

September 20, 2024

BLOWER DOOR TESTING 2024
TEST RESULTS - ARVIAT

Client:

GREENSTONE BUILDING PRODUCTS
4000B Richmond Ave East Brandon,
MB R7A 7P8
Phone 204.726.1426

Attn: Weldon Loewen

Introduction:

EcoSynergy was contracted to perform third party mid—construction air tightness testing to determine the maximum allowable uncontrolled air leakage rate for the 8 Unit complex in Arviat, Nunavut.

Equipment used:

The blower door equipment used was composed of retractable aluminium door frames and tarps along with a Retrotec blower model 5000 and a DM32 Digital Anemometer and a Minneapolis model 3 fan with variable speed controller one DG-1000 pressure and flow gauge.

Exterior climate conditions:

The days of the testing, winds were variable, with occasional gusts, sunny and blue skies with an outdoor temperature of 8° C.

Testing procedure:

The blower door test procedure utilized on-site aligns with Standard CAN/CGSB-149.10-2019 “Determination of the airtightness of building envelopes by the fan depressurization method”, “two zones- two blower fans- 1 test”. This is achieved by having both fans will be operating at the same time.

Testing Results Negative pressure test:

Test Conditions		Test Type	
☒ As Operated	☐ CGSB	2 blowers - whole house	
Outside Temperature	Results		
8 °C	Flow Co-efficient	67.95	Correlation Co-efficient
Barometric Pressure	Flow Exponent	0.5932	Heated Volume
101.3 kPa		2999	ELA @ 10 Pa
			1069.11
			Update
			ACH @ 50 Pa
			0.83
			Relative Error (%)
			4.3

Summary of results negative pressure test at 50 pa:

- Total Internal volume: 2999.3 m³
 - Main Floor Volume of 1395 m³ (not including Service Room)
 - Second Floor Volume of 1604.3 m³
- ELA @ 10 Pa: 958.6 cm²
- Flow exponent: 0.6663
- Co-efficient of Flow: 51.48
- Co-efficient of leakage (correlation Co-efficient): 0.9960
- Relative Error (%): 4.3
- **Air changes per hour @ 50 Pa: 0.830319 ACH**

Here are some notes on the different readings to help you better understand the data:

- **ELA:** The equivalent leakage area (EqLA) or effective leakage area (EFLA, in cm^2 or in^2) represents the size of a single hole that would result in the same air leakage as that of all the air leakage pathways through the enclosure combined
- **Flow Exponent:** One of the output metrics obtained from undertaking a fan pressurization test that is used to characterize how the air flows through the various adventitious cracks and gaps that exist in the building fabric. It should range from 0.5 to 1.0, with figures approaching 0.5 representing fully developed turbulent flow and figures approaching 1.0 representing more laminar flow. Turbulent flow is associated with air flow through a series of large apertures, whilst laminar flow is associated with air flow through a multitude of tiny gaps and cracks.
- **Co-efficient of Flow:** The flow coefficient of a device is a relative measure of its efficiency at allowing fluid flow. It describes the relationship between the pressure drop across an orifice valve or other assembly and the corresponding flow rate.
- **Co-efficient of Leakage:** A correlation coefficient is a numerical measure of some type of correlation, meaning a statistical relationship between two variables. The variables may be two columns of a given data set of observations, often called a sample, or two components of a multivariate random variable with a known distribution.
- **Air Changes Per Hour:** Air changes per hour, which is often abbreviated as ACH, is a calculation of how many times per hour the entire volume of air in a given space is replaced with supply and/or recirculated air. It is also sometimes referred to as "air change rate" or "air exchange rate."

Site Data:

Results for Retrotec blower model 5000 used for the entire main floor:

Test 1/Equip1		Test 1/Equip2					
Fan Type		Retrotec 5000	Manometer	DM32			
Initial Static Pressure		-1	Pa	Inside Temperature	8	°C	
Final Static Pressure		-1.2	Pa	Zone Heated Vol	1395	m³	
Hse Pressure Pa	Fan Pressure Pa	Measured Flow L/s	Flow Ranges	Measured Flow L/s	Corrected Pressure Pa	Corrected Flow L/s	Error %
-50	170	0	B4	393	48.9	393	2.1
-45.4	154.5	0	B4	372	44.3	372	-2.0
-40	122	0	B4	326	38.9	326	-1.1
-35	93	0	B4	281	33.9	281	1.1
-30	75	0	B4	249	28.9	249	-2.3
-25.6	51.2	0	B4	205	24.5	205	1.6
-20	28.9	0	B4	160	18.9	160	2.0

Results for Minneapolis model 3 used for the entire second floor

Test 1/Equip1		Test 1/Equip2					
Fan Type		Minneapolis Model 3	Manometer	DG 1000			
Initial Static Pressure		-0.5 Pa	Inside Temperature	8.00000091 °C			
Final Static Pressure		-0.9 Pa	Zone Heated Vol	1604.30091 m³			
Hse Pressure Pa	Fan Pressure Pa	Measured Flow L/s	Flow Ranges	Measured Flow L/s	Corrected Pressure Pa	Corrected Flow L/s	Error %
-50.3	114.3	0	B	300	49.6	300	-3.2
-45	99.6	0	B	280	44.3	280	-0.5
-40	85	0	B	259	39.3	259	2.9
-29.9	62.40	0	B	222	29.2	222	7.2
-19.3	57.80	0	B	214	18.6	214	-5.4

Additional Testing Notes:

Typical areas of leakage that were found on site, but not limited to, the following:

- Windows – it was discovered that some of the windows had small areas of leakage at the corners of the windows (the mechanical joint in the window frame).
- Windows – as the windows typically only had a single positive latch, not all corners were completely sealed
- Doors – many of the doors were not the final doors and therefore still required final installation.
- Doors – most doors did not have final hardware installed.
- Plumbing – the final plumbing rough-in was not complete, therefore, not all wall/ceiling penetrations were present. All open plumbing pipes were taped closed to the best of our ability.
- Mechanical – no mechanical piping was installed at time of testing, therefore, not all wall/ceiling penetrations were present.
- Electrical – it appeared that all electrical rough-ins were complete and any penetrations were sealed.
- Mechanical Chase – the mechanical chase volume was added to the main floor volume calculation, as there were plumbing/mechanical penetrations between the main floor and chase.
- Service Room – the Service Room was NOT included in the main floor volume calculation, as there was a large temporary exterior door that was open/not sealed.
- Service Room / Mechanical Chase – as these two spaces are connected, there was significant air leakage between these two spaces.
- Walls/Ceilings – as these two items were both constructed with the Greenstone Panels, there was NO SIGNIFICANT air leakage at the panels. Areas that were found with MINIMAL leakage were the connection between the floor and wall panel and the ceiling and wall panels.
- Additional Air/Vapour Barrier – this 8-unit complex had a secondary air/vapour barrier installed, utilizing 6 mil Poly. There were no significant signs of any additional benefit to having this secondary barrier installed.
- Relative Error (%): 4.3 – this percentage of error is within the acceptable guidelines and was most likely caused by the exposure of the project and the variable wind conditions.

Summary:

In summary, the mid-construction building envelope air leakage testing, performed on September 18, 2024 by Jean White, REA and Marcela Mitrengova, REA on the 8-unit housing complex in Arviat, went very smoothly. The final test results of 0.83 ACH @ 50 Pa.

