

Project Information

Building type Semi-detached house

Reference Plot 234B type SR15.2a

Date 17 August 2025

Client	Lagan Group Holdings	Project	12 Millmount Village Green
	19 Claredon Road		DUNDONALD
	Belfast		BT16 1AW
	BT1 3BG		

SAP 2009 worksheet for New dwelling as built - calculation of energy ratings**1. Overall dwelling dimensions**

	Area (m ²)	Av. Storey height (m)	Volume (m ³)	
Ground floor (1)	43.85	2.61	114.45	(3a)
Ground floor (2)	10.99	2.40	26.38	(3b)
First floor	43.85	2.72	119.27	(3c)
	98.69			(4)
			260.10	(5)

SAP 2009 worksheet for New dwelling as built - calculation of energy ratings

2. Ventilation rate

	main + secondary + other heating		m³ per hour										
Number of chimneys	0 + 0 + 0	x 40	0.00	(6a)									
Number of open flues	0 + 0 + 0	x 20	0.00	(6b)									
Number of intermittent fans	4	x 10	40.00	(7a)									
Number of passive vents	0	x 10	0.00	(7b)									
Number of flueless gas fires	0	x 40	0.00	(7c)									
			Air changes per hour										
			0.15	(8)									
Pressure test, result q50	7.79			(17)									
Air permeability			0.54	(18)									
			2.00	(19)									
			0.85	(20)									
Infiltration rate incorporating shelter factor			0.46	(21)									
Infiltration rate modified for monthly wind speed													
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Monthly average wind speed from Table 7													
5.40	5.10	5.10	4.50	4.10	3.90	3.70	3.70	4.20	4.50	4.80	5.10		
												54.10	(22)
Wind Factor													
1.35	1.27	1.27	1.13	1.02	0.98	0.93	0.93	1.05	1.13	1.20	1.27		
												13.52	(22a)
Adjusted infiltration rate (allowing for shelter and wind speed)													
0.62	0.59	0.59	0.52	0.47	0.45	0.43	0.43	0.48	0.52	0.55	0.59		
												6.25	(22b)
Ventilation : natural ventilation, intermittent extract fans													
Effective air change rate													
0.69	0.67	0.67	0.63	0.61	0.60	0.59	0.59	0.62	0.63	0.65	0.67	(25)	

SAP 2009 worksheet for New dwelling as built - calculation of energy ratings

3. Heat losses and heat loss parameter

Element	Gross area, m ²	Openings m ²	Net area A, m ²	U-value W/m ² K	A x U W/K	kappa-value kJ/m ² K	A x K kJ/K	
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthWest) W10			0.840	1.15 (1.20)	0.96			(27)
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthWest) W10			0.960	1.15 (1.20)	1.10			(27)
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (SouthWest) W1			0.340	1.15 (1.20)	0.39			(27)
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (SouthWest) W2			4.120	1.15 (1.20)	4.72			(27)
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (SouthWest) W3			1.300	1.15 (1.20)	1.49			(27)
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (SouthWest) W4			1.300	1.15 (1.20)	1.49			(27)
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthEast) W5			1.090	1.15 (1.20)	1.25			(27)
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthEast) W6			5.590	1.15 (1.20)	6.40			(27)
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthEast) W7			1.090	1.15 (1.20)	1.25			(27)
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthEast) W8			1.090	1.15 (1.20)	1.25			(27)
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthWest) W9			2.640	1.15 (1.20)	3.02			(27)
Solid door D1			1.910	1.10	2.10			(26)
Full glazed door - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthWest) D2			4.070	1.50	6.11			(26)
Pitched roofs insulated between joists			43.85	0.10	4.39	9.00	394.65	(30)

