

# Energy Performance Certificate

Non-Domestic Building



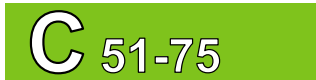
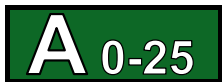
CESAM  
International Drive  
SUNDERLAND  
SR5 3FH

Certificate Reference Number:  
0180-0230-0242-8202-3002

This certificate shows the energy rating of this building. It indicates the energy efficiency of the building fabric and the heating, ventilation, cooling and lighting systems. The rating is compared to two benchmarks for this type of building: one appropriate for new buildings and one appropriate for existing buildings. There is more advice on how to interpret this information in the guidance document *Energy Performance Certificates for the construction, sale and let of non-dwellings* available on the Government's website at [www.gov.uk/government/collections/energy-performance-certificates](http://www.gov.uk/government/collections/energy-performance-certificates).

## Energy Performance Asset Rating

More energy efficient



Less energy efficient

Net zero CO<sub>2</sub> emissions

**24** This is how energy efficient the building is.

## Technical Information

Main heating fuel:	Natural Gas
Building environment:	Heating and Natural Ventilation
Total useful floor area (m <sup>2</sup> ):	12983
Assessment Level:	5
Building emission rate (kgCO <sub>2</sub> /m <sup>2</sup> per year):	16.21
Primary energy use (kWh/m <sup>2</sup> per year):	94.51

## Benchmarks

Buildings similar to this one could have ratings as follows:

**31** If newly built

**82** If typical of the existing stock

## Administrative Information

This is an Energy Performance Certificate as defined in the Energy Performance of Buildings Regulations 2012 as amended.

<b>Assessment Software:</b>	Virtual Environment v7.0.12 using calculation engine ApacheSim v7.0.12
<b>Property Reference:</b>	884232200000
<b>Assessor Name:</b>	Toby Jonathon Eyres Britton
<b>Assessor Number:</b>	LCEA089923
<b>Accreditation Scheme:</b>	CIBSE Certification Limited
<b>Employer/Trading Name:</b>	Anderson Green Ltd
<b>Employer/Trading Address:</b>	Unit C4 Park Lane Business Centre Basford Nottingham NG6 0DW
<b>Issue Date:</b>	11 Feb 2020
<b>Valid Until:</b>	10 Feb 2030 (unless superseded by a later certificate)
<b>Related Party Disclosure:</b>	Not related to the owner.

Recommendations for improving the energy performance of the building are contained in the associated Recommendation Report - 0328-0220-4240-1200-8003.

## About this document and the data in it

This document has been produced following an energy assessment undertaken by a qualified Energy Assessor, accredited by CIBSE Certification Limited. You can obtain contact details of the Accreditation Scheme at [cibsecertification.com](http://cibsecertification.com).

A copy of this certificate has been lodged on a national register as a requirement under the Energy Performance of Buildings Regulations 2012 as amended. It will be made available via the online search function at [www.ndepcregister.com](http://www.ndepcregister.com). The certificate (including the building address) and other data about the building collected during the energy assessment but not shown on the certificate, for instance heating system data, will be made publicly available at [www.opendatacommunities.org](http://www.opendatacommunities.org).

This certificate and other data about the building may be shared with other bodies (including government departments and enforcement agencies) for research, statistical and enforcement purposes. Any personal data it contains will be processed in accordance with the General Data Protection Regulation and all applicable laws and regulations relating to the processing of personal data and privacy. For further information about this and how data about the property are used, please visit [www.ndepcregister.com](http://www.ndepcregister.com). To opt out of having information about your building made publicly available, please visit [www.ndepcregister.com/optout](http://www.ndepcregister.com/optout).

There is more information in the guidance document *Energy Performance Certificates for the construction, sale and let of non-dwellings* available on the Government website at: [www.gov.uk/government/collections/energy-performance-certificates](http://www.gov.uk/government/collections/energy-performance-certificates). It explains the content and use of this document, advises on how to identify the authenticity of a certificate and how to make a complaint.

## Opportunity to benefit from a Green Deal on this property

The Green Deal can help you cut your energy bills by making energy efficiency improvements at no upfront costs. Use the Green Deal to find trusted advisors who will come to your property, recommend measures that are right for you and help you access a range of accredited installers. Responsibility for repayments stays with the property – whoever pays the energy bills benefits so they are responsible for the payments.

To find out how you could use Green Deal finance to improve your property please call 0300 123 1234.

