

STEP 4 AND 5 CASE STUDY





ABOUT US

EnerTech Solutions Ltd. is passionate about building science

We are committed to providing information to Canadian homeowners/builders on their energy use and identify ways of improving the health, comfort and efficiency of their homes



CASE 1: STEP 3

12"

Building Type:	Single D	etached	•		
If Other, Please Spec	ify:				
Number of Dwelling	Units:	1			
Climate Zone:		4 - Less than 30	00		
Heating Degree Days	:	2,85	58		
Floor Area of Conditi	205.0	00			



6" 12"

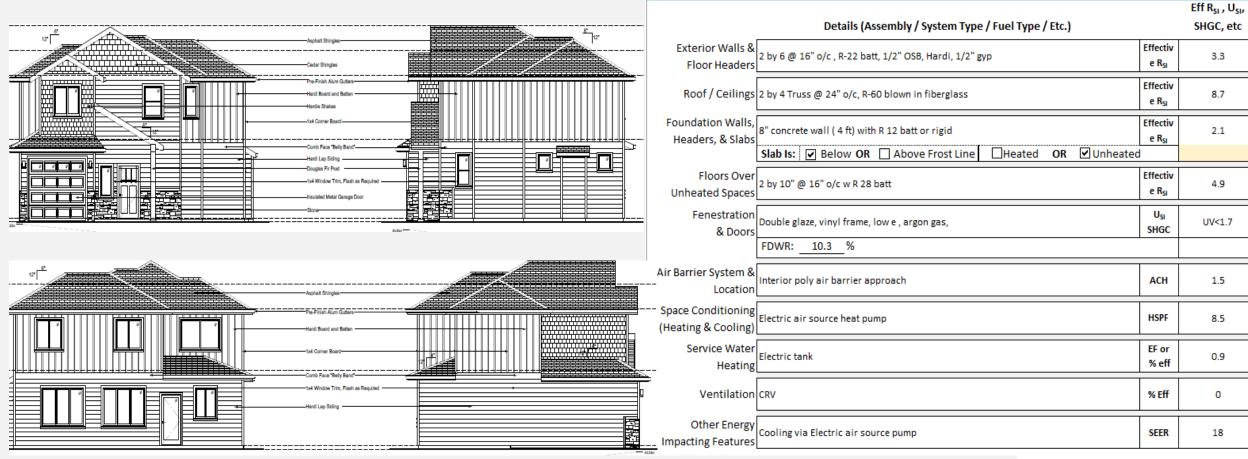
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	Details (Assembly / System Type / Fuel Type / Etc.)		Eff R _{si} , U _{si} , SHGC, etc
Exterior Walls & Floor Headers	2 by 6 @ 16" o/c , R-19 batt, 1/2" OSB, Hardi, 1/2" gyp	Effectiv e R _{SI}	2.9
Roof / Ceilings	2 by 4 Truss @ 24" o/c, R-40 blown in fiberglass	6.5	
Foundation Walls, Headers, & Slabs	8" concrete wall (4 ft) with R 12 batt or rigid	Effectiv e R _{SI}	2.1
	Slab Is: 🔽 Below OR 🗌 Above Frost Line 🛛 Heated OR 🗹 Unheated		
Floors Over Unheated Spaces	2 by 10" @ 16" o/c w R 28 batt	Effectiv e R _{SI}	4.9
Fenestration & Doors	Double glaze, vinyl frame, low e , argon gas,	U _{SI} SHGC	UV<1.7
	FDWR: <u>10.3</u> %		
Air Barrier System & Location	Interior poly air barrier approach	АСН	2.5
Space Conditioning (Heating & Cooling)			
Service Water Heating			
Ventilation	CRV	% Eff	0
Other Energy Impacting Features			



CASE 1: STEP 4 ELECTRIC HOME

Upgrades include: R 22 batt in A.G walls, R 60 in ceilings, ACH set to 1.5





Single Detached

1

4 - Less than 3000

2,858

205.00

Building Type:

Climate Zone:

B: BUILDING CHARACTERISTICS SUMMARY (see BCBC Clause 2.2.8.3.(2)(b) of Division C)

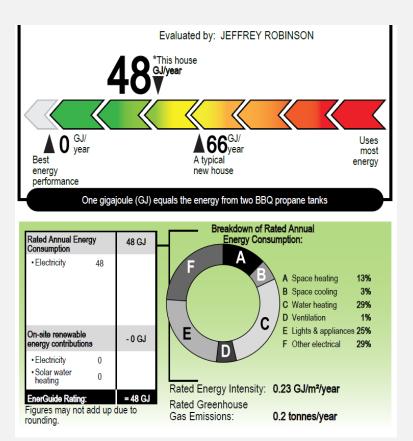
If Other, Please Specify:

Heating Degree Days:

Number of Dwelling Units:

Floor Area of Conditioned Space (m²):

