

Presented By:



# Sustainable Housing Webinar Series

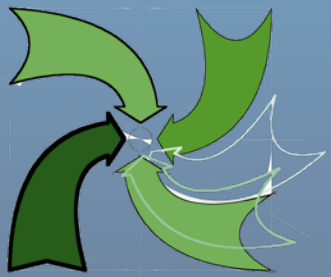
**The EnerGuide Rating and current grants,  
rebates and funding opportunities**

Tyler Hermanson - 4 Elements  
Peter Darlington, CPHC - Solar Homes Inc



# Introduction to the EnerGuide Rating System

RISE and AREA



## 4 Elements

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Integrated Design Ltd.

# Topics:

- How to find energy Savings: EnerGuide Rating System
- What funding and grants are available
- Review recent Deep Energy Retrofits and Net Zero Renovations

# EnerGuide

- An EnerGuide home evaluation is a national system designed to help homeowners increase the energy efficiency and comfort of their homes.
- Administered by Natural Resources Canada
- Delivered by licensed Service Originations
- Conducted by registered Energy Advisors



# The EnerGuide Rating System

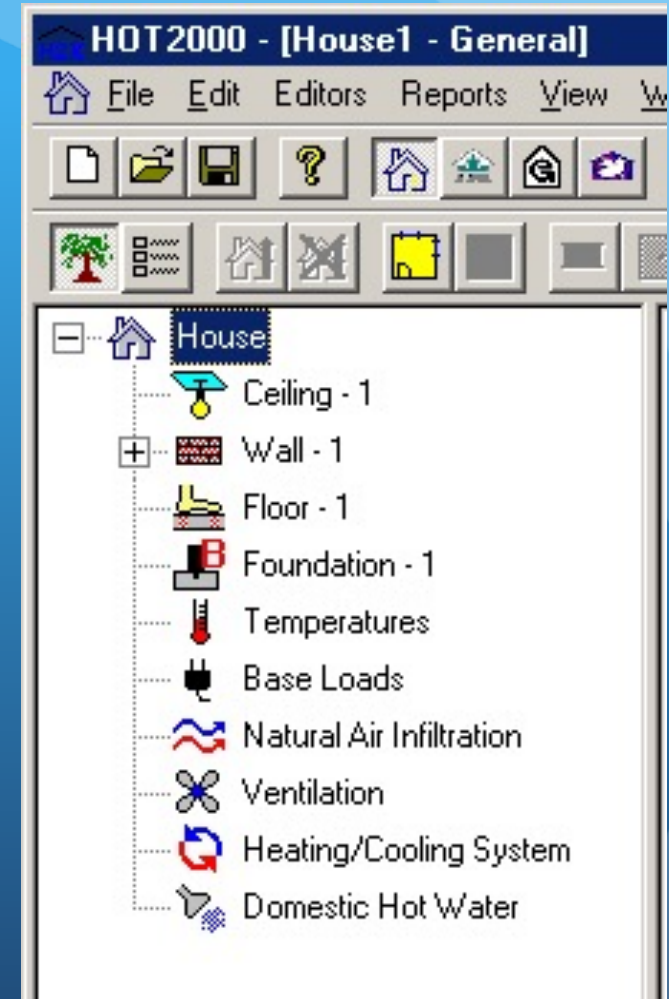
## Onsite testing by an Energy Advisor

- An energy advisor will come to the home to evaluate the energy performance from the basement to the attic.
- Including:
  - Measurements and photos
  - An air tightness test.
  - Depressurization Risk Check
  - Vermiculite Insulation Check



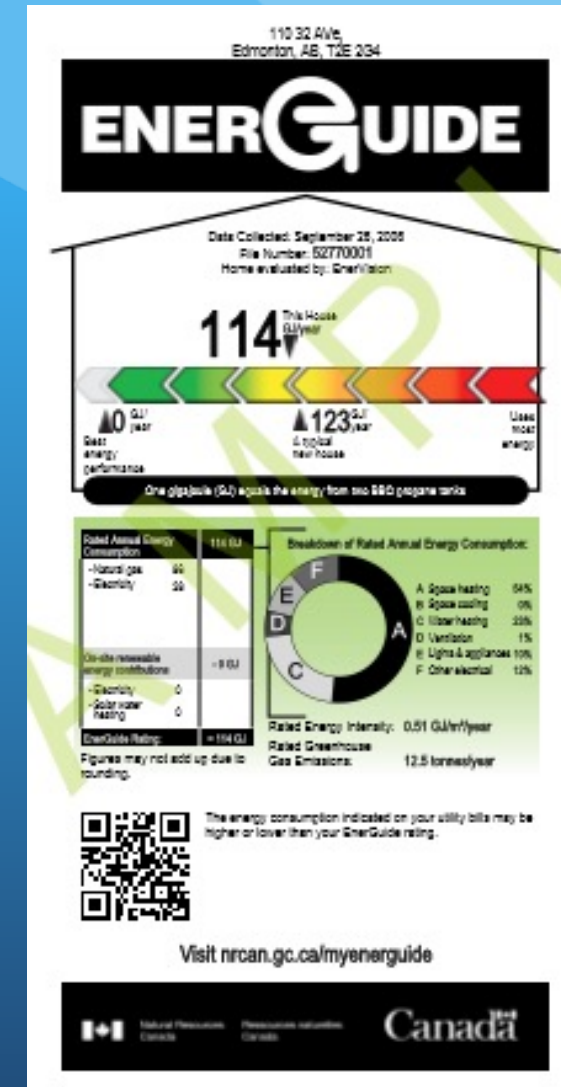
# Energy Modeling

- An EnerGuide home evaluation uses detailed energy simulation (modeling) software to provide information about the home's energy performance. Full colour reports provide user friendly details on energy consumption and energy loss for each home.



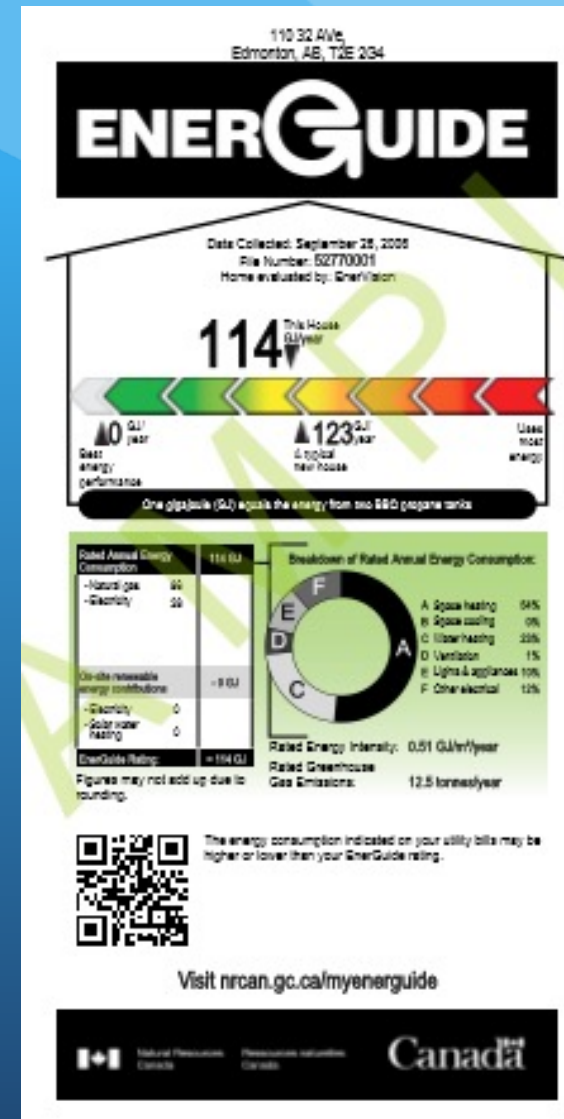
# EnerGuide rating and home label

- An EnerGuide rating demonstrates the energy performance of the home:
  - Proof of the energy rating
  - Record of energy efficiency



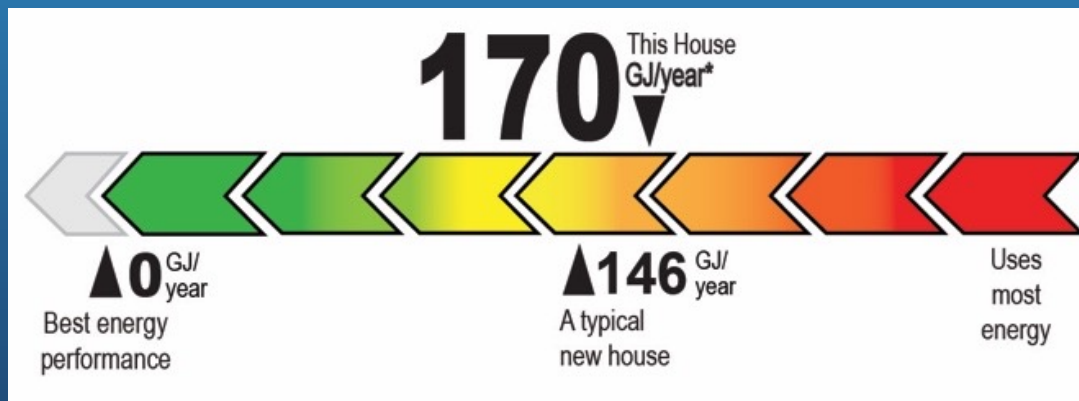
# Why EnerGuide a Home?

