



Building Stock	IE	Local	Housing Stock on Northside of Dublin City, Ireland	Year	2015
Details	Energy Action model				
Annotations to this sheet	Exceptional approach: average apartment in case of multi-family housing (number of buildings not available)				

	1	2	3	4	5	6	7	8	9	10
Building type	House 1700-1977	House 1978-1999	House 2000-2010	Apartment 1700-1977	Apartment 1978-1999	Apartment 2000-2010				
Dataset	IE.LocalCaseStudy.2015.001.01	IE.LocalCaseStudy.2015.001.02	IE.LocalCaseStudy.2015.001.03	IE.LocalCaseStudy.2015.001.04	IE.LocalCaseStudy.2015.001.05	IE.LocalCaseStudy.2015.001.06				

Thermal Envelope Average Building

Basic data	TABULA average buildings										
Floor area TABULA	100,5	92,6	111,6	45,8	47,6	70,3					m ²
Floor area national	100,5	92,6	111,6	45,8	47,6	70,3					m ²
Number of dwellings	1,00	1,00	1,00	1,00	1,00	1,00					

Thermal envelope areas (external dimensions)	TABULA average buildings										
Roof	69,2	60,5	71,9	24,5	17,9	22,6					m ²
Wall	96,1	88,3	102,6	45,5	41,5	50,9					m ²
Window	22,0	19,7	22,3	9,9	10,1	17,4					m ²
Floor	67,7	58,9	66,8	22,1	17,2	19,6					m ²

Original state / not refurbished fraction of the envelope area

U-values of the original state	Building stock model - state indicators										
Roof	1,26	0,42	0,42	1,87	0,41	0,41					W/(m ² K)
Wall	1,78	0,67	0,42	1,63	0,66	0,51					W/(m ² K)
Window	4,90	4,19	2,57	4,45	3,34	2,51					W/(m ² K)
Floor	1,22	1,02	0,70	1,40	1,06	5,20					W/(m ² K)

Refurbishments (averages)

Refurbished fraction of envelope areas	Building stock model - state indicators										
Roof	48%	44%	8%	42%	27%	1%					
Wall	25%	43%	3%	22%	16%	1%					
Window	77%	77%	15%	62%	63%	5%					
Floor	2%	1%	3%	1%	3%	4%					
<i>Total (indicative)</i>	<i>29%</i>	<i>35%</i>	<i>5%</i>	<i>26%</i>	<i>21%</i>	<i>2%</i>					

U-values of the refurbished fraction (averages)	Building stock model - state indicators										
Roof	0,25	0,14	0,13	0,24	0,14	0,13					W/(m ² K)
Wall	0,35	0,33	0,21	0,36	0,34	0,22					W/(m ² K)
Window	2,89	2,79	1,70	2,83	2,72	1,63					W/(m ² K)
Floor	0,36	0,44	0,26	0,38	0,40	0,30					W/(m ² K)

Energy Need for Heating TABULA

Utilisation	TABULA standard calculation procedure										
Utilisation dataset	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					°C
Reduction factor temp.	0,82	0,87	0,88	0,87	0,93	0,92					
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	10,0	15,0	15,0	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	243	243	243	243	243	243					d/a
External temp. during HS	7,6	7,6	7,6	7,6	7,6	7,6					
Accum. temp. diff. ext. to int. temp.	3006	3006	3006	3006	3006	3006					Kd/a

Envelope	TABULA standard calculation procedure										
Heat transfer by transmission related to surface area	340	187	188	152	82	144					W/K
related to surface area	1,33	0,82	0,71	1,49	0,94	1,30					W/(m ² K)
related to ref. floor area	3,38	2,02	1,69	3,32	1,72	2,04					W/(m ² K)

Annual energy balance building	TABULA standard calculation procedure										
Transmission heat losses	200,2	126,3	106,7	209,2	114,8	135,0					kWh/(m ² a)
Ventilation heat losses	30,2	31,9	32,3	32,1	34,1	33,7					kWh/(m ² a)
Usable solar gains	-15,7	-15,0	-12,1	-13,1	-13,3	-14,7					kWh/(m ² a)
Usable internal gains	-15,9	-15,8	-16,0	-16,1	-16,0	-16,0					kWh/(m ² a)
Energy need for heating recovered by vent. system	198,7	127,3	110,8	212,1	119,5	138,0					kWh/(m ² a)
Net energy need for heating	-0,0										kWh/(m ² a)
	198,7	127,3	110,8	212,1	119,5	138,0					kWh/(m ² a)