September 20, 2024

BLOWER DOOR TESTING 2024
TEST RESULTS – RANKIN INLET

Client:

GREENSTONE BUILDING PRODUCTS
4000B Richmond Ave East Brandon,
MB R7A 7P8
Phone 204.726.1426

Attn: Weldon Loewen

Introduction:

EcoSynergy was contracted to perform third party mid—construction air tightness testing to determine the maximum allowable uncontrolled air leakage rate for the 8 Unit complex in Rankin Inlet, Nunavut.

Equipment used:

The blower door equipment used was composed of retractable aluminium door frames and tarps along with a Retrotec blower model 5000 and a DM32 Digital Anemometer and a Minneapolis model 3 fan with variable speed controller one DG-1000 pressure and flow gauge.

Exterior climate conditions:

The days of the testing, winds were variable, with occasional gusts, sunny and blue skies with an outdoor temperature of 8° C.

Testing procedure:

The blower door test procedure utilized on-site aligns with Standard CAN/CGSB-149.10-2019 “Determination of the airtightness of building envelopes by the fan depressurization method”, “two zones- two blower fans- 1 test”. This is achieved by having both fans will be operating at the same time.

Testing Results Negative pressure test:

Test Conditions		Test Type	
☒ As Operated	☐ CGSB	2 blowers - whole house	
Outside Temperature	Results		
8 °C	Flow Co-efficient	66.53	Correlation Co-efficient
Barometric Pressure	Flow Exponent	0.4776	Heated Volume
101.3 kPa		2938	ELA @ 10 Pa
			802.09
			Update
			ACH @ 50 Pa
			0.53
			Relative Error (%)
			2.7

Summary of results negative pressure test at 50 pa:

- Total Internal volume: 2937.93 m³
 - Main Floor Volume of 1333.6 m³ (not including Service Room)
 - Second Floor Volume of 1604.3 m³
- ELA @ 10 Pa: 802.09 cm²
- Flow exponent: 0.4776
- Co-efficient of Flow: 66.53
- Co-efficient of leakage (correlation Co-efficient): 0.9811
- Relative Error (%): 2.7
- **Air changes per hour @ 50 Pa: 0.527982 ACH**

Here are some notes on the different readings to help you better understand the data:

- **ELA:** The equivalent leakage area (EqLA) or effective leakage area (EflA, in cm² or in²) represents the size of a single hole that would result in the same air leakage as that of all the air leakage pathways through the enclosure combined
- **Flow Exponent:** One of the output metrics obtained from undertaking a fan pressurization test that is used to characterize how the air flows through the various adventitious cracks and gaps that exist in the building fabric. It should range from 0.5 to 1.0, with figures approaching 0.5 representing fully developed turbulent flow and figures approaching 1.0 representing more laminar flow. Turbulent flow is associated with air flow through a series of large apertures, whilst laminar flow is associated with air flow through a multitude of tiny gaps and cracks.
- **Co-efficient of Flow:** The flow coefficient of a device is a relative measure of its efficiency at allowing fluid flow. It describes the relationship between the pressure drop across an orifice valve or other assembly and the corresponding flow rate.
- **Co-efficient of Leakage:** A correlation coefficient is a numerical measure of some type of correlation, meaning a statistical relationship between two variables. The variables may be two columns of a given data set of observations, often called a sample, or two components of a multivariate random variable with a known distribution.
- **Air Changes Per Hour:** Air changes per hour, which is often abbreviated as ACH, is a calculation of how many times per hour the entire volume of air in a given space is replaced with supply and/or recirculated air. It is also sometimes referred to as "air change rate" or "air exchange rate."

Site Data:

Results for Retrotec blower model 5000 used for the entire main floor:

Test 1/Equip1

Test 1/Equip2

Fan Type

Retrotec 5000

Manometer

DM32

Initial Static Pressure

0 Pa

Inside Temperature

8 °C

Final Static Pressure

0.3 Pa

Zone Heated Vol

1333.6 m³

Hse Pressure Pa	Fan Pressure Pa	Measured Flow L/s	Flow Ranges	Measured Flow L/s	Corrected Pressure Pa	Corrected Flow L/s	Error %
-50.9	61	0	B4	226	51.0	226	0.1
-45.5	50	0	B4	205	45.7	205	0.8
-39.8	41	0	B4	186	40.0	186	-0.8
-35	32.6	0	B4	169	35.2	169	-1.5
-30	22	0	B4	146	30.1	146	0.4
-25	12.4	0	B4	125	25.1	125	1.3

Results for Minneapolis model 3 used for the entire second floor

Test 1/Equip1

Test 1/Equip2

Fan Type

Minneapolis Model 3

Manometer

DG1000

Initial Static Pressure

-1.4 Pa

Inside Temperature

8.00000095 °C

Final Static Pressure

-1 Pa

Zone Heated Vol

1604.33386 m³

Hse Pressure Pa	Fan Pressure Pa	Measured Flow L/s	Flow Ranges	Measured Flow L/s	Corrected Pressure Pa	Corrected Flow L/s	Error %
-50	57.5	0	B	213	48.8	213	-5.1
-44.9	53.6	0	B	206	43.7	206	-2.7
-39.9	43.3	0	B	185	38.7	185	6.4
-35	41.4	0	B	181	33.8	181	7.1
-29.8	46.1	0	B	191	28.6	191	0.2
-24.9	45.1	0	B	189	23.7	189	-0.7
-19	44.5	0	B	188	17.8	188	-3.2

Additional Testing Notes:

Typical areas of leakage that were found on site, but not limited to, the following:

- Windows – it was discovered that some of the windows had small areas of leakage at the corners of the windows (the mechanical joint in the window frame).
- Windows – as the windows typically only had a single positive latch, not all corners were completely sealed
- Doors – many of the doors were not the final doors and therefore still required final installation.
- Doors – most doors did not have final hardware installed.
- Plumbing – the plumbing rough-in was not started, therefore, no wall/ceiling penetrations were present.
- Mechanical – no mechanical piping was installed at time of testing, therefore, no wall/ceiling penetrations were present.
- Electrical – no electrical was installed at time of testing, therefore, no wall/ceiling penetrations were present.
- Mechanical Chase – the mechanical chase volume was NOT added to the main floor volume calculation, as there were NO plumbing/mechanical penetrations between the main floor and chase.
- Service Room – the Service Room was NOT included in the main floor volume calculation, as there were NO penetrations between the main floor and chase
- Walls/Ceilings – as these two items were both constructed with the Greenstone Panels, there was NO SIGNIFICANT air leakage at the panels. Areas that were found with MINIMAL leakage were the connection between the floor and wall panel and the ceiling and wall panels.
- Relative Error (%): 2.7 – this percentage of error is within the acceptable guidelines and was most likely caused by the exposure of the project and the variable wind conditions.

Summary:

In summary, the mid-construction building envelope air leakage testing, performed on September 17, 2024 by Jean White, REA and Marcela Mitrengova, REA on the 8-unit housing complex in Arviat, went very smoothly. The final test results of 0.53 ACH @ 50 Pa.

HOMEOWNER INFORMATION SHEET

ENERGUIDE

Your EnerGuide* rating and this report are based on data collected and, where necessary, presumed from your evaluation. Rating calculations are made using standard operating conditions.