- **Verifies** home energy efficiency, and estimates annual consumption.



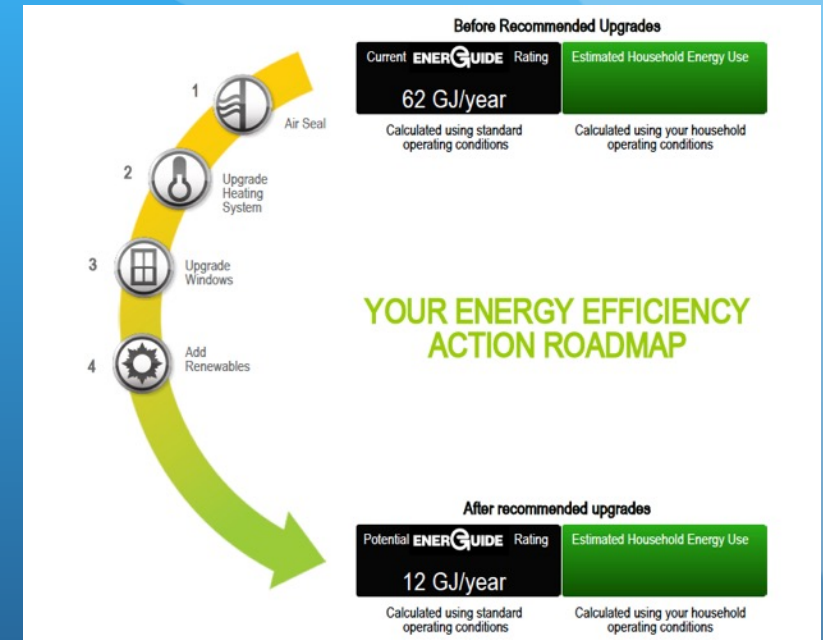
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- **Compares** the home to a Typical New Home



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- **Guides** renovation or upgrade decisions





# Why EnerGuide a Home?

- **Verifies** home energy efficiency, and estimates annual consumption.
- **Compares** the home to a Typical New Home
- **Guides** renovation or upgrade decisions
- **Quantifies** energy savings by a third party, government program.

Home address: Calgary Springs Green, Okotoks, Alberta, T2E 2G4

## HOMEOWNER INFORMATION SHEET


# ENERGUIDE

**Rating: 124** gigajoules per year (GJ/year)

Heated floor area: 334.0 m<sup>2</sup> (3595.1 ft<sup>2</sup>)  
 Rated energy intensity: 0.37 GJ/m<sup>2</sup>Year  
 Evaluated by: 4 Elements  
 File number: 5277N0001  
 Data collected: January 31, 2017  
 Year built: 2017

[NRCan.gc.ca/myenerguide](http://NRCan.gc.ca/myenerguide)

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



### HOW YOUR RATING IS CALCULATED:

I. Rated annual energy consumption 124 GJ/year  
 II. Minus renewable energy contribution - 0 GJ/year  
 Equals your **EnerGuide rating** = 124 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 39.08 GJ of passive solar gain.

Energy Sources	Rated Consumption (GJ/year)	Equivalent Units (per year)	Greenhouse Gas Emissions (tonnes/year)
Natural gas	96	2589.4 m <sup>3</sup>	5.0
Electricity	27	7559.2 kWh	7.9
<b>Total</b>	<b>124</b>		<b>12.9</b>

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.

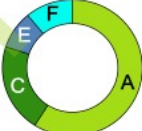
On-Site Renewable Energy	Estimated Contribution (GJ/year)	Equivalent Units (per year)	Offset Greenhouse Gas Emissions (tonnes/year)
Electricity	0	0 kWh	0.0
Solar water heating	0	0	0.0
<b>Total</b>	<b>0</b>		<b>0.0</b>

### YOUR RATED GREENHOUSE GAS EMISSIONS CALCULATION:

Total greenhouse gas emissions 12.9 tonnes/year  
 Minus emissions offset by on-site renewables - 0.0 tonnes/year  
 Equals your **rated greenhouse gas emissions** = 12.9 tonnes/year

### HOW YOUR RATED ENERGY IS USED:

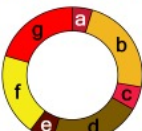
The chart below represents the breakdown of rated annual energy consumption in your home under standard operating conditions. You can use these figures as a guide to help identify where you can lower home energy costs through proper home maintenance, efficient home operation, energy efficiency renovations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



Category	Percentage
A. Space heating	59%
B. Space cooling	0%
C. Water heating	21%
D. Ventilation	0%
E. Lights & appliances	9%
F. Other electrical	11%

### 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.



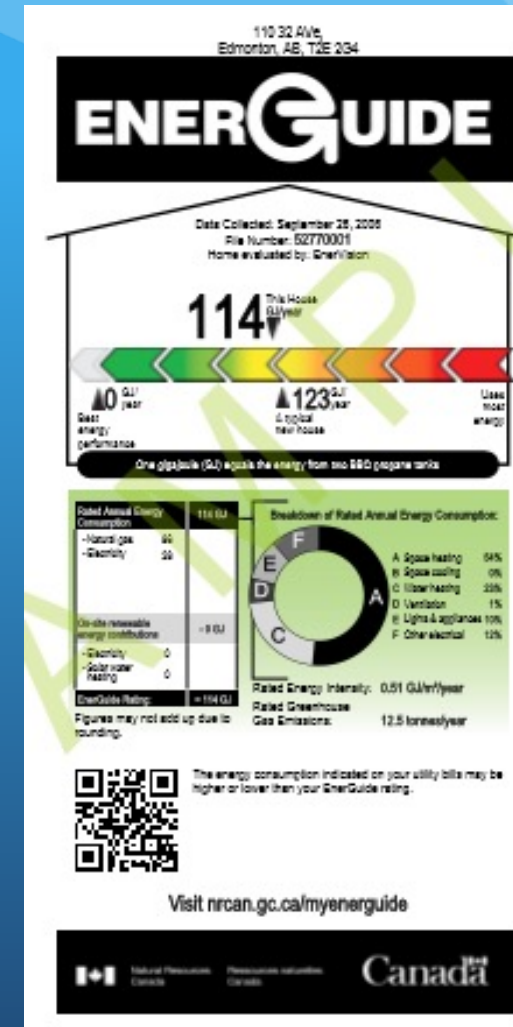
Category	Percentage
a. Attic/Ceiling	5%
b. Main Walls	25%
c. Exposed floors	2%
d. Windows	23%
e. Exterior doors	2%
f. Basement/Foundation	21%
g. Air leakage/ventilation	22%

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

Figures may not add up due to rounding. Page 1 of 5 Report date: March 23, 2017

# Using your EnerGuide

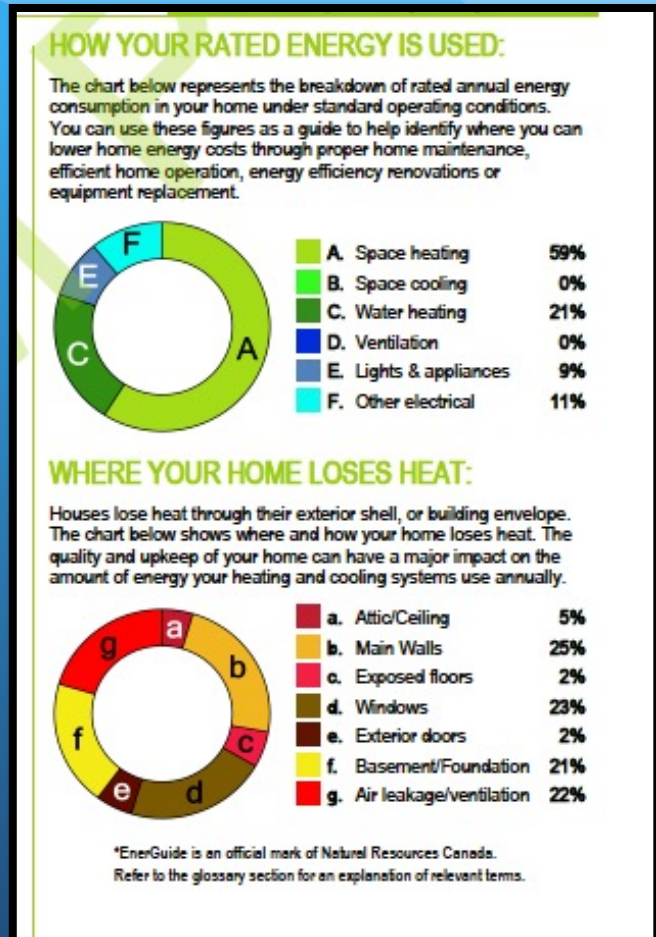
- First, know your energy efficiency





# Using your EnerGuide

- First, know your energy efficiency
- Then where energy is wasted



# Using your EnerGuide

- Energy Literacy is Key
  - First, know your energy efficiency
  - Then where energy is wasted
  - Then where is can best by saved