SAP 2009 worksheet for New dwelling as built - calculation of energy ratings

4. Water heating energy requirements

4. Water heating energy requirements											kWh/year	
Assumed occupancy, N											2.73	(42)
Annual average hot water usage in litres per day Vd,average											104.18	(43)
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Hot water usage in litres per day for each month												
114.59	110.43	106.26	102.09	97.93	93.76	93.76	97.93	102.09	106.26	110.43	114.59	(44)
Energy content of hot water used												
170.35	148.99	153.74	134.03	128.61	110.98	102.84	118.01	119.42	139.17	151.92	164.97	
Energy content (annual)											1643.02	(45)
Distribution loss												
25.55	22.35	23.06	20.11	19.29	16.65	15.43	17.70	17.91	20.88	22.79	24.75	(46)
store loss determined from EN 13203-2 tests, taken from boiler data record												
											0.00	(50)
Hot water cylinder loss factor (kWh/day)											0.0000	(51)
Volume factor											0.0000	(52)
Temperature factor											0.0000	(53)
Energy lost from store (kWh/day)											0.00	(55)
Total storage loss												
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(56)
Net storage loss												
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(57)
Primary circuit loss (annual)											0.00	(58)
Primary loss												
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(59)
Combi loss calculated for each month												
30.96	27.96	30.94	29.93	30.92	29.91	30.90	30.91	29.92	30.93	29.95	30.95	(61)
Total heat required for water heating calculated for each month												
201.30	176.94	184.68	163.97	159.53	140.89	133.74	148.92	149.34	170.10	181.86	195.92	(62)
Output from water heater for each month, kWh/month												
201.30	176.94	184.68	163.97	159.53	140.89	133.74	148.92	149.34	170.10	181.86	195.92	(64)
											2007.21	(64)
Heat gains from water heating, kWh/month												
64.38	56.53	58.85	52.05	50.49	44.38	41.92	46.97	47.19	54.01	58.00	62.59	(65)

SAP 2009 worksheet for New dwelling as built - calculation of energy ratings

5. Internal gains

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Metabolic gains, Watts												
163.62	163.62	163.62	163.62	163.62	163.62	163.62	163.62	163.62	163.62	163.62	163.62	(66)
Lighting gains												
56.89	50.53	41.09	31.11	23.25	19.63	21.21	27.57	37.01	46.99	54.85	58.47	(67)
Appliances gains												
379.39	383.33	373.41	352.29	325.63	300.57	283.83	279.89	289.81	310.93	337.59	362.65	(68)
Cooking gains												
54.09	54.09	54.09	54.09	54.09	54.09	54.09	54.09	54.09	54.09	54.09	54.09	(69)
Pumps and fans gains												
10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	(70)
Losses e.g. evaporation (negative values)												
-109.08	-109.08	-109.08	-109.08	-109.08	-109.08	-109.08	-109.08	-109.08	-109.08	-109.08	-109.08	(71)
Water heating gains												
86.53	84.12	79.11	72.29	67.87	61.64	56.34	63.13	65.54	72.59	80.55	84.13	(72)
Total internal gains												
641.44	636.60	612.23	574.32	535.38	500.47	480.02	489.22	510.99	549.15	591.63	623.88	(73)

6. Solar gains (calculation for January)

	Area & Flux	g & FF	Shading	Gains
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthWest) W10	0.840 11.51	0.63 --	0.77	4.6900
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthWest) W10	0.960 11.51	0.63 --	0.77	5.3600
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (SouthWest) W1	0.340 37.39	0.63 --	0.77	6.1665
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (SouthWest) W2	4.120 37.39	0.63 --	0.77	74.7235
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (SouthWest) W3	1.300 37.39	0.63 --	0.77	23.5778
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (SouthWest) W4	1.300 37.39	0.63 --	0.77	23.5778
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthEast) W5	1.090 11.51	0.63 --	0.77	6.0859
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthEast) W6	5.590 11.51	0.63 --	0.77	31.2111
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthEast) W7	1.090 11.51	0.63 --	0.77	6.0859

