signed copies of all relevant junction details or, if bespoke, copies of calculations.	Tick to confirm

Thermal Bridging Junctions

The thermal bridging junctions identified during the assessment are highlighted. Default Psi values are listed for reference only unless a Default value has been required for use.

Thermal Bridging Junctions List						
Junction Ref	Junction Detail	Default Psi Value W/m.K	Scheme Detail Reference Number	Scheme Detail Psi Value	Evidence Required	As Built Check
Junctions with an External Wall						
E1	Steel lintel with perforated base plate	1.00			Signed Detail	Tick to confirm
E2	Other lintels (including other steel lintels)	1.00	SAP Appendix R	0.05	Signed Detail	Tick to confirm
E3	Sill	0.10	SAP Appendix R	0.05	Signed Detail	Tick to confirm
E4	Jamb	0.10	SAP Appendix R	0.05	Signed Detail	Tick to confirm
E5	Ground floor (normal)	0.32	APA CD0009	0.061	Signed Detail	Tick to confirm
E19	Ground floor (inverted)	0.10			Signed Detail	Tick to confirm
E20	Exposed floor (normal)	0.32	K1 Default	0.32	Signed Detail	Tick to confirm
E21	Exposed floor (inverted)	0.32			Signed Detail	Tick to confirm
E22	Basement floor	0.22			Signed Detail	Tick to confirm
E6	Intermediate floor within a dwelling	0.14			Signed Detail	Tick to confirm
E7	Party floor between dwellings	0.28	APA CD0001	0.058	Signed Detail	Tick to confirm
E8	Balcony within a dwelling, wall insulation continuous*	0.10			Signed Detail	Tick to confirm
E9	Balcony between dwellings, wall insulation continuous*	0.15			Signed Detail	Tick to confirm
E23	Balcony, support penetrates wall insulation	1.00			Signed Detail	Tick to confirm
E10	Eaves (insulation at ceiling level)	0.12			Signed Detail	Tick to confirm
E24	Eaves (insulation at ceiling level inverted)	0.15	K1 Default	0.075	Signed Detail	Tick to confirm
E11	Eaves (insulation at rafter level)	0.15			Signed Detail	Tick to confirm
E12	Gable (insulation at ceiling level)	0.25			Signed Detail	Tick to confirm
E13	Gable (insulation at rafter level)	0.25			Signed Detail	Tick to confirm
E14	Flat roof	0.16	SAP Appendix R	0.08	Signed Detail	Tick to confirm
E15	Flat roof with parapet	0.30			Signed Detail	Tick to confirm
E16	Corner (normal)	0.18	SAP Appendix R	0.09	Signed Detail	Tick to confirm
E17	Corner (inverted)	0.00			Signed Detail	Tick to confirm
E18	Party wall between dwellings	0.24	SAP Appendix R	0.09	Signed Detail	Tick to confirm
E25	Staggered party wall between dwellings	0.24			Signed Detail	Tick to confirm
Junctions with a Party Wall						
P1	Ground floor	0.32	SAP Appendix R	0.08	Signed Detail	Tick to confirm
P6	Ground floor (inverted)	0.32			Signed Detail	Tick to confirm
P2	Intermediate floor within a dwelling	0.00			Signed Detail	Tick to confirm
P3	Intermediate floor between dwellings	0.00	SAP Default	0.00	Signed Detail	Tick to confirm
P7	Exposed floor (normal)	0.48			Signed Detail	Tick to confirm
P8	Exposed floor (inverted)	0.48	SAP Appendix R	0.24	Signed Detail	Tick to confirm
P4	Roof (insulation at ceiling level)	0.48	SAP Appendix R	0.12	Signed Detail	Tick to confirm
P5	Roof (insulation at rafter level)	0.48			Signed Detail	Tick to confirm
Junctions with a Roof or with a Room in a Roof						
R1	Head of roof window	0.24			Signed Detail	Tick to confirm
R2	Sill of roof window	0.24			Signed Detail	Tick to confirm
R3	Jamb of roof window	0.24			Signed Detail	Tick to confirm
R4	Ridge (vaulted ceiling)	0.12			Signed Detail	Tick to confirm
R5	Ridge (inverted)	0.12			Signed Detail	Tick to confirm
R6	Flat ceiling	0.12			Signed Detail	Tick to confirm
R7	Flat ceiling (inverted)	0.12			Signed Detail	Tick to confirm
R8	Roof wall (rafter)	0.12			Signed Detail	Tick to confirm
R9	Roof wall (flat ceiling)	0.32			Signed Detail	Tick to confirm
R10	All other roof or room in a roof junctions	0.32			Signed Detail	Tick to confirm
R11	Upstands or kerbs of roof windows**	0.24			Signed Detail	Tick to confirm