Rating: 68 gigajoules per year (GJ/year)

Heated floor area: 476.8 m² (5132.2 ft²)

Rated energy intensity: 0.14 GJ/m²/year

Evaluated by: Greg Heschuk

Quality assured by: prairieHOUSE Performance Inc.

File number: 8308N00024

Data collected: March 17, 2025

Year built: 2025

NRCan.gc.ca/myenerguide

HOW YOUR RATING IS CALCULATED:

I. Rated annual energy consumption	68 GJ/year
II. Minus renewable energy contribution	- 0 GJ/year
Equals your EnerGuide rating	= 68 GJ/year

I. Your rated annual energy consumption is the total amount of energy your house would use in a year based on the EnerGuide Rating System standard operating conditions. For your house, this includes 28.91 GJ of passive solar gain.

Energy Sources	Rated Consumption (GJ/year)	Equivalent Units (per year)	Greenhouse Gas Emissions (tonnes/year)
Electricity	68	18895 kWh	0.0
Total	68		0.0

II. On-site renewable power generation systems can offset some or even all of your home's energy consumption. Renewable energy contributions are factored differently for your rating and your greenhouse gas emissions calculations.¹

On-Site Renewable Energy	Estimated Contribution (GJ/year)	Equivalent Units (per year)	Offset Greenhouse Gas Emissions (tonnes/year)
Electricity	0	0 kWh	0.0
Solar water heating	0	0	0.0
Total	0		0.0

HOW YOUR CONSUMPTION COMPARES:

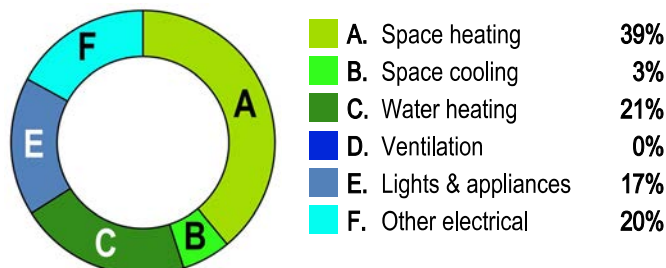
Compared to a typical new house, your house uses:

70.7% less energy;

79.5% less energy, when excluding the estimated energy consumption of lighting, appliances and electronics.

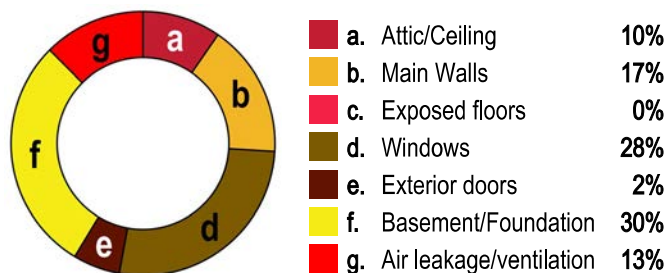
HOW YOUR RATED ENERGY IS USED:

The chart below represents the breakdown of rated annual energy consumption in your home under standard operating conditions. You can use these figures as a guide to help identify where you can lower home energy costs through proper home maintenance, efficient home operation, energy efficiency renovations or equipment replacement.



WHERE YOUR HOME LOSES HEAT:

Houses lose heat through their exterior shell, or building envelope. The chart below shows where and how your home loses heat. The quality and upkeep of your home can have a major impact on the amount of energy your heating and cooling systems use annually.



*EnerGuide is an official mark of Natural Resources Canada. Refer to the glossary section for an explanation of relevant terms.

HOUSE DETAILS

BUILDING ENVELOPE

ATTIC/CEILING

TYPE	INSULATION VALUE		AREA m ² (ft ²)
	Nominal RSI (R)	Effective RSI (R)	
Ceiling01: Attic/hip	9.01 (51.1)	8.96 (50.9)	172.9 (1861)
Ceiling02: Attic/hip	9.01 (51.1)	8.92 (50.7)	68.9 (742)

MAIN WALLS

TYPE	INSULATION VALUE		AREA m ² (ft ²)
	Nominal RSI (R)	Effective RSI (R)	
Main floor TALL WALL	6.21 (35.3)	5.32 (30.2)	15.6 (168)
Main floor RAISED CEILING STUCCO	6.21 (35.3)	5.32 (30.2)	29.2 (314)
Main floor GARAGE WALL	6.21 (35.2)	5.40 (30.7)	30.7 (331)
Main floor RAISED CEILING KNEE	6.21 (35.3)	5.32 (30.2)	41.9 (451)
Main floor	6.21 (35.3)	5.34 (30.3)	171.8 (1849)

WINDOWS

#	TYPE	U-factor W/m ² • °C (Btu/h • ft ² • °F)	RSI (R)
2	FRONT DOOR SIDELITES	1 (0.18)	0.96 (5.4)
12	BACK 48X18 (x4)	1 (0.18)	0.99 (5.6)
1	REAR 24X60	1 (0.17)	1.03 (5.9)
1	RIGHT 30x40	1 (0.17)	1.04 (5.9)
3	LEFT 72X24	1 (0.17)	1.04 (5.9)
1	FRONT 96x24	1 (0.17)	1.05 (5.9)
1	RIGHT 30X72	0.9 (0.17)	1.07 (6.1)
1	LEFT 36X60	0.9 (0.16)	1.08 (6.1)
1	BACK 36X60	0.9 (0.16)	1.08 (6.1)
3	REAR 54x48	0.9 (0.16)	1.09 (6.2)
1	RIGHT PATIO DOOR 42x82	0.9 (0.16)	1.10 (6.3)
11	LEFT 44X72	0.9 (0.16)	1.10 (6.3)
1	FRONT ANGLED 72X60	0.9 (0.16)	1.13 (6.4)
2	REAR 72X72	0.9 (0.16)	1.13 (6.4)
1	RIGHT PATIO DOOR 71.5X79.5	0.9 (0.15)	1.15 (6.5)
1	FRONT 72X96	0.9 (0.15)	1.15 (6.5)
1	BACK PATIO DOOR 140x92	0.9 (0.15)	1.17 (6.7)
Total window area: 75.31 m ² (810.6 ft ²)			

EXTERIOR DOORS

#	TYPE	U-factor W/m ² • °C (Btu/h • ft ² • °F)	RSI (R)
1	Fibreglass medium density spray foam core	1 (0.18)	0.98 (5.6)

EXTERIOR DOORS (Continued)

#	TYPE	U-factor W/m ² • °C (Btu/h • ft ² • °F)	RSI (R)
1	Steel medium density spray foam core	0.9 (0.15)	1.14 (6.5)
Total door area: 6.15 m ² (66.2 ft ²)			

BASEMENT/FOUNDATION

TYPE	INSULATION VALUE		AREA m ² (ft ²)
	Nominal RSI (R)	Effective RSI (R)	
Foundation - 1 Exterior (1)	1.95 (11.1)	1.95 (11.0)	122.6 (1319)
Foundation - 1 Exterior (2)	2.64 (15.0)	2.64 (15.0)	78.4 (844)
Foundation - 1 Interior (1)	3.48 (19.7)	2.78 (16.0)	78.4 (844)
Foundation - 1 Interior (2)	2.52 (14.3)	2.02 (11.0)	122.6 (1319)
Foundation - 1 header	3.53 (20.0)	4.01 (22.8)	36.3 (391)
Foundation - 1 slab	2.58 (14.6)	2.58 (14.6)	143.3 (1543)
Slab-on-grade - 2 slab	3.23 (18.3)	2.58 (14.6)	91.7 (987)

