BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2013

Project name

18 Pield Heath-Baseline

As designed

Date: Fri Apr 01 16:24:48 2022

Administrative information

Building Details

Address: London, UB8 3NF

Certification tool

Calculation engine: SBEM

Calculation engine version: v5.6.b.0

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: v7.0.13

BRUKL compliance check version: v5.6.b.0

Certifier details

Name: SyntegraENG

Telephone number: 01184028520

Address: 63 Milford Rd, Reading, RG1 8LG

Criterion 1: The calculated CO_2 emission rate for the building must not exceed the target

CO_2 emission rate from the notional building, $kgCO_2/m^2.annum$	40.4
Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	40.4
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	40.2
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	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	Surface where the maximum value occurs*
Wall**	0.35	0.36	1.79	"FY000002_W17_A0"
Floor	0.25	0.22	0.22	"MN000000_F"
Roof	0.25	0.19	1.09	"LF000001_C_A0"
Windows***, roof windows, and rooflights	2.2	1.6	1.6	"SL000000_W4_O0"
Personnel doors	2.2	1.67	1.67	"ST000000_W3_O0"
Vehicle access & similar large doors	1.5	-	-	"No external vehicle access doors"
High usage entrance doors	3.5	-	-	"No external high usage entrance doors"

$U_{a\text{-}Limit}$ = Limiting area-weighted average U-values [$W/(m^2K)$]
$U_{a\text{-}Calc}$ = Calculated area-weighted average U-values [$W/(m^2K)$]
$U_{i\text{-}Calc}$ = Calculated maximum individual element U-values [$W/(m^2K)$]

* 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
$m^3/(h.m^2)$ at 50 Pa	10	3

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	<0.9

1- Gas Boiler

	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.

1- 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

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**		
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1	**Zone**	**Standard**
Ass Bath	0.4	-	-	-	-	-	-	-	-	-	N/A
wc	0.4	-	-	-	-	-	-	-	-	-	N/A
Gf_Br 014	0.4	-	-	-	-	-	-	-	-	-	N/A
Gf_ Br 015	0.4	-	-	-	-	-	-	-	-	-	N/A
GF_ Br 016	0.4	-	-	-	-	-	-	-	-	-	N/A
GF_BR 017	0.4	-	-	-	-	-	-	-	-	-	N/A
Gf_BR018	0.4	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 019	0.4	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 020	0.4	-	-	-	-	-	-	-	-	-	N/A
Gf_BR021	0.4	-	-	-	-	-	-	-	-	-	N/A
WC	0.4	-	-	-	-	-	-	-	-	-	N/A
Assisted Bath	0.4	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 013	0.4	-	-	-	-	-	-	-	-	-	N/A
GF _BR 012	0.4	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 011	0.4	-	-	-	-	-	-	-	-	-	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
Gf_BR 01	0.4	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 02	0.4	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 03	0.4	-	-	-	-	-	-	-	-	-	N/A
Gf_BR04	0.4	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 05	0.4	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 06	0.4	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 07	0.4	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 08	0.4	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 010	0.4	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 09	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 022	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 023	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 024	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 025	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 026	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 027	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 028	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 031	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 030	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 033	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 034	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 035	0.4	-	-	-	-	-	-	-	-	-	N/A
1st f_Br 039	0.4	-	-	-	-	-	-	-	-	-	N/A
1st_ Br 040	0.4	-	-	-	-	-	-	-	-	-	N/A
1st f_ Br 041	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 042	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 043	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 044	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 045	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_Assisted Bath	0.4	-	-	-	-	-	-	-	-	-	N/A
1st f_BR 036	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_BR046	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 038	0.4	-	-	-	-	-	-	-	-	-	N/A
1st f _BR 037	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_WC	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 032	0.4	-	-	-	-	-	-	-	-	-	N/A
1st F_Assisted Bathroom	0.4	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 047	0.4	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 049	0.4	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 050	0.4	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 051	0.4	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 052	0.4	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 053	0.4	-	-	-	-	-	-	-	-	-	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
2nd F_BR 055	0.4	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 054	0.4	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 056	0.4	-	-	-	-	-	-	-	-	-	N/A
2nd F_Assisted Bathroom	0.4	-	-	-	-	-	-	-	-	-	N/A
1st _BR 029	0.4	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 048	0.4	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 058	0.4	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 057	0.4	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 059	0.4	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 060	0.4	-	-	-	-	-	-	-	-	-	N/A
wc	0.4	-	-	-	-	-	-	-	-	-	N/A
wc	0.4	-	-	-	-	-	-	-	-	-	N/A
wc	0.4	-	-	-	-	-	-	-	-	-	N/A

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	Luminaire	Lamp	Display lamp	General lighting [W]
Standard value	60	60	22	
Sluice	-	60	-	25
Stairs	-	60	-	48
Ass Bath	-	60	-	46
Stairs	-	60	-	48
Manager office	60	-	-	144
Drugs Room	60	-	-	120
Foyer GF 6	-	60	-	56
Admin Room	60	-	-	206
wc	-	60	-	21
Foyer GF 4	-	60	-	109
Gf_BED 014	-	60	-	66
Gf_Br 014	-	60	-	24
Gf_ Br 015	-	60	-	24
Gf_BED 015	-	60	-	65
GF_ Br 016	-	60	-	24
GF_ BED 016	-	60	-	65
GF_BED 017	-	60	-	68
GF_BR 017	-	60	-	26
Gf_BR018	-	60	-	23
Gf_BED 018	-	60	-	67
Gf_BED 019	-	60	-	63
Gf_BR 019	-	60	-	24
Gf_BR 020	-	60	-	24
Gf_BED 020	-	60	-	62
Gf_BR021	-	60	-	25
Gf_BED 021	-	60	-	59

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
WC	-	60	-	19
Assisted Bath	-	60	-	59
LIFT	-	60	-	24
GF_Dining/ Lounge Room	-	60	-	304
Gf_BR 013	-	60	-	26
Gf_BED 013	-	60	-	61
Gf_BED 012	-	60	-	65
GF _BR 012	-	60	-	23
Gf_BED 011	-	60	-	65
Gf_BR 011	-	60	-	23
Gf_BED 01	-	60	-	65
Gf_BR 01	-	60	-	24
Gf_BR 02	-	60	-	24
Gf_BED 02	-	60	-	62
Gf_BR 03	-	60	-	24
Gf_BED 03	-	60	-	66
Gf_BR04	-	60	-	24
Gf_BED 04	-	60	-	65
Gf_BR 05	-	60	-	24
Gf_BED 05	-	60	-	65
Gf_BR 06	-	60	-	24
Gf_BED 06	-	60	-	63
Gf_BED 07	-	60	-	71
Gf_BR 07	-	60	-	24
Gf_BR 08	-	60	-	26
Gf_BED 08	-	60	-	66
Gf_BR 010	-	60	-	24
Gf_BED 010	-	60	-	63
Gf_BED 09	-	60	-	63
Gf_BR 09	-	60	-	24
Dining Room	-	60	-	187
Foyer GF 5	-	60	-	200
Foyer 1 & Sitting area	-	60	-	183
1st F_BED 022	-	60	-	65
1st F_BR 022	-	60	-	24
1st F_BR 023	-	60	-	24
1st F_BED 023	-	60	-	62
1st F_Sluice	-	60	-	31
1st F_BR 024	-	60	-	24
1st F_BED 024	-	60	-	66
1st F_BR 025	-	60	-	24
1st F_BED 025	-	60	-	65
1st F_BR 026	-	60	-	24

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
1st _BED 026	-	60	-	65
1st F_BR 027	-	60	-	24
1st F_BED 027	-	60	-	63
1st F_BED 028	-	60	-	71
1st F_BR 028	-	60	-	24
1st F_BED 029	-	60	-	66
1st F _Foyer 6	-	60	-	56
1st F_Stairs	-	60	-	48
1st F_BR 031	-	60	-	24
1st F_BED 031	-	60	-	63
1st F_BED 030	-	60	-	63
1st F_BR 030	-	60	-	24
1st F_Drugs Room	-	60	-	43
1st F_BR 033	-	60	-	21
1st F_BED 033	-	60	-	60
1st F_Stairs case	-	60	-	46
Stairs and Main entrance	-	60	-	80
1st F dining room extension	-	60	-	39
1st F_BR 034	-	60	-	25
1st F_ BED 034	-	60	-	60
1st F_BED 035	-	60	-	60
1st F_BR 035	-	60	-	25
1st F_Foyer 1 & Sitting area	-	60	-	183
1ST f_Stairs	-	60	-	48
1st f_BED 039	-	60	-	66
1st f_Br 039	-	60	-	24
1st_ Br 040	-	60	-	24
1st F_BED 040	-	60	-	65
1st f_ Br 041	-	60	-	24
1st f_ BED 041	-	60	-	65
1st F_BED 042	-	60	-	68
1st F_BR 042	-	60	-	26
1st F_BR 043	-	60	-	23
1st F_BED 043	-	60	-	67
1st_F 044	-	60	-	63
1st F_BR 044	-	60	-	24
1st F_BR 045	-	60	-	24
1st F_BED 045	-	60	-	62
1st F_Assisted Bath	-	60	-	59
1st F_LIFT	-	60	-	24
1st f_BR 036	-	60	-	23
1st F_BR046	-	60	-	25
1st F_BED 046	-	60	-	59

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
1st F_BR 038	-	60	-	26
1st F_BED 038	-	60	-	61
1st f_BED 037	-	60	-	65
1st f_BED 036	-	60	-	65
1st f _BR 037	-	60	-	23
1st F_WC	-	60	-	30
Foyer 3	-	60	-	50
Foyer 2	-	60	-	35
1st F_BR 032	-	60	-	23
1st F_BED 032	-	60	-	62
1st F_Assisted Bathroom	-	60	-	47
1st F_Foyer 5	-	60	-	200
1st F_Foyer 4	-	60	-	38
1st F_Dning / Lounge room	-	60	-	382
1st F_Foyer 3	-	60	-	41
1st F_Store	60	-	-	53
2nd F_BED 047	-	60	-	65
2nd F_BR 047	-	60	-	24
2nd F_BED 048	-	60	-	62
1st F_Sluice (1)	-	60	-	31
2nd F_BR 049	-	60	-	24
2nd F_BED 049	-	60	-	66
2nd F_BR 050	-	60	-	24
2nd F_BED 050	-	60	-	65
2nd F_BR 051	-	60	-	24
2nd F _BED 051	-	60	-	65
2nd F_BR 052	-	60	-	24
2nd F_BED 052	-	60	-	63
2nd F_BED 053	-	60	-	71
2nd F_BR 053	-	60	-	24
1st F _Foyer 6 (1)	-	60	-	56
1st F_Stairs (1)	-	60	-	48
2nd F_BR 055	-	60	-	24
2nd F_BED 055	-	60	-	63
2nd F_BED 054	-	60	-	63
2nd F_BR 054	-	60	-	24
1st F_Stairs case (1)	-	60	-	46
2nd F_BR 056	-	60	-	23
2nd F_BED 056	-	60	-	62
2nd F_Assisted Bathroom	-	60	-	47
2nd F_Foyer 3	-	60	-	38
1st _BR 029	-	60	-	26
2nd F_Store	60	-	-	71

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
2nd F_BR 048	-	60	-	24
2nd F_Foyer 4	-	60	-	39
2nd F_Foyer 5	-	60	-	165
2nd F_Drugs Room	-	60	-	43
2nd F_BR 058	-	60	-	22
2nd F_BED 057	-	60	-	60
2nd F_BR 057	-	60	-	21
2nd F_BED 058	-	60	-	76
2nd F_BR 059	-	60	-	22
2nd F_BED 059	-	60	-	72
2nd F_BED 060	-	60	-	63
2nd F_BR 060	-	60	-	23
2nd F_Dining/Lounge Room	-	60	-	343
1st F_Foyer 2	-	60	-	35
2nd F_Foyer 1	-	60	-	28
stairs	-	60	-	48
Archive Store	60	-	-	205
Staff Room	60	-	-	351
Hairn and beauty	-	60	-	146
Training/Conference Room	60	-	-	697
Plant Room	60	-	-	213
wc	-	60	-	33
Cooms Room	60	-	-	122
Stairs	-	60	-	46
Entrance	-	60	22	180
Lift + DW	-	60	-	34
kitchen	-	60	-	578
store	60	-	-	40
Store	60	-	-	43
Female change	-	60	-	62
Male Change	-	60	-	62
Store	60	-	-	239
Stairs	-	60	-	48
Kitchen change	-	60	-	92
Laundry Room	-	60	-	517
Cinema	60	-	-	379
Lift	-	60	-	24
Private Family Room	60	-	-	332
Sensory Room	-	60	-	166
Activity Room	60	-	-	588
wc	-	60	-	34
Foyer 1	-	60	-	118
wc	-	60	-	30

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
Office space	60	-	-	193
Meeting Room	60	-	-	408
Foyer 4	-	60	-	188
Foyer 2	-	60	-	20
Foyer 3	-	60	-	122

