



Building Stock	AT	Regional	Regional building stock of the Province of Salzburg (Austria)	Year	2013
Details	AEA model of regional building stock of the Province of Salzburg				

Annotations to this sheet

	1	2	3	4	5	6	7	8	9	10
Building type	SFH I&II	SFH III&IV	MFH I&II	MFH III&IV	SFH V&VI&VII&VIII	MFH V&VI&VII&VIII				
Dataset	AT.Region Salzburg.2 013.001.0 1	AT.Region Salzburg.2 013.001.0 2	AT.Region Salzburg.2 013.001.0 3	AT.Region Salzburg.2 013.001.0 4	AT.Region Salzburg.2 013.001.0 5	AT.Region Salzburg.2 013.001.0 6				

Thermal Envelope Average Building

Basic data	TABULA average buildings										
Floor area TABULA	161,1	113,2	548,6	512,2	99,9	500,1					m ²
Floor area national	146,5	102,9	498,7	465,6	90,8	454,6					m ²
Number of dwellings	1,53	1,06	13,11	10,31	0,90	4,21					

Thermal envelope areas (external dimensions)	TABULA average buildings										
Roof	131,0	119,0	393,0	327,0	93,3	218,0					m ²
Wall	255,0	207,0	670,0	544,0	197,2	587,6					m ²
Window	23,0	25,0	108,0	102,0	31,6	124,6					m ²
Floor	131,0	119,0	392,0	298,0	88,5	265,3					m ²

Original state / not refurbished fraction of the envelope area

U-values of the original state	Building stock model - state indicators										
Roof	0,96	0,89	0,81	1,26	0,29	0,23					W/(m ² K)
Wall	1,47	1,18	1,27	0,94	0,42	0,40					W/(m ² K)
Window	2,15	2,20	2,12	1,92	1,35	1,30					W/(m ² K)
Floor	1,01	1,54	1,17	1,19	0,42	0,36					W/(m ² K)

Refurbishments (averages)

Refurbished fraction of envelope areas	Building stock model - state indicators										
Roof	7%	7%	7%	7%							
Wall	7%	7%	7%	7%							
Window	7%	7%	7%	7%							
Floor	7%	7%	7%	7%							
<i>Total (indicative)</i>	7%	7%	7%	7%							

U-values of the refurbished fraction (averages)	Building stock model - state indicators										
Roof	0,48	0,45	0,42	0,63							W/(m ² K)
Wall	0,74	0,59	0,64	0,47							W/(m ² K)
Window	2,20	2,20	2,20	1,92							W/(m ² K)
Floor	0,51	0,77	0,59	0,60							W/(m ² K)

Energy Need for Heating TABULA

Utilisation	TABULA standard calculation procedure										
Utilisation dataset	EU.SUH	EU.SUH	EU.MUH	EU.MUH	EU.SUH	EU.MUH					
Internal temperature	20,0	20,0	20,0	20,0	20,0	20,0					°C
Reduction factor temp.	0,81	0,80	0,89	0,90	0,87	0,95					
Air exchange rate (use)	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					W/m ²
Red. factor ext. shading	0,60	0,60	0,60	0,60	0,60	0,60					
Energy need for DHW	10,0	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	national / whole country					
Base temperature	12,0	12,0	12,0	12,0	12,0	12,0					°C
Length of heating season	212	212	212	212	212	212					d/a
External temp. during HS	3,9	3,9	3,9	3,9	3,9	3,9					
Accum. temp. diff. ext. to int. temp.	3413	3413	3413	3413	3413	3413					Kd/a

Envelope	TABULA standard calculation procedure										
Heat transfer by transmission related to surface area	607	476	1596	1273	189	548					W/K
related to ref. floor area	1,12	1,01	1,02	1,00	0,46	0,46					W/(m ² K)
	3,77	4,20	2,91	2,48	1,89	1,10					W/(m ² K)