## Project name

**CESAM**

As built

Date: Tue Feb 11 11:09:40 2020

## Administrative information

## Building Details

Address: SUNDERLAND, SR5 3FH

## Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.12

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.12

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

## Owner Details

Name:

Telephone number:

Address: , ,

## Certifier details

Name: Toby Jonathon Eyres Britton

Telephone number: 0115 9754141

Address: Anderson Green Ltd Unit C4 Park Lane Business Centre, Basford, Nottingham, NG6 0DW

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

CO <sub>2</sub> emission rate from the notional building, kgCO <sub>2</sub> /m <sup>2</sup> .annum	20.5
Target CO <sub>2</sub> emission rate (TER), kgCO <sub>2</sub> /m <sup>2</sup> .annum	20.5
Building CO <sub>2</sub> emission rate (BER), kgCO <sub>2</sub> /m <sup>2</sup> .annum	16.2
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 <sub>a</sub> -Limit	U <sub>a</sub> -Calc	U <sub>i</sub> -Calc	Surface where the maximum value occurs*
Wall**	0.35	0.35	0.35	00000001:Surf[1]
Floor	0.25	0.25	0.25	00000001:Surf[2]
Roof	0.25	0.25	0.25	0200000F:Surf[0]
Windows***, roof windows, and rooflights	2.2	1.67	1.88	04000001:Surf[14]
Personnel doors	2.2	1.8	1.8	04000001:Surf[0]
Vehicle access & similar large doors	1.5	1	1	00000001:Surf[0]
High usage entrance doors	3.5	4.19	4.19	0100000A:Surf[4]
U <sub>a</sub> -Limit = Limiting area-weighted average U-values [W/(m <sup>2</sup> K)] U <sub>a</sub> -Calc = Calculated area-weighted average U-values [W/(m <sup>2</sup> K)] U <sub>i</sub> -Calc = Calculated maximum individual element U-values [W/(m <sup>2</sup> K)]				
* There might be more than one surface where the maximum U-value occurs.				
** Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.				
*** Display windows and similar glazing are excluded from the U-value check.				
N.B.: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.				

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

<b>Whole building lighting automatic monitoring &amp; targeting with alarms for out-of-range values</b>	NO
<b>Whole building electric power factor achieved by power factor correction</b>	<0.9

### 1- VRF FCU - NAT

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
<b>This system</b>	3.91	4.1	0	1.49	-
<b>Standard value</b>	2.5*	3.2	N/A	1.6^	N/A
<b>Automatic monitoring &amp; targeting with alarms for out-of-range values for this HVAC system</b>					NO
* 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.					
^ Limiting SFP may be extended by the amounts specified in the Non-Domestic Building Services Compliance Guide if the system includes additional components as listed in the Guide.					

### 2- Panel Heater - NAT

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
<b>This system</b>	1	-	0.1	0	-
<b>Standard value</b>	N/A	N/A	N/A	N/A	N/A
<b>Automatic monitoring &amp; targeting with alarms for out-of-range values for this HVAC system</b>					NO

### 3- LTHW ALL AIR S E

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
<b>This system</b>	0.96	-	0	0.94	-
<b>Standard value</b>	0.91	N/A	N/A	1.1^	N/A
<b>Automatic monitoring &amp; targeting with alarms for out-of-range values for this HVAC system</b>					NO
^ Limiting SFP may be extended by the amounts specified in the Non-Domestic Building Services Compliance Guide if the system includes additional components as listed in the Guide.					

### 4- Panel Heater - E

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
<b>This system</b>	1	-	0.1	0	-
<b>Standard value</b>	N/A	N/A	N/A	N/A	N/A
<b>Automatic monitoring &amp; targeting with alarms for out-of-range values for this HVAC system</b>					NO

### 5- VRF FCU - E

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
<b>This system</b>	3.91	4.1	0	1.49	-
<b>Standard value</b>	2.5*	3.2	N/A	1.1^	N/A
<b>Automatic monitoring &amp; targeting with alarms for out-of-range values for this HVAC system</b>					NO
* 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.					
^ Limiting SFP may be extended by the amounts specified in the Non-Domestic Building Services Compliance Guide if the system includes additional components as listed in the Guide.					

### 6- VRF FCU - SEHR AHU 201

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
<b>This system</b>	3.91	4.1	0	1.57	0.7
<b>Standard value</b>	2.5*	3.2	N/A	1.6^	0.5
<b>Automatic monitoring &amp; targeting with alarms for out-of-range values for this HVAC system</b>					NO
* 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.					
^ Limiting SFP may be extended by the amounts specified in the Non-Domestic Building Services Compliance Guide if the system includes additional components as listed in the Guide.					

7- VRF FCU - SEHR AHU 203

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
<b>This system</b>	3.91	4.1	0	1.82	0.83
<b>Standard value</b>	2.5*	3.2	N/A	1.6^	0.5
<b>Automatic monitoring &amp; targeting with alarms for out-of-range values for this HVAC system</b>					NO
* 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.					
^ Limiting SFP may be extended by the amounts specified in the Non-Domestic Building Services Compliance Guide if the system includes additional components as listed in the Guide.					

8- VRF FCU - SEHR AHU 205

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
<b>This system</b>	3.91	4.1	0	1.49	0.67
<b>Standard value</b>	2.5*	3.2	N/A	1.6^	0.5
<b>Automatic monitoring &amp; targeting with alarms for out-of-range values for this HVAC system</b>					NO
* 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.					
^ Limiting SFP may be extended by the amounts specified in the Non-Domestic Building Services Compliance Guide if the system includes additional components as listed in the Guide.					

