



CONNEKT

Building
Services
Ltd.

Part L2A COMPLIANCE MODELLING REPORT – Shell & Core

East Apartments, Ashley Road, Future
Fitout Areas

Revision A – 12.12.2022

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Document Revision Details

			<i>File Ref:</i>	n/a
Revision	Author	Verification	Date	Comments / Status
A	J.BURNS	N.BLAISE	12.12.22	First Issue

1.0 Introduction

Connekt Building Services Ltd were appointed by Drayton Beaumont Services Ltd to undertake Building Regulations compliance modelling in conjunction with the East Apartments development, Ashley Road, Tottenham Hale.

The project would involve 4no. areas to be completed as a 'shell and core' type fitout, with a separate contractor undertaking the fit-out works at a future date post handover. This assessment therefore makes assumptions as to the operation and efficiency of the future installations, all of which are recorded within this report.

All modelling was undertaken to demonstrate compliance with Part L2A:2013 of the UK Building regulations only.

All compliance modelling was undertaken using IES <Virtual Environment> software 2022, version 2022.1.2.0 with VE Compliance version 7.0.17.0, all current at the time of modelling.

The thermal model was developed in conjunction with the following information:

- Architectural information as produced by KDS Associates Ltd.
- MEP detailed design information as produced by P&R Morson & Co. Ltd.

A detailed schedule of all input data is presented within the following sections of this report.

This report details all input data associated with the '**As Designed**' stage compliance assessment but will be used as the basis for the '**As Built**' compliance assessment, used for formal EPC submission.

The input data contained within this report has been used to develop a compliant building model when assessed against Part L2A:2013 of the Building Regulations. As such, it is imperative that all parties review the data contained within this report and advise of any discrepancies, risks and alternative proposals immediately. Connekt Building Services Ltd can not be held liable for failure to disclose any changes that negatively impact the compliance check and associated results, which may lead to failure of the 'As Built' model compliance simulation.

2.0 Specification Requirements

All modelling was undertaken using IES <Virtual Environment> software with assessment to Level 05 by a fully accredited Low Carbon Energy Assessor (LCEA).

The project was not subject to a BREEAM assessment.

3.0 General Building Information

3.1 Geometry Data

All models constructed for the purpose of Part L compliance assessment were developed using the KDS Associates Ltd drawings and associated information including general arrangements, elevations, sections and general details.

3.2 Building Address Details

4no. units in total were modelled with the following addresses:

Name :	Unit 1
Street Address :	East Apartments, Ashley Road, London
Postcode :	N17 9QY

Name :	Unit 2
Street Address :	East Apartments, Ashley Road, London
Postcode :	N17 9QY

Name :	Unit 3
Street Address :	East Apartments, Ashley Road, London
Postcode :	N17 9QY

Name :	Unit 4
Street Address :	East Apartments, Ashley Road, London
Postcode :	N17 9QY

3.3 Building Model Settings

Unit 1 was modelled as follows:

Building Type :	Place of assembly, office or shop
Building Category :	A1A2: Retail of Office (Retail)

Unit 2 was modelled as follows:

Building Type :	Place of assembly, office or shop
Building Category :	A345: Restaurant or public house

**this zone has a natural gas supply and was therefore modelled as a restaurant type space.*

Unit 3 was modelled as follows:

Building Type :	Place of assembly, office or shop
Building Category :	B1: Office or Workshop (Office)

