

Table 1 – Baseline energy demand

carbon emissions factor (gas)0.198 kgCO₂/kWh

carbon emissions factor (electricity)0.517 kgCO₂/kWh

Boiler
efficiency

85%

Use Class	Sub Use	Description			GIA (m²)	assumed building type	% of GIA	basis of benchmark				good practice energy/FF benchmark (kWh/m²/yr)				good practice energy benchmark (kWh/m²/yr)		Energy Use (kWh/year)				total (kWh/yr)		total (kWh/yr)		carbon dioxide emission (kgCO _{2y})	
										(m²)	space	water	L&A	cooking	Fossil Fuel	Electricity	space	water	L&A	cooking	Energy	Electricity	Fossil Fuel	Electricity	Fossil Fuel	Electricity	
		5.1 Retail (Use Class A)			960																						
A1	(a)	Food Store			385	Small food store - Co-operative	100%	CIBSE TM46 (Small food store)	gross floor area	385	-	-	355	-	0	355	0	0	136675	0	0	136675	0	136675	0	70661	
A1	(a)	Convenience Retail			385	Shops/stores: non-food stores (hairdressers)	100%	CIBSE TM46 (General retail)	gross floor area	385	-	-	165	-	0	165	0	0	63525	0	0	63525	0	63525	0	32842	
A3		Restaurants & Café's			190	ECO-PUB Restaurants (with bar) and cafe	100%	CIBSE TM46 (Restaurant)	gross floor area	190	40	120	90	210	370	90	6460	19380	17100	39900	65740	17100	70300	17100	13919	8841	
		5.2 Business (Use Class B)			3,275					-																	
B1	(a)	ECO-Business Centre			1,800	Office, air conditioned (standard)	100%	CIBSE TM46 (General office)	gross floor area	1,800	70	50	95	-	120	95	107100	76500	171000	0	183600	171000	216000	171000	42768	88407	
B1	(c)	Offices			1,100	Office, air conditioned (prestige)	100%	CIBSE TM46 (General office)	gross floor area	1,100	70	50	95	-	120	95	65450	46750	104500	0	112200	104500	132000	104500	26136	54027	
B1	(c)	Light Industrial			-	Light manufacturing	100%	BSRIA Rules of Thumb	gross floor area	-	49	-	31	-	49	31	0	0	0	0	0	0	0	0	0	0	
B1	(c)	Energy Centre			375	Workshops	100%	CIBSE TM46 (Workshop -electricity only)	gross floor area	375	-	-	35	-	0	35	0	0	13125	0	0	13125	0	13125	0	6786	
		5.3 Hotels & Residential Institutions (Use Class C)			-					-																	
C1		Mid-range Hotel			-	Hotels: small	100%	CIBSE TM46 (Hotel)	gross floor area	-	165	110	105	55	330	105	0	0	0	0	0	0	0	0	0	0	
C1		Country Club (Golf) Hotel			-	Hotels: business/holiday	100%	CIBSE TM46 (Hotel)	gross floor area	-	165	110	105	55	330	105	0	0	0	0	0	0	0	0	0	0	
C2		Assisted Living			-	Residential and nursing homes	100%	CIBSE TM46 (Long Term Resi)_	gross floor area	-	200	120	65	100	420	65	0	0	0	0	0	0	0	0	0	0	
		5.4 Residential Dwellings (Use Class C)		393	37,845					-																	
C3					-					-																	
		4 bed, 7person house = 250m GIA	111	9	999		100%	Approved Document L1A 2006	gross floor area	999	43	36	35	13	92	35	36342	30716	34917	13314	80372	34917	92206	34917	18257	18052	
		5 bed, 7person house = 250m GIA	130	42	5,460		100%	Approved Document L1A 2007	gross floor area	5,460	43	36	35	13	92	35	198626	167879	190838	72765	439270	190838	503948	190838	99782	98663	
C3					-					-																	
		3 bed, 5 person house = 85m GIA	83	99	8,217	Semi-detached	100%	Approved Document L1A 2006	gross floor area	8,217	39	38	34	15	92	34	269232	268366	282876	121589	659188	282876	754058	282876	149303	146247	