9- VRF FCU - E Server

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
<b>This system</b>	3.61	3.95	0	0	-
<b>Standard value</b>	2.5*	3.2	N/A	N/A	N/A
<b>Automatic monitoring &amp; targeting with alarms for out-of-range values for this HVAC system</b>					NO
* 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.					

10- Gas Fired Radiant

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
<b>This system</b>	0.91	-	0.9	0	-
<b>Standard value</b>	0.91	N/A	N/A	N/A	N/A
<b>Automatic monitoring &amp; targeting with alarms for out-of-range values for this HVAC system</b>					YES

11- VRF FCU - SEHR AHU 204

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
<b>This system</b>	3.91	4.1	0	1.82	0.74
<b>Standard value</b>	2.5*	3.2	N/A	1.6^	0.5
<b>Automatic monitoring &amp; targeting with alarms for out-of-range values for this HVAC system</b>					NO
* 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.					
^ Limiting SFP may be extended by the amounts specified in the Non-Domestic Building Services Compliance Guide if the system includes additional components as listed in the Guide.					

12- VRF FCU - SEHR AHU 202

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
<b>This system</b>	3.91	4.1	0	1.62	0.84
<b>Standard value</b>	2.5*	3.2	N/A	1.6^	0.5
<b>Automatic monitoring &amp; targeting with alarms for out-of-range values for this HVAC system</b>					NO
* 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.					
^ Limiting SFP may be extended by the amounts specified in the Non-Domestic Building Services Compliance Guide if the system includes additional components as listed in the Guide.					

1- DHW - GFWH

	Water heating efficiency	Storage loss factor [kWh/litre per day]
<b>This building</b>	0.95	0.013
<b>Standard value</b>	0.9*	N/A

\* Standard shown is for gas boilers >30 kW output. For boilers <=30 kW output, limiting efficiency is 0.73.

2- DHW - elec point of use

	Water heating efficiency	Storage loss factor [kWh/litre per day]
<b>This building</b>	1	0.04
<b>Standard value</b>	1	N/A

