

SBEM Data Reflection Report — Actual Building

Date: Tue Apr 30 14:28:48 2019

Project name: Units at Blackfriars	Building type: B1 Offices and Workshop businesses	Building area [m2]: 1129.48
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General		Certifier/Energy assessor		Owner	
Building address	Office Units Blackfriars Road LONDON SE1	Name	Steve Hull	Name	United Living
		Telephone number	08458 386 387	Telephone number	na
		Address	Energist UK, College Farm, Tetbury Road Cirencester, Gloucestershire GL7 6PY	Address	Northgate, Aldridge Walsall WS9 8TL
Building area [m2]	1129.48	Assessor number	-	<div>Analysis</div>	
Weather	LON	Qualification	-		
Building rotation [degrees]	0	Accreditation scheme	-		
Special conservation status	NO	Employer name	-		
Project complexity	-	Employer address	-		
				Compliance checked with	England Building Regulations Part L 2013
				Asset rating	None
				Stage	As designed
				Shell & core building	YES

Software	
SBEM version	v5.4.b.0
Interface to SBEM	Design Database
Interface version	v26.06.00.09

Envelope/Door constructions				
Name	U-value [W/m2K]	Adjusted U-value	Km [kJ/m2K]	Metal clad
EXPWALL 1	0.17	NO	17.47	NO
EXPWALL 2	0.25	NO	17.47	NO
EXPFLOOR 1	0.09	YES	30.24	NO
INTCEIL 1	2.225	NO	46.888	NO
PARTITION 1	0.607	NO	20.376	NO
INTFLOOR 1	1.682	NO	30.24	NO

Window/Rooflight constructions			
Name	U-value [W/m2K]	Solar transmittance	Light transmittance
WINDOW 1	1.5	0.224	0.4

Summary of objects		
Object type	Total number	Total related area [m2]
Envelope/Door constructions	6	-
Window/Rooflight constructions	1	-
HW systems	1	-
SE systems	0	0
PV systems	1	1e-005
Wind generators	0	-
CHP generators	0	-
HVAC systems	1	-
Zones	4	1129.48
Envelopes	44	3503
Doors	0	0
Windows/Rooflights	31	147.4

Project building sevices	
Electric power factor	<0.9
Submetering and M&T for lighting systems	YES
Emission factor for district heating [kgCO2/kWh]	0.293
Primary energy factor for district heating [kWh/kWh]	1.2

Notes

Hot water systems	
Name	Default DHW
Generator Type	Instantaneous hot water only
Fuel type	Grid Supplied Electricity
Seasonal efficiency	1
Uses CHP	NO
Storage system	NO
Storage volume [litres]	-
Insulation thickness [mm]	-
Secondary circulation	-
Circulation losses [W/m]	-
Pump power [kW]	-
Loop length [m]	-

Photovoltaic systems	
(Multiplier) Name	(1) PV
Peak power [kWp]	11.6
Orientation	South
Inclination [deg]	30
Overshading	None or very little (<20%)
Ventilation	Strongly ventilated or forced ventilated modules

Notes

Heating, ventilation, and air conditioning systems	
Name	HVAC 1
Type	Split or multi-split system
Heat source	Heat pump (electric): air source
Heating fuel type	Grid Supplied Electricity
Heating seasonal efficiency	3.5
Uses CHP	NO
Variable speed pumping type	-
Generator radiant efficiency	-
Cooling generator type	Not applicable
Cooling fuel type	Grid Supplied Electricity
Cooling seasonal energy efficiency ratio	6
Cooling nominal energy efficiency ratio	3.5
Mixed-mode cooling operation	NO
Heat recovery system	-
Heat recovery seasonal efficiency	-
Variable heat recovery efficiency	-
Specific fan power [W/(l/s)]	-
Submetering and M&T for this system	YES
Heating - Central time control	-
Heating - Optimum stop/start control	-
Heating - Local time control	-
Heating - Local temperature control	-
Heating - Weather compensation control	-