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Annotations to this sheet

	1	2	3	4	5	6	7	8	9	10
Building type	House 1700-1977	House 1978-1999	House 2000-2010	Apartment 1700-1977	Apartment 1978-1999	Apartment 2000-2010				

Total Building Stock

		Building stock model - state indicators										Total			
Number of buildings	10 ⁰	66 101	23 190	6 891	7 128	10 609	20 080								134 000
Number of dwellings	10 ⁰	66 101	23 190	6 891	7 128	10 609	20 081								134 000
Floor area national	10 ³ m ²	6 643	2 147	769	326	505	1 412								11 803
Floor area TABULA	10 ³ m ²	6 643	2 147	769	326	505	1 412								11 803

Ventilation Systems with Heat Recovery

	Building stock model - state indicators									
Occurrences	0,1%	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	85%	89%	93%	55%	38%	56%						
2	Oil	B_NC_CT	C	9%	6%	1%	3%								
3	El		C			2%			1%						
4	Bio		C						0%						
5	Coal	B_NC_CT	C	0%											
6	Gas		D												
7	Oil		D												
8	El	E_Storage	D	4%	5%	4%	41%	62%	44%						
9	Bio		D												
10	Coal	OpenFire	D	1%			1%								
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
	Sum			100%	100%	100%	100%	100%	100%						
	thereof central			95%	95%	96%	58%	38%	56%						
	decentral			5%	5%	4%	42%	62%	44%						
	Other Systems			0%	0%	0%	0%	0%							

DHW Systems

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

1	Gas	B_NC_CT	C	85%	89%	93%	55%	38%	56%						
2	Oil	B_NC_CT	C	9%	6%	1%	3%								
3	El		C			2%			1%						
4	Bio		C						0%						
5	Coal	B_NC_CT	C	1%											
6	Gas		D												
7	Oil		D												
8	El	E_Immersi	D	5%	5%	4%	41%	62%	44%						
9	Bio		D												
10	Coal	Other	D	1%											
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
	Sum			100%	100%	100%	99%	100%	100%						
	thereof central			95%	95%	96%	58%	38%	56%						
	decentral			5%	5%	4%	41%	62%	44%						
	Other Systems			0%	0%	0%	1%	1%							



Building Stock **IE** **Local** Housing Stock on Northside of Dublin City, Ireland Year 2015
 Details Energy Action model

Annotations to this sheet

Total Building Stock

	1	2	3	4	5	6	7	8	9	10	Total
Building type	House 1700-1977	House 1978-1999	House 2000-2010	Apartment 1700-1977	Apartment 1978-1999	Apartment 2000-2010					
Floor area TABULA	10 ³ m ²	6 643	2 147	769	326	505	1 412	0	0	0	11 803

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	1 320 097	273 268	85 234	69 234	60 348	194 839					2 003 020
Net en. need for heating	1 319 952	273 268	85 234	69 234	60 348	194 839					2 002 875
Produced heat	1 446 269	298 715	89 077	73 047	62 746	198 979					2 168 834

Delivered Energy TABULA	TABULA standard calculation procedure / projection to building stock										Sum
1 Gas B_NC_CT C	1 623 456	354 150	106 514	54 580	36 228	145 807					2 320 735
2 Oil B_NC_CT C	181 523	24 300	909	3 216	0	0					209 948
3 El C	0	0	524	0	0	242					766
4 Bio C	0	0	0	0	0	568					568
5 Coal B_NC_CT C	10 059	0	0	0	0	0					10 059
6 Gas D	0	0	0	0	0	0					0
7 Oil D	0	0	0	0	0	0					0
8 El E_Storage D	47 518	13 117	3 068	28 386	37 174	84 950					214 214
9 Bio D	0	0	0	0	0	0					0
10 Coal OpenFire D	50 352	0	0	1 515	0	0					51 867
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
Not specified systems	5 280	1 093	256	138	241	0					7 008
Auxiliary energy	11 375	3 685	1 338	343	347	1 441					18 529
CHP electr. production											0

