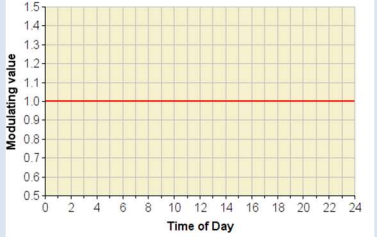
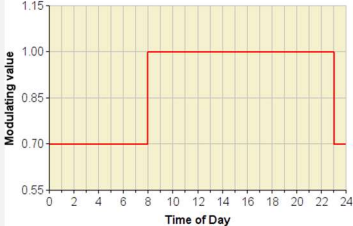
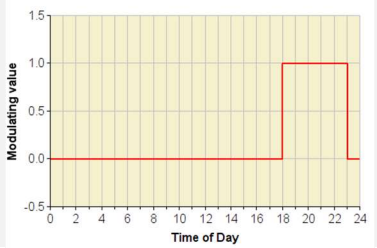
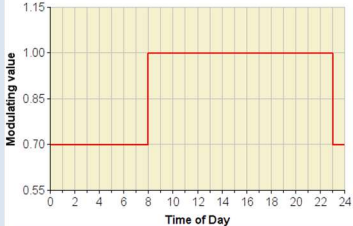
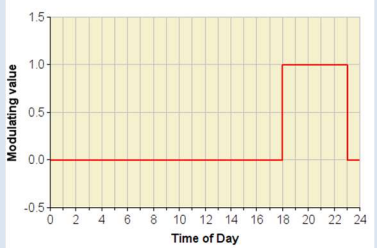
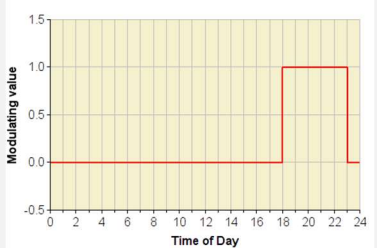
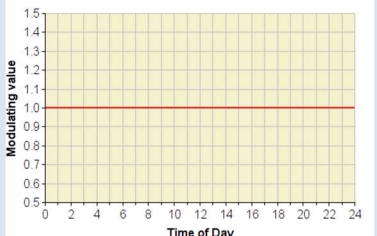
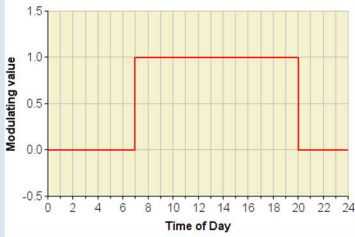
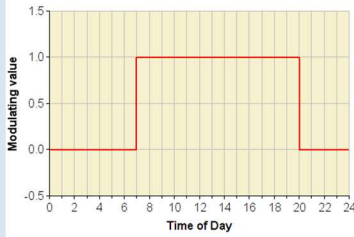
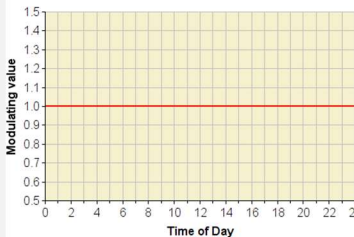
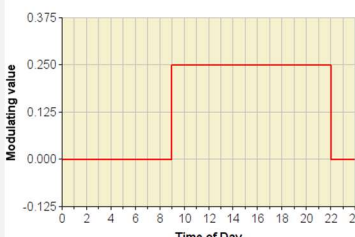
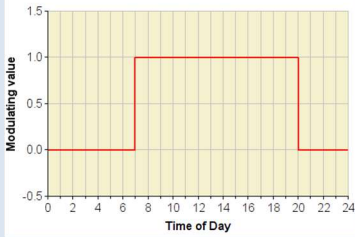
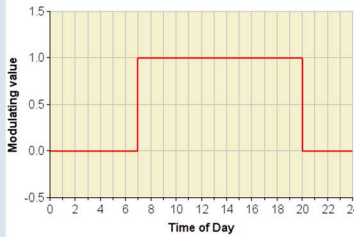
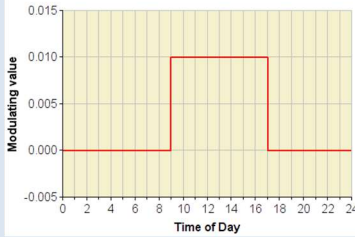
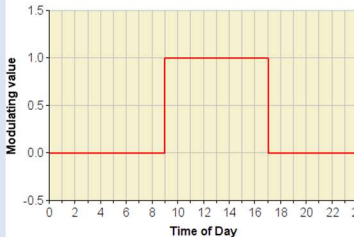
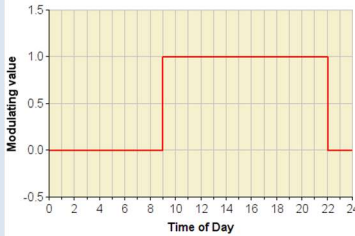
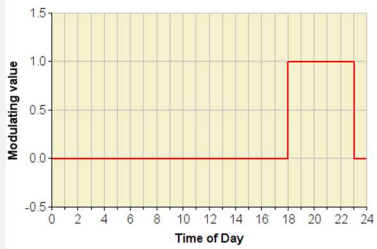
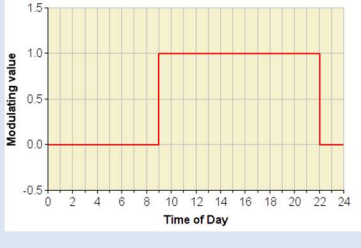
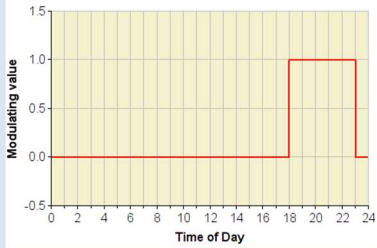
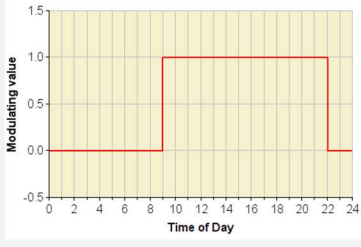
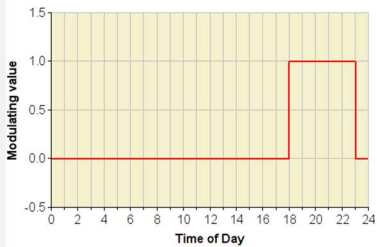
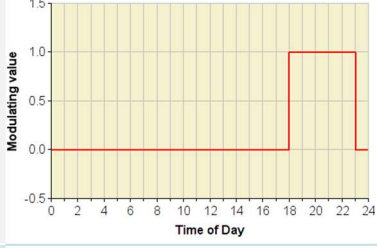
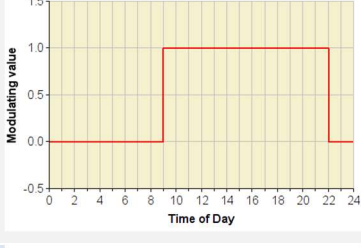
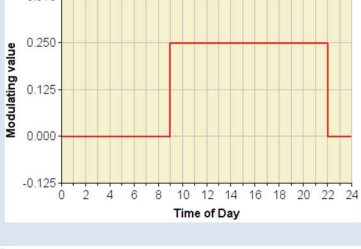
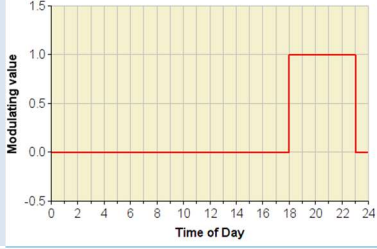
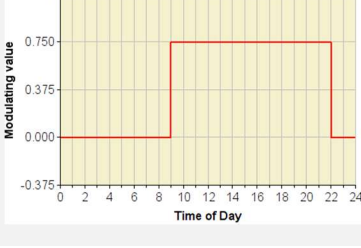
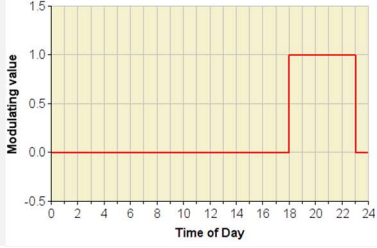