Lighting calculations

Area g FF x Shading

SAP 2009 worksheet for New dwelling as built - calculation of energy ratings

6. Solar gains (calculation for January)

	Area & Flux	g & FF	Shading	Gains	
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthEast) W8	1.090 11.51	0.63 --	0.77	6.0859	
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthWest) W9	2.640 11.51	0.63 --	0.77	14.7401	
Solid door D1	1.910 0.00	0.00 --	0.77	0.0000	
Full glazed door - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthWest) D2	4.070 11.51	0.63 --	0.77	22.7244	
Total solar gains, January				225.03	(83-1)
Solar gains					
	225.03	416.75	634.96	925.71	1144.54
	1215.57	1169.75	996.25	749.95	497.23
	275.91	188.30			
Total gains					
	866.47	1053.36	1247.20	1500.02	1679.92
	1716.04	1649.76	1485.48	1260.94	1046.38
	867.53	812.17			

Lighting calculations

	Area	g	FF x Shading	
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthWest) W10	0.9 x 0.84	0.80	0.70 x 0.83	0.35
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthWest) W10	0.9 x 0.96	0.80	0.70 x 0.83	0.40
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (SouthWest) W1	0.9 x 0.34	0.80	0.70 x 0.83	0.14
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (SouthWest) W2	0.9 x 4.12	0.80	0.70 x 0.83	1.72
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (SouthWest) W3	0.9 x 1.30	0.80	0.70 x 0.83	0.54
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (SouthWest) W4	0.9 x 1.30	0.80	0.70 x 0.83	0.54
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthEast) W5	0.9 x 1.09	0.80	0.70 x 0.83	0.46
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthEast) W6	0.9 x 5.59	0.80	0.70 x 0.83	2.34
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthEast) W7	0.9 x 1.09	0.80	0.70 x 0.83	0.46
Window - Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthEast) W8	0.9 x 1.09	0.80	0.70 x 0.83	0.46

Lighting calculations

Window - Double-glazed, argon filled,
low-E, En=0.1, soft coat (NorthWest)
W9

Area	g	FF x Shading
0.9 x 2.64	0.80	0.70 x 0.83

1.10

GL = 8.52 / 98.69 = 0.086
C1 = 0.500

C2 = 0.964

EI = 402

7. Mean internal temperature

Temperature during heating periods in the living area, Th1 (°C)

21.00

(85)

Heating system responsiveness

1.00

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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tau

70.06	70.95	70.95	72.63	73.67	74.16	74.64	74.64	73.41	72.63	71.80	70.95
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alpha

5.67	5.73	5.73	5.84	5.91	5.94	5.98	5.98	5.89	5.84	5.79	5.73
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Utilisation factor for gains for living area

1.00	0.99	0.98	0.90	0.72	0.50	0.34	0.37	0.70	0.95	1.00	1.00
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(86)

Mean internal temperature in living area T1

19.99	20.18	20.46	20.76	20.95	20.99	21.00	21.00	20.97	20.71	20.26	20.01
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(87)

Temperature during heating periods in rest of dwelling Th2

19.72	19.73	19.73	19.76	19.77	19.78	19.79	19.79	19.77	19.76	19.74	19.73
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(88)

Utilisation factor for gains for rest of dwelling

1.00	0.99	0.96	0.87	0.64	0.41	0.24	0.26	0.59	0.92	0.99	1.00
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(89)

Mean internal temperature in the rest of dwelling T2

18.42	18.70	19.10	19.52	19.74	19.78	19.79	19.79	19.75	19.48	18.83	18.46
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(90)

Living area fraction (16.51 / 98.69)

0.17

(91)

Mean internal temperature (for the whole dwelling)

18.68	18.95	19.33	19.73	19.94	19.98	19.99	19.99	19.96	19.68	19.07	18.72
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(92)

Apply adjustment to the mean internal temperature, where appropriate

18.68	18.95	19.33	19.73	19.94	19.98	19.99	19.99	19.96	19.68	19.07	18.72
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(93)

SAP 2009 worksheet for New dwelling as built - calculation of energy ratings

8. Space heating requirement

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Utilisation factor for gains

1.00	0.99	0.96	0.86	0.65	0.43	0.25	0.28	0.60	0.92	0.99	1.00	(94)
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Useful gains

862.67	1040.23	1194.67	1296.10	1094.23	731.86	418.93	418.85	761.95	957.71	858.83	809.20	(95)
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Monthly average external temperature