CASE 1: STEP 4 ELECTRIC HOME



D: 9.36.6. ENERGY STEP	CODE COMPLIA	ANCE									
	Proposed Ho	ouse Rated En	ergy Consum	ption (GJ/year):	22	Reference	e House Ra	ted Energy Ta	arget (GJ/year):	40	
										Proposed C	Calculations
Proposed House Metrics Unit Required									Proposed House	Proposed House	
Step Code Level						Step 1,	2, 3, 4 or 5	4			Pass or Fail
Mechanical Energy Us	e Intensity (M	EUI) - R <i>equir</i> e	es HOT 2000 L	Tesign Cooling Lo.	ad (Watts) to	<i>be enter<mark>kW</mark>h</i>	/(m²·year)	48	(max)	30	Pass
ERS Rating % Lower Th	nan EnerGuide	Reference H	louse, whe	e applicable			%	40	(min)	44.6	Pdss
Thermal Energy Dema	nd Intensity (1	(EDI)				kWh	/(m²·year)	20	(max)	25	
Adjusted TEDI						kWh	/(m²·year)	27	(max)	25	Pass
Building Envelope % E	Building Envelope % Better % 20 (min) 20										
Airtightness in Air Changes per Hour at 50 Pa differential ACH @ 50 Pa 1.5 (max)									(max)	1.50	Pass
Step Code Requirements Me										Yes	

Energy Sources	Rated Consumption (GJ/year)	Equivalent Units (per year)	Greenhouse Gas Emissions (tonnes/year)
Electricity	48	13203 kWh	0.2
Total	48		0.2

Greenhouse Gas Emissions Intensity (kg of CO₂/(m².year))



CASE 1: STEP 4 NATURAL GAS

Upgrades include: R 22 batt in A.G walls, R 60 in ceilings, ACH set to 1.5



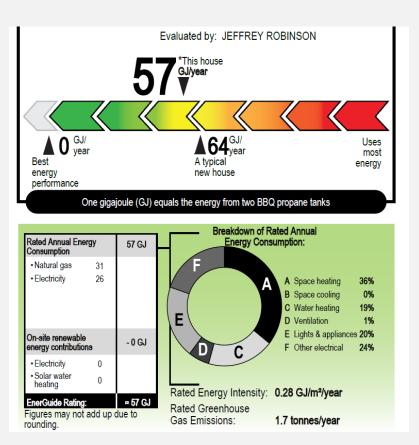
Building Type:	Single D	etached	•
If Other, Please Speci	ify:		
Number of Dwelling	Units:	1	
Climate Zone:		4 - Less than 30	000
Heating Degree Days	:	2,8	58
Floor Area of Conditi	oned Space (m ²):	205.0	00

B: BUILDING CHARACTERISTICS SUMMARY (see BCBC Clause 2.2.8.3.(2)(b) of Division C)

	Details (Assembly / System Type / Fuel Type / Etc.)		Eff R _{si} , U _{si} , SHGC, etc						
Exterior Walls & Floor Headers	2 by 6 @ 16" o/c , R-22 batt, 1/2" OSB, Hardi, 1/2" gyp e R _{SI}								
Roof / Ceilings	by 4 Truss @ 24" o/c, R-60 blown in fiberglass Effective R _{SI}								
Foundation Walls, Headers, & Slabs	8" concrete wall (4 ft) with R 12 batt or rigid	Effectiv e R _{SI}	2.1						
	Slab Is: 🔽 Below OR 🗌 Above Frost Line 🛛 Heated OR 🗹 Unheated								
Floors Over Unheated Spaces	2 by 10" @ 16" o/c w R 28 batt	Effectiv e R _{SI}	4.9						
Fenestration & Doors	Double glaze, vinyl frame, low e , argon gas,	U _{SI} SHGC	UV<1.7						
	FDWR: <u>10.3</u> %								
r Barrier System & Location	Interior poly air barrier approach	АСН	1.5						
pace Conditioning leating & Cooling)	Natural Gas condensing furnace	AFUE	95						
Service Water Heating	Natrual Gas condensing on demand	EF or % eff	0.97						
Ventilation	CRV	% Eff	0						
Other Energy npacting Features	N/A		N/A						
	ENERIEC) H	6						

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CASE 1: STEP 4 NATURAL GAS HOME



D: 9.36.6. ENERGY STEP COI	DE COMPL	ANCE									
F	Proposed H	ouse Rated Ene	ergy Consum	ption (GJ/year):	31	Reference	ce House Ra	ted Energy T	arget (GJ/year):	38	
										Proposed (alculations
Proposed House Metrics Unit Required									Proposed House	Proposed House	
Step Code Level						Step 1,	2, 3, 4 or 5	4			Pass or Fail
Mechanical Energy Use In	tensity (N	1EUI) - R <i>equire</i>	s HOT 2000 L	Tesign Cooling Los	ad (Watts) to	<i>be enter<mark>kW</mark>h</i>	ı/(m²·year)	48	(max)	43	Pass
ERS Rating % Lower Than	EnerGuid	e Reference H	ouse, wher	e applicable			%	40	(min)	18.2	Fass
Thermal Energy Demand I	ntensity (TEDI)				kWh	/(m²·year)	20	(max)	27	
Adjusted TEDI						kWh	ı/(m²·year)	27	(max)	27	Pass
Building Envelope % Bette	uilding Envelope % Better % 20 (min) 16										
Airtightness in Air Changes per Hour at 50 Pa differential ACH @ 50 Pa 1.5 (max)									1.50	Pass	
							S	tep Code Red	uirements Met:	Yes	