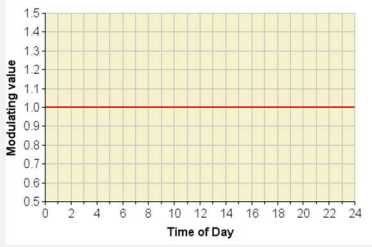
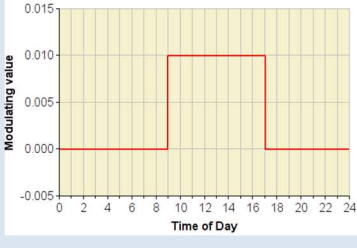
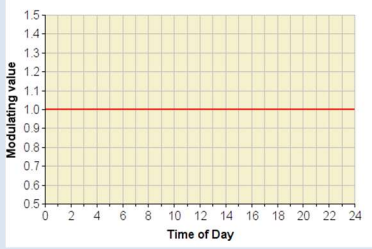
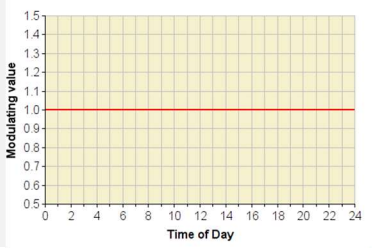
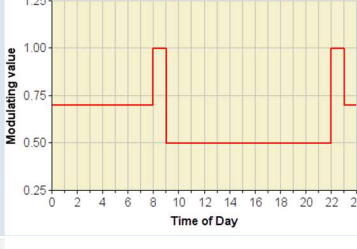
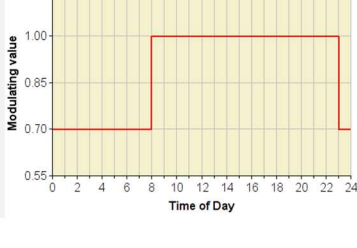
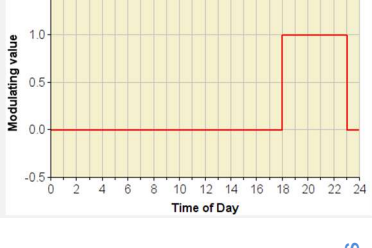
Table A. 10. Lighting profile per room activity in relationship with the Occupancy schedules

Building Typology	Room type	Occupancy Profile	Light Power Use (W/m ²)	Illuminance level (lux)	Lighting profile
Block A- Purpose-built student accommodation	A-Corridor/Stairs (Circulation)	N/A	3.75	100	On continuously with dimming sensors 
	A-Studio		2	100	
	A-Ensuite		2	100	
	A-Kitchen/Living (Communal Area)		2	200	
	A-Lift	N/A	3.75	100-200	On continuously with dimming sensors 
	A-Storage	Space not occupied	2	200	

	A-Cycle storage (Unheated Storage)		3.75 (*NCM profile)	200	
	A-PBSA Storage	Space not occupied	7.5	200	On continuously with dimming sensors 
	A-PBSA-Plant	Space not occupied	7.5	200	On continuously with dimming sensors 
Block A-Commercial	A-non-Resi	Please see scenarios in Table		Please see scenarios in Table	Please see scenarios in Table
	A-PBSA Amenity	Please see scenarios in Table		Please see scenarios in Table	Please see scenarios in Table
	A-Circulation Areas	N/A		100-150	On continuously with dimming sensors 
	A-Refuse		7.5	200	On continuously with dimming sensors 

	A-Commercial Storage		3.75 (*NCM profile)	200	
	A-Riser		2	100-200	
	A-Commercial Plant		7.5	200	
Block B, C, and D			2	200	
	Resi_1B2P_Kitchen/ Living				
		Not occupied	N/A	100	On continuously with dimming sensors
	Resi_CBD				
		N/A	2	100	On continuously with dimming sensors
	Resi_Services				

		N/A	2	100	
	Resi_Internal corridors				
			2	200-300	
	Resi_2B4P_Kitchen/Living				
			2	200-300	
	Resi_2B3P_Kitchen/Living				
	Resi_Appliances (CBD with HIU services)	N/A			
			2	200-300	
	Resi_3B5P_Living/Kitchen				
			2	200-300	
	Resi_5B8P_Kitchen				
			2	200-300	
	Resi_5B8P_Living				

	Resi_Lift	Not occupied		100-200	
	Resi_Riser	Not occupied	N/A		N/A
	Resi_Roof	Not occupied	N/A		N/A
	Resi_Circulation common	N/A	2	100	On continuously with dimming sensors 
	Resi_Storage (Cycle storage)		3.75	200	On continuously with dimming sensors 
	Resi_Plant	Space not occupied	7.5	200	On continuously with dimming sensors 
	Resi_Double Bedroom			100	
	Resi_Single Bedroom		2	100	

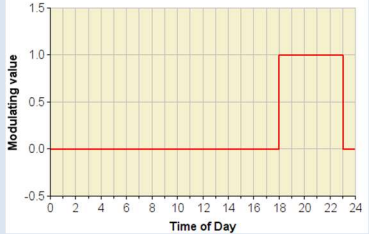
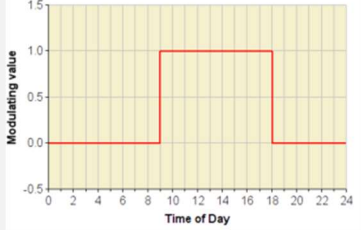
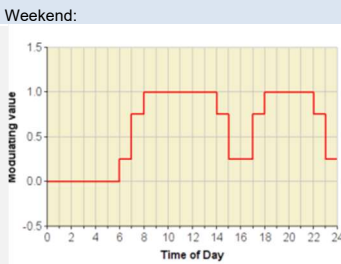
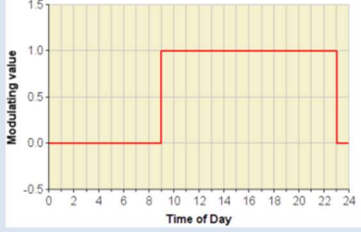
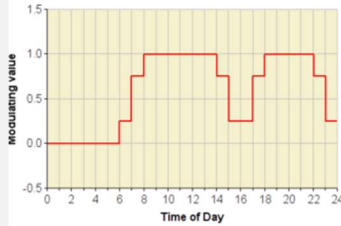
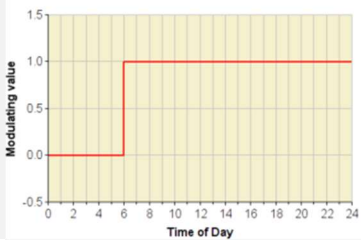
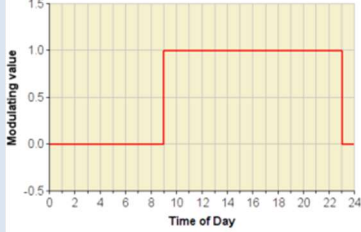
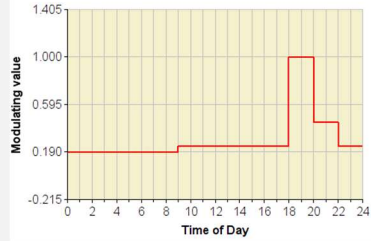
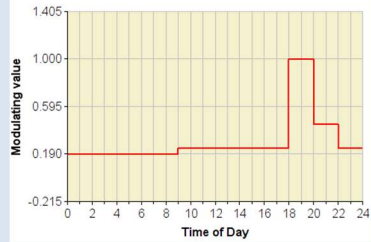
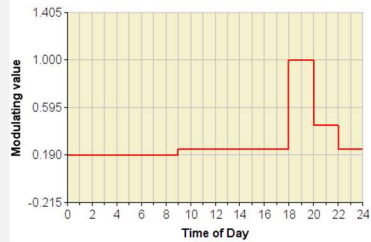
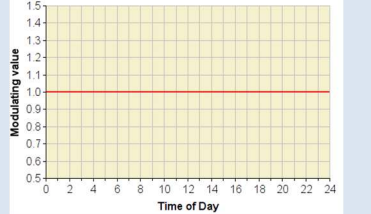
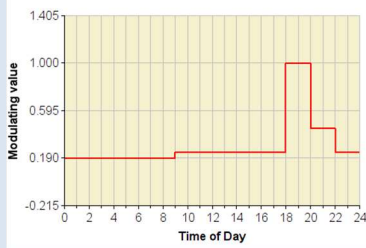
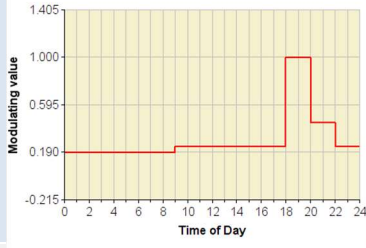
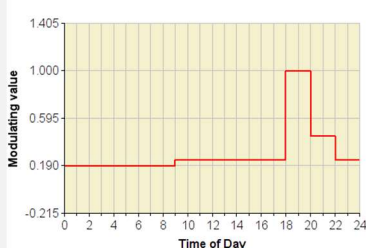
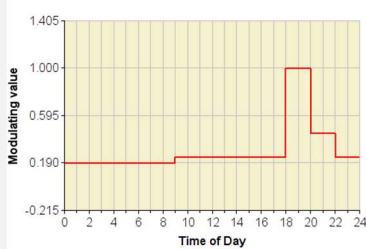
		N/A		200	
	Resi Bathroom				
Room Type Scenario	GIA (gross internal area) (m2)	Occupancy Profile	Max. Power (W/m2)	Min.-Max. Illuminance	Light Profile
Shop (retail store)	673.3		10	300	
Study Area (Occupied between 8am and 22:00)	1094.7	Working day  Weekend: 	11.25	300-500	
Café	1094.7		26 And display light 2W/m2	500	
Gym	1094.7	Working day: 	15.6	300	