**Before Recommended Upgrades**

Current <b>ENERGUIDE</b> Rating	Estimated Household Energy Use
<b>62 GJ/year</b>	
Calculated using standard operating conditions	Calculated using your household operating conditions

**YOUR ENERGY EFFICIENCY ACTION ROADMAP**

**RECOMMENDED UPGRADES AND RESULTS**

RECOMMENDED ENERGY EFFICIENCY UPGRADES	RATING REDUCTIONS <sup>A</sup> (GJ/year)	ESTIMATED HOUSEHOLD SAVINGS <sup>A</sup> (GJ/year)
<b>Total reductions for all recommended upgrades</b>	<b>50</b>	
<b>1. Air Seal</b> <ul style="list-style-type: none"> <li>Improve the airtightness of your home by 10% to achieve an air changes per hour rate of 3.213 at 50 pascals.</li> </ul>	<b>7<sup>B</sup></b>	
<b>2. Upgrade Heating System</b> <ul style="list-style-type: none"> <li>Install a new electric furnace.</li> <li>Secondary: Install a new air-source heat pump that has a heating seasonal performance factor (HSPF) of 9.</li> </ul>	<b>6</b>	
<b>3. Upgrade Windows</b> <ul style="list-style-type: none"> <li>Replace 8 window(s)/skylight(s) with units that are more energy efficient.</li> </ul>	<b>3</b>	
<b>4. Add Renewables</b> <ul style="list-style-type: none"> <li>Install a photovoltaic system designed to deliver 8026 kilowatt hours.</li> </ul>	<b>28</b>	

**TABLE NOTES:**

**A.** The individual rating reductions and estimated household savings are calculated with upgrade measures undertaken in isolation. Combinations of upgrades may produce slightly different results.

**B.** Because of the very house-specific results associated with air sealing, there is a broader error range for the estimated impact of this upgrade.

# Using your EnerGuide

- Qualifying for Funding and Grants for Renovations

- Green Homes Grant- Canada Wide
- CMHC Green Home - Canada Wide
- Clean Energy Improvement Program - Alberta (Edmonton, Devon, Rocky Mtn House)
- Seniors Home Adaptation and Repair Program - Alberta
- Edmonton - HERA
- Medicine Hat - SMART
- Town of Banff

# Grants, Rebates and Funding Supports

	Region	Rebate	Information
Canada Green Homes Grant	Canada	Based on Activity - Max \$5000 rebate	<a href="https://www.nrcan.gc.ca/energy-efficiency/homes/canada-greener-homes-grant/23441">https://www.nrcan.gc.ca/energy-efficiency/homes/canada-greener-homes-grant/23441</a>
CMHC Green Home	Canada	Based on Performance - % rebate of insurance	<a href="https://www.cmhc-schl.gc.ca/en/consumers/home-buying/mortgage-loan-insurance-for-consumers/cmhc-green-home">https://www.cmhc-schl.gc.ca/en/consumers/home-buying/mortgage-loan-insurance-for-consumers/cmhc-green-home</a>
Clean Energy Improvement Prog.	AB Cities	Based on Activities - \$40 000 loan	<a href="https://www.myceip.ca/">https://www.myceip.ca/</a>
Home Energy Retrofit Accelerator	Edmonton	Based on Activities - Max \$10 000 rebate	<a href="https://homes.changeforclimate.ca/">https://homes.changeforclimate.ca/</a>
HAT Smart	Med. Hat	Mostly Subscribed - Limited	<a href="https://www.medicinehat.ca/en/home-property-and-utilities/hat-smart.aspx">https://www.medicinehat.ca/en/home-property-and-utilities/hat-smart.aspx</a>
Town of Banff Rebate	Banff	Bases on Activities - ~ Max \$10 000 rebate	<a href="https://banff.ca/701/Residential-Environmental-Rebates">https://banff.ca/701/Residential-Environmental-Rebates</a>

# Notes on Rebates

- The rebates are typically designed to not cover Maintenance responsibilities of homeowners.
  - Furnace Replacement unless going to very high efficiency heat pump technology.
  - Window Replacement unless going to very high performance windows
- Most rebates are limited to the primary residence of the homeowner.
- All rebate programs current use the EnerGuide Rating system AND Receipts to confirm all eligible grants.

# From the Green Homes Grant

## What you have to do

If you [think that you are eligible for the Greener Homes program](#), you must:

- apply to the Canada Greener Homes Grant** and wait for your application to be approved by Natural Resources Canada
- complete a pre- and post-retrofit EnerGuide evaluation** - Residents of [Quebec](#) and [Nova Scotia](#) need to apply directly through their provincial programs to book their EnerGuide evaluation. Residents of [New Brunswick](#) are also encouraged to apply first through their provincial program.
- complete at least one retrofit that is both eligible and recommended** by your energy advisor in their report. Retrofits completed without having an evaluation completed first are not eligible.
- purchase and install the correct equipment** such as heat pumps and windows, which [must meet eligibility criteria and must be on the eligible models list](#).
- provide and keep copies of all of your documents** until March 31, 2028.

**All products must be purchased in Canada.** Online purchases are only eligible if they are ordered from an online distributor located in Canada.

[Register or login to the Greener Homes program](#)



# From the Greener Homes Grant

## Eligible retrofits

- ✓ **Home insulation** - up to \$5,000
  - Attic/ceiling insulation
  - Exterior wall insulation
  - Exposed floor
  - Basement/foundation insulation
  - Crawlspace
- ✓ **Air-sealing** - up to \$1,000
- ✓ **Windows and doors** - each window / door is eligible for either \$125 or \$250
- ✓ **Thermostats** - up to \$50 (must be combined with another retrofit)
- ✓ **Space and water heating** - up to \$5,000
  - Ground Source Heat Pumps
  - Air and Cold Climate Heat Pumps
  - Heat Pump Water Heaters (max \$1000)
- ✓ **Renewable energy** - up to \$5,000
- ✓ **Resiliency measures** - up to \$1000 (must be combined with another energy efficiency retrofit)

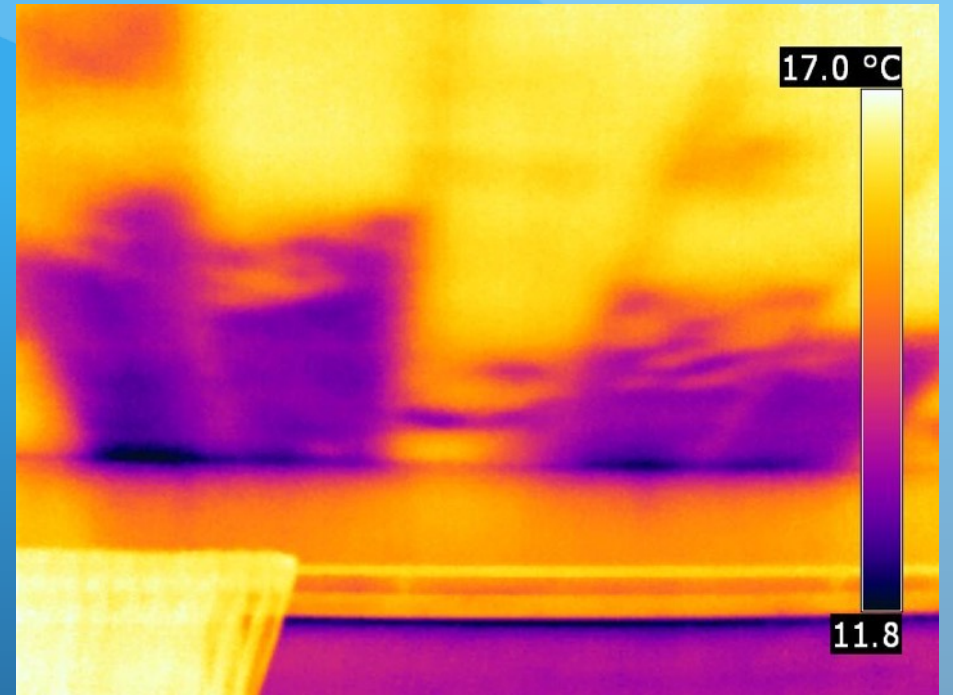
## Ineligible retrofits

- ✗ Retrofits that were done before a pre-retrofit evaluation
- ✗ Retrofits that were done before December 1, 2020
- ✗ Leased or rented equipment
- ✗ Furnaces (unless you live in a northern or off-grid community)
- ✗ Air conditioners
- ✗ Tankless or gas storage water heaters
- ✗ Skylights
- ✗ Boilers (unless you live in a northern or off-grid community)
- ✗ Roofs

