



STEP 4 AND 5 CASE STUDY



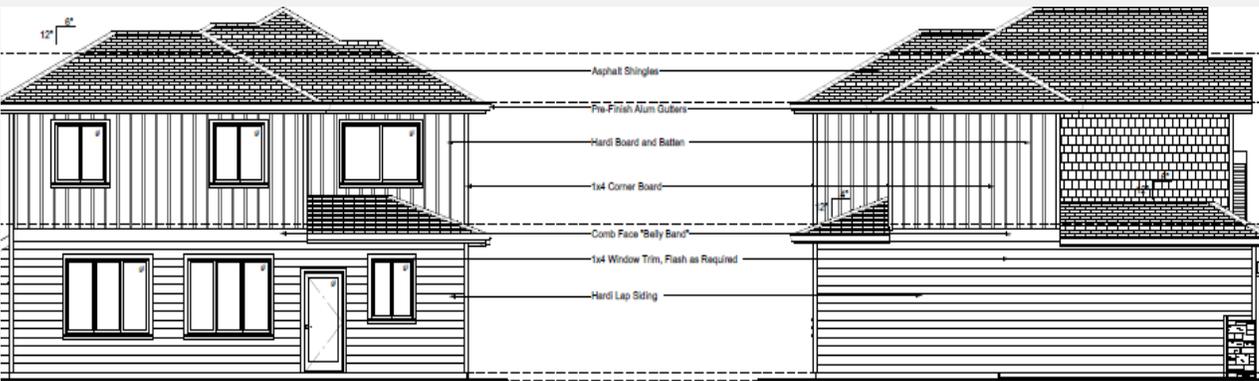
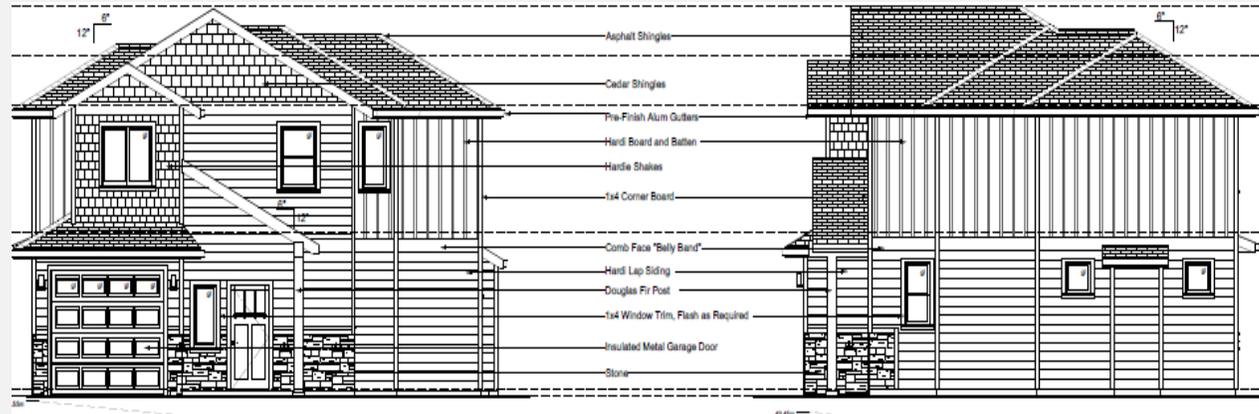
ABOUT US

*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



Building Type:	Single Detached
If Other, Please Specify:	
Number of Dwelling Units:	1
Climate Zone:	4 - Less than 3000
Heating Degree Days:	2,858
Floor Area of Conditioned Space (m ²):	205.00

