

## Project name

**551-557 Finchley Road Clean****As designed**

Date: Wed Jul 01 10:33:14 2020

## Administrative information

## Building Details

Address: Address 1, Address 2, City, Postcode

## Certification tool

Calculation engine: SBEM

Calculation engine version: v5.6.a.2

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: v7.0.12

BRUKL compliance check version: v5.6.a.1

## Owner Details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

## Certifier details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Criterion 1: The calculated CO<sub>2</sub> emission rate for the building must not exceed the target

The building does not comply with England Building Regulations Part L 2013

CO <sub>2</sub> emission rate from the notional building, kgCO <sub>2</sub> /m <sup>2</sup> .annum	75.2
Target CO <sub>2</sub> emission rate (TER), kgCO <sub>2</sub> /m <sup>2</sup> .annum	75.2
Building CO <sub>2</sub> emission rate (BER), kgCO <sub>2</sub> /m <sup>2</sup> .annum	77.5
Are emissions from the building less than or equal to the target?	BER > TER
Are as built details the same as used in the BER calculations?	Separate submission

## Criterion 2: The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Values which do not achieve the standards in the Non-Domestic Building Services Compliance Guide and Part L are displayed in red.

## Building fabric

Element	U <sub>a</sub> -Limit	U <sub>a</sub> -Calc	U <sub>i</sub> -Calc	Surface where the maximum value occurs*
Wall**	0.35	0.3	0.3	LG000004_W1
Floor	0.25	0.23	0.25	LG000004_F
Roof	0.25	0.18	0.18	LG000004_C
Windows***, roof windows, and rooflights	2.2	1.8	1.8	GF000002_W-1_O0
Personnel doors	2.2	2.2	2.2	GF000002_W1_O1
Vehicle access & similar large doors	1.5	-	-	"No external vehicle access doors"
High usage entrance doors	3.5	-	-	"No external high usage entrance doors"

U<sub>a</sub>-Limit = Limiting area-weighted average U-values [W/(m<sup>2</sup>K)]U<sub>a</sub>-Calc = Calculated area-weighted average U-values [W/(m<sup>2</sup>K)]U<sub>i</sub>-Calc = Calculated maximum individual element U-values [W/(m<sup>2</sup>K)]

\* There might be more than one surface where the maximum U-value occurs.

\*\* Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

\*\*\* Display windows and similar glazing are excluded from the U-value check.

N.B.: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air Permeability	Worst acceptable standard	This building
m <sup>3</sup> /(h.m <sup>2</sup> ) at 50 Pa	10	15

## Building services

The standard values listed below are minimum values for efficiencies and maximum values for SFPs. Refer to the Non-Domestic Building Services Compliance Guide for details.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	YES
Whole building electric power factor achieved by power factor correction	>0.95

### 1- Main system Cooling VRF

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	2.5	2.5	-	-	-
Standard value	2.5*	2.6	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps. For types <=12 kW output, refer to EN 14825 for limiting standards.					

### 2- Main system No Cooling

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.91	-	-	-	-
Standard value	0.91*	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
* Standard shown is for gas single boiler systems <=2 MW output. For single boiler systems >2 MW or multi-boiler systems, (overall) limiting efficiency is 0.86. For any individual boiler in a multi-boiler system, limiting efficiency is 0.82.					

### 3- Main system Cooling VRF Retail

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	2.5	2.5	-	-	-
Standard value	2.5*	2.6	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps. For types <=12 kW output, refer to EN 14825 for limiting standards.					

### 1- SYST0001-DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	0.84	-
Standard value	0.8	N/A

### 2- SYST0000-DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	Hot water provided by HVAC system	-
Standard value	N/A	N/A

### 3- SYST0002-DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	-
Standard value	1	N/A

### Local mechanical ventilation, exhaust, and terminal units

ID	System type in Non-domestic Building Services Compliance Guide
A	Local supply or extract ventilation units serving a single area
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal supply and extract ventilation units serving a single room or zone with heating and heat recovery
E	Local supply and extract ventilation system serving a single area with heating and heat recovery
F	Other local ventilation units
G	Fan-assisted terminal VAV unit
H	Fan coil units
I	Zonal extract system where the fan is remote from the zone with grease filter

Zone name	SFP [W/(l/s)]										HR efficiency	
	ID of system type	A	B	C	D	E	F	G	H	I	Zone	Standard
Standard value		0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1		
LGF Meeting Room		0.3	-	-	-	-	-	-	-	-	-	N/A
LGF Gym		0.3	-	-	-	-	-	-	-	-	-	N/A
GF Cafe		0.3	-	-	-	-	-	-	-	-	-	N/A
LGF Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
LGF Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
LGF Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
LGF Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
LGF Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
LGF Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
GF Reception		0.3	-	-	-	-	-	-	-	-	-	N/A
GF Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
GF Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
GF Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
GF Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
GF Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
GF Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
2F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
2F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
2F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
2F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
2F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
2F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
1F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
1F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
1F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
1F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
1F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
3F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
3F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
3F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
3F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A