Energy Sources	Rated Consumption (GJ/year)	Equivalent Units (per year)	Greenhouse Gas Emissions (tonnes/year)
Natural gas	31	841 m3	1.6
Electricity	26	7237 kWh	0.1
Total	57		1.7

Greenhouse Gas Emissions Intensity (kg of CO₂/(m².year))



CASE 1: STEP 5 ELECTRIC HOME

Upgrades include: R 24 batt in A.G walls, R 24 foundation walls (ICF), R 60 in ceilings, ACH set to 1.0, HRV



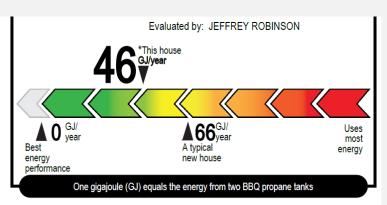
Building Type:	Single D	etached	•			
If Other, Please Speci						
Number of Dwelling U	Jnits:	1				
Climate Zone:		4 - Less than 30	00			
Heating Degree Days:		2,85	58			
Floor Area of Condition	Floor Area of Conditioned Space (m ²):					

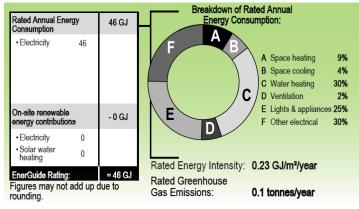
B: BUILDING CHARACTERISTICS SUMMARY (see BCBC Clause 2.2.8.3.(2)(b) of Division C)

	Details (Assembly / System Type / Fuel Type / Etc.)		Eff R _{si} , U _{si} , SHGC, etc
Exterior Walls & Floor Headers	2 by 6 @ 16" o/c , R-24 batt, 1/2" OSB, Hardi, 1/2" gyp	3.3	
Roof / Ceilings	2 by 4 Truss @ 24" o/c, R-60 blown in fiberglass	8.7	
Foundation Walls, Headers, & Slabs	8" concrete wall (4 ft) with R 23.59 Rigid (ICF)	Effectiv e R _{SI}	4.2
Floors Over Unheated Spaces	Slab Is: 🔽 Below OR 🗌 Above Frost Line 🗌 Heated OR 🗹 Unheated 2 by 10" @ 16" o/c w R 28 batt	Effectiv e R _{SI}	4.9
Fenestration & Doors	Double glaze, vinyl frame, low e , argon gas, FDWR: 10.3 %	U _{SI} SHGC	UV<1.3
Air Barrier System & Location	Interior poly air barrier approach	АСН	1.0
Space Conditioning (Heating & Cooling)	Electric Air source heat pump	HSPF	8.5
Service Water Heating	Electric tank	EF or % eff	0.9
Ventilation	HRV	% Eff	65
Other Energy Impacting Features	Cooling via air source electric	SEER	15



CASE 1: STEP 5 ELECTRIC HOME





D: 9.36.6. ENERGY STEP	CODE COMPLIA	ANCE												
	Proposed Ho	ouse Rated Ene	ergy Consum	ption (GJ/year):	19	Reference	e House Ra	ted Energy T	arget (GJ/year):	40				
										Proposed C	Calculations			
Proposed House Metrics	Proposed House Metrics Unit Required									Proposed House	Proposed House			
Step Code Level						Step 1,	2, 3, 4 or 5	5			Pass or Fail			
Mechanical Energy Use	e Intensity (M	EUI) - R <i>equire</i>	s HOT 2000 L	Design Cooling Los	ad (Watts) to	<i>be enter<mark>kW</mark>h</i>	/(m²·year)	33	(max)	26	Pass			
ERS Rating % Lower The	an EnerGuide	Reference H	ouse, wher	e applicable			%	n/a	(min)		Pdss			
Thermal Energy Demar	nd Intensity (1	TEDI)				kWh	/(m²·year)	15	(max)	19				
Adjusted TEDI						kWh	/(m²·year)	19	(max)	19	Pass			
Building Envelope % B	etter						%	50	(min)	40				
Airtightness in Air Changes per Hour at 50 Pa differential ACH @ 50 Pa 1 (max)									1.00	Pass				
Step Code Requirements Met:								Yes						

Energy Sources	Rated Consumption (GJ/year)	Equivalent Units (per year)	Greenhouse Gas Emissions (tonnes/year)
Electricity	46	12912 kWh	0.1
Total	46		0.1

Greenhouse Gas Emissions Intensity (kg of CO₂/(m².year))





CASE 1: STEP 5 NATURAL GAS HOME

Upgrades include: R 24 batt in A.G walls, R 24 foundation walls (ICF), R 60 in ceilings, ACH set to 1.0, HRV, Triple panes, No cooling