Annual energy balance building	TABULA standard calculation procedure										
Transmission heat losses	249,3	275,4	211,2	183,3	134,6	85,1					kWh/(m ² a)
Ventilation heat losses	28,1	27,9	30,9	31,4	30,3	33,0					kWh/(m ² a)
Usable solar gains											kWh/(m ² a)
Usable internal gains	-14,8	-14,8	-14,8	-14,8	-14,8	-14,9					kWh/(m ² a)
Energy need for heating recovered by vent. system	262,6	288,5	227,3	199,8	150,0	103,1					kWh/(m ² a)
Net energy need for heating	262,6	288,5	227,3	199,8	150,0	103,1					kWh/(m ² a)



Building Stock	AT	Regional	Regional building stock of the Province of Salzburg (Austria)	Year	2013
Details	AEA model of regional building stock of the Province of Salzburg				

Annotations to this sheet

	1	2	3	4	5	6	7	8	9	10
Building type	SFH I&II	SFH III&IV	MFH I&II	MFH III&IV	SFH V&VI&VII&VIII	MFH V&VI&VII&VIII				

Total Building Stock

		Building stock model - state indicators										Total		
Number of buildings	10 ⁰	13 777	42 649	4 559	6 877	41 197	11 607							120 665
Number of dwellings	10 ⁰	21 013	45 128	59 779	70 889	37 134	48 808							282 749
Floor area national	10 ³ m ²	2 018	4 388	2 274	3 202	3 741	5 277							20 900
Floor area TABULA	10 ³ m ²	2 220	4 827	2 501	3 522	4 116	5 804							22 990

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	Bio_W	B_WP	C	40%	40%	15%	15%	40%	15%					
2	DH	TS	C	13%	13%	70%	70%	13%	70%					
3	El	HP_Air	C	35%	35%			35%						
4	El_Pro	HP_Water	C											
5	Gas	B_C	C	10%	10%	10%	10%	10%	10%					
6	Oil	B_C	C	2%	2%	5%	5%	2%	5%					
7	-	Solar	C											
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														
	Sum			100%	100%	100%	100%	100%	100%					
	thereof central			100%	100%	100%	100%	100%	100%					
	decentral													
	Other Systems													

DHW Systems

Occurrences or Fractions of Produced Heat Building stock model - state indicators

1	Bio_W	B_WP	C	8%	11%	16%	12%	12%	40%					
2	DH	TS	C	10%	34%	6%	17%	20%	14%					
3	El	E	C	21%	45%	2%	7%	26%						
4	El_Pro	E	D	16%	25%	11%	9%	23%	17%					
5	Gas	B_C	C	5%	7%	12%	32%	11%	33%					
6	Oil	B_C	C	8%	21%	8%	7%	27%	29%					
7	Other		C											
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														
	Sum			67%	143%	55%	83%	118%	133%					
	thereof central			51%	119%	44%	74%	96%	116%					
	decentral			16%	25%	11%	9%	23%	17%					
	Other Systems			33%	-43%	45%	17%	-18%	-33%					



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Details	AEA model of regional building stock of the Province of Salzburg				

Annotations to this sheet

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Building type	SFH I&II	SFH III&IV	MFH I&II	MFH III&IV	SFH V&VI&VII&VIII	MFH V&VI&VII&VIII				

Heating Systems

Heat demand / heat generation										TABULA standard calculation procedure	
Energy need for heating	262,6	288,5	227,3	199,8	150,0	103,1					kWh/(m²a)
Net en. need for heating	262,6	288,5	227,3	199,8	150,0	103,1					kWh/(m²a)
Distribution + storage losses										TABULA system indicators	
Central systems	C	17,1	17,1	17,1	17,1	17,1	17,1				kWh/(m²a)
Decentral systems	D	17,1	17,1	17,1	17,1	17,1	17,1				kWh/(m²a)
Auxiliary energy										TABULA system indicators	
Ventil. systems (average)											kWh/(m²a)
Central systems	C	6,7	6,7	2,0	2,0	6,7	2,0				kWh/(m²a)
Decentral systems	D	6,7	6,7	2,0	2,0	6,7	2,0				kWh/(m²a)

