# Appendix 2: IESVE BRUKL - Baseline

## BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

**Project name**

**14 Bedford Row Exisitng** As built

**Date:** Mon Apr 29 08:17:59 2024

### Administrative information

**Building Details**

**Address:** Address 1, City, Postcode

**Certifier details**

**Name:** Name

**Telephone number:** Phone

**Address:** Street Address, City, Postcode

**Certification tool**

**Calculation engine:** Apache

**Calculation engine version:** 7.0.22

**Interface to calculation engine:** IES Virtual Environment

**Interface to calculation engine version:** 7.0.22

**BRUKL compliance module version:** v6.1.e.1

**Foundation area [m²]:** 268.08

### The $CO_2$ emission and primary energy rates of the building must not exceed the targets

The building does not comply with England Building Regulations Part L 2021

| | | |
|---|---|---|
| Target $CO_2$ emission rate (TER), $kgCO_2/m^2annum$ | 51.86 | |
| Building $CO_2$ emission rate (BER), $kgCO_2/m^2annum$ | 68.4 | |
| Target primary energy rate (TPER), $kWh_{PE}/m^2annum$ | 281.41 | |
| Building primary energy rate (BPER), $kWh_{PE}/m^2annum$ | 380.19 | |
| Do the building's emission and primary energy rates exceed the targets? | BER > TER | BPER > TPER |

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

| Fabric element | $U_{a\text{-}Limit}$ | $U_{a\text{-}Calc}$ | $U_{i\text{-}Calc}$ | First surface with maximum value |
|---|---|---|---|---|
| Walls* | 0.26 | 0.35 | 1.43 | F2000000:Surf[20] |
| Floors | 0.18 | 0.25 | 0.25 | GF000004:Surf[0] |
| Pitched roofs | 0.16 | 0.18 | 0.18 | F4000001:Surf[10] |
| Flat roofs | 0.18 | 0.18 | 0.18 | F3000000:Surf[1] |
| Windows** and roof windows | 1.6 | 1.42 | 1.6 | F2000000:Surf[1] |
| Rooflights*** | 2.2 | 2.3 | 2.3 | GF000004:Surf[1] |
| Personnel doors^ | 1.6 | 2.2 | 2.2 | F2000006:Surf[2] |
| Vehicle access & similar large doors | 1.3 | - | - | No vehicle access doors in building |
| High usage entrance doors | 3 | - | - | No high usage entrance doors in building |

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

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

* 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. *** Values for rooflights refer to the horizontal position.

^ For fire doors, limiting U-value is 1.8 $W/m^2K$

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

| Air permeability | Limiting standard | This building |
|---|---|---|
| $m^3/(h.m^2)$ at 50 Pa | 8 | 25 |

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# Appendix 3: IESVE BRUKL - Be Lean

## BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

**Project name**

**14 Bedford Row + 12-14 Jockey's Fields - Be Lean** As designed

**Date:** Mon Apr 29 07:38:29 2024

### Administrative information

**Building Details**

**Address:** 14 Bedford row + 12 - 14 Jockey's Fields, London, WC1R 4ED

**Certifier details**

**Name:** Mohanad Alnaimy
**Telephone number:** Phone
**Address:** The Lab, 18 Wenlock Rd, London, N1 7TA

**Certification tool**

**Calculation engine:** Apache
**Calculation engine version:** 7.0.22
**Interface to calculation engine:** IES Virtual Environment
**Interface to calculation engine version:** 7.0.22
**BRUKL compliance module version:** v6.1.e.1

**Foundation area [m²]:** 290.52

### The $CO_2$ emission and primary energy rates of the building must not exceed the targets

The building does not comply with England Building Regulations Part L 2021

| | | |
|---|---|---|
| Target $CO_2$ emission rate (TER), $kgCO_2/m^2annum$ | 55.57 | |
| Building $CO_2$ emission rate (BER), $kgCO_2/m^2annum$ | 64.21 | |
| Target primary energy rate (TPER), $kWh_{PE}/m^2annum$ | 300.99 | |
| Building primary energy rate (BPER), $kWh_{PE}/m^2annum$ | 350.36 | |
| Do the building's emission and primary energy rates exceed the targets? | BER > TER | BPER > TPER |

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

| Fabric element | $U_{a\text{-}Limit}$ | $U_{a\text{-}Calc}$ | $U_{i\text{-}Calc}$ | First surface with maximum value |
|---|---|---|---|---|
| Walls* | 0.26 | 0.25 | 0.31 | F4000004:Surf[0] |
| Floors | 0.18 | 0.56 | 1.45 | GF000022:Surf[5] |
| Pitched roofs | 0.16 | 0.11 | 0.11 | F4000001:Surf[0] |
| Flat roofs | 0.18 | 0.12 | 0.18 | GF00000C:Surf[0] |
| Windows** and roof windows | 1.6 | 1.49 | 1.6 | F2000006:Surf[4] |
| Rooflights*** | 2.2 | - | - | No roof lights in building |
| Personnel doors^ | 1.6 | - | - | No personnel doors in building |
| Vehicle access & similar large doors | 1.3 | - | - | No vehicle access doors in building |
| High usage entrance doors | 3 | 1.56 | 1.56 | F2000006:Surf[2] |

$U_{a\text{-}Limit}$ = Limiting area-weighted average U-values [$W/(m^2K)$] $U_{i\text{-}Calc}$ = Calculated maximum individual element U-values [$W/(m^2K)$]
$U_{a\text{-}Calc}$ = Calculated area-weighted average U-values [$W/(m^2K)$]
* 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. *** Values for rooflights refer to the horizontal position.
^ For fire doors, limiting U-value is 1.8 $W/m^2K$
NB: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

| Air permeability | Limiting standard | This building |
|---|---|---|
| $m^3/(h.m^2)$ at 50 Pa | 8 | 8 |