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?
Manager office	NO (-78.4%)	NO
Drugs Room	N/A	N/A
Admin Room	NO (-77.4%)	NO
Gf_BED 014	NO (-78.6%)	NO
Gf_BED 015	NO (-78.6%)	NO
GF_ BED 016	NO (-78.6%)	NO
GF_BED 017	NO (-88.7%)	NO
Gf_BED 018	NO (-85%)	NO
Gf_BED 019	NO (-72.8%)	NO
Gf_BED 020	NO (-72.4%)	NO
Gf_BED 021	NO (-64.7%)	NO
GF_Dining/ Lounge Room	NO (-77.1%)	NO
Gf_BED 013	NO (-84.2%)	NO
Gf_BED 012	NO (-71.4%)	NO
Gf_BED 011	NO (-67.1%)	NO
Gf_BED 01	NO (-73.2%)	NO
Gf_BED 02	NO (-72.8%)	NO
Gf_BED 03	NO (-83.9%)	NO
Gf_BED 04	NO (-72.7%)	NO
Gf_BED 05	NO (-72.7%)	NO
Gf_BED 06	NO (-73.3%)	NO
Gf_BED 07	NO (-76.7%)	NO
Gf_BED 08	NO (-83.9%)	NO
Gf_BED 010	NO (-77.9%)	NO
Gf_BED 09	NO (-77.9%)	NO
Dining Room	NO (-58.6%)	NO
1st F_BED 022	NO (-73.2%)	NO
1st F_BED 023	NO (-72.8%)	NO
1st F_Sluice	NO (-63.3%)	NO
1st F_BED 024	NO (-83.9%)	NO
1st F_BED 025	NO (-72.7%)	NO
1st _BED 026	NO (-72.7%)	NO
1st F_BED 027	NO (-73.3%)	NO
1st F_BED 028	NO (-76.7%)	NO
1st F_BED 029	NO (-83.9%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
1st F_BED 031	NO (-77.9%)	NO
1st F_BED 030	NO (-77.9%)	NO
1st F_Drugs Room	N/A	N/A
1st F_BED 033	NO (-59.6%)	NO
1st F dining room extension	NO (-55.8%)	NO
1st F_ BED 034	NO (-62%)	NO
1st F_BED 035	NO (-52.1%)	NO
1st f_BED 039	NO (-78.6%)	NO
1st F_BED 040	NO (-78.6%)	NO
1st f_ BED 041	NO (-78.6%)	NO
1st F_BED 042	NO (-88.7%)	NO
1st F_BED 043	NO (-85%)	NO
1st_F 044	NO (-72.8%)	NO
1st F_BED 045	NO (-72.4%)	NO
1st F_BED 046	NO (-64.7%)	NO
1st F_BED 038	NO (-84.2%)	NO
1st f_BED 037	NO (-71.4%)	NO
1st f_BED 036	NO (-67.1%)	NO
1st F_BED 032	NO (-63.5%)	NO
1st F_Dning / Lounge room	NO (-73%)	NO
2nd F_BED 047	NO (-73.2%)	NO
2nd F_BED 048	NO (-72.8%)	NO
1st F_Sluice (1)	NO (-63.3%)	NO
2nd F_BED 049	NO (-83.9%)	NO
2nd F_BED 050	NO (-72.7%)	NO
2nd F _BED 051	NO (-72.7%)	NO
2nd F_BED 052	NO (-73.3%)	NO
2nd F_BED 053	NO (-76.7%)	NO
2nd F_BED 055	NO (-77.9%)	NO
2nd F_BED 054	NO (-77.9%)	NO
2nd F_BED 056	NO (-63.5%)	NO
2nd F_Drugs Room	N/A	N/A
2nd F_BED 057	NO (-62.1%)	NO
2nd F_BED 058	NO (-74.1%)	NO
2nd F_BED 059	NO (-65.7%)	NO
2nd F_BED 060	NO (-67.4%)	NO
2nd F_Dining/Lounge Room	NO (-79.9%)	NO
Staff Room	N/A	N/A
Training/Conference Room	N/A	N/A
Cooms Room	N/A	N/A
Entrance	N/A	N/A
Cinema	NO (-65.6%)	NO
Private Family Room	NO (-79.4%)	NO
Activity Room	NO (-86.7%)	NO
Office space	N/A	N/A
Meeting Room	NO (-79.3%)	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^2]	3624.4	3624.4
External area [m^2]	3905.7	3905.7
Weather	LON	LON
Infiltration [m^3/hm^2@ 50Pa]	3	3
Average conductance [W/K]	1402.62	1759.23
Average U-value [W/m^2K]	0.36	0.45
Alpha value* [%]	18.78	19.43

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

Building Use

% Area	Building Type
	A1/A2 Retail/Financial and Professional services
	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
	C1 Hotels
94	**C2 Residential Institutions: Hospitals and Care Homes**
6	**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^2]

	Actual	Notional
Heating	38.25	42.91
Cooling	0	0
Auxiliary	4.1	2.2
Lighting	15.86	16.58
Hot water	100.02	100.02
Equipment*	60.53	60.53
TOTAL**	**158.23**	**161.71**

* 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^2]

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

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	291.1	344.93
Primary energy* [kWh/m^2]	229.97	230.6
Total emissions [kg/m^2]	40.2	40.4

* 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] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
	Actual	117.7	173.4	38.3	0	4.1	0.86	0	0.91	0
	Notional	126.5	218.4	42.9	0	2.2	0.82	0	----	----

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	$U_{i\text{-}Typ}$	$U_{i\text{-}Min}$	Surface where the minimum value occurs*
Wall	0.23	0.26	"SL000000_W4"
Floor	0.2	0.22	"MN000000_F"
Roof	0.15	0.18	"MN000000_C"
Windows, roof windows, and rooflights	1.5	1.6	"SL000000_W4_O0"
Personnel doors	1.5	1.67	"ST000000_W3_O0"
Vehicle access & similar large doors	1.5	-	"No external vehicle access doors"
High usage entrance doors	1.5	-	"No external high usage entrance doors"

$U_{i\text{-}Typ}$ = Typical individual element U-values [W/(m²K)] $U_{i\text{-}Min}$ = 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	3

SBEM Main Calculation Output Document

Fri Apr 01 16:24:42 2022 v5.6.b.0

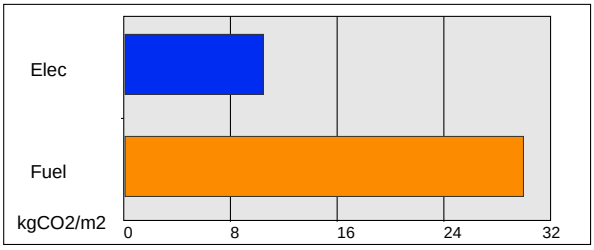
Building name

18 Pield Heath-Baseline

Building type: C2 Residential Institutions - Hospitals and Care Homes

SBEM is an energy calculation tool for the purpose of assessing and demonstrating compliance with Building Regulations (Part L for England and Wales, Section 6 for Scotland, Part F for Northern Ireland, and Building Bye-laws Jersey Part 11) and to produce Energy Performance Certificates and Building Energy Ratings. Although the data produced by the tool may be of use in the design process, **SBEM is not intended as a building design tool.**

Building Energy Performance and CO2 emissions

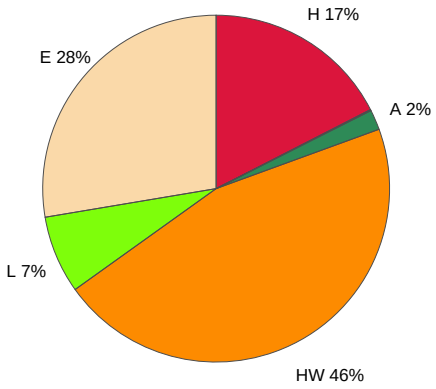


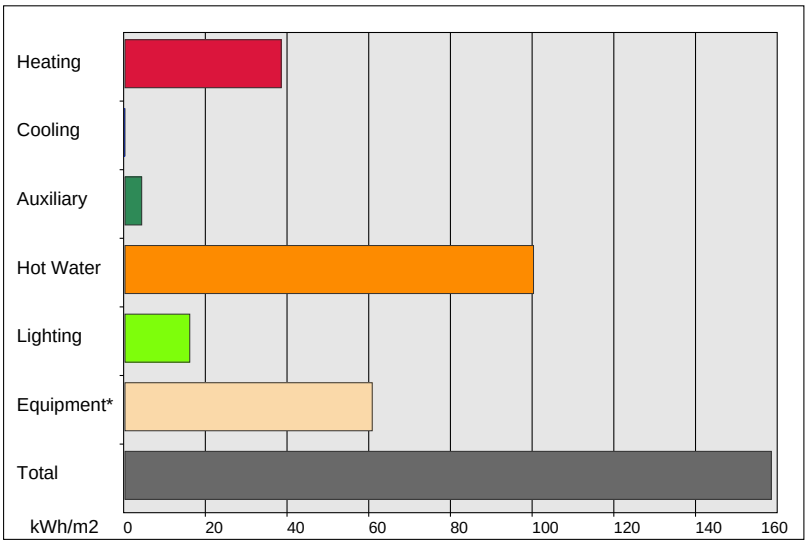
0 kgCO2/m2 displaced by the use of renewable sources.

Building area is 3624.4 m2

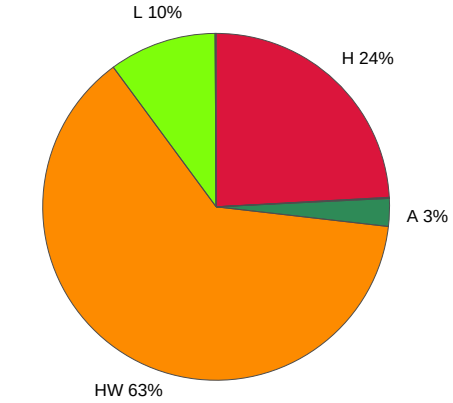
Annual Energy Consumption

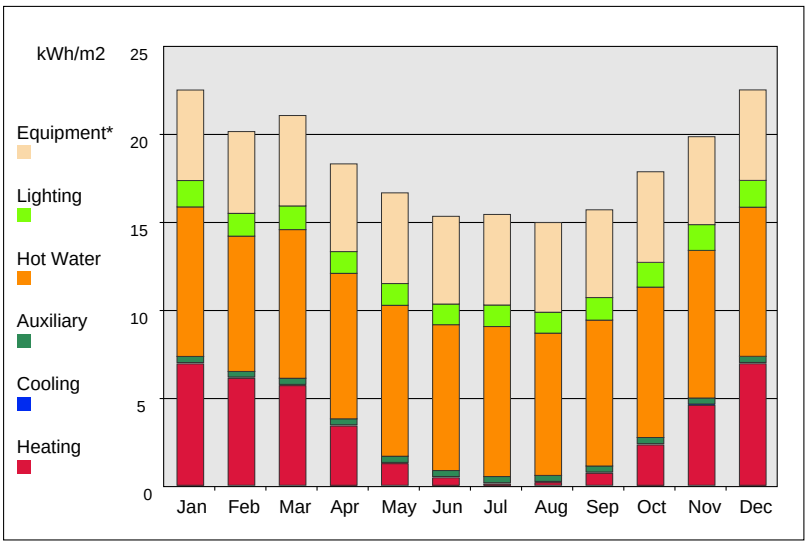
(Pie chart including Equipment end-use)





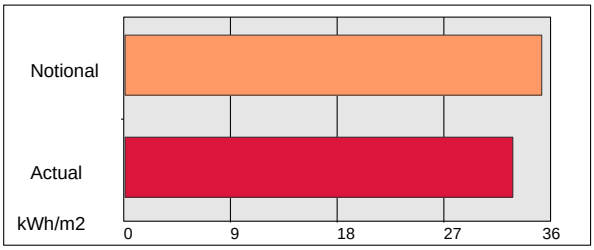
(Pie chart excluding Equipment end-use)

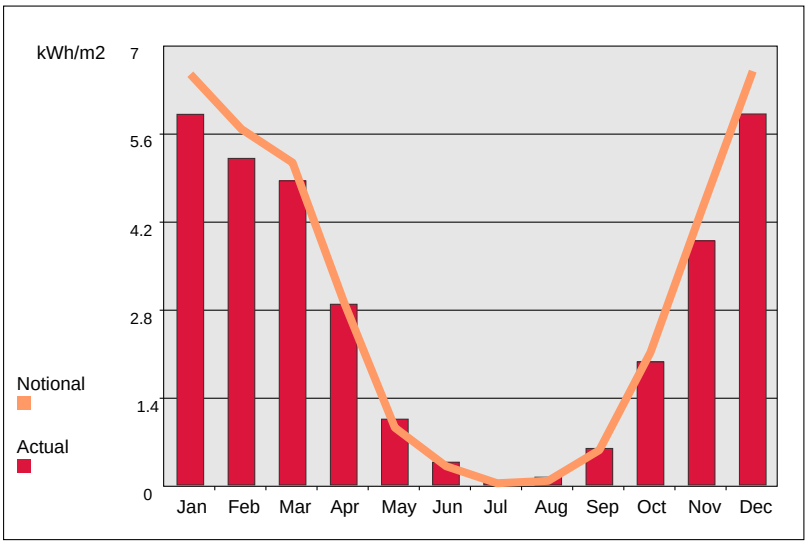




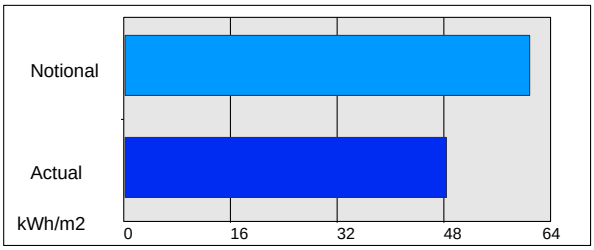
(*) Although energy consumption by equipment is shown in the graphs for information, this end-use has not been included in the total results of the building or the calculation of the ratings.