Table A. 11. Equipment Loads per Activity and Space type

Building Typology	Room type	Room Type GIA (gross internal area) (m ²)	No. p	Occupancy density (m ² /person)	Equip. Loads (W) or (W/m ²)	Equipment Load Profile
Block A- Purpose-built student accommodation	A- Corridor/Stairs (Circulation)	3132.1				N/A
	A-Studio	11929.5	1		450W	
	A-Ensuite	923.6			1.75 W/m ²	
	A- Kitchen/Living (Communal Area)	630.8		7 (*as per Table D1 Approved Document Part B (GOV.UK, 2019))	450W	
	A-Lift	279.7			Lift consumption input as general mi	N/A
	A-Storage	63.3				
	A-Cycle storage (Unheated Storage)	382.7		9.858 (*NCM profile)	N/A Added local fan, humidification, and refrigeration for comfort cooling power. Please see Table for W/m ² input values.	N/A
	A-PBSA Storage	51.2				
	A-PBSA-Plant	161.1			TBC>>> Local fan 2.2W/m ²	
Block A- Commercial	A-non-Resi	673.3				
	A-PBSA Amenity	1094.7				
	A-Circulation Areas	178.6				
	A-Refuse	82.6			2.2W/m ² fan	
	A-Commercial Storage	6.0		9.858 (*NCM profile)	N/A Added local fan, humidification and refrigeration for comfort cooling power Please see Table for W/m ² input values.	N/A

	A-Riser	275.9				
	A-Commercial Plant	204.5				
Block B, C, and D			2		450W	
	Resi_1B2P_Kitchen/ Living	743.9				
	Resi_CBD	216.1			N/A	N/A
	Resi_Services	29.4			72W	
	Resi_Internal corridors	691.9				
			4		450W	
	Resi_2B4P_Kitchen/ Living	873.9				
			3		450W	
	Resi_2B3P_Kitchen/Living	283.6				
	Resi_Appliances (CBD with HIU services)	94.2			78W + Local Extract Fan (0.6 W/m2)	
			5		450W	
	Resi_3B5P_Living/ Kitchen	186.7				
			8		150W	
	Resi_5B8P_Kitchen	48.1				

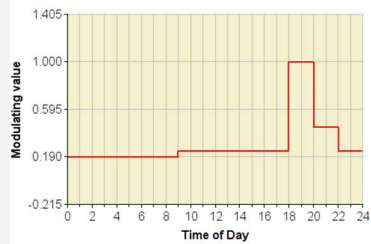
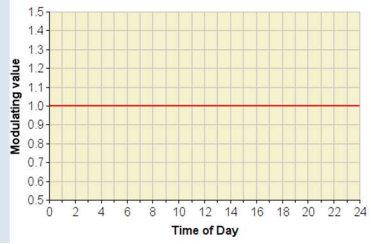
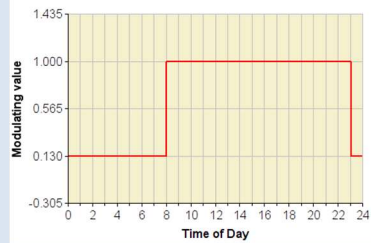
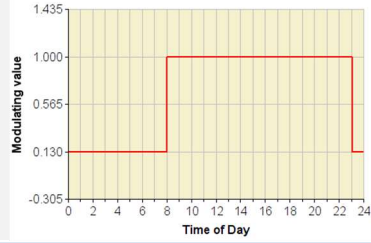
			8		150W	
	Resi_5B8P_Living	175.3				
	Resi_Lift	105.0				
	Resi_Riser	92.2			N/A	N/A
	Resi_Roof	218.4			N/A	N/A
	Resi_Circulation common	595.0				N/A
					2.2W/m ²	
	Resi_Storage (Cycle storage)	367.5				
					TBC>>> Local fan 2.2W/m ²	
	Resi_Plant	434.5				
			2		80W	
	Resi_Double Bedroom	1799.7				
			1		80W	
	Resi_Single Bedroom	403.5				
	Resi_Bathroom	510.0			1.75W/m ²	

Table A. 12. Equipment Loads per Activity and Space type – PBSA Amenity activity scenarios

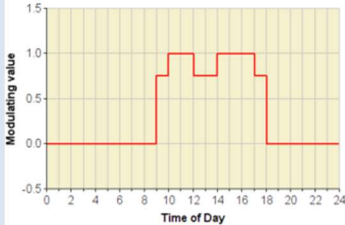
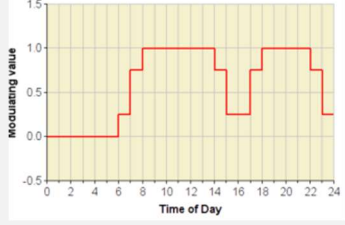
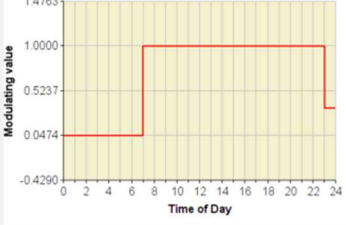
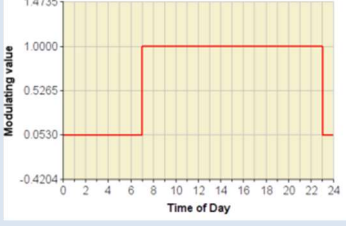
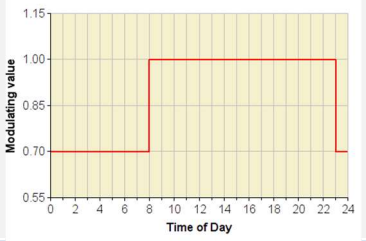
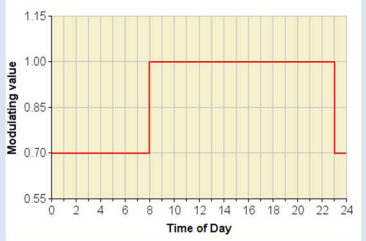
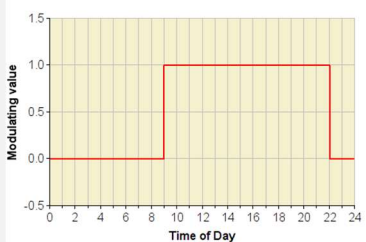
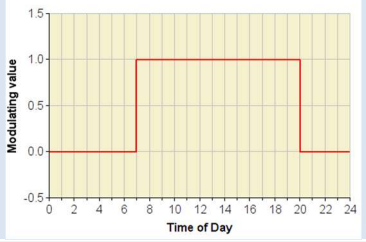
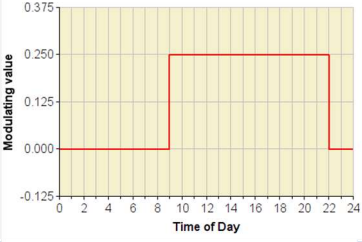
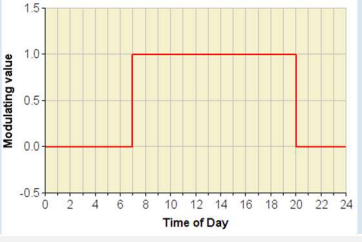
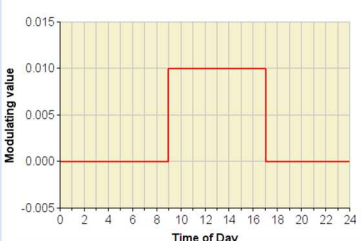
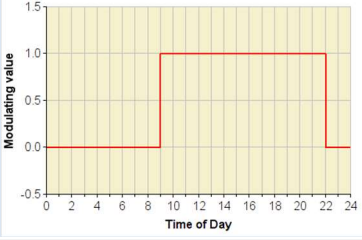
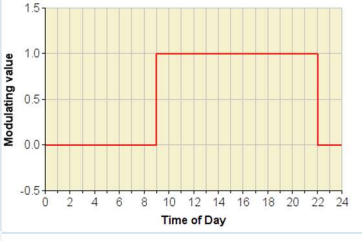
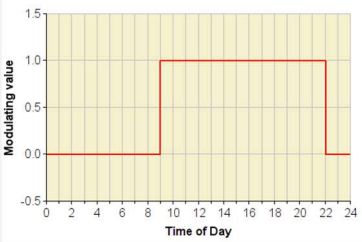
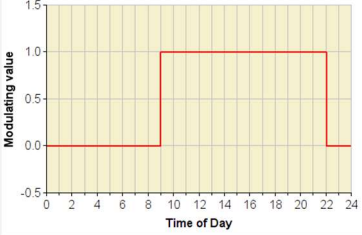
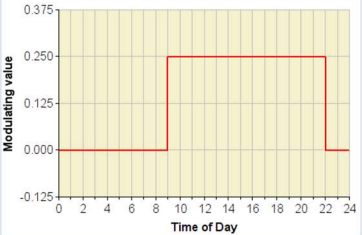
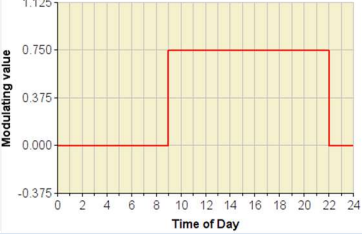
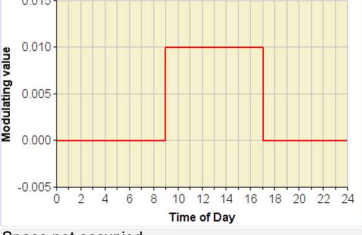
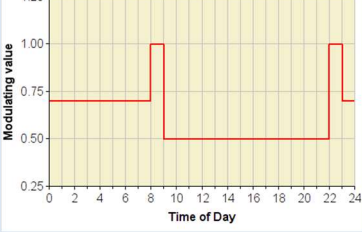
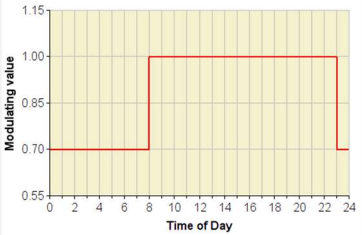
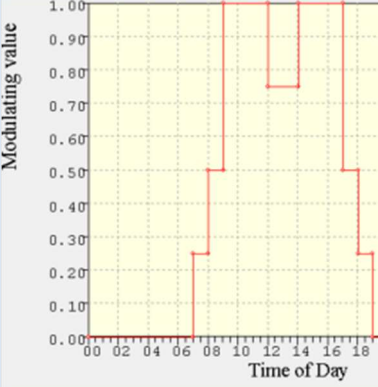
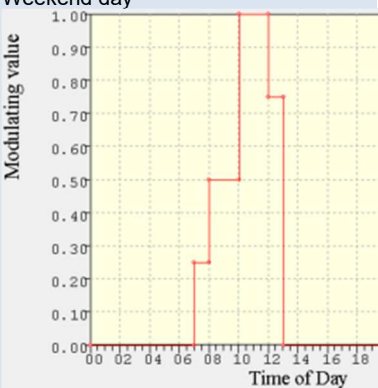
Room Type Scenario	GIA (gross internal area) (m ²)	Floor space factor (m ² / person)	Occupancy Profile	Equipment Maximum Sensible Gain (W/m ²)	Equipment profile
Shop - Normal (food store)	673.3	8		5.2 W/m ²	
Scenario 1: Study Area (Occupied between 8am and 22:00)	1094.7	5	All week: 	27.81W/m ²	
Café	1094.7	9		42.2W/m ² + Equipment for Seating area 18.88 W/m ²	
Scenario Gym	1094.7	5		14.14 W/m ²	

