

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m <sup>2</sup> ]
	<b>Standard value</b>	95	80	0.3
L-02 Circulation		110	-	-
L-02 Office		140	-	-
L-02 WC		110	-	-
L-03 Circulation		110	-	-
L-03 Circulation		110	-	-
L-03 Circulation		110	-	-
L-03 Circulation		110	-	-
L-03 Cleaner		110	-	-
L-03 Office		140	-	-
L-03 WC		110	-	-
L-04 Circulation		110	-	-
L-04 Circulation		110	-	-
L-04 Circulation		110	-	-
L-04 Circulation		110	-	-
L-04 Cleaner		110	-	-
L-04 Office		140	-	-
L-04 WC		110	-	-
L-05 Circulation		110	-	-
L-05 Circulation		110	-	-
L-05 Circulation		110	-	-
L-05 Circulation		110	-	-
L-05 Circulation		110	-	-
L-05 Cleaner		110	-	-
L-05 Office		140	-	-
L-05 WC		110	-	-
L-06 Circulation		110	-	-
L-06 Circulation		110	-	-
L-06 Circulation		110	-	-
L-06 Circulation		110	-	-
L-06 Circulation		110	-	-
L-06 Cleaner		110	-	-
L-06 Office		140	-	-
L-06 WC		110	-	-
L-07 Circulation		110	-	-
L-07 Circulation		110	-	-
L-07 Circulation		110	-	-
L-07 Circulation		110	-	-
L-07 Circulation		110	-	-
L-07 Cleaner		110	-	-
L-07 Office		140	-	-
L-07 Office		140	-	-

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m <sup>2</sup> ]
	<b>Standard value</b>	95	80	0.3
L-07 Office		140	-	-
L-07 WC		110	-	-
L-08 Circulation		110	-	-
L-08 Circulation		110	-	-
L-08 Circulation		110	-	-
L-08 Circulation		110	-	-
L-08 Circulation		110	-	-
L-08 Cleaner		110	-	-
L-08 Office		140	-	-
L-08 WC		110	-	-
L-09 Circulation		110	-	-
L-09 Circulation		110	-	-
L-09 Circulation		110	-	-
L-09 Circulation		110	-	-
L-09 Circulation		110	-	-
L-09 Office		140	-	-
L-09 WC		110	-	-
L-10 Circulation		110	-	-
L-10 Circulation		110	-	-
L-10 Circulation		110	-	-
L-10 Circulation		110	-	-
L-10 Circulation		110	-	-
L-10 Office		140	-	-
L-10 WC		110	-	-
L-11 Circulation		110	-	-
L-11 Circulation		110	-	-
L-11 Circulation		110	-	-
L-11 Circulation		110	-	-
L-11 Circulation		110	-	-
L-11 Circulation		110	-	-
L-11 Circulation		110	-	-
L-11 Cleaner		110	-	-
L-11 Office		140	-	-
L-11 Store		110	-	-
L-11 WC		110	-	-
L-11 WC		110	-	-
L-11 WC		110	-	-
L-12 Circulation		110	-	-
L-12 Circulation		110	-	-
L-12 Circulation		110	-	-
L-12 Circulation		110	-	-
L-12 Office		140	-	-
L-12 WC		110	-	-

General lighting and display lighting		General luminaire	Display light source	
Zone name		Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m <sup>2</sup> ]
	<b>Standard value</b>	95	80	0.3
L-13 Circulation		110	-	-
L-13 Circulation		110	-	-
L-13 Circulation		110	-	-
L-13 Circulation		110	-	-
L-13 Office		140	-	-
L-13 WC		110	-	-
L-14 Circulation		110	-	-
L-14 Circulation		110	-	-
L-14 Circulation		110	-	-
L-14 Circulation		110	-	-
L-14 Office		140	-	-
L-14 WC		110	-	-
L-15 Circulation		110	-	-
L-15 Circulation		110	-	-
L-15 Circulation		110	-	-
L-15 Circulation		110	-	-
L-15 Office		140	-	-
L-15 WC		110	-	-
L-16 Circulation		110	-	-
L-16 Circulation		110	-	-
L-16 Circulation		110	-	-
L-16 Circulation		110	-	-
L-16 Office		140	-	-
L-16 WC		110	-	-
L-17 Office		140	-	-
L-17 Circulation		110	-	-
L-17 Circulation		110	-	-
L-17 Circulation		110	-	-
L-17 Circulation		110	-	-
L-17 WC		110	-	-
L-18 Circulation		110	-	-
L-18 Circulation		110	-	-
L-18 Circulation		110	-	-
L-18 Circulation		110	-	-
L-18 Office		140	-	-
L-18 WC		110	-	-