Zone name	SFP [W/(l/s)]										HR efficiency	
	ID of system type	A	B	C	D	E	F	G	H	I		
	Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
4F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
4F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
1F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
1F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
2F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
4F Apart Hotel		0.3	-	-	-	-	-	-	-	-	-	N/A
GF Retail		0.3	-	-	-	-	-	-	-	-	-	N/A

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
LGF Meeting Room		77	-	-	181
LGF Gym		-	90	-	56
GF Cafe		-	90	30	369
LGF Lift		-	90	-	18
LGF Apart Hotel		-	90	-	77
LGF Apart Hotel		-	90	-	73
LGF Apart Hotel		-	90	-	72
LGF Apart Hotel		-	90	-	72
LGF Apart Hotel		-	90	-	82
LGF Apart Hotel		-	90	-	85
LGF WC		-	90	-	29
LGF WC		-	90	-	31
LGF Stairs		-	90	-	29
LGF Corridor		-	90	-	70
LGF Corridor		-	90	-	68
GF Corridor		-	90	-	146
GF Reception		-	90	30	155
GF Lift		-	90	-	25
GF Apart Hotel		-	90	-	90
GF Apart Hotel		-	90	-	79
GF Apart Hotel		-	90	-	86
GF Stairs		-	90	-	21
GF Lift		-	90	-	25
GF Apart Hotel		-	90	-	85
GF Apart Hotel		-	90	-	90
GF Apart Hotel		-	90	-	81
2F Stairs		-	90	-	36
2F Apart Hotel		-	90	-	85
2F Stairs		-	90	-	44
2F Apart Hotel		-	90	-	64
2F Apart Hotel		-	90	-	83
2F Apart Hotel		-	90	-	68

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
2F Apart Hotel		-	90	-	68
2F Apart Hotel		-	90	-	68
1F Apart Hotel		-	90	-	102
1F Apart Hotel		-	90	-	70
1F Apart Hotel		-	90	-	69
1F Apart Hotel		-	90	-	69
1F Apart Hotel		-	90	-	88
1F Stairs		-	90	-	50
1F Lift		-	90	-	20
1F Stairs		-	90	-	44
3F Apart Hotel		-	90	-	60
3F Apart Hotel		-	90	-	74
3F Apart Hotel		-	90	-	102
3F Corridor		-	90	-	101
3F Apart Hotel		-	90	-	69
3F Lift		-	90	-	17
4F Apart Hotel		-	90	-	69
4F Apart Hotel		-	90	-	67
4F Lift		-	90	-	17
4F Corridor		-	90	-	37
1F Apart Hotel		-	90	-	86
1F Apart Hotel		-	90	-	100
LGF WC		-	90	-	34
2F Apart Hotel		-	90	-	67
2F Lift		-	90	-	16
4F Stairs		-	90	-	20
4F Apart Hotel		-	90	-	75
GF Retail		-	90	30	374

### Criterion 3: The spaces in the building should have appropriate passive control measures to limit solar gains

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
LGF Meeting Room	N/A	N/A
LGF Gym	N/A	N/A
GF Cafe	NO (-39.9%)	NO
LGF Apart Hotel	NO (-76.4%)	NO
LGF Apart Hotel	NO (-25.8%)	NO
LGF Apart Hotel	NO (-35.1%)	NO
LGF Apart Hotel	NO (-35.1%)	NO
LGF Apart Hotel	NO (-35.1%)	NO
LGF Apart Hotel	NO (-35.1%)	NO
GF Reception	NO (-0.4%)	NO
GF Apart Hotel	NO (-88.5%)	NO
GF Apart Hotel	NO (-62.1%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
GF Apart Hotel	NO (-66.8%)	NO
GF Apart Hotel	NO (-70.5%)	NO
GF Apart Hotel	NO (-70.5%)	NO
GF Apart Hotel	NO (-62.1%)	NO
2F Apart Hotel	NO (-75.8%)	NO
2F Apart Hotel	N/A	N/A
2F Apart Hotel	NO (-90.6%)	NO
2F Apart Hotel	NO (-69.8%)	NO
2F Apart Hotel	NO (-70.7%)	NO
2F Apart Hotel	NO (-70.6%)	NO
1F Apart Hotel	NO (-79%)	NO
1F Apart Hotel	NO (-69.9%)	NO
1F Apart Hotel	NO (-70.6%)	NO
1F Apart Hotel	NO (-70.6%)	NO
1F Apart Hotel	NO (-48.9%)	NO
3F Apart Hotel	NO (-84.5%)	NO
3F Apart Hotel	NO (-89%)	NO
3F Apart Hotel	NO (-73.3%)	NO
3F Apart Hotel	NO (-49.7%)	NO
4F Apart Hotel	NO (-75.7%)	NO
4F Apart Hotel	NO (-74.6%)	NO
1F Apart Hotel	NO (-78.5%)	NO
1F Apart Hotel	NO (-48.9%)	NO
2F Apart Hotel	NO (-91.1%)	NO
4F Apart Hotel	N/A	N/A
GF Retail	NO (-17.4%)	NO