# Appendix 4: IESVE BRUKL - Be Clean

## BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

**Project name**

**14 Bedford Row + 12-14 Jockey's Fields - Be Clean** As designed

**Date:** Mon Apr 29 02:03:25 2024

### Administrative information

**Building Details**

**Address:** 14 Bedford row + 12 - 14 Jockey's Fields, London, WC1R 4ED

**Certifier details**

**Name:** Mohanad Alnaimy

**Telephone number:** Phone

**Address:** The Lab, 18 Wenlock Rd, London, N1 7TA

**Certification tool**

**Calculation engine:** Apache

**Calculation engine version:** 7.0.22

**Interface to calculation engine:** IES Virtual Environment

**Interface to calculation engine version:** 7.0.22

**BRUKL compliance module version:** v6.1.e.1

**Foundation area [$m^2$]:** 290.52

### The $CO_2$ emission and primary energy rates of the building must not exceed the targets

The building does not comply with England Building Regulations Part L 2021

| | | |
|---|---|---|
| Target $CO_2$ emission rate (TER), $kgCO_2/m^2$annum | 31.08 | |
| Building $CO_2$ emission rate (BER), $kgCO_2/m^2$annum | 40.81 | |
| Target primary energy rate (TPER), $kWh_{PE}/m^2$annum | 334.15 | |
| Building primary energy rate (BPER), $kWh_{PE}/m^2$annum | 436.01 | |
| Do the building's emission and primary energy rates exceed the targets? | BER > TER | BPER > TPER |

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

| Fabric element | $U_{a\text{-Limit}}$ | $U_{a\text{-Calc}}$ | $U_{i\text{-Calc}}$ | First surface with maximum value |
|---|---|---|---|---|
| Walls* | 0.26 | 0.25 | 0.31 | F4000004:Surf[0] |
| Floors | 0.18 | 0.56 | 1.45 | GF000022:Surf[5] |
| Pitched roofs | 0.16 | 0.11 | 0.11 | F4000001:Surf[0] |
| Flat roofs | 0.18 | 0.12 | 0.18 | GF00000C:Surf[0] |
| Windows** and roof windows | 1.6 | 1.49 | 1.6 | F2000006:Surf[4] |
| Rooflights*** | 2.2 | - | - | No roof lights in building |
| Personnel doors^ | 1.6 | - | - | No personnel doors in building |
| Vehicle access & similar large doors | 1.3 | - | - | No vehicle access doors in building |
| High usage entrance doors | 3 | 1.56 | 1.56 | F2000006:Surf[2] |

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

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

* 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. *** Values for rooflights refer to the horizontal position.

^ For fire doors, limiting U-value is 1.8 $W/m^2K$

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

| Air permeability | Limiting standard | This building |
|---|---|---|
| $m^3/(h.m^2)$ at 50 Pa | 8 | 8 |

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# Appendix 5: IESVE BRUKL - Be Green

## BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

**Project name**

**14 Bedford Row + 12-14 Jockey's Fields - Be Green** As designed

**Date:** Mon Apr 29 02:13:01 2024

### Administrative information

**Building Details**

**Address:** 14 Bedford row + 12 - 14 Jockey's Fields, London, WC1R 4ED

**Certifier details**

**Name:** Mohanad Alnaimy

**Telephone number:** Phone

**Address:** The Lab, 18 Wenlock Rd, London, N1 7TA

**Certification tool**

**Calculation engine:** Apache

**Calculation engine version:** 7.0.22

**Interface to calculation engine:** IES Virtual Environment

**Interface to calculation engine version:** 7.0.22

**BRUKL compliance module version:** v6.1.e.1

**Foundation area [$m^2$]:** 290.52

### The $CO_2$ emission and primary energy rates of the building must not exceed the targets

The building does not comply with England Building Regulations Part L 2021

| | | |
|---|---|---|
| Target $CO_2$ emission rate (TER), $kgCO_2/m^2$annum | 16.99 | |
| Building $CO_2$ emission rate (BER), $kgCO_2/m^2$annum | 22.01 | |
| Target primary energy rate (TPER), $kWh_{PE}/m^2$annum | 180.55 | |
| Building primary energy rate (BPER), $kWh_{PE}/m^2$annum | 231.03 | |
| Do the building's emission and primary energy rates exceed the targets? | BER > TER | BPER > TPER |

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

| Fabric element | $U_{a\text{-}Limit}$ | $U_{a\text{-}Calc}$ | $U_{i\text{-}Calc}$ | First surface with maximum value |
|---|---|---|---|---|
| Walls* | 0.26 | 0.25 | 0.31 | F4000004:Surf[0] |
| Floors | 0.18 | 0.56 | 1.45 | GF000022:Surf[5] |
| Pitched roofs | 0.16 | 0.11 | 0.11 | F4000001:Surf[0] |
| Flat roofs | 0.18 | 0.12 | 0.18 | GF00000C:Surf[0] |
| Windows** and roof windows | 1.6 | 1.49 | 1.6 | F2000006:Surf[4] |
| Rooflights*** | 2.2 | - | - | No roof lights in building |
| Personnel doors^ | 1.6 | - | - | No personnel doors in building |
| Vehicle access & similar large doors | 1.3 | - | - | No vehicle access doors in building |
| High usage entrance doors | 3 | 1.56 | 1.56 | F2000006:Surf[2] |

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

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

* 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. *** Values for rooflights refer to the horizontal position.