4.50	5.00	6.80	8.70	11.70	14.60	16.90	16.90	14.30	10.80	7.00	4.90	(96)
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Heat loss rate for mean internal temperature

2049.5	1990.24	1788.15	1537.10	1132.65	734.58	419.02	419.01	780.17	1238.19	1701.83	1971.91	(97)
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Space heating requirement for each month, kWh/month

882.98	638.40	441.55	173.52	28.58	-	-	-	-	208.68	606.96	865.05	
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Total space heating requirement per year (kWh/year) (October to May) 3845.72 (98)

Space heating requirement per m² (kWh/m²/year) 38.97 (99)

8c. Space cooling requirement - not applicable

SAP 2009 worksheet for New dwelling as built - calculation of energy ratings

9a. Energy requirements

												kWh/year
No secondary heating system selected												
Fraction of space heat from main system(s)												1.0000 (202)
Efficiency of main heating system												90.20% (206)
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space heating requirement												
882.98	638.40	441.55	173.52	28.58	-	-	-	-	208.68	606.96	865.05	(98)
Appendix Q - monthly energy saved (main heating system 1)												
0.00	0.00	0.00	0.00	0.00	-	-	-	-	0.00	0.00	0.00	(210)
Space heating fuel (main heating system 1)												
978.91	707.76	489.52	192.37	31.69	-	-	-	-	231.35	672.90	959.04	(211)
Appendix Q - monthly energy saved (main heating system 2)												
0.00	0.00	0.00	0.00	0.00	-	-	-	-	0.00	0.00	0.00	(212)
Space heating fuel (main heating system 2)												
0.00	0.00	0.00	0.00	0.00	-	-	-	-	0.00	0.00	0.00	(213)
Appendix Q - monthly energy saved (secondary heating system)												
0.00	0.00	0.00	0.00	0.00	-	-	-	-	0.00	0.00	0.00	(214)
Space heating fuel (secondary)												
0.00	0.00	0.00	0.00	0.00	-	-	-	-	0.00	0.00	0.00	(215)
Water heating												
Water heating requirement												
201.30	176.94	184.68	163.97	159.53	140.89	133.74	148.92	149.34	170.10	181.86	195.92	(64)
Efficiency of water heater												88.20 (216)
89.82	89.76	89.60	89.22	88.50	88.20	88.20	88.20	88.20	89.29	89.73	89.82	(217)
Water heating fuel												
224.11	197.13	206.12	183.79	180.26	159.74	151.63	168.85	169.32	190.50	202.68	218.12	(219)
Annual totals												kWh/year
Space heating fuel used, main system 1												4263.55 (211)
Space heating fuel (secondary)												0.00 (215)
Water heating fuel												2252.25 (219)
Electricity for pumps, fans and electric keep-hot												
central heating pump												130.00 (230c)
boiler with a fan-assisted flue												45.00 (230e)
Total electricity for the above, kWh/year												175.00 (231)
Electricity for lighting (100.00% fixed LEL)												401.85 (232)
Energy saving/generation technologies												
Appendix Q -												
Energy saved or generated ():												0.000 (236a)
Energy used ():												0.000 (237a)
Total delivered energy for all uses												7092.66 (238)

SAP 2009 worksheet for New dwelling as built - calculation of energy ratings

10a. Fuel costs using Table 12 prices

	kWh/year	Fuel price p/kWh	£/year	
Space heating - main system 1	4263.553	3.100	132.17	(240)
Space heating - main system 2	0.000	0.000	0.00	(241)
Water heating cost	2252.25	3.100	69.82	(247)
Mech vent fans cost	0.000	11.460	0.00	(249)
Pump/fan energy cost	175.000	11.460	20.06	(249)
Energy for lighting	401.853	11.460	46.05	(250)
Additional standing charges			106.00	(251)
Electricity generated - PVs	0.000	0.000	0.00	(252)
Appendix Q -				
Energy saved or generated ():	0.000	0.000	0.00	(253)
Energy used ():	0.000	0.000	0.00	(254)
Total energy cost			374.10	(255)