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

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

Zone name	SFP [W/(l/s)]										HR efficiency	
	ID of system type	A	B	C	D	E	F	G	H	I	Zone	Standard
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1			
001 circulation	-	-	-	-	-	-	-	0.3	-	-	N/A	
003 Circulation	-	-	-	-	-	-	-	0.3	-	-	N/A	
004 Kitchen & Servery	-	-	-	-	-	-	-	-	0.6	-	N/A	
005 Female WC	-	-	0.5	-	-	-	-	-	-	-	N/A	
006 Female Changing	-	-	-	-	-	-	-	0.5	-	-	N/A	
008 Male WC	-	-	0.5	-	-	-	-	-	-	-	N/A	
009 Male Changing	-	-	-	-	-	-	-	0.5	-	-	N/A	
010 Accessible WC/Shower	-	-	0.5	-	-	-	-	-	-	-	N/A	
011 Cafe	-	-	-	-	-	-	-	0.3	-	-	N/A	
012 Event Room	-	-	-	-	-	-	-	0.3	-	-	N/A	
013 Store Room	-	-	-	-	-	-	-	0.3	-	-	N/A	
014 Reception/Entrance Atrium	-	-	-	-	-	-	-	0.3	-	-	N/A	
015 Circulation	-	-	-	-	-	-	-	0.3	-	-	N/A	
016 First Aid	-	-	0.5	-	-	-	-	-	-	-	N/A	
017 Cleaners Store	-	-	-	-	-	-	-	0.3	-	-	N/A	
018 Circulation	-	-	-	-	-	-	-	0.3	-	-	N/A	
018A F WC	-	-	0.5	-	-	-	-	-	-	-	N/A	
018B F WC	-	-	0.5	-	-	-	-	-	-	-	N/A	
018C F WC	-	-	0.5	-	-	-	-	-	-	-	N/A	
018D F WC	-	-	0.5	-	-	-	-	-	-	-	N/A	
018E F ACC WC	-	-	0.5	-	-	-	-	-	-	-	N/A	
018F M ACC WC	-	-	0.5	-	-	-	-	-	-	-	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
018G M WC	-	-	0.5	-	-	-	-	-	-	-	-	N/A
018H M WC	-	-	0.5	-	-	-	-	-	-	-	-	N/A
018J M WC	-	-	0.5	-	-	-	-	-	-	-	-	N/A
018K M WC	-	-	0.5	-	-	-	-	-	-	-	-	N/A
019 Admin	-	-	-	-	-	-	-	-	0.3	-	-	N/A
019A Office Storage	-	-	-	-	-	-	-	-	0.3	-	-	N/A
020 Meeting Room	-	-	-	-	-	-	-	-	0.3	-	-	N/A
021 Breakout Area	-	-	-	-	-	-	-	-	0.3	-	-	N/A
022 Meeting Room	-	-	-	-	-	-	-	-	0.3	-	-	N/A
023 Meeting Room	-	-	-	-	-	-	-	-	0.3	-	-	N/A
024 Project Office	-	-	-	-	-	-	-	-	0.3	-	-	N/A
025 Project Office	-	-	-	-	-	-	-	-	0.3	-	-	N/A
026 Project Office	-	-	-	-	-	-	-	-	0.3	-	-	N/A
028 Kitchenette	-	-	0.5	-	-	-	-	-	-	-	-	N/A
029 Project Office	-	-	-	-	-	-	-	-	0.3	-	-	N/A
030 Project Office	-	-	-	-	-	-	-	-	0.3	-	-	N/A
031 Project Office	-	-	-	-	-	-	-	-	0.3	-	-	N/A
032 Meeting Room	-	-	-	-	-	-	-	-	0.3	-	-	N/A
033 Meeting Room	-	-	-	-	-	-	-	-	0.3	-	-	N/A
034 Circulation	-	-	-	-	-	-	-	-	0.3	-	-	N/A
035 Server	-	-	0.5	-	-	-	-	-	-	-	-	N/A
045 breakout	-	-	-	-	-	-	-	-	0.3	-	-	N/A
046 Female WC	-	-	0.3	-	-	-	-	-	-	-	-	N/A
047 Male WC	-	-	0.3	-	-	-	-	-	-	-	-	N/A
048 acc wc	-	-	0.3	-	-	-	-	-	-	-	-	N/A
049 BREAKOUT	-	-	-	-	-	-	-	-	0.3	-	-	N/A
050 Male WC	-	-	0.3	-	-	-	-	-	-	-	-	N/A
051 Female WC	-	-	0.3	-	-	-	-	-	-	-	-	N/A
052 ACC WC	-	-	0.3	-	-	-	-	-	-	-	-	N/A
053 ACC WC	-	-	0.3	-	-	-	-	-	-	-	-	N/A
054 Female WC	-	-	0.3	-	-	-	-	-	-	-	-	N/A
055 Male WC	-	-	0.3	-	-	-	-	-	-	-	-	N/A
056 BREAKOUT	-	-	-	-	-	-	-	-	0.3	-	-	N/A
057 ACC WC	-	-	0.3	-	-	-	-	-	-	-	-	N/A
058 Female WC	-	-	0.3	-	-	-	-	-	-	-	-	N/A
059 Male WC	-	-	0.3	-	-	-	-	-	-	-	-	N/A
060 BREAKOUT	-	-	-	-	-	-	-	-	0.3	-	-	N/A
103 Open Plan Offices	-	-	-	-	-	-	-	-	0.3	-	-	N/A
103A Meeting Room	-	-	-	-	-	-	-	-	0.3	-	-	N/A
106 Tea Prep	-	-	0.5	-	-	-	-	-	-	-	-	N/A
107 Meeting Room	-	-	-	-	-	-	-	-	0.3	-	-	N/A
108 CIRCULATION	-	-	-	-	-	-	-	-	0.3	-	-	N/A
110 Meeting Room	-	-	-	-	-	-	-	-	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	Zone	Standard
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1			
111 Meeting Room	-	-	-	-	-	-	-	0.3	-	-	-	N/A
112 Meeting Room	-	-	-	-	-	-	-	0.3	-	-	-	N/A
113 Circulation	-	-	-	-	-	-	-	0.3	-	-	-	N/A
113A F WC	-	-	0.5	-	-	-	-	-	-	-	-	N/A
113B F WC	-	-	0.5	-	-	-	-	-	-	-	-	N/A
113C F WC	-	-	0.5	-	-	-	-	-	-	-	-	N/A
113D F WC	-	-	0.5	-	-	-	-	-	-	-	-	N/A
113E M WC	-	-	0.5	-	-	-	-	-	-	-	-	N/A
113F M WC	-	-	0.5	-	-	-	-	-	-	-	-	N/A
113G M WC	-	-	-	-	-	-	-	0.3	-	-	-	N/A
113H M WC	-	-	-	-	-	-	-	0.3	-	-	-	N/A
114 ACC WC	-	-	0.5	-	-	-	-	-	-	-	-	N/A
114 Classroom	-	-	-	-	-	-	-	0.3	-	-	-	N/A
115 Cleaners Store	-	-	-	-	-	-	-	0.3	-	-	-	N/A
117 Circulation & Breakout	-	-	-	-	-	-	-	0.3	-	-	-	N/A
118 Meeting Room	-	-	-	-	-	-	-	0.3	-	-	-	N/A
119 Meeting Room	-	-	-	-	-	-	-	0.3	-	-	-	N/A
120 Meeting	-	-	-	-	-	-	-	0.3	-	-	-	N/A
121 Meeting Room	-	-	-	-	-	-	-	0.3	-	-	-	N/A
122 Circulation	-	-	-	-	-	-	-	0.3	-	-	-	N/A
124 Classroom	-	-	-	-	-	-	-	0.3	-	-	-	N/A
125 Flexible Classroom	-	-	-	-	-	-	-	0.3	-	-	-	N/A
126 Flexible Classroom	-	-	-	-	-	-	-	0.3	-	-	-	N/A
127 Classroom	-	-	-	-	-	-	-	0.3	-	-	-	N/A
128 Classroom	-	-	-	-	-	-	-	0.3	-	-	-	N/A
129 Kitchenette	-	-	0.3	-	-	-	-	-	-	-	-	N/A
202 Lobby	-	-	-	-	-	-	-	0.3	-	-	-	N/A
205 Lobby	-	-	-	-	-	-	-	0.3	-	-	-	N/A

