



Building Stock	BE	Local	Local building stock of Sint-Amandsberg, Belgium	Year	2015
Details	Residential building stock of SAD, VITO model, existing state 2015				

Annotations to this sheet

	1	2	3	4	5	6	7	8	9	10
Building type										
Dataset	BE.LocalCaseStudy.2015.001.01									

Thermal Envelope Average Building

Basic data	TABULA average buildings										
Floor area TABULA	163,1										m²
Floor area national	191,8										m ²
Number of dwellings	1,00										

Thermal envelope areas (external dimensions)	TABULA average buildings										
Roof	73,0										m ²
Wall	70,1										m ²
Window	14,3										m ²
Floor	61,6										m ²

Original state / not refurbished fraction of the envelope area	Building stock model - state indicators										
U-values of the original state											
Roof	2,80										W/(m ² K)
Wall	2,14										W/(m ² K)
Window	5,00										W/(m ² K)
Floor	2,06										W/(m ² K)

Refurbishments (averages)	Building stock model - state indicators										
Refurbished fraction of envelope areas											
Roof	86%										
Wall											
Window	88%										
Floor											
<i>Total (indicative)</i>	<i>34%</i>										

U-values of the refurbished fraction (averages)	Building stock model - state indicators										
Roof	1,29										W/(m ² K)
Wall											W/(m ² K)
Window	2,63										W/(m ² K)
Floor											W/(m ² K)

Energy Need for Heating TABULA

Utilisation	TABULA standard calculation procedure										
Utilisation dataset	EU.MUH										
Internal temperature	20,0										°C
Reduction factor temp.	0,91										
Air exchange rate (use)	0,40										1/h
Internal heat sources	3,00										W/m ²
Red. factor ext. shading	0,60										
Energy need for DHW	15,0										kWh/(m ² a)

Climate	TABULA standard calculation procedure										
Climate dataset	national / whole country										
Base temperature	12,0										°C
Length of heating season	210										d/a
External temp. during HS	6,2										
Accum. temp. diff. ext. to int. temp.	2898										Kd/a

Envelope	TABULA standard calculation procedure										
Heat transfer by transmission related to surface area	370										W/K
related to surface area	1,69										W/(m ² K)
related to ref. floor area	2,27										W/(m ² K)

Annual energy balance building	TABULA standard calculation procedure										
Transmission heat losses	143,3										kWh/(m ² a)
Ventilation heat losses	32,2										kWh/(m ² a)
Usable solar gains											kWh/(m ² a)
Usable internal gains	-14,6										kWh/(m ² a)
Energy need for heating recovered by vent. system	160,9										kWh/(m ² a)
Net energy need for heating	160,9										kWh/(m ² a)



Building Stock **BE** **Local** Local building stock of Sint-Amandsberg, Belgium Year 2015

Details Residential building stock of SAD, VITO model, existing state 2015

Annotations to this sheet

1 2 3 4 5 6 7 8 9 10

Building type

Total Building Stock

Building stock model - state indicators Total

Number of buildings	10 ⁰	200																		200
Number of dwellings	10 ⁰	200																		200
Floor area national	10 ³ m ²	38																		38
Floor area TABULA	10 ³ m ²	33																		33

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%	0,0%
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Heating Systems

Occurrences or Fractions of Produced Heat

Building stock model - state indicators

1	Gas	B_C	C	62%																
2	Gas	Stove	D	20%																
3	Gas	B_NC	C	10%																
4	Oil	B_C	C	4%																
5	Bio	B_NC	C	2%																
6	El	E	D	2%																
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				
16																				
17																				
18																				
19																				
20																				
	Sum			100%																
	thereof central			78%																
	decentral			22%																
	Other Systems																			

DHW Systems

Occurrences or Fractions of Produced Heat

Building stock model - state indicators

1	Gas	G_IWH_NC	D	88%																
2	El	E	C	6%																
3	Gas	B_NC	C	4%																
4	El	E	D	2%																
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				
16																				
17																				
18																				
19																				
20																				
	Sum			100%																
	thereof central			10%																
	decentral			90%																
	Other Systems																			



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Building type										

Heating Systems

Heat demand / heat generation		TABULA standard calculation procedure										
Energy need for heating	160,9											kWh/(m ² a)
Net en. need for heating	160,9											kWh/(m ² a)
Distribution + storage losses		TABULA system indicators										
Central systems	C 11,1											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 2,6											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 1,04										
2	Gas	Stove	D 1,34										
3	Gas	B NC	C 1,21										
4	Oil	B C	C 1,04										
5	Bio	B NC	C 1,64										
6	EI	E	D										
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