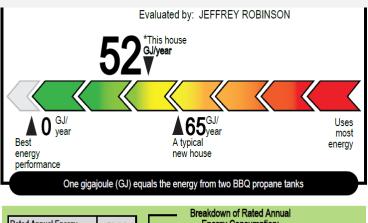
Building Type:	Single D	etached	•
If Other, Please Speci	fy:		
Number of Dwelling U	Jnits:	1	
Climate Zone:		4 - Less than 30	000
Heating Degree Days:		2,8	58
Floor Area of Conditioned Space (m ²):		205.0	00

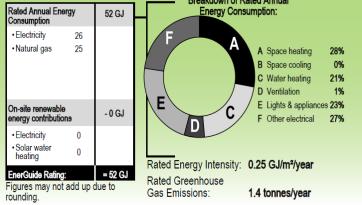
B: BUILDING CHARACTERISTICS SUMMARY (see BCBC Clause 2.2.8.3.(2)(b) of Division C)

Details (Assembly / System Type / Fuel Type / Etc.)				
Exterior Walls & Floor Headers	2 by 6 @ 16" o/c . R-24 batt. 1/2" OSB. Hardi. 1/2" gyp	Effectiv e R _{SI}	3.3	
Roof / Ceilings	2 by 4 Truss @ 24" o/c, R-60 blown in fiberglass	Effectiv e R _{SI}	8.7	
Foundation Walls, Headers, & Slabs	8" concrete wall (4 ft) with R 23.59 Rigid (ICF)	Effectiv e R _{SI}	4.2	
Floors Over Unheated Spaces	2 by 10" @ 16" o/c w R 28 batt	Effectiv e R _{SI}	4.9	
Fenestration & Doors	Triple glaze, vinyl frame, low e , argon gas, FDWR: 10.3 %	U _{SI} SHGC	UV<1.2	
ir Barrier System & Location	Interior poly air barrier approach	АСН	1.0	
Space Conditioning Heating & Cooling)	Natural Gas Condensing Furnace	AFUE	96	
Service Water Heating	Natural gas on demand	EF or % eff	0.96	
Ventilation	HRV	% Eff	65	
Other Energy Impacting Features	N/A		N/A	
			I	



CASE 1: STEP 5 NATURAL GAS HOME





D: 9.36.6. ENERGY STEP CODE	COMPLI	ANCE												
Proj	posed H	ouse Rated En	ergy Consum	ption (GJ/year):	24	Reference	e House Rat	ted Energy T	arget (GJ/year):	39				
										Proposed C	Calculations			
Proposed House Metrics Unit Required						Proposed House	Proposed House							
Step Code Level Step 1, 2, 3, 4 or 5 5							Pass or Fail							
Mechanical Energy Use Intensity (MEUI) - Requires HDT2000 Design Cooling Load (Watts/to be enterthally h/(m²-year) 33 (max)						33	Daves							
ERS Rating % Lower Than End	erGuide	e Reference H	ouse, wher	e applicable			%	n/a	(min)		Pass			
Thermal Energy Demand Inte	ensity (TEDI)				kWh	/(m²·year)	15	(max)	19				
Adjusted TEDI						kWh	/(m²·year)	19	(max)	19	Pass			
Building Envelope % Better							%	50	(min)	41				
Airtightness in Air Changes per Hour at 50 Pa differential ACH @ 50 Pa 1 (max)						1.00	Pass							
Step Code Requirements Met						Yes								

Energy Sources	Rated Consumption (GJ/year)	Equivalent Units (per year)	Greenhouse Gas Emissions (tonnes/year)
Electricity	29	7990 kWh	0.1
Natural gas	25	683 m3	1.3
Total	54		1.4

Greenhouse Gas Emissions Intensity (kg of CO2/(m2.year))





CASE 2: STEP 3

Upgrades include: R 24 batt in A.G walls, R 14 foundation, Windows UV 1.3 or less, ACH set to 2.25

Building Type*:	Single Deta	ched w/Seco	ndary Suite 🖕		
If Other, Please Specify:					
Number of Dwelling Units:		2			
Climate Zone:		4 - L	ess than 3000		
Heating Degree Days:			2,858		
Floor Area of Conditioned Space (m ²):		≘ (m²):	291.88		

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B: BUILDING CHARACTERISTICS SUMMARY (see BCBC Clause 2.2.8.3.(2)(b) of Division C)

