



Building Stock	GB National	English Housing	Year	2012
Details	Main English building type and age merged into smaller type and age band to give 9 average building types, bre model			

Annotations to this sheet

	1	2	3	4	5	6	7	8	9	10
Building type	TH.01	TH.02-03	TH.04-08	SFH.01	SFH.02-03	SFH.04-08	AB.01	AB.02-03	AB.04-08	
Dataset	GB.Englan d.2012.00 1.01	GB.Englan d.2012.00 1.02	GB.Englan d.2012.00 1.03	GB.Englan d.2012.00 1.04	GB.Englan d.2012.00 1.05	GB.Englan d.2012.00 1.06	GB.Englan d.2012.00 1.07	GB.Englan d.2012.00 1.08	GB.Englan d.2012.00 1.09	

Thermal Envelope Average Building

Basic data

	TABULA average buildings										
Floor area TABULA	110,1	91,2	85,6	216,4	149,4	144,3	496,3	886,8	1080,2		m ²
Floor area national	110,1	91,2	85,6	216,4	149,4	144,3	496,3	886,8	1080,2		m ²
Number of dwellings	1,07	1,04	1,06	1,09	1,10	1,07	6,89	14,82	18,68		

Thermal envelope areas (external dimensions)

	TABULA average buildings										
Roof	52,6	48,9	44,8	112,2	90,1	82,5	63,7	55,9	55,3		m ²
Wall	75,3	70,2	60,1	171,0	114,4	117,0	307,1	552,9	606,3		m ²
Window	24,7	23,9	18,9	49,7	38,9	35,3	55,7	107,2	119,1		m ²
Floor	50,2	47,6	43,3	106,9	86,6	80,1	63,2	55,8	55,1		m ²

Original state / not refurbished fraction of the envelope area

U-values of the original state

	Building stock model - state indicators										
Roof	0,88	0,64	0,52	0,88	0,64	0,52	0,32	0,32	0,19		W/(m ² K)
Wall	1,93	1,77	0,93	1,93	1,77	0,93	1,93	1,77	0,93		W/(m ² K)
Window	4,06	3,59	3,74	4,13	3,62	3,89	4,22	3,71	4,25		W/(m ² K)
Floor	0,59	0,59	0,59	0,72	0,72	0,72	0,45	0,45	0,45		W/(m ² K)

Refurbishments (averages)

Refurbished fraction of envelope areas

	Building stock model - state indicators									
Roof	42%	55%	56%	52%	56%	60%	7%	13%	19%	
Wall	11%	52%	54%	17%	55%	57%	7%	40%	46%	
Window	62%	76%	74%	57%	75%	81%	48%	86%	91%	
Floor										
<i>Total (indicative)</i>	<i>23%</i>	<i>43%</i>	<i>43%</i>	<i>26%</i>	<i>43%</i>	<i>46%</i>	<i>11%</i>	<i>41%</i>	<i>48%</i>	

U-values of the refurbished fraction (averages)

	Building stock model - state indicators										
Roof	0,16	0,15	0,15	0,16	0,15	0,15	0,12	0,12	0,10		W/(m ² K)
Wall	0,74	0,47	0,31	0,74	0,47	0,31	0,74	0,47	0,31		W/(m ² K)
Window	2,58	2,58	2,58	2,58	2,58	2,58	2,58	2,58	2,58		W/(m ² K)
Floor											W/(m ² K)

Energy Need for Heating TABULA

Utilisation

Utilisation dataset

	TABULA standard calculation procedure									
EU.SUH	EU.SUH	EU.SUH	EU.SUH	EU.SUH	EU.SUH	EU.MUH	EU.MUH	EU.MUH		
Internal temperature	20,0	20,0	20,0	20,0	20,0	20,0	20,0	20,0	20,0	°C
Reduction factor temp.	0,85	0,86	0,88	0,84	0,86	0,88	0,93	0,94	0,98	
Air exchange rate (use)	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40	1/h
Internal heat sources	3,00	3,00	3,00	3,00	3,00	3,00	3,00	3,00	3,00	W/m ²
Red. factor ext. shading	0,60	0,60	0,60	0,60	0,60	0,60	0,60	0,60	0,60	
Energy need for DHW	10,0	10,0	10,0	10,0	10,0	10,0	15,0	15,0	15,0	kWh/(m ² a)