Table A. 13. DHW consumption in relationship with the occupancy profile Summary Table

Building Typology	Room type	Room Type GIA (gross internal area) (m²)	No. p	Occupancy density (m²/person)	Occupancy Profile	DHW consumption (L/h-pers) Or (L/h (max) *calculated from CIBSE Guide B	Suggested peak period
Block A- Purpose-built student accommodation	A-Corridor/Stairs (Circulation)	3132.1			N/A	N/A	N/A
	A-Studio	11929.5	1			25L/h max	1 hour (7 to 8 am)
	A-Ensuite	923.6				25L/h max	1 hour (7 to 8 am)
	A-Kitchen/Living (Communal Area)	630.8		7 (*as per Table D1 Approved Document Part B (GOV.UK, 2019))		4.79L/h-person	From Daily hot water demands (CIBSE Guide G (2014) Table 2.11
	A-Lift	279.7			N/A	N/A	
	A-Storage	63.3			Space not occupied	N/A	
	A-Cycle storage (Unheated Storage)	382.7		9.858 (*NCM profile)		N/A	
	A-PBSA Storage	51.2			Space not occupied	N/A	
	A-PBSA-Plant	161.1			Space not occupied	N/A	
Block A- Commercial	A-non-Resi	673.3			Please see scenarios in Table	N/A	
	A-PBSA Amenity	1094.7			Please see scenarios in Table	N/A	
	A-Circulation Areas	178.6			N/A	N/A	

	A-Refuse	82.6				N/A	
	A-Commercial Storage	6.0		9.858 (*NCM profile)		N/A	
	A-Riser	275.9					
	A-Commercial Plant	204.5		9.428 (*NCM profile)		N/A	
Block B, C, and D			2			4.79L/h-person	
	Resi_1B2P_Kitchen/ Living	743.9					
	Resi_CBD	216.1			Not occupied	N/A	
	Resi_Services	29.4				N/A	
	Resi_Internal corridors	691.9				N/A	
			4			4.79L/h-person	
	Resi_2B4P_Kitchen/ Living	873.9					
			3			4.79L/h-person	
	Resi_2B3P_Kitchen/Living	283.6					

	Resi_Appliances (CBD with HIU services)	94.2	5				
	Resi_3B5P_Livin g/ Kitchen	186.7	8			4.79L/h-person	
	Resi_5B8P_Kitch en	48.1	8			4.79L/h-person	
	Resi_5B8P_Livin g	175.3	8			N/A	
	Resi_Lift	105.0			Not occupied		
	Resi_Riser	92.2			Not occupied	N/A	
	Resi_Roof	218.4			Not occupied	N/A	
	Resi_Circulation common	595.0			N/A	N/A	
	Resi_Storage (Cycle storage)	367.5				N/A	
	Resi_Plant	434.5			Space not occupied	N/A	
	Resi_Double Bedroom	1799.7	2			N/A	

			1			N/A	
	Resi_Single Bedroom	403.5					
	Resi_Bathroom	510.0			N/A	7.91L/h-person	
Room Type Scenari	GIA (gross internal area) (m2)	Floor space factor (m2/p erson)	Ma xim um Se nsi ble gai n (W/ P)	Maximum Latent Gain (W/P)	Occupancy Profile	DHW consumption (L/h·pers) Or (L/h (max) *calculated from CIBSE Guide B	Suggested peak period
Scenario 1: Office (Occupied between 7to19:00 with lunch break weekday and weekend/holiday off	673.3	6	73	50		0.1967 (L/h·pers)	N/A
Scenario 2: Library From 7to-19 During week days And 7to1 during weekend	673.3	7	78	78	Working day:  Weekend day 	0.2875 (L/h·pers)	N/A