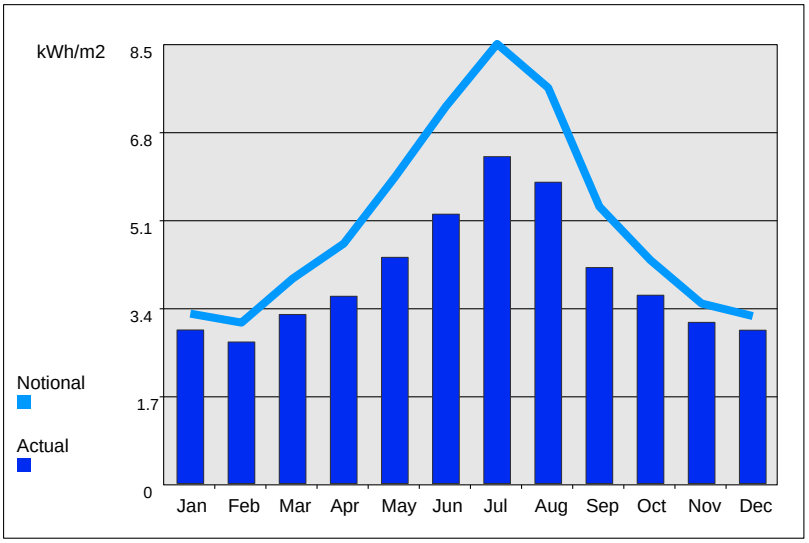
Annual Heating Demand





Annual Cooling Demand





BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2013

Project name

18 Pield Heath-Be Lean (Targeted)

As designed

Date: Mon Apr 04 09:24:33 2022

Administrative information

Building Details

Address: London, UB8 3NF

Certification tool

Calculation engine: SBEM

Calculation engine version: v5.6.b.0

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: v7.0.13

BRUKL compliance check version: v5.6.b.0

Certifier details

Name: SyntegraENG

Telephone number: 01184028520

Address: 63 Milford Rd, Reading, RG1 8LG

Criterion 1: The calculated CO_2 emission rate for the building must not exceed the target

CO_2 emission rate from the notional building, $kgCO_2/m^2.annum$	40.4
Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	40.4
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	39.5
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	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	Surface where the maximum value occurs*
Wall**	0.35	0.28	1.79	"FY000002_W17_A0"
Floor	0.25	0.16	0.16	"MN000000_F"
Roof	0.25	0.17	1.09	"LF000001_C_A0"
Windows***, roof windows, and rooflights	2.2	1.29	1.29	"SL000000_W4_O0"
Personnel doors	2.2	1.03	1.03	"ST000000_W3_O0"
Vehicle access & similar large doors	1.5	-	-	"No external vehicle access doors"
High usage entrance doors	3.5	-	-	"No external high usage entrance doors"

$U_{a\text{-}Limit}$ = Limiting area-weighted average U-values [$W/(m^2K)$]
$U_{a\text{-}Calc}$ = Calculated area-weighted average U-values [$W/(m^2K)$]
$U_{i\text{-}Calc}$ = Calculated maximum individual element U-values [$W/(m^2K)$]

* 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
$m^3/(h.m^2)$ at 50 Pa	10	3

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	<0.9

1- Gas Boiler

	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.

1- 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

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**		
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1	**Zone**	**Standard**
Ass Bath	0.3	-	-	-	-	-	-	-	-	-	N/A
wc	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_Br 014	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_ Br 015	0.3	-	-	-	-	-	-	-	-	-	N/A
GF_ Br 016	0.3	-	-	-	-	-	-	-	-	-	N/A
GF_BR 017	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR018	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 019	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 020	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR021	0.3	-	-	-	-	-	-	-	-	-	N/A
WC	0.3	-	-	-	-	-	-	-	-	-	N/A
Assisted Bath	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 013	0.3	-	-	-	-	-	-	-	-	-	N/A
GF _BR 012	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 011	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
Gf_BR 01	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 02	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 03	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR04	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 05	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 06	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 07	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 08	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 010	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 09	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 022	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 023	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 024	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 025	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 026	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 027	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 028	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 031	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 030	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 033	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 034	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 035	0.3	-	-	-	-	-	-	-	-	-	N/A
1st f_Br 039	0.3	-	-	-	-	-	-	-	-	-	N/A
1st_ Br 040	0.3	-	-	-	-	-	-	-	-	-	N/A
1st f_ Br 041	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 042	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 043	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 044	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 045	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_Assisted Bath	0.3	-	-	-	-	-	-	-	-	-	N/A
1st f_BR 036	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR046	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 038	0.3	-	-	-	-	-	-	-	-	-	N/A
1st f _BR 037	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_WC	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 032	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_Assisted Bathroom	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 047	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 049	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 050	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 051	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 052	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 053	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
2nd F_BR 055	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 054	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 056	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_Assisted Bathroom	0.3	-	-	-	-	-	-	-	-	-	N/A
1st _BR 029	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 048	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 058	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 057	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 059	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 060	0.3	-	-	-	-	-	-	-	-	-	N/A
wc	0.3	-	-	-	-	-	-	-	-	-	N/A
wc	0.3	-	-	-	-	-	-	-	-	-	N/A
wc	0.3	-	-	-	-	-	-	-	-	-	N/A

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	Luminaire	Lamp	Display lamp	General lighting [W]
Standard value	60	60	22	
Sluice	-	60	-	25
Stairs	-	60	-	48
Ass Bath	-	60	-	46
Stairs	-	60	-	48
Manager office	60	-	-	144
Drugs Room	60	-	-	120
Foyer GF 6	-	60	-	56
Admin Room	60	-	-	206
wc	-	60	-	21
Foyer GF 4	-	60	-	109
Gf_BED 014	-	60	-	66
Gf_Br 014	-	60	-	24
Gf_ Br 015	-	60	-	24
Gf_BED 015	-	60	-	65
GF_ Br 016	-	60	-	24
GF_ BED 016	-	60	-	65
GF_BED 017	-	60	-	68
GF_BR 017	-	60	-	26
Gf_BR018	-	60	-	23
Gf_BED 018	-	60	-	67
Gf_BED 019	-	60	-	63
Gf_BR 019	-	60	-	24
Gf_BR 020	-	60	-	24
Gf_BED 020	-	60	-	62
Gf_BR021	-	60	-	25
Gf_BED 021	-	60	-	59

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
WC	-	60	-	19
Assisted Bath	-	60	-	59
LIFT	-	60	-	24
GF_Dining/ Lounge Room	-	60	-	304
Gf_BR 013	-	60	-	26
Gf_BED 013	-	60	-	61
Gf_BED 012	-	60	-	65
GF _BR 012	-	60	-	23
Gf_BED 011	-	60	-	65
Gf_BR 011	-	60	-	23
Gf_BED 01	-	60	-	65
Gf_BR 01	-	60	-	24
Gf_BR 02	-	60	-	24
Gf_BED 02	-	60	-	62
Gf_BR 03	-	60	-	24
Gf_BED 03	-	60	-	66
Gf_BR04	-	60	-	24
Gf_BED 04	-	60	-	65
Gf_BR 05	-	60	-	24
Gf_BED 05	-	60	-	65
Gf_BR 06	-	60	-	24
Gf_BED 06	-	60	-	63
Gf_BED 07	-	60	-	71
Gf_BR 07	-	60	-	24
Gf_BR 08	-	60	-	26
Gf_BED 08	-	60	-	66
Gf_BR 010	-	60	-	24
Gf_BED 010	-	60	-	63
Gf_BED 09	-	60	-	63
Gf_BR 09	-	60	-	24
Dining Room	-	60	-	187
Foyer GF 5	-	60	-	200
Foyer 1 & Sitting area	-	60	-	183
1st F_BED 022	-	60	-	65
1st F_BR 022	-	60	-	24
1st F_BR 023	-	60	-	24
1st F_BED 023	-	60	-	62
1st F_Sluice	-	60	-	31
1st F_BR 024	-	60	-	24
1st F_BED 024	-	60	-	66
1st F_BR 025	-	60	-	24
1st F_BED 025	-	60	-	65
1st F_BR 026	-	60	-	24

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
1st _BED 026	-	60	-	65
1st F_BR 027	-	60	-	24
1st F_BED 027	-	60	-	63
1st F_BED 028	-	60	-	71
1st F_BR 028	-	60	-	24
1st F_BED 029	-	60	-	66
1st F _Foyer 6	-	60	-	56
1st F_Stairs	-	60	-	48
1st F_BR 031	-	60	-	24
1st F_BED 031	-	60	-	63
1st F_BED 030	-	60	-	63
1st F_BR 030	-	60	-	24
1st F_Drugs Room	-	60	-	43
1st F_BR 033	-	60	-	21
1st F_BED 033	-	60	-	60
1st F_Stairs case	-	60	-	46
Stairs and Main entrance	-	60	-	80
1st F dining room extension	-	60	-	39
1st F_BR 034	-	60	-	25
1st F_ BED 034	-	60	-	60
1st F_BED 035	-	60	-	60
1st F_BR 035	-	60	-	25
1st F_Foyer 1 & Sitting area	-	60	-	183
1ST f_Stairs	-	60	-	48
1st f_BED 039	-	60	-	66
1st f_Br 039	-	60	-	24
1st_ Br 040	-	60	-	24
1st F_BED 040	-	60	-	65
1st f_ Br 041	-	60	-	24
1st f_ BED 041	-	60	-	65
1st F_BED 042	-	60	-	68
1st F_BR 042	-	60	-	26
1st F_BR 043	-	60	-	23
1st F_BED 043	-	60	-	67
1st_F 044	-	60	-	63
1st F_BR 044	-	60	-	24
1st F_BR 045	-	60	-	24
1st F_BED 045	-	60	-	62
1st F_Assisted Bath	-	60	-	59
1st F_LIFT	-	60	-	24
1st f_BR 036	-	60	-	23
1st F_BR046	-	60	-	25
1st F_BED 046	-	60	-	59

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
1st F_BR 038	-	60	-	26
1st F_BED 038	-	60	-	61
1st f_BED 037	-	60	-	65
1st f_BED 036	-	60	-	65
1st f _BR 037	-	60	-	23
1st F_WC	-	60	-	30
Foyer 3	-	60	-	50
Foyer 2	-	60	-	35
1st F_BR 032	-	60	-	23
1st F_BED 032	-	60	-	62
1st F_Assisted Bathroom	-	60	-	47
1st F_Foyer 5	-	60	-	200
1st F_Foyer 4	-	60	-	38
1st F_Dning / Lounge room	-	60	-	382
1st F_Foyer 3	-	60	-	41
1st F_Store	60	-	-	53
2nd F_BED 047	-	60	-	65
2nd F_BR 047	-	60	-	24
2nd F_BED 048	-	60	-	62
1st F_Sluice (1)	-	60	-	31
2nd F_BR 049	-	60	-	24
2nd F_BED 049	-	60	-	66
2nd F_BR 050	-	60	-	24
2nd F_BED 050	-	60	-	65
2nd F_BR 051	-	60	-	24
2nd F _BED 051	-	60	-	65
2nd F_BR 052	-	60	-	24
2nd F_BED 052	-	60	-	63
2nd F_BED 053	-	60	-	71
2nd F_BR 053	-	60	-	24
1st F _Foyer 6 (1)	-	60	-	56
1st F_Stairs (1)	-	60	-	48
2nd F_BR 055	-	60	-	24
2nd F_BED 055	-	60	-	63
2nd F_BED 054	-	60	-	63
2nd F_BR 054	-	60	-	24
1st F_Stairs case (1)	-	60	-	46
2nd F_BR 056	-	60	-	23
2nd F_BED 056	-	60	-	62
2nd F_Assisted Bathroom	-	60	-	47
2nd F_Foyer 3	-	60	-	38
1st _BR 029	-	60	-	26
2nd F_Store	60	-	-	71

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
2nd F_BR 048	-	60	-	24
2nd F_Foyer 4	-	60	-	39
2nd F_Foyer 5	-	60	-	165
2nd F_Drugs Room	-	60	-	43
2nd F_BR 058	-	60	-	22
2nd F_BED 057	-	60	-	60
2nd F_BR 057	-	60	-	21
2nd F_BED 058	-	60	-	76
2nd F_BR 059	-	60	-	22
2nd F_BED 059	-	60	-	72
2nd F_BED 060	-	60	-	63
2nd F_BR 060	-	60	-	23
2nd F_Dining/Lounge Room	-	60	-	343
1st F_Foyer 2	-	60	-	35
2nd F_Foyer 1	-	60	-	28
stairs	-	60	-	48
Archive Store	60	-	-	205
Staff Room	60	-	-	351
Hairn and beauty	-	60	-	146
Training/Conference Room	60	-	-	697
Plant Room	60	-	-	213
wc	-	60	-	33
Cooms Room	60	-	-	122
Stairs	-	60	-	46
Entrance	-	60	22	180
Lift + DW	-	60	-	34
kitchen	-	60	-	578
store	60	-	-	40
Store	60	-	-	43
Female change	-	60	-	62
Male Change	-	60	-	62
Store	60	-	-	239
Stairs	-	60	-	48
Kitchen change	-	60	-	92
Laundry Room	-	60	-	517
Cinema	60	-	-	379
Lift	-	60	-	24
Private Family Room	60	-	-	332
Sensory Room	-	60	-	166
Activity Room	60	-	-	588
wc	-	60	-	34
Foyer 1	-	60	-	118
wc	-	60	-	30

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
Office space	60	-	-	193
Meeting Room	60	-	-	408
Foyer 4	-	60	-	188
Foyer 2	-	60	-	20
Foyer 3	-	60	-	122