	Details (Assembly / System Type / Fuel Type / Etc.)		Eff R _{si} , U _{si} , SHGC, etc
	STUCCO/CEDAR SIDING, 3/8" RAINSCREEN, 7/16"OSB SHEATHING, 2 X 6 @ 16" O.C., R-24 BATT INS ALL WALLS, 1/2" DRYWALL	Effectiv e R _{SI}	3.3
Roof / Ceilings	2 X 4" ATTIC TRUSS @ 24" O.C., R40 ALL CEILINGS , 1/2" DRYWALL / 11 7/8" CWJ, R40 INS, 1/2" DRYWALL	Effectiv e R _{SI}	6.9
Foundation Walls, Headers, & Slabs	8" CONCRETE, 2 X 4" @ 16" O.C., R 14 BATT INS. 1/2" DRYWALL, SLAB ON GRADE	Effectiv e R _{SI}	2.9
l	Slab Is: 🕑 Below OR 🗹 Above Frost Line 🗌 Heated OR 🗹 Unheated		
Floors Over Unheated Spaces	FINISH FLOORING, 3/4" PLY SUBFLOOR, CWJ 11 7/8" @ 16" O.C., R 28 BATT INS, METAL SOFFIT	Effectiv e R _{SI}	5.44
	WINDOWS - DOUBLE GLAZED, ARGON FILL, LOW E COATING. DOORS - FIREBGLASS W POLYSTYRENE CORE	U _{SI} SHGC	UV<1.3 SHGC>0.28
	FDWR: 23.3 %		
Air Barrier System & Location	INTERNAL 6MIL POLY BARRIER	АСН	2.25
Space Conditioning (Heating & Cooling)			
Service Water Heating			
Ventilation	PRINCIPAL EXHAUST WITH FRESH AIR INTAKE TO FORCED AIR DUCTING/ PRINCIPAL EXHAUST AND PASSIVE AIR INLETS FOR SUITE	%	0
Other Energy Impacting Features			



CASE 2: STEP 4 ELECTRIC PRIMARY

Upgrades include: R 24 foundation walls (ICF), R 60 in ceilings, ACH set to 1.5, Electric heat pump for main, Baseboards for suite







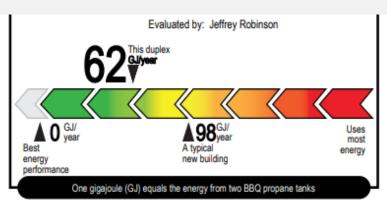
Building Type*:	Single D	etached w/Seco	ondary Suite 🚽		
If Other, Please Spec	cify:				
Number of Dwelling Units:		2			
Climate Zone:	_	4 - 1	less than 3000		
Heating Degree Days:			2,858		
Floor Area of Conditioned Space		ace (m ²):	291.88		

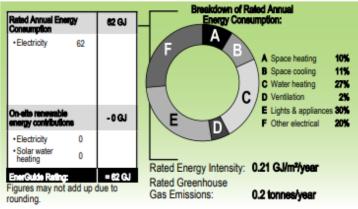
3: BUILDING CHARA	CTERISTICS SUMMARY (see BCBC Clause 2.2.8.3.(2)(b) of Division C)		
			Eff R _{si} , U _{si} ,
	Details (Assembly / System Type / Fuel Type / Etc.)		SHGC, etc
Exterior Walls &	STUCCO/CEDAR SIDING, 3/8" RAINSCREEN, 7/16"OSB SHEATHING, 2 X 6 @ 16" O.C., R-24	Effectiv	
Floor Headers	BATT INS ALL WALLS, 1/2" DRYWALL	e R _{SI}	3.3
Poof / Coilings	2 X 4" ATTIC TRUSS @ 24" O.C., R60 ALL CEILINGS 1/2" DRYWALL	Effectiv	9.1
Root / Centrigs	2 X 4 ATTIC TRUSS @ 24 O.C., ROU ALL CEILINGS 1/2 DRTWALL	e R _{SI}	9.1
Foundation Walls,	8" CONCRETE, R23.59 (ICF), 1/2" DRYWALL, SLAB ON GRADE	Effectiv	4.2
Headers, & Slabs		e R _{SI}	7.2
	Slab Is: 🔽 Below OR 🗹 Above Frost Line 🗌 Heated OR 🗹 Unheated		
	FINISH FLOORING, 3/4" PLY SUBFLOOR, CWJ 11 7/8" @ 16" O.C., R 28 BATT INS, METAL	Effectiv	5.44
Unheated Spaces	SOFFIT	e R _{SI}	2
	WINDOWS - DOUBLE GLAZED, ARGON FILL, LOW E COATING. DOORS - FIREBGLASS W	U _{SI}	UV<1.3
& Doors	POLYSTYRENE CORE	SHGC	SHGC>0.28
	FDWR:%		
Air Barrier System &	INTERNAL 6MIL POLY BARRIER	АСН	1.5
Location			
Space Conditioning	ELECTRIC AIR SOURCE HEAT PUMP, BASEBOARDS FOR SUITE	%, HSPF, or	8.5 HSPF
(Heating & Cooling)		SEER	0.5 1.61 1
Service Water	FLECTRIC TANK	FF	0.95
Heating			0.55
Ventilation	PRINCIPAL EXHAUST WITH FRESH AIR INTAKE TO FORCED AIR DUCTING/ PRINCIPAL	%	0
ventilation	EXHAUST AND PASSIVE AIR INLETS FOR SUITE	/0	0
Other Energy	COOLING ELECTRIC	SEER	15
Impacting Features		JEEN	15