^ For fire doors, limiting U-value is 1.8 $W/m^2K$

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

| Air permeability | Limiting standard | This building |
|---|---|---|
| $m^3/(h.m^2)$ at 50 Pa | 8 | 8 |

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# Appendix 6: Overheating Risk assessment - Model A

| Room Name | Criteria 1: %hrs Top-Tmax >= 1K | Criteria 2 (Max. Daily Deg.Hrs) | Criteria 3: Night hours OT>26°C | MVHR Criteria: % Annual Hours>26°C | Criteria Failed | Pass or Fail |
|---|---|---|---|---|---|---|
| F (-1) - Room - B20 | 1.7 | 26 | 4 | | 2 | PASS |
| F (-1) - Room - B27 | 1 | 22 | 4 | | 2 | PASS |
| F (-1) - Room - B26 | 1.1 | 24 | 4 | | 2 | PASS |
| F (-1) - Room - B25 | 1.2 | 24 | 4 | | 2 | PASS |
| F (-1) - Room - B19 | 0.5 | 13 | 2 | | 2 | PASS |
| GF - Room - G25 | 1.7 | 27 | 4 | | 2 | PASS |
| GF - Room - G22 | 1.9 | 28 | 4 | | 2 | PASS |
| GF - Room - G24 | 1.6 | 25 | 4 | | 2 | PASS |
| F (2) - Room - 227 | 1.6 | 24 | 4 | | 2 | PASS |
| F (1) - Room - 131 | 1.4 | 22 | 4 | | 2 | PASS |
| F (1) - Room - 129 | 1.1 | 27 | 4 | | 2 | PASS |
| F (1) - Room - 128 | 1 | 27 | 4 | | 2 | PASS |

| | | | | | |
|---|---|---|---|---|---|
| F (1) - Room - 127 | 0.6 | 22 | 4 | 2 | PASS |
| F (1) - Room - 125 | 0.4 | 13 | 3 | 2 | PASS |
| F (1) - Room - 126 | 0.6 | 19 | 3 | 2 | PASS |
| F (-1) - Room - B23 | 1.3 | 24 | 4 | 2 | PASS |
| F (1) - Room - 118 | 1.7 | 29 | 4 | 2 | PASS |
| F (4) - Room - 417 | 1.8 | 25 | 4 | 2 | PASS |
| GF - Room - G21 | 1.9 | 27 | 4 | 2 | PASS |
| GF - Room - G18 | 1.1 | 20 | 3 | 2 | PASS |
| F (-1) - Room - B14 | 3.4 | 38 | 5 | 1 & 2 & 3 | FAIL |
| F (-1) - Room - B21 | 3.6 | 40 | 5 | 1 & 2 & 3 | FAIL |
| F (-1) - Room - B34 | 5.4 | 48 | 4 | 1 & 2 | FAIL |
| F (-1) - Breakout - B33 | 100 | 176 | 17 | 1 & 2 & 3 | FAIL |
| F (-1) - Amenity - B32 | 100 | 169 | 16 | 1 & 2 & 3 | FAIL |
| GF - Amenity - G13 | 20 | 68 | 9 | 1 & 2 & 3 | FAIL |
| GF - Room -G15 | 2.4 | 29 | 5 | 2 & 3 | FAIL |
| GF - Room - G29 | 5.7 | 44 | 5 | 1 & 2 & 3 | FAIL |

| | | | | | | |
|---|---|---|---|---|---|---|
| F (2) - Room - 233 | 2.9 | 32 | 5 | | 2 & 3 | FAIL |
| F (2) - Room - 228 | 2.8 | 32 | 5 | | 2 & 3 | FAIL |
| F (2) - Room - 229 | 1.9 | 33 | 5 | | 2 & 3 | FAIL |
| F (2) - Room - 230 | 2.2 | 37 | 5 | | 2 & 3 | FAIL |
| F (2) - Room - 224 | 2.7 | 40 | 5 | | 2 & 3 | FAIL |
| F (2) - Room - 222 | 5.2 | 44 | 6 | | 1 & 2 & 3 | FAIL |
| F (2) - Room - 223 | 2.5 | 39 | 5 | | 2 & 3 | FAIL |
| F (1) - Room - 116 | 3.4 | 35 | 6 | | 1 & 2 & 3 | FAIL |
| F (1) - Room - 117 | 2.3 | 37 | 5 | | 2 & 3 | FAIL |
| F (1) - Room - 114 | 4.8 | 41 | 7 | | 1 & 2 & 3 | FAIL |
| F (1) - Room - 115 | 4.1 | 39 | 6 | | 1 & 2 & 3 | FAIL |
| F (1) - Room - 121 | 7.6 | 53 | 6 | | 1 & 2 & 3 | FAIL |
| F (1) - Room - 122 | 2.9 | 41 | 5 | | 2 & 3 | FAIL |
| F (1) - Room - 123 | 2.9 | 41 | 5 | | 2 & 3 | FAIL |
| F (2) - Room - 231 | 2.5 | 38 | 5 | | 2 & 3 | FAIL |
| F (2) - Room - 232 | 2.6 | 39 | 5 | | 2 & 3 | FAIL |

| | | | | | | |
|---|---|---|---|---|---|---|
| F (1) - Room - 130 | 1.9 | 33 | 5 | | 2 & 3 | FAIL |
| F (3) - Room - 325 | 5 | 38 | 6 | | 1 & 2 & 3 | FAIL |
| F (3) - Room - 326 | 4.1 | 34 | 6 | | 1 & 2 & 3 | FAIL |
| F (3) - Room - 327 | 2 | 36 | 5 | | 2 & 3 | FAIL |
| F (3) - Room - 328 | 2.6 | 38 | 5 | | 2 & 3 | FAIL |
| F (3) - Room - 329 | 4.5 | 33 | 5 | | 1 & 2 & 3 | FAIL |
| F (3) - Room - 323 | 2.2 | 34 | 6 | | 2 & 3 | FAIL |
| F (3) - Room - 324 | 2.8 | 39 | 5 | | 2 & 3 | FAIL |
| F (2) - Room - 214 | 5.1 | 40 | 6 | | 1 & 2 & 3 | FAIL |
| F (2) - Room - 215 | 5.9 | 40 | 6 | | 1 & 2 & 3 | FAIL |
| F (2) - Room - 216 | 4.1 | 37 | 6 | | 1 & 2 & 3 | FAIL |
| F (2) - Room - 217 | 1.3 | 35 | 5 | | 2 & 3 | FAIL |
| F (3) - Room - 314 | 4.9 | 39 | 6 | | 1 & 2 & 3 | FAIL |
| F (3) - Room - 315 | 4.5 | 37 | 6 | | 1 & 2 & 3 | FAIL |
| F (2) - Riser - 207 | 97.1 | 210 | 20 | | 1 & 2 & 3 | FAIL |
| F (3) - Room - 316 | 4.4 | 37 | 6 | | 1 & 2 & 3 | FAIL |