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?
Manager office	NO (-78.5%)	NO
Drugs Room	N/A	N/A
Admin Room	NO (-77.5%)	NO
Gf_BED 014	NO (-78.8%)	NO
Gf_BED 015	NO (-78.8%)	NO
GF_ BED 016	NO (-78.8%)	NO
GF_BED 017	NO (-88.8%)	NO
Gf_BED 018	NO (-85.1%)	NO
Gf_BED 019	NO (-72.9%)	NO
Gf_BED 020	NO (-72.5%)	NO
Gf_BED 021	NO (-64.8%)	NO
GF_Dining/ Lounge Room	NO (-77.2%)	NO
Gf_BED 013	NO (-84.3%)	NO
Gf_BED 012	NO (-71.6%)	NO
Gf_BED 011	NO (-67.3%)	NO
Gf_BED 01	NO (-73.4%)	NO
Gf_BED 02	NO (-72.9%)	NO
Gf_BED 03	NO (-84%)	NO
Gf_BED 04	NO (-72.9%)	NO
Gf_BED 05	NO (-72.9%)	NO
Gf_BED 06	NO (-73.4%)	NO
Gf_BED 07	NO (-76.9%)	NO
Gf_BED 08	NO (-84%)	NO
Gf_BED 010	NO (-78%)	NO
Gf_BED 09	NO (-78%)	NO
Dining Room	NO (-58.8%)	NO
1st F_BED 022	NO (-73.4%)	NO
1st F_BED 023	NO (-72.9%)	NO
1st F_Sluice	NO (-63.5%)	NO
1st F_BED 024	NO (-84%)	NO
1st F_BED 025	NO (-72.9%)	NO
1st _BED 026	NO (-72.9%)	NO
1st F_BED 027	NO (-73.4%)	NO
1st F_BED 028	NO (-76.9%)	NO
1st F_BED 029	NO (-84%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
1st F_BED 031	NO (-78%)	NO
1st F_BED 030	NO (-78%)	NO
1st F_Drugs Room	N/A	N/A
1st F_BED 033	NO (-59.8%)	NO
1st F dining room extension	NO (-56%)	NO
1st F_ BED 034	NO (-62.2%)	NO
1st F_BED 035	NO (-52.4%)	NO
1st f_BED 039	NO (-78.8%)	NO
1st F_BED 040	NO (-78.8%)	NO
1st f_ BED 041	NO (-78.8%)	NO
1st F_BED 042	NO (-88.8%)	NO
1st F_BED 043	NO (-85.1%)	NO
1st_F 044	NO (-72.9%)	NO
1st F_BED 045	NO (-72.5%)	NO
1st F_BED 046	NO (-64.9%)	NO
1st F_BED 038	NO (-84.3%)	NO
1st f_BED 037	NO (-71.6%)	NO
1st f_BED 036	NO (-67.3%)	NO
1st F_BED 032	NO (-63.7%)	NO
1st F_Dning / Lounge room	NO (-73.1%)	NO
2nd F_BED 047	NO (-73.4%)	NO
2nd F_BED 048	NO (-72.9%)	NO
1st F_Sluice (1)	NO (-63.5%)	NO
2nd F_BED 049	NO (-84%)	NO
2nd F_BED 050	NO (-72.9%)	NO
2nd F _BED 051	NO (-72.9%)	NO
2nd F_BED 052	NO (-73.4%)	NO
2nd F_BED 053	NO (-76.9%)	NO
2nd F_BED 055	NO (-78%)	NO
2nd F_BED 054	NO (-78%)	NO
2nd F_BED 056	NO (-63.7%)	NO
2nd F_Drugs Room	N/A	N/A
2nd F_BED 057	NO (-62.3%)	NO
2nd F_BED 058	NO (-74.2%)	NO
2nd F_BED 059	NO (-65.8%)	NO
2nd F_BED 060	NO (-67.6%)	NO
2nd F_Dining/Lounge Room	NO (-80%)	NO
Staff Room	N/A	N/A
Training/Conference Room	N/A	N/A
Cooms Room	N/A	N/A
Entrance	N/A	N/A
Cinema	NO (-65.8%)	NO
Private Family Room	NO (-79.5%)	NO
Activity Room	NO (-86.7%)	NO
Office space	N/A	N/A
Meeting Room	NO (-79.4%)	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^2]	3624.4	3624.4
External area [m^2]	3905.7	3905.7
Weather	LON	LON
Infiltration [m^3/hm^2@ 50Pa]	3	3
Average conductance [W/K]	1103.03	1759.23
Average U-value [W/m^2K]	0.28	0.45
Alpha value* [%]	23.88	19.43

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

Building Use

% Area	Building Type
	A1/A2 Retail/Financial and Professional services
	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
	C1 Hotels
94	**C2 Residential Institutions: Hospitals and Care Homes**
6	**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^2]

	Actual	Notional
Heating	35.04	42.91
Cooling	0	0
Auxiliary	4.02	2.2
Lighting	15.86	16.58
Hot water	100.02	100.02
Equipment*	60.53	60.53
TOTAL**	**154.94**	**161.71**

* 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^2]

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

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	285.03	344.93
Primary energy* [kWh/m^2]	225.82	230.6
Total emissions [kg/m^2]	39.5	40.4

* 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] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
	Actual	107.9	177.2	35	0	4	0.86	0	0.91	0
	Notional	126.5	218.4	42.9	0	2.2	0.82	0	----	----

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	$U_{i\text{-}Typ}$	$U_{i\text{-}Min}$	Surface where the minimum value occurs*
Wall	0.23	0.17	"SL000000_W4"
Floor	0.2	0.16	"MN000000_F"
Roof	0.15	0.16	"MN000000_C"
Windows, roof windows, and rooflights	1.5	1.29	"SL000000_W4_O0"
Personnel doors	1.5	1.03	"ST000000_W3_O0"
Vehicle access & similar large doors	1.5	-	"No external vehicle access doors"
High usage entrance doors	1.5	-	"No external high usage entrance doors"

$U_{i\text{-}Typ}$ = Typical individual element U-values [W/(m²K)] $U_{i\text{-}Min}$ = 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	3

SBEM Main Calculation Output Document

Mon Apr 04 09:24:26 2022 v5.6.b.0

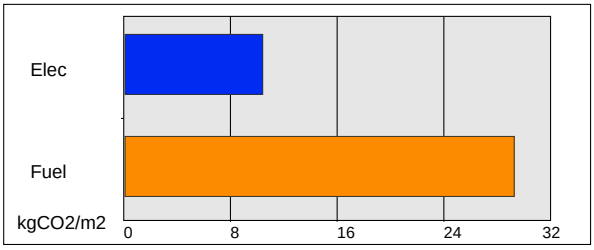
Building name

18 Pield Heath-Be Lean (Target

Building type: C2 Residential Institutions - Hospitals and Care Homes

SBEM is an energy calculation tool for the purpose of assessing and demonstrating compliance with Building Regulations (Part L for England and Wales, Section 6 for Scotland, Part F for Northern Ireland, and Building Bye-laws Jersey Part 11) and to produce Energy Performance Certificates and Building Energy Ratings. Although the data produced by the tool may be of use in the design process, **SBEM is not intended as a building design tool.**

Building Energy Performance and CO2 emissions

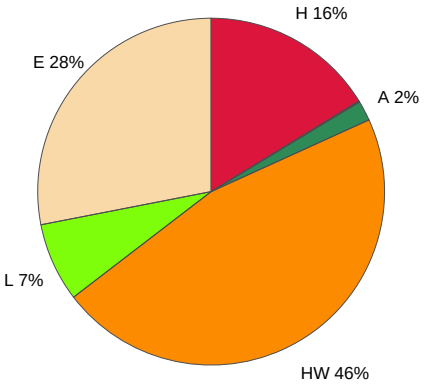


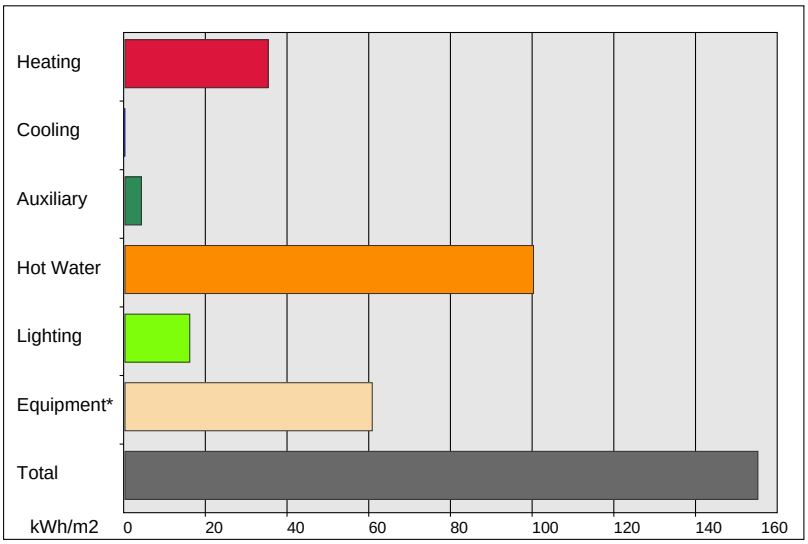
0 kgCO2/m2 displaced by the use of renewable sources.

Building area is 3624.4 m2

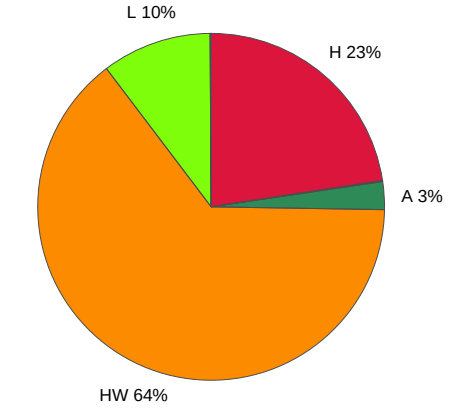
Annual Energy Consumption

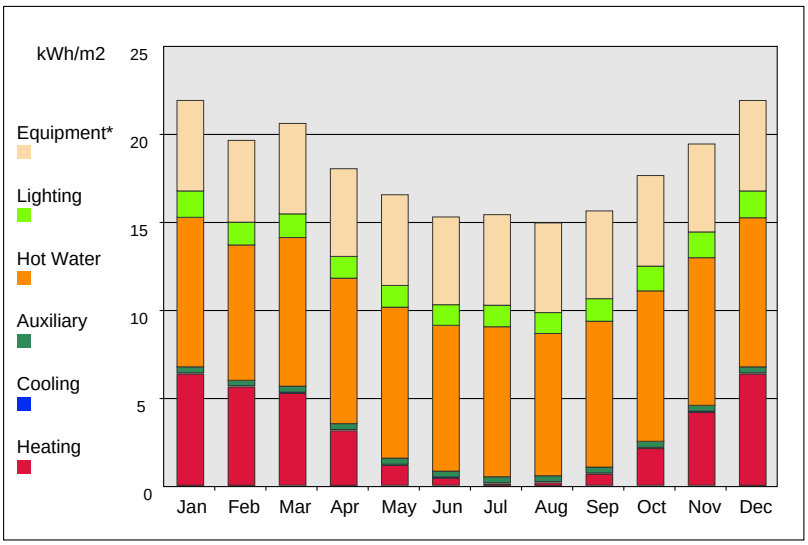
(Pie chart including Equipment end-use)





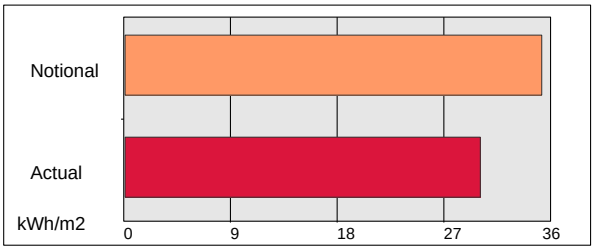
(Pie chart excluding Equipment end-use)

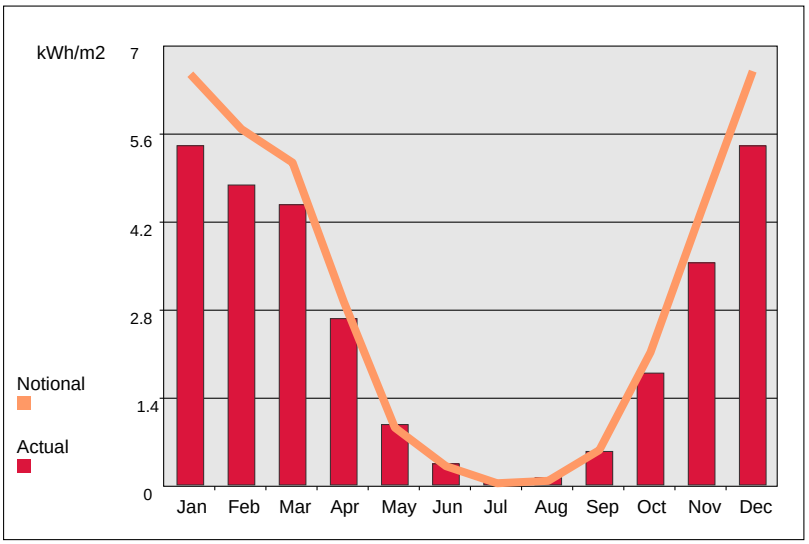




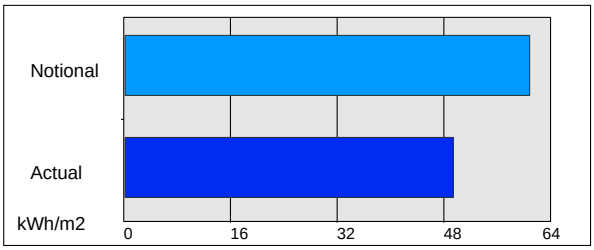
(*) Although energy consumption by equipment is shown in the graphs for information, this end-use has not been included in the total results of the building or the calculation of the ratings.