III DIALC CHARACTERISTICS SUBMA



CASE 2: STEP 4 ELECTRIC PRIMARY





D: 9.36.6. ENERGY STEP CODE COMPLIANCE								
Proposed House Rated Energy Consumptio	n (GJ/year):	31	· House R	lated Ene	ergy Targe	(GJ/year):	69	
							Prop	osed
Proposed House Metrics				Unit	Req	uired	Proposed House	Proposed House
Step Code Level			Step 1,	2, 3, 4 or 5	4			Pass or
Mechanical Energy Use Intensity (MEUI) - Requires H072000 L	Design Cooling Los	d/histis/ii	o be enterdeb/h	nl(m³·year)	45	(max)	30	Pass
ERS Rating $\%$ Lower Than EnerGuide Reference House, w	here applicable	•		1	40	(minj	54.8	r ass
Thermal Energy Demand Intensity (TEDI)			kWł	n/(m³∙year)	20	(max)	22	
Adjusted TEDI			k₩ł	n/(m³∙year)	27	(max)	22.000000	Pass
Building Envelope % Better				1	20	(min)	47	
Airtightness in Air Changes per Hour at 50 Pa differential ACH @ 50 Pa						(max)	1.50	Pass
	Step Code Requirements Met							

Energy Sources	Rated Consumption (GJ/year)	Equivalent Units (per year)	Greenhouse Gas Emissions (tonnes/year)
Electricity	62	17207 kWh	0.2
Total	62		0.2

Greenhouse Gas Emissions Intensity (kg of CO₂/(m².year))



CASE 2: STEP 4 NATURAL GAS PRIMARY

Upgrades include: R 24 foundation walls (ICF), R 60 in ceilings, ACH set to 1.5, N.G for main, Heat pump for suite







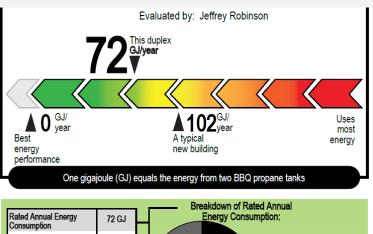
Building Type*:	Single Deta	ndary Suite 🚽		
If Other, Please Speci	ify:			
Number of Dwelling	Units:	2		
Climate Zone:		4 - Le	ess than 3000	
Heating Degree Days			2,858	
Floor Area of Conditioned Space (m ²):		(m ²):	291.88	

: BUILDING CHARACTERISTICS SUMMARY (see BCBC Clause 2.2.8.3.(2)(b) of Division C)

			Eff R _{si} , U _{si} ,
	Details (Assembly / System Type / Fuel Type / Etc.)		SHGC, etc
	STUCCO/CEDAR SIDING, 3/8" RAINSCREEN, 7/16"OSB SHEATHING, 2 X 6 @ 16" O.C., R-24 BATT INS ALL WALLS, 1/2" DRYWALL	Effectiv e R _{SI}	3.3
Roof / Ceilings	2 X 4" ATTIC TRUSS @ 24" O.C., R 60 ALL CEILINGS , 1/2" DRYWALL	Effectiv e R _{SI}	9.1
Foundation Walls, Headers, & Slabs	8" CONCRETE, R 23.59 (ICF) 1/2" DRYWALL, SLAB ON GRADE	Effectiv e R _{SI}	4.2
	Slab Is: 🗹 Below OR 🗹 Above Frost Line 🛛 Heated OR 🗹 Unheated		
Floors Over Unheated Spaces	FINISH FLOORING, 3/4" PLY SUBFLOOR, CWJ 11 7/8" @ 16" O.C., R 28 BATT INS, METAL SOFFIT	Effectiv e R _{SI}	5.44
	WINDOWS - DOUBLE GLAZED, ARGON FILL, LOW E COATING. DOORS - FIREBGLASS W POLYSTYRENE CORE FDWR: 23.3 %	U _{SI} SHGC	UV<1.3 SHGC>0.28
Air Barrier System & Location	INTERNAL 6MIL POLY BARRIER	АСН	1.5
Space Conditioning (Heating & Cooling)	CONDENSING GAS FURNACE, GAS FIREPLACE. AIR SOURCE HEAT PUMP FOR SUITE	% , HSPF, or SEER	96% AFUE
Service Water Heating	ON-DEMAND CONDENSING GAS	EF	0.95
Ventilation	PRINCIPAL EXHAUST WITH FRESH AIR INTAKE TO FORCED AIR DUCTING/ PRINCIPAL EXHAUST AND PASSIVE AIR INLETS FOR SUITE	%	0
Other Energy Impacting Features	COOLING ELECTRIC	SEER	15



CASE 2: STEP 4 NATURAL GAS PRIMARY



	Rated Annual Energ	у	72 GJ	_	Energy Consumption:
	Electricity Natural gas	42 30			F A Space heating 30% B Space cooling 6% C Water heating 20% D Ventilation 1%
	On-site renewable energy contributions	I	- 0 GJ		E Lights & appliances 25% F Other electrical 18%
	Electricity Solar water heating	0 0			
Fi	nerGuide Rating: igures may not a ounding.	dd up (= 72 GJ due to		Rated Energy Intensity: 0.25 GJ/m²/year Rated Greenhouse 3.6 tonnes/year