Climate

Climate dataset

	TABULA standard calculation procedure									
England	England	England	England	England	England	England	England	England	England	
Base temperature	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	°C
Length of heating season	243	243	243	243	243	243	243	243	243	d/a
External temp. during HS	7,4	7,4	7,4	7,4	7,4	7,4	7,4	7,4	7,4	
Accum. temp. diff. ext. to int. temp.	3062	3062	3062	3062	3062	3062	3062	3062	3062	Kd/a

Envelope

Heat transfer by transmission related to surface area related to ref. floor area

	TABULA standard calculation procedure									
286	203	126	617	345	243	851	1098	784		W/K
1,41	1,06	0,76	1,40	1,05	0,77	1,74	1,42	0,94		W/(m ² K)
2,59	2,22	1,48	2,85	2,31	1,69	1,71	1,24	0,73		W/(m ² K)

Annual energy balance building

	TABULA standard calculation procedure									
161,4	140,2	95,9	175,8	145,3	108,7	116,7	85,7	52,1		kWh/(m ² a)
26,4	26,8	27,6	26,2	26,7	27,4	28,9	29,4	30,5		kWh/(m ² a)
-12,4	-14,1	-11,6	-13,5	-14,8	-13,7	-7,4	-8,1	-7,5		kWh/(m ² a)
-16,1	-15,9	-16,1	-16,0	-15,9	-15,9	-16,4	-16,4	-16,5		kWh/(m ² a)
159,4	137,0	95,8	172,4	141,4	106,4	121,8	90,6	58,7		kWh/(m ² a)
										kWh/(m ² a)
159,4	137,0	95,8	172,4	141,4	106,4	121,8	90,6	58,7		kWh/(m ² a)



Building Stock **GB National** English Housing Year 2012

Details Main English building type and age merged into smaller type and age band to give 9 average building types, bre model

Annotations to this sheet

	1	2	3	4	5	6	7	8	9	10
Building type	TH.01	TH.02-03	TH.04-08	SFH.01	SFH.02-03	SFH.04-08	AB.01	AB.02-03	AB.04-08	

Total Building Stock

		Building stock model - state indicators									Total
Number of buildings	10 ³	2 771	5 601	4 020	522	1 305	2 862	135	76	137	17 428
Number of dwellings	10 ³	2 970	5 800	4 270	570	1 430	3 070	930	1 120	2 560	22 720
Floor area national	10 ⁶ m ²	305	511	344	113	195	413	67	67	148	2 163
Floor area TABULA	10 ⁶ m ²	305	511	344	113	195	413	67	67	148	2 163

Ventilation Systems with Heat Recovery

	Building stock model - state indicators									
Occurrences	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%

Heating Systems

Occurrences or Fractions of Produced Heat

	Building stock model - state indicators											
1	Gas	B_C	C	90%	100%	90%	50%	90%	90%	80%	85%	60%
2	El	E_Storage	D	10%		10%	10%			20%	15%	40%
3	Oil	B_C	C				40%	10%	10%			
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
Sum				100%	100%	100%	100%	100%	100%	100%	100%	100%
thereof central				90%	100%	90%	90%	100%	100%	80%	85%	60%
decentral				10%		10%	10%			20%	15%	40%
Other Systems												

DHW Systems

Occurrences or Fractions of Produced Heat

	Building stock model - state indicators											
1	Gas	B_C	C	90%	95%	90%	50%	80%	80%	80%	90%	60%
2	El	E_Immersi	C	10%	4%	10%	10%	10%		20%	10%	40%
3	Oil	B_C	C		1%		40%	10%	10%			
4												
5												
6												
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9												
10												
11												
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15												
16												
17												
18												
19												
20												
Sum				100%	100%	100%	100%	100%	90%	100%	100%	100%
thereof central				100%	100%	100%	100%	100%	90%	100%	100%	100%
decentral												
Other Systems								10%				