Notes

Zone name: C UNIT1GF	Activity: Generic Office Area	Multiplier: 1
Area [m2]: 259.2746	Height [m]: 3.6	Air permeability @ 50pa [m3/hm2]: 3

HVAC system, ventilation, and exhaust	
Name	HVAC 1
Destratification fans	NO
Ventilation type	Mechanical
SFP for local mechanical supply & extract [W/(l/s)]	1
Heat Recovery system	Plate heat exchanger (Recuperator)
Heat recovery seasonal efficiency	0.8
Variable heat recovery efficiency	YES
Local mechanical exhaust	YES
Exhaust air flow rate [l/s.m2]	1
SFP for mechanical exhaust [W/(l/s)]	0.5
Exhaust fans location	Fan remote from zone
SFP for system terminal units [W/(l/s)]	-
Demand-controlled ventilation	Dependent on gas sensors
Flow regulation type for ventilation control	Speed control
Night cooling maximum hours [hours/month]	-
Night cooling maximum air flow rate [l/s.m2]	-
SFP for night cooling [W/(l/s)]	-

General Lighting and controls	
Total wattage [W]	1273.8
Design illuminance [Lux]	500
Lamp and ballast efficacy [Lumens/W]	-
Light output ratio	-
Lamp type	-
Air-extracting luminaires	NO
Controls	BOTH
Type of photoelectric control	PH-DIMMING
Different sensor for back of zone	NO
Photoelectric control parasitic power [W/m2]	0.1
Automatic zoning for daylight	YES
Occupancy sensing	AUTO-ON-OFF
Occupancy sensing parasitic power [W/m2]	0.1

Hot water system	
Name	Default DHW
Dead leg length in this zone [m]	0

Display lighting	
Efficient lamps	NO
Lumens per circuit wattage	-
Time switching	NO

Thermal bridges Psi values [W/mK]		
Junction type	Metal clad	Not metal clad
Roof-wall	0.42	0.39
Wall-ground floor	1.725	0.233
Wall-wall (corner)	0.375	0.061
Wall-not ground floor	0.04	0.045
Lintel (window/door)	1.905	0.005
Sill (window)	1.905	0.08
Jamb (window/door)	1.905	0.09

Shell & core	
Shell area for fit-out	YES

Envelopes										
(Multiplier) Name	(1) C UNIT1GF Wall 1	(1) C UNIT1GF Wall 2	(1) C UNIT1GF Wall 3	(1) C UNIT1GF Wall 4	(1) C UNIT1GF Wall 5	(1) C UNIT1GF Exposed Floor	(1) C UNIT1GF Internal Ceiling	(1) C UNIT1GF Partition 1	(1) C UNIT1GF Partition 2	(1) C UNIT1GF Partition 4
Type	Wall	Wall	Wall	Wall	Wall	Floor or Ceiling	Floor or Ceiling	Wall	Wall	Wall
Area [m2]	10.5	89.1	9.7	7.3	65	254.8	254.8	29	32.3	0.4
Orientation	West	North	West	North	South	Horizontal	Horizontal	West	South	North
Adjacent space	Exterior	Exterior	Exterior	Exterior	Exterior	Underground	Conditioned	Conditioned	Conditioned	Conditioned
Construction name	EXPWALL 1	EXPWALL 1	EXPWALL 2	EXPWALL 2	EXPWALL 1	EXPFLOOR 1	INTCEIL 1	PARTITION 1	PARTITION 1	PARTITION 1

Envelopes - continued

(Multiplier) Name	(1) C UNIT1GF Partition 6	(1) C UNIT1GF Partition 8
Type	Wall	Wall
Area [m2]	12	34.8
Orientation	North-East	East
Adjacent space	Conditioned	Conditioned
Construction name	PARTITION 1	PARTITION 1