Energy expenditure factors (fuels: related to gross calorific value)										TABULA system indicators	
1	Bio W	B WP	C	1,34	1,34	1,34	1,34	1,34	1,34		
2	DH	TS	C	1,02	1,02	1,02	1,02	1,02	1,02		
3	El	HP Air	C	0,29	0,29	0,29	0,29	0,29	0,29		
4	El Pro	HP Water	C	0,25	0,25	0,25	0,25	0,25	0,25		
5	Gas	B C	C	1,12	1,12	1,12	1,12	1,12	1,12		
6	Oil	B C	C	1,12	1,12	1,12	1,12	1,12	1,12		
7	-	Solar	C								
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Delivered Energy										TABULA standard calculation procedure	
1	Bio W	B WP	C	374,8	409,5	327,4	290,7	224,0	161,1		kWh/(m²a)
2	DH	TS	C	285,3	311,7	249,2	221,3	170,5	122,6		kWh/(m²a)
3	El	HP Air	C	81,1	88,6	70,9	62,9	48,5	34,9		kWh/(m²a)
4	El Pro	HP Water	C	69,9	76,4	61,1	54,2	41,8	30,0		kWh/(m²a)
5	Gas	B C	C	313,3	342,3	273,7	243,0	187,2	134,6		kWh/(m²a)
6	Oil	B C	C	313,3	342,3	273,7	243,0	187,2	134,6		kWh/(m²a)
7	-	Solar	C								kWh/(m²a)
8											kWh/(m²a)
9											kWh/(m²a)
10											kWh/(m²a)
11											kWh/(m²a)
12											kWh/(m²a)
13											kWh/(m²a)
14											kWh/(m²a)
15											kWh/(m²a)
16											kWh/(m²a)
17											kWh/(m²a)
18											kWh/(m²a)
19											kWh/(m²a)
20											kWh/(m²a)

Delivered Energy - weighted by frequencies										TABULA standard calculation procedure	
1	Bio W	B WP	C	149,9	163,8	49,1	43,6	89,6	24,2		kWh/(m²a)
2	DH	TS	C	37,1	40,5	174,5	154,9	22,2	85,8		kWh/(m²a)
3	El	HP Air	C	28,4	31,0			17,0			kWh/(m²a)
4	El Pro	HP Water	C								kWh/(m²a)
5	Gas	B C	C	31,3	34,2	27,4	24,3	18,7	13,5		kWh/(m²a)
6	Oil	B C	C	6,3	6,8	13,7	12,1	3,7	6,7		kWh/(m²a)
7	-	Solar	C								kWh/(m²a)
8											kWh/(m²a)
9											kWh/(m²a)
10											kWh/(m²a)
11											kWh/(m²a)
12											kWh/(m²a)
13											kWh/(m²a)
14											kWh/(m²a)
15											kWh/(m²a)
16											kWh/(m²a)
17											kWh/(m²a)
18											kWh/(m²a)
19											kWh/(m²a)
20											kWh/(m²a)

Electricity production by CHP										TABULA standard calculation procedure	
											kWh/(m²a)
											kWh/(m²a)
											kWh/(m²a)
											kWh/(m²a)



Building Stock	AT	Regional	Regional building stock of the Province of Salzburg (Austria)	Year	2013
Details	AEA model of regional building stock of the Province of Salzburg				

Annotations to this sheet

	1	2	3	4	5	6	7	8	9	10
Building type	SFH I&II	SFH III&IV	MFH I&II	MFH III&IV	SFH V&VI&VII&VIII	MFH V&VI&VII&VIII				

DHW Systems

Heat demand / heat generation										TABULA standard calculation procedure	
Energy need for DHW	10,0	10,0	15,0	15,0	10,0	15,0					kWh/(m ² a)
Distribution + storage losses										TABULA system indicators	
Central systems	C	18,3	18,3	11,4	11,4	18,3	11,4				kWh/(m ² a)
Decentral systems	D	18,5	18,5	11,6	11,6	18,5	11,6				kWh/(m ² a)
Auxiliary energy										TABULA system indicators	
Central systems	C	0,2	0,2	0,9	0,9	0,2	0,9				kWh/(m ² a)
Decentral systems	D										kWh/(m ² a)

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

1	Bio W	B WP	C	1,34	1,34	1,34	1,34	1,34	1,34			
2	DH	TS	C	1,02	1,02	1,02	1,02	1,02	1,02			
3	EI	E	C	1,01	1,01	1,01	1,01	1,01	1,01			
4	EI Pro	E	D	1,01	1,01	1,01	1,01	1,01	1,01			
5	Gas	B C	C	1,03	1,03	1,03	1,03	1,03	1,03			
6	Oil	B C	C	1,03	1,03	1,03	1,03	1,03	1,03			
7	Other		C									
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Delivered Energy TABULA standard calculation procedure