11a. SAP rating

	0.47	(256)
	1.22	(257)
SAP value	82.93	
	83	(258)
SAP band	B	

12a. Carbon dioxide emissions

	Energy kWh/year	Emission factor kg CO2/kWh	Emissions kg CO2/year	
Space heating, main system 1	4263.55	0.198	844.18	(261)
Space heating, main system 2	0.00	0.000	0.00	(262)
Space heating, secondary	0.00	0.517	0.00	(263)
Water heating	2252.25	0.198	445.95	(264)
Space and water heating			1290.13	(265)
Electricity for pumps and fans	175.00	0.517	90.48	(267)
Electricity for lighting	401.85	0.517	207.76	(268)
Electricity generated - PVs	0.00	0.529	0.00	(269)
Electricity generated - µCHP	0.00	0.000	0.00	(269)
Appendix Q -				
Energy saved ():	0.00	0.000	0.00	(270)
Energy used ():	0.00	0.000	0.00	(271)
Total CO2, kg/year			1588.36	(272)
			kg/m²/year	
CO2 emissions per m²			16.09	(273)
EI value			85.19	(273a)
EI rating			85	(274)
EI band			B	

SAP 2009 worksheet for New dwelling as built - calculation of energy ratings

13a. Primary energy

	Energy kWh/year	Primary factor	P. Energy (kWh/year)	
Space heating, main	4263.55	1.020	4348.82	(261)
Space heating, main system 2	0.00	0.000	0.00	(262)
Space heating, secondary	0.00	2.920	0.00	(263)
Water heating	2252.25	1.020	2297.30	(264)
Space and water heating			6646.12	(265)
Electricity for pumps/fans	175.00	2.920	511.00	(267)
Electricity for lighting	401.85	2.920	1173.41	(268)
Electricity generated - PV	0.00	2.920	0.00	(269)
Electricity generated - µCHP	0.00	0.000	0.00	(269)
Electricity generated - wind	0.00	2.920	0.00	(269)
New energy-saving technology :				
Energy saved ():	0.00	0.000	0.00	(270)
Energy used ():	0.00	0.000	0.00	(271)
Primary energy kWh/year			8330.53	(272)
Primary energy kWh/m²/year			84.41	(273)

Project Information

Building type Semi-detached house

Reference Plot 234B type SR15.2a

Date 17 August 2025

Client Lagan Group Holdings
19 Claredon Road
Belfast
BT1 3BG

Project 12 Millmount Village Green
DUNDONALD
BT16 1AW

REGULATION COMPLIANCE REPORT - Technical Booklet F1, October 2012

assessed by program JPA Designer version 5.04x, printed on 18/08/2025 at 18:25:02

New dwelling as built

1 TER and DER

Fuel for main heating system: Gas (mains) (fuel factor = 1.00)

Target Carbon Dioxide Emission Rate

TER = 19.28

Dwelling Carbon Dioxide Emission Rate

DER = 17.75

OK

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

4 Fabric U-values

<u>Element</u>	<u>Average</u>	<u>Highest</u>	
Wall	0.20 (max. 0.30)	0.20 (max. 0.70)	OK
Floor	0.11 (max. 0.25)	0.11 (max. 0.70)	OK
Roof	0.12 (max. 0.20)	0.18 (max. 0.35)	OK
Openings	1.25 (max. 2.00)	1.50 (max. 3.30)	OK

5 Air permeability

Air permeability at 50 pascals:

7.79

OK

6 Heating efficiency

Main heating system:

Boiler and radiators, mains gas
Worcester Greenstar 4000

Source of efficiency: from boiler database

Worcester Greenstar 4000 GR4700iW 25 C NG
Efficiency: 90.2% SEDBUK2009
Minimum: 88.0%

OK

Secondary heating system:

None -

7 Cylinder insulation

Hot water storage No cylinder

8 Controls

(Also refer to "Domestic Building Services Compliance Guide" by the DCLG)

Space heating controls	Time and temperature zone control	OK
Hot water controls	No cylinder	
Boiler Interlock	Yes	OK
Hot water controls	No cylinder	