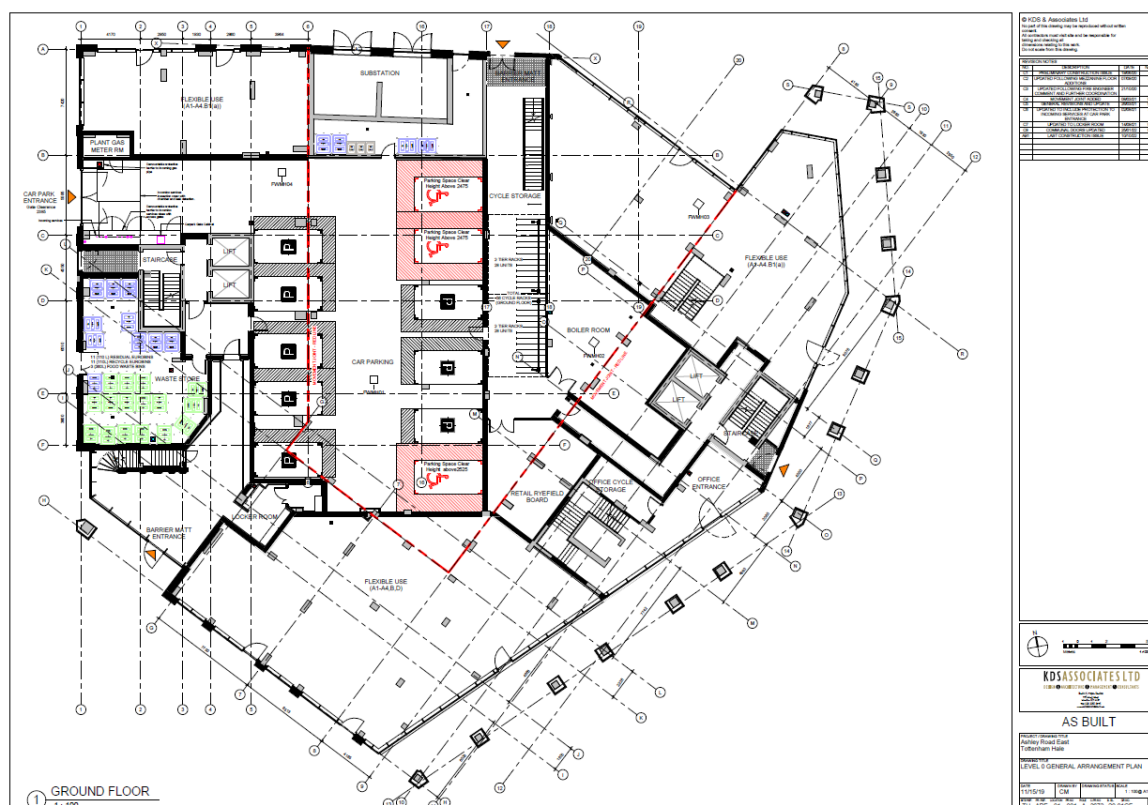
Unit 4 was modelled as follows:

Building Type :	Place of assembly, office or shop
Building Category :	A1A2: Retail of Office (Retail)

3.4 Building Orientation

The building orientation was taken from the KDS Associates Ltd drawings – please see below example which includes the site North arrow at the bottom right hand side of the drawing.

Fig 3.4.1 Site Orientation – Typical GA



4.0 Weather Data

City :	London
Simulation Weather File :	LondonTRY05 (2021 weather data set)

Note: all weather data selected using the EPC locations worksheet, based on site postcode, with the nearest available match applied to the model.

5.0 Building Fabric Performance

The following project fabric performance targets were taken from the detailed design technical submittals:

Fig 5.1 Fabric Performance Data

EJ1336 Ashley Road East Overheating Model Input Data

U-Values/G-value

-	External Wall	Ground Floor	Roof	Internal Floor/Ceiling	Internal partitions	Party Walls to Corridors	External Glazing	Rainscreen Cladding
U - Value	0.22	0.13	0.13	1.087	1.46	0.31	1.2	0.2
G - Value	-	-	-	-	-	-	0.39	-
Frame Factor	-	-	-	-	-	-	15%	-

Additional Notes:

- All glazing U-values shown within the above table are the total U-value for the 'system' and are **NOT** the centre pane U-value.
- Default thermal bridging coefficients utilised – *to be calculated by others if required*.

6.0 Adjustment for Management Features

The following adjustments were made in line with the available management features specified within Approved Document L2A, Table 1:

Electric Power Factor :	<0.90
Lighting systems have provision for metering?	No
Lighting systems warns of 'out-of-range' values?	No

7.0 HVAC Systems & Lighting

The following HVAC system types were applied to the models for each unit. Note the system types and efficiencies were adjusted across each model to ensure that compliance was demonstrated without exceeding the Target Energy Rating (TER) by substantial margins (in line with the *Non Domestic EPC Conventions for England & Wales*)

7.1 Unit 1 – Assumed System Types & Efficiencies

Heating & Cooling: provided by VRF system, SCOP:4.0, SEER:6.0, EER:3.0

Ventilation: mech vent with heat recovery, HR:75%, SFP:1.5W/l/s

No system adjustments (no ductwork pressure test assumed, no metering and monitoring)

Hot Water: 15ltr point of use water heater, 0.0047kWh/ltr/day storage loss, no pumped return.