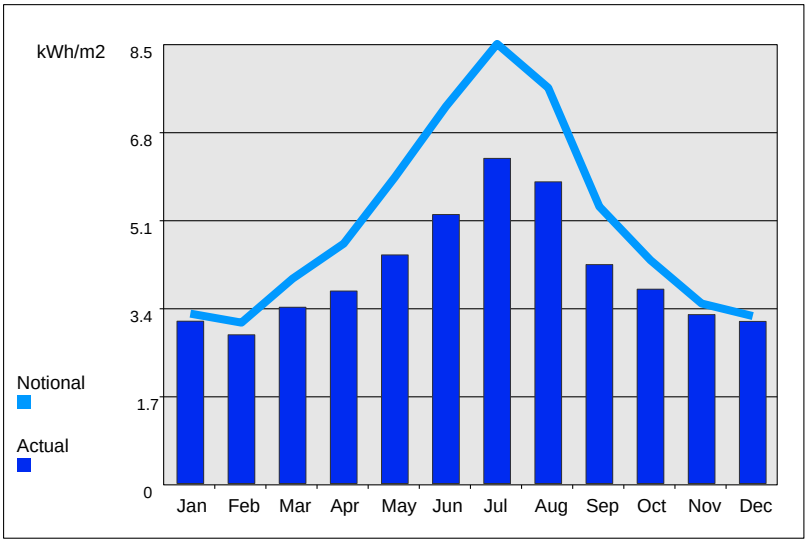
Annual Heating Demand





Annual Cooling Demand





BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2013

Project name

18 Pield Heath-Be Lean LETI+WWHR

As designed

Date: Mon Apr 04 15:39:02 2022

Administrative information

Building Details

Address: London, UB8 3NF

Certification tool

Calculation engine: SBEM

Calculation engine version: v5.6.b.0

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: v7.0.13

BRUKL compliance check version: v5.6.b.0

Certifier details

Name: SyntegraENG

Telephone number: 01184028520

Address: 63 Milford Rd, Reading, RG1 8LG

Criterion 1: The calculated CO_2 emission rate for the building must not exceed the target

CO_2 emission rate from the notional building, $kgCO_2/m^2.annum$	40.4
Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	40.4
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	35.2
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	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	Surface where the maximum value occurs*
Wall**	0.35	0.24	1.79	"FY000002_W17_A0"
Floor	0.25	0.08	0.08	"MN000000_F"
Roof	0.25	0.12	1.09	"LF000001_C_A0"
Windows***, roof windows, and rooflights	2.2	0.98	0.98	"SL000000_W4_O0"
Personnel doors	2.2	1.03	1.03	"ST000000_W3_O0"
Vehicle access & similar large doors	1.5	-	-	"No external vehicle access doors"
High usage entrance doors	3.5	-	-	"No external high usage entrance doors"

$U_{a\text{-}Limit}$ = Limiting area-weighted average U-values [$W/(m^2K)$]
$U_{a\text{-}Calc}$ = Calculated area-weighted average U-values [$W/(m^2K)$]
$U_{i\text{-}Calc}$ = Calculated maximum individual element U-values [$W/(m^2K)$]

* 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
$m^3/(h.m^2)$ at 50 Pa	10	1

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	<0.9

1- Gas Boiler

	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.

1- 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

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**		
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1	**Zone**	**Standard**
Ass Bath	0.3	-	-	-	-	-	-	-	-	-	N/A
wc	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_Br 014	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_ Br 015	0.3	-	-	-	-	-	-	-	-	-	N/A
GF_ Br 016	0.3	-	-	-	-	-	-	-	-	-	N/A
GF_BR 017	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR018	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 019	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 020	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR021	0.3	-	-	-	-	-	-	-	-	-	N/A
WC	0.3	-	-	-	-	-	-	-	-	-	N/A
Assisted Bath	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 013	0.3	-	-	-	-	-	-	-	-	-	N/A
GF _BR 012	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 011	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
Gf_BR 01	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 02	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 03	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR04	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 05	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 06	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 07	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 08	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 010	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 09	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 022	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 023	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 024	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 025	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 026	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 027	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 028	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 031	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 030	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 033	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 034	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 035	0.3	-	-	-	-	-	-	-	-	-	N/A
1st f_Br 039	0.3	-	-	-	-	-	-	-	-	-	N/A
1st_ Br 040	0.3	-	-	-	-	-	-	-	-	-	N/A
1st f_ Br 041	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 042	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 043	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 044	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 045	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_Assisted Bath	0.3	-	-	-	-	-	-	-	-	-	N/A
1st f_BR 036	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR046	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 038	0.3	-	-	-	-	-	-	-	-	-	N/A
1st f _BR 037	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_WC	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 032	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_Assisted Bathroom	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 047	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 049	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 050	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 051	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 052	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 053	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
2nd F_BR 055	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 054	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 056	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_Assisted Bathroom	0.3	-	-	-	-	-	-	-	-	-	N/A
1st _BR 029	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 048	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 058	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 057	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 059	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 060	0.3	-	-	-	-	-	-	-	-	-	N/A
wc	0.3	-	-	-	-	-	-	-	-	-	N/A
wc	0.3	-	-	-	-	-	-	-	-	-	N/A
wc	0.3	-	-	-	-	-	-	-	-	-	N/A

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	Luminaire	Lamp	Display lamp	General lighting [W]
Standard value	60	60	22	
Sluice	-	60	-	25
Stairs	-	60	-	48
Ass Bath	-	60	-	46
Stairs	-	60	-	48
Manager office	60	-	-	144
Drugs Room	60	-	-	120
Foyer GF 6	-	60	-	56
Admin Room	60	-	-	206
wc	-	60	-	21
Foyer GF 4	-	60	-	109
Gf_BED 014	-	60	-	66
Gf_Br 014	-	60	-	24
Gf_ Br 015	-	60	-	24
Gf_BED 015	-	60	-	65
GF_ Br 016	-	60	-	24
GF_ BED 016	-	60	-	65
GF_BED 017	-	60	-	68
GF_BR 017	-	60	-	26
Gf_BR018	-	60	-	23
Gf_BED 018	-	60	-	67
Gf_BED 019	-	60	-	63
Gf_BR 019	-	60	-	24
Gf_BR 020	-	60	-	24
Gf_BED 020	-	60	-	62
Gf_BR021	-	60	-	25
Gf_BED 021	-	60	-	59

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
WC	-	60	-	19
Assisted Bath	-	60	-	59
LIFT	-	60	-	24
GF_Dining/ Lounge Room	-	60	-	304
Gf_BR 013	-	60	-	26
Gf_BED 013	-	60	-	61
Gf_BED 012	-	60	-	65
GF _BR 012	-	60	-	23
Gf_BED 011	-	60	-	65
Gf_BR 011	-	60	-	23
Gf_BED 01	-	60	-	65
Gf_BR 01	-	60	-	24
Gf_BR 02	-	60	-	24
Gf_BED 02	-	60	-	62
Gf_BR 03	-	60	-	24
Gf_BED 03	-	60	-	66
Gf_BR04	-	60	-	24
Gf_BED 04	-	60	-	65
Gf_BR 05	-	60	-	24
Gf_BED 05	-	60	-	65
Gf_BR 06	-	60	-	24
Gf_BED 06	-	60	-	63
Gf_BED 07	-	60	-	71
Gf_BR 07	-	60	-	24
Gf_BR 08	-	60	-	26
Gf_BED 08	-	60	-	66
Gf_BR 010	-	60	-	24
Gf_BED 010	-	60	-	63
Gf_BED 09	-	60	-	63
Gf_BR 09	-	60	-	24
Dining Room	-	60	-	187
Foyer GF 5	-	60	-	200
Foyer 1 & Sitting area	-	60	-	183
1st F_BED 022	-	60	-	65
1st F_BR 022	-	60	-	24
1st F_BR 023	-	60	-	24
1st F_BED 023	-	60	-	62
1st F_Sluice	-	60	-	31
1st F_BR 024	-	60	-	24
1st F_BED 024	-	60	-	66
1st F_BR 025	-	60	-	24
1st F_BED 025	-	60	-	65
1st F_BR 026	-	60	-	24

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
1st _BED 026	-	60	-	65
1st F_BR 027	-	60	-	24
1st F_BED 027	-	60	-	63
1st F_BED 028	-	60	-	71
1st F_BR 028	-	60	-	24
1st F_BED 029	-	60	-	66
1st F _Foyer 6	-	60	-	56
1st F_Stairs	-	60	-	48
1st F_BR 031	-	60	-	24
1st F_BED 031	-	60	-	63
1st F_BED 030	-	60	-	63
1st F_BR 030	-	60	-	24
1st F_Drugs Room	-	60	-	43
1st F_BR 033	-	60	-	21
1st F_BED 033	-	60	-	60
1st F_Stairs case	-	60	-	46
Stairs and Main entrance	-	60	-	80
1st F dining room extension	-	60	-	39
1st F_BR 034	-	60	-	25
1st F_ BED 034	-	60	-	60
1st F_BED 035	-	60	-	60
1st F_BR 035	-	60	-	25
1st F_Foyer 1 & Sitting area	-	60	-	183
1ST f_Stairs	-	60	-	48
1st f_BED 039	-	60	-	66
1st f_Br 039	-	60	-	24
1st_ Br 040	-	60	-	24
1st F_BED 040	-	60	-	65
1st f_ Br 041	-	60	-	24
1st f_ BED 041	-	60	-	65
1st F_BED 042	-	60	-	68
1st F_BR 042	-	60	-	26
1st F_BR 043	-	60	-	23
1st F_BED 043	-	60	-	67
1st_F 044	-	60	-	63
1st F_BR 044	-	60	-	24
1st F_BR 045	-	60	-	24
1st F_BED 045	-	60	-	62
1st F_Assisted Bath	-	60	-	59
1st F_LIFT	-	60	-	24
1st f_BR 036	-	60	-	23
1st F_BR046	-	60	-	25
1st F_BED 046	-	60	-	59

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
1st F_BR 038	-	60	-	26
1st F_BED 038	-	60	-	61
1st f_BED 037	-	60	-	65
1st f_BED 036	-	60	-	65
1st f _BR 037	-	60	-	23
1st F_WC	-	60	-	30
Foyer 3	-	60	-	50
Foyer 2	-	60	-	35
1st F_BR 032	-	60	-	23
1st F_BED 032	-	60	-	62
1st F_Assisted Bathroom	-	60	-	47
1st F_Foyer 5	-	60	-	200
1st F_Foyer 4	-	60	-	38
1st F_Dning / Lounge room	-	60	-	382
1st F_Foyer 3	-	60	-	41
1st F_Store	60	-	-	53
2nd F_BED 047	-	60	-	65
2nd F_BR 047	-	60	-	24
2nd F_BED 048	-	60	-	62
1st F_Sluice (1)	-	60	-	31
2nd F_BR 049	-	60	-	24
2nd F_BED 049	-	60	-	66
2nd F_BR 050	-	60	-	24
2nd F_BED 050	-	60	-	65
2nd F_BR 051	-	60	-	24
2nd F _BED 051	-	60	-	65
2nd F_BR 052	-	60	-	24
2nd F_BED 052	-	60	-	63
2nd F_BED 053	-	60	-	71
2nd F_BR 053	-	60	-	24
1st F _Foyer 6 (1)	-	60	-	56
1st F_Stairs (1)	-	60	-	48
2nd F_BR 055	-	60	-	24
2nd F_BED 055	-	60	-	63
2nd F_BED 054	-	60	-	63
2nd F_BR 054	-	60	-	24
1st F_Stairs case (1)	-	60	-	46
2nd F_BR 056	-	60	-	23
2nd F_BED 056	-	60	-	62
2nd F_Assisted Bathroom	-	60	-	47
2nd F_Foyer 3	-	60	-	38
1st _BR 029	-	60	-	26
2nd F_Store	60	-	-	71

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
2nd F_BR 048	-	60	-	24
2nd F_Foyer 4	-	60	-	39
2nd F_Foyer 5	-	60	-	165
2nd F_Drugs Room	-	60	-	43
2nd F_BR 058	-	60	-	22
2nd F_BED 057	-	60	-	60
2nd F_BR 057	-	60	-	21
2nd F_BED 058	-	60	-	76
2nd F_BR 059	-	60	-	22
2nd F_BED 059	-	60	-	72
2nd F_BED 060	-	60	-	63
2nd F_BR 060	-	60	-	23
2nd F_Dining/Lounge Room	-	60	-	343
1st F_Foyer 2	-	60	-	35
2nd F_Foyer 1	-	60	-	28
stairs	-	60	-	48
Archive Store	60	-	-	205
Staff Room	60	-	-	351
Hairn and beauty	-	60	-	146
Training/Conference Room	60	-	-	697
Plant Room	60	-	-	213
wc	-	60	-	33
Cooms Room	60	-	-	122
Stairs	-	60	-	46
Entrance	-	60	22	180
Lift + DW	-	60	-	34
kitchen	-	60	-	578
store	60	-	-	40
Store	60	-	-	43
Female change	-	60	-	62
Male Change	-	60	-	62
Store	60	-	-	239
Stairs	-	60	-	48
Kitchen change	-	60	-	92
Laundry Room	-	60	-	517
Cinema	60	-	-	379
Lift	-	60	-	24
Private Family Room	60	-	-	332
Sensory Room	-	60	-	166
Activity Room	60	-	-	588
wc	-	60	-	34
Foyer 1	-	60	-	118
wc	-	60	-	30

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
Office space	60	-	-	193
Meeting Room	60	-	-	408
Foyer 4	-	60	-	188
Foyer 2	-	60	-	20
Foyer 3	-	60	-	122