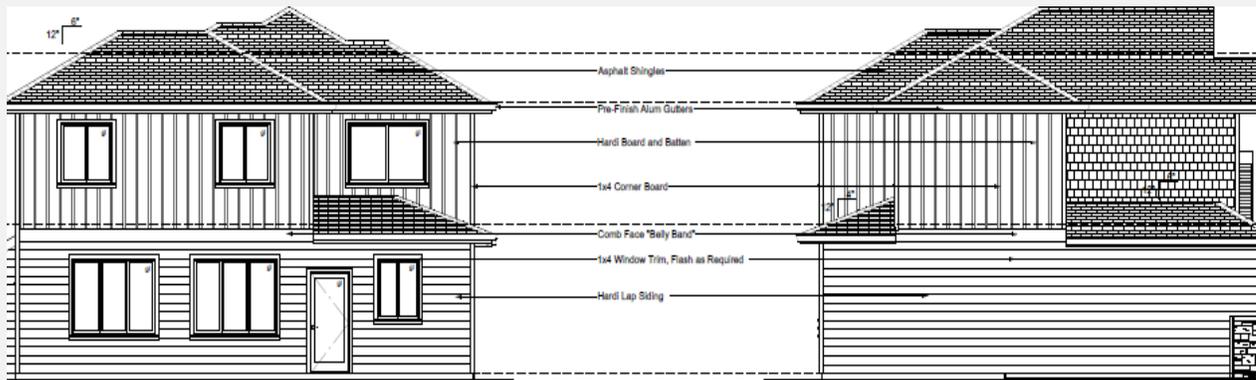
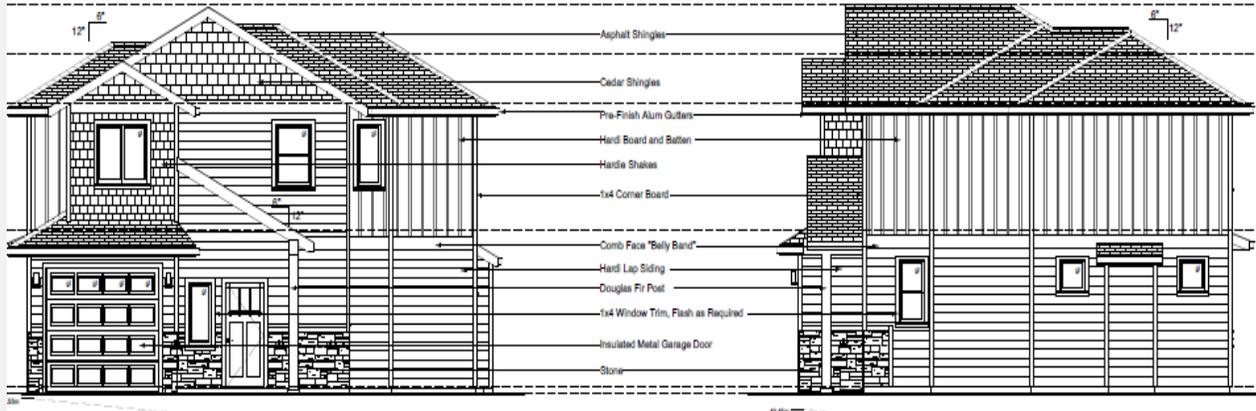
B: BUILDING CHARACTERISTICS SUMMARY (see BCBC Clause 2.2.8.3.(2)(b) of Division C)

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-19 batt, 1/2" OSB, Hardi, 1/2" gyp	Effective R _{SI} 2.9
Roof / Ceilings	2 by 4 Truss @ 24" o/c, R-40 blown in fiberglass	Effective R _{SI} 6.5
Foundation Walls, Headers, & Slabs	8" concrete wall (4 ft) with R 12 batt or rigid	Effective R _{SI} 2.1
	Slab Is: <input checked="" type="checkbox"/> Below OR <input type="checkbox"/> Above Frost Line <input type="checkbox"/> Heated OR <input checked="" type="checkbox"/> Unheated	
Floors Over Unheated Spaces	2 by 10" @ 16" o/c w R 28 batt	Effective R _{SI} 4.9
Fenestration & Doors	Double glaze, vinyl frame, low e, argon gas,	U _{SI} SHGC UV<1.7
	FDWR: 10.3 %	
Air Barrier System & Location	Interior poly air barrier approach	ACH 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