See the full list of eligible grants for your home retrofits

# Typical Energy Retrofits

- Replace Furnace
- Replace Hot Water Tank
- Replace Windows
- Insulate (Exterior Insulation)
- Air seal / Improve Ventilation





# Typical Energy Retrofits

- Replace Furnace
  - Replace equipment BEFORE it fails!!!
  - Buy as high efficiency replacement as possible
  - “Right Size” the new equipment with a heatloss calculation, do not just replace like with like
  - New equipment will have SEALED COMBUSTION, much safer
  - Forced air system are generally also your fresh air system, assess the ventilation system and fresh air flows at replacement

# Typical Energy Retrofits

- Replace Furnace
- Replace Hot Water Tank
  - New equipment should be SEALED COMBUSTION,
  - backdraft safe.
  - If also replacing furnace, can remove and seal metal chimney and combustion air supply for more air tightness and energy savings. (remember to check ventilation system and fresh air flow)
  - Instant Hotwater Systems are very energy efficient but do require more maintenance with hardwater.
  - Electric tanks are generally more expensive to operate than natural gas tanks.



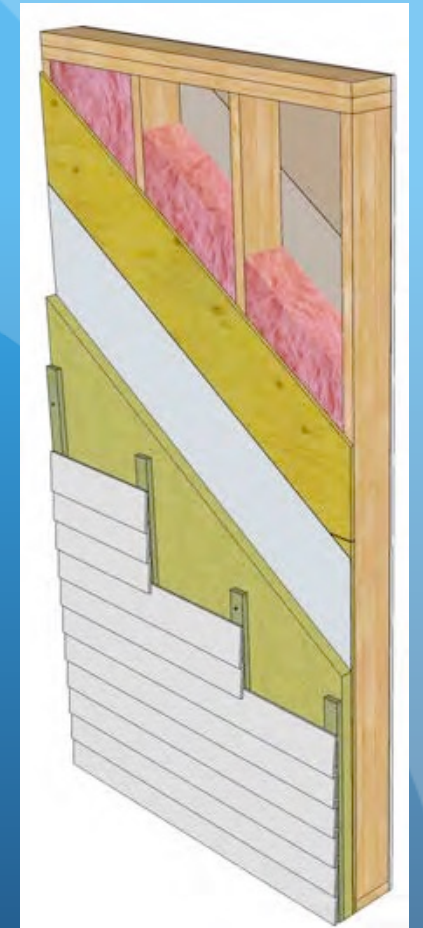
# Typical Energy Retrofits

- Replace Furnace
- Replace Hot Water Tank
- Replace Windows
  - Very expensive upgrade (poor payback)
  - Important for durability if windows are leaking
  - Beware of low quality un-tested “renovation windows” many do not meet Code Requirements.
  - Windows are a complex part of a house, an Energy Advisor can model various options, review for overheating risk, etc.



# Typical Energy Retrofits

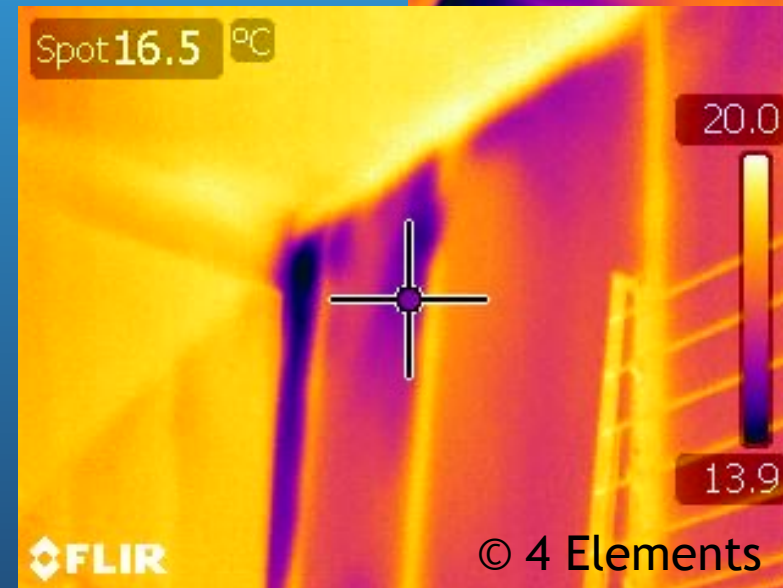
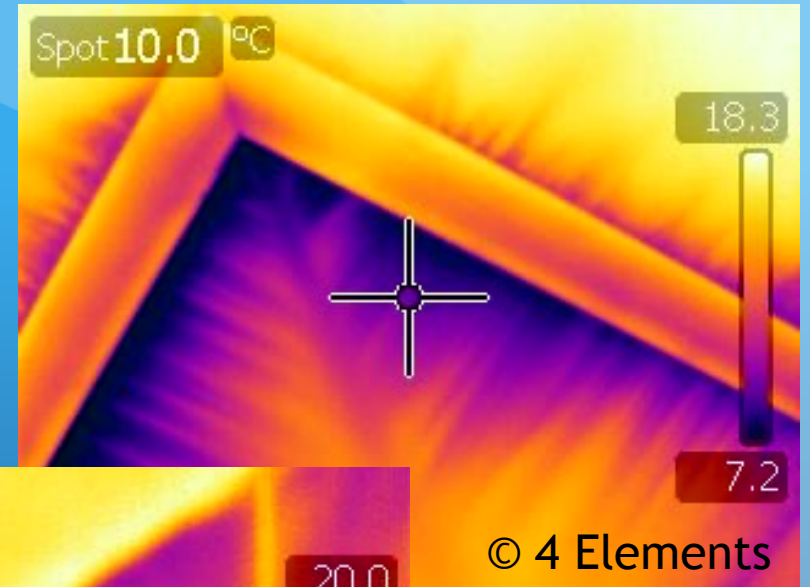
- Replace Furnace
- Replace Hot Water Tank
- Replace Windows
- Insulate (Exterior Insulation)
  - No need to disturb interior or move out during renovation, typically done on the exterior
  - Most of the cost is labour, so insulate well while you're at it, R10 - 20 added.
  - Important to review envelope, moisture risk and prevent condensation
  - Greatly improves air tightness and comfort.



BC Housing

# Typical Energy Retrofits

- Replace Furnace
- Replace Hot Water Tank
- Replace Windows
- Insulate (Exterior Insulation)
- Air seal / Improve Ventilation
  - Build Tight - Ventilate Right
  - Work above will result in greatly improved air tightness
  - Blower door testing will confirm the work was well done

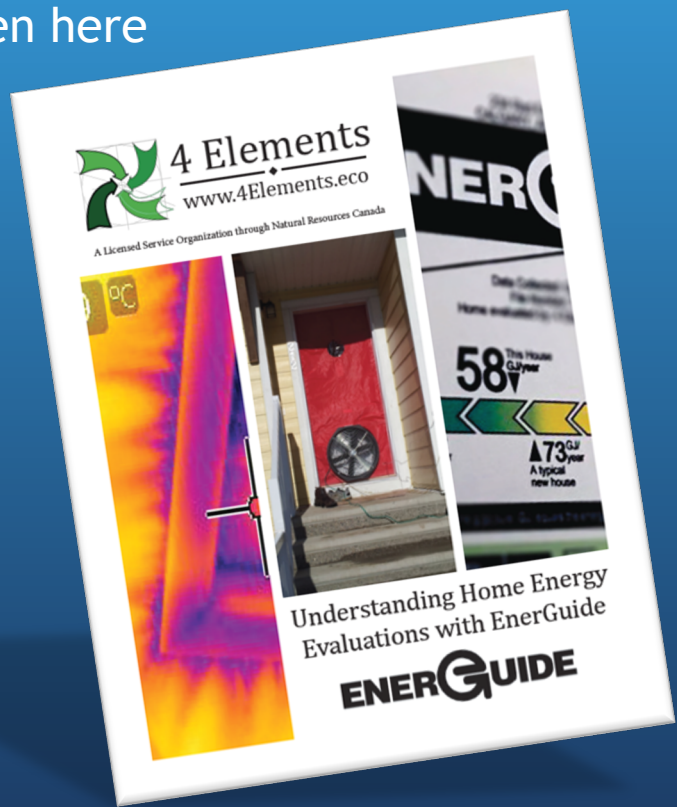




Start here:

[www.NRCAn.gc.ca/kthi](http://www.NRCAn.gc.ca/kthi)

And Then here



# Thank You

[www.4elements.eco](http://www.4elements.eco)

[info@4elements.eco](mailto:info@4elements.eco)

We are proud members and supporters of :



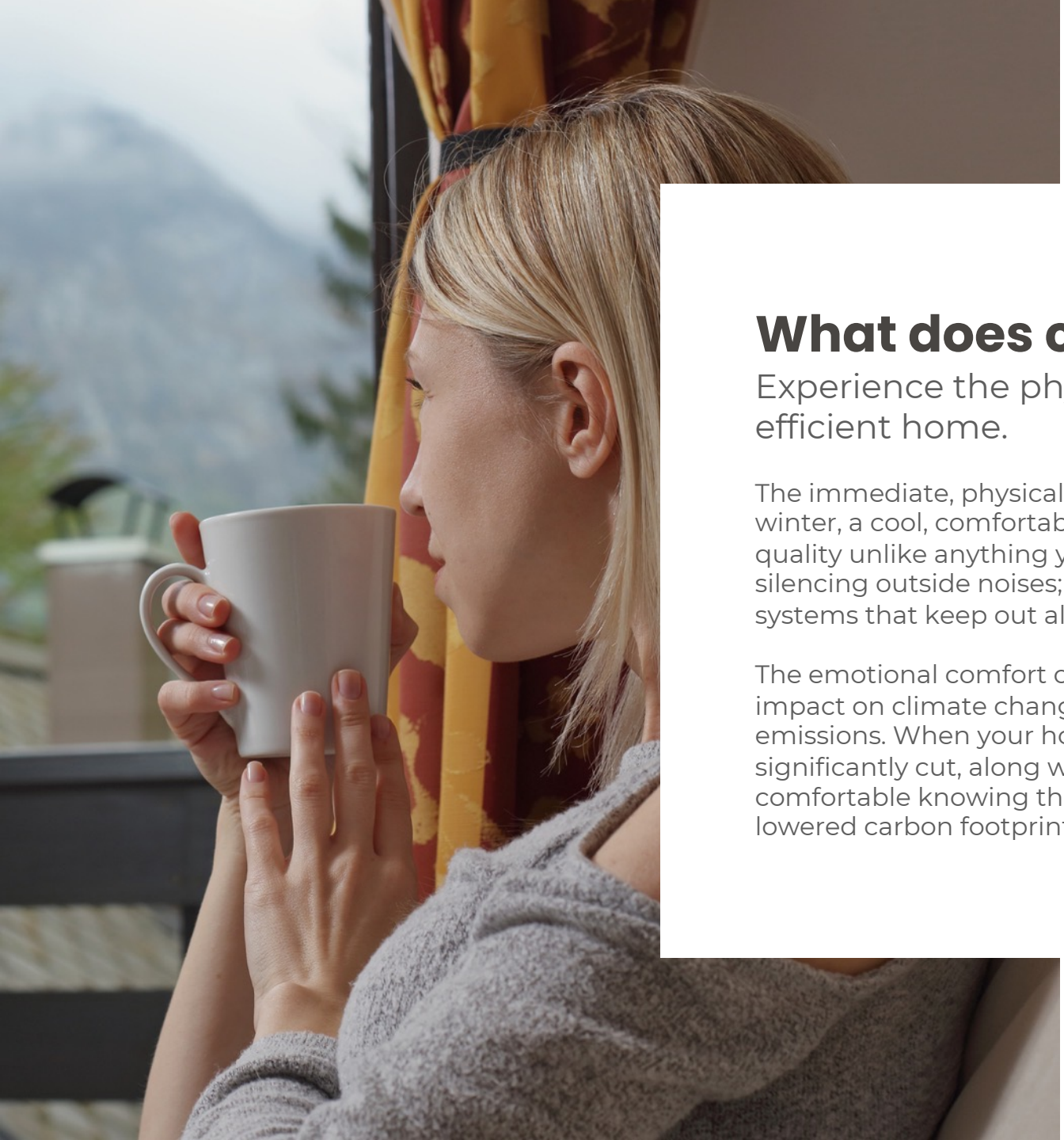
We work with a large variety of rating systems, including the following:





15.4kW = 20.7 Horse Power





## What does comfort mean to you?

Experience the physical & emotional comforts of an energy efficient home.

The immediate, physical comforts of a net zero home includes warm toes in the winter, a cool, comfortable bed in the summer, and a level of air and sound quality unlike anything you've experienced before. It's a quieter home, practically silencing outside noises; and it's a healthier home, with advanced filtration systems that keep out allergens & air pollution.

The emotional comfort of a net zero home is knowing that you are making an impact on climate change, as your home is no longer responsible for producing emissions. When your home is working efficiently, your energy use is significantly cut, along with your heating & cooling costs. You can be comfortable knowing that your investment will result in lowered monthly costs, lowered carbon footprint, and a significant increase in personal comfort.

# Some need Deep Energy Retrofits, some can go Net Zero







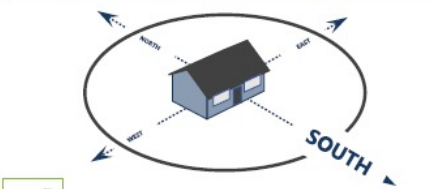




Net Zero Energy Renovations:

## The Ideal Candidate House Checklist

These 9 characteristics help you and your client determine whether a house is a good candidate for a Net Zero Energy Renovation or not. The more characteristics you can check off, the better. When you can only check off a few characteristics, the house is better suited to a different approach to renovating for energy conservation.

If a house meets most of the checklist, assess:

- The performance of the house
- The IAQ
- The level of mold mitigation
- Radon testing/mitigation strategy
- Hazards: asbestos, or knob and tube wiring
- Ventilation capacity

 ✓ Pre-1980s Construction	 ✓ Simple House Shape	 ✓ Old Exterior Wall Finishes
 ✓ Simple Roof Shape	 ✓ Good Solar Aspect	 ✓ Adequate Space at Perimeter
 ✓ No Recent Major Upgrades	 ✓ Low Deferred Maintenance	 ✓ Few or No Observable Hazards





## Exterior Approach

- Less disruptive for homeowners.
- No thermal bridging.
- Structure Is **NOT** subject to thermal variations
- Fire Rating may be required





## Interior Approach

- Convenient when gutting a home.
- Doesn't impact side-lot setbacks
- Loss of interior space.
- More detailing for Airtightness.







Typical Inner-City Bungalow  
Excellent Candidate for Net  
Zero Renovation



-Glue 6" EPS to liquid applied air barrier using notched trowel method.

-Notice notching EPS around roof trusses to ensure continuous insulation through attic space.