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?
Manager office	NO (-78.6%)	NO
Drugs Room	N/A	N/A
Admin Room	NO (-77.6%)	NO
Gf_BED 014	NO (-78.9%)	NO
Gf_BED 015	NO (-78.9%)	NO
GF_ BED 016	NO (-78.9%)	NO
GF_BED 017	NO (-88.8%)	NO
Gf_BED 018	NO (-85.2%)	NO
Gf_BED 019	NO (-73%)	NO
Gf_BED 020	NO (-72.6%)	NO
Gf_BED 021	NO (-65%)	NO
GF_Dining/ Lounge Room	NO (-77.3%)	NO
Gf_BED 013	NO (-84.4%)	NO
Gf_BED 012	NO (-71.7%)	NO
Gf_BED 011	NO (-67.4%)	NO
Gf_BED 01	NO (-73.5%)	NO
Gf_BED 02	NO (-73%)	NO
Gf_BED 03	NO (-84.1%)	NO
Gf_BED 04	NO (-73%)	NO
Gf_BED 05	NO (-73%)	NO
Gf_BED 06	NO (-73.5%)	NO
Gf_BED 07	NO (-77%)	NO
Gf_BED 08	NO (-84.1%)	NO
Gf_BED 010	NO (-78.1%)	NO
Gf_BED 09	NO (-78.1%)	NO
Dining Room	NO (-59%)	NO
1st F_BED 022	NO (-73.5%)	NO
1st F_BED 023	NO (-73%)	NO
1st F_Sluice	NO (-63.7%)	NO
1st F_BED 024	NO (-84.1%)	NO
1st F_BED 025	NO (-73%)	NO
1st _BED 026	NO (-73%)	NO
1st F_BED 027	NO (-73.5%)	NO
1st F_BED 028	NO (-77%)	NO
1st F_BED 029	NO (-84.1%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
1st F_BED 031	NO (-78.1%)	NO
1st F_BED 030	NO (-78.1%)	NO
1st F_Drugs Room	N/A	N/A
1st F_BED 033	NO (-60%)	NO
1st F dining room extension	NO (-56.2%)	NO
1st F_ BED 034	NO (-62.4%)	NO
1st F_BED 035	NO (-52.6%)	NO
1st f_BED 039	NO (-78.9%)	NO
1st F_BED 040	NO (-78.9%)	NO
1st f_ BED 041	NO (-78.9%)	NO
1st F_BED 042	NO (-88.8%)	NO
1st F_BED 043	NO (-85.2%)	NO
1st_F 044	NO (-73%)	NO
1st F_BED 045	NO (-72.6%)	NO
1st F_BED 046	NO (-65.1%)	NO
1st F_BED 038	NO (-84.4%)	NO
1st f_BED 037	NO (-71.7%)	NO
1st f_BED 036	NO (-67.4%)	NO
1st F_BED 032	NO (-63.9%)	NO
1st F_Dning / Lounge room	NO (-73.3%)	NO
2nd F_BED 047	NO (-73.5%)	NO
2nd F_BED 048	NO (-73%)	NO
1st F_Sluice (1)	NO (-63.7%)	NO
2nd F_BED 049	NO (-84.1%)	NO
2nd F_BED 050	NO (-73%)	NO
2nd F _BED 051	NO (-73%)	NO
2nd F_BED 052	NO (-73.5%)	NO
2nd F_BED 053	NO (-77%)	NO
2nd F_BED 055	NO (-78.1%)	NO
2nd F_BED 054	NO (-78.1%)	NO
2nd F_BED 056	NO (-63.9%)	NO
2nd F_Drugs Room	N/A	N/A
2nd F_BED 057	NO (-62.5%)	NO
2nd F_BED 058	NO (-74.4%)	NO
2nd F_BED 059	NO (-66%)	NO
2nd F_BED 060	NO (-67.8%)	NO
2nd F_Dining/Lounge Room	NO (-80.1%)	NO
Staff Room	N/A	N/A
Training/Conference Room	N/A	N/A
Cooms Room	N/A	N/A
Entrance	N/A	N/A
Cinema	NO (-66%)	NO
Private Family Room	NO (-79.6%)	NO
Activity Room	NO (-86.8%)	NO
Office space	N/A	N/A
Meeting Room	NO (-79.5%)	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?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Area [m^2]	3624.4	3624.4
External area [m^2]	3905.7	3905.7
Weather	LON	LON
Infiltration [m^3/hm^2@ 50Pa]	1	3
Average conductance [W/K]	832.96	1759.23
Average U-value [W/m^2K]	0.21	0.45
Alpha value* [%]	31.62	19.43

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

Building Use

% Area	Building Type
	A1/A2 Retail/Financial and Professional services
	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
	C1 Hotels
94	**C2 Residential Institutions: Hospitals and Care Homes**
6	**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^2]

	Actual	Notional
Heating	30.53	42.91
Cooling	0	0
Auxiliary	4.02	2.2
Lighting	15.86	16.58
Hot water	84.78	100.02
Equipment*	60.53	60.53
TOTAL**	**135.19**	**161.71**

* 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^2]

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

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	278.71	344.93
Primary energy* [kWh/m^2]	201.72	230.6
Total emissions [kg/m^2]	35.2	40.4

* 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] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity										
	Actual	94	184.7	30.5	0	4	0.86	0	0.91	0
	Notional	126.5	218.4	42.9	0	2.2	0.82	0	----	----

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	$U_{i\text{-}Typ}$	$U_{i\text{-}Min}$	Surface where the minimum value occurs*
Wall	0.23	0.13	"SL000000_W4"
Floor	0.2	0.08	"MN000000_F"
Roof	0.15	0.11	"MN000000_C"
Windows, roof windows, and rooflights	1.5	0.98	"SL000000_W4_O0"
Personnel doors	1.5	1.03	"ST000000_W3_O0"
Vehicle access & similar large doors	1.5	-	"No external vehicle access doors"
High usage entrance doors	1.5	-	"No external high usage entrance doors"

$U_{i\text{-}Typ}$ = Typical individual element U-values [W/(m²K)] $U_{i\text{-}Min}$ = 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	1

SBEM Main Calculation Output Document

Mon Apr 04 15:28:01 2022 v5.6.b.0

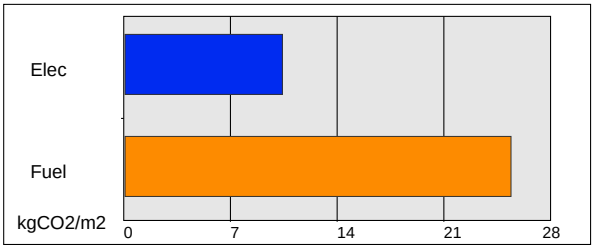
Building name

18 Pield Heath-Be Lean LETI+WW

Building type: C2 Residential Institutions - Hospitals and Care Homes

SBEM is an energy calculation tool for the purpose of assessing and demonstrating compliance with Building Regulations (Part L for England and Wales, Section 6 for Scotland, Part F for Northern Ireland, and Building Bye-laws Jersey Part 11) and to produce Energy Performance Certificates and Building Energy Ratings. Although the data produced by the tool may be of use in the design process, **SBEM is not intended as a building design tool.**

Building Energy Performance and CO2 emissions

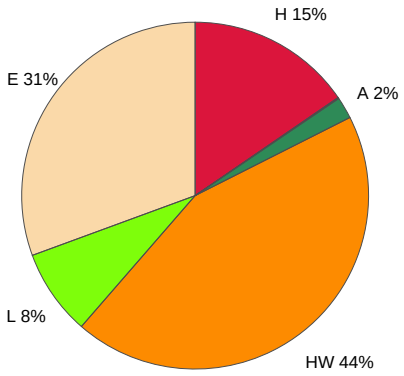


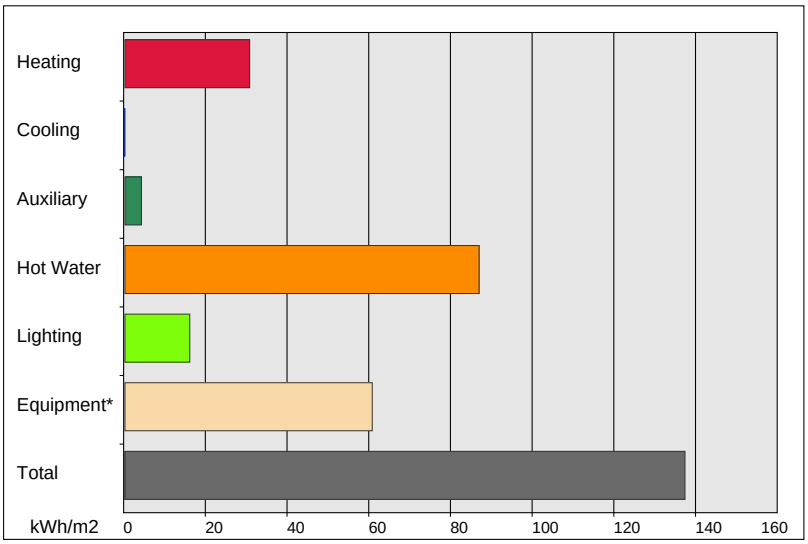
0 kgCO2/m2 displaced by the use of renewable sources.

Building area is 3624.4 m2

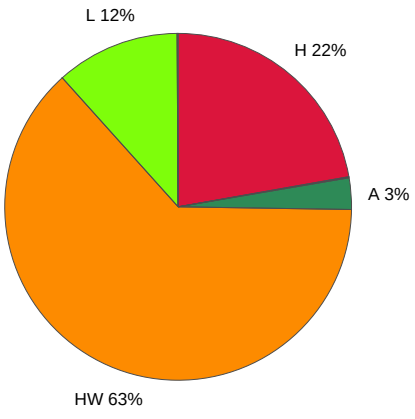
Annual Energy Consumption

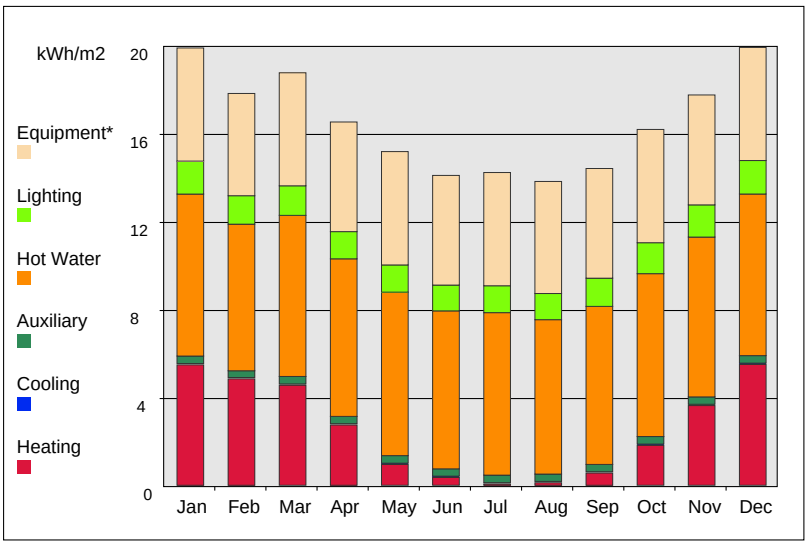
(Pie chart including Equipment end-use)





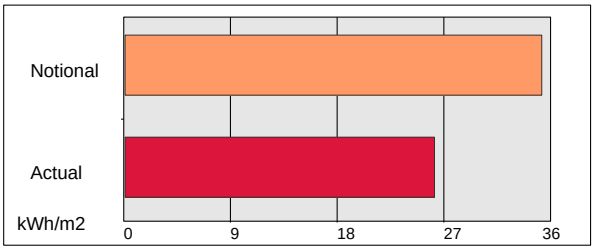
(Pie chart excluding Equipment end-use)

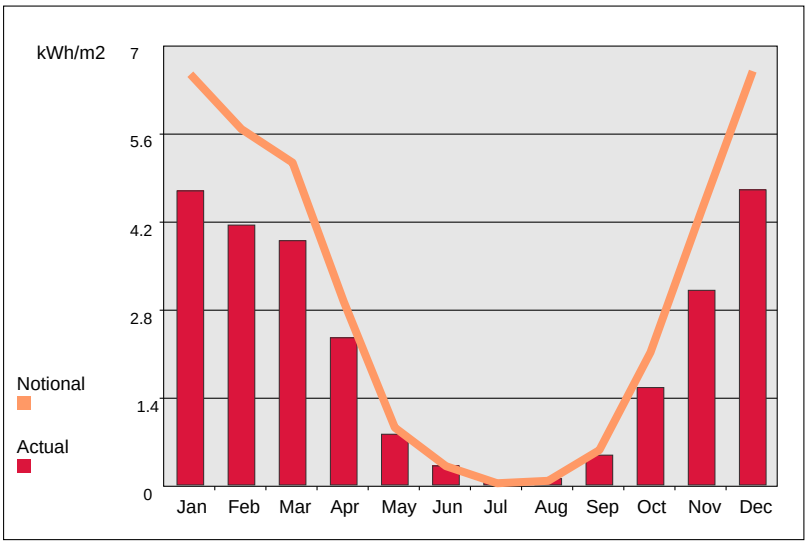




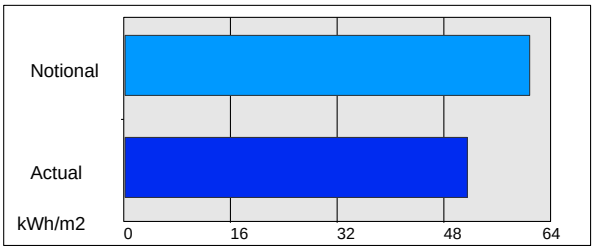
(*) Although energy consumption by equipment is shown in the graphs for information, this end-use has not been included in the total results of the building or the calculation of the ratings.