*E8 & E9 - Externally supported balcony (the balcony floor slab is not a continuation of the floor slab) where the wall insulation is continuous and not bridged by the balcony slab nor its supports.

**R11 - For roof windows installed on third party upstands or builder's kerbs there will be additional thermal bridges between the upstand or builder's kerb and the roof window; refer to BR443 (2019) for further details

HVAC Specification

Ventilation						
Type	Wet rooms	System Details	System Location	Ductwork Details	Evidence Required	As Built Check
Natural ventilation with extract fans	2	N/A	N/A	N/A	Ductwork Photo and Approved Installation Certificates	Tick to confirm

Air Permeability			
Design Target	5.00 m³/hm² @ 50 pascals	Evidence Required	As Built Check
		Air Test Certificates and photograph	Tick to confirm
Test Method	Blower door. <u>ALL plots must be tested individually to Part L 2021.</u>		

Lighting					
Quantity & Bulb Type	Power (W)	Efficacy (lm/W)	Capacity (lm)	Evidence Required	As Built Check
15x LED	5	80	400	Photographic evidence and bulb packaging information.	Tick to confirm

Space Heating					
Main Heating System					
Fuel	System Manufacturer & Model Details	Type	Efficiency (COP)	Evidence Required	As Built Check
Electricity	Mitsubishi Ecodan 8.5kW ASHP PUZ-WM85YAA Model Number: 106392	ASHP	2.45	Identification Label and Location Photo and MCS/Installation Certificate	Tick to confirm
Main Heating System Controls and Features					
Heat Emitter(s)	Heating Controls	Additional Features	Flow Temperature	Evidence Required	As Built Check
Radiators & Underfloor Heating	Time & temperature zone control	N/A	45 degrees	Photo and Controls manufacturer details	Tick to confirm
Percentage of Heat	100%				
Smart Meters	YES			Photograph	Tick to confirm
Weather Compensator	Not applicable.			Manufacturer and Model details	Tick to confirm

Secondary Heating System					
Fuel	System	Standard	Efficiency/Rating	Evidence Required	As Built Check
N/A	N/A	N/A	N/A	Identification label and Commissioning Certificate	Tick to confirm

Water Heating					
Fuel	System	Type	Standing Loss <i>kWh/24 hours</i>	Evidence Required	As Built Check
Electricity	175L Hot water cylinder	From main heating	1.90	Identification Label and Location Photo and Installation Certificate	<i>Tick to confirm</i>
Hot Water System Controls and Features					
Requirements	Primary Pipework	Additional Features	Evidence Required	As Built Check	
Located in a heated space and cylinder stat	Fully insulated	Independent time controls	Primary Pipework Photo and Controls manufacturer details	<i>Tick to confirm</i>	

Dwelling Hot Water Features					
Number of Baths	Number of Showers	Shower Type	Flow Rate <i>Litres per minute</i>	Power	As Built Check
1	2	Mains	8.5	N/A	<i>Tick to confirm</i>

Part G – Water Efficiency			
Design Target	125 litres per person per day	Evidence Required <i>Part G Water Efficiency Calculations</i>	As Built Check <i>Tick to confirm</i>

Renewable Technology								
Type	Installed Peak Power <i>kWp</i>	Tilt <i>Degrees</i>	Orientation	Overshading	Export Capable Meter?	Connection Type	Evidence Required	As Built Check
N/A	N/A	N/A	N/A	N/A	N/A	N/A	<i>MCS Installation Certificate</i>	<i>Tick to confirm</i>
Battery Installed?	N/A	Battery Capacity <i>kWh</i>				N/A		

Design Stage Confirmation

BE Reference	BE15905	Date	07/07/23	Version	V1
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To enable us to release the signed design stage BREL Compliance Report, design stage SAP Calculation reports and Predicted Energy Assessment (PEA) required for Building Control, please sign, and return this document.