9 Low energy lights

Percentage of fixed lights with low-energy fittings: 100.0%	
Minimum: 75.0%	OK

10 Mechanical ventilation

Not applicable

Summertime temperature

Overheating risk (Northern Ireland):	Not significant	OK
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Based on:

Thermal mass parameter :	369.30
Overshading :	Average or unknown (20-60 % sky blocked)
Orientation : SouthWest	
Ventilation rate :	4.00
Blinds/curtains :	
None with blinds/shutters closed 0.00% of daylight hours	

1b Key features

Double-glazed, argon filled, low-E, En=0.1, soft coat U-value 1.20 W/m²K
Ground floors U-value 0.11 W/m²K
Party wall U-value 0.00 W/m²K
Pitched roofs insulated between joists U-value 0.10 W/m²K
Solid door U-value 1.10 W/m²K

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SAP 2009 input data Printed on 18 Aug 2025 at 06:25 PM

12 Millmount Village Green site 234B Semi Detached SR15.2a air test 5.79+2

12 Millmount Village Green
DUNDONALD
BT16 1AW

Located in:	Northern Ireland
Region:	Northern Ireland
Postcode:	BT16 1AW
UPRN:	UPRN-000187710589
Date of assessment:	2025-08-17
Date of certificate:	2025-08-18
Assessment type:	New dwelling as built
Tenure:	Unknown
Transaction type:	New dwelling
Related party disclosure:	No related party

Property description	
Dwelling type:	Semi-detached house
Ground floor (1)	area = 43.85m ² storey height = 2.61m
Ground floor (2)	area = 10.99m ² storey height = 2.40m
First floor	area = 43.85m ² storey height = 2.72m

Living area: 16.51 (fraction 0.167)

Front of dwelling faces: SouthWest

Doors

Solid door	area = 1.91	U = 1.10	
Full glazed door	area = 4.07	U = 1.50	- Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthWest)

Windows

Window	area = 2.64	U = 1.20	- Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthWest)
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Overshading: Average or unknown (20-60 % sky blocked)

Window	area = 1.09	U = 1.20	- Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthEast)
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Overshading: Average or unknown (20-60 % sky blocked)

Window	area = 1.09	U = 1.20	- Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthEast)
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Overshading: Average or unknown (20-60 % sky blocked)

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Window	area = 5.59	U = 1.20	- Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthEast)
Overshading:	Average or unknown (20-60 % sky blocked)		
Window	area = 1.09	U = 1.20	- Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthEast)
Overshading:	Average or unknown (20-60 % sky blocked)		
Window	area = 1.30	U = 1.20	- Double-glazed, argon filled, low-E, En=0.1, soft coat (SouthWest)
Overshading:	Average or unknown (20-60 % sky blocked)		
Window	area = 1.30	U = 1.20	- Double-glazed, argon filled, low-E, En=0.1, soft coat (SouthWest)
Overshading:	Average or unknown (20-60 % sky blocked)		
Window	area = 4.12	U = 1.20	- Double-glazed, argon filled, low-E, En=0.1, soft coat (SouthWest)
Overshading:	Average or unknown (20-60 % sky blocked)		
Window	area = 0.34	U = 1.20	- Double-glazed, argon filled, low-E, En=0.1, soft coat (SouthWest)
Overshading:	Average or unknown (20-60 % sky blocked)		
Window	area = 0.96	U = 1.20	- Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthWest)
Overshading:	Average or unknown (20-60 % sky blocked)		
Window	area = 0.84	U = 1.20	- Double-glazed, argon filled, low-E, En=0.1, soft coat (NorthWest)
Overshading:	Average or unknown (20-60 % sky blocked)		

Rooflights**Opaque Elements**

Roofs	area = 43.85	U = 0.10, k = 9.0
Walls	area = 109.44	U = 0.20, k = 190.0
Ground floors	area = 54.83	U = 0.11, k = 110.0
Roofs	area = 10.99	U = 0.18, k = 9.0