| | | | | | | |
|---|---|---|---|---|---|---|
| F (3) - Room - 318 | 1.7 | 37 | 5 | | 2 & 3 | FAIL |
| F (4) - Room - 415 | 5.1 | 41 | 6 | | 1 & 2 & 3 | FAIL |
| F (4) - Room - 414 | 4.9 | 34 | 6 | | 1 & 2 & 3 | FAIL |
| F (4) - Room - 416 | 39.1 | 82 | 7 | | 1 & 2 & 3 | FAIL |
| F (1) - Room - 120 | 21.6 | 62 | 6 | | 1 & 2 & 3 | FAIL |
| F (2) - Room - 221 | 6.5 | 50 | 7 | | 1 & 2 & 3 | FAIL |
| F (2) - Riser - 209 | 100 | 294 | 26 | | 1 & 2 & 3 | FAIL |
| F (3) - Room - 322 | 5.7 | 44 | 7 | | 1 & 2 & 3 | FAIL |
| F (2) - Room - 218 | 1.9 | 30 | 5 | | 2 & 3 | FAIL |
| F (3) - Room - 319 | 2.2 | 33 | 5 | | 2 & 3 | FAIL |

# Appendix 7: Overheating Risk assessment - Model B

| Room Name | Criteria 1: %hrs Top-Tmax >= 1K | Criteria 2 (Max. Daily Deg.Hrs) | Criteria 3: Night hours OT>26°C | MVHR Criteria: % Annual Hours>26°C | Criteria Failed | Pass or Fail |
|---|---|---|---|---|---|---|
| F (-1) - Room - B14 | 0.5 | 19 | 4 | | 2 | PASS |
| F (-1) - Room - B21 | 0.5 | 19 | 4 | | 2 | PASS |
| F (-1) - Room - B20 | 0.3 | 9 | 2 | | 2 | PASS |
| F (-1) - Room - B27 | 0.2 | 8 | 2 | | 2 | PASS |
| F (-1) - Room - B26 | 0.3 | 12 | 3 | | 2 | PASS |
| F (-1) - Room - B25 | 0.3 | 12 | 3 | | 2 | PASS |
| F (-1) - Room - B19 | 0.1 | 3 | 1 | | - | PASS |
| F (-1) - Room - B34 | 0.1 | 7 | 2 | THIS ONE | 2 | PASS |
| GF - Room -G15 | 0.6 | 18 | 3 | | 2 | PASS |
| GF - Room - G25 | 0.3 | 12 | 3 | | 2 | PASS |
| GF - Room - G22 | 0.4 | 17 | 3 | | 2 | PASS |
| GF - Room - G24 | 0.3 | 13 | 3 | | 2 | PASS |
| GF - Room - G29 | 0.6 | 19 | 3 | | 2 | PASS |

| | | | | | |
|---|---|---|---|---|---|
| F (2) - Room - 233 | 0.6 | 16 | 3 | 2 | PASS |
| F (2) - Room - 228 | 0.8 | 21 | 4 | 2 | PASS |
| F (2) - Room - 227 | 0.4 | 14 | 3 | 2 | PASS |
| F (2) - Room - 229 | 0.4 | 21 | 4 | 2 | PASS |
| F (2) - Room - 230 | 0.7 | 26 | 4 | 2 | PASS |
| F (2) - Room - 224 | 0.7 | 25 | 4 | 2 | PASS |
| F (2) - Room - 223 | 0.6 | 25 | 4 | 2 | PASS |
| F (1) - Room - 117 | 0.7 | 25 | 4 | 2 | PASS |
| F (1) - Room - 122 | 0.6 | 25 | 4 | 2 | PASS |
| F (1) - Room - 123 | 0.5 | 23 | 4 | 2 | PASS |
| F (1) - Room - 131 | 0.3 | 13 | 3 | 2 | PASS |
| F (2) - Room - 231 | 0.7 | 26 | 4 | 2 | PASS |
| F (2) - Room - 232 | 0.8 | 25 | 4 | 2 | PASS |
| F (1) - Room - 130 | 0.4 | 21 | 4 | 2 | PASS |
| F (1) - Room - 129 | 0.4 | 17 | 3 | 2 | PASS |
| F (1) - Room - 128 | 0.3 | 16 | 3 | 2 | PASS |

| | | | | | | |
|---|---|---|---|---|---|---|
| F (1) - Room - 127 | 0.2 | 12 | 3 | | 2 | PASS |
| F (1) - Room - 125 | 0.1 | 8 | 2 | | 2 | PASS |
| F (1) - Room - 126 | 0.2 | 10 | 2 | | 2 | PASS |
| F (3) - Room - 326 | 1.3 | 22 | 4 | | 2 | PASS |
| F (3) - Room - 327 | 0.5 | 23 | 4 | | 2 | PASS |
| F (3) - Room - 328 | 0.7 | 27 | 4 | | 2 | PASS |
| F (3) - Room - 329 | 0.7 | 17 | 4 | | 2 | PASS |
| F (3) - Room - 323 | 0.8 | 24 | 4 | | 2 | PASS |
| F (3) - Room - 324 | 0.8 | 27 | 4 | | 2 | PASS |
| F (2) - Room - 216 | 1.1 | 21 | 4 | | 2 | PASS |
| F (2) - Room - 217 | 0.5 | 24 | 4 | | 2 | PASS |
| F (3) - Room - 315 | 1.2 | 22 | 4 | | 2 | PASS |
| F (3) - Room - 316 | 1.2 | 22 | 4 | | 2 | PASS |
| F (3) - Room - 318 | 0.5 | 28 | 4 | | 2 | PASS |
| F (4) - Room - 415 | 1.1 | 21 | 4 | | 2 | PASS |
| F (4) - Room - 414 | 1.1 | 22 | 4 | | 2 | PASS |