-Reverse flashing at bottom of window custom fabricated





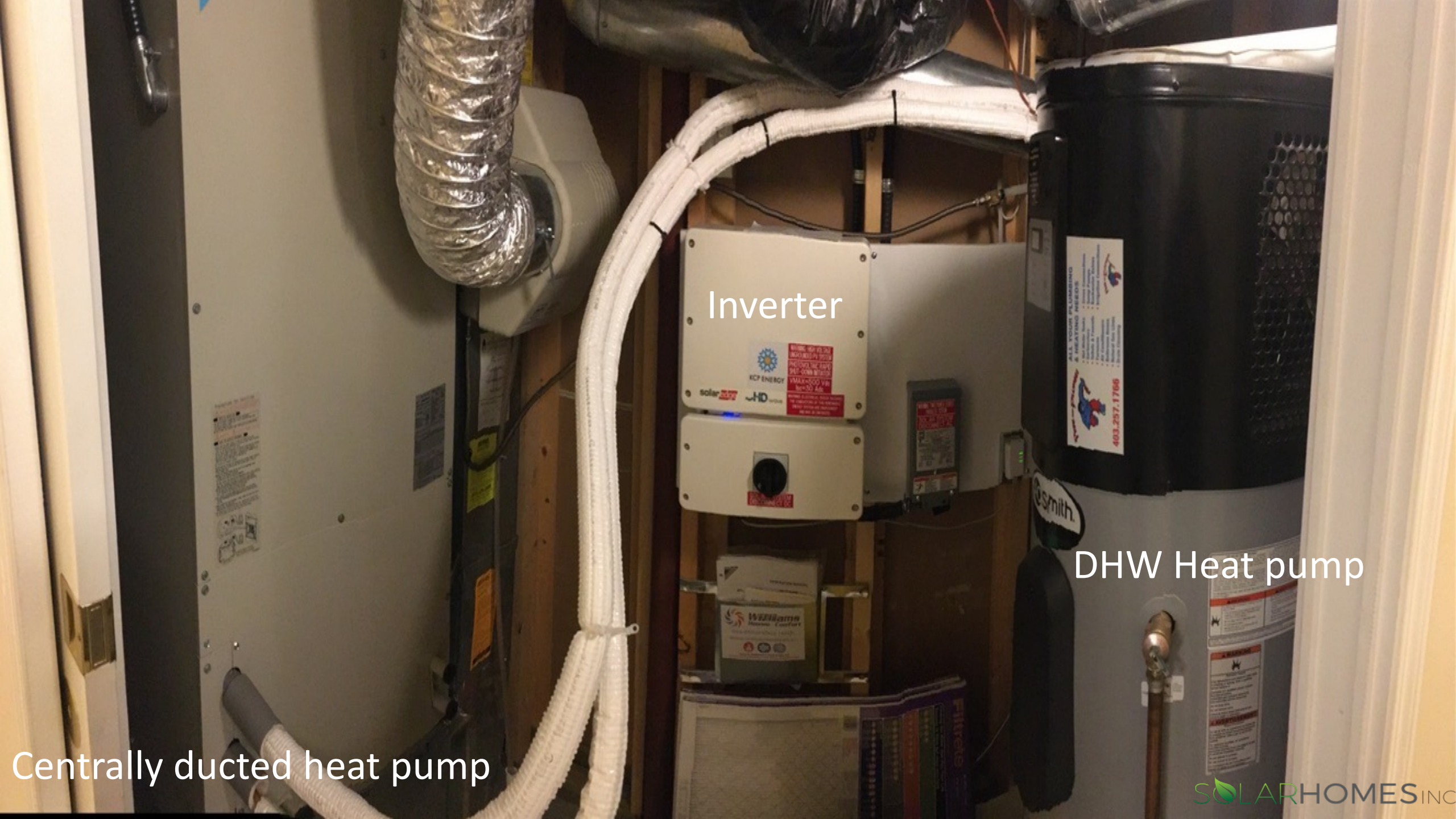
New Modern Exterior



Window Detail








Inverter

DHW Heat pump

Centrally ducted heat pump





8.2kW Solar PV Array on  
main home. Future plans for  
PV on Garage.



# Acadia Project

- Building Envelope (Walls and Attic)
- Mechanical (Central and DHW Heatpumps, HRV, 8.2kW Solar, Electrical Service Upgrade)
- EV Ready



Data Collected: December 14, 2017  
File Number: 9402D0002  
Home evaluated by: 4 Elements

**114** This House GJ/year

▲ 86 GJ/year A typical new house  
▲ 0 GJ/year Best energy performance

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

Rated Annual Energy Consumption	114 GJ
- Natural gas	87
- Electricity	27

On-site renewable energy contributions: -0 GJ

EnergyStar Rating: = 114 GJ  
Figures may not add up due to rounding.

Breakdown of Rated Annual Energy Consumption:

Category	Percentage
A Space heating	55%
B Space cooling	0%
C Water heating	23%
D Ventilation	0%
E Lights & appliances	10%
F Other electrical	12%

Rated Energy Intensity: 4.85 GJ/m<sup>2</sup>/year  
Rated Greenhouse Gas Emissions: 12.3 tonnes/year

Visit [NRCan.gc.ca/myenergiguide](http://NRCan.gc.ca/myenergiguide)

Canada



ENERGUIDE

Data collected: December 17, 2018  
File number: 9402E0002  
Evaluated by: Cooper Le

**48** This House GJ/year

▲ 79 GJ/year A typical new house  
▲ 0 GJ/year Best energy performance

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

Rated Annual Energy Consumption	48 GJ
- Natural gas	8
- Electricity	40

On-site renewable energy contributions: -0 GJ

EnergyStar Rating: = 48 GJ  
Figures may not add up due to rounding.

Breakdown of Rated Annual Energy Consumption:

Category	Percentage
A Space heating	36%
B Space cooling	0%
C Water heating	9%
D Ventilation	2%
E Lights & appliances	24%
F Other electrical	29%

Rated Energy Intensity: 2.04 GJ/m<sup>2</sup>/year  
Rated Greenhouse Gas Emissions: 10.6 tonnes/year

Quality assured by: 4 Elements

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Canada

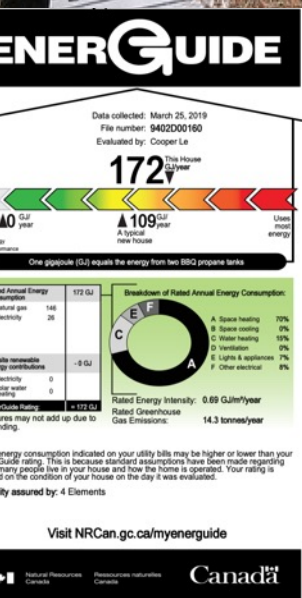
Energide label has not been updated to include Solar PV



# Varsity Project

-Building Envelope (Walls and windows)

-DHW Heat pump



**ENERGUIDE**

Data collected: March 25, 2019  
File number: 9402E00160  
Evaluated by: Cooper Le

This House  
**172** GJ/year

▲109 GJ/year  
A typical new house

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

Category	Value
Rated Annual Energy Consumption	172 GJ
Natural gas	146
Electricity	26
Drillable renewable energy contributions	-8 GJ
Electricity	0
Water heating	0
Drainage	0
Garage Rating	+172 GJ

Breakdown of Rated Annual Energy Consumption:

- A Space heating 70%
- B Space cooling 0%
- C Water heating 0%
- D Ventilation 0%
- E Lights & appliances 7%
- F Other electrical 8%

Rated Energy Intensity: 0.89 GJ/m<sup>2</sup>/year  
Rated Greenhouse Gas Emissions: 14.3 tonnes/year

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: 4 Elements

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

Natural Resources Canada | Ressources naturelles Canada | Canada



**ENERGUIDE**

Data collected: August 15, 2019  
File number: 9402E00160  
Evaluated by: Cooper Le

This House  
**78** GJ/year

▲96 GJ/year  
A typical new house

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

Category	Value
Rated Annual Energy Consumption	78 GJ
Natural gas	48
Electricity	31
Drillable renewable energy contributions	-8 GJ
Electricity	0
Water heating	0
Drainage	0
Garage Rating	+78 GJ

Breakdown of Rated Annual Energy Consumption:

- A Space heating 80%
- B Space cooling 0%
- C Water heating 0%
- D Ventilation 1%
- E Lights & appliances 18%
- F Other electrical 1%

Rated Energy Intensity: 0.31 GJ/m<sup>2</sup>/year  
Rated Greenhouse Gas Emissions: 10.4 tonnes/year

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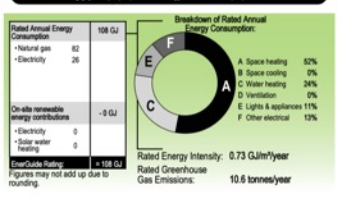
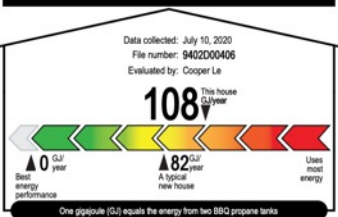
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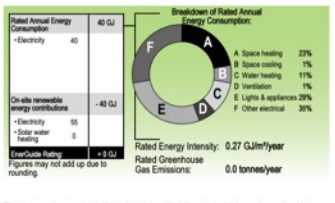
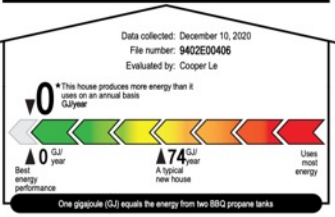




The energy consumption indicated on your utility bills may be higher or lower than your EnerGuide rating. This is because standard assumptions have been made regarding how many people live in your house and how the home is operated. Your rating is based on the condition of your house on the day it was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

Quality assured by: 4 Elements Integrated Design LTD

Visit [NRCan.gc.ca/myenergiguide](http://NRCan.gc.ca/myenergiguide)