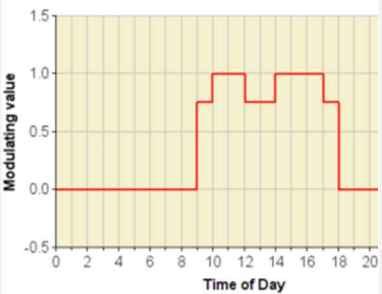
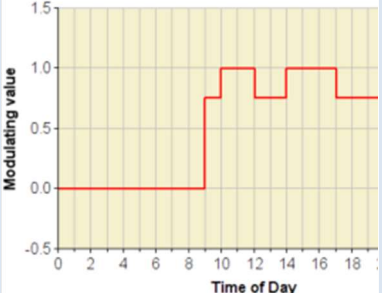
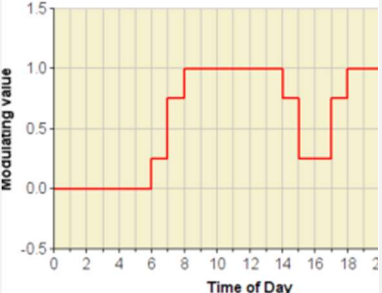
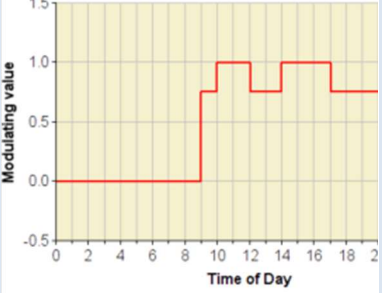
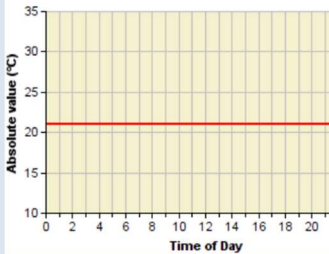
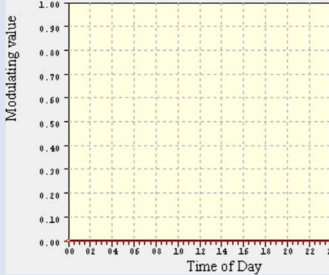
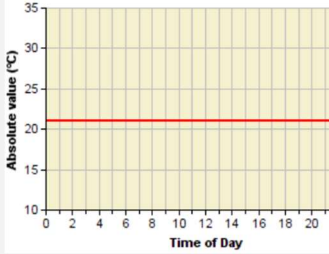
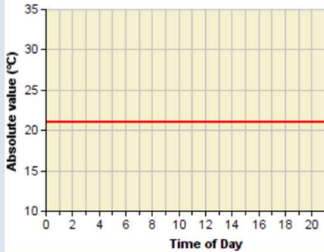
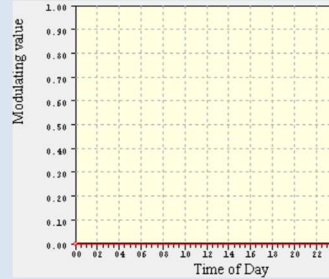
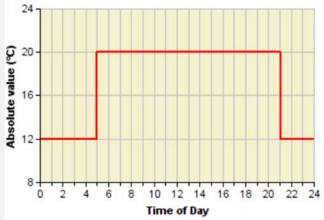
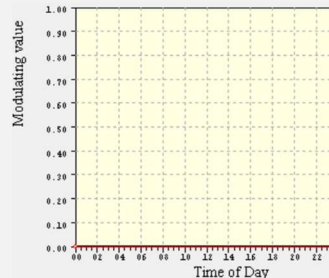
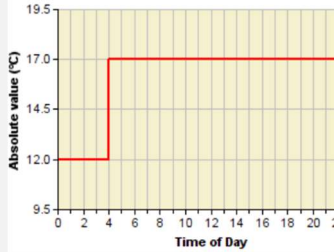
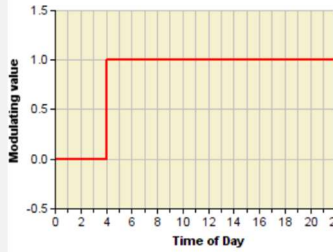
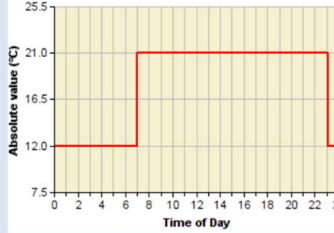
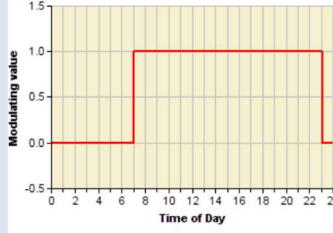
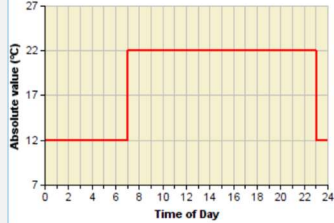
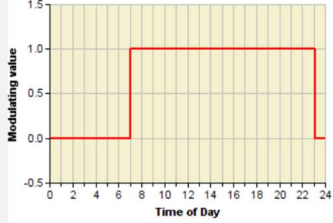
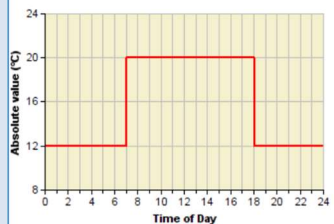
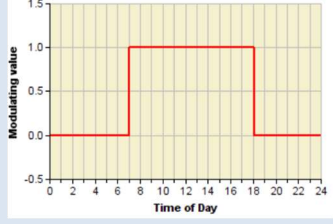
Scenario 3: Shop (food store)	673.3	8	70	60		0.0856(L/h·pers)	
Scenario 1: Study Area (Occupied between 8am and 22:00)	1094.7	5	73. 2	46.8	All week: 	0.2875(L/h·pers)	
Scenario 2: Café/ Canteen	1094.7	9	63	117		0.2143(L/h·pers)	
Scenario 3:Gym	1094.7	5	10 2	198		0.2588(L/h·pers)	

Table A. 14. HVAC Proposed Strategy Summary

Area Type	Heating System	Heating Profile (*Temperature set points shown in graphs below)	Operative Temp. Heating Profile	Cooling strategy	Cooling strategy set point T (°C)	Ventilation rate (L/s)						
Residential Areas - Blocks B, C, D (Bedrooms, En-suite, Studio, Bathroom, Kitchen/ Living, Lobby, Corridors)	ASHP (Air source heat pump) SC OP of 3.33 – Mitsubishi Electric MEHP		21°C	Natural Ventilation  <table><tr><th>Time</th><th>Value</th></tr><tr><td>00:00</td><td>(ta>22)</td></tr><tr><td>24:00</td><td>(ta>22)</td></tr></table>	Time	Value	00:00	(ta>22)	24:00	(ta>22)	22°C	n/a
Time	Value											
00:00	(ta>22)											
24:00	(ta>22)											
PBSA Block A Lordship Lane façade bedrooms	ASHP (Air source heat pump) SCOP of 3.33 – Mitsubishi Electric MEHP		21	Mechanical ventilation with heat recovery (MVHR)	22	13L/s Kitchen/ Living & 8L/s Bathroom -heat recovery ventilation rate to bedrooms- *Table 1.2 Minimum extract ventilation rates for continuous extract systems (Approved Document Part F						

PBSA Block A (Kitchen/Living, Bathroom, Bedroom)	ASHP (Air source heat pump) SCOP of 3.33 – Mitsubishi Electric MEHP		21°C	Mechanical extract ventilation (MEV) assisted Natural Ventilation	 <table><tr><th>Time</th><th>Value</th></tr><tr><td>00:00</td><td>(ta>22)</td></tr><tr><td>24:00</td><td>(ta>22)</td></tr></table>	Time	Value	00:00	(ta>22)	24:00	(ta>22)	22°C	13L/s Kitchen/ Living & 8L/s Bathroom *Table 1.2 Minimum extract ventilation rates for continuous extract systems (Approved Document Part F
Time	Value												
00:00	(ta>22)												
24:00	(ta>22)												
Residential Area Bathroom	ASHP (Air source heat pump) SCOP of 3.33 – Mitsubishi Electric MEHP		20°C	Natural Ventilation	 <table><tr><th>Time</th><th>Value</th></tr><tr><td>00:00</td><td>(ta>22)</td></tr><tr><td>24:00</td><td>(ta>22)</td></tr></table>	Time	Value	00:00	(ta>22)	24:00	(ta>22)	22°C	
Time	Value												
00:00	(ta>22)												
24:00	(ta>22)												
Riser, Lift, CBD, Stairs, Services, Store, Storage,		Unheated spaces	n/a	N/A	n/a								

A-PBSA- Amenity: Café (asper NCM Heating profile)	ASHP (Air source heat pump) SCOP of 3.33 – Mitsubishi Electric MEHP		17°C		25°C	Comfort cooling VRF system To fill (NCM supply rate)
A-PBSA- Amenity: Fitness suite/Gym (heating/ cooling profiles as per NCM)	ASHP (Air source heat pump) SCOP of 3.33 – Mitsubishi Electric MEHP		21°C		25°C	Comfort cooling VRF system (NCM supply rate)
A-PBSA- Amenity: Study Space IT (heating/ cooling profiles as per NCM)	ASHP (Air source heat pump) SCOP of 3.33 – Mitsubishi Electric MEHP		22°C		24°C	Comfort cooling VRF system (NCM supply rate)
A-Commercial Area: Sales Area (heating/ cooling profiles as per NCM)	n/a				23°C	Comfort cooling VRF system (NCM supply rate)