| | | | | | | |
|---|---|---|---|---|---|---|
| F (4) - Room - 416 | 2.2 | 30 | 4 | | 2 | PASS |
| F (1) - Room - 120 | 0.6 | 14 | 3 | THIS ONE | 2 | PASS |
| F (-1) - Room - B23 | 0.2 | 12 | 3 | | 2 | PASS |
| F (1) - Room - 118 | 0.4 | 18 | 3 | | 2 | PASS |
| F (2) - Room - 218 | 0.4 | 20 | 4 | | 2 | PASS |
| F (3) - Room - 319 | 0.4 | 22 | 4 | | 2 | PASS |
| F (4) - Room - 417 | 0.3 | 13 | 3 | | 2 | PASS |
| GF - Room - G21 | 0.4 | 17 | 3 | | 2 | PASS |
| GF - Room - G18 | 0.2 | 10 | 2 | | 2 | PASS |
| F (-1) - Breakout - B33 | 22.6 | 46 | 6 | | 1 & 2 & 3 | FAIL |
| F (-1) - Amenity - B32 | 68.1 | 72 | 8 | This one | 1 & 2 & 3 | FAIL |
| GF - Amenity - G13 | 10.3 | 50 | 7 | | 1 & 2 & 3 | FAIL |
| F (2) - Room - 222 | 1.3 | 27 | 5 | | 2 & 3 | FAIL |
| F (1) - Room - 116 | 1.1 | 23 | 5 | | 2 & 3 | FAIL |
| F (1) - Room - 114 | 2.2 | 29 | 5 | | 2 & 3 | FAIL |
| F (1) - Room - 115 | 1.2 | 24 | 5 | | 2 & 3 | FAIL |

| | | | | | | |
|---|---|---|---|---|---|---|
| F (1) - Room - 121 | 1.7 | 28 | 5 | | 2 & 3 | FAIL |
| F (3) - Room - 325 | 1.7 | 26 | 5 | | 2 & 3 | FAIL |
| F (2) - Room - 214 | 1.9 | 28 | 5 | | 2 & 3 | FAIL |
| F (2) - Room - 215 | 1.3 | 25 | 5 | | 2 & 3 | FAIL |
| F (3) - Room - 314 | 1.9 | 27 | 5 | | 2 & 3 | FAIL |
| F (2) - Room - 221 | 2 | 30 | 5 | | 2 & 3 | FAIL |
| F (3) - Room - 322 | 2.3 | 30 | 5 | | 2 & 3 | FAIL |

# Appendix 8: Overheating Risk assessment - Model C

| Room Name | Criteria 1: %hrs Top-Tmax >= 1K | Criteria 2 (Max. Daily Deg.Hrs) | Criteria 3: Night hours OT>26°C | MVHR Criteria: % Annual Hours>26°C | Criteria Failed | Pass or Fail |
|---|---|---|---|---|---|---|
| F (-1) - Room - B14 | 0 | 0 | 0 | - | - | PASS |
| F (-1) - Room - B21 | 0 | 0 | 0 | - | - | PASS |
| F (-1) - Room - B20 | 0 | 0 | 0 | - | - | PASS |
| F (-1) - Room - B27 | 0 | 0 | 0 | - | - | PASS |
| F (-1) - Room - B26 | 0 | 0 | 0 | - | - | PASS |
| F (-1) - Room - B25 | 0 | 0 | 0 | - | - | PASS |
| F (-1) - Room - B19 | 0 | 0 | 0 | - | - | PASS |
| F (-1) - Room - B34 | 0 | 0 | 0 | - | - | PASS |
| F (-1) - Breakout - B33 | 0 | 0 | 0 | - | - | PASS |
| F (-1) - Amenity - B32 | 0 | 0 | 0 | - | - | PASS |
| GF - Amenity - G13 | 0 | 0 | 0 | - | - | PASS |
| GF - Room -G15 | 0 | 0 | 0 | - | - | PASS |
| GF - Room - G25 | 0 | 0 | 0 | - | - | PASS |

| | | | | | | |
|---|---|---|---|---|---|---|
| GF - Room - G22 | 0 | 0 | 0 | - | - | PASS |
| GF - Room - G24 | 0 | 0 | 0 | - | - | PASS |
| GF - Room - G29 | 0 | 0 | 0 | - | - | PASS |
| F (2) - Room - 233 | 0 | 0 | 0 | - | - | PASS |
| F (2) - Room - 228 | 0 | 0 | 0 | - | - | PASS |
| F (2) - Room - 227 | 0 | 0 | 0 | - | - | PASS |
| F (2) - Room - 229 | 0 | 0 | 0 | - | - | PASS |
| F (2) - Room - 230 | 0 | 0 | 0 | - | - | PASS |
| F (2) - Room - 224 | 0 | 0 | 0 | - | - | PASS |
| F (2) - Room - 222 | 0 | 0 | 0 | - | - | PASS |
| F (2) - Room - 223 | 0 | 0 | 0 | - | - | PASS |
| F (1) - Room - 116 | 0 | 0 | 0 | - | - | PASS |
| F (1) - Room - 117 | 0 | 0 | 0 | - | - | PASS |
| F (1) - Room - 114 | 0 | 0 | 0 | - | - | PASS |
| F (1) - Room - 115 | 0 | 0 | 0 | - | - | PASS |
| F (1) - Room - 121 | 0 | 0 | 0 | - | - | PASS |

