



EXPERTS IN RESIDENTIAL ENERGY

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Safety Codes Officer Energy Code Review Guide

Energy Modelling Submissions for Part 9 Buildings
Alberta Building Code (NBC 2020)

Purpose

This guide assists building inspectors and authorities having jurisdiction in reviewing energy modelling submissions used to demonstrate compliance with the Alberta Building Code for Part 9 buildings.

Energy modelling reports are increasingly submitted as part of building permit and occupancy documentation. While many submissions are prepared correctly, some reports may contain incomplete information, use inappropriate modelling settings, or rely on shortcuts that obscure whether the building actually complies with the code.

These issues can be difficult to identify because modelling software outputs may appear technically correct even when the underlying methodology does not follow the requirements of the National Building Code.

This document provides practical guidance to help inspectors:

- identify which compliance pathway was used
- verify that the correct modelling process was followed
- recognize common red flags and modelling shortcuts
- request supporting documentation when necessary

The goal is not to challenge legitimate modelling work, but to ensure submissions clearly demonstrate compliance with the Alberta Building Code and that review practices remain consistent across jurisdictions.

Key Principle

Energy modelling used for code compliance must clearly demonstrate one of the pathways recognized under NBC Section 9.36:

1. Performance compliance under NBC 9.36.5 using a proposed house and reference house comparison
2. Compliance through the EnerGuide Rating System pathway under 9.36.5.3.(1)(b), where the full EnerGuide process is completed

If the documentation provided does not clearly match one of these pathways, additional clarification or supporting documentation should be requested before approval.

In practice, inspectors may encounter submissions where:

- the modelling pathway is unclear
- required documentation is missing
- modelling assumptions do not match code requirements
- software outputs are used without completing the required verification steps

These situations do not necessarily indicate intentional misconduct. In many cases they arise from misunderstandings about the differences between:

- EnerGuide program modelling
- building code performance compliance modelling
- design-stage modelling used only for internal planning

If these differences are not identified during review, a municipality may inadvertently approve buildings using modelling that does not demonstrate compliance with the Alberta Building Code.

Key Concept

Under NBC 9.36.5, performance compliance is demonstrated by comparing two models:

- Proposed House – the actual house being built
- Reference House – a hypothetical house constructed to meet the prescriptive requirements of 9.36.2 to 9.36.4

The annual energy consumption of the proposed house must not exceed the house energy target of the reference house.

Additional performance requirements apply under 9.36.7 (Tiered Energy Code), which are outside the scope of this document.

Common Modelling Pathways

Two modelling approaches are commonly encountered.

1. NBC 9.36.5 Performance Compliance (Reference House Method) 9.36.5.3.(1)(a)

The reference house is manually constructed by the energy modeller in accordance with NBC 2020 and the document "Guidelines for Using HOT2000 v.11 to Demonstrate Compliance with the Performance Path of the National Building Code Canada 2020 Subsection 9.36.5."

2. EnerGuide Rating System Pathway 9.36.5.3.(1)(b)

The reference house is automatically generated within HOT2000 when the model is created using the EnerGuide mode.

The EnerGuide pathway is a national rating system used to provide homeowners with an EnerGuide label and performance information. When this pathway is used, additional verification steps and documentation are required.

Because these pathways involve different modelling procedures and verification requirements, inspectors should confirm that the documentation submitted aligns with the pathway used.

Scope of this Guide

This guide focuses on practical review steps that inspectors can perform using documents typically submitted with permit or occupancy applications, including:

- HOT2000 Full House Reports
- compliance summaries prepared by consultants or agencies
- EnerGuide documentation

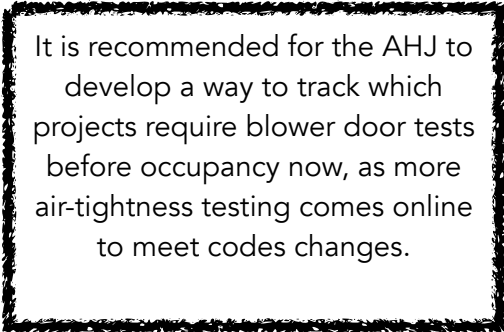
- blower door testing results

The guide also identifies common modelling shortcuts and explains how inspectors can recognize them during review.

Important Note on Professional Roles

A person competent in building code compliance is not necessarily qualified to perform EnerGuide ratings. Similarly, a licensed EnerGuide Energy Advisor (through Natural Resources Canada) is not automatically trained in energy code compliance. The Canadian Association of Certified Energy Advisors (CACEA) is a useful resource for verifying an energy modeller's credentials and confirming their professional qualifications.