DHW Systems

Heat Demand for DHW	TABULA standard calculation procedure / projection to building stock										Total
Energy need for DHW	66 432	21 474	7 691	4 897	7 575	21 174					129 243
Produced heat	199 672	63 361	16 569	10 203	13 632	34 838					338 275

Delivered Energy TABULA	TABULA standard calculation procedure / projection to building stock										Total
1 Gas B_NC_CT C	224 382	76 545	20 004	8 315	9 621	27 202					366 068
2 Oil B_NC_CT C	25 089	5 258	170	488	0	0					31 005
3 El C	0	0	132	0	0	124					256
4 Bio C	0	0	0	0	0	106					106
5 Coal B_NC_CT C	1 641	0	0	0	0	0					1 641
6 Gas D	0	0	0	0	0	0					0
7 Oil D	0	0	0	0	0	0					0
8 El E_Immersi D	8 385	1 756	459	3 457	6 867	13 565					34 489
9 Bio D	0	0	0	0	0	0					0
10 Coal Other D	1 868	0	0	0	0	0					1 868
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
Not specified systems	133	107	8	39	38	0					325
Auxiliary energy	0	0	0	0	0	0					0
CHP electr. production											0



Building Stock **IE** **Local** Housing Stock on Northside of Dublin City, Ireland Year 2015
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Total Building Stoc	1	2	3	4	5	6	7	8	9	10	Total
Building type	House 1700-1977	House 1978-1999	House 2000-2010	Apartment 1700-1977	Apartment 1978-1999	Apartment 2000-2010					
Floor area TABULA	10 ³ m ² 6 643	2 147	769	326	505	1 412	0	0	0	0	11 803

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	1 386 384	294 742	92 924	74 131	67 922	216 014						2 132 118	181
Produced heat	1 646 085	362 076	105 646	83 250	76 378	233 818						2 507 254	212
Gas	1 847 838	430 695	126 518	62 894	45 849	173 009						2 686 803	228
Oil	206 612	29 559	1 079	3 705	0	0						240 954	20
Coal	63 920	0	0	1 515	0	0						65 435	6
Bio	0	0	0	0	0	673						673	0
DH	0	0	0	0	0	0						0	0
EI (incl. aux. en.)	67 278	18 558	5 521	32 186	44 389	100 321						268 254	23
Other / not specified	5 413	1 200	263	178	279	0						7 333	1
Sum final energy	2 191 061	480 012	133 381	100 477	90 517	274 003	0	0	0	0		3 269 452	277
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 gross 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	587 000	181 587	58 446	45 873	46 995	111 625						1 031 527	87
Produced heat	660 703	205 991	66 192	51 765	53 473	126 641						1 164 764	99
Gas	1,00 657 275	212 341	75 279	38 391	29 644	97 480						1 110 410	94
Oil	1,00 96 519	19 214	828	2 188	0	0						118 750	10
Coal	1,00 28 061	0	0	1 177	0	0						29 238	2
Bio	1,00 0	0	0	0	0	353						353	0
DH	0	0	0	0	0	0						0	0
EI	43 229	16 370	3 703	18 800	31 654	47 125						160 881	14
Other / not specified	0	0	0	0	0	0						0	0
Sum final energy	825 084	247 925	79 811	60 556	61 299	144 957	0	0	0	0		1 419 632	120
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)

	1	2	3	4	5	6	7	8	9	10	Total
Net heat need	42%	62%	63%	62%	69%	52%					48%
Produced heat	40%	57%	63%	62%	70%	54%					46%
Gas	36%	49%	60%	61%	65%	56%					41%
Oil	47%	65%	77%	59%							49%
Coal	44%			78%							45%
Bio						52%					52%
DH											
EI	64%	88%	67%	58%	71%	47%					60%
Other	0%	0%	0%	0%	0%						0%
Sum final energy	38%	52%	60%	60%	68%	53%					43%
CHP electr. production											