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Annotations to this sheet

	1	2	3	4	5	6	7	8	9	10
Building type	TH.01	TH.02-03	TH.04-08	SFH.01	SFH.02-03	SFH.04-08	AB.01	AB.02-03	AB.04-08	

Heating Systems

Heat demand / heat generation

TABULA standard calculation procedure

Energy need for heating	159,4	137,0	95,8	172,4	141,4	106,4	121,8	90,6	58,7	kWh/(m ² a)
Net en. need for heating	159,4	137,0	95,8	172,4	141,4	106,4	121,8	90,6	58,7	kWh/(m ² a)

Distribution + storage losses

TABULA system indicators

Central systems	C									kWh/(m ² a)
Decentral systems	D									kWh/(m ² a)

Auxiliary energy

TABULA system indicators

Ventil. systems (average)										kWh/(m ² a)
Central systems	C	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	kWh/(m ² a)
Decentral systems	D	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	kWh/(m ² a)

Energy expenditure factors (fuels: related to gross calorific value)

TABULA system indicators

1	Gas	B C	C	1,45	1,45	1,19	1,45	1,19	1,45	1,45	1,19
2	El	E Storage	D	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
3	Oil	B C	C	1,45	1,45	1,19	1,45	1,19	1,45	1,45	1,19
4											
5											
6											
7											
8											
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11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Delivered Energy

TABULA standard calculation procedure

1	Gas	B C	C	231,1	198,6	114,0	250,0	205,0	126,6	176,6	131,4	69,9	kWh/(m ² a)
2	El	E Storage	D	159,4	137,0	95,8	172,4	141,4	106,4	121,8	90,6	58,7	kWh/(m ² a)
3	Oil	B C	C	231,1	198,6	114,0	250,0	205,0	126,6	176,6	131,4	69,9	kWh/(m ² a)
4													kWh/(m ² a)
5													kWh/(m ² a)
6													kWh/(m ² a)
7													kWh/(m ² a)
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17													kWh/(m ² a)
18													kWh/(m ² a)
19													kWh/(m ² a)
20													kWh/(m ² a)

Delivered Energy - weighted by frequencies

TABULA standard calculation procedure

1	Gas	B C	C	208,0	198,6	102,6	125,0	184,5	114,0	141,3	111,7	41,9	kWh/(m ² a)
2	El	E Storage	D	15,9		9,6	17,2			24,4	13,6	23,5	kWh/(m ² a)
3	Oil	B C	C				100,0	20,5	12,7				kWh/(m ² a)
4													kWh/(m ² a)
5													kWh/(m ² a)
6													kWh/(m ² a)
7													kWh/(m ² a)
8													kWh/(m ² a)
9													kWh/(m ² a)
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14													kWh/(m ² a)
15													kWh/(m ² a)
16													kWh/(m ² a)
17													kWh/(m ² a)
18													kWh/(m ² a)
19													kWh/(m ² a)
20													kWh/(m ² a)

Electricity production by CHP

TABULA standard calculation procedure

													kWh/(m ² a)
													kWh/(m ² a)
													kWh/(m ² a)
													kWh/(m ² a)



Building Stock **GB National** English Housing Year 2012

Details Main English building type and age merged into smaller type and age band to give 9 average building types, bre model

Annotations to this sheet

	1	2	3	4	5	6	7	8	9	10
Building type	TH.01	TH.02-03	TH.04-08	SFH.01	SFH.02-03	SFH.04-08	AB.01	AB.02-03	AB.04-08	

DHW Systems

Heat demand / heat generation

TABULA standard calculation procedure

Energy need for DHW	10,0	10,0	10,0	10,0	10,0	10,0	15,0	15,0	15,0				kWh/(m ² a)
Distribution + storage losses													
Central systems	C	5,9	5,9	5,9	5,9	5,9	5,9	5,9	5,9				kWh/(m ² a)
Decentral systems	D												kWh/(m ² a)
Auxiliary energy													
Central systems	C												kWh/(m ² a)
Decentral systems	D												kWh/(m ² a)

Energy expenditure factors (fuels: related to gross calorific value)