Municipal reviewers should focus on whether the modelling submission clearly demonstrates the correct compliance pathway and includes the documentation required for that pathway.



It is recommended for the AHJ to develop a way to track which projects require blower door tests before occupancy now, as more air-tightness testing comes online to meet codes changes.

Common Red Flags

The following checks help inspectors verify that the modelling assumptions match the Alberta Building Code requirements and the actual design submitted for permit. These issues may indicate modelling shortcuts, incorrect reference house construction, or inconsistencies between the model and the building plans.

Red Flag 1

The EnerGuide Rating System is recognized by the National Building Code as a compliance pathway under Article 9.36.5.3.(1)(b). However, this pathway must follow the full EnerGuide process administered by Natural Resources Canada (NRCan).

Attempting to use EnerGuide modelling without completing the full process, particularly skipping blower door testing or NRCan submission, creates technical, regulatory, and safety risks. These shortcuts can result in submissions that appear complete but do not meet code requirements.

Please refer to Appendix D for the decision tree outlining the steps to follow when reviewing EnerGuide and non-EnerGuide pathway reports.

EnerGuide modelling indicators without EnerGuide documentation
If the HOT2000 Full House Report report shows:

*“House with Standard Operating Conditions – Proposed House”
and
“ERS Reference House”*

this indicates the EnerGuide pathway was used. If this pathway is used, the process must include:


- blower door airtightness testing
- NRCan submission of the final file
- EnerGuide label issuance to the Builder/Homeowner
- Homeowner Information Sheet (HOIS)

If these documents are missing prior to occupancy, the EnerGuide process has likely not been completed. While the HOT2000 software can technically generate an EnerGuide-style label from the model, a valid EnerGuide rating is only issued after the final inspection, blower door test, and submission to NRCan., doing so does not meet

the requirements of the EnerGuide Rating System or the building code pathway that relies on it. This abbreviated approach may be used because it is faster and less costly for the builder, but it does not represent a verified EnerGuide rating.

Below is an example of an EnerGuide file **that requires follow-up from the AHJ for the EnerGuide Label & Air-tightness Reports** to support the process.

HOT2000
Natural Resources CANADA
Version 11.13




File: File Name: ERS reference house ← EnerGuide Reference House

Weather Library: C:\HOT2000 v11.13b13\Dat\Wth2020.dir
Weather Data for: SUNDRE, ALBERTA

EnerGuide Reference House

HOT2000
Natural Resources CANADA
Version 11.13



File: File Name: House with standard operating conditions ← Proposed House
Software Version ←

Weather Library: C:\HOT2000 v11.13b13\Dat\Wth2020.dir ← Software Mode - EnerGuide Rating System NBC2020
Weather Data for: SUNDRE, ALBERTA

Proposed House in EnerGuide Mode

Below is an example of a conventional 9.36.5 file with a manually built reference house (non-EnerGuide pathway) that **does not** require follow-up from the AHJ for the EnerGuide Label & Air-tightness Reports to support the process, *unless the specified ACH is lower than 2.5.*

HOT2000
Natural Resources CANADA
Version 11.11



File: General Mode for 9.36.5 (Non-EnerGuide) ← Project name.h2k
House

See Appendix A & B for example EnerGuide & Home Owner Information Sheet Reports.

Red Flag 2

Missing EnerGuide label or homeowner information sheet If the EnerGuide pathway is used, the final output must include:

- EnerGuide Label (one per dwelling unit)
- Homeowner Information Sheet (HOIS)

These documents are generated only after the final file is submitted to NRCAN and verified. These documents must be submitted to the AHJ before occupancy. If they are missing, the EnerGuide process has not been completed.

More details are included below in the “EnerGuide Compliance Path” Section.

Red Flag 3

Missing blower door test results

Airtightness testing is a required step in the EnerGuide process and is critical to accurate modelling.

Without measured airtightness results, the model relies on proxy values that may not reflect the actual building.

Inspectors may request the blower door test report to verify the measured air leakage value and that testing has been completed. Blower Door Test Values can be manually inputted without actually testing
See AC for example blower door test report.

Red Flag 4

Air Leakage Assumptions

Air leakage values reported on a compliance summary must match the value used in the energy model.

Inspectors should verify that:

Tip: Blower door testing may be undertaken voluntarily.

If the proposed house model uses an air-leakage rate of **2.5 ACH@50 Pa for single-detached homes** or **3.0 ACH@50 Pa for multi-unit buildings**, blower door testing is not required. However, if the model assumes a **lower air-leakage rate than these defaults**, blower door testing is required to verify that the building achieves the tighter performance claimed in the model.

