



Building Stock	HU	Local	Local building stock of Budaörs, Hungary	Year	2015
Details	national average buildings applied for the case study, BME model / based on a survey involving 2000 buildings in 2015				
Annotations to this sheet	Use of "average buildings" defined at national level, extrapolation by use of reference area (therefore number of buildings and apartments not consistent with real data, no influence on calculation)				

	1	2	3	4	5	6	7	8	9	10
Building type	SFH.01	MFH.01	AB.01	SFH.02	MFH.02					
Dataset	HU.LocalCaseStudy.2015.001.01	HU.LocalCaseStudy.2015.001.02	HU.LocalCaseStudy.2015.001.03	HU.LocalCaseStudy.2015.001.04	HU.LocalCaseStudy.2015.001.05					

Thermal Envelope Average Building

Basic data	TABULA average buildings										
Floor area TABULA	101,1	1520,8	3906,3	156,9	1631,7						m ²
Floor area national	101,1		3906,3	156,9	1631,7						m ²
Number of dwellings	1,00		58,99	1,00	23,99						

Thermal envelope areas (external dimensions)	TABULA average buildings										
Roof	77,8	353,0	469,7	146,3	434,7						m ²
Wall	98,1	852,5	1500,6	124,4	828,2						m ²
Window	14,3	215,8	587,3	22,1	277,4						m ²
Floor	78,8	347,9	540,5	89,0	371,7						m ²

Original state / not refurbished fraction of the envelope area

U-values of the original state	Building stock model - state indicators										
Roof	0,95	0,85	0,62	0,34	0,31						W/(m ² K)
Wall	1,20	1,23	1,13	0,52	0,52						W/(m ² K)
Window	2,86	2,59	2,81	1,78	1,76						W/(m ² K)
Floor	1,02	0,99	1,07	0,59	0,54						W/(m ² K)

Refurbishments (averages)

Refurbished fraction of envelope areas	Building stock model - state indicators										
Roof	9%	4%	14%	6%	1%						
Wall	12%	7%	15%	8%	2%						
Window	20%	21%	34%	7%	2%						
Floor	1%	0%	7%	0%	1%						
Total (indicative)	8%	6%	17%	5%	1%						

U-values of the refurbished fraction (averages)	Building stock model - state indicators										
Roof	0,36	0,35	0,22	0,25	0,15						W/(m ² K)
Wall	0,51	0,52	0,35	0,33	0,33						W/(m ² K)
Window	1,55	1,55	1,76	1,18	1,18						W/(m ² K)
Floor	0,61	0,54	0,59	0,47	0,36						W/(m ² K)

Energy Need for Heating TABULA

Utilisation	TABULA standard calculation procedure										
Utilisation dataset	EU.SUH	EU.MUH	EU.MUH	EU.SUH	EU.MUH						
Internal temperature	20,0	20,0	20,0	20,0	20,0						°C
Reduction factor temp.	0,84	0,94	0,95	0,89	0,97						
Air exchange rate (use)	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						W/m ²
Red. factor ext. shading	0,60	0,60	0,60	0,60	0,60						
Energy need for DHW	10,0	15,0	15,0	10,0	15,0						kWh/(m ² a)

Climate	TABULA standard calculation procedure										
Climate dataset	national / whole country	national / whole country	national / whole country	national / whole country	national / whole country						
Base temperature	12,0	12,0	12,0	12,0	12,0						°C
Length of heating season	183	183	183	183	183						d/a
External temp. during HS	3,7	3,7	3,7	3,7	3,7						
Accum. temp. diff. ext. to int. temp.	2990	2990	2990	2990	2990						Kd/a

Envelope	TABULA standard calculation procedure										
Heat transfer by transmission related to surface area	278	2153	3870	209	1320						W/K
related to ref. floor area	1,03	1,22	1,25	0,55	0,69						W/(m ² K)
	2,75	1,42	0,99	1,33	0,81						W/(m ² K)

Annual energy balance building	TABULA standard calculation procedure										
Transmission heat losses	166,1	95,1	67,6	85,0	56,3						kWh/(m ² a)
Ventilation heat losses	25,7	28,6	29,0	27,1	29,6						kWh/(m ² a)
Usable solar gains											kWh/(m ² a)
Usable internal gains	-12,8	-12,9	-12,9	-12,8	-12,9						kWh/(m ² a)
Energy need for heating recovered by vent. system	179,0	110,8	83,7	99,3	72,9						kWh/(m ² a)
Net energy need for heating	179,0	110,8	83,7	99,3	72,9						kWh/(m ² a)



Building Stock **HU** **Local** Local building stock of Budaörs, Hungary Year 2015

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Annotations to this sheet

	1	2	3	4	5	6	7	8	9	10
Building type	SFH.01	MFH.01	AB.01	SFH.02	MFH.02					

Total Building Stock

	Building stock model - state indicators										Total	
Number of buildings	10 ⁰	5 881	36	3 130	53							9 100
Number of dwellings	10 ⁰	5 881	2 106	3 130	1 263							12 380
Floor area national	10 ³ m ²	594	139	491	86							1 311
Floor area TABULA	10 ³ m ²	594	139	491	86							1 311