Windows & rooflights

(Multiplier) Name	(1) C UNIT1GF Window 2	(1) C UNIT1GF Window 2	(2) C UNIT1GF Window 2	(3) C UNIT1GF Window 2	(4) C UNIT1GF Window 6	(1) C UNIT1GF Window 6 (2)
In envelope	C UNIT1GF Wall 2	C UNIT1GF Wall 2	C UNIT1GF Wall 2	C UNIT1GF Wall 2	C UNIT1GF Wall 2	C UNIT1GF Wall 2
Area [m2]	4.3	11.3	11.3	4.1	4.3	4.3
Glazing name	WINDOW 1	WINDOW 1	WINDOW 1	WINDOW 1	WINDOW 1	WINDOW 1
Shading position	None (no shading)	None (no shading)	None (no shading)	None (no shading)	None (no shading)	None (no shading)
Shading colour	-	-	-	-	-	-
Shading translucency	-	-	-	-	-	-
Transmission factor	1	1	1	1	1	1
Frame / Aspect ratios	0.1 / 1.5569	0.1 / 0.597	0.1 / 0.5983	0.1 / 1.6456	0.1 / 1.5569	0.1 / 1.5569

Notes

Zone name: C UNIT1M	Activity: Generic Office Area	Multiplier: 1
Area [m2]: 315.288	Height [m]: 3.3	Air permeability @ 50pa [m3/hm2]: 3

HVAC system, ventilation, and exhaust	
Name	HVAC 1
Destratification fans	NO
Ventilation type	Mechanical
SFP for local mechanical supply & extract [W/(l/s)]	1
Heat Recovery system	Plate heat exchanger (Recuperator)
Heat recovery seasonal efficiency	0.8
Variable heat recovery efficiency	YES
Local mechanical exhaust	YES
Exhaust air flow rate [l/s.m2]	1
SFP for mechanical exhaust [W/(l/s)]	0.5
Exhaust fans location	Fan remote from zone
SFP for system terminal units [W/(l/s)]	-
Demand-controlled ventilation	Dependent on gas sensors
Flow regulation type for ventilation control	Speed control
Night cooling maximum hours [hours/month]	-
Night cooling maximum air flow rate [l/s.m2]	-
SFP for night cooling [W/(l/s)]	-

General Lighting and controls	
Total wattage [W]	1545.4
Design illuminance [Lux]	500
Lamp and ballast efficacy [Lumens/W]	-
Light output ratio	-
Lamp type	-
Air-extracting luminaires	NO
Controls	BOTH
Type of photoelectric control	PH-DIMMING
Different sensor for back of zone	NO
Photoelectric control parasitic power [W/m2]	0.1
Automatic zoning for daylight	YES
Occupancy sensing	AUTO-ON-OFF
Occupancy sensing parasitic power [W/m2]	0.1

Hot water system	
Name	Default DHW
Dead leg length in this zone [m]	0

Display lighting	
Efficient lamps	NO
Lumens per circuit wattage	-
Time switching	NO

Thermal bridges Psi values [W/mK]		
Junction type	Metal clad	Not metal clad
Roof-wall	0.42	0.39
Wall-ground floor	1.725	0.233
Wall-wall (corner)	0.375	0.061
Wall-not ground floor	0.04	0.045
Lintel (window/door)	1.905	0.005
Sill (window)	1.905	0.08
Jamb (window/door)	1.905	0.09

Shell & core	
Shell area for fit-out	YES

Envelopes									
(Multiplier) Name	(1) C UNIT1M Wall 1	(1) C UNIT1M Wall 2	(1) C UNIT1M Wall 3	(1) C UNIT1M Wall 5	(1) C UNIT1M Internal Floor	(1) C UNIT1M Internal Ceiling	(1) C UNIT1M Partition 1	(1) C UNIT1M Partition 2	(1) C UNIT1M Partition 4
Type	Wall	Wall	Wall	Wall	Floor or Ceiling	Floor or Ceiling	Wall	Wall	Wall
Area [m2]	59.3	107.6	9.6	9.6	309.1	309.1	42.9	49.1	45.1
Orientation	South	North	West	East	Horizontal	Horizontal	East	South	West
Adjacent space	Exterior	Exterior	Exterior	Exterior	Conditioned	Conditioned	Conditioned	Conditioned	Conditioned
Construction name	EXPWALL 1	EXPWALL 1	EXPWALL 1	EXPWALL 1	INTFLOOR 1	INTCEIL 1	PARTITION 1	PARTITION 1	PARTITION 1