- the air leakage value shown in the summary report matches the value used in the Proposed House, and the Reference House reflects the air leakage rate required by the code for the building type
- the assumed airtightness aligns with code defaults unless testing has been performed

For example, in Alberta:

- Single-detached homes typically assume 2.5 ACH@50Pa unless blower door testing verifies a different value.
- Attached homes or MURB's (Multi-Unit Residential Building's) typically assume 3.0 ACH@50Pa unless blower door testing verifies a different value.

If the model assumes a tighter air leakage rate than the default, verification through blower door testing should be provided.

Red Flag 5

Climate Zone and Reference House Characteristics

The climate zone identified in the summary report must match the reference house characteristics used in the model.

Inspectors should confirm that:

- the correct climate zone is identified for the project location
- the reference house insulation levels match the prescriptive requirements for that climate zone
- reference house window U-values and door RSI values match the prescriptive minimums in the code

HOT2000
Natural Resources CANADA
Version 11.13



File: 7P33N00001.h2k
House

Weather Library:
Weather Data for: LACOMBE, ALBERTA

Weather location used

Where to find the weather location used in the energy model

If a different climate zone or different prescriptive values are used, the reference house energy target may be artificially lowered or raised, which affects the validity of the comparison.

In the example HOT2000 Reference Model, you will see key indicators to review when determining whether the report has been prepared in accordance with code requirements.

Red Flag 6

Fenestration-to-Wall Ratio (FWR) Calculations

The window and door areas used in the model should be supported by calculations based on the building drawings and provided in the 9.36 Report Summary.

Inspectors may request:

- the total above-grade wall area calculation
- the total window and door area
- window and door areas broken down by orientation
- skylight areas if applicable

For performance compliance, the reference house fenestration area must be adjusted according to the rules in the code. The reference house window and door areas should reflect the proportional limits established by the NBC (Up to 17%, between 17-22% or over 22% FDWR).

Without these calculations, it may not be possible to confirm whether the model accurately represents the building design.

Window and door area should match the drawings. If the area is different then the area calculated in the energy mode, either the drawings or the model need to be updated.

In the example HOT2000 Reference Model and the example 9.36 Summary Form, you will see key indicators to review when determining whether the report has been prepared in accordance with code requirements.

Red Flag 7

Window and Door Performance Values

Window and door performance values in the energy model should match the specifications provided in the building permit documents.

Inspectors may request the window and door schedule submitted with the building plans.

This schedule should include:

- window U-values
 - door RSI values
- glazing specifications where applicable
Size & location

These values should match the inputs used in the energy model. Without this documentation, it is difficult to verify that the model reflects the actual products being installed.

In the example HOT2000 Reference Model and the example 9.36 Summary Form, you will see key indicators to review when determining whether the report has been prepared in accordance with code requirements.

Red Flag 8

Mechanical Equipment

The mechanical equipment specified in the Proposed House model should match the mechanical system design and equipment specifications submitted with the building permit. Equipment types and efficiencies used in the model (e.g., furnace AFUE, heat pump performance, HRV/ERV efficiency, domestic hot water system) should align with the mechanical design documents and product specifications to ensure the model accurately reflects the systems intended for installation.

The reference house must reflect the minimum mechanical system efficiencies prescribed in the code, not the proposed equipment.

Inspectors should confirm that the reference house mechanical systems match prescriptive requirements, such as:

- furnace efficiency (e.g., 95% AFUE where applicable)
- domestic hot water system efficiency according to system type
- absence of equipment that is not part of the prescriptive reference design

For example, heat recovery ventilators (HRVs) should not appear in the reference house.

If the reference house mechanical systems differ from code requirements, the comparison between the proposed and reference house may be invalid.

Red Flag 9

Assembly Values Do Not Match the Model

The building assemblies listed on the compliance summary should match both:

- the building permit drawings, and
- the values used in the energy model.

Inspectors should cross-reference:

- wall RSI values
- roof insulation levels
- slab or foundation insulation
- window and door performance values

If the summary sheet lists assembly values that differ from the energy model inputs, the compliance result may not accurately represent the building being constructed.

Using EnerGuide modelling without completing the full process can lead to several risks:

- inaccurate energy modelling results due to unverified airtightness
- invalid compliance documentation under the Alberta Building Code
- inability for inspectors to verify compliance
- missed safety warnings related to ventilation or combustion spillage
- increased liability for builders and authorities having jurisdiction.

Summary

Energy modelling submissions must clearly follow one of the recognized pathways:

1. NBC 9.36.5 performance compliance using a proposed and reference house comparison, or
2. EnerGuide Rating System compliance with blower door testing, NRCan submission, and EnerGuide labeling.

If the documentation provided does not clearly match one of these pathways, additional clarification or documentation should be requested before final approval.