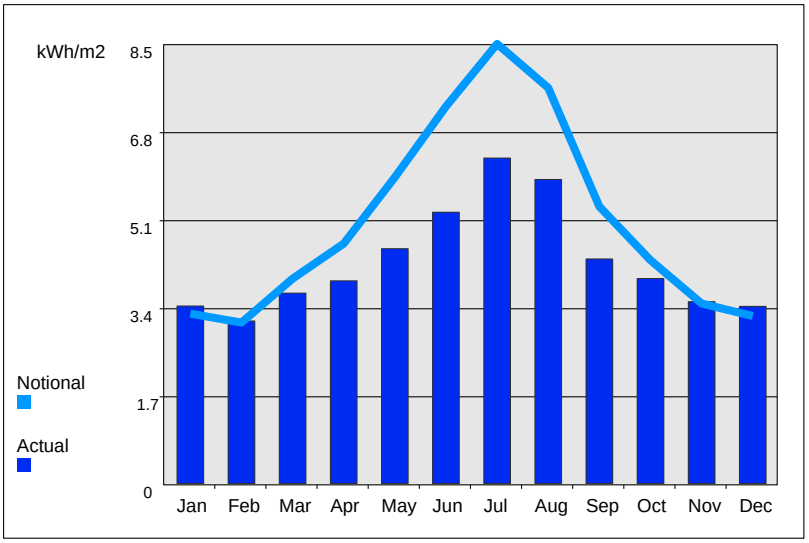
Annual Heating Demand





Annual Cooling Demand





BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2013

Project name

18 Pield Heath-Be Green ASHP+WWHR

As designed

Date: Mon Apr 04 17:21:39 2022

Administrative information

Building Details

Address: London, UB8 3NF

Certification tool

Calculation engine: SBEM

Calculation engine version: v5.6.b.0

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: v7.0.13

BRUKL compliance check version: v5.6.b.0

Certifier details

Name: SyntegraENG

Telephone number: 01184028520

Address: 63 Milford Rd, Reading, RG1 8LG

Criterion 1: The calculated CO_2 emission rate for the building must not exceed the target

CO_2 emission rate from the notional building, kgCO_2/m^2.annum	33.9
Target CO_2 emission rate (TER), kgCO_2/m^2.annum	33.9
Building CO_2 emission rate (BER), kgCO_2/m^2.annum	25.3
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	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	Surface where the maximum value occurs*
Wall**	0.35	0.24	1.79	"FY000002_W17_A0"
Floor	0.25	0.08	0.08	"MN000000_F"
Roof	0.25	0.12	1.09	"LF000001_C_A0"
Windows***, roof windows, and rooflights	2.2	0.98	0.98	"SL000000_W4_O0"
Personnel doors	2.2	1.03	1.03	"ST000000_W3_O0"
Vehicle access & similar large doors	1.5	-	-	"No external vehicle access doors"
High usage entrance doors	3.5	-	-	"No external high usage entrance doors"

$U_{a\text{-}Limit}$ = Limiting area-weighted average U-values [W/(m^{2}K)]
$U_{a\text{-}Calc}$ = Calculated area-weighted average U-values [W/(m^{2}K)]
$U_{i\text{-}Calc}$ = Calculated maximum individual element U-values [W/(m^{2}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^3/(h.m^2) at 50 Pa	10	1

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	<0.9

1- ASHP

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	3.5	-	-	-	-
Standard value	2.5*	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 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	Hot water provided by HVAC system	-
Standard value	N/A	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**		
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1	**Zone**	**Standard**
Ass Bath	0.3	-	-	-	-	-	-	-	-	-	N/A
wc	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_Br 014	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_ Br 015	0.3	-	-	-	-	-	-	-	-	-	N/A
GF_ Br 016	0.3	-	-	-	-	-	-	-	-	-	N/A
GF_BR 017	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR018	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 019	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 020	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR021	0.3	-	-	-	-	-	-	-	-	-	N/A
WC	0.3	-	-	-	-	-	-	-	-	-	N/A
Assisted Bath	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 013	0.3	-	-	-	-	-	-	-	-	-	N/A
GF _BR 012	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 011	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
Gf_BR 01	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 02	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 03	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR04	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 05	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 06	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 07	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 08	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 010	0.3	-	-	-	-	-	-	-	-	-	N/A
Gf_BR 09	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 022	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 023	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 024	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 025	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 026	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 027	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 028	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 031	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 030	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 033	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 034	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 035	0.3	-	-	-	-	-	-	-	-	-	N/A
1st f_Br 039	0.3	-	-	-	-	-	-	-	-	-	N/A
1st_ Br 040	0.3	-	-	-	-	-	-	-	-	-	N/A
1st f_ Br 041	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 042	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 043	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 044	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 045	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_Assisted Bath	0.3	-	-	-	-	-	-	-	-	-	N/A
1st f_BR 036	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR046	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 038	0.3	-	-	-	-	-	-	-	-	-	N/A
1st f _BR 037	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_WC	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_BR 032	0.3	-	-	-	-	-	-	-	-	-	N/A
1st F_Assisted Bathroom	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 047	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 049	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 050	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 051	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 052	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 053	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
2nd F_BR 055	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 054	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 056	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_Assisted Bathroom	0.3	-	-	-	-	-	-	-	-	-	N/A
1st _BR 029	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 048	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 058	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 057	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 059	0.3	-	-	-	-	-	-	-	-	-	N/A
2nd F_BR 060	0.3	-	-	-	-	-	-	-	-	-	N/A
wc	0.3	-	-	-	-	-	-	-	-	-	N/A
wc	0.3	-	-	-	-	-	-	-	-	-	N/A
wc	0.3	-	-	-	-	-	-	-	-	-	N/A

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	Luminaire	Lamp	Display lamp	General lighting [W]
Standard value	60	60	22	
Sluice	-	60	-	25
Stairs	-	60	-	48
Ass Bath	-	60	-	46
Stairs	-	60	-	48
Manager office	60	-	-	144
Drugs Room	60	-	-	120
Foyer GF 6	-	60	-	56
Admin Room	60	-	-	206
wc	-	60	-	21
Foyer GF 4	-	60	-	109
Gf_BED 014	-	60	-	66
Gf_Br 014	-	60	-	24
Gf_ Br 015	-	60	-	24
Gf_BED 015	-	60	-	65
GF_ Br 016	-	60	-	24
GF_ BED 016	-	60	-	65
GF_BED 017	-	60	-	68
GF_BR 017	-	60	-	26
Gf_BR018	-	60	-	23
Gf_BED 018	-	60	-	67
Gf_BED 019	-	60	-	63
Gf_BR 019	-	60	-	24
Gf_BR 020	-	60	-	24
Gf_BED 020	-	60	-	62
Gf_BR021	-	60	-	25
Gf_BED 021	-	60	-	59

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
WC	-	60	-	19
Assisted Bath	-	60	-	59
LIFT	-	60	-	24
GF_Dining/ Lounge Room	-	60	-	304
Gf_BR 013	-	60	-	26
Gf_BED 013	-	60	-	61
Gf_BED 012	-	60	-	65
GF _BR 012	-	60	-	23
Gf_BED 011	-	60	-	65
Gf_BR 011	-	60	-	23
Gf_BED 01	-	60	-	65
Gf_BR 01	-	60	-	24
Gf_BR 02	-	60	-	24
Gf_BED 02	-	60	-	62
Gf_BR 03	-	60	-	24
Gf_BED 03	-	60	-	66
Gf_BR04	-	60	-	24
Gf_BED 04	-	60	-	65
Gf_BR 05	-	60	-	24
Gf_BED 05	-	60	-	65
Gf_BR 06	-	60	-	24
Gf_BED 06	-	60	-	63
Gf_BED 07	-	60	-	71
Gf_BR 07	-	60	-	24
Gf_BR 08	-	60	-	26
Gf_BED 08	-	60	-	66
Gf_BR 010	-	60	-	24
Gf_BED 010	-	60	-	63
Gf_BED 09	-	60	-	63
Gf_BR 09	-	60	-	24
Dining Room	-	60	-	187
Foyer GF 5	-	60	-	200
Foyer 1 & Sitting area	-	60	-	183
1st F_BED 022	-	60	-	65
1st F_BR 022	-	60	-	24
1st F_BR 023	-	60	-	24
1st F_BED 023	-	60	-	62
1st F_Sluice	-	60	-	31
1st F_BR 024	-	60	-	24
1st F_BED 024	-	60	-	66
1st F_BR 025	-	60	-	24
1st F_BED 025	-	60	-	65
1st F_BR 026	-	60	-	24

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
1st _BED 026	-	60	-	65
1st F_BR 027	-	60	-	24
1st F_BED 027	-	60	-	63
1st F_BED 028	-	60	-	71
1st F_BR 028	-	60	-	24
1st F_BED 029	-	60	-	66
1st F _Foyer 6	-	60	-	56
1st F_Stairs	-	60	-	48
1st F_BR 031	-	60	-	24
1st F_BED 031	-	60	-	63
1st F_BED 030	-	60	-	63
1st F_BR 030	-	60	-	24
1st F_Drugs Room	-	60	-	43
1st F_BR 033	-	60	-	21
1st F_BED 033	-	60	-	60
1st F_Stairs case	-	60	-	46
Stairs and Main entrance	-	60	-	80
1st F dining room extension	-	60	-	39
1st F_BR 034	-	60	-	25
1st F_ BED 034	-	60	-	60
1st F_BED 035	-	60	-	60
1st F_BR 035	-	60	-	25
1st F_Foyer 1 & Sitting area	-	60	-	183
1ST f_Stairs	-	60	-	48
1st f_BED 039	-	60	-	66
1st f_Br 039	-	60	-	24
1st_ Br 040	-	60	-	24
1st F_BED 040	-	60	-	65
1st f_ Br 041	-	60	-	24
1st f_ BED 041	-	60	-	65
1st F_BED 042	-	60	-	68
1st F_BR 042	-	60	-	26
1st F_BR 043	-	60	-	23
1st F_BED 043	-	60	-	67
1st_F 044	-	60	-	63
1st F_BR 044	-	60	-	24
1st F_BR 045	-	60	-	24
1st F_BED 045	-	60	-	62
1st F_Assisted Bath	-	60	-	59
1st F_LIFT	-	60	-	24
1st f_BR 036	-	60	-	23
1st F_BR046	-	60	-	25
1st F_BED 046	-	60	-	59

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
1st F_BR 038	-	60	-	26
1st F_BED 038	-	60	-	61
1st f_BED 037	-	60	-	65
1st f_BED 036	-	60	-	65
1st f _BR 037	-	60	-	23
1st F_WC	-	60	-	30
Foyer 3	-	60	-	50
Foyer 2	-	60	-	35
1st F_BR 032	-	60	-	23
1st F_BED 032	-	60	-	62
1st F_Assisted Bathroom	-	60	-	47
1st F_Foyer 5	-	60	-	200
1st F_Foyer 4	-	60	-	38
1st F_Dning / Lounge room	-	60	-	382
1st F_Foyer 3	-	60	-	41
1st F_Store	60	-	-	53
2nd F_BED 047	-	60	-	65
2nd F_BR 047	-	60	-	24
2nd F_BED 048	-	60	-	62
1st F_Sluice (1)	-	60	-	31
2nd F_BR 049	-	60	-	24
2nd F_BED 049	-	60	-	66
2nd F_BR 050	-	60	-	24
2nd F_BED 050	-	60	-	65
2nd F_BR 051	-	60	-	24
2nd F _BED 051	-	60	-	65
2nd F_BR 052	-	60	-	24
2nd F_BED 052	-	60	-	63
2nd F_BED 053	-	60	-	71
2nd F_BR 053	-	60	-	24
1st F _Foyer 6 (1)	-	60	-	56
1st F_Stairs (1)	-	60	-	48
2nd F_BR 055	-	60	-	24
2nd F_BED 055	-	60	-	63
2nd F_BED 054	-	60	-	63
2nd F_BR 054	-	60	-	24
1st F_Stairs case (1)	-	60	-	46
2nd F_BR 056	-	60	-	23
2nd F_BED 056	-	60	-	62
2nd F_Assisted Bathroom	-	60	-	47
2nd F_Foyer 3	-	60	-	38
1st _BR 029	-	60	-	26
2nd F_Store	60	-	-	71

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
2nd F_BR 048	-	60	-	24
2nd F_Foyer 4	-	60	-	39
2nd F_Foyer 5	-	60	-	165
2nd F_Drugs Room	-	60	-	43
2nd F_BR 058	-	60	-	22
2nd F_BED 057	-	60	-	60
2nd F_BR 057	-	60	-	21
2nd F_BED 058	-	60	-	76
2nd F_BR 059	-	60	-	22
2nd F_BED 059	-	60	-	72
2nd F_BED 060	-	60	-	63
2nd F_BR 060	-	60	-	23
2nd F_Dining/Lounge Room	-	60	-	343
1st F_Foyer 2	-	60	-	35
2nd F_Foyer 1	-	60	-	28
stairs	-	60	-	48
Archive Store	60	-	-	205
Staff Room	60	-	-	351
Hairn and beauty	-	60	-	146
Training/Conference Room	60	-	-	697
Plant Room	60	-	-	213
wc	-	60	-	33
Cooms Room	60	-	-	122
Stairs	-	60	-	46
Entrance	-	60	22	180
Lift + DW	-	60	-	34
kitchen	-	60	-	578
store	60	-	-	40
Store	60	-	-	43
Female change	-	60	-	62
Male Change	-	60	-	62
Store	60	-	-	239
Stairs	-	60	-	48
Kitchen change	-	60	-	92
Laundry Room	-	60	-	517
Cinema	60	-	-	379
Lift	-	60	-	24
Private Family Room	60	-	-	332
Sensory Room	-	60	-	166
Activity Room	60	-	-	588
wc	-	60	-	34
Foyer 1	-	60	-	118
wc	-	60	-	30

General lighting and display lighting	Luminous efficacy [lm/W]			
Zone name	**Luminaire**	**Lamp**	**Display lamp**	**General lighting [W]**
Standard value	60	60	22	
Office space	60	-	-	193
Meeting Room	60	-	-	408
Foyer 4	-	60	-	188
Foyer 2	-	60	-	20
Foyer 3	-	60	-	122