Windows & rooflights								
(Multiplier) Name	(1) C UNIT1M Window 2 (1)	(1) C UNIT1M Window 2 (1)	(2) C UNIT1M Window 4 (2)	(1) C UNIT1M Window 4 (1)	(2) C UNIT1M Window 4 (2)	(3) C UNIT1M Window 4 (3)	(4) C UNIT1M Window 6 (4)	(1) C UNIT1M Window 6 (2)
In envelope	C UNIT1M Wall 2	C UNIT1M Wall 2	C UNIT1M Wall 2	C UNIT1M Wall 2	C UNIT1M Wall 2	C UNIT1M Wall 2	C UNIT1M Wall 2	C UNIT1M Wall 2
Area [m2]	2.8	2.8	2.8	7.4	7.4	2.9	3.5	3.5
Glazing name	WINDOW 1	WINDOW 1	WINDOW 1	WINDOW 1	WINDOW 1	WINDOW 1	WINDOW 1	WINDOW 1
Shading position	None (no shading)	None (no shading)	None (no shading)	None (no shading)	None (no shading)	None (no shading)	None (no shading)	None (no shading)
Shading colour	-	-	-	-	-	-	-	-
Shading translucency	-	-	-	-	-	-	-	-
Transmission factor	1	1	1	1	1	1	1	1
Frame / Aspect ratios	0.1 / 0.9941	0.1 / 1.006	0.1 / 1.006	0.1 / 0.3876	0.1 / 0.3885	0.1 / 0.9713	0.1 / 0.6903	0.1 / 0.6903

Notes

Zone name: C UNIT2GF	Activity: Generic Office Area	Multiplier: 1
Area [m2]: 112.3186	Height [m]: 3.6	Air permeability @ 50pa [m3/hm2]: 3

HVAC system, ventilation, and exhaust	
Name	HVAC 1
Destratification fans	NO
Ventilation type	Mechanical
SFP for local mechanical supply & extract [W/(l/s)]	1
Heat Recovery system	Plate heat exchanger (Recuperator)
Heat recovery seasonal efficiency	0.8
Variable heat recovery efficiency	YES
Local mechanical exhaust	YES
Exhaust air flow rate [l/s.m2]	1
SFP for mechanical exhaust [W/(l/s)]	0.5
Exhaust fans location	Fan remote from zone
SFP for system terminal units [W/(l/s)]	-
Demand-controlled ventilation	Dependent on gas sensors
Flow regulation type for ventilation control	Speed control
Night cooling maximum hours [hours/month]	-
Night cooling maximum air flow rate [l/s.m2]	-
SFP for night cooling [W/(l/s)]	-

General Lighting and controls	
Total wattage [W]	539.85
Design illuminance [Lux]	500
Lamp and ballast efficacy [Lumens/W]	-
Light output ratio	-
Lamp type	-
Air-extracting luminaires	NO
Controls	BOTH
Type of photoelectric control	PH-DIMMING
Different sensor for back of zone	NO
Photoelectric control parasitic power [W/m2]	0.1
Automatic zoning for daylight	YES
Occupancy sensing	AUTO-ON-OFF
Occupancy sensing parasitic power [W/m2]	0.1

Hot water system	
Name	Default DHW
Dead leg length in this zone [m]	0

Display lighting	
Efficient lamps	NO
Lumens per circuit wattage	-
Time switching	NO

Thermal bridges Psi values [W/mK]		
Junction type	Metal clad	Not metal clad
Roof-wall	0.42	0.39
Wall-ground floor	1.725	0.233
Wall-wall (corner)	0.375	0.061
Wall-not ground floor	0.04	0.045
Lintel (window/door)	1.905	0.005
Sill (window)	1.905	0.08
Jamb (window/door)	1.905	0.09