1	Bio W	B WP	C	37,9	37,9	35,4	35,4	37,9	35,4				kWh/(m ² a)
2	DH	TS	C	28,9	28,9	26,9	26,9	28,9	26,9				kWh/(m ² a)
3	EI	E	C	28,6	28,6	26,7	26,7	28,6	26,7				kWh/(m ² a)
4	EI Pro	E	D	28,8	28,8	26,9	26,9	28,8	26,9				kWh/(m ² a)
5	Gas	B C	C	29,2	29,2	27,2	27,2	29,2	27,2				kWh/(m ² a)
6	Oil	B C	C	29,2	29,2	27,2	27,2	29,2	27,2				kWh/(m ² a)
7	Other		C										kWh/(m ² a)
8													kWh/(m ² a)
9													kWh/(m ² a)
10													kWh/(m ² a)
11													kWh/(m ² a)
12													kWh/(m ² a)
13													kWh/(m ² a)
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)

Delivered Energy - weighted by frequencies TABULA standard calculation procedure

1	Bio W	B WP	C	3,1	4,3	5,6	4,3	4,7	14,2				kWh/(m ² a)
2	DH	TS	C	2,9	9,7	1,6	4,5	5,8	3,7				kWh/(m ² a)
3	EI	E	C	5,9	12,8	0,6	1,7	7,3					kWh/(m ² a)
4	EI Pro	E	D	4,5	7,1	2,9	2,4	6,6	4,5				kWh/(m ² a)
5	Gas	B C	C	1,3	2,2	3,3	8,7	3,2	9,0				kWh/(m ² a)
6	Oil	B C	C	2,3	6,2	2,1	1,9	7,8	7,9				kWh/(m ² a)
7	Other		C										kWh/(m ² a)
8													kWh/(m ² a)
9													kWh/(m ² a)
10													kWh/(m ² a)
11													kWh/(m ² a)
12													kWh/(m ² a)
13													kWh/(m ² a)
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	AT	Regional	Regional building stock of the Province of Salzburg (Austria)	Year	2013
Details	AEA model of regional building stock of the Province of Salzburg				

Annotations to this sheet

Total Building Stock

	1	2	3	4	5	6	7	8	9	10	Total
Building type	SFH I&II	SFH III&IV	MFH I&II	MFH III&IV	SFH V&VI&VII&VIII	MFH V&VI&VII&VIII					
Floor area TABULA	10 ³ m ²	2 220	4 827	2 501	3 522	4 116	5 804	0	0	0	22 990

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	582 967	1 392 634	568 387	703 835	617 526	598 409					4 463 759
Net en. need for heating	582 967	1 392 634	568 387	703 835	617 526	598 409					4 463 759
Produced heat	620 923	1 475 178	611 154	764 065	687 904	697 663					4 856 888

Delivered Energy TABULA	TABULA standard calculation procedure / projection to building stock										Sum
1 Bio_W B_WP C	332 815	790 695	122 842	153 577	368 717	140 230					1 908 876
2 DH TS C	82 334	195 609	436 364	545 543	91 216	498 132					1 849 197
3 EI HP_Air C	63 024	149 731	0	0	69 822	0					282 576
4 EI_Pro HP_Water C	0	0	0	0	0	0					0
5 Gas B_C C	69 543	165 220	68 449	85 575	77 045	78 138					543 971
6 Oil B_C C	13 909	33 044	34 225	42 788	15 409	39 069					178 443
7 - Solar C	0	0	0	0	0	0					0
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
Not specified systems	0	0	0	0	0	0					0
Auxiliary energy	14 872	32 342	5 002	7 044	27 575	11 609					98 443
CHP electr. production											0

DHW Systems

Heat Demand for DHW	TABULA standard calculation procedure / projection to building stock										Total
Energy need for DHW	22 197	48 271	37 515	52 833	41 156	87 065					289 038
Produced heat	49 453	175 246	53 192	86 442	130 626	175 548					670 506