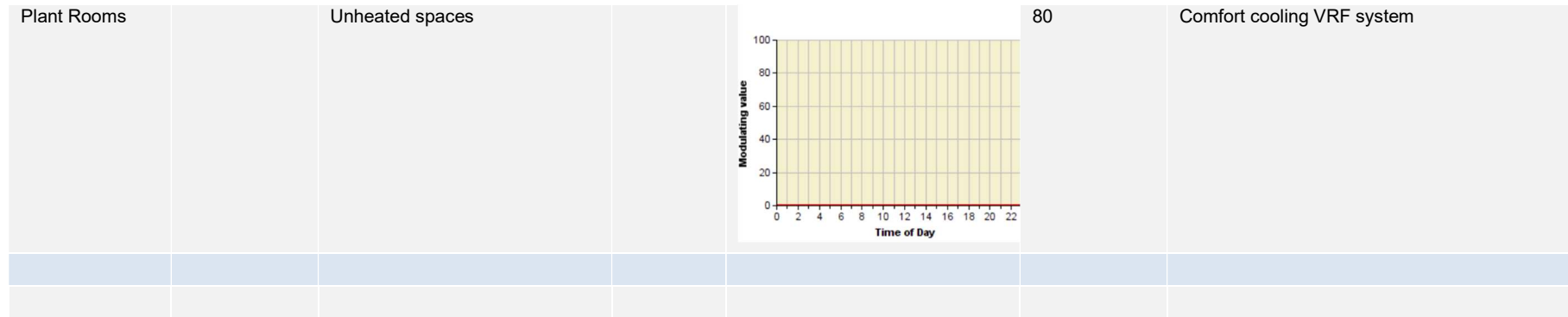
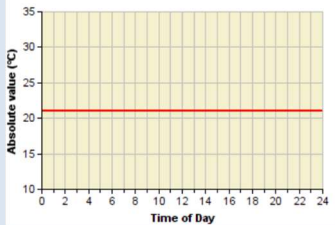
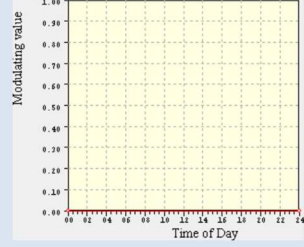
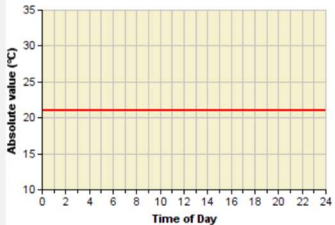
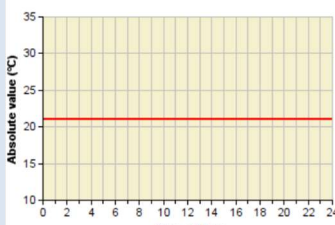
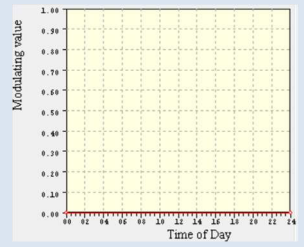
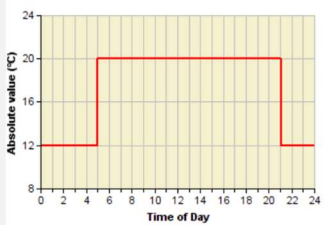
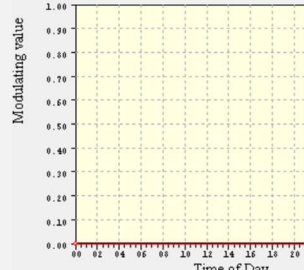


Table A. 15. HVAC Strategies Table

Area Type	Heating System	Heating Profile (*Temperature set points shown in graphs below)	Operative Temp. Heating Profile	Cooling strategy	Cooling strategy setpoint T (°C)	Ventilation rate (L/s)						
Residential Areas - Blocks B, C, D (Bedrooms, En-suite, Studio, Bathroom, Kitchen/Living, Lobby, Corridors)	ASHP (Air source heat pump) or SCOP of 3.33 – Mitsubishi Electric MEHP		21°C	Natural Ventilation  <table data-bbox="912 633 1201 723"><tr><th>Time</th><th>Value</th></tr><tr><td>00:00</td><td>(ta>22)</td></tr><tr><td>24:00</td><td>(ta>22)</td></tr></table>	Time	Value	00:00	(ta>22)	24:00	(ta>22)	22°C	n/a
Time	Value											
00:00	(ta>22)											
24:00	(ta>22)											
PBSA Block A Lordship Lane façade bedrooms	ASHP (Air source heat pump) SCOP of 3.33 – Mitsubishi Electric MEHP		21	Mechanical ventilation with heat recovery (MVHR)	22	13L/s Kitchen/ Living & 8L/s Bathroom -heat recovery ventilation rate to bedrooms- *Table 1.2 Minimum extract ventilation rates for continuous extract systems (Approved Document Part F						
PBSA Block A (Kitchen/Living, Bathroom, Bedroom)	ASHP (Air source heat pump) SCOP of 3.33 – Mitsubishi Electric MEHP		21°C	Mechanical extract ventilation (MEV) assisted Natural Ventilation  <table data-bbox="912 1417 1201 1507"><tr><th>Time</th><th>Value</th></tr><tr><td>00:00</td><td>(ta>22)</td></tr><tr><td>24:00</td><td>(ta>22)</td></tr></table>	Time	Value	00:00	(ta>22)	24:00	(ta>22)	22°C	13L/s Kitchen/ Living & 8L/s Bathroom *Table 1.2 Minimum extract ventilation rates for continuous extract systems (Approved Document Part F
Time	Value											
00:00	(ta>22)											
24:00	(ta>22)											
Residential Area Bathroom	ASHP (Air source heat pump) SCOP of 3.33 – Mitsubishi Electric MEHP		20°C	Natural Ventilation  <table data-bbox="912 1821 1201 1910"><tr><th>Time</th><th>Value</th></tr><tr><td>00:00</td><td>(ta>22)</td></tr><tr><td>24:00</td><td>(ta>22)</td></tr></table>	Time	Value	00:00	(ta>22)	24:00	(ta>22)	22°C	
Time	Value											
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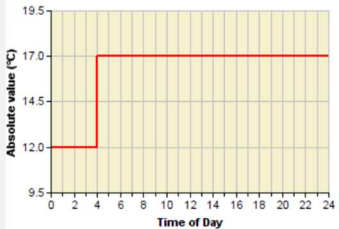
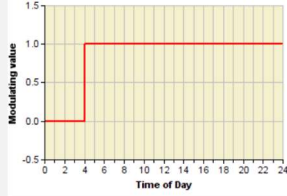
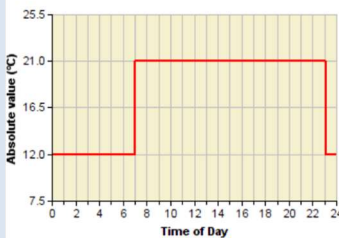
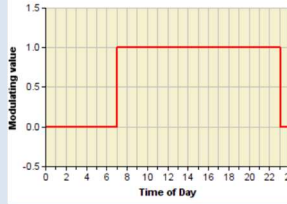
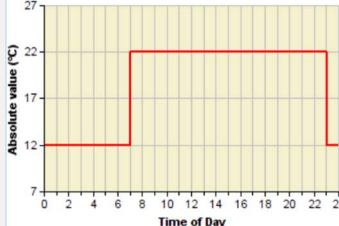
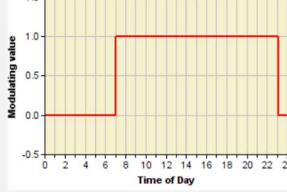
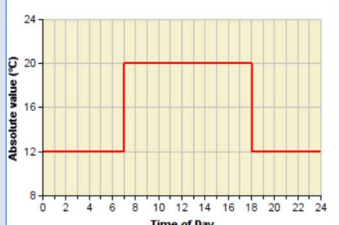
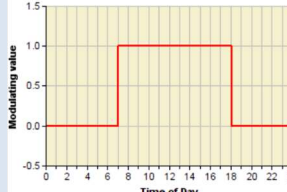
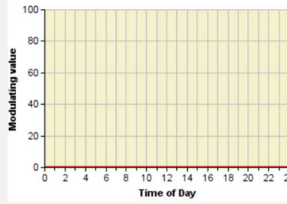
Riser, Lift, CBD, Stairs, Services, Store, Storage,		Unheated spaces	n/a	N/A	n/a	
A-PBSA-Amenity: Café (asper NCM Heating profile)	ASHP (Air source heat pump) SCOP of 3.33 – Mitsubishi Electric MEHP		17°C		25°C	Comfort cooling VRF system To fill (NCM supply rate)
A-PBSA-Amenity: Fitness suite/Gym (heating/cooling profiles as per NCM)	ASHP (Air source heat pump) SCOP of 3.33 – Mitsubishi Electric MEHP		21°C		25°C	Comfort cooling VRF system (NCM supply rate)
A-PBSA-Amenity: Study Space IT (heating/cooling profiles as per NCM)	ASHP (Air source heat pump) SCOP of 3.33 – Mitsubishi Electric MEHP		22°C		24°C	Comfort cooling VRF system (NCM supply rate)
A-Commercial Area: Sales Area (heating/cooling profiles as per NCM)	n/a				23°C	Comfort cooling VRF system (NCM supply rate)
Plant Rooms		Unheated spaces			80	Comfort cooling VRF system