Authority Having Jurisdiction (AHJ) Risk

Accepting partial or incomplete energy modelling workflows may expose municipalities and inspection agencies to enforcement and liability risks.

The Alberta Building Code requires that compliance documentation clearly demonstrate that the building meets the applicable energy provisions. When modelling submissions do not follow the required methodology, or when required verification steps such as blower door testing or EnerGuide process completion are missing, the authority having jurisdiction may be approving permits or occupancy based on incomplete or inaccurate information.

Potential risks include:

- approval of buildings that do not meet the Alberta Building Code energy requirements
- limited ability for inspectors to verify compliance if required documentation is missing
- inconsistent enforcement between jurisdictions if different modelling standards are accepted

- increased risk of disputes or challenges if compliance documentation cannot be verified after construction

Ensuring that modelling submissions clearly follow one of the recognized compliance pathways and include the required documentation helps protect both the municipality and the homeowner by maintaining a clear and verifiable compliance record.

Required documentation before occupancy:

- EnerGuide Label (one per unit)
- Homeowner Information Sheet (HOIS)
- Air leakage value from blower door testing

Inspectors may request the blower door test report to confirm the measured air leakage value.

Accepting incomplete or improperly prepared energy modelling documentation may result in occupancy approval being granted without verified compliance with the Alberta Building Code.

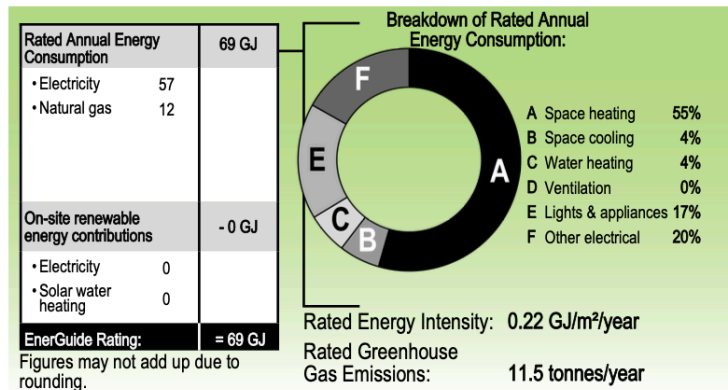
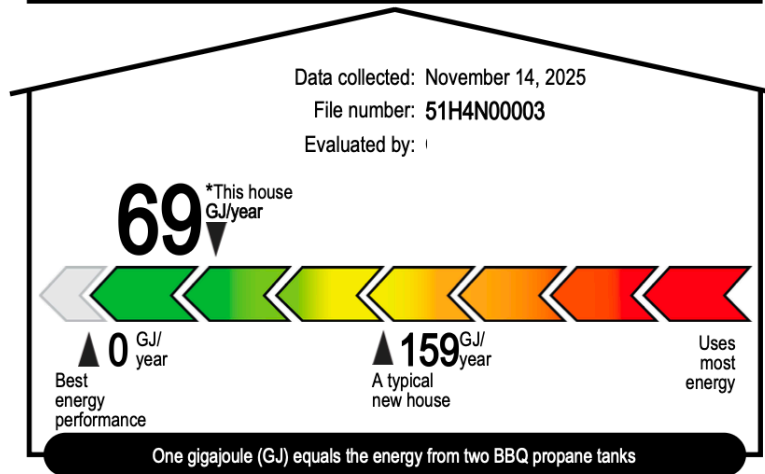
Important Note on Modelling Responsibility

Energy modelling submitted for code compliance must clearly identify the modelling methodology used.

See Appendix A for example EnerGuide & Home Owner Information Sheet Reports.

Appendix A

Example EnerGuide Label



*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: CHBA BC

Builder:

Visit NRCan.gc.ca/myenerguide

Appendix B

Example Homeowner Information Sheet (HOIS)

HOMEOWNER INFORMATION SHEET

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.



ENERGUIDE

Rating: 116 gigajoules per year (GJ/year)

Heated floor area: 214.1 m² (2304.6 ft²)
 Rated energy intensity: 0.54 GJ/m²/year
 Evaluated by: Chelsah Thomas, Sol Invictus
 Quality assured by: Coefficient Building Science
 File number: 5909N00045
 Data collected: September 2, 2025
 Year built: 2025

NRCan.gc.ca/myenerguide

HOW YOUR RATING IS CALCULATED:

- I. Rated annual energy consumption 116 GJ/year
 - II. Minus renewable energy contribution - 0 GJ/year
 - = 116 GJ/year**
- Equals your **EnerGuide rating**

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 11.48 GJ of passive solar gain.