| | | | | | | |
|---|---|---|---|---|---|---|
| F (1) - Room - 122 | 0 | 0 | 0 | - | - | PASS |
| F (1) - Room - 123 | 0 | 0 | 0 | - | - | PASS |
| F (1) - Room - 131 | 0 | 0 | 0 | - | - | PASS |
| F (2) - Room - 231 | 0 | 0 | 0 | - | - | PASS |
| F (2) - Room - 232 | 0 | 0 | 0 | - | - | PASS |
| F (1) - Room - 130 | 0 | 0 | 0 | - | - | PASS |
| F (1) - Room - 129 | 0 | 0 | 0 | - | - | PASS |
| F (1) - Room - 128 | 0 | 0 | 0 | - | - | PASS |
| F (1) - Room - 127 | 0 | 0 | 0 | - | - | PASS |
| F (1) - Room - 125 | 0 | 0 | 0 | - | - | PASS |
| F (1) - Room - 126 | 0 | 0 | 0 | - | - | PASS |
| F (3) - Room - 325 | 0 | 0 | 0 | - | - | PASS |
| F (3) - Room - 326 | 0 | 0 | 0 | - | - | PASS |
| F (3) - Room - 327 | 0 | 0 | 0 | - | - | PASS |
| F (3) - Room - 328 | 0 | 0 | 0 | - | - | PASS |
| F (3) - Room - 329 | 0 | 0 | 0 | - | - | PASS |

| | | | | | | |
|---|---|---|---|---|---|---|
| F (3) - Room - 323 | 0 | 0 | 0 | - | - | PASS |
| F (3) - Room - 324 | 0 | 0 | 0 | - | - | PASS |
| F (2) - Room - 214 | 0 | 0 | 0 | - | - | PASS |
| F (2) - Room - 215 | 0 | 0 | 0 | - | - | PASS |
| F (2) - Room - 216 | 0 | 0 | 0 | - | - | PASS |
| F (2) - Room - 217 | 0 | 0 | 0 | - | - | PASS |
| F (3) - Room - 314 | 0 | 0 | 0 | - | - | PASS |
| F (3) - Room - 315 | 0 | 0 | 0 | - | - | PASS |
| F (3) - Room - 316 | 0 | 0 | 0 | - | - | PASS |
| F (3) - Room - 318 | 0 | 0 | 0 | - | - | PASS |
| F (4) - Room - 415 | 0 | 0 | 0 | - | - | PASS |
| F (4) - Room - 414 | 0 | 0 | 0 | - | - | PASS |
| F (4) - Room - 416 | 0 | 0 | 0 | - | - | PASS |
| F (1) - Room - 120 | 0 | 0 | 0 | - | - | PASS |
| F (2) - Room - 221 | 0 | 0 | 0 | - | - | PASS |
| F (3) - Room - 322 | 0 | 0 | 0 | - | - | PASS |

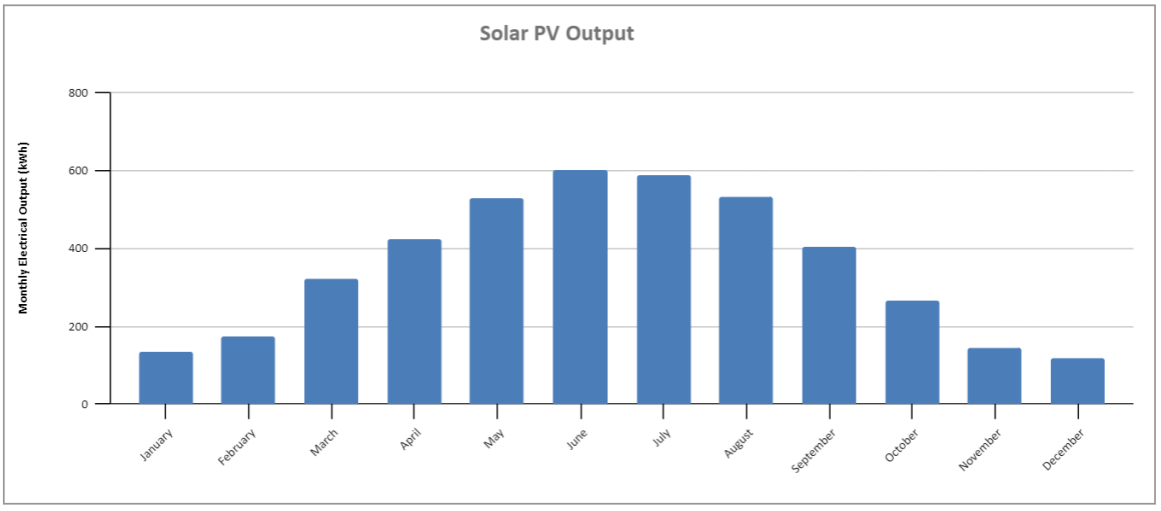
| | | | | | | |
|---|---|---|---|---|---|---|
| F (-1) - Room - B23 | 0 | 0 | 0 | - | - | PASS |
| F (1) - Room - 118 | 0 | 0 | 0 | - | - | PASS |
| F (2) - Room - 218 | 0 | 0 | 0 | - | - | PASS |
| F (3) - Room - 319 | 0 | 0 | 0 | - | - | PASS |
| F (4) - Room - 417 | 0 | 0 | 0 | - | - | PASS |
| GF - Room - G21 | 0 | 0 | 0 | - | - | PASS |
| GF - Room - G18 | 0 | 0 | 0 | - | - | PASS |

# Appendix 9: PV Calculations

## Photovoltaics

| | | | |
|---|---|---|---|
| Choose Panel: | Reference Number | 243 | |
| | Manufacturer | Sunpower | |
| | Model | E20/333 | |
| Technical Data: | Open Circuit Voltage at STC | 65.30 | V |
| | Short Circuit Current at STC | 6.46 | A |
| | Rated (Peak) Power | 333 | W |
| | NOCT | 45 | deg.C |
| | Temperature Coefficient of Voltage | 0.0 | mV/deg.C |
| | Temperature Coefficient of Current | 0.0 | mA/deg.C |
| | Fill Factor | 0.7894 | |
| | Panel efficiency | 20.4% | |
| | Area per Panel (Gross) | 1.63 | m2 |
| Panels: | Number of Panels | 14 | Panels |
| | Total Area of Panels | 22.83 | m2 |
| | Inclination of Panel | 30 | deg |
| | Orientation of Panel | South | |
| CO2: | Carbon Intensity of Grid Electricity | 0.233 | kgCO2/kWh |
| | Annual output from PV | 4240 | kWh |
| | CO2 displaced per year | 988 | kg |

| | | |
|---|---|---|
| **Summary:** | **Total Array Rated Output** | **4.7 kWp** |
| | **Annual output from PV** | **4,240 kWh** |
| | **CO2 Displaced per year** | **988 kg** |