AIRTIGHTNESS

Air leakage rate at 50 pascals	0.52 air changes/hour
Equivalent leakage area	343.6 cm ² (53 in ²)
Normalized leakage area	0.3 cm ² /m ² (0.5 in ² /100 ft ²)

MECHANICAL SYSTEMS

SPACE HEATING

TYPE	OUTPUT SIZE	EFFICIENCY
Electric furnace	15 kW 51500 BTU/h	100% Steady State
Ground-source heat pump	22.8 kW 78000 BTU/h	3.53COP
Natural gas fireplace	10.4 kW 35500 BTU/h	65% Steady State
Natural gas fireplace	12.31 kW 42500 BTU/h	65% Steady State
Design heating load: 13.09 kW – refer to glossary for details		

SPACE COOLING

TYPE	OUTPUT SIZE	EFFICIENCY
Ground-source heat pump	22.8 kW 78000 BTU/h	19.3 EER
Design cooling load: 7.56 kW		

WATER HEATING

TYPE	TANK VOLUME	EFFICIENCY
Electric storage tank	285L (75 USG)	98%

HOUSE DETAILS

WHOLE-HOME VENTILATION

TYPE	AIR FLOW RATE	EFFICIENCY
Heat recovery ventilator certified by the Home Ventilating Institute	30.2 L/s (64 cfm)	68%

HEATED FLOOR AREA

Above-grade area	241.8 m ² (2603 ft ²)
Below-grade area	235 m ² (2530 ft ²)

SIGNIFICANT ENERGY USES NOT INCLUDED IN THE RATING

TYPE	ESTIMATED ENERGY USE
Heated garage	10-25 GJ

GLOSSARY

A typical new house

have been used to calculate your home's EnerGuide Rating. The rating assumes a standard number of occupants and energy use patterns. This allows for comparison of energy use across houses so that the house is rated and not the operation of the house by the occupants. The values are:

Airtightness

describes how well the building envelope resists air leakage and is measured in air changes per hour at 50 pascals (ACH@50 Pa). The fewer air changes per hour, the more airtight the building envelope is. Equivalent leakage area is another way of describing the airtightness of the building envelope. It represents the size of a single hole in your building envelope if all the individual air leakage holes or gaps were added together. The smaller the equivalent leakage area, the less energy you will need to control the temperature of your home (but you will still need to ensure that you have adequate ventilation).

Design heating/cooling loads

provide an estimate of the capacity of the heating and cooling equipment needed to maintain your home at 22 °C in the winter and 24 °C in the summer and are provided for guidance only. Before having a new heating/cooling system installed, your heating/cooling contractor should perform an independent, detailed heat loss/heat gain calculation on your home in order to select the appropriate equipment.

Gigajoule (GJ)

is a unit of energy. It can be used as a measure of any type of energy that is consumed or produced in your home. Specifically, one GJ is the equivalent of 278 kWh of electricity, 27m³ of natural gas, 26 L of oil, 39 L of propane, or 947 817 BTUs. One GJ is roughly equal to the energy from two standard barbeque propane tanks or 30 litres of gas in a car's gas tank.

Greenhouse gas emissions

are the amounts of carbon dioxide, methane and nitrous oxide that are produced directly, by burning fossil and solid fuels, or indirectly, through the production of electricity. Greenhouse gas emissions are expressed in carbon dioxide equivalent units. Greenhouse gas emissions are calculated by multiplying the quantity of fuel or electricity used in your home by the emission factors for the particular energy source. Electricity factors vary by province because there are different emissions associated with each province's method of producing electricity. One tonne of greenhouse gas emissions is equivalent to the CO₂ emissions produced by driving an average efficiency mid-size vehicle from Toronto to Vancouver.

Heated floor area

represents the total useable area of your home that is heated, measured at the interior of the outer walls or of the walls attached to other buildings.

Insulation values

are expressed in RSI (m² • °C/W) or R-value (h • ft² • °F/Btu) and represent the resistance to the flow of heat of a given thickness of insulation or construction assembly. The higher the RSI-value (R-value), the better the performance. The nominal value represents

the resistance to the flow of heat of just the insulation while the effective value represents the resistance to the flow of heat of the entire wall, ceiling or floor assembly considering the structure, insulation, framing, sheathing and all finishing.

On-site renewable energy contributions

are subtracted from the rated annual energy consumption to calculate the EnerGuide rating. For the calculation of the rated greenhouse gas emissions, on-site electricity generation only offsets emissions associated with electricity consumption, whereas a solar water heater reduces the emissions that would have been produced from the source of energy used to heat water.

Passive solar gain

is the heat from the sun that influences your home's heating and cooling requirements. Generally, south facing windows provide more solar gain.

Rated energy intensity

is calculated by dividing your rated annual energy consumption by your home's heated floor area. It allows you to compare the annual energy use of homes of different sizes on a "per square metre" basis.

Standard operating conditions

have been used to calculate your home's EnerGuide Rating. The rating assumes a standard number of occupants and energy use patterns. This allows for comparison of energy use across houses so that the house is rated and not the operation of the house by the occupants. The values are:

- Two adults and one child, at home 50% of the time;
- Hot water use of 158 - 197 L/day, variable depending on incoming ground water temperature and year the house was built;
- Thermostat settings of 21°C for daytime heating, 18°C for nighttime heating and 25°C for cooling; and
- Lighting, appliance and other electrical loads of 19.5 kWh/day.

U-factor

measures heat transferred through windows and doors, expressed in W/m² • °C (BTU/h • ft² • °F). The lower the U-factor, the better the energy efficiency of a window. The inverse of U-factor (1/U-factor) identifies the resistance to the flow of heat, expressed in RSI. The higher the RSI, the better the window is at resisting heat loss. You can use these values to choose more energy efficient windows.

For more details and additional terms, please visit NRCan.gc.ca/myenergiguide.

ENERGUIDE

Data collected: March 17, 2025

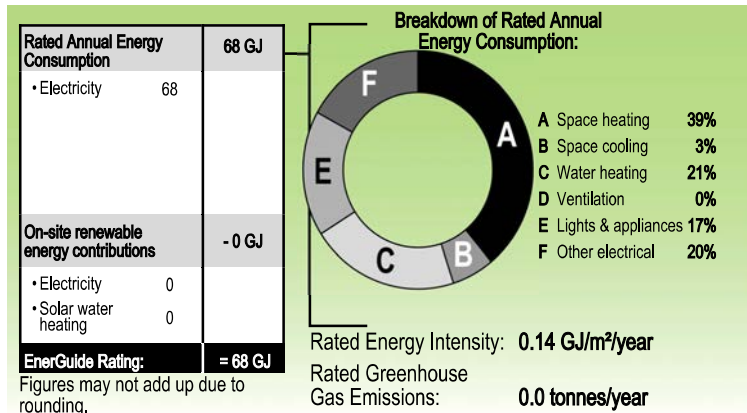
File number: **8308N00024**

Evaluated by: Greg Heschuk

68 *This house
GJ/year



One gigajoule (GJ) equals the energy from two BBQ propane tanks



*This house has significant energy uses not included in the rating. See "House Details" on your Homeowner Information Sheet for details.