Energy Sources	Rated Consumption (GJ/year)	Equivalent Units (per year)	Greenhouse Gas Emissions (tonnes/year)
Natural gas	86	2302 m ³	4.4
Electricity	30	8286 kWh	5.7
Total	116		10.1

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:

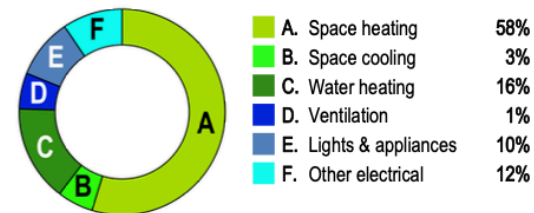
Compared to a typical new house, your house uses:

19.4% less energy;

23.9% less energy, when excluding the estimated energy consumption of lighting, appliances and electronics.

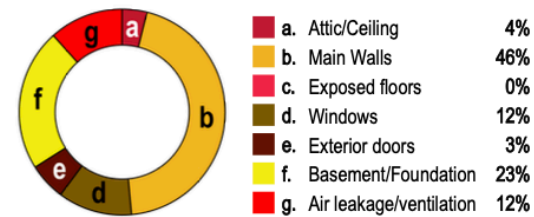
HOW YOUR RATED ENERGY IS USED:

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.



¹EnerGuide 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: Attic/gable	9.06 (51.4)	8.85 (50.2)	60.4 (650)
C2 - Sic: Scissor	8.46 (48.0)	8.33 (47.3)	15.2 (163)

MAIN WALLS

TYPE	INSULATION VALUE		AREA m ² (ft ²)
	Nominal RSI (R)	Effective RSI (R)	
CathGable	3.53 (20.0)	2.45 (13.9)	1.5 (16)
Upper 2x8 TW	4.12 (23.4)	3.49 (19.8)	10.7 (115)
Main 2x8 TW	4.12 (23.4)	3.64 (20.7)	14.4 (155)
Main 2nd floor B&B Ext	3.53 (20.0)	2.95 (16.7)	28.9 (311)
FRR Main & Second	3.53 (20.0)	2.96 (16.8)	51.2 (551)
Main	3.53 (20.0)	2.83 (16.1)	68.1 (734)
2nd	3.53 (20.0)	2.85 (16.2)	80.2 (863)

EXPOSED FLOORS

TYPE	INSULATION VALUE		AREA m ² (ft ²)
	Nominal RSI (R)	Effective RSI (R)	
Floor: Cantilever	3.52 (20.0)	3.99 (22.7)	2.9 (31)

WINDOWS

#	TYPE	U-factor W/m ² • °C (Btu/h • ft ² • °F)	RSI (R)
1	Vinyl, Fixed, Double, Low E	1.8 (0.32)	0.54 (3.1)
1	Vinyl, Fixed, Double, Low E	1.7 (0.31)	0.58 (3.3)
3	Bsmt - Front	1.4 (0.25)	0.71 (4.0)
1	Dining Rm	1.2 (0.22)	0.80 (4.6)
1	Ensuite	1.2 (0.21)	0.83 (4.7)
2	Bed 1 & Bed 2	1.2 (0.2)	0.87 (4.9)
2	Master	1.1 (0.2)	0.88 (5.0)
1	Living Rm	1.1 (0.2)	0.89 (5.0)
Total window area: 19.08 m ² (205.3 ft ²)			

EXTERIOR DOORS

#	TYPE	U-factor W/m ² • °C (Btu/h • ft ² • °F)	RSI (R)
3	Fibreglass polystyrene core	1.2 (0.21)	0.85 (4.8)
Total door area: 5.69 m ² (61.2 ft ²)			

BASEMENT/FOUNDATION

TYPE	INSULATION VALUE		AREA m ² (ft ²)
	Nominal RSI (R)	Effective RSI (R)	
B1 concrete walls: exterior	N/A	N/A	96.3 (1036)
B1 concrete walls: interior	3.46 (19.6)	3.13 (18.0)	96.3 (1036)
B1 header	3.53 (20.0)	3.80 (21.6)	11.6 (125)
B1 slab	N/A	N/A	63.4 (682)

Air-Leakage
Results

AIRTIGHTNESS

Air leakage rate at 50 pascals	1.24 air changes/hour
Equivalent leakage area	264.6 cm ² (41 in ²)
Normalized leakage area	0.5 cm ² /m ² (0.7 in ² /100 ft ²)

MECHANICAL SYSTEMS

SPACE HEATING

TYPE	OUTPUT SIZE	EFFICIENCY
Condensing natural gas furnace	16.71 kW 57000 BTU/h	95% AFUE
Design heating load: 10.48 kW – refer to glossary for details		