		4 bed, 6 person house = 112m GIA	74	58	4,292	Detached Bungalows	100%	Approved Document L1A 2006	gross floor area	4,292	43	36	35	13	92	35	156136	131967	150014	57199	345302	150014	396143	150014	78436	77557	
					-					-																	
C3					-					-																	
		1 bed, 2 person flat = 51m GIA	77	7	539	Top floor flat	100%	Approved Document L1A 2006	gross floor area	539	37	46	36	19	102	36	16952	21075	19404	10241	48267	19404	54978	19404	10886	10032	
		2 bed, 4 person flat = 74m GIA	88	23	2,024	Top floor flat	100%	Approved Document L1A 2006	gross floor area	2,024	37	46	36	19	102	36	63655	79138	72864	38456	181249	72864	206448	72864	40877	37671	
		3 bed, 5 person house = 85m GIA	102	99	10,098	Semi-detached	100%	Approved Document L1A 2006	gross floor area	10,098	39	38	34	15	92	34	330863	329800	347630	149423	810086	347630	926673	347630	183481	179725	
		4 bed, 6 person house = 112m GIA	111	56	6,216	Detached	100%	Approved Document L1A 2006	gross floor area	6,216	43	36	35	13	92	35	226128	191124	217261	82840	500092	217261	573725	217261	113598	112324	
		5.5 Non Residential Institutions (Use Class D)			3,220																						
D1	(c)	Primary Schools			2,520	Primary school	100%	CIBSE F (Primary School)	gross floor area	2,520	90	60	32	8	158	32	192780	128520	80640	20160	341460	80640	398160	80640	78836	41691	
D1	(c)	Secondary School			-		100%	CIBSE TM46	gross floor area	-	66	45	40	39	150	40	0	0	0	0	0	0	0	0	0	0	
D1	(c)	Further Education Institution			-	Further & Higher Education - Teaching	100%	BSRIA Rules of Thumb	gross floor area	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	
D1	(c)	Community Centre			350	Local authority buildings - community centres	100%	CIBSE TM46 (public buildings with light use)	net lettable items	350	85	20	20	-	105	20	25288	5950	7000	0	31238	7000	36750	7000	7277	3619	
D1	(c)	Office			-	Emergency services	100%	CIBSE F	treated floor area	-	80	50	95	-	130	95	0	0	0	0	0	0	0	0	0	0	
D1	(c)	Nursery			350	Primary health care (general practitioners' surgeries and dental practices)	100%	CIBSE TM46 Clinic	gross floor area	350	115	85	70	-	200	70	34213	25288	24500	0	59500	24500	70000	24500	13860	12667	
D1	(c)	Private Hospital			-	Hospitals: acute	100%	CIBSE F	heated floor area	-					0	0	0	0	0	0	0	0	0	0	0	0	
D1	(c)	Outdoor Market			-		100%	CIBSE F							0												
		5.6 Assembly & Leisure Facilities (Use Class D)			-										0												
D2		Equestrian Centre				Sports and recreation: dry sports centre	100%	CIBSE F	treated floor area	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	
D2		Tennis Academy				Sports and recreation: dry sports centre	100%	CIBSE F	treated floor area	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	
										45,300							1,729,223	1,522,453	1,933,869	605,887	3,857,564	1,933,869	4,431,389	1,933,869	877,415	999,810	

- Notes
- 1 good practice benchmarks can be assumed upper limits for new build
- 2 where no good practice benchmarks available, typical practice benchmarks used
- 3 fossil fuel taken to be gas (fossil-thermal energy)
- 4 benchmark figures include cooling, as applicable to building type
- 5 calculations are for EXEMPLAR build