Delivered Energy TABULA	TABULA standard calculation procedure / projection to building stock										Total
1 Bio_W B_WP C	6 970	20 602	14 034	15 145	19 170	82 627					158 547
2 DH TS C	6 340	46 819	4 018	15 808	23 965	21 524					118 474
3 EI E C	13 115	62 027	1 553	6 162	30 060	0					112 917
4 EI_Pro E D	9 978	34 379	7 263	8 542	27 115	26 381					113 658
5 Gas B_C C	2 956	10 486	8 170	30 672	12 987	52 385					117 655
6 Oil B_C C	5 098	30 137	5 283	6 736	32 132	46 071					125 457
7 Other C	0	0	0	0	0	0					0
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
Not specified systems	7 352	- 20 921	16 989	8 765	- 7 588	- 28 924					- 24 327
Auxiliary energy	228	1 145	988	2 358	786	6 076					11 581
CHP electr. production											0



Building Stock **AT Regional** Regional building stock of the Province of Salzburg (Austria) Year 2013
 Details AEA model of regional building stock of the Province of Salzburg

Annotations to this sheet

Total Building Stoc	1	2	3	4	5	6	7	8	9	10	Total	
Building type	SFH I&II	SFH III&IV	MFH I&II	MFH III&IV	SFH V&VI&VII&VIII	MFH V&VI&VII&VIII						
Floor area TABULA	10 ³ m ²	2 220	4 827	2 501	3 522	4 116	5 804	0	0	0	0	22 990

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
	Gas	Oil	Coal	Bio	DH	El (incl. aux. en.)	Other / not specified						
Net heat need	605 163	1 440 905	605 902	756 669	658 683	685 474						4 752 797	207
Produced heat	670 376	1 650 424	664 346	850 507	818 530	873 211						5 527 394	240
Gas	72 500	175 706	76 619	116 247	90 032	130 523						661 627	29
Oil	19 007	63 181	39 508	49 524	47 541	85 140						303 900	13
Coal	0	0	0	0	0	0						0	0
Bio	339 785	811 297	136 876	168 722	387 886	222 857						2 067 423	90
DH	88 675	242 428	440 382	561 351	115 181	519 655						1 967 672	86
El (incl. aux. en.)	101 216	279 624	14 806	24 106	155 359	44 065						619 176	27
Other / not specified	7 352	- 20 921	16 989	8 765	- 7 588	- 28 924						- 24 327	- 1
Sum final energy	628 533	1 551 314	725 181	928 715	788 410	973 317	0	0	0	0	0	5 595 471	243
CHP electr. production	0	0	0	0	0	0						0	0

Separate individual model

or total metered consumption

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
	Gas	Oil	Coal	Bio	DH	El	Other / not specified						
Net heat need	431 385	938 061	385 428	551 299	757 081	883 746						3 947 000	172
Produced heat	449 769	978 038	401 854	574 794	789 346	921 408						4 115 210	179
Gas	1,09	65 699	89 298	125 847	96 435	319 265						794 000	35
Oil	1,05	117 375	398 559	70 767	197 691	239 270						1 187 000	52
Coal	1,05	44 827	97 485	5 051	14 226	55 411						217 000	9
Bio	1,05	159 283	252 374	110 249	92 075	233 459						1 020 000	44
DH		18 218	29 714	47 897	127 679	43 162						399 000	17
El		25 983	70 631	25 617	23 192	88 324						330 000	14
Other / not specified		0	0	0	0	0						0	0
Sum final energy		431 385	938 061	385 428	551 299	757 081	883 746	0	0	0	0	3 947 000	172
CHP electr. production		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	71%	65%	64%	73%	115%	129%		83%
Produced heat	67%	59%	60%	68%	96%	106%		74%
Gas	99%	55%	179%	90%	118%	266%		130%
Oil	650%	664%	189%	420%	530%	202%		411%
Coal								
Bio	49%	33%	85%	57%	63%	82%		52%
DH	21%	12%	11%	23%	37%	25%		20%
El	26%	25%	173%	96%	57%	218%		53%
Other	0%	0%	0%	0%	0%	0%		0%
Sum final energy	69%	60%	53%	59%	96%	91%		71%
CHP electr. production								