The energy consumption indicated on your utility bills may be higher or lower than your EnerGuide rating. This is because standard assumptions have been made regarding how many people live in your house and how the home is operated. Your rating is based on the condition of your house on the day it was evaluated.

Quality assured by: prairieHOUSE Performance Inc.

Builder: Tilda Fortier

Visit [NRCan.gc.ca/myenerguide](https://nrcan.gc.ca/myenerguide)

NEXT STEPS

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Everyone uses energy in their house differently. This report was developed using standard operating conditions as explained in the glossary. Therefore, your EnerGuide rating will not match your utility bills.

UPGRADE CONSIDERATIONS

Before undertaking upgrades or renovations, find out about appropriate products and installation techniques, and ensure that all renovations meet local building codes and by-laws. Natural Resources Canada does not endorse the services of any contractor, nor any specific product, and accepts no liability in the selection of materials, products, contractors nor performance of workmanship.

Where your energy advisor has identified a potential health or safety concern such as insufficient outdoor air, risk of combustion fumes entering your house or risk of exposure to asbestos, they have endeavoured to provide a warning in this report. However, energy advisors are not required to have expertise in health and safety matters, and homeowners are solely responsible for consulting a qualified professional to determine potential hazards before undertaking any upgrades or renovations.



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HOMEOWNER INFORMATION SHEET

ENERGUIDE

Your EnerGuide* rating and this report are based on data collected and, where necessary, presumed from your evaluation. Rating calculations are made using standard operating conditions.



Rating: 82 gigajoules per year (GJ/year)

Heated floor area: 283.5 m² (3051.6 ft²)

Rated energy intensity: 0.29 GJ/m²/year

Evaluated by: Jesse Thomas

Quality assured by: Coefficient Building Science Ltd

File number: 5910N00016

Data collected: April 13, 2023

Year built: 2022

[NRCan.gc.ca/myenerguide](https://nrcan.gc.ca/myenerguide)

HOW YOUR RATING IS CALCULATED:

- I. Rated annual energy consumption 82 GJ/year
 II. Minus renewable energy contribution - 0 GJ/year
 Equals your **EnerGuide rating** = 82 GJ/year

I. Your rated annual energy consumption is the total amount of energy your house would use in a year based on the EnerGuide Rating System standard operating conditions. For your house, this includes 6.88 GJ of passive solar gain.

Energy Sources	Rated Consumption (GJ/year)	Equivalent Units (per year)	Greenhouse Gas Emissions (tonnes/year)
Natural gas	53	1419 m ³	2.8
Electricity	29	8129 kWh	6.5
Total	82		9.3

II. On-site renewable power generation systems can offset some or even all of your home's energy consumption. Renewable energy contributions are factored differently for your rating and your greenhouse gas emissions calculations.¹

On-Site Renewable Energy	Estimated Contribution (GJ/year)	Equivalent Units (per year)	Offset Greenhouse Gas Emissions (tonnes/year)
Electricity	0	0 kWh	0.0
Solar water heating	0	0	0.0
Total	0		0.0

HOW YOUR CONSUMPTION COMPARES:

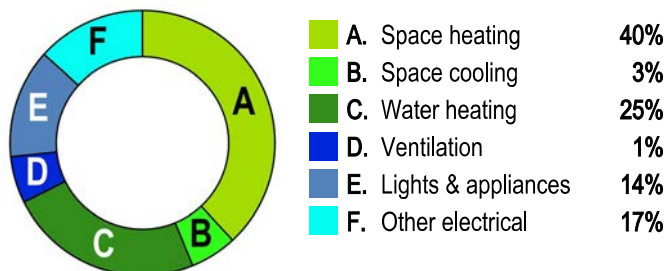
Compared to a typical new house, your house uses:

35.4% less energy;

44.5% less energy, when excluding the estimated energy consumption of lighting, appliances and electronics.

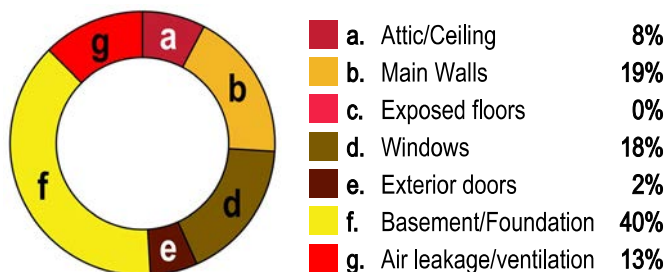
HOW YOUR RATED ENERGY IS USED:

The chart below represents the breakdown of rated annual energy consumption in your home under standard operating conditions. You can use these figures as a guide to help identify where you can lower home energy costs through proper home maintenance, efficient home operation, energy efficiency renovations or equipment replacement.



WHERE YOUR HOME LOSES HEAT:

Houses lose heat through their exterior shell, or building envelope. The chart below shows where and how your home loses heat. The quality and upkeep of your home can have a major impact on the amount of energy your heating and cooling systems use annually.



*EnerGuide is an official mark of Natural Resources Canada. Refer to the glossary section for an explanation of relevant terms.

HOUSE DETAILS

BUILDING ENVELOPE

ATTIC/CEILING

TYPE	INSULATION VALUE		AREA m ² (ft ²)
	Nominal RSI (R)	Effective RSI (R)	
C1: Attic/gable	13.29 (75.5)	13.32 (75.6)	143.3 (1543)

MAIN WALLS

TYPE	INSULATION VALUE		AREA m ² (ft ²)
	Nominal RSI (R)	Effective RSI (R)	
Main ADJ	5.31 (30.1)	5.11 (29.0)	21.4 (230)
Main	5.28 (30.0)	5.06 (28.8)	119.1 (1282)

WINDOWS

#	TYPE	U-factor W/m ² • °C (Btu/h • ft ² • °F)	RSI (R)
1	Vinyl, Fixed, Double, Low E	1.7 (0.31)	0.58 (3.3)
1	Patio	1.1 (0.19)	0.92 (5.2)
1	Ensuite	1.1 (0.19)	0.93 (5.3)
1	Laundry	1 (0.17)	1.01 (5.7)
2	Bed 3/Sewing rm	1 (0.17)	1.04 (5.9)
2	Living N	1 (0.17)	1.04 (5.9)
3	Master/Living	1 (0.17)	1.05 (6.0)
2	Bed 2	0.9 (0.17)	1.07 (6.1)
Total window area: 21.25 m ² (228.7 ft ²)			

EXTERIOR DOORS

#	TYPE	U-factor W/m ² • °C (Btu/h • ft ² • °F)	RSI (R)
1	User specified	1.2 (0.21)	0.85 (4.8)
Total door area: 2.6 m ² (28 ft ²)			

BASEMENT/FOUNDATION

TYPE	INSULATION VALUE		AREA m ² (ft ²)
	Nominal RSI (R)	Effective RSI (R)	
Foundation concrete walls: exterior	N/A	N/A	139.5 (1501)
Foundation concrete walls: interior	3.87 (22.0)	3.95 (22.0)	139.5 (1501)
Foundation header	6.32 (35.9)	6.13 (34.8)	18 (194)
Foundation slab	2.85 (16.2)	2.85 (16.2)	140.2 (1509)