TABULA system indicators

1	Gas	B C	C	1,45	1,45	1,45	1,45	1,45	1,45	1,45	1,45	1,45	
2	El	E Immersiv	C	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	
3	Oil	B C	C	1,45	1,45	1,45	1,45	1,45	1,45	1,45	1,45	1,45	
4													
5													
6													
7													
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9													
10													
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13													
14													
15													
16													
17													
18													
19													
20													

Delivered Energy

TABULA standard calculation procedure

1	Gas	B C	C	23,1	23,1	23,1	23,1	23,1	23,1	30,3	30,3	30,3	kWh/(m ² a)
2	El	E Immersiv	C	15,9	15,9	15,9	15,9	15,9	15,9	20,9	20,9	20,9	kWh/(m ² a)
3	Oil	B C	C	23,1	23,1	23,1	23,1	23,1	23,1	30,3	30,3	30,3	kWh/(m ² a)
4													kWh/(m ² a)
5													kWh/(m ² a)
6													kWh/(m ² a)
7													kWh/(m ² a)
8													kWh/(m ² a)
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16													kWh/(m ² a)
17													kWh/(m ² a)
18													kWh/(m ² a)
19													kWh/(m ² a)
20													kWh/(m ² a)

Delivered Energy - weighted by frequencies

TABULA standard calculation procedure

1	Gas	B C	C	20,8	21,9	20,8	11,5	18,5	18,5	24,3	27,3	18,2	kWh/(m ² a)
2	El	E Immersiv	C	1,6	0,6	1,6	1,6	1,6	1,6	4,2	2,1	8,4	kWh/(m ² a)
3	Oil	B C	C		0,2		9,2	2,3	2,3				kWh/(m ² a)
4													kWh/(m ² a)
5													kWh/(m ² a)
6													kWh/(m ² a)
7													kWh/(m ² a)
8													kWh/(m ² a)
9													kWh/(m ² a)
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16													kWh/(m ² a)
17													kWh/(m ² a)
18													kWh/(m ² a)
19													kWh/(m ² a)
20													kWh/(m ² a)

Electricity production by CHP

TABULA standard calculation procedure

													kWh/(m ² a)
													kWh/(m ² a)
													kWh/(m ² a)
													kWh/(m ² a)



Building Stock **GB National** English Housing Year 2012

Details Main English building type and age merged into smaller type and age band to give 9 average building types, bre model

Annotations to this sheet

Total Building Stock

	1	2	3	4	5	6	7	8	9	10	Total	
Building type	TH.01	TH.02-03	TH.04-08	SFH.01	SFH.02-03	SFH.04-08	AB.01	AB.02-03	AB.04-08			
Floor area TABULA	10 ⁶ m ²	305	511	344	113	195	413	67	67	148	0	2 163

All energy quantities in **GWh/a**

Heating Systems

Heat Demand for Heating		TABULA standard calculation procedure / projection to building stock										Total
Energy need for heating		48 609	69 999	32 969	19 482	27 568	43 954	8 162	6 071	8 689		265 502
Net en. need for heating		48 609	69 999	32 969	19 482	27 568	43 954	8 162	6 071	8 689		265 502
Produced heat		48 609	69 999	32 969	19 482	27 568	43 954	8 162	6 071	8 689		265 502

Delivered Energy TABULA		TABULA standard calculation procedure / projection to building stock										Sum
1	Gas B_C	C	63 435	101 499	35 310	14 124	35 976	47 074	9 467	7 482	6 204	320 572
2	El E_Storage	D	4 861	0	3 297	1 948	0	0	1 632	911	3 476	16 125
3	Oil B_C	C	0	0	0	11 299	3 997	5 230	0	0	0	20 527
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
	Not specified systems		0	0	0	0	0	0	0	0	0	0
	Auxiliary energy		366	675	413	136	257	545	72	76	124	2 665
	CHP electr. production											0

DHW Systems

Heat Demand for DHW		TABULA standard calculation procedure / projection to building stock										Total
Energy need for DHW		3 050	5 110	3 440	1 130	1 950	4 130	1 005	1 005	2 220		23 040
Produced heat		4 856	8 135	5 476	1 799	3 104	6 330	1 402	1 402	3 096		35 600