SPACE COOLING

TYPE	OUTPUT SIZE	EFFICIENCY
Central split air conditioner	3.57 kW 12500 BTU/h	13.4 SEER2
Design cooling load: 3.55 kW		

WATER HEATING

TYPE	TANK VOLUME	EFFICIENCY
Natural gas direct vented storage tank	189L (50 USG)	0.70

WHOLE-HOME VENTILATION

TYPE	AIR FLOW RATE	EFFICIENCY
Heat recovery ventilator certified by the Home Ventilating Institute	36.81 L/s (78 cfm)	60%

HEATED FLOOR AREA

Above-grade area	150.7 m ² (1622 ft ²)
Below-grade area	63.4 m ² (682 ft ²)

Appendix C

Example Blower Door Test Report

Set 1: Depressurization set (hide details)

Start date: 2021-06-23 Start time: 11:40 Depressurization set (Red tube through panel) Operator location: Inside

Barometric pressure: 101.325 kPa Wind speed: 7.22 m/s Direction: NW light wind Temperature, initial indoors: 68 °F outdoors: 64 °F

Choose one: Enter data manually Capture data automatically

Baseline, initial [Pa]	-1.13													
Average baseline, initial	ΔP_{01}	-1.13	ΔP_{01}	-1.13	ΔP_{01}	0.0								
Building pressure [Pa]	-49.3	-48.58	-46.69	-43.75	-39.7	-34.47	-32.61	-29.72	-26.26	-23.02	-19.81	-17.81		
Test Fan 1 [412010]	B4	Pa	253.4	253.2	239.4	227.2	201.9	181.7	168.6	151	130.2	108.9	95.7	77.4
Baseline, final [Pa]	-3.20													
Average baseline, final	ΔP_{02}	-3.2	ΔP_{02}	-3.2	ΔP_{02}	0.0								
Temperature, final	indoors	68 °F	outdoors	64 °F										
Induced pressure [Pa]	-47.13	-46.42	-44.53	-41.59	-37.54	-32.31	-30.44	-27.55	-24.1	-20.85	-17.65	-15.64		
Total flow [L/s]	484.228	483.961	470.164	457.383	429.747	405.781	389.467	366.450	337.253	304.944	283.681	252.513		
Measured flow q_m [L/s]	483.189	482.922	469.156	456.403	428.825	404.911	388.633	365.664	336.531	304.292	283.072	251.972		
Total flow through envelope, q_{env} [L/s]	479.89	479.63	465.95	453.29	425.90	402.15	385.98	363.17	334.23	302.21	281.14	250.25		
Error [%]	-1.1%	-0.3%	-0.8%	0.2%	-0.2%	2.5%	1.7%	1.2%	0.4%	-1.5%	0.6%	-4.2%		

Correlation, r	0.99710	Change	L/s
Flow exponent, n	0.562		
Flow coefficient, C [L/s/Pa ⁿ]	55.736		
Intercept [L/s/Pa ⁿ]	53.456		

"cc" Correlation Coefficient - Must be >.99
"n" Flow Exponent - Must be between .5-.99
for a valid test.

	Results	Error
Flow at 50 Pa, q_{50} [L/s]	481.00	+/-0.7%
Equivalent leakage area at 10 Pa (ELA) [sq in]	121.2	+/-1.7%
Air changes at 50 Pa, n_{50} [1/h]	2.181	+/-0.7%
Normalized leakage area at 4 Pa, NLA_4 [sq in/sq ft]	0.0200	+/-1.7%
Flow at 15 Pa, q_{15} [L/s]	244.62	+/-1.2%
Permeability at 50 Pa, q_{50} [L/s/sq ft]	0.0468	+/-0.7%
Specific leakage at 50 Pa, w_{50} [L/s/sq ft]	0.1575	+/-0.7%
Effective leakage area at 4 Pa, $EflA_4$ [sq in]	69.89	+/-3.0%

Energide D evaluation blower door. Finish time: 11:49:28


This is a compliant test as it's under 2.5 ACH for a single-detached home.

Shape Style (hide details) In compliance with CAN/CGSB-149.10-2019

Air Leakage Test Testing Standard

In compliance with CAN/CGSB-149.10-2019

FanTestic Lite Licensed to Sol Invictus Enerov. Expires on --.