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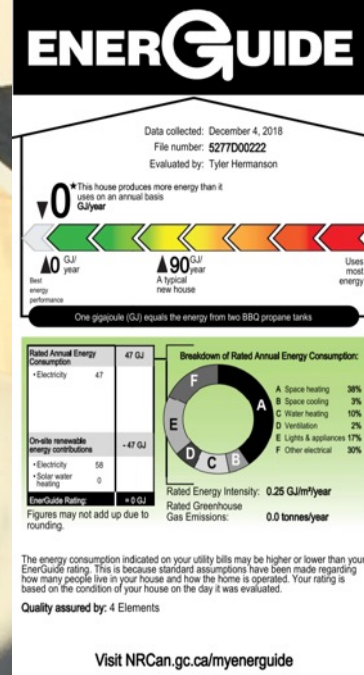
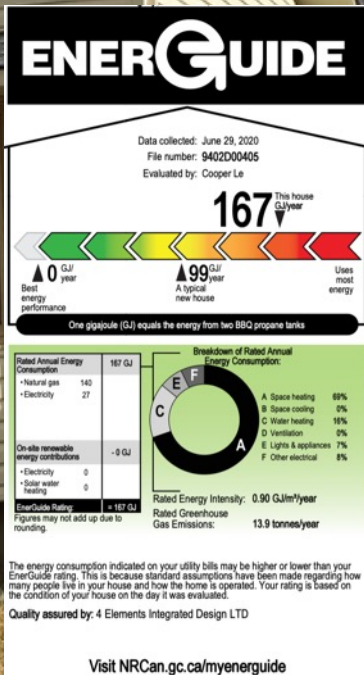
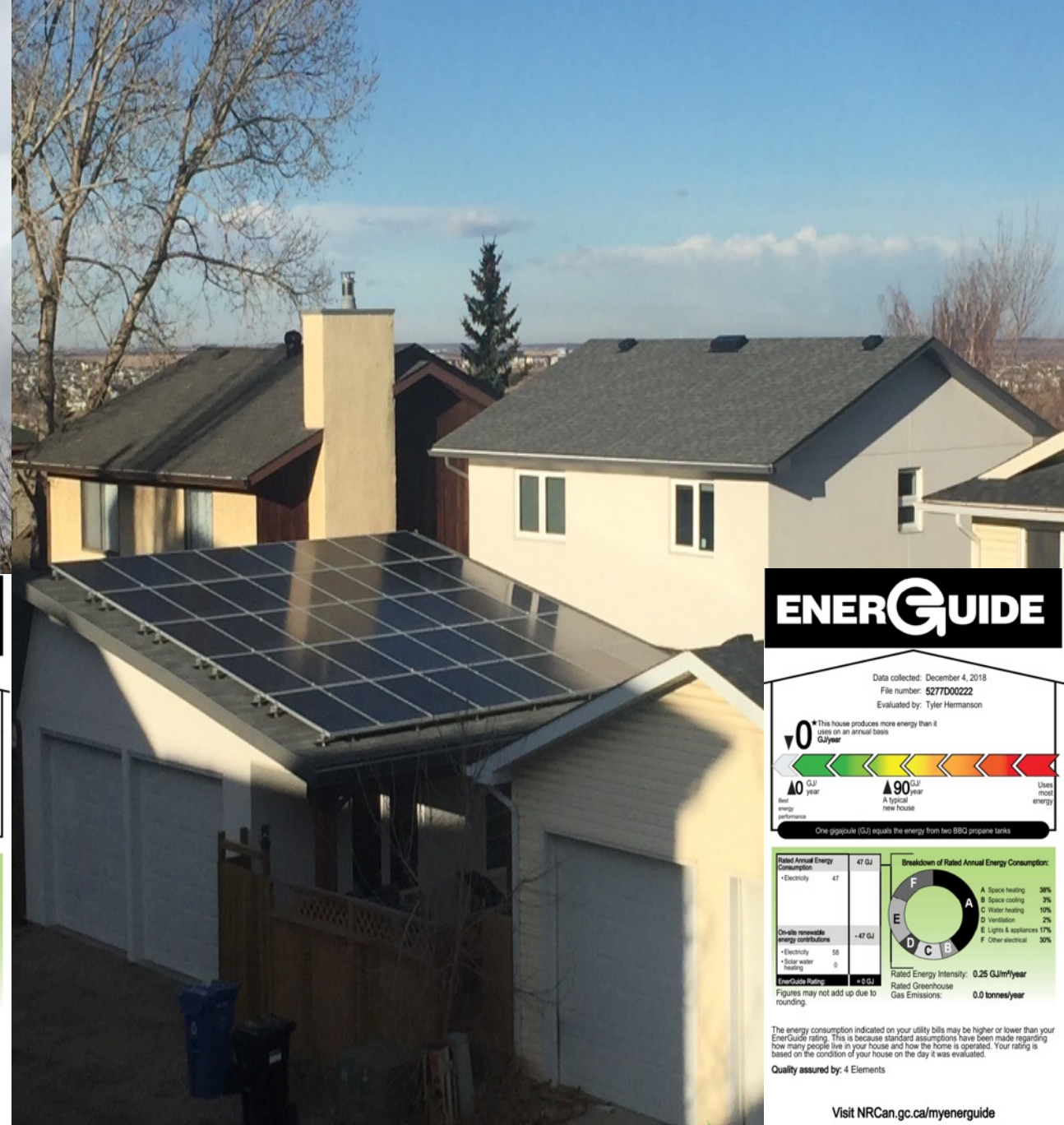
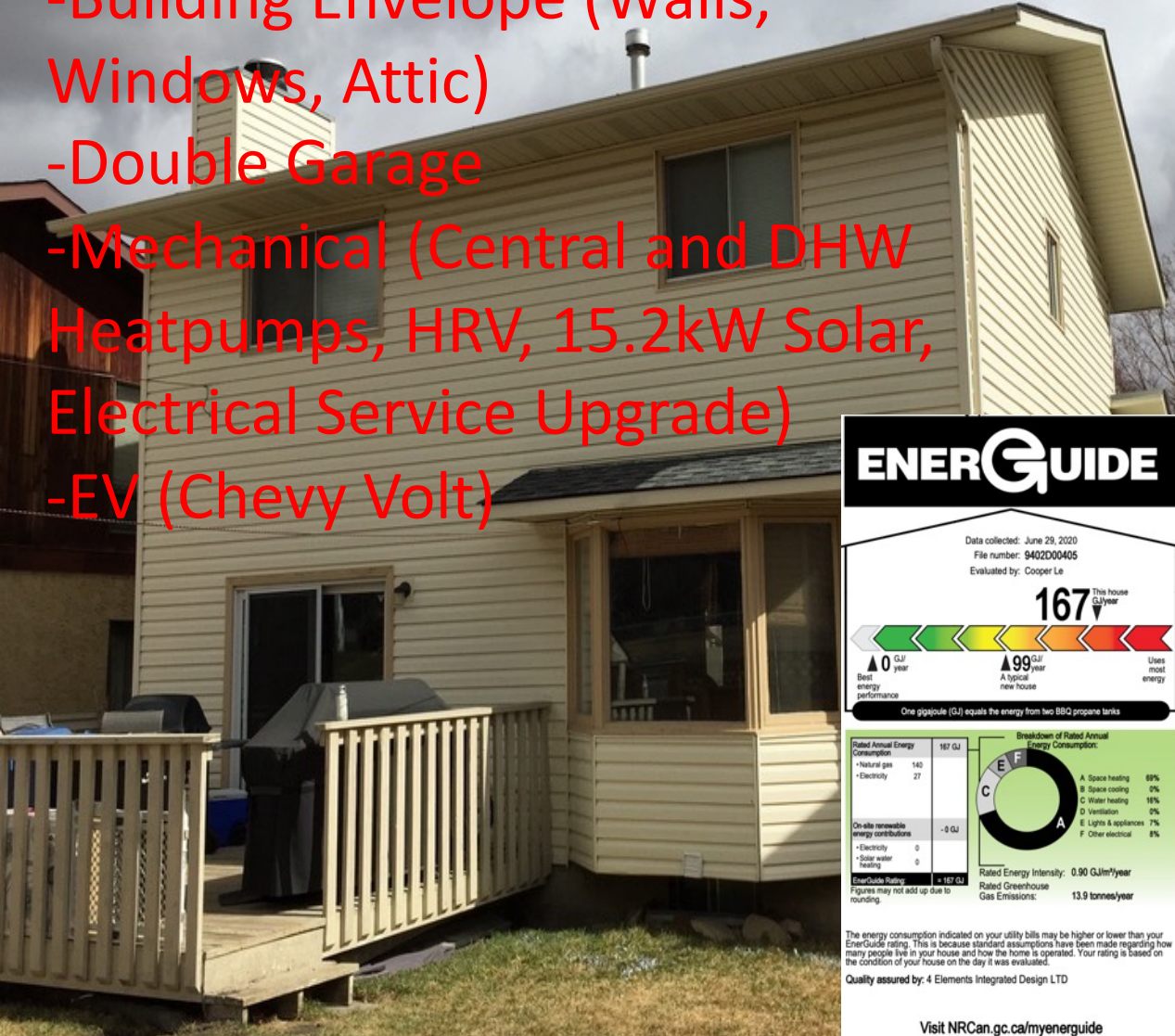
**Triwood Net Zero Renovation**  
 -Building Envelope (Walls and windows)  
 -Mechanical (Central and DHW Heatpump, Electrical Service Upgrade, HRV, 12.7kW Solar PV)  
 -EV Ready





# My Home - Net Zero

- Building Envelope (Walls, Windows, Attic)
- Double Garage
- Mechanical (Central and DHW Heatpumps, HRV, 15.2kW Solar, Electrical Service Upgrade)
- EV (Chevy Volt)





Current Rate: Fixed 25.850 cents / kWh effective for meter reads from Mar 25 2021 until Mar 01 2025  
Green Offset will green 60% of your energy.