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_NC_CT	C	21%	9%	35%	30%					
2	DH		C		72%		7%					
3	El	E	D	2%		1%	2%					
4	Gas	B_NC_CT	D	48%	19%	54%	62%					
5	Bio_W	Stove_S	D	29%	0%	10%						
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
Sum				100%	100%	100%	100%					
thereof central				21%	81%	35%	36%					
decentral				79%	19%	65%	64%					
Other Systems					0%							

DHW Systems

Occurrences or Fractions of Produced Heat

	Building stock model - state indicators											
1	Gas	B_NC_CT	C	21%	8%	29%	28%					
2	DH		C		70%		7%					
3	El		D		4%	16%	7%					
4	Gas	B_NC_CT	D	56%	17%	52%	57%					
5	Bio_W	B_WP	D	20%								
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
Sum				97%	100%	97%	99%					
thereof central				21%	78%	29%	35%					
decentral				75%	22%	69%	64%					
Other Systems				3%	0%	3%	2%					



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Annotations to this sheet

Total Building Stock

	1	2	3	4	5	6	7	8	9	10	Total
Building type	SFH.01	MFH.01	AB.01	SFH.02	MFH.02						
Floor area TABULA	10 ³ m ²	594	0	139	491	86	0	0	0	0	1 311

All energy quantities in **MWh/a**

Heating Systems

Heat Demand for Heating	TABULA standard calculation procedure / projection to building stock										Total
Energy need for heating	106 435		11 675	48 762	6 264						173 137
Net en. need for heating	106 435		11 675	48 762	6 264						173 137
Produced heat	113 866		13 394	51 610	6 796						185 667

Delivered Energy TABULA	TABULA standard calculation procedure / projection to building stock										Sum
1 Gas B_NC_CT C	30 641		1 324	22 591	2 370						56 926
2 DH C	0		9 778	0	446						10 225
3 EI E D	2 050		0	619	136						2 805
4 Gas B_NC_CT D	71 645		3 262	34 430	5 451						114 788
5 Bio_W Stove_S D	62 957		76	9 512	0						72 545
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
Not specified systems	0		12	0	0						12
Auxiliary energy	1 789		52	1 090	32						2 963
CHP electr. production											0

DHW Systems

Heat Demand for DHW	TABULA standard calculation procedure / projection to building stock										Total
Energy need for DHW	5 945		2 092	4 910	1 288						14 235
Produced heat	7 668		2 608	6 338	1 569						18 183

Delivered Energy TABULA	TABULA standard calculation procedure / projection to building stock										Total
1 Gas B_NC_CT C	2 982		272	3 111	583						6 947
2 DH C	0		2 098	0	133						2 231
3 EI D	0		110	1 034	104						1 248
4 Gas B_NC_CT D	7 820		790	5 708	1 604						15 923
5 Bio_W B_WP D	3 060		0	0	0						3 060
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
Not specified systems	202		2	147	19						371
Auxiliary energy	172		53	114	21						360
CHP electr. production											0



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Total Building Stoc	1	2	3	4	5	6	7	8	9	10	Total
Building type	SFH.01	MFH.01	AB.01	SFH.02	MFH.02						
Floor area TABULA	10 ³ m ²	594	0	139	491	86	0	0	0	0	1 311

Total Heat Need and Final Energy All energy quantities in MWh/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
	1	2	3	4	5	6	7	8	9	10		
Net heat need	112 380		13 767	53 672	7 552						187 372	143
Produced heat	121 534		16 003	57 948	8 365						203 850	156
Gas	113 089		5 649	65 839	10 007						194 584	148
Oil	0		0	0	0						0	0
Coal	0		0	0	0						0	0
Bio	66 017		76	9 512	0						75 605	58
DH	0		11 876	0	579						12 455	10
EI (incl. aux. en.)	4 011		215	2 858	292						7 376	6
Other / not specified	202		14	147	19						383	0
Sum final energy	183 319	0	17 830	78 356	10 899	0	0	0	0	0	290 403	222
CHP electr. production	0		0	0	0						0	0

Separate individual model or total metered consumption separate modell: real example buildings (with one representative heating/dhw system)

Separate individual model or total metered consumption	fuels related to net calorific value factors for conversion to gross calorific value (TABULA standard)					Individual building stock model					Total	per m ²
	1	2	3	4	5	6	7	8	9	10		
Net heat need	135 466		13 321	50 343	8 797						207 928	159
Produced heat	173 762		20 465	83 947	14 519						292 693	223
Gas	1,09 121 794		8 317	70 794	13 128						214 033	163
Oil	1,05 0		0	0	0						0	0
Coal	1,05 0		0	0	0						0	0
Bio	1,05 49 139		54	6 669	0						55 861	43
DH	0		11 824	449	684						12 956	10
EI	2 829		271	6 036	706						9 843	8
Other / not specified	0		0	0	0						0	0
Sum final energy	173 762	0	20 465	83 947	14 519	0	0	0	0	0	292 693	223
CHP electr. production	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	121%		97%	94%	116%	111%
Produced heat	143%		128%	145%	174%	144%
Gas	117%		160%	117%	143%	120%
Oil						
Coal						
Bio	78%		74%	74%		78%
DH			100%		118%	104%
EI	71%		126%	211%	241%	133%
Other	0%		0%	0%	0%	0%
Sum final energy	95%		115%	107%	133%	101%
CHP electr. production						