Delivered Energy				TABULA standard calculation procedure										
1	Gas	B C	C 178,8											kWh/(m ² a)
2	Gas	Stove	D 215,6											kWh/(m ² a)
3	Gas	B NC	C 208,1											kWh/(m ² a)
4	Oil	B C	C 178,8											kWh/(m ² a)
5	Bio	B NC	C 282,0											kWh/(m ² a)
6	EI	E	D											kWh/(m ² a)
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														

Delivered Energy - weighted by frequencies				TABULA standard calculation procedure										
1	Gas	B C	C 110,9											kWh/(m ² a)
2	Gas	Stove	D 43,1											kWh/(m ² a)
3	Gas	B NC	C 20,8											kWh/(m ² a)
4	Oil	B C	C 7,2											kWh/(m ² a)
5	Bio	B NC	C 5,6											kWh/(m ² a)
6	EI	E	D											kWh/(m ² a)
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														

Electricity production by CHP				TABULA standard calculation procedure										
														kWh/(m ² a)
														kWh/(m ² a)
														kWh/(m ² a)
														kWh/(m ² a)



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Building type										

DHW Systems

Heat demand / heat generation		TABULA standard calculation procedure								
Energy need for DHW	15,0									kWh/(m ² a)
Distribution + storage losses		TABULA system indicators								
Central systems	C 3,6									kWh/(m ² a)
Decentral systems	D									kWh/(m ² a)
Auxiliary energy		TABULA system indicators								
Central systems	C 0,3									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	G	IWH	NC	D	1,31													
2	El	E			C	1,00													
3	Gas	B	NC		C	1,31													
4	El	E			D	1,00													
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			
18																			
19																			
20																			

Delivered Energy TABULA standard calculation procedure

1	Gas	G	IWH	NC	D	19,7														kWh/(m ² a)		
2	El	E			C	18,6															kWh/(m ² a)	
3	Gas	B	NC		C	24,3															kWh/(m ² a)	
4	El	E			D	15,0															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)
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	Gas	G	IWH	NC	D	17,3															kWh/(m ² a)	
2	El	E			C	1,1															kWh/(m ² a)	
3	Gas	B	NC		C	1,0															kWh/(m ² a)	
4	El	E			D	0,3															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)
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)



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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	33	0	0	0	0	0	0	0	0	33

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	5 252											5 252
Net en. need for heating	5 252											5 252
Produced heat	5 533											5 533

Delivered Energy TABULA				TABULA standard calculation procedure / projection to building stock										Sum								
1	Gas	B_C	C	3 619																	3 619	
2	Gas	Stove	D	1 407																	1 407	
3	Gas	B_NC	C	679																	679	
4	Oil	B_C	C	233																	233	
5	Bio	B_NC	C	184																	184	
6	El	E	D	0																	0	
7																						
8																						
9																						
10																						
11																						
12																						
13																						
14																						
15																						
16																						
17																						
18																						
19																						
20																						
	Not specified systems			0																		0
	Auxiliary energy			67																		67
	CHP electr. production																					0

DHW Systems

Heat Demand for DHW		TABULA standard calculation procedure / projection to building stock										Total
Energy need for DHW	490											490
Produced heat	501											501

Delivered Energy TABULA				TABULA standard calculation procedure / projection to building stock										Total								
1	Gas	G_IWH_NC	D	564																		564
2	El	E	C	36																		36
3	Gas	B_NC	C	32																		32
4	El	E	D	10																		10
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						
13																						
14																						
15																						
16																						
17																						
18																						
19																						
20																						
	Not specified systems			0																		0
	Auxiliary energy			1																		1
	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	33	0	0	0	0	0	0	0	0	33

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											Total	per m ²
Net heat need	5 741											5 741	176
Produced heat	6 035											6 035	185
Gas	6 302											6 302	193
Oil	233											233	7
Coal	0											0	0
Bio	184											184	6
DH	0											0	0
EI (incl. aux. en.)	114											114	4
Other / not specified	0											0	0
Sum final energy	6 834	0	0	0	0	0	0	0	0	0	0	6 834	209
CHP electr. production	0											0	0

Separate individual model or total metered consumption

Separate individual model or total metered consumption	fuels related to gross calorific value factors for conversion to gross calorific value (TABULA standard)										Individual building stock model		
	Total											Total	per m ²
Net heat need	0											0	0
Produced heat	0											0	0
Gas	1,00	0										0	0
Oil	1,00	0										0	0
Coal	1,00	0										0	0
Bio	1,00	0										0	0
DH		0										0	0
EI		0										0	0
Other / not specified		0										0	0
Sum final energy	0	0	0	0	0	0	0	0	0	0	0	0	0
CHP electr. production	0											0	0

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

	Total
Net heat need	0%
Produced heat	0%
Gas	0%
Oil	0%
Coal	
Bio	0%
DH	
EI	0%
Other	
Sum final energy	0%
CHP electr. production	