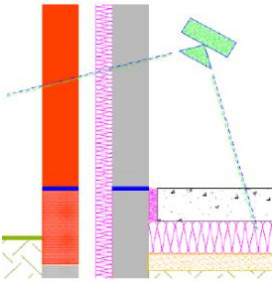
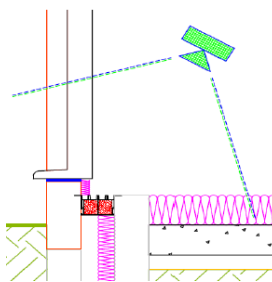
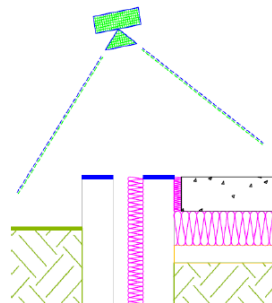
By signing this document, I agree that:

1. All recommended, suggested, or assumed items (highlighted in yellow) be confirmed to Build Energy Ltd at the earliest opportunity. **Please note, we cannot release BREL, SAP or PEA reports until these items are confirmed.**
 - a. Any outstanding items that have not been confirmed (or subsequently changed) without the SAP calculations being updated, may result in non-compliance to Building Regulations, changes to the results or EPC rating.
2. The specification as advised in the above document will be built or installed on site.
3. Any amendments to the specification that arise during the development will be communicated to Build Energy Ltd at the earliest opportunity and that amendments to the specification may result in changes to the results, EPC rating or overall compliance.
4. All evidence requested will be compiled in both the format and quality Build Energy Ltd require and supplied when requested.
5. As Built architectural drawings and specification documents will be submitted to Build Energy Ltd upon request at completion stage.
6. I understand that failure to supply the information required when requested will mean that Build Energy Ltd will not be able to produce As Built SAP Calculation Reports nor EPCs.

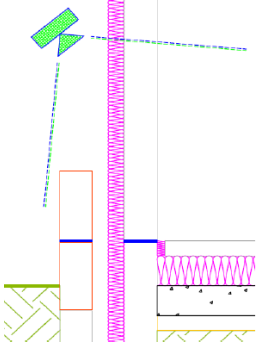
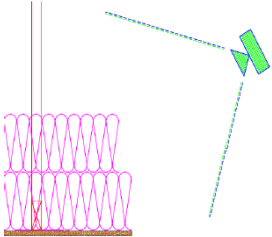
Printed Name	Organisation Name	Job Role
Signature		Date

Evidence Requirement List

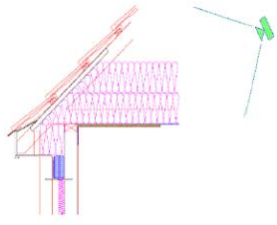
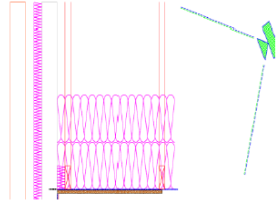
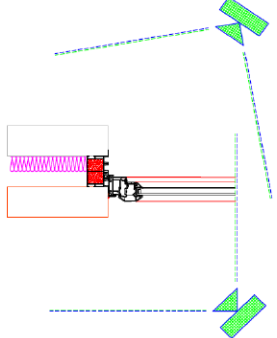
Please feel free to use the following checklist for compiling evidence requirements for the development.

Photographic Evidence Requirements				
Item	Details for Photograph	Example/Photo Reference	Confirmed (Tick)	As Built Check (Build Energy Use ONLY)
1A – Ground floor perimeter edge insulation (SAP Junction reference E5)		 Photograph should show a continuous strip of insulation in contact with the walls around the perimeter of the ground floor		
1B – External door threshold (SAP Junction reference E3)		 Photograph should show a strip of insulation or insulated cavity closer in the threshold zone.		
1C – Below damp-proof course on external walls		 Moisture-resistant insulation should be fitted below damp-proof course level and extend to the foundation block/structure.		

