



Building Stock	CZ	Local	Residential building stock of Havřov, Czech Republic	Year	2015
Details	STU-K model, existing state 2015				

Annotations to this sheet

	1	2	3	4	5	6	7	8	9	10
Building type										
Dataset	CZ.LocalCaseStudy.2015.001.01	CZ.LocalCaseStudy.2015.001.02	CZ.LocalCaseStudy.2015.001.03	CZ.LocalCaseStudy.2015.001.04	CZ.LocalCaseStudy.2015.001.05	CZ.LocalCaseStudy.2015.001.06				

Thermal Envelope Average Building

Basic data	TABULA average buildings										
Floor area TABULA	1142,1	2295,5	677,1	1821,3	2286,1	1736,6					m ²
Floor area national	1038,3	2086,8	615,6	1655,7	2078,3	1578,7					m ²
Number of dwellings	21,00	41,09	10,50	31,97	44,19	30,04					

Thermal envelope areas (external dimensions)	TABULA average buildings										
Roof	365,1	752,3	198,5	502,7	477,9	480,9					m ²
Wall	894,7	1306,3	500,9	1407,4	1423,9	1205,8					m ²
Window	170,7	491,4	152,3	347,9	514,2	514,0					m ²
Floor	394,8	752,2	176,4	499,7	515,9	475,4					m ²

Original state / not refurbished fraction of the envelope area

U-values of the original state	Building stock model - state indicators										
Roof	1,00	0,80	0,50	1,00	0,80	0,50					W/(m ² K)
Wall	1,40	1,20	0,80	1,40	1,20	0,80					W/(m ² K)
Window	2,70	2,80	2,80	2,70	2,80	2,80					W/(m ² K)
Floor	1,10	1,00	0,90	1,10	1,00	0,90					W/(m ² K)

Refurbishments (averages)

Refurbished fraction of envelope areas	Building stock model - state indicators										
Roof	4%	42%	29%	8%	65%	36%					
Wall	4%	42%	29%	8%	65%	36%					
Window	47%	57%	29%	30%	74%	55%					
Floor	4%	42%	29%	8%	65%	36%					
<i>Total (indicative)</i>	<i>8%</i>	<i>44%</i>	<i>29%</i>	<i>11%</i>	<i>66%</i>	<i>40%</i>					
U-values of the refurbished fraction (averages)	Building stock model - state indicators										
Roof	0,30	0,24	0,20	0,30	0,24	0,20					W/(m ² K)
Wall	0,30	0,25	0,23	0,30	0,25	0,23					W/(m ² K)
Window	1,10	1,30	1,30	1,10	1,30	1,30					W/(m ² K)
Floor	0,30	0,28	0,27	0,30	0,28	0,27					W/(m ² K)

Energy Need for Heating TABULA

Utilisation	TABULA standard calculation procedure										
Utilisation dataset	EU.MUH	EU.MUH	EU.MUH	EU.MUH	EU.MUH	EU.MUH					
Internal temperature	20,0	20,0	20,0	20,0	20,0	20,0					°C
Reduction factor temp.	0,92	0,94	0,94	0,92	0,95	0,94					
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	15,0	15,0	15,0	15,0	15,0	15,0					kWh/(m ² a)

Climate	TABULA standard calculation procedure										
Climate dataset	North East. Olomouc - Ostrava	North East. Olomouc - Ostrava	North East. Olomouc - Ostrava	North East. Olomouc - Ostrava	North East. Olomouc - Ostrava	North East. Olomouc - Ostrava					
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	3,5	3,5	3,5	3,5	3,5	3,5					
Accum. temp. diff. ext. to int. temp.	3498	3498	3498	3498	3498	3498					Kd/a

Envelope	TABULA standard calculation procedure										
Heat transfer by transmission related to surface area	2231	2893	864	3550	2219	2183					W/K
related to ref. floor area	1,22	0,88	0,84	1,29	0,76	0,82					W/(m ² K)
	1,95	1,26	1,28	1,95	0,97	1,26					W/(m ² K)

Annual energy balance building	TABULA standard calculation procedure										
Transmission heat losses	150,6	99,6	100,8	150,3	77,7	99,4					kWh/(m ² a)
Ventilation heat losses	39,3	40,3	40,3	39,3	40,8	40,3					kWh/(m ² a)
Usable solar gains	-7,4	-10,5	-11,0	-9,3	-11,0	-14,3					kWh/(m ² a)
Usable internal gains	-14,6	-14,5	-14,4	-14,5	-14,5	-14,3					kWh/(m ² a)
Energy need for heating recovered by vent. system	168,0	115,0	115,7	165,7	93,0	111,1					kWh/(m ² a)
Net energy need for heating	168,0	115,0	115,7	165,7	93,0	111,1					kWh/(m ² a)