### Jun 24 2021 - Jul 26 2021 Usage: 369 kWh

#### Previous Charges and Credits

Previous Balance	-\$669.77
Payments	\$669.77
Payment Refund processed Aug 03.	\$669.77

**Balance Forward** **\$0.00**

#### Charge Summary

Energy	\$95.99
Microgen	-\$530.18
Regulated Transmission and Distribution	\$37.04
Balancing Pool Allocation	\$0.87
Municipal Fee to City of Calgary	\$8.01
Retailer Fees	\$6.15
Subtotal	-\$382.12
GST (#896454626)	-\$19.11

**Total Current Charges** **-\$401.23**

**Total Due** **-\$401.23**

Your account has a credit balance. No payment is required.

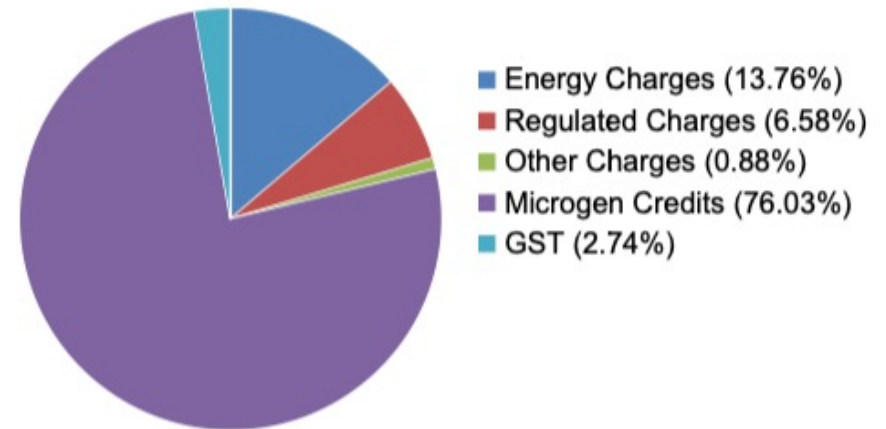
### General Message

We hope you are having a great summer, and we thank you for being a loyal customer!

Support like yours of a small, local business is very important to us as we collectively navigate the COVID-19 pandemic.

Your support allows us to continue providing you with unparalleled customer service and custom, tailored solutions to fit your utility needs!

#### Percent Allocation of Current Invoice Charges



# Value of High Performance

## Calculating the Value of Net Zero Energy Renovations

CHBA has been working with the Appraisal Institute of Canada to bring best practices from the US Appraisal Institute's Green and Energy Efficient Addendum to Canada.

Once the full approach is approved for pilot, renovation pilot participants can opt to receive pre-renovation and post-renovation appraisals of their homes, noting the increased value from a Net Zero Renovation, specifically focusing on **energy cost savings**.

### Example:

\$2,000/yr utility savings → \$40,000 increased home value

AI Reports®  
Form 820.06\*

Client File #: \_\_\_\_\_ Appraisal File #: \_\_\_\_\_  
Residential Green and Energy Efficient Addendum

Client: \_\_\_\_\_  
Subject Property: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Additional resources to aid in the valuation of green properties and the completion of this form can be found at [https://www.appraisalinstitute.org/education/green\\_energy\\_addendum.aspx](https://www.appraisalinstitute.org/education/green_energy_addendum.aspx)

The appraiser hereby certifies that the information provided within this addendum:  
• has been considered in the appraiser's development of the appraisal of the subject property only for the client and intended user(s) identified in the appraisal report and only for the intended use stated in the report.  
• is not provided by the appraiser for any other purpose and should not be relied upon by parties other than those identified by the appraiser as the client or intended user(s) in the report.  
• is the result of the appraiser's routine inspection and inquiries about the subject property's green and energy efficient features. Extraordinary assumptions, data provided herein is assumed to be accurate and if found to be in error could alter the appraiser's opinion or conclusions.  
• is not made as a representation or as a warranty as to the efficiency, quality, function, operability, reliability or cost savings of the reported item or of the subject property in general, and this addendum should not be relied upon for such assessments.

**Green Building:** The practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's lifecycle from siting to design, construction, operation, maintenance, renovation, and deconstruction. This practice expands and complements the classic building design concerns of economy, utility, durability, and comfort (US EPA). High Performance Building and green building are often used interchangeably.

**Six Elements of Green Building:** A green building has attributes that fall into the six elements of green building known as (1) site, (2) water, (3) energy, (4) materials, (5) indoor environmental quality, and (6) maintenance and operation. The energy and water elements are the most measurable elements of green or high performance housing. Appraisers need savings amounts to develop an income approach to support energy efficient contributory value.

**THIRD-PARTY VERIFICATIONS (See types defined in glossary)**  
The following verified items are considered within the appraisal analysis of the subject property:

**Green Certification**  
Certifications attest that the home meets certain minimum thresholds.  
 Environmental Protection Agency (EPA) Home Innovation Research Labs NGBS Home Remodel  
 Environmental Protection Agency (EPA) Home Innovation Research Labs NGBS New Home  
 Indoor AIRBUS  
 WaterSense  
 ENERGY STAR  
 Zero Energy Ready Home (ZERH)  
 Living Building Certified  
 Passive House  
 LEED  
 PHI Low Energy  
 Enertech  
 PHUS 2023  
 Certified  
 Silver  
 Gold  
 Platinum

**Energy Label**  
Labels disclose the state the home's energy assets.  
RENET's HERS Rating (0 to 150): \_\_\_\_\_ Estimated energy savings for this home: \$ \_\_\_\_\_ /year  
 Self-Insulated Rating  
 Projected Rating  
 Confirmed Rating  
Score below 100 indicates energy costs are expected to be lower than average local code home per square foot. HERS Index Report estimates energy cost based on number of bedrooms plus one. Only a "confirmed rating" is a diagnostic test.  
DOE's Home Energy Score (1 to 10): \_\_\_\_\_ Estimated energy savings for this home: \$ \_\_\_\_\_ /year  
 Official Score  
 Unofficial Score  
Home Energy Score energy costs are expected to be lower than average local code home per square foot. HERS Index Report estimates energy cost based on state average local code home per square foot.  
Other Energy Score: \_\_\_\_\_ Estimated energy savings: \$ \_\_\_\_\_ /year  
Range ( \_\_\_\_\_ to \_\_\_\_\_ )  
Describe energy label system: \_\_\_\_\_ c/kWh rate dated: \_\_\_\_\_

**Verified Energy Improvements**  
Only include improvements with verified documentation.  
Explain energy-related improvements:  
Cost of improvements: \$ \_\_\_\_\_  
Date Verified: \_\_\_\_\_  
Score or Rating Version: \_\_\_\_\_  
Organization URL: [www.homeenergyscore.gov](http://www.homeenergyscore.gov)  
 Other: \_\_\_\_\_

**Completed by:** \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

ABOVE VALID ONLY IF CHECKED:  
 Verification reviewed on site  
 Verification attached to this report

ABOVE VALID ONLY IF CHECKED:  
 Verification reviewed on site  
 Verification attached to this report

\*NOTICE: The Appraisal Institute publishes this form for use by appraisers where the appraiser deems use of the form appropriate. Depending on the assignment, the appraiser may need to provide additional data, analysis and work product not called for in this form. The Appraisal Institute makes no representations, warranties or guarantees as to, and assumes no responsibility for, the data, analysis or work product provided by the individual appraiser(s) in the specific contents of this AI Report. AI Reports® AI-820.06 Residential Green and Energy Efficient Addendum© Appraisal Institute 2023. All Rights Reserved. November 2023



An aerial photograph showing several residential rooftops with solar panels installed. The panels are dark blue with white grid lines. The houses are white with grey roofs. There are some trees and a concrete wall in the background.

# SOLARHOMES INC

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Linked/In PeterDarlingtonSolarHomes

Thank you for your time

# Question & Answer Session

# Sustainable Housing Webinar Series

Upcoming webinar:

- [Webinar #3 The Implications with providers from high-performance homes](#) - **November 17 at 10 AM**

Last webinar in series (registration to open closer to session date):

- Webinar #4 High-Performance homes and Comfort