# Appendix 10: GLA Carbon Reporting Spreadsheet

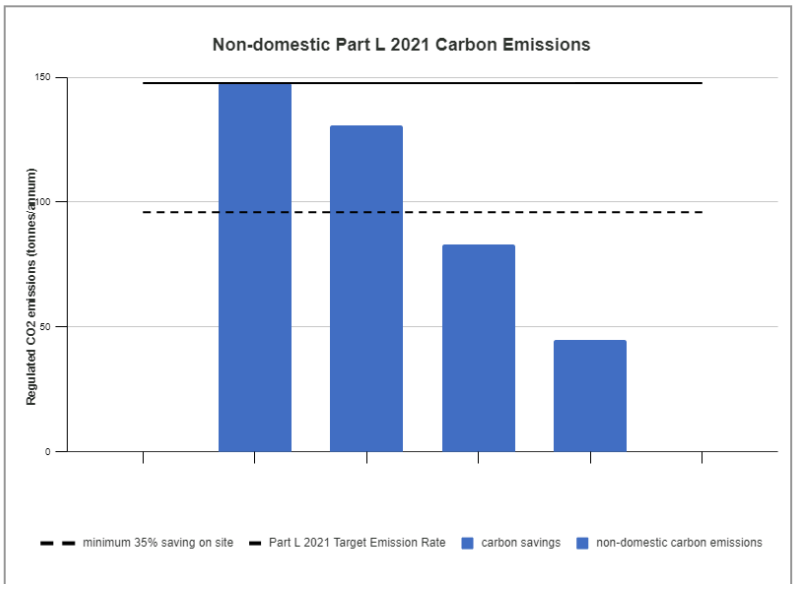
**Table 3:** Carbon Dioxide Emissions after each stage of the Energy Hierarchy for non-residential buildings

| | Carbon Dioxide Emissions for non-residential buildings (Tonnes CO2 per annum) | |
|---|---|---|
| | Regulated | Unregulated |
| Baseline: Part L 2021 of the Building Regulations Compliant Development | 147.6 | |
| After energy demand reduction (be lean) | 130.6 | |
| After heat network connection (be clean) | 83.0 | |
| After renewable energy (be green) | 44.8 | |

**Table 4:** Regulated Carbon Dioxide savings from each stage of the Energy Hierarchy for non-residential buildings

| | Regulated non-residential carbon dioxide savings | |
|---|---|---|
| | (Tonnes CO2 per annum) | (%) |
| Be lean: savings from energy demand reduction | 17.1 | 12% |
| Be clean: savings from heat network | 47.6 | 32% |
| Be green: savings from renewable energy | 38.2 | 26% |
| **Total Cumulative Savings** | **102.9** | **70%** |
| Annual savings from off-set payment | 44.8 | - |
| | (Tonnes CO2) | |
| **Cumulative savings for off-set payment** | NOT APPLICABLE TO THIS DEVELOPMENT | |
| **Cash in-lieu contribution (£)** | | |

*carbon price is based on GLA recommended price of £95 per tonne of carbon dioxide unless Local Planning Authority price is inputted in the 'Development



# Appendix 11: 'Be Seen'

## MAYOR OF LONDON

| OVERALL PROGRESS | 97% | ggggggggggggggggc |
|---|---|---|
| CURRENT REPORTING STAGE ----------->> | | Planning * |

| CONTEXTUAL DATA | Progress: 100% | ggggggggggggggg |
|---|---|---|

+ ORGANISATION & CONTACT DETAILS

ORGANISATION DETAILS

| | |
|---|---|
| Organisation Name | Energylab Consulting Ltd. * |
| Organisation Address | 18 Wenlock Road, N1 7TA * |

CONTACT DETAILS

| | |
|---|---|
| Contact Name | Jacob Barker Frost * |
| Email | jacob.barker-frost@energy-lab.co.uk * |
| Additional Email(s) | |
| Telephone No. | 442081035583 * |
| Mobile No. | |

+ DEVELOPMENT INFORMATION

OVERALL DEVELOPMENT DETAILS

| | |
|---|---|
| Planning Reference Number | n/a * |
| Name of Whole Development | 14 Bedford Row * |

DEVELOPMENT LOCATION

| | |
|---|---|
| **Development Address** | |
| Address Line 1 | 14 Bedford row * |
| London Borough | Camden * |
| Postcode | WC1R 4ED * |
| **Ordnance Survey Reference** | |
| Development UPRN (if available) | n/a |
| **Geo-Location Coordinates** | |
| Latitude (to 6 decimal places) | 51.520 |
| Longitude (to 6 decimal places, +ve or -ve) | -0.116 |

DEVELOPMENT TOTAL AREA BREAKDOWN

| | | |
|---|---|---|
| **Residential** | | |
| Total Residential Floor Area | GIA m2 | 1,964 * |
| Dwelling Counts | | |
| Flats | number | 0 * |
| House | number | 0 * |
| **Non-Residential** | | |
| Hotel (C1 planning classes) | GIA m2 | 1,964 * |
| **Overall Development Summary** | | |
| Total Development Floor Area | | |
| Residential | GIA m2 | 1,964 |
| Non-Residential | GIA m2 | 1,964 |
| Total | GIA m2 | 3,928 |
| Total Non-Residential Uses | | Hotel |