Equipment (hide details) Primary Gauge: DM32 S/N: 412010 Primary Fan: Retrotec 5000

Test technician: Jesse Thomas #1 (B1) Gauge: DM32 S/N: 412010 Fan: Retrotec 5000 S/N: Location:

Report Reference Number: Gauges last calibrated: Fan last calibrated:

Building and Customer details (hide details)

Building Address: Address, City: Red Deer, County, State: AB, Country, Zip: T4R 2R8

Customer details: Kit

Volume, V	28033.8 cu ft
Total envelope area, $A_{T, BAT}$	6,045.8 sq ft
Floor area, A_f	3,054 sq ft
Elevation	2,805.1 ft
Height of Building above ground	15.3 ft


SOL INVICTUS
 ENERGY SERVICES
Blower Door Test

Project Name:	[REDACTED]
Lot Number:	[REDACTED], Sylvan Lake, AB
Builder:	[REDACTED]
Date:	10/30/2025

Blower door model: Retrotec 5000 Nanometer: DM32
 Volume: 20047.1 ft³ Highest Ceiling: 28.5'

AIRTEST	Fan	House
Out Temp 28.4°F	-50	165.5
In Temp 65.3°F	-45	143.5
Pa -0.1	-40	123.5
Ring (B2)	-35	102
Pa 0.1	-30	85.5
ACH 1.07	-25	66.3
Eqla 29.42"²	-20	140
n 0.7893	-15	96.7
cc 0.9983		

(B2)

↓

(B1)

Valid Test Results
 "cc" Correlation Coefficient - Must be >.99
 "n" Flow Exponent - Must be between .5-.99

AIR LEAKAGE AND MECHANICAL VENTILATION

Building Envelope Surface Area: 775.94 m²

Air Leakage Test Results at 50 Pa. 2.50 ACH
(0.2 in H₂O) =

Equivalent Leakage Area @ 10 Pa 1047.27 cm²
=

Full House Report - Where to find Design Air Leakage

Appendix D

Step 1

Open the HOT2000 Full House Report.
Look at the first page of the report.
Does the report show:

"House with Standard Operating Conditions – Proposed House"

AND

"ERS Reference House"



YES

This indicates the EnerGuide 9.36.5.3.(1)(b) modelling pathway

Go to Step 2A.



Step 2A – EnerGuide Pathway 9.36.5.3.(1)(b)

Confirm the following documents are provided before occupancy:

- EnerGuide Label (one per dwelling unit)
- Homeowner Information Sheet (HOIS)
- Air leakage value from blower door testing

Blower door test reports may also be requested for verification.

Step 1B

Does the submission include both:

- Proposed House results
- Reference House results showing Proposed \leq Reference energy target

NO

The submission may not demonstrate compliance correctly. -> Request clarification or additional documentation.

YES

This indicates NBC 9.36.5 Performance 9.36.5.3.(1)(a) Compliance.

Go to Step 2B.



Step 2B – NBC 9.36.5 Performance Compliance 9.36.5.3.(1)(a)

Confirm the submission includes:

- HOT2000 Full House Report
- Proposed House model
- Reference House model
- Compliance summary showing Proposed \leq Reference

EnerGuide labels and homeowner information sheets are not required for this pathway.

Tip: Tested air leakage values should typically differ between units (row homes/MURB's) due to differing air-leakage results despite similar designs. If air-leakage results are the same, blower door testing may not have been completed and manually inputted as an unauthorized workaround.

Decision tree to determine whether an energy model falls in 9.36.5.3.(1)(a) Performance Path or 9.36.5.3.(1)(b) EnerGuide Path.

Appendix E

This document is missing pertinent information (SHGC, Thermal Mass, Solar Absorbance, Ventilation Rate,

These values do not meet code for this climate

The FDWR % Calculations are not provided and cannot be verified

These U-values are not reflected in the Reference House Energy Model

These U-Values do not reflect the window specifications being proposed

The Reference House mechanical performance values are incorrect

The Target Energy Use does not reflect the

This document does not show the software is compliant.