**The spaces in the building should have appropriate passive control measures to limit solar gains in summer**

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
G-1 Comms	N/A	N/A
G-1 Comms	N/A	N/A
G-2 FM Office	N/A	N/A
G-2 Staff Room	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L-00 Flexible Class E (cafe/workspace)	NO (-42.9%)	NO
L-00 Flexible Class E	NO (-48.1%)	NO
L-00 Flexible Class E	NO (-51%)	NO
L-00 Flexible Class E	YES (+160.1%)	NO
L-00 Flexible Class E	YES (+8.9%)	NO
L-00 Office Lobby	NO (-6.4%)	NO
L-00 Post Room	N/A	N/A
L-00 Security & Fire Risk	N/A	N/A
L-01 Office	NO (-56.8%)	NO
L-02 Office	NO (-57%)	NO
L-03 Office	NO (-53.5%)	NO
L-04 Office	NO (-47.5%)	NO
L-05 Office	NO (-39.3%)	NO
L-06 Office	NO (-37.6%)	NO
L-07 Office	NO (-30.6%)	NO
L-07 Office	NO (-49.3%)	NO
L-07 Office	NO (-35.9%)	NO
L-08 Office	NO (-36.1%)	NO
L-09 Office	NO (-34.6%)	NO
L-10 Office	NO (-32.3%)	NO
L-11 Office	NO (-31.9%)	NO
L-11 Store	N/A	N/A
L-12 Office	NO (-28.1%)	NO
L-13 Office	NO (-27.6%)	NO
L-14 Office	NO (-27.6%)	NO
L-15 Office	NO (-27.6%)	NO
L-16 Office	NO (-27.6%)	NO
L-17 Office	NO (-27.5%)	NO
L-18 Office	NO (-34.4%)	NO

## Regulation 25A: Consideration of high efficiency 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
Floor area [m <sup>2</sup> ]	21172.8	21172.8
External area [m <sup>2</sup> ]	15640.3	15640.3
Weather	LON	LON
Infiltration [m <sup>3</sup> /hm <sup>2</sup> @ 50Pa]	3	3
Average conductance [W/K]	13593.5	7142.61
Average U-value [W/m <sup>2</sup> K]	0.87	0.46
Alpha value* [%]	2.77	10

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

## Building Use

% Area	Building Type
2	<b>Retail/Financial and Professional Services</b> Restaurants and Cafes/Drinking Establishments/Takeaways
98	<b>Offices and Workshop Businesses</b> General Industrial and Special Industrial Groups Storage or Distribution Hotels Residential Institutions: Hospitals and Care Homes Residential Institutions: Residential Schools Residential Institutions: Universities and Colleges Secure Residential Institutions Residential Spaces Non-residential Institutions: Community/Day Centre Non-residential Institutions: Libraries, Museums, and Galleries Non-residential Institutions: Education Non-residential Institutions: Primary Health Care Building Non-residential Institutions: Crown and County Courts 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	5.74	1.48
Cooling	2.54	3.3
Auxiliary	2.14	5.49
Lighting	5.01	8.58
Hot water	5.25	5.04
Equipment*	40.77	40.77
<b>TOTAL**</b>	<b>20.69</b>	<b>23.89</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
<i>Displaced electricity</i>	<i>0</i>	<i>0</i>

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

	Actual	Notional
Heating + cooling demand [MJ/m <sup>2</sup> ]	75.41	48.57
Primary energy [kWh <sub>PE</sub> /m <sup>2</sup> ]	30.71	35.15
Total emissions [kg/m <sup>2</sup> ]	2.85	3.21

## 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] Variable refrigerant flow, [HS] ASHP, [HFT] Electricity, [CFT] Electricity</b>									
Actual	51.2	29.1	5.6	3.1	2.2	2.54	2.62	2.64	4
Notional	11	44.2	1.1	4.3	6.5	2.78	2.84	----	----
<b>[ST] Central heating using water: radiators, [HS] ASHP, [HFT] Electricity, [CFT] Electricity</b>									
Actual	88.5	0	10.4	0	1.4	2.36	0	2.64	0
Notional	41.7	0	4.2	0	1	2.78	0	----	----
<b>[ST] Central heating using water: radiators, [HS] ASHP, [HFT] Electricity, [CFT] Electricity</b>									
Actual	36.9	0	4.4	0	2.1	2.36	0	2.64	0
Notional	22.4	0	2.2	0	2.5	2.78	0	----	----
<b>[ST] Central heating using water: radiators, [HS] ASHP, [HFT] Electricity, [CFT] Electricity</b>									
Actual	34.1	0	4	0	6.3	2.36	0	2.64	0
Notional	23.5	0	2.3	0	2.6	2.78	0	----	----
<b>[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity</b>									
Actual	0	0	0	0	0	2.46	4.76	2.64	6.7
Notional	0	0	0	0	0	2.78	4.63	----	----
<b>[ST] Variable refrigerant flow, [HS] ASHP, [HFT] Electricity, [CFT] Electricity</b>									
Actual	17.4	104.7	1.9	11	3.1	2.49	2.65	2.64	4
Notional	10.5	19	1.1	1.9	9.4	2.78	2.84	----	----
<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
HFT	= Heating fuel type
CFT	= Cooling fuel type