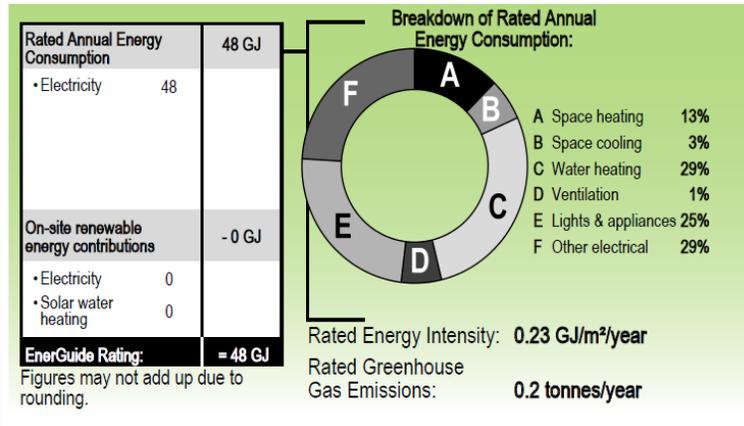
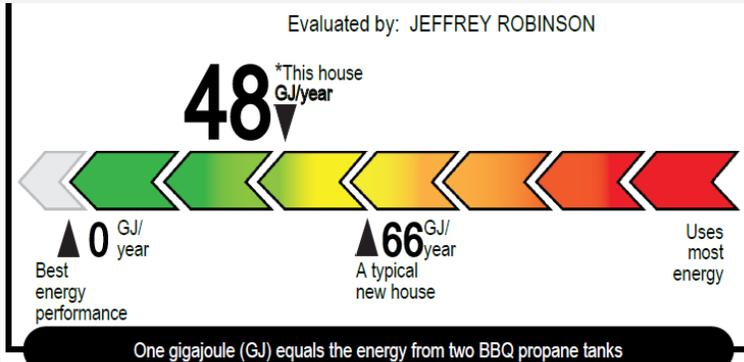
Building Type:	Single Detached
If Other, Please Specify:	
Number of Dwelling Units:	1
Climate Zone:	4 - Less than 3000
Heating Degree Days:	2,858
Floor Area of Conditioned Space (m ²):	205.00



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	Effective R _{SI} 3.3
Roof / Ceilings	2 by 4 Truss @ 24" o/c, R-60 blown in fiberglass	Effective R _{SI} 8.7
Foundation Walls, Headers, & Slabs	8" concrete wall (4 ft) with R 12 batt or rigid Slab Is: <input checked="" type="checkbox"/> Below OR <input type="checkbox"/> Above Frost Line <input type="checkbox"/> Heated OR <input checked="" type="checkbox"/> Unheated	Effective R _{SI} 2.1
Floors Over Unheated Spaces	2 by 10" @ 16" o/c w R 28 batt	Effective R _{SI} 4.9
Fenestration & Doors	Double glaze, vinyl frame, low e , argon gas, FDWR: 10.3 %	U _{SI} SHGC UV<1.7
Air Barrier System & Location	Interior poly air barrier approach	ACH 1.5
Space Conditioning (Heating & Cooling)	Electric air source heat pump	HSPF 8.5
Service Water Heating	Electric tank	EF or % eff 0.9
Ventilation	CRV	% Eff 0
Other Energy Impacting Features	Cooling via Electric air source pump	SEER 18

CASE 1: STEP 4 ELECTRIC HOME



D: 9.36.6. ENERGY STEP CODE COMPLIANCE

Proposed House Rated Energy Consumption (GJ/year): **22**

Reference House Rated Energy Target (GJ/year): **40**

Proposed House Metrics	Unit	Required	Proposed Calculations	
			Proposed House	Proposed House
Step Code Level	Step 1, 2, 3, 4 or 5	4		Pass or Fail
Mechanical Energy Use Intensity (MEUI) - R requires HDT2000 Design Cooling Load (Watts) to be entered	kWh/(m ² -year)	48 (max)	30	Pass
ERS Rating % Lower Than EnerGuide Reference House, where applicable	%	40 (min)	44.6	Pass
Thermal Energy Demand Intensity (TEDl)	kWh/(m ² -year)	20 (max)	25	Pass
Adjusted TEDl	kWh/(m ² -year)	27 (max)	25	Pass
Building Envelope % Better	%	20 (min)	20	Pass
Airtightness in Air Changes per Hour at 50 Pa differential	ACH @ 50 Pa	1.5 (max)	1.50	Pass
Step Code Requirements Met:			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))