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?
Manager office	NO (-78.6%)	NO
Drugs Room	N/A	N/A
Admin Room	NO (-77.6%)	NO
Gf_BED 014	NO (-78.9%)	NO
Gf_BED 015	NO (-78.9%)	NO
GF_ BED 016	NO (-78.9%)	NO
GF_BED 017	NO (-88.8%)	NO
Gf_BED 018	NO (-85.2%)	NO
Gf_BED 019	NO (-73%)	NO
Gf_BED 020	NO (-72.6%)	NO
Gf_BED 021	NO (-65%)	NO
GF_Dining/ Lounge Room	NO (-77.3%)	NO
Gf_BED 013	NO (-84.4%)	NO
Gf_BED 012	NO (-71.7%)	NO
Gf_BED 011	NO (-67.4%)	NO
Gf_BED 01	NO (-73.5%)	NO
Gf_BED 02	NO (-73%)	NO
Gf_BED 03	NO (-84.1%)	NO
Gf_BED 04	NO (-73%)	NO
Gf_BED 05	NO (-73%)	NO
Gf_BED 06	NO (-73.5%)	NO
Gf_BED 07	NO (-77%)	NO
Gf_BED 08	NO (-84.1%)	NO
Gf_BED 010	NO (-78.1%)	NO
Gf_BED 09	NO (-78.1%)	NO
Dining Room	NO (-59%)	NO
1st F_BED 022	NO (-73.5%)	NO
1st F_BED 023	NO (-73%)	NO
1st F_Sluice	NO (-63.7%)	NO
1st F_BED 024	NO (-84.1%)	NO
1st F_BED 025	NO (-73%)	NO
1st _BED 026	NO (-73%)	NO
1st F_BED 027	NO (-73.5%)	NO
1st F_BED 028	NO (-77%)	NO
1st F_BED 029	NO (-84.1%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
1st F_BED 031	NO (-78.1%)	NO
1st F_BED 030	NO (-78.1%)	NO
1st F_Drugs Room	N/A	N/A
1st F_BED 033	NO (-60%)	NO
1st F dining room extension	NO (-56.2%)	NO
1st F_ BED 034	NO (-62.4%)	NO
1st F_BED 035	NO (-52.6%)	NO
1st f_BED 039	NO (-78.9%)	NO
1st F_BED 040	NO (-78.9%)	NO
1st f_ BED 041	NO (-78.9%)	NO
1st F_BED 042	NO (-88.8%)	NO
1st F_BED 043	NO (-85.2%)	NO
1st_F 044	NO (-73%)	NO
1st F_BED 045	NO (-72.6%)	NO
1st F_BED 046	NO (-65.1%)	NO
1st F_BED 038	NO (-84.4%)	NO
1st f_BED 037	NO (-71.7%)	NO
1st f_BED 036	NO (-67.4%)	NO
1st F_BED 032	NO (-63.9%)	NO
1st F_Dning / Lounge room	NO (-73.3%)	NO
2nd F_BED 047	NO (-73.5%)	NO
2nd F_BED 048	NO (-73%)	NO
1st F_Sluice (1)	NO (-63.7%)	NO
2nd F_BED 049	NO (-84.1%)	NO
2nd F_BED 050	NO (-73%)	NO
2nd F _BED 051	NO (-73%)	NO
2nd F_BED 052	NO (-73.5%)	NO
2nd F_BED 053	NO (-77%)	NO
2nd F_BED 055	NO (-78.1%)	NO
2nd F_BED 054	NO (-78.1%)	NO
2nd F_BED 056	NO (-63.9%)	NO
2nd F_Drugs Room	N/A	N/A
2nd F_BED 057	NO (-62.5%)	NO
2nd F_BED 058	NO (-74.4%)	NO
2nd F_BED 059	NO (-66%)	NO
2nd F_BED 060	NO (-67.8%)	NO
2nd F_Dining/Lounge Room	NO (-80.1%)	NO
Staff Room	N/A	N/A
Training/Conference Room	N/A	N/A
Cooms Room	N/A	N/A
Entrance	N/A	N/A
Cinema	NO (-66%)	NO
Private Family Room	NO (-79.6%)	NO
Activity Room	NO (-86.8%)	NO
Office space	N/A	N/A
Meeting Room	NO (-79.5%)	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?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Area [m^2]	3624.4	3624.4
External area [m^2]	3905.7	3905.7
Weather	LON	LON
Infiltration [m^3/hm^2@ 50Pa]	1	3
Average conductance [W/K]	832.96	1759.23
Average U-value [W/m^2K]	0.21	0.45
Alpha value* [%]	31.62	19.43

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

Building Use

% Area	Building Type
	A1/A2 Retail/Financial and Professional services
	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
	C1 Hotels
94	**C2 Residential Institutions: Hospitals and Care Homes**
6	**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^2]

	Actual	Notional
Heating	7.94	14.46
Cooling	0	0
Auxiliary	4.02	2.2
Lighting	15.86	16.58
Hot water	22.54	33.71
Equipment*	60.53	60.53
TOTAL**	**50.36**	**66.96**

* 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^2]

	Actual	Notional
Photovoltaic systems	1.71	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	278.71	344.93
Primary energy* [kWh/m^2]	154.61	200.42
Total emissions [kg/m^2]	25.3	33.9

* 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] Central heating using water: radiators, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity										
	Actual	94	184.7	7.9	0	4	3.29	0	3.5	0
	Notional	126.5	218.4	14.5	0	2.2	2.43	0	----	----

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	$U_{i\text{-}Typ}$	$U_{i\text{-}Min}$	Surface where the minimum value occurs*
Wall	0.23	0.13	"SL000000_W4"
Floor	0.2	0.08	"MN000000_F"
Roof	0.15	0.11	"MN000000_C"
Windows, roof windows, and rooflights	1.5	0.98	"SL000000_W4_O0"
Personnel doors	1.5	1.03	"ST000000_W3_O0"
Vehicle access & similar large doors	1.5	-	"No external vehicle access doors"
High usage entrance doors	1.5	-	"No external high usage entrance doors"

$U_{i\text{-}Typ}$ = Typical individual element U-values [W/(m²K)] $U_{i\text{-}Min}$ = 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	1

SBEM Main Calculation Output Document

Mon Apr 04 17:21:37 2022 v5.6.b.0

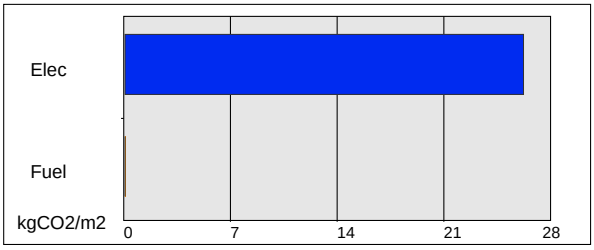
Building name

18 Pield Heath-Be Green ASHP+W

Building type: C2 Residential Institutions - Hospitals and Care Homes

SBEM is an energy calculation tool for the purpose of assessing and demonstrating compliance with Building Regulations (Part L for England and Wales, Section 6 for Scotland, Part F for Northern Ireland, and Building Bye-laws Jersey Part 11) and to produce Energy Performance Certificates and Building Energy Ratings. Although the data produced by the tool may be of use in the design process, **SBEM is not intended as a building design tool.**

Building Energy Performance and CO2 emissions

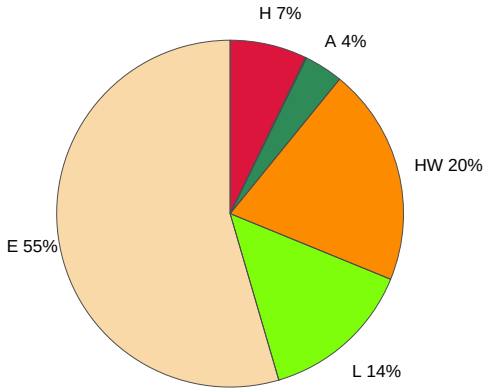


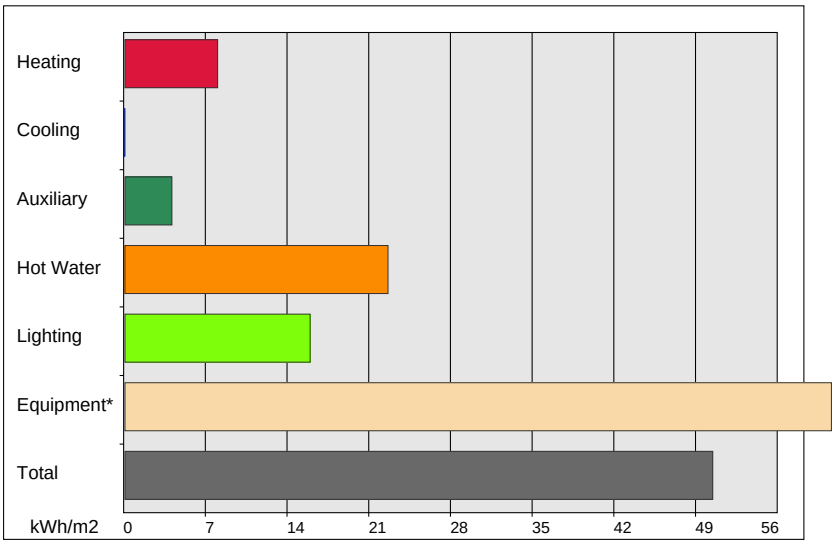
1 kgCO2/m2 displaced by the use of renewable sources.

Building area is 3624.4 m2

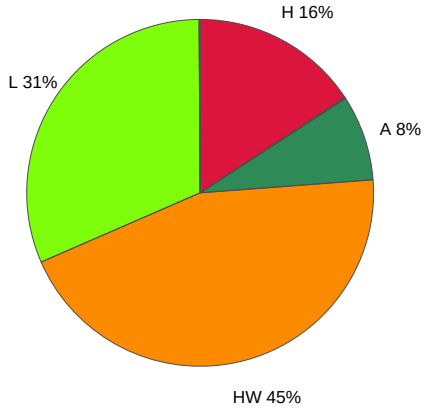
Annual Energy Consumption

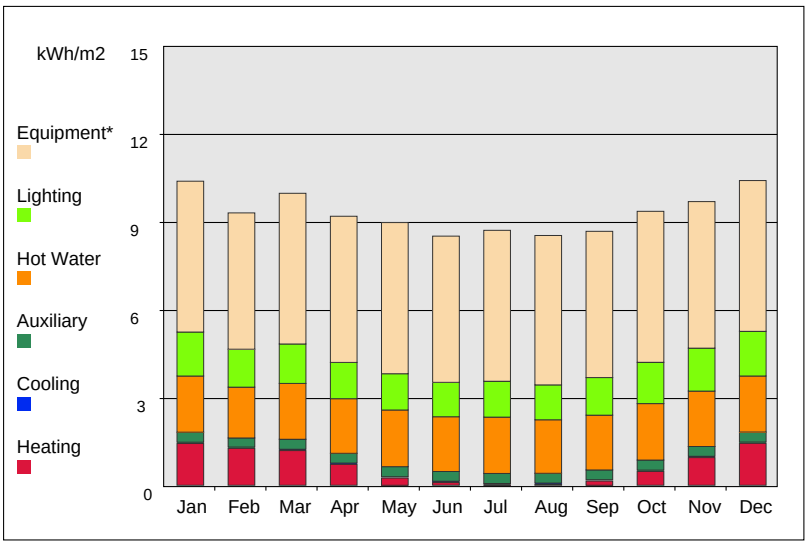
(Pie chart including Equipment end-use)





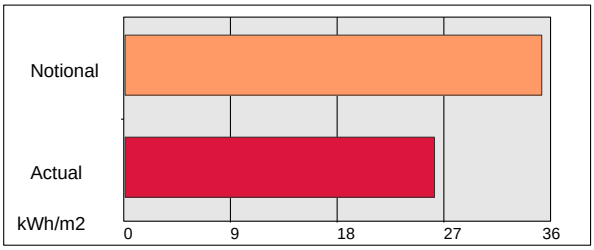
(Pie chart excluding Equipment end-use)

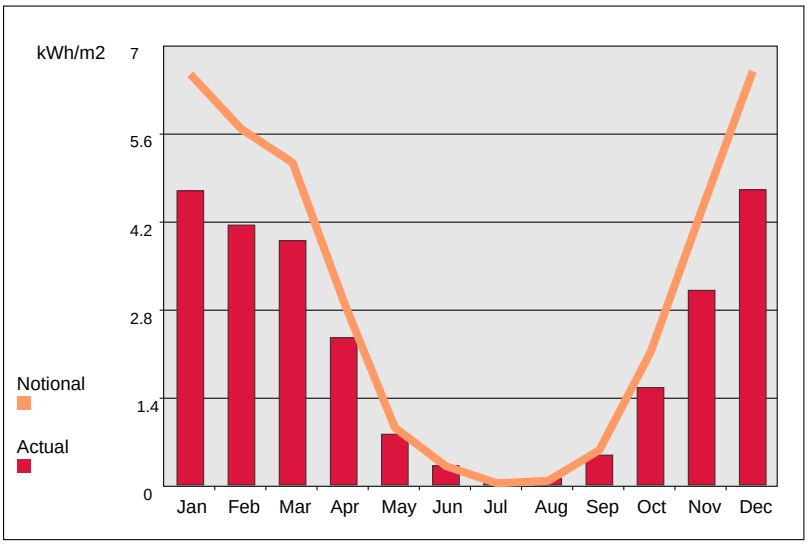




(*) Although energy consumption by equipment is shown in the graphs for information, this end-use has not been included in the total results of the building or the calculation of the ratings.

Annual Heating Demand





Annual Cooling Demand