#### Criterion 4: The performance of the building, as built, should be consistent with the calculated BER

Separate submission

#### Criterion 5: The necessary provisions for enabling energy-efficient operation of the building should be in place

Separate submission

#### EPBD (Recast): Consideration of alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	NO
Is evidence of such assessment available as a separate submission?	NO
Are any such measures included in the proposed design?	NO



# Technical Data Sheet (Actual vs. Notional Building)

## Building Global Parameters

	Actual	Notional
Area [m <sup>2</sup> ]	1571.1	1571.1
External area [m <sup>2</sup> ]	1746	1746
Weather	LON	LON
Infiltration [m <sup>3</sup> /hm <sup>2</sup> @ 50Pa]	15	3
Average conductance [W/K]	734.84	899.78
Average U-value [W/m <sup>2</sup> K]	0.42	0.52
Alpha value* [%]	21.72	18.34

\* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

## Building Use

% Area	Building Type
2	A1/A2 Retail/Financial and Professional services
6	A3/A4/A5 Restaurants and Cafes/Drinking Est./Takeaways
	B1 Offices and Workshop businesses
	B2 to B7 General Industrial and Special Industrial Groups
	B8 Storage or Distribution
92	C1 Hotels
	C2 Residential Institutions: Hospitals and Care Homes
	C2 Residential Institutions: Residential schools
	C2 Residential Institutions: Universities and colleges
	C2A Secure Residential Institutions
	Residential spaces
	D1 Non-residential Institutions: Community/Day Centre
	D1 Non-residential Institutions: Libraries, Museums, and Galleries
	D1 Non-residential Institutions: Education
	D1 Non-residential Institutions: Primary Health Care Building
	D1 Non-residential Institutions: Crown and County Courts
	D2 General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger terminals
	Others: Emergency services
	Others: Miscellaneous 24hr activities
	Others: Car Parks 24 hrs
	Others: Stand alone utility block

## Energy Consumption by End Use [kWh/m<sup>2</sup>]

	Actual	Notional
Heating	73.55	59.49
Cooling	3.41	2.65
Auxiliary	5.94	4.34
Lighting	9.79	14.36
Hot water	235	234.75
Equipment*	18.11	18.11
<b>TOTAL**</b>	<b>327.69</b>	<b>315.6</b>

\* Energy used by equipment does not count towards the total for consumption or calculating emissions.

\*\* Total is net of any electrical energy displaced by CHP generators, if applicable.

## Energy Production by Technology [kWh/m<sup>2</sup>]

	Actual	Notional
Photovoltaic systems	0	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0

## Energy & CO<sub>2</sub> Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m <sup>2</sup> ]	305.81	300.07
Primary energy* [kWh/m <sup>2</sup> ]	440.88	427.89
Total emissions [kg/m <sup>2</sup> ]	77.5	75.2

\* Primary energy is net of any electrical energy displaced by CHP generators, if applicable.

HVAC Systems Performance									
System Type	Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEEF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity									
Actual	397.3	239.4	45	35.6	1.5	2.45	1.87	2.5	2.5
Notional	281.1	358	32.1	27.6	2	2.43	3.6	----	----
[ST] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity									
Actual	237.7	37.1	77.2	0	6.4	0.86	0	0.91	0
Notional	185.6	82.2	63	0	4.6	0.82	0	----	----
[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity									
Actual	125.1	178.2	14.2	26.5	1	2.45	1.87	2.5	2.5
Notional	58.8	268.8	6.7	20.7	1.3	2.43	3.6	----	----

### Key to terms

Heat dem [MJ/m2]	= Heating energy demand
Cool dem [MJ/m2]	= Cooling energy demand
Heat con [kWh/m2]	= Heating energy consumption
Cool con [kWh/m2]	= Cooling energy consumption
Aux con [kWh/m2]	= Auxiliary energy consumption
Heat SSEFF	= Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER	= Cooling system seasonal energy efficiency ratio
Heat gen SSEFF	= Heating generator seasonal efficiency
Cool gen SSEER	= Cooling generator seasonal energy efficiency ratio
ST	= System type
HS	= Heat source
HFT	= Heating fuel type
CFT	= Cooling fuel type



# Key Features

The Building Control Body is advised to give particular attention to items whose specifications are better than typically expected.

## Building fabric

Element	U <sub>i-Typ</sub>	U <sub>i-Min</sub>	Surface where the minimum value occurs*
Wall	0.23	0.28	LG000008_W1
Floor	0.2	0.22	GF000002_F
Roof	0.15	0.18	LG000004_C
Windows, roof windows, and rooflights	1.5	1.8	GF000002_W-1_O0
Personnel doors	1.5	2.2	GF000002_W1_O1
Vehicle access & similar large doors	1.5	-	"No external vehicle access doors"
High usage entrance doors	1.5	-	"No external high usage entrance doors"
U <sub>i-Typ</sub> = Typical individual element U-values [W/(m²K)] U <sub>i-Min</sub> = Minimum individual element U-values [W/(m²K)]			
* There might be more than one surface where the minimum U-value occurs.			

Air Permeability	Typical value	This building
m³/(h.m²) at 50 Pa	5	15