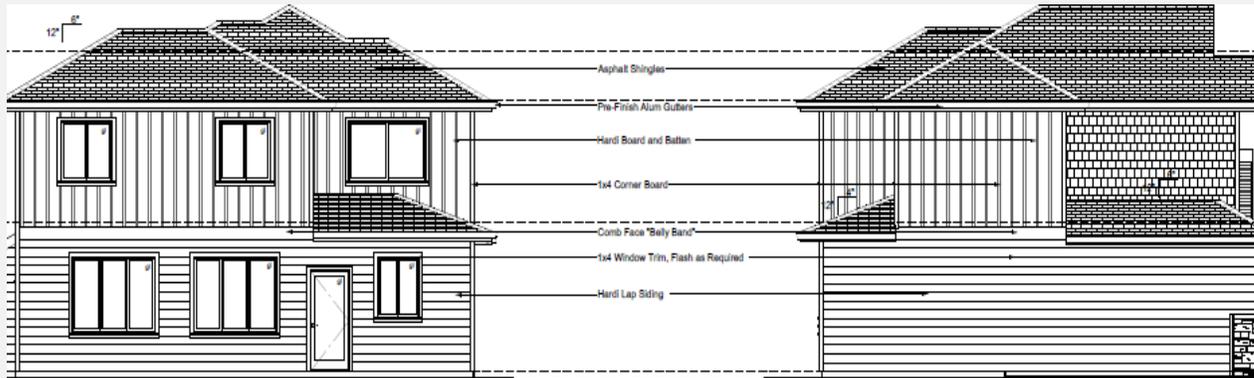
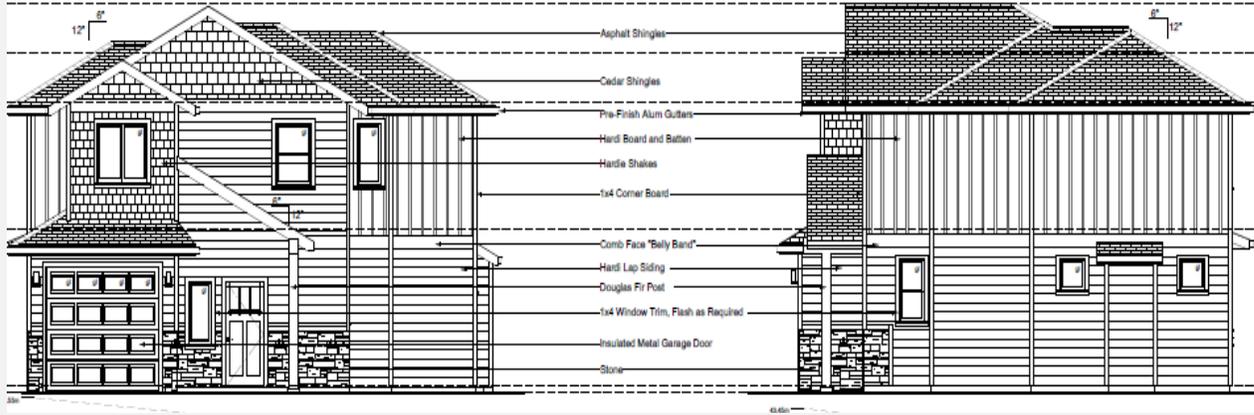
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CASE 1: STEP 4 NATURAL GAS

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

Building Type:	Single Detached
If Other, Please Specify:	
Number of Dwelling Units:	1
Climate Zone:	4 - Less than 3000
Heating Degree Days:	2,858
Floor Area of Conditioned Space (m ²):	205.00