Zone name	Luminous efficacy [lm/W]			General lighting [W]
	Luminaire	Lamp	Display lamp	
Standard value	60	60	22	
001 circulation	-	112	-	38
002 ESCAPE STAIR	-	122	-	42
003 Circulation	-	112	-	31
004 Kitchen & Servery	-	117	-	244
005 Female WC	-	78	-	81
006 Female Changing	-	78	-	89
007 Accessible WC/Shower	-	112	-	34
008 Male WC	-	78	-	83
009 Male Changing	-	78	-	86
010 Accessible WC/Shower	-	112	-	35
011 Cafe	-	115	-	336



General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name	Standard value	Luminaire	Lamp	Display lamp	
		60	60	22	
012 Event Room		112	-	-	711
013 Store Room		97	-	-	26
014 Reception/Entrance Atrium		-	107	107	425
015 Circulation		-	112	-	43
016 First Aid		-	112	-	62
017 Cleaners Store		112	-	-	8
018 Circulation		-	112	-	67
018A F WC		-	112	-	21
018B F WC		-	112	-	21
018C F WC		-	112	-	21
018D F WC		-	112	-	21
018E F ACC WC		-	112	-	26
018F M ACC WC		-	112	-	25
018G M WC		-	112	-	21
018H M WC		-	112	-	21
018J M WC		-	112	-	21
018K M WC		-	112	-	24
019 Admin		115	-	-	126
019A Office Storage		115	-	-	16
020 Meeting Room		115	-	-	127
021 Breakout Area		-	145	-	239
022 Meeting Room		115	-	-	154
023 Meeting Room		115	-	-	161
024 Project Office		115	-	-	138
025 Project Office		115	-	-	138
026 Project Office		115	-	-	137
028 Kitchenette		-	115	-	75
029 Project Office		115	-	-	143
030 Project Office		115	-	-	141
031 ESCAPE STAIR		-	122	-	40
031 Project Office		115	-	-	142
032 Meeting Room		115	-	-	94
033 Meeting Room		120	-	-	157
034 Circulation		-	78	-	33
035 Server		97	-	-	52
043 Workshop		142	-	-	46076
044 Plant Room		97	-	-	201
045 breakout		-	112	-	25
046 Female WC		-	112	-	19
047 Male WC		-	112	-	19
048 acc wc		-	112	-	19
049 BREAKOUT		-	112	-	28
050 Male WC		-	112	-	21

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name	Standard value	Luminaire	Lamp	Display lamp	
		60	60	22	
051 Female WC		-	112	-	20
052 ACC WC		-	112	-	20
053 ACC WC		-	112	-	21
054 Female WC		-	112	-	20
055 Male WC		-	112	-	21
056 BREAKOUT		-	112	-	27
057 ACC WC		-	112	-	19
058 Female WC		-	112	-	19
059 Male WC		-	112	-	19
060 BREAKOUT		-	112	-	25
102 Escape Stair		-	122	-	45
103 Open Plan Offices		115	-	-	2173
103A Meeting Room		115	-	-	92
106 Tea Prep		-	112	-	45
107 Meeting Room		115	-	-	103
108 CIRCULATION		-	112	-	43
110 Meeting Room		115	-	-	131
111 Meeting Room		115	-	-	134
112 Meeting Room		115	-	-	127
113 Circulation		-	112	-	65
113A F WC		-	112	-	24
113B F WC		-	112	-	23
113C F WC		-	112	-	24
113D F WC		-	112	-	25
113E M WC		-	97	-	28
113F M WC		97	-	-	7
113G M WC		97	-	-	7
113H M WC		97	-	-	7
114 ACC WC		-	112	-	27
114 Classroom		115	-	-	325
115 Cleaners Store		112	-	-	9
117 Circulation & Breakout		-	145	-	93
118 Meeting Room		115	-	-	118
119 Meeting Room		115	-	-	205
120 Meeting		115	-	-	200
121 Meeting Room		115	-	-	112
122 Circulation		-	112	-	68
124 Classroom		115	-	-	178
125 Flexible Classroom		115	-	-	174
126 Flexible Classroom		115	-	-	174
127 Classroom		115	-	-	223
128 Classroom		115	-	-	222
129 Kitchenette		-	115	-	76

General lighting and display lighting		Luminous efficacy [lm/W]			
Zone name		Luminaire	Lamp	Display lamp	General lighting [W]
	<b>Standard value</b>	60	60	22	
130 Escape Stair		-	122	-	77
201 Escape Stair		-	140	-	29
202 Lobby		-	140	-	13
203 Plant Deck		97	-	-	3814
204 Escape Stair		-	140	-	32
205 Lobby		-	140	-	14