Lighting: 100lm/W average efficacy, no lighting controls applied.

Air Permeability: assumed un-tested, modelled as 15m³/m²/hr (<500m²)

7.2 Unit 2 – Assumed System Types & Efficiencies

Heating & Cooling: provided by VRF system, SCOP:4.0, SEER:5.0, EER:3.0

Ventilation: mech vent with heat recovery, HR:75%, SFP:1.5W/l/s

No system adjustments (no ductwork pressure test assumed, no metering and monitoring)

Hot Water: 500ltr ASHP, 50mm factory applied insulation, hot water return pump based on 150m loop length, 7W/m average pipework loss, 50W circulation pump power, time switch on circulation pump. SCOP for ASHP modelled as 2.5.

Lighting: 60lm/W average efficacy, no lighting controls applied. Display lighting efficiency 100lm/W.

Air Permeability: assumed un-tested, modelled as 10m³/m²/hr (>500m²)

7.3 Unit 3 – Assumed System Types & Efficiencies

Heating & Cooling: provided by VRF system, SCOP:3.0, SEER:5.0, EER:3.0

Ventilation: mech vent with heat recovery, HR:75%, SFP:1.5W/l/s

No system adjustments (no ductwork pressure test assumed, no metering and monitoring)

Hot Water: 30ltr point of use water heater, 0.0047kWh/ltr/day storage loss, no pumped return.

Lighting: 70lm/W average efficacy, modelled with daylighting dimming, with standalone sensors, and a parasitic power of 0.10W/m².

Air Permeability: assumed un-tested, modelled as 10m³/m²/hr (>500m²)

7.4 Unit 4 – Assumed System Types & Efficiencies

Heating & Cooling: provided by VRF system, SCOP:3.0, SEER:5.0, EER:3.0

Ventilation: mech vent with heat recovery, HR:75%, SFP:1.5W/l/s

No system adjustments (no ductwork pressure test assumed, no metering and monitoring)

Hot Water: 30ltr point of use water heater, 0.0047kWh/ltr/day storage loss, no pumped return.

Lighting: 82lm/W average efficacy, no lighting controls applied. Display lighting efficiency 100lm/W.

Air Permeability: assumed un-tested, modelled as 15m³/m²/hr (<500m²)

Note: All system types, efficiencies and operational characteristics are assumed at this stage to provide a suitable BRUKL and EPC document at handover stage only, and to demonstrate how compliance could be achieved following future fitout. It is the responsibility of any future fit-out contractor to provide an updated BRUKL and EPC document post fit-out based on actual installed services.

10.0 Preliminary Compliance Modelling Results

The 'As Designed' compliance modelling, developed using the input data specified above, achieved a 'PASS' rating when assessed against Part L2A:2013 of the Building Regulations.

Results details below:

Unit 1

Building Emissions Rate (BER):	33.8 kg/CO₂/m²/annum
Notional Building Emissions Rate:	34.9 kg/CO ₂ /m ² /annum
Target Emissions Rate (TER):	34.9 kg/CO₂/m²/annum

The 'As Designed' EPC assessment achieve an asset rating of **23 / Band A**.

Unit 2

Building Emissions Rate (BER):	60.3 kg/CO₂/m²/annum
Notional Building Emissions Rate:	62.7 kg/CO ₂ /m ² /annum
Target Emissions Rate (TER):	62.7 kg/CO₂/m²/annum

The 'As Designed' EPC assessment achieve an asset rating of **29 / Band B**.

Unit 3

Building Emissions Rate (BER):	16.1 kg/CO₂/m²/annum
Notional Building Emissions Rate:	16.8 kg/CO ₂ /m ² /annum
Target Emissions Rate (TER):	16.8 kg/CO₂/m²/annum

The 'As Designed' EPC assessment achieve an asset rating of **30 / Band B**.

Unit 4

Building Emissions Rate (BER):	34.5 kg/CO₂/m²/annum
Notional Building Emissions Rate:	35.0 kg/CO ₂ /m ² /annum
Target Emissions Rate (TER):	35.0 kg/CO₂/m²/annum

The 'As Designed' EPC assessment achieve an asset rating of **26 / Band B**.

**The BRUKL and EPC output documents can be found
appended to this report.**