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



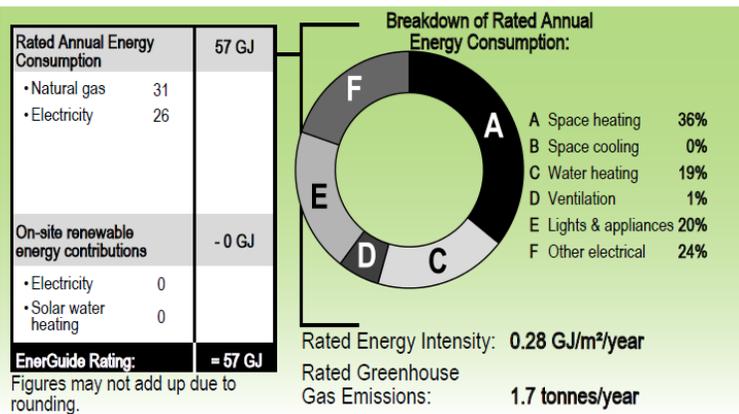
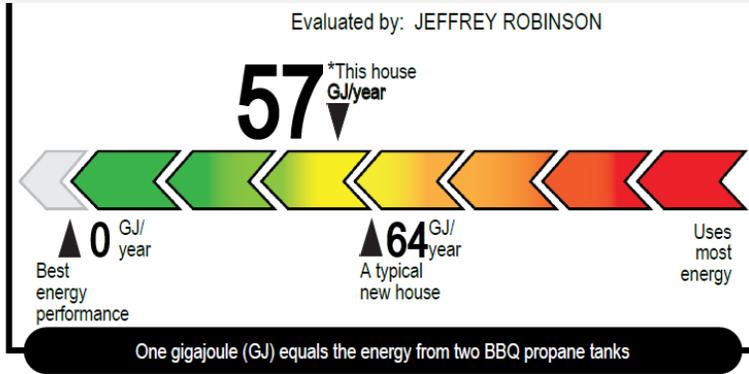
Details (Assembly / System Type / Fuel Type / Etc.)		Eff R _{SI} , U _{SI} , SHGC, etc
Exterior Walls & Floor Headers	2 by 6 @ 16" o/c , R-22 batt, 1/2" OSB, Hardi, 1/2" gyp	Effective R _{SI} 3.3
Roof / Ceilings	2 by 4 Truss @ 24" o/c, R-60 blown in fiberglass	Effective R _{SI} 8.7
Foundation Walls, Headers, & Slabs	8" concrete wall (4 ft) with R 12 batt or rigid Slab Is: <input checked="" type="checkbox"/> Below OR <input type="checkbox"/> Above Frost Line <input type="checkbox"/> Heated OR <input checked="" type="checkbox"/> Unheated	Effective R _{SI} 2.1
Floors Over Unheated Spaces	2 by 10" @ 16" o/c w R 28 batt	Effective R _{SI} 4.9
Fenestration & Doors	Double glaze, vinyl frame, low e , argon gas, FDWR: 10.3 %	U _{SI} SHGC UV<1.7
Air Barrier System & Location	Interior poly air barrier approach	ACH 1.5
Space Conditioning (Heating & Cooling)	Natural Gas condensing furnace	AFUE 95
Service Water Heating	Natural Gas condensing on demand	EF or % eff 0.97
Ventilation	CRV	% Eff 0
Other Energy Impacting Features	N/A	N/A

CASE 1: STEP 4 NATURAL GAS HOME

D: 9.36.6. ENERGY STEP CODE COMPLIANCE

Proposed House Rated Energy Consumption (GJ/year): **31** Reference House Rated Energy Target (GJ/year): **38**

Proposed House Metrics	Unit	Required	Proposed Calculations	
			Proposed House	Proposed House
Step Code Level	Step 1, 2, 3, 4 or 5	4		Pass or Fail
Mechanical Energy Use Intensity (MEUI) - R requires HDT2000 Design Cooling Load (Watts) to be entered	kWh/(m ² -year)	48 (max)	43	Pass
ERS Rating % Lower Than EnerGuide Reference House, where applicable	%	40 (min)	18.2	
Thermal Energy Demand Intensity (TEDl)	kWh/(m ² -year)	20 (max)	27	
Adjusted TEDl	kWh/(m ² -year)	27 (max)	27	Pass
Building Envelope % Better	%	20 (min)	16	
Airtightness in Air Changes per Hour at 50 Pa differential	ACH @ 50 Pa	1.5 (max)	1.50	Pass
Step Code Requirements Met:			Yes	