**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?
001 circulation	N/A	N/A
003 Circulation	N/A	N/A
006 Female Changing	N/A	N/A
009 Male Changing	N/A	N/A
011 Cafe	YES (+21.4%)	NO
012 Event Room	N/A	N/A
013 Store Room	N/A	N/A
014 Reception/Entrance Atrium	YES (+267.8%)	NO
015 Circulation	N/A	N/A
017 Cleaners Store	N/A	N/A
018 Circulation	N/A	N/A
019 Admin	NO (-71.6%)	NO
019A Office Storage	NO (-11.6%)	NO
020 Meeting Room	NO (-12.5%)	NO
021 Breakout Area	NO (-59%)	NO
022 Meeting Room	NO (-15.1%)	NO
023 Meeting Room	NO (-14.6%)	NO
024 Project Office	NO (-11.1%)	NO
025 Project Office	NO (-10.1%)	NO
026 Project Office	NO (-10.5%)	NO
029 Project Office	NO (-93.4%)	NO
030 Project Office	NO (-92.8%)	NO
031 Project Office	NO (-93.4%)	NO
032 Meeting Room	NO (-89.1%)	NO
033 Meeting Room	NO (-89.4%)	NO
034 Circulation	NO (-88.7%)	NO
035 Server	NO (-94.5%)	NO
043 Workshop	YES (+332.8%)	NO
045 breakout	N/A	N/A
049 BREAKOUT	N/A	N/A
056 BREAKOUT	N/A	N/A
060 BREAKOUT	N/A	N/A
103 Open Plan Offices	YES (+27.4%)	NO
103A Meeting Room	YES (+15.6%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
107 Meeting Room	NO (-24.6%)	NO
108 CIRCULATION	NO (-55.2%)	NO
110 Meeting Room	N/A	N/A
111 Meeting Room	N/A	N/A
112 Meeting Room	N/A	N/A
113 Circulation	N/A	N/A
113G M WC	N/A	N/A
113H M WC	N/A	N/A
114 Classroom	NO (-51.5%)	NO
115 Cleaners Store	N/A	N/A
117 Circulation & Breakout	N/A	N/A
118 Meeting Room	NO (-92.3%)	NO
119 Meeting Room	NO (-91.9%)	NO
120 Meeting	NO (-11.9%)	NO
121 Meeting Room	NO (-11%)	NO
122 Circulation	N/A	N/A
124 Classroom	YES (+8.4%)	NO
125 Flexible Classroom	NO (-92.2%)	NO
126 Flexible Classroom	NO (-92.6%)	NO
127 Classroom	NO (-9.3%)	NO
128 Classroom	NO (-8.9%)	NO
202 Lobby	N/A	N/A
205 Lobby	N/A	N/A

#### 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

<b>Were alternative energy systems considered and analysed as part of the design process?</b>	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 <sup>2</sup> ]	12983.3	12983.3
External area [m <sup>2</sup> ]	27123.2	27123.2
Weather	NEW	NEW
Infiltration [m <sup>3</sup> /hm <sup>2</sup> @ 50Pa]	3	3
Average conductance [W/K]	9972.38	6767.63
Average U-value [W/m <sup>2</sup> K]	0.37	0.25
Alpha value* [%]	15.08	10

\* 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
C2 Residential Institutions: Hospitals and Care Homes
C2 Residential Institutions: Residential schools
<b>100 C2 Residential Institutions: Universities and colleges</b>
C2A Secure Residential Institutions
Residential spaces
D1 Non-residential Institutions: Community/Day Centre
D1 Non-residential Institutions: Libraries, Museums, and Galleries
D1 Non-residential Institutions: Education
D1 Non-residential Institutions: Primary Health Care Building
D1 Non-residential Institutions: Crown and County Courts
D2 General Assembly and Leisure, Night Clubs, and Theatres
Others: Passenger terminals
Others: Emergency services
Others: Miscellaneous 24hr activities
Others: Car Parks 24 hrs
Others: Stand alone utility block

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

	Actual	Notional
Heating	25.53	3.4
Cooling	2.3	2.05
Auxiliary	4.14	3.34
Lighting	4.14	24.15
Hot water	22.18	21.62
Equipment*	55.39	55.39
<b>TOTAL**</b>	<b>58.3</b>	<b>54.55</b>

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

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

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

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

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

	Actual	Notional
Heating + cooling demand [MJ/m <sup>2</sup> ]	112.22	40.27
Primary energy* [kWh/m <sup>2</sup> ]	94.51	120.24
Total emissions [kg/m <sup>2</sup> ]	16.2	20.5