AIRTIGHTNESS

Air leakage rate at 50 pascals	0.37 air changes/hour
Equivalent leakage area	95.6 cm ² (15 in ²)
Normalized leakage area	0.2 cm ² /m ² (0.2 in ² /100 ft ²)

SPACE HEATING

TYPE	OUTPUT SIZE	EFFICIENCY
Condensing natural gas furnace	12.31 kW 42500 BTU/h	96% AFUE
Advanced airtight wood stove	2 kW 7000 BTU/h	30% Steady State
Design heating load: 5.53 kW – refer to glossary for details		

SPACE COOLING

TYPE	OUTPUT SIZE	EFFICIENCY
Central air conditioner	1.7 kW 6000 BTU/h	17 SEER
Design cooling load: 2 kW		

WATER HEATING

TYPE	TANK VOLUME	EFFICIENCY
Natural gas direct vented storage tank	189L (50 USG)	0.62 EF

WHOLE-HOME VENTILATION

TYPE	AIR FLOW RATE	EFFICIENCY
Home Ventilating Institute listed ENERGY STAR certified heat recovery ventilator	47.19 L/s (100 cfm)	73%

HEATED FLOOR AREA

Above-grade area	143.3 m ² (1542 ft ²)
Below-grade area	140.2 m ² (1509 ft ²)

MECHANICAL SYSTEMS

GLOSSARY

A typical new house

is a reference point on your label against which to compare your rating. It shows the estimated energy consumption of a house that is the same size, type and in the same location as yours. The typical new house is based on the energy efficiency requirements of the National Building Code.

Airtightness

describes how well the building envelope resists air leakage and is measured in air changes per hour at 50 pascals (ACH@50 Pa). The fewer air changes per hour, the more airtight the building envelope is. Equivalent leakage area is another way of describing the airtightness of the building envelope. It represents the size of a single hole in your building envelope if all the individual air leakage holes or gaps were added together. The smaller the equivalent leakage area, the less energy you will need to control the temperature of your home (but you will still need to ensure that you have adequate ventilation).

Design heating/cooling loads

provide an estimate of the capacity of the heating and cooling equipment needed to maintain your home at 22 °C in the winter and 24 °C in the summer and are provided for guidance only. Before having a new heating/cooling system installed, your heating/cooling contractor should perform an independent, detailed heat loss/heat gain calculation on your home in order to select the appropriate equipment.

Gigajoule (GJ)

is a unit of energy. It can be used as a measure of any type of energy that is consumed or produced in your home. Specifically, one GJ is the equivalent of 278 kWh of electricity, 27m³ of natural gas, 26 L of oil, 39 L of propane, or 947 817 BTUs. One GJ is roughly equal to the energy from two standard barbeque propane tanks or 30 litres of gas in a car's gas tank.

Greenhouse gas emissions

are the amounts of carbon dioxide, methane and nitrous oxide that are produced directly, by burning fossil and solid fuels, or indirectly, through the production of electricity. Greenhouse gas emissions are expressed in carbon dioxide equivalent units. Greenhouse gas emissions are calculated by multiplying the quantity of fuel or electricity used in your home by the emission factors for the particular energy source. Electricity factors vary by province because there are different emissions associated with each province's method of producing electricity. One tonne of greenhouse gas emissions is equivalent to the CO₂ emissions produced by driving an average efficiency mid-size vehicle from Toronto to Vancouver.

Heated floor area

represents the total useable area of your home that is heated, measured at the interior of the outer walls or of the walls attached to other buildings.

Insulation values

are expressed in RSI (m² • °C/W) or R-value (h • ft² • °F/Btu) and represent the resistance to the flow of heat of a given thickness of insulation or construction assembly. The higher the RSI-value (R-value), the better the performance. The nominal value represents

the resistance to the flow of heat of just the insulation while the effective value represents the resistance to the flow of heat of the entire wall, ceiling or floor assembly considering the structure, insulation, framing, sheathing and all finishing.

On-site renewable energy contributions

are subtracted from the rated annual energy consumption to calculate the EnerGuide rating. For the calculation of the rated greenhouse gas emissions, on-site electricity generation only offsets emissions associated with electricity consumption, whereas a solar water heater reduces the emissions that would have been produced from the source of energy used to heat water.

Passive solar gain

is the heat from the sun that influences your home's heating and cooling requirements. Generally, south facing windows provide more solar gain.

Rated energy intensity

is calculated by dividing your rated annual energy consumption by your home's heated floor area. It allows you to compare the annual energy use of homes of different sizes on a "per square metre" basis.

Standard operating conditions

have been used to calculate your home's EnerGuide Rating. The rating assumes a standard number of occupants and energy use patterns. This allows for comparison of energy use across houses so that the house is rated and not the operation of the house by the occupants. The values are:

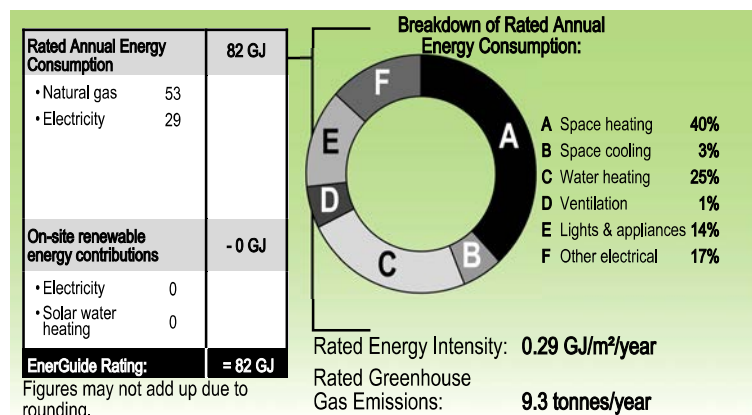
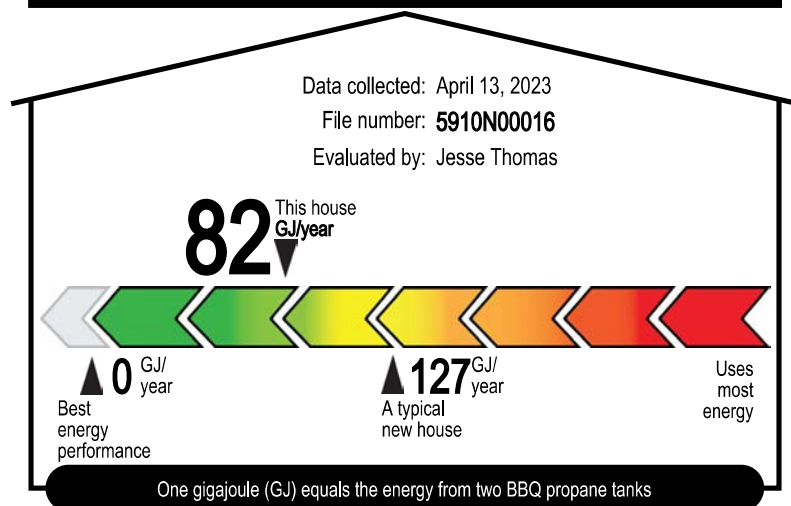
- Two adults and one child, at home 50% of the time;
- Hot water use of 158 - 197 L/day, variable depending on incoming ground water temperature and year the house was built;
- Thermostat settings of 21°C for daytime heating, 18°C for nighttime heating and 25°C for cooling; and
- Lighting, appliance and other electrical loads of 19.5 kWh/day.