D: 9.36.6. ENERGY STEP CODE COMPLIANCE						
Proposed House Rated Energy Consumption (GJ/year): 41	House Ra	ated Ene	ergy Target	(GJ/year):	71	
					Ргор	
Proposed House Metrics	Proposed House	Proposed House				
Step Code Level	Step 1, 2	, 3, 4 or 5	4			Pass or
Mechanical Energy Use Intensity (MEUI) - Roquires H072000 Design Cooling Lood (Instits) to	39	Pass				
ERS Rating % Lower Than EnerGuide Reference House, where applicable	42.1	Fass				
Thermal Energy Demand Intensity (TEDI)	kWh	/(m³·year)	20	(max)	30	
Adjusted TEDI	kWh	/(m³·year)	27	(max)	30.000000	Pass
Building Envelope % Better		~	20	(min)	26	
Airtightness in Air Changes per Hour at 50 Pa differential	ACH	@ 50 Pa	1.5	(max)	1.50	Pass
Step Code Requirements Met:						

Energy Sources	Rated Consumption (GJ/year)	Equivalent Units (per year)	Greenhouse Gas Emissions (tonnes/year)
Electricity	42	11634 kWh	0.1
Natural gas	30	796 m3	1.5
Total	72		1.6

Greenhouse Gas Emissions Intensity (kg of CO₂/(m².year))





CASE 2: STEP 5 ELECTRIC PRIMARY

Upgrades include: R 24 foundation walls (ICF), R 24 effective for A.G walls, R 60 in ceilings, ACH set to 1.0, Heat pump for Main and suite, HRV, Triple Glaze windows UV<0.9







Building Type*:	Single Detached	d w/Secondary Suite 🚽				
If Other, Please Spec	ify:					
Number of Dwelling	Units:	2				
Climate Zone:		4 - Less than 3000				
Heating Degree Days	:	2,858				
Floor Area of Conditi	ioned Space (m ²	2): 291.88				

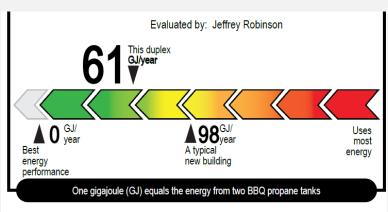
B: BUILDING CHARACTERISTICS SUMMARY (see BCBC Clause 2.2.8.3.(2)(b) of Division C

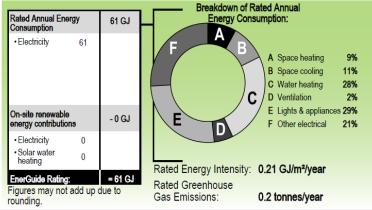
	Details (Assembly / System Type / Fuel Type / Etc.)		Eff R _{si} , U _{si} , SHGC, etc
Exterior Walls & Floor Headers	R 23.59 effective R (2 by 6 W R 20 batt. 2" rigid exterior insulation)	Effectiv e R _{SI}	4.2
Roof / Ceilings	Effectiv e R _{SI}	9.1	
Foundation Walls, Headers, & Slabs	Effectiv e R _{SI}	4.2	
	Slab Is: 🔽 Below OR 🗹 Above Frost Line 🛛 Heated OR 🗹 Unheated		
Floors Over Unheated Spaces	FINISH FLOORING, 3/4" PLY SUBFLOOR, CWJ 11 7/8" @ 16" O.C., R 28 BATT INS, METAL SOFFIT	Effectiv e R _{SI}	5.44
	WINDOWS - TRIPLE GLAZED, ARGON FILL, LOW E COATING. DOORS - FIREBGLASS W POLYSTYRENE CORE	U _{SI} SHGC	UV<0.9 SHGC>0.27
	FDWR: <u>23.3</u> %		
Air Barrier System & Location	INTERNAL 6MIL POLY BARRIER	АСН	1.0
Space Conditioning (Heating & Cooling)	ELECTRIC HEAT PUMP FOR MAIN, GAS FIREPLACE. AIR SOURCE HEAT PUMP FOR SUITE	% , HSPF, or SEER	9
Service Water Heating	ELECTRIC TANK	EF	0.95
Ventilation	HRV FOR MAIN/ PRINCIPAL EXHAUST AND PASSIVE AIR INLETS FOR SUITE	%	75
Other Energy Impacting Features	COOLING ELECTRIC	SEER	15



CASE 2: STEP 5 ELECTRIC PRIMARY

D: 9.36.6. ENERGY STEP CODE COMPLIANCE





Proposed House Rated Energy Consumption (GJ/year):	- 30	House R	lated Ene	ergy Target	(GJ/year):	67	
						Ргор	osed
Proposed House Metrics Unit Required							Proposed House
Step Code Level		Step 1,	2, 3, 4 or 5	5			Pass or
Mechanical Energy Use Intensity (MEUI) - Requires HOT 2000 Design Cooling Los	29	Pass					
ERS Rating % Lower Than EnerGuide Reference House, where applicable % n/a (min)							Pass
Thermal Energy Demand Intensity (TEDI)		kWł	n/(m³∙year)	15	(max)	16	
Adjusted TEDI	kWł	n/(m³∙year)	19	(max)	16.000000	Pass	
Building Envelope % Better			%	50	(min)	57	
Airtightness in Air Changes per Hour at 50 Pa differential	1.00	Pass					
Step Code Requirements Met:							