Thermal bridges:	Htb = 19.10		
E1 Steel lintel with perforated steel base plate [T]	0.500	0.500	15.455

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E10 Eaves (insulation at ceiling level) [T] E10	0.060	0.060	11.030
E12 Gable (insulation at ceiling level) [T] E12	0.240	0.240	7.950
E14 Flat roof [T] E14	0.000	0.000	6.640
E16 Corner (normal) [T] E16	0.090	0.090	13.050
E17 Corner (inverted – internal area greater than external area) [T] E17	-0.090	-0.090	2.400
E18 Party wall between dwellings (c) [T] E18	0.060	0.060	10.650
E3 Sill [T] E3	0.040	0.040	12.735
E4 Jamb [T] E4	0.050	0.050	35.400
E5 Ground floor (normal) [T] E5	0.160	0.160	22.470
E6 Intermediate floor within a dwelling [T] E6	0.070	0.070	18.980
P1 Ground floor (c) [T] P1	0.000	0.000	11.440
P2 Intermediate floor within a dwelling (c) [T] P2	0.000	0.000	7.950
P4 Roof (insulation at ceiling level) (c) [T] P4	0.000	0.000	11.440

Thermal mass: Calculated from k values

Pressure test: Yes (q50 - 7.79) : measured in this dwelling : No

Ventilation: Natural ventilation with intermittent extract fans

Number of chimneys: 0

Number of open flues: 0

Number of intermittent fans: 4

Number of passive stacks: 0

Number of sides sheltered: 2.00

Measured/design q50: 5.79

Main heating system: Central heating systems with radiators or underfloor heating
Gas boilers (including LPG) 1998 or later
Condensing combi with automatic ignition
Index : 18908
Eff 88.20% / 90.20% Worcester Greenstar 4000 GR4700iW 25 C NG
Radiators

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	Pump in heated space:	Yes
	Boiler has load or weather compensator:	No
	Boiler Interlock:	Yes
	Design flow temperature :	> 45°C
	Central heating pump pre-2013	
	Gas (mains)	
Main heating controls:	Time and temperature zone control	
Boiler has load compensator:	No	
Boiler has weather compensator:	No	
Boiler has enhanced load compensator:	No	
Boiler interlock:	Yes	
Secondary heating system:	None	

Water heating:	Combination boiler
	Combination boiler type : Instantaneous
	Solar panel: no

Water use <= 125 litres/person/day:	No
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Low energy lights:	100.0% of fixed lighting outlets
Total fixed lighting outlets:	11
Electricity tariff:	Standard tariff
Photovoltaics 1:	Peak kW: 0.00
Photovoltaics 2:	Peak kW: 0.00
Photovoltaics 3:	Peak kW: 0.00
Conservatory:	No
Fixed air conditioning:	No
Smoke Control Area:	Not specified
Additional allowable electricity generation :	
0.00kg/m ² /year	

Htb Values

Junction type	Achieved linear thermal transmittance (W/mK)	Detail length (m)	Linear thermal transmittance x Detail length (W/K)
Steel lintel with perforated steel base plate [T]	0.500	15.455	7.728
Eaves (insulation at ceiling level) E10 [T]	0.060	11.030	0.662
Gable (insulation at ceiling level) E12 [T]	0.240	7.950	1.908
Flat roof E14 [T]	0.000	6.640	0.000
Corner (normal) E16 [T]	0.090	13.050	1.175
Corner (inverted – internal area greater than external area) E17 [T]	-0.090	2.400	-0.216
Party wall between dwellings (c) E18 [T]	0.060	10.650	0.639
Sill E3 [T]	0.040	12.735	0.509
Jamb E4 [T]	0.050	35.400	1.770
Ground floor (normal) E5 [T]	0.160	22.470	3.595
Intermediate floor within a dwelling E6 [T]	0.070	18.980	1.329
Ground floor (c) P1 [T]	0.000	11.440	0.000
Intermediate floor within a dwelling (c) P2 [T]	0.000	7.950	0.000
Roof (insulation at ceiling level) (c) P4 [T]	0.000	11.440	0.000
Running Total:			19.098