9.36 Performance Path Summary					
Section 1: Energy Model Summary					
Project Address	Builder	Job Number	Climate Zone	Weather Station	
[Redacted]	[Redacted]	CPNH00100	7A	Lacombe	
Building Type	Modeling Software	Orientation	Total Area (m²)	Performance Path	9.36 A or B?
Single Detached	Hot2000 v.13	East	602.2	9.36 B	
Airtightness					
			Reference	Proposed	
Component	Type	Reference RS/ETR	Proposed RS/ETR	Proposed Assembly Description	
ROOF	Ceiling below attic	8.67	10.64	Truss 2x4@24" o.c. w/R-60 Blown Cellulose	
ROOF 2 (Scissor)	Scissor Vaulted Ceiling	8.67	10.63	Truss 2x4@24" o.c. w/R-60 Blown Cellulose	
ABOVE-GRADE WALLS	Exterior walls	2.97	3.61	2x6@24"o.c w/R-22 Batts, 1/2" gypsum, 3/8" osb, Wood (Hardi Board)	
ABOVE-GRADE WALLS	House to garage	2.81	3.19	2x6@24"o.c w/R-22 Batts, 1/2" gypsum, 3/8" osb, 1/2" gypsum	
RIM JOISTS	Perpendicular	2.97	4.13	2x12@19"o.c. w/R-22 Batts, 3/8" osb, Wood (Hardi Board)	
FOUNDATION WALLS	Basement wall	2.97	3.83	12" ICF (8" Concrete)	
FOUNDATION	Slab	1.96			
FDWR %		17%	10.80%		
Windows / Doors					
Type		Reference U-value	Proposed U-value		
Picture		1.6	1.00		
Casement		1.6	1.15		
Patio Slider		1.6	1.35		
Mechanical					
Equipment		Reference Efficiency	Proposed Efficiency		
Heat Recovery Ventilator		Yes	Yes		
HRV Efficiency		60%	60%		
Space Heating		Condensing Gas Furnace 92% AFUE	96% AFUE		
DHW		Power Vented Gas Tank 0.67	0.67		
Performance Data Summary					
Target Energy Use - Reference (kWh)			Target Energy Use - Proposed (kWh)		
59,068.14 kWh			52,936.90 kWh		
Declaration					
I hereby certify that the calculations submitted were prepared in full accordance with Alberta 9.36 Performance Modeling and the operating procedures of the software.					
Name:	Company:				
Signature:	Date:				

Example of a 9.36 compliance summary form that does not provide sufficient information for the Authority Having Jurisdiction (AHJ) to determine whether the project meets the requirements of the code. This example also contains incorrect information.

Inspector Quick Review Checklist Energy Modelling Submissions for Part 9 Buildings NBC 2020 – Alberta Building Code

This checklist provides a quick review process for Authorities Having Jurisdiction (AHJ) when assessing energy modelling submissions used to demonstrate compliance under NBC Section 9.36.

Step 1 – Identify the Modelling Pathway

Open the HOT2000 Full House Report and determine which compliance pathway was used.

Check the first page of the report.

EnerGuide Pathway (9.36.5.3.(1)(b))

Indicators in the report may include:

- “House with Standard Operating Conditions – Proposed House”
- “ERS Reference House”

If this pathway is used, confirm the following documentation is provided before occupancy:

- EnerGuide Label (one per dwelling unit)
- Homeowner Information Sheet (HOIS)
- Blower door test results verifying airtightness

If these documents are missing, the EnerGuide process may not have been completed.

Performance Path (9.36.5.3.(1)(a))

Confirm the submission includes:

- HOT2000 Full House Report
- Proposed House model results
- Reference House model results
- Compliance summary showing Proposed \leq Reference energy target

EnerGuide documentation is not required for this pathway.

Step 2 – Confirm the Reference House is Built Correctly

Verify that the reference house reflects the prescriptive requirements of NBC 9.36 for the applicable climate zone.

Check that:

- Climate zone matches the project location
- Reference house insulation levels match prescriptive requirements
- Reference house window U-values and door RSI values match code minimums
- Reference house mechanical equipment reflects code minimum efficiencies

The reference house should not include upgraded equipment such as HRVs or higher efficiency systems unless required by the prescriptive code.

Step 3 – Verify Key Model Inputs

Inspectors should confirm that key inputs used in the energy model match the design documentation submitted for permit.

Check that:

- Air leakage value shown in the summary matches the value in the HOT2000 model
- Default airtightness assumptions are used unless blower door testing verifies tighter performance
- Window and door U-values match the window and door schedule
- Mechanical system efficiencies match the mechanical design specifications

If these values cannot be verified from the documentation provided, additional supporting documentation may be requested.

Step 4 – Review Fenestration and Geometry

Confirm that the building geometry used in the model reflects the building drawings.

Inspectors may request:

- Total above-grade wall area calculations
- Total window and door area calculations
- Window and door areas by orientation
- Skylight areas where applicable

The fenestration-to-wall ratio (FDWR) used in the model should be supported by calculations based on the building drawings.

Step 5 – Confirm Assembly Values

Cross-reference the assemblies listed in the compliance summary with the building drawings and model inputs.

Check that:

- Wall insulation values match the drawings
- Roof insulation values match the drawings
- Foundation insulation values match the drawings
- Window and door performance values match product specifications

If the summary sheet lists assembly values that differ from the model inputs or permit drawings, the compliance result may not accurately represent the building being constructed.

When to Request Additional Documentation

Inspectors may request additional documentation if:

- The modelling pathway is unclear
- Key documentation is missing
- The model inputs cannot be verified against the design documents
- Reference house characteristics do not match code requirements

Ensuring that modelling submissions clearly follow a recognized compliance pathway and include sufficient documentation helps maintain consistent enforcement of the Alberta Building Code energy provisions.