Delivered Energy TABULA		TABULA standard calculation procedure / projection to building stock										Total
1	Gas B_C	C	6 337	11 206	7 147	1 304	3 601	7 627	1 626	1 829	2 694	43 370
2	El E_Immersi	C	486	325	548	180	310	0	280	140	1 238	3 508
3	Oil B_C	C	0	118	0	1 043	450	953	0	0	0	2 565
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
	Not specified systems		0	0	0	0	0	413	0	0	0	413
	Auxiliary energy		0	0	0	0	0	0	0	0	0	0
	CHP electr. production											0



Building Stock **GB National** English Housing Year **2012**

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Annotations to this sheet

Total Building Stoc	1	2	3	4	5	6	7	8	9	10	Total	
Building type	TH.01	TH.02-03	TH.04-08	SFH.01	SFH.02-03	SFH.04-08	AB.01	AB.02-03	AB.04-08			
Floor area TABULA	10 ⁶ m ²	305	511	344	113	195	413	67	67	148	0	2 163

Total Heat Need and Final Energy All energy quantities in **GWh/a** Heating + DHW

Simplified TABULA projection	fuels related to gross calorific value (TABULA standard)										TABULA standard calculation procedure projection to building stock	
	Total											per m ²
Net heat need	51 659	75 109	36 409	20 612	29 518	48 084	9 167	7 076	10 909		288 542	133
Produced heat	53 465	78 135	38 445	21 281	30 672	50 284	9 563	7 472	11 785		301 102	139
Gas	69 772	112 705	42 456	15 428	39 577	54 701	11 093	9 311	8 898		363 942	168
Oil	0	118	0	12 343	4 447	6 184	0	0	0		23 092	11
Coal	0	0	0	0	0	0	0	0	0		0	0
Bio	0	0	0	0	0	0	0	0	0		0	0
DH	0	0	0	0	0	0	0	0	0		0	0
EI (incl. aux. en.)	5 712	1 000	4 257	2 264	568	545	1 985	1 127	4 838		22 297	10
Other / not specified	0	0	0	0	0	413	0	0	0		413	0
Sum final energy	75 484	113 823	46 714	30 035	44 592	61 843	13 078	10 438	13 736	0	409 744	189
CHP electr. production	0	0	0	0	0	0	0	0	0		0	0

Separate individual model or total metered consumption

bre model of English housing

Separate individual model or total metered consumption	fuels related to gross calorific value (TABULA standard)										Individual building stock model	
	Total											per m ²
Net heat need	59 100	86 200	47 100	22 700	33 100	53 500	13 100	10 900	16 900		342 600	158
Produced heat	80 700	116 600	61 700	31 700	45 900	72 900	16 000	13 300	19 000		457 800	212
Gas	1,00	71 100	111 000	57 500	15 800	39 200	63 400	12 200	11 100	12 400	393 700	182
Oil	1,00	4 100	1 500	500	12 200	3 800	7 400	100	36	50	29 686	14
Coal	1,00	0	0	0	0	0	0	0	0	0	0	0
Bio	1,00	0	0	0	0	0	0	0	0	0	0	0
DH		0	0	0	0	0	0	0	0	0	0	0
EI		3 300	2 200	3 300	1 500	1 400	1 200	3 000	1 400	5 400	22 700	10
Other / not specified		0	0	0	0	0	0	0	0	0	0	0
Sum final energy		78 500	114 700	61 300	29 500	44 400	72 000	15 300	12 536	17 850	446 086	206
CHP electr. production		0	0	0	0	0	0	0	0	0	0	0

Ratio of individual model or total metered consumption to simplified TABULA projection (TABULA balance calibration factors)

											Total
Net heat need	114%	115%	129%	110%	112%	111%	143%	154%	155%		119%
Produced heat	151%	149%	160%	149%	150%	145%	167%	178%	161%		152%
Gas	102%	98%	135%	102%	99%	116%	110%	119%	139%		108%
Oil		1272%		99%	85%	120%					129%
Coal											
Bio											
DH											
EI	58%	220%	78%	66%	247%	220%	151%	124%	112%		102%
Other						0%					0%
Sum final energy	104%	101%	131%	98%	100%	116%	117%	120%	130%		109%
CHP electr. production											