+ SUPPLEMENTARY FILES AND UPCOMING REPORTING STAGES

SUPPLEMENTARY FILES

| | |
|---|---|
| **Site Plan** | |
| Does the development have a site plan? | Yes * |
| What is the site plan filename? | 5491_00_100__P01_Area Plan - Ground Floor * |
| **Best Practice Documents** | |
| Does the development have a predicted DEC? | No * |
| What is the predicted DEC filename? | n/a |
| Is there a base building energy rating (in line with DFP)? | No |
| What is the DFP filename? | n/a |

ANTICIPATED DATES FOR UPCOMING REPORTING STAGES

| | |
|---|---|
| As-Built Stage | N/A * |
| Operational Year 1 End | N/A * |

| DEVELOPMENT PERFORMANCE AND EMISSIONS | Progress: 92% | gggggggggggggcc |
|---|---|---|

+ DEVELOPMENT PERFORMANCE

DEVELOPMENT OVERALL PREDICTED PERFORMANCE

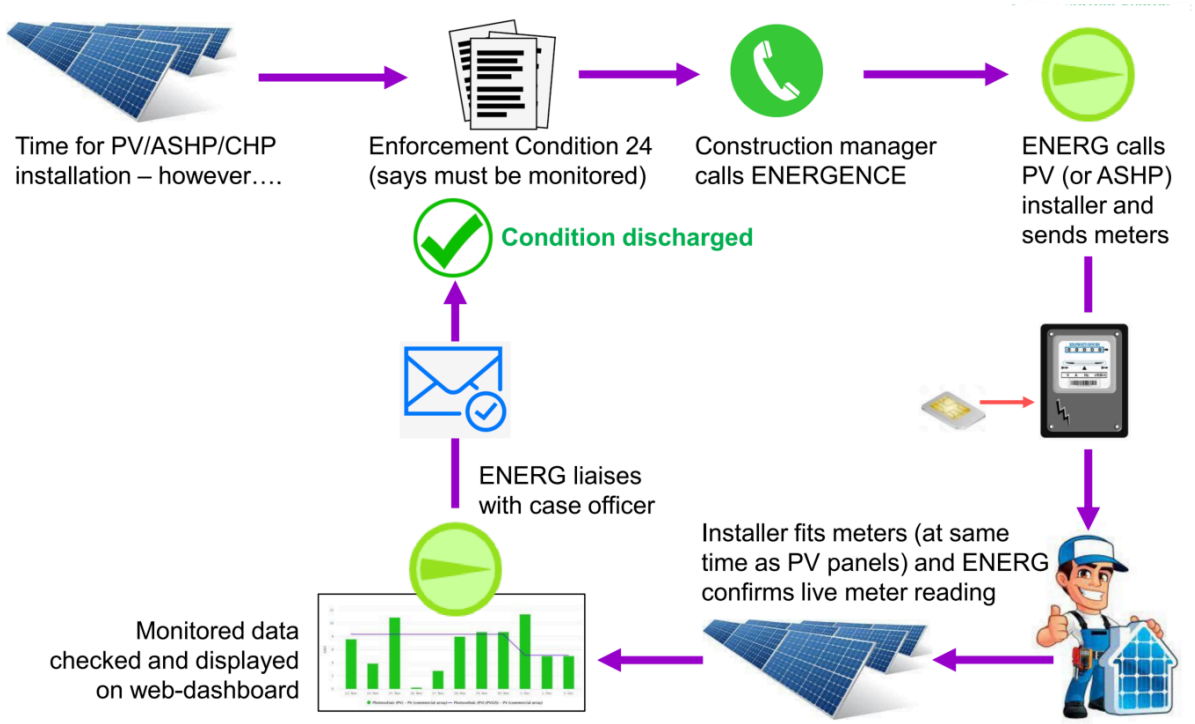
| | | |
|---|---|---|
| **Predicted Performance Calculation Details** | | |
| Fuel Carbon Intensity Source (aligned with planning energy state | | SAP 10.0 * |
| **Residential Elements of the development** | | |
| **Non-Residential Elements of the development (Part L Calculation)** | | |
| Predicted Annual Energy Use | | *Fill in all applicable fuels below* |
| Annual Electricity Use | kWh/yr | 306,222 * |
| Annual Gas Use | kWh/yr | 0 * |
| Annual Oil Use (if applicable) | kWh/yr | 0 * |
| Annual Biomass Use (if applicable) | kWh/yr | 0 * |
| Annual District Htg Use (if applicable) | kWh/yr | 0 * |
| Annual District Clg Use (if applicable) | kWh/yr | 0 * |
| Elec Generation, Gross (if applicable) | kWh/yr | 0 * |
| Solar Thermal Generation (if applicable) | kWh/yr | 7,269 * |
| Predicted Annual Carbon Emissions | tCO2/yr | 0 * |
| **Non-Residential Elements of the development (TM54 Calculation)** | | |

CARBON OFFSETTING

| | | |
|---|---|---|
| Predicted Carbon Shortfall (aligned with planning energ | tCO2 | 1,343 |
| Total Committed Carbon Offset | £ | 127,565 |

END

# Appendix 12: Automated Energy Monitoring Platform (AEMP)



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**Building Services and Sustainability Designers**

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Our vision is to deliver efficient and flexible environments which are engineered to help people work in an sustainable, effective and collaborative way.

We have a proactive approach to spatial design and how building services integrate within the space. We offer our clients a high quality service by working closely with them and their team to achieve a successful end product which meets the ESG agenda.

**energylab_** wants to change that way of working by providing a more strategic and integrated approach to workplace design.

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**For further details relating to the information contained within this document please contact:**

**Jacob Barker-Frost Architectural and Sustainability Consultant**
Jacob.Barker-Frost@energy-lab.co.uk

**energylab_**
part of **the lab_** collective
18 Wenlock Road
London
N1 7TA
www.energy-lab.co.uk
info@energy-lab.co.uk
T 020 3752 9608

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