\* 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 SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER
<b>[ST] Fan coil systems, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity</b>									
Actual	23.6	230.8	2	20.7	20.6	3.34	3.1	3.91	4.1
Notional	0.7	216.9	0.1	15.9	18.4	2.56	3.79	----	----
<b>[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity</b>									
Actual	132.2	0	45.9	0	0	0.8	0	1	0
Notional	101.3	0	32.6	0	0	0.86	0	----	----
<b>[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity</b>									
Actual	41.1	0	14.3	0	7.5	0.8	0	1	0
Notional	38.1	0	12.3	0	9.7	0.86	0	----	----
<b>[ST] Multiburner radiant heaters, [HS] Radiant heater, [HFT] Natural Gas, [CFT] Electricity</b>									
Actual	115.6	0	35.3	0	0	0.91	0	0.91	0
Notional	11.2	0	3.6	0	0	0.86	0	----	----
<b>[ST] Fan coil systems, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity</b>									
Actual	116.6	2.8	9.7	0.3	23.4	3.34	3.1	3.91	4.1
Notional	72.2	2.1	7.8	0.2	22.7	2.56	3.79	----	----
<b>[ST] Fan coil systems, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity</b>									
Actual	20.9	163.8	1.7	14.8	27.2	3.36	3.08	3.91	4.1
Notional	5.4	179.9	0.6	13.2	19.6	2.56	3.79	----	----
<b>[ST] Central heating using air distribution, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity</b>									
Actual	2.2	0	0.7	0	53.7	0.83	0	0.96	0
Notional	0	0	0	0	52.5	0.86	0	----	----
<b>[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity</b>									
Actual	0	1004.7	0	99.5	21.7	3.36	2.8	3.61	3.95
Notional	0	1157	0	84.8	24.7	2.56	3.79	----	----
<b>[ST] Fan coil systems, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity</b>									
Actual	0.3	199	0	18	18	3.37	3.07	3.91	4.1
Notional	0	227.4	0	16.7	13.7	2.56	3.79	----	----
<b>[ST] Fan coil systems, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity</b>									
Actual	21.9	17.7	1.8	1.6	19	3.41	3.03	3.91	4.1
Notional	10.8	42.6	1.2	3.1	14.3	2.56	3.79	----	----
<b>[ST] Fan coil systems, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity</b>									
Actual	20.8	206.2	1.7	18.9	34.7	3.41	3.03	3.91	4.1
Notional	20.1	189.6	2.2	13.9	26.1	2.56	3.79	----	----
<b>[ST] Fan coil systems, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity</b>									
Actual	55.2	32.3	4.6	2.9	20.1	3.34	3.1	3.91	4.1
Notional	40.5	42.8	4.4	3.1	16.2	2.56	3.79	----	----
<b>[ST] No Heating or Cooling</b>									
Actual	0	0	0	0	0	0	0	0	0
Notional	0	0	0	0	0	0	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

# Key Features

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

## Building fabric

Element	U <sub>i-Typ</sub>	U <sub>i-Min</sub>	Surface where the minimum value occurs*
Wall	0.23	0.35	00000001:Surf[1]
Floor	0.2	0.25	00000001:Surf[2]
Roof	0.15	0.25	0200000F:Surf[0]
Windows, roof windows, and rooflights	1.5	1.19	00000000:Surf[0]
Personnel doors	1.5	1.8	04000001:Surf[0]
Vehicle access & similar large doors	1.5	1	00000001:Surf[0]
High usage entrance doors	1.5	4.19	0100000A:Surf[4]
U <sub>i-Typ</sub> = Typical individual element U-values [W/(m <sup>2</sup> K)]		U <sub>i-Min</sub> = Minimum individual element U-values [W/(m <sup>2</sup> K)]	
* There might be more than one surface where the minimum U-value occurs.			

Air Permeability	Typical value	This building
m <sup>3</sup> /(h.m <sup>2</sup> ) at 50 Pa	5	3

# Recommendation Report

This report is associated with an Energy Performance Certificate.

**Report Reference Number: 0328-0220-4240-1200-8003**

CESAM  
International Drive  
SUNDERLAND  
SR5 3FH

Building Type(s): C2 Residential Institutions - Universities and colleges

<b>ADMINISTRATIVE INFORMATION</b>	
Issue Date:	11 Feb 2020
Valid Until:	10 Feb 2030 (*)
Total Useful Floor Area (m <sup>2</sup> ):	12983
Building Environment:	Heating and Natural Ventilation
Calculation Tool Used:	IES Ltd, Virtual Environment, v7.0.12, ApacheSim, v7.0.12
Property Reference:	884232200000
Energy Performance Certificate for the property is contained in Report Reference Number: 0180-0230-0242-8202-3002	

<b>ENERGY ASSESSOR DETAILS</b>	
Assessor Name:	Toby Jonathon Eyres Britton
Employer/Trading Name:	Anderson Green Ltd
Employer/Trading Address:	Unit C4 Park Lane Business Centre Basford Nottingham NG6 0DW
Assessor Number:	LCEA089923
Accreditation Scheme:	CIBSE Certification Limited
Related Party Disclosure:	Not related to the owner.



## Table of Contents

1. Introduction.....	3
2. Recommendations.....	4
3. Next Steps.....	5
4. Glossary.....	7
5. Green Deal Information.....	8

# 1. Introduction

This is a Recommendation Report as defined in the Energy Performance of Buildings (England and Wales) Regulations 2012 as amended which implements the requirements of the Energy Performance of Building Directive 2010/31/EU. This Recommendation Report accompanies the relevant Non Domestic Energy Performance Certificate.