Shell & core	
Shell area for fit-out	YES

Envelopes								
(Multiplier) Name	(1) C UNIT2GF Wall 1	(1) C UNIT2GF Wall 2	(1) C UNIT2GF Exposed Floor	(1) C UNIT2GF Internal Ceiling	(1) C UNIT2GF Partition 1	(1) C UNIT2GF Partition 2	(1) C UNIT2GF Partition 3	(1) C UNIT2GF Partition 4
Type	Wall	Wall	Floor or Ceiling	Floor or Ceiling	Wall	Wall	Wall	Wall
Area [m2]	47.5	8.9	108	108	28.2	19.6	31.4	25.5
Orientation	North	West	Horizontal	Horizontal	South	South-East	East	West
Adjacent space	Exterior	Exterior	Underground	Conditioned	Conditioned	Conditioned	Conditioned	Conditioned
Construction name	EXPWALL 1	EXPWALL 1	EXPFLOOR 1	INTCEIL 1	PARTITION 1	PARTITION 1	PARTITION 1	PARTITION 1

Windows & rooflights			
(Multiplier) Name	(1) C UNIT2GF Window 1	(1) C UNIT2GF Window 1	(2) C UNIT2GF Window 3
In envelope	C UNIT2GF Wall 1	C UNIT2GF Wall 1	C UNIT2GF Wall 1
Area [m2]	4.4	4.4	11.4
Glazing name	WINDOW 1	WINDOW 1	WINDOW 1
Shading position	None (no shading)	None (no shading)	None (no shading)
Shading colour	-	-	-
Shading translucency	-	-	-
Transmission factor	1	1	1
Frame / Aspect ratios	0.1 / 1.5476	0.1 / 1.5476	0.1 / 0.595

Notes

Zone name: C UNIT2M	Activity: Generic Office Area	Multiplier: 1
Area [m2]: 442.594	Height [m]: 3.3	Air permeability @ 50pa [m3/hm2]: 3

HVAC system, ventilation, and exhaust	
Name	HVAC 1
Destratification fans	NO
Ventilation type	Mechanical
SFP for local mechanical supply & extract [W/(l/s)]	1
Heat Recovery system	Plate heat exchanger (Recuperator)
Heat recovery seasonal efficiency	0.8
Variable heat recovery efficiency	YES
Local mechanical exhaust	YES
Exhaust air flow rate [l/s.m2]	1
SFP for mechanical exhaust [W/(l/s)]	0.5
Exhaust fans location	Fan remote from zone
SFP for system terminal units [W/(l/s)]	-
Demand-controlled ventilation	Dependent on gas sensors
Flow regulation type for ventilation control	Speed control
Night cooling maximum hours [hours/month]	-
Night cooling maximum air flow rate [l/s.m2]	-
SFP for night cooling [W/(l/s)]	-

General Lighting and controls	
Total wattage [W]	2170
Design illuminance [Lux]	500
Lamp and ballast efficacy [Lumens/W]	-
Light output ratio	-
Lamp type	-
Air-extracting luminaires	NO
Controls	BOTH
Type of photoelectric control	PH-DIMMING
Different sensor for back of zone	NO
Photoelectric control parasitic power [W/m2]	0.1
Automatic zoning for daylight	YES
Occupancy sensing	AUTO-ON-OFF
Occupancy sensing parasitic power [W/m2]	0.1

Hot water system	
Name	Default DHW
Dead leg length in this zone [m]	0

Display lighting	
Efficient lamps	NO
Lumens per circuit wattage	-
Time switching	NO

Thermal bridges Psi values [W/mK]		
Junction type	Metal clad	Not metal clad
Roof-wall	0.42	0.39
Wall-ground floor	1.725	0.233
Wall-wall (corner)	0.375	0.061
Wall-not ground floor	0.04	0.045
Lintel (window/door)	1.905	0.005
Sill (window)	1.905	0.08
Jamb (window/door)	1.905	0.09