U-factor

measures heat transferred through windows and doors, expressed in W/m² • °C (BTU/h • ft² • °F). The lower the U-factor, the better the energy efficiency of a window. The inverse of U-factor (1/U-factor) identifies the resistance to the flow of heat, expressed in RSI. The higher the RSI, the better the window is at resisting heat loss. You can use these values to choose more energy efficient windows.

For more details and additional terms, please visit NRCan.gc.ca/myenerguide.

ENERGUIDE



NEXT STEPS

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The energy consumption indicated on your utility bills may be higher or lower than your EnerGuide rating. This is because standard assumptions have been made regarding how many people live in your house and how the home is operated. Your rating is based on the condition of your house on the day it was evaluated.

Quality assured by: Coefficient Building Science Ltd

Builder: Vleeming Construction Ltd.

Visit [NRCan.gc.ca/myenerguide](https://nrcan.gc.ca/myenerguide)



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HOMEOWNER INFORMATION SHEET

ENERGUIDE

Your EnerGuide* rating and this report are based on data collected and, where necessary, presumed from your evaluation. Rating calculations are made using standard operating conditions.



Rating: 95 gigajoules per year (GJ/year)

Heated floor area: 256.4 m² (2759.9 ft²)

Rated energy intensity: 0.37 GJ/m²/year

Evaluated by: Jesse Thomas

Quality assured by: Coefficient Building Science Ltd

File number: 5910N00025

Data collected: July 19, 2024

Year built: 2024

[NRCan.gc.ca/myenerguide](https://nrcan.gc.ca/myenerguide)

HOW YOUR RATING IS CALCULATED:

- I. Rated annual energy consumption 95 GJ/year
II. Minus renewable energy contribution - 0 GJ/year
Equals your **EnerGuide rating** = 95 GJ/year

I. Your rated annual energy consumption is the total amount of energy your house would use in a year based on the EnerGuide Rating System standard operating conditions. For your house, this includes 10.14 GJ of passive solar gain.

Energy Sources	Rated Consumption (GJ/year)	Equivalent Units (per year)	Greenhouse Gas Emissions (tonnes/year)
Natural gas	65	1743 m ³	3.4
Electricity	30	8224 kWh	6.0
Total	95		9.4

II. On-site renewable power generation systems can offset some or even all of your home's energy consumption. Renewable energy contributions are factored differently for your rating and your greenhouse gas emissions calculations.¹

On-Site Renewable Energy	Estimated Contribution (GJ/year)	Equivalent Units (per year)	Offset Greenhouse Gas Emissions (tonnes/year)
Electricity	0	0 kWh	0.0
Solar water heating	0	0	0.0
Total	0		0.0

HOW YOUR CONSUMPTION COMPARES:

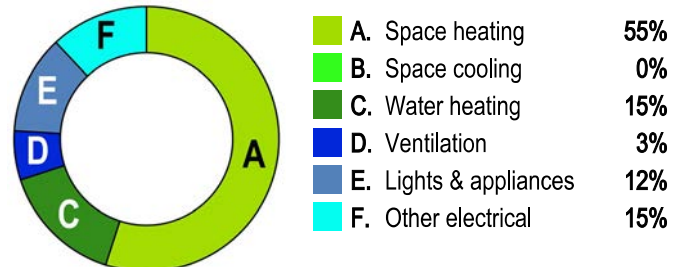
Compared to a typical new house, your house uses:

30.1% less energy;

37.7% less energy, when excluding the estimated energy consumption of lighting, appliances and electronics.

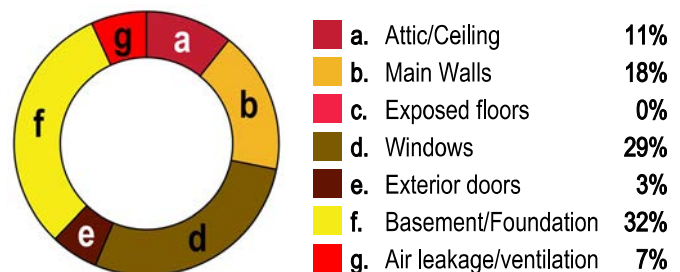
HOW YOUR RATED ENERGY IS USED:

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WHERE YOUR HOME LOSES HEAT:

Houses lose heat through their exterior shell, or building envelope. The chart below shows where and how your home loses heat. The quality and upkeep of your home can have a major impact on the amount of energy your heating and cooling systems use annually.



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HOUSE DETAILS

BUILDING ENVELOPE

ATTIC/CEILING

TYPE	INSULATION VALUE		AREA m ² (ft ²)
	Nominal RSI (R)	Effective RSI (R)	
C1: Attic/gable	13.29 (75.5)	13.47 (76.5)	256.4 (2760)

MAIN WALLS

TYPE	INSULATION VALUE		AREA m ² (ft ²)
	Nominal RSI (R)	Effective RSI (R)	
Main ADJ	6.51 (37.0)	6.33 (36.0)	27.5 (296)
Main	6.51 (37.0)	6.29 (35.7)	206.3 (2221)

WINDOWS

#	TYPE	U-factor W/m ² • °C (Btu/h • ft ² • °F)	RSI (R)
1	Vinyl, Fixed, Triple, Low E	1.5 (0.26)	0.67 (3.8)
1	Front entry lite	1.3 (0.24)	0.75 (4.3)
1	Mud rm	1.1 (0.19)	0.91 (5.2)
4	Living N-1	1.1 (0.19)	0.92 (5.2)
1	Ensuite	1.1 (0.19)	0.94 (5.4)
2	Master	1.1 (0.19)	0.95 (5.4)
2	Foyer	1 (0.18)	0.99 (5.6)
1	Office	1 (0.17)	1.03 (5.9)
2	Bed 2/3	1 (0.17)	1.04 (5.9)
1	Dining patio	1 (0.17)	1.05 (6.0)
1	Rec rm	0.9 (0.16)	1.07 (6.1)
2	Kitchen 1	0.9 (0.16)	1.08 (6.1)
1	Kitchen 2	0.9 (0.16)	1.14 (6.4)
Total window area: 42.89 m ² (461.7 ft ²)			

EXTERIOR DOORS

#	TYPE	U-factor W/m ² • °C (Btu/h • ft ² • °F)	RSI (R)
1	User specified	1.2 (0.22)	0.81 (4.6)
1	Fibreglass polystyrene core	1.2 (0.21)	0.85 (4.8)
1	User specified	0.8 (0.13)	1.32 (7.5)
Total door area: 6.1 m ² (65.7 ft ²)			

BASEMENT/FOUNDATION

TYPE	INSULATION VALUE		AREA m ² (ft ²)
	Nominal RSI (R)	Effective RSI (R)	
Slab-on-grade slab	2.85 (16.2)	2.85 (16.2)	256.4 (2760)

AIRTIGHTNESS

Air leakage rate at 50 pascals	0.48 air changes/hour
Equivalent leakage area	126.4 cm ² (20 in ²)
Normalized leakage area	0.2 cm ² /m ² (0.2 in ² /100 ft ²)