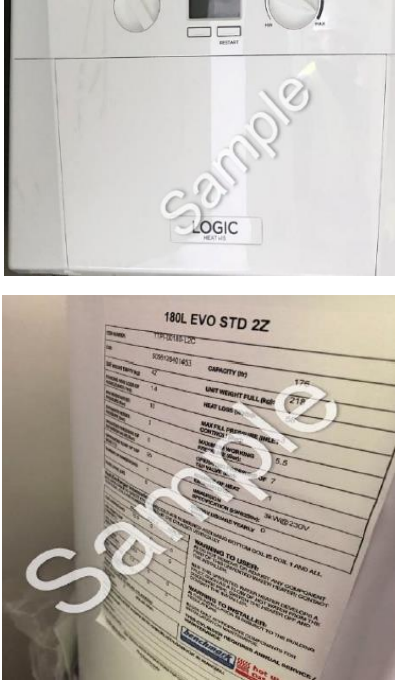
Photographic Evidence Requirements

Item	Details for Photograph	Example/Photo Reference	Confirmed (Tick)	As Built Check (Build Energy Use ONLY)
2A – External walls ground floor to wall junction <i>(SAP Junction reference E5)</i>		 External or cavity wall insulation should extend below the dampproof course.		
2B – External walls structural penetrating elements <i>(SAP Junction reference E1/2)</i>		 This would usually include lintels, and one photo is required per opening type.		
3A – Roof joist/rafter level		 Insulation should be installed tight to the structure, without air gaps, and should extend to the insulation.		

Photographic Evidence Requirements

Item	Details for Photograph	Example/Photo Reference	Confirmed (Tick)	As Built Check (Build Energy Use ONLY)
3B – Roof eaves and gable edges (SAP Junction reference E10, E11, E12, E13))	Roof eaves 	 Photograph should show loft insulation extending beyond the wall insulation to minimise cold bridging.		
	Roof gable edges 	 Photograph should show insulation against the inner surface of the external/party walls to minimise cold bridging.		
4A – Window positioning (SAP Junction reference E4)				
4B – External doorset positioning (SAP Junction reference E4)		One photo per window/door type is sufficient here. Good practice would be to show a tape measure to check the window/door is in the line with the cavity closer/insulation.		

Photographic Evidence Requirements

Item	Details for Photograph	Example/Photo Reference	Confirmed (Tick)	As Built Check (Build Energy Use ONLY)
5 – Airtightness	This could be to show how items that penetrate the air barrier, which are not covered by other photos, are sealed.			
6A – Plant/equipment identification label(s)		 Photos should show the labels clearly identifying make and model of heating system and hot water cylinder.		
6B – Primary pipework				
6C – Mechanical ventilation ductwork		 This is only required for ductwork in unheated spaces and should show the insulated ductwork used.		

Documentary Evidence Requirements			
Item	Details	Confirmed (Tick)	As Built Check (Build Energy Use ONLY)
Full Registered Postal Address Schedule	<i>BE to add details</i>		
Construction U-value Data Sheets (where requested)	<i>BE to add details</i>		
Window and Door Manufactures/Suppliers Literature (where requested)	<i>BE to add details</i>		
Ventilation Installation and Commissioning Certificates	<i>BE to add details</i>		
Air Tightness Results Certification	<i>BE to add details</i>		
Heating System(s) Installation and Commissioning Certificates	<i>BE to add details</i>		
Heating Control Details	<i>BE to add details</i>		
Hot Water System(s) Installation and Commissioning Certificates	<i>BE to add details</i>		
Hot Water Control Details	<i>BE to add details</i>		
Renewable Technology Installation and Commissioning Certificates (e.g. PV MCS Certification)	<i>BE to add details</i>		
Any Additional Technology Installation and Commissioning Certification	<i>BE to add details</i>		

As Built Stage Confirmation

BE Reference		Date		Version	
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I confirm that the drawings issued to you accurately reflect the as-built construction, that the above information accurately reflects the as-built specification and that all building services have been commissioned.

Printed Name	Organisation Name	Job Role
Signature		Date