Energy Sources	Rated Consumption (GJ/year)	Equivalent Units (per year)	Greenhouse Gas Emissions (tonnes/year)
Electricity	61	16961 kWh	0.2
Total	61		0.2

Greenhouse Gas Emissions Intensity (kg of CO2/(m².year))



CASE 2: STEP 5 NATURAL GAS PRIMARY

Upgrades include: R 24 foundation walls (ICF), R 30 effective for A.G walls, R 60 in ceilings, R40 in exposed floors, ACH set to 0.3, Heat pump for suite, HRV 90%, Triple Glaze windows UV<0.8







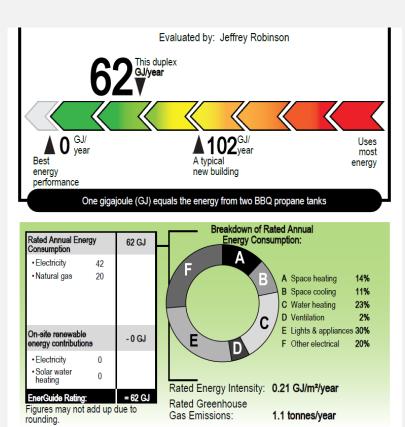
Building Type*:	Single I	Detached w/Secondary Suite					
If Other, Please Spec							
Number of Dwelling	2						
Climate Zone:		4 - L	ess th	an 30	00		
Heating Degree Days				2,85	8		
Floor Area of Conditi	bace (m ²):			291.8	8		

BUILDING CHARACTERISTICS SUMMARY (see BCBC Clause 2.2.8.3.(2)(b) of Division C)

			Eff R _{SI} , U _{SI} ,
	Details (Assembly / System Type / Fuel Type / Etc.)		SHGC, etc
Exterior Walls & Floor Headers	R 30 effective walls	Effectiv e R _{SI}	5.3
Roof / Ceilings	R 60 in all ceilings	Effectiv e R _{SI}	9.1
Foundation Walls, Headers, & Slabs	Effectiv e R _{SI}	4.2	
	Slab Is: 🗹 Below OR 🗹 Above Frost Line 🛛 Heated OR 🗹 Unheated		
Floors Over Unheated Spaces	R 40 in all exposed floors	Effectiv e R _{SI}	7.5
	WINDOWS -TRIPLE GLAZED, ARGON FILL, LOW E COATING. DOORS - FIREBGLASS W POLYSTYRENE CORE FDWR: 23.3 %	U _{SI} SHGC	UV<0.8 SHGC>0.26
Air Barrier System & Location	INTERNAL 6MIL POLY BARRIER, POSSIBLE AEROBARRIER TO ASSIST	АСН	0.3
Space Conditioning (Heating & Cooling)	CONDENSING GAS FURNACE, WITH AIR SOURCE HEAT PUMP SUITE , GAS FIREPLACE	% , HSPF, or SEFR	97% AFUE/ 8.5 HSPF
Service Water Heating	ON-DEMAND CONDENSING GAS	EF	0.97
Ventilation	HRV for main and suite	%	85-95
Other Energy Impacting Features	COOLING ELECTRIC	SEER	15



CASE 2: STEP 5 NATURAL GAS PRIMARY



D: 9.36.6. ENERGY STEP CODE COMPLIANCE

D. 3.30.0. ERENOT STEL CODE COM ER									
Proposed House Rated Energy Con	sumptior	n (GJ/year):	31	· House R	ated Ene	rgy Targe	t (GJ/year):	71	
								Prop	
Proposed House Metrics Unit Required							Proposed House	Proposed House	
Step Code Level	Step Code Level Step 1, 2, 3, 4 or 5 5								Pass or
Mechanical Energy Use Intensity (MEUI) - Requires H072000 Design Cooling Lood / Watts) to be enterliably hil(m ³ year) 30 (mail)								30	Pass
ERS Rating % Lower Than EnerGuide Reference House, where applicable %						nla	(min)	56.1	rass
Thermal Energy Demand Intensity (TEDI)				k₩ł	n/(m³-year)	15	(max)	17	
Adjusted TEDI				kWł	n/(m³·year)	19	(max)	17.000000	Pass
Building Envelope % Better					7.	50	(minj	59	
Airtightness in Air Changes per Hour at 50 Pa differential ACH @ 50 Pa 1 (max)								0.30	Pass
					Step Cod	e Require	ments Met:	Yes	

Energy Sources	Rated Consumption (GJ/year)	Equivalent Units (per year)	Greenhouse Gas Emissions (tonnes/year)
Electricity	42	11617 kWh	0.1
Natural gas	20	532 m3	1.0
Total	62		1.1

Greenhouse Gas Emissions Intensity (kg of CO2/(m2.year))





THANK YOU

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