MECHANICAL SYSTEMS

SPACE HEATING

TYPE	OUTPUT SIZE	EFFICIENCY
Condensing natural gas furnace	12.31 kW 42500 BTU/h	96% AFUE
Natural gas fireplace with pilot	2 kW 7000 BTU/h	30% Steady State
Design heating load: 7.27 kW – refer to glossary for details		

SPACE COOLING

TYPE	OUTPUT SIZE	EFFICIENCY
N/A	N/A	N/A
Design cooling load: 2.32 kW		

WATER HEATING

TYPE	TANK VOLUME	EFFICIENCY
Natural gas direct vented storage tank	189L (50 USG)	0.89 UEF

WHOLE-HOME VENTILATION

TYPE	AIR FLOW RATE	EFFICIENCY
Home Ventilating Institute listed ENERGY STAR certified heat recovery ventilator	33.04 L/s (70 cfm)	65%

HEATED FLOOR AREA

Above-grade area	256.4 m ² (2760 ft ²)
Below-grade area	0 m ² (0 ft ²)

GLOSSARY

A typical new house

is a reference point on your label against which to compare your rating. It shows the estimated energy consumption of a house that is the same size, type and in the same location as yours. The typical new house is based on the energy efficiency requirements of the National Building Code.

Airtightness

describes how well the building envelope resists air leakage and is measured in air changes per hour at 50 pascals (ACH@50 Pa). The fewer air changes per hour, the more airtight the building envelope is. Equivalent leakage area is another way of describing the airtightness of the building envelope. It represents the size of a single hole in your building envelope if all the individual air leakage holes or gaps were added together. The smaller the equivalent leakage area, the less energy you will need to control the temperature of your home (but you will still need to ensure that you have adequate ventilation).

Design heating/cooling loads

provide an estimate of the capacity of the heating and cooling equipment needed to maintain your home at 22 °C in the winter and 24 °C in the summer and are provided for guidance only. Before having a new heating/cooling system installed, your heating/cooling contractor should perform an independent, detailed heat loss/heat gain calculation on your home in order to select the appropriate equipment.

Gigajoule (GJ)

is a unit of energy. It can be used as a measure of any type of energy that is consumed or produced in your home. Specifically, one GJ is the equivalent of 278 kWh of electricity, 27m³ of natural gas, 26 L of oil, 39 L of propane, or 947 817 BTUs. One GJ is roughly equal to the energy from two standard barbeque propane tanks or 30 litres of gas in a car's gas tank.

Greenhouse gas emissions

are the amounts of carbon dioxide, methane and nitrous oxide that are produced directly, by burning fossil and solid fuels, or indirectly, through the production of electricity. Greenhouse gas emissions are expressed in carbon dioxide equivalent units. Greenhouse gas emissions are calculated by multiplying the quantity of fuel or electricity used in your home by the emission factors for the particular energy source. Electricity factors vary by province because there are different emissions associated with each province's method of producing electricity. One tonne of greenhouse gas emissions is equivalent to the CO₂ emissions produced by driving an average efficiency mid-size vehicle from Toronto to Vancouver.

Heated floor area

represents the total useable area of your home that is heated, measured at the interior of the outer walls or of the walls attached to other buildings.

Insulation values

are expressed in RSI (m² • °C/W) or R-value (h • ft² • °F/Btu) and represent the resistance to the flow of heat of a given thickness of insulation or construction assembly. The higher the RSI-value (R-value), the better the performance. The nominal value represents

the resistance to the flow of heat of just the insulation while the effective value represents the resistance to the flow of heat of the entire wall, ceiling or floor assembly considering the structure, insulation, framing, sheathing and all finishing.

On-site renewable energy contributions

are subtracted from the rated annual energy consumption to calculate the EnerGuide rating. For the calculation of the rated greenhouse gas emissions, on-site electricity generation only offsets emissions associated with electricity consumption, whereas a solar water heater reduces the emissions that would have been produced from the source of energy used to heat water.

Passive solar gain

is the heat from the sun that influences your home's heating and cooling requirements. Generally, south facing windows provide more solar gain.

Rated energy intensity

is calculated by dividing your rated annual energy consumption by your home's heated floor area. It allows you to compare the annual energy use of homes of different sizes on a "per square metre" basis.

Standard operating conditions

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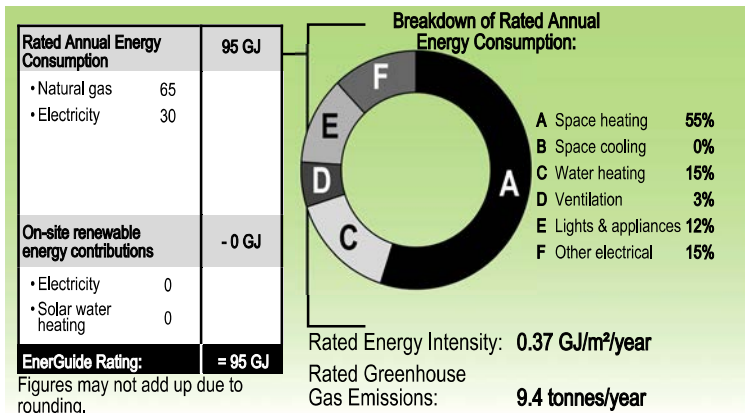
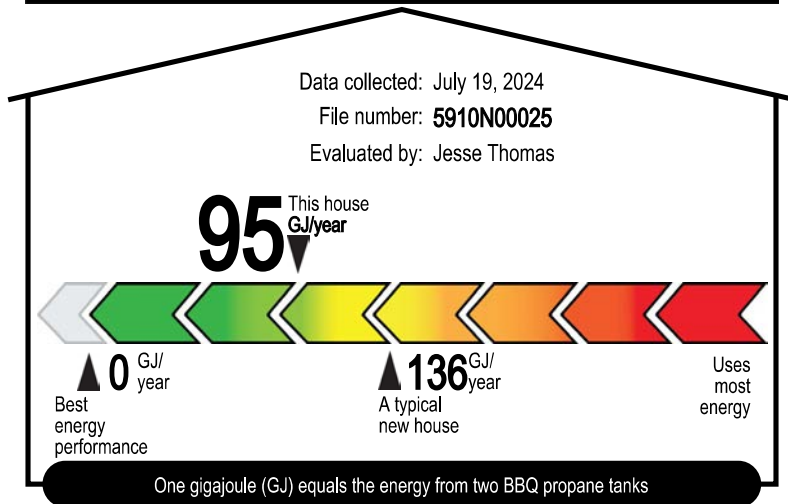
- Two adults and one child, at home 50% of the time;
- Hot water use of 158 - 197 L/day, variable depending on incoming ground water temperature and year the house was built;
- Thermostat settings of 21°C for daytime heating, 18°C for nighttime heating and 25°C for cooling; and
- Lighting, appliance and other electrical loads of 19.5 kWh/day.

U-factor

measures heat transferred through windows and doors, expressed in W/m² • °C (BTU/h • ft² • °F). The lower the U-factor, the better the energy efficiency of a window. The inverse of U-factor (1/U-factor) identifies the resistance to the flow of heat, expressed in RSI. The higher the RSI, the better the window is at resisting heat loss. You can use these values to choose more energy efficient windows.

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ENERGUIDE



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Quality assured by: Coefficient Building Science Ltd

Builder: Vleeming Construction Ltd.

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