Shell & core	
Shell area for fit-out	YES

Envelopes										
(Multiplier) Name	(1) C UNIT2M Wall 1	(1) C UNIT2M Wall 2	(1) C UNIT2M Wall 3	(1) C UNIT2M Wall 4	(1) C UNIT2M Wall 6	(1) C UNIT2M Wall 10	(1) C UNIT2M Internal Floor	(1) C UNIT2M Internal Ceiling	(1) C UNIT2M Partition 1	(1) C UNIT2M Partition 2
Type	Wall	Wall	Wall	Wall	Wall	Wall	Floor or Ceiling	Floor or Ceiling	Wall	Wall
Area [m2]	88.7	72.5	46.2	20.4	90.7	8.6	434	434	77	21.1
Orientation	North	South	South-East	South-West	East	West	Horizontal	Horizontal	West	South
Adjacent space	Exterior	Exterior	Exterior	Exterior	Exterior	Exterior	Conditioned	Conditioned	Conditioned	Conditioned
Construction name	EXPWALL 1	EXPWALL 1	EXPWALL 1	EXPWALL 1	EXPWALL 1	EXPWALL 1	INTFLOOR 1	INTCEIL 1	PARTITION 1	PARTITION 1

Envelopes - continued

(Multiplier) Name	(1) C UNIT2M Partition 3	(1) C UNIT2M Partition 4	(1) C UNIT2M Partition 7	(1) C UNIT2M Partition 9	(1) C UNIT2M Partition 10
Type	Wall	Wall	Wall	Wall	Wall
Area [m2]	15.8	5.6	14.2	38.9	17.1
Orientation	South-West	North-East	North-West	North	East
Adjacent space	Conditioned	Conditioned	Conditioned	Conditioned	Conditioned
Construction name	PARTITION 1	PARTITION 1	PARTITION 1	PARTITION 1	PARTITION 1

Windows & rooflights

(Multiplier) Name	(1) C UNIT2M Window 1 (1)	(1) C UNIT2M Window 1 (1)	(2) C UNIT2M Window 9 (2)	(1) C UNIT2M Window 9 (1)	(2) C UNIT2M Window 9 (2)	(3) C UNIT2M Window 12 (3)	(1) C UNIT2M Window 5 (1)	(1) C UNIT2M Window 5 (1)	(2) C UNIT2M Window 5 (2)	(3) C UNIT2M Window 6 (3)
In envelope	C UNIT2M Wall 1	C UNIT2M Wall 1	C UNIT2M Wall 1	C UNIT2M Wall 1	C UNIT2M Wall 1	C UNIT2M Wall 1	C UNIT2M Wall 3	C UNIT2M Wall 3	C UNIT2M Wall 3	C UNIT2M Wall 6
Area [m2]	2.8	2.8	2.9	2.9	2.9	2.8	1.6	2.2	6.9	8.9
Glazing name	WINDOW 1	WINDOW 1	WINDOW 1	WINDOW 1	WINDOW 1	WINDOW 1	WINDOW 1	WINDOW 1	WINDOW 1	WINDOW 1
Shading position	None (no shading)	None (no shading)	None (no shading)	None (no shading)	None (no shading)	None (no shading)	None (no shading)	None (no shading)	None (no shading)	None (no shading)
Shading colour	-	-	-	-	-	-	-	-	-	-
Shading translucency	-	-	-	-	-	-	-	-	-	-
Transmission factor	1	1	1	1	1	1	1	1	1	1
Frame / Aspect ratios	0.1 / 1.006	0.1 / 1.006	0.1 / 1.0238	0.1 / 1.0238	0.1 / 1.0238	0.1 / 1.006	0.1 / 1.3455	0.1 / 1	0.1 / 0.3176	0.1 / 0.2607

There are 4 more windows in this zone which could not be displayed

Notes