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Building type										

Total Building Stock

		Building stock model - state indicators										Total		
Number of buildings	10 ⁰	36	33	8	30	62	56							225
Number of dwellings	10 ⁰	756	1 356	84	959	2 740	1 682							7 577
Floor area national	10 ³ m ²	37	69	5	50	129	88							378
Floor area TABULA	10 ³ m ²	41	76	5	55	142	97							416

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

	DH	TS	C	100%	100%	100%	100%	100%	100%					
1														
2														
3														
4														
5														
6														
7														
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

	DH	TS	C	100%	100%	100%	100%	100%	100%					
1														
2														
3														
4														
5														
6														
7														
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														



Building Stock	CZ	Local	Residential building stock of Havířov, Czech Republic	Year	2015
Details	STU-K model, existing state 2015				

Annotations to this sheet

Total Building Stock

	1	2	3	4	5	6	7	8	9	10	Total
Building type											
Floor area TABULA	10 ³ m ²	41	76	5	55	142	97	0	0	0	416

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	6 905	8 710	627	9 056	13 186	10 807					49 292
Net en. need for heating	6 905	8 710	627	9 056	13 186	10 807					49 292
Produced heat	7 440	9 695	697	9 766	15 029	12 072					54 698

Delivered Energy TABULA	TABULA standard calculation procedure / projection to building stock										Sum	
1	DH	TS	C	7 589	9 888	711	9 962	15 330	12 313			55 792
2												
3												
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
Auxiliary energy				123	227	16	164	425	292			1 248
CHP electr. production												0

DHW Systems

Heat Demand for DHW	TABULA standard calculation procedure / projection to building stock										Total
Energy need for DHW	617	1 136	81	820	2 126	1 459					6 239
Produced heat	950	1 750	125	1 262	3 274	2 246					9 608

Delivered Energy TABULA	TABULA standard calculation procedure / projection to building stock										Total	
1	DH	TS	C	969	1 785	128	1 287	3 340	2 291			9 800
2												
3												
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
Auxiliary energy				49	91	7	66	170	117			499
CHP electr. production												0



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Total Building Stock	1	2	3	4	5	6	7	8	9	10	Total	
Building type												
Floor area TABULA	10 ³ m ²	41	76	5	55	142	97	0	0	0	0	416

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
Net heat need	7 522	9 846	708	9 876	15 312	12 266						55 530	134
Produced heat	8 389	11 444	822	11 028	18 303	14 318						64 306	155
Gas	0	0	0	0	0	0						0	0
Oil	0	0	0	0	0	0						0	0
Coal	0	0	0	0	0	0						0	0
Bio	0	0	0	0	0	0						0	0
DH	8 557	11 673	839	11 249	18 669	14 604						65 592	158
EI (incl. aux. en.)	173	318	23	229	595	408						1 747	4
Other / not specified	0	0	0	0	0	0						0	0
Sum final energy	8 730	11 991	861	11 479	19 264	15 013	0	0	0	0		67 339	162
CHP electr. production	0	0	0	0	0	0						0	0

Separate individual model

Consumption model for the municipal housing stock of Havířov

or total metered consumption

fuels related to gross calorific value factors for conversion to gross calorific value (TABULA standard)

Individual building stock model

												Total	per m ²
Net heat need		6 018	9 975	802	8 712	22 026	13 542					61 075	147
Produced heat		7 080	11 736	943	10 249	25 913	15 932					71 853	173
Gas	1,00	0	0	0	0	0	0					0	0
Oil	1,00	0	0	0	0	0	0					0	0
Coal	1,00	0	0	0	0	0	0					0	0
Bio	1,00	0	0	0	0	0	0					0	0
DH		7 222	11 970	962	10 454	26 431	16 251					73 290	176
EI		0	0	0	0	0	0					0	0
Other / not specified		0	0	0	0	0	0					0	0
Sum final energy		7 222	11 970	962	10 454	26 431	16 251	0	0	0	0	73 290	176
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		80%	101%	113%	88%	144%	110%					110%
Produced heat		84%	103%	115%	93%	142%	111%					112%
Gas												
Oil												
Coal												
Bio												
DH		84%	103%	115%	93%	142%	111%					112%
EI		0%	0%	0%	0%	0%	0%					0%
Other												
Sum final energy		83%	100%	112%	91%	137%	108%					109%
CHP electr. production												