Table A. 16. Heating Profiles for PBSA Amenity Scenarios

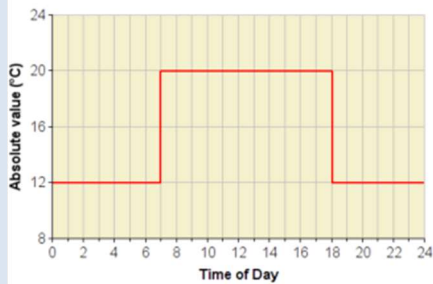
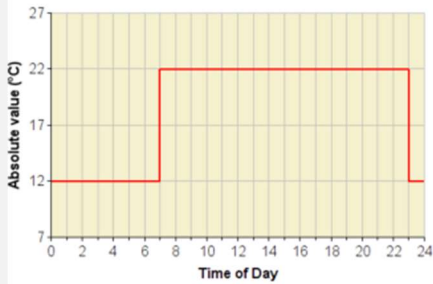
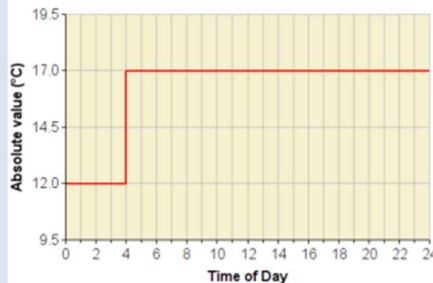
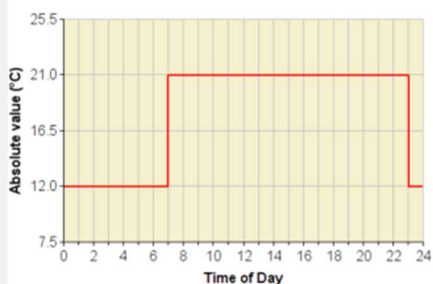
Room Type Scenario	GIA (gross internal area) (m2)	Winter Operative temperature for Room activity (*From Table 1.5 recommended comfort criteria for specific applications CIBSE Guide A : Environmental design (CIBSE, 2017)	Avg. operative heating temperature	Heating profile
Shop (food store)	673.3			
Scenario 1: Study Area (Reading/ Study room)	1094.7		22	
Scenario 2: Café	1094.7		17	
Scenario 3:Gym	1094.7		21	

Table A. 17. Cooling and Ventilation Profiles for PBSA Amenity Scenarios

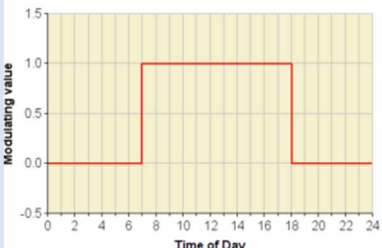
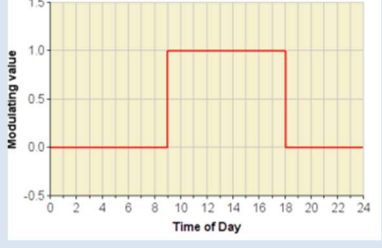
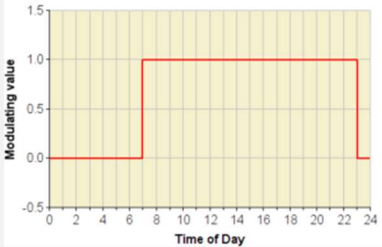
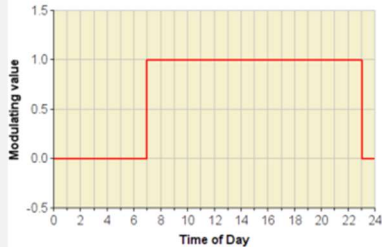
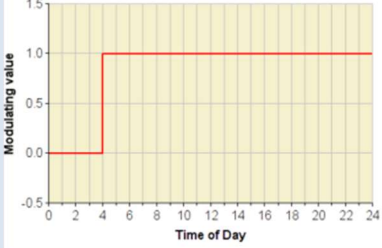
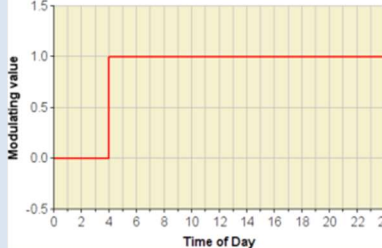
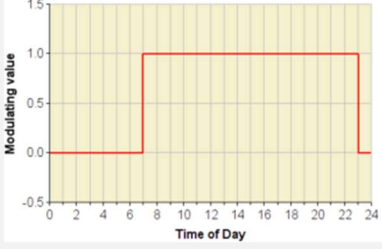
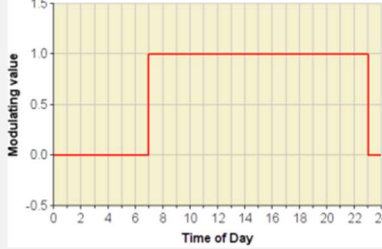
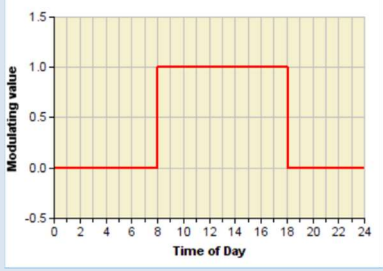
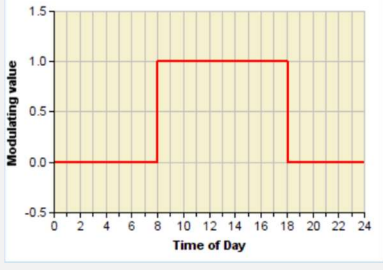
Room Type Scenario	GIA (gross internal area) (m ²)	Summer operative temperature (comfort cooling) for stated activity space	Cooling profile	Ventilation rate	Ventilation Profile
Shop (food store)	673.3			1.1688 l/(s*m ²)	
Scenario 1: Study Area (Reading/ Study room)	1094.7	21-25 Avg 24		2.3125 l/(s*m ²)	
Scenario 2: Café	1094.7				
Scenario 3:Gym	1094.7	25		25	

Table A. 18. Fans, refrigeration, additional small power, comfort cooling components

Block	Space type	Space-use scenario	Internal Gain Type	Maximum Sensible Gain (W/m ²)	Maximum Power Consumption (W/m ²)	
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A- Commercial Areas (*NCM profiles input)	A-PBSA- Amenity: (1094.7m ²)	Study Space (Library)/ Café/ Gym)	Humidification for VRF cooling system (*Benchmark: Table 7.4 from CIBSE Guide F: Energy efficiency in buildings (CIBSE, 2017)	15	20W/m2	
		Store	Refrigeration (*Benchmark: Table 8.2 from CIBSE Guide F: Energy efficiency in buildings (CIBSE, 2017)		90-125W/m2	As per Cooling profile
		Library	Small Power (*Benchmark: Table 13.2 from CIBSE Guide F: Energy efficiency in buildings (CIBSE, 2017)		25W/m2	
		Library	PC & Computer		200W	
		Development	Specific Fan Power (for the zonal supply/ extract ventilation units) (*Benchmark: Table 16.3 from CIBSE Guide F: Energy efficiency in buildings (CIBSE, 2017)		2.2 W/m2	On continuously
		Development	Specific Fan Power (for the local supply/ units) (*Benchmark: Table 16.3 from CIBSE Guide F: Energy efficiency in buildings (CIBSE, 2017)		0.6 W/m2	On continuously

B. Data Outputs

Table B. 1. Table Energy consumption outputs for Lordship Lane development with the PBSA Amenity as Study Area/ Library

	Test	PBSA Amenity as Study Area Scenario_DSY1	PBSA Amenity as Study Area Scenario_DSY2	PBSA Amenity as Study Area Scenario_DSY3	
	End use	Electricity (MWh/yr)			Part L regulation
	Interior lighting	417.9	417.9	417.9	Regulated
	Exterior lighting	194.2	194.2	194.2	Unregulated
	Space heating	795.3	710.1	912.2	Regulated
	Space cooling	155.1	162.6	150.6	Regulated
	Domestic hot water heating	118.1	118.1	118.1	Regulated
	Cooking	0.0	0.0	0.0	Unregulated
	Elevator	181.9	182.4	182.4	Unregulated
	Interior central fans	n/a	n/a	n/a	Unregulated
	Process fans	93.4	93.4	93.4	Unregulated
	Pumps	n/a	n/a	n/a	Unregulated
	Appliances	1241.3	1241.3	1241.3	Unregulated
	Other processes (Pumps, Fans, Server, controls, plant, Refrigerant)	499.2	360.4	462.4	Unregulated
	Total equipment energy consumption (Appliances+Elevator+Other Process)	2570.8	2440.0	2530.0	Unregulated
	TOTAL electricity	3696.4	3480.3	3772.5	Regulated+Unregulated
	Total energy	2741.4	2483.0	3450.3	(Regulated+Unregulated)-PV generated electricity
	PV Generated electricity	955.0	997.2	966.2	PV displaced electricity
	Room heating plant sensible load	2574.3	2298.3	2952.6	Heating Demands
	Room cooling sensible load	649.3	680.5	630.4	Cooling Demands
	Electricity CE (kgCO2)	2684 885	585612.0	606106.0	Energy Carbon emissions
	Gid displaced electricity PV CE (kgCO2)	-590130.0	-128108.0	121481.0	Carbon emissions displaced by PV panels