This Recommendation Report was developed based on an inspection of the building. This Recommendation Report was produced in line with the Government's approved methodology.

In accordance with Government's current guidance, the Energy Assessor is required to use plans or undertake a building inspection in order to gather information to produce this Recommendation Report.

## 2. Recommendations

The following sections list recommendations selected by the energy assessor for the improvement of the energy performance of the building. The recommendations are listed under four headings: short payback, medium payback, long payback, and other measures.

### ***a) Recommendations with a short payback***

This section lists recommendations with a payback of less than 3 years:

No recommendations were specified by the energy assessor.

### ***b) Recommendations with a medium payback***

This section lists recommendations with a payback of between 3 and 7 years:

No recommendations were specified by the energy assessor.

### ***c) Recommendations with a long payback***

This section lists recommendations with a payback of more than 7 years:

No recommendations were specified by the energy assessor.

### ***d) Other Recommendations***

This section lists other recommendations selected by the energy assessor, based on an energy performance assessment of the building. It may take into account other reliable relevant evidence that has been provided by the building owner or occupier.

No recommendations are defined by the energy assessor.

## 3. Next Steps

### ***a) Your Recommendation Report***

As the building occupier, it is a regulatory requirement that an Energy Performance Certificate must include a Recommendation Report unless there is no reasonable potential for energy performance improvements compared to the energy performance requirements in force.

You must be able to produce a copy of this Recommendation Report within seven days if required by an Enforcement Authority.

This Recommendation Report has also been lodged on the Government's central register. Access to the report, to the data used to compile the report, and to previous similar documents relating to the same building can be obtained through the Non-Domestic Register ([www.ndepcregister.com](http://www.ndepcregister.com)) using the report reference number of this document.

### ***b) Implementing recommendations***

The recommendations are provided as an indication of opportunities that appear to exist to improve the building's energy efficiency.

The calculation tool has automatically generated a set of recommendations. The Energy Assessor, in the light of the energy assessment of the building, the building fabric and services, the operation of plant and equipment within the curtilage of the building, the general management of the building and its use, and other relevant reliable evidence, may remove some of the recommendations. He / She may insert additional recommendations in section 3d (Other Recommendations).

These recommendations do not include matters relating to operation and maintenance which cannot be identified from the calculation procedure.

### ***c) Legal disclaimer***

The advice provided in this Recommendation Report is intended to be for information only. Recipients of this Recommendation Report are advised to seek further detailed professional advice before reaching any decision on how to improve the energy performance of the building.

**d) About this document and the data in it**

This document has been produced following an energy assessment undertaken by a qualified Energy Assessor, accredited by CIBSE Certification Limited. You can obtain contact details of the Accreditation Scheme at [cibsecertification.com](http://cibsecertification.com).

A copy of this report has been lodged on a national register as a requirement under the Energy Performance of Buildings Regulations 2012 as amended. It will be made available via the online search function at [www.ndepcregister.com](http://www.ndepcregister.com). The report (including the building address) and other data about the building collected during the energy assessment but not shown on the report, for instance heating system data, will be made publicly available at [www.opendatacommunities.org](http://www.opendatacommunities.org).

This report and other data about the building may be shared with other bodies (including government departments and enforcement agencies) for research, statistical and enforcement purposes. Any personal data it contains will be processed in accordance with the General Data Protection Regulation and all applicable laws and regulations relating to the processing of personal data and privacy. For further information about this and how data about the property are used, please visit [www.ndepcregister.com](http://www.ndepcregister.com). To opt out of having information about your building made publicly available, please visit [www.ndepcregister.com/optout](http://www.ndepcregister.com/optout).

There is more information in the guidance document *Energy Performance Certificates for the construction, sale and let of non-dwellings* available on the Government website at:

[www.gov.uk/government/collections/energy-performance-certificates](http://www.gov.uk/government/collections/energy-performance-certificates). It explains the content and use of this document, advises on how to identify the authenticity of a report and how to make a complaint.

## 4. Glossary

### **a) Payback**

The payback periods are based on data collated through Carbon Trust energy survey reports. They provide a range of typical payback periods for different types of measures. They are likely payback periods, and may differ from the actual payback period for the building being assessed. Therefore, it is recommended that each suggested measure be further investigated before reaching any decision on how to improve the energy efficiency of the building.

### **b) Carbon impact**

The High / Medium / Low carbon impact indicators against each recommendation are provided to distinguish, between the suggested recommendations, those that would most effectively reduce carbon emissions from the building. For automatically generated recommendations, the carbon impact indicators are determined by software, but may have been adjusted by the Energy Assessor based on the energy assessment of the building.

### **c) Valid report**

A valid report is a report that has been:

- Produced within the past 10 years
- Produced by an Energy Assessor who is accredited to produce Recommendation Reports through a Government Approved Accreditation Scheme.
- Lodged on the Register operated by or on behalf of the Secretary of State.

## **5. Green Deal Information**

The Green Deal may enable you to improve the property to make it more energy efficient and cheaper to run.