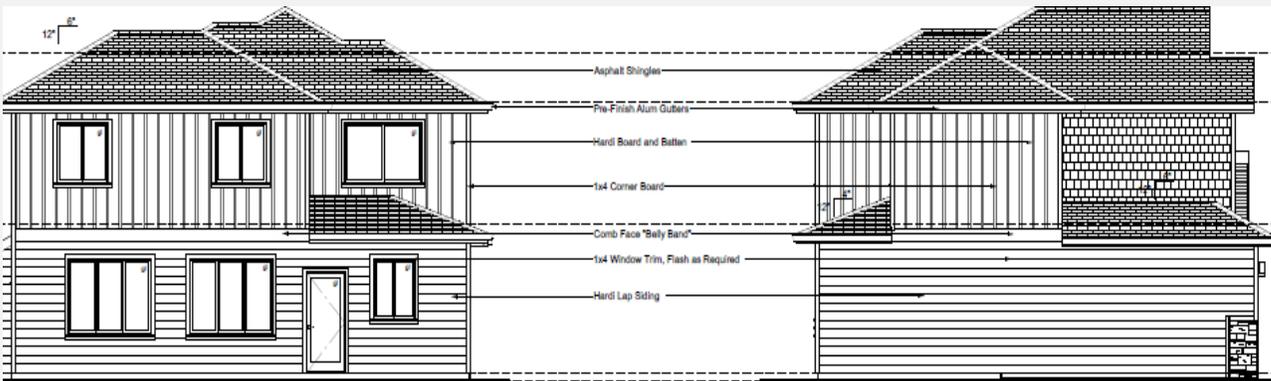
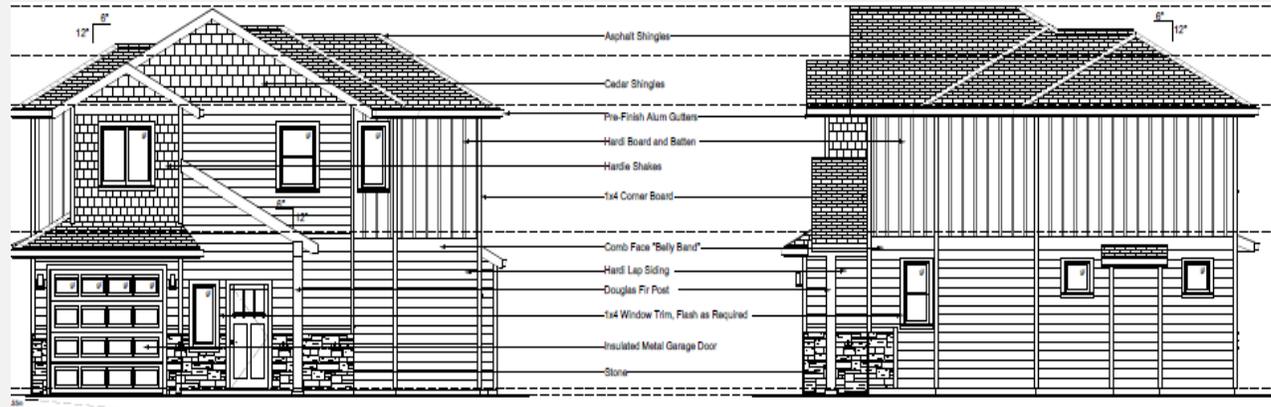
Energy Sources	Rated Consumption (GJ/year)	Equivalent Units (per year)	Greenhouse Gas Emissions (tonnes/year)
Natural gas	31	841 m ³	1.6
Electricity	26	7237 kWh	0.1
Total	57		1.7

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

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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