Table B.2. Table Energy consumption outputs for Lordship Lane development with the PBSA Amenity as Cafe

	Test	PBSA Amenity as Café Area Scenario_DSY1	PBSA Amenity as Café Area Scenario_DSY2	PBSA Amenity as Café Area Scenario_DSY3	
	End use	Electricity (MWh/yr)			Part L regulation
	Interior lighting	605.9	605.9	605.9	Regulated
	Exterior lighting	194.2	194.2	194.2	Unregulated
	Space heating	699.7	607.1	806.4	Regulated
	Space cooling	209.2	209.1	199.8	Regulated
	Domestic hot water heating	115.0	115.0	115.0	Regulated
	Cooking	4.1	4.1	4.1	Unregulated
	Elevator	181.9	181.9	182.4	Unregulated
	Interior central fans	n/a	n/a	n/a	Unregulated
	Process fans	93.4	93.4	93.4	Unregulated
	Pumps	n/a	n/a	n/a	Unregulated
	Appliances	1466.0	1466.0	1466.0	Unregulated
	Other processes (Pumps, Fans, Server, controls, plant, Refrigerant)	284.5	278.6	267.0	Unregulated
	Total equipment energy consumption (Appliances+Elevator+Other Process)	2434.9	2428.8	2408.5	Unregulated
	TOTAL electricity	3853.8	3755.1	3934.2	Regulated+Unregulated
	Total energy	2898.8	2757.8	2968.0	(Regulated+Unregulated)-PV generated electricity
	PV Generated electricity	955.0	997.2	966.2	PV displaced electricity
	Room heating plant sensible load	2264.8	1964.9	2610.2	Heating Demands
	Room cooling sensible load	875.8	875.0	836.3	Cooling Demands
	Electricity CE (kgCO₂)	2688851.0	2628352.0	610189.0	Energy Carbon emissions
	Gid displaced electricity PV CE (kgCO₂)	590130.0	616239.0	121481.0	Carbon emissions displaced by PV panels

Table B. 3. Table Energy consumption outputs for Lordship Lane development with the PBSA Amenity as Gym

	Test	PBSA Amenity as Gym Area Scenario_DSY1	PBSA Amenity as Gym Area Scenario_DSY2	PBSA Amenity as Gym Area Scenario_DSY3	
	End use	Electricity (MWh/yr)			Part L regulation
	Interior lighting	422.2	442.2	442.3	Regulated
	Exterior lighting	194.2	194.2	194.2	Unregulated
	Space heating	736.1	649.5	857.6	Regulated
	Space cooling	138.7	142.9	137.6	Regulated
	Domestic hot water heating	116.5	116.5	116.5	Regulated
	Cooking	0.0	0.0	0.0	Unregulated
	Elevator	182.4	181.9	182.4	Unregulated
	Interior central fans	n/a	n/a	n/a	Unregulated
	Process fans	76.1	76.1	76.1	Unregulated
	Pumps	n/a	n/a	n/a	Unregulated
	Appliances	1151.5	1151.5	1151.5	Unregulated
	Other processes (Pumps, Fans, Server, controls, plant, Refrigerant)	438.5	451.5	401.8	Unregulated
	Total equipment energy consumption (Appliances+Elevator+Other Process)	2387.2	2403.9	2349.3	Unregulated
	TOTAL electricity	3456.2	3406.3	3559.8	Regulated+Unregulated
	Total energy	2501.2	2409.0	2593.7	(Regulated+Unregulated)-PV generated electricity
	PV Generated electricity	955.0	997.2	966.2	PV displaced electricity
	Room heating plant sensible load	2394.6	2102.4	2775.9	Heating Demands
	Room cooling sensible load	581.4	598.0	575.7	Cooling Demands
	Electricity CE (kgCO₂)	557721.0	2487365.0	569893.0	Energy Carbon emissions
	Gid displaced electricity PV CE (kgCO₂)	12042.0	616239.0	121481.0	Carbon emissions displaced by PV panels

**Table B. 4. Table Energy consumption outputs for Lordship Lane development
_LOW_MEDIUM_HIGH Scenarios**

	Test	Energy consumption Low scenario DSY1	Energy consumption Medium(Baseline) scenario DSY1	Energy consumption High scenario DSY1	
	End use	Electricity (MWh/yr)			Part L regulation
	Interior lighting	377.5	422.2	430.6	Regulated
	Exterior lighting	194.2	194.2	349.5	Unregulated
	Space heating	456.5	736.1	1237.7	Regulated
	Space cooling	141.1	138.7	151.2	Regulated
	Domestic hot water heating	115.8	116.5	116.8	Regulated
	Cooking	0.0	0.0	0.0	Unregulated
	Elevator	182.4	182.4	182.4	Unregulated
	Interior central fans	n/a	n/a	n/a	Unregulated
	Process fans	65.3	76.1	85.5	Unregulated
	Pumps	n/a	n/a	n/a	Unregulated
	Appliances	1008.0	1151.5	2481.0	Unregulated
	Other processes (Pumps, Fans, Server, controls, plant, Refrigerant)	320.5	438.5	476.3	Unregulated
	Total equipment energy consumption (Appliances+Elevator+Other Process)	2117.2	2387.2	3776.5	Unregulated
	TOTAL electricity	2861.2	3456.2	5511.1	Regulated+Unregulated
	Total energy	1906.2	2501.2	4556.1	(Regulated+Unregulated)- PV generated electricity
	PV Generated electricity	955.0	955.0	955.0	PV displaced electricity
	Room heating plant sensible load	2145.8	2394.6	4006.2	Heating Demands
	Room cooling sensible load	540.4	581.4	632.9	Cooling Demands
	Electricity CE (kgCO2)	530291.0	557721.0	828900.0	Energy Carbon emissions
	Gid displaced electricity PV CE (kgCO2)	120042.0	12042.0	120042.0	Carbon emissions displaced by PV panels

Table B.5. Table Energy consumption outputs for Cooling Strategy Test 1 (Baseline) and Cooling Strategy Test 2 (PBSA Comfort Cooling)

	Tests/ End-use	Energy consumption breakdown for Cooling Strategy Test 1	Energy consumption breakdown for Cooling Strategy Test 2	
	End use	Electricity (MWh/yr)	Electricity (MWh/yr)	Part L regulation
	Interior lighting	422.2	422.2	Regulated
	Exterior lighting	194.2	194.2	Unregulated
	Space heating	736.1	731.6	Regulated
	Space cooling	138.7	224.0	Regulated
	Domestic hot water heating	116.5	116.5	Regulated
	Cooking	0.0	0.0	Unregulated
	Elevator	182.4	182.4	Unregulated
	Interior central fans	n/a	n/a	Unregulated
	Process fans	76.1	76.1	Unregulated
	Pumps	n/a	n/a	Unregulated
	Appliances	1151.5	1151.5	Unregulated
	Other processes (Pumps, Fans, Server, controls, plant, Refrigerant)	438.5	480.3	Unregulated
	Total equipment energy consumption (Appliances+Elevator+Other Process)	2387.2	2514.3	Unregulated
	TOTAL electricity	3456.2	3578.8	Regulated+Unregulated
	Total energy	2501.2	2623.8	(Regulated+Unregulated)-PV generated electricity
	PV Generated electricity	955.0	955.0	PV displaced electricity
	Room heating plant sensible load	2394.6	2248.3	Heating Demands
	Room cooling sensible load	581.4	1036.2	Cooling Demands
	Electricity CE (kgCO₂)	557721.0	590130.0	Energy Carbon emissions
	Gid displaced electricity PV CE (kgCO₂)	12042.0	12042.0	Carbon emissions displaced by PV panels

C.General Note

The report is based on information available at the time of the writing and discussions with the client during any project meetings. Where any data supplied by the client or from other sources have been used it has been assumed that the information is correct. No responsibility can be accepted by Ensphere Group Ltd for inaccuracies in the data supplied by any other party.

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The purpose of this report is to satisfy the BREEAM Ene01 requirements only. Any design work on the project should be guided by separate calculations undertaken by the appropriate design team members.

No site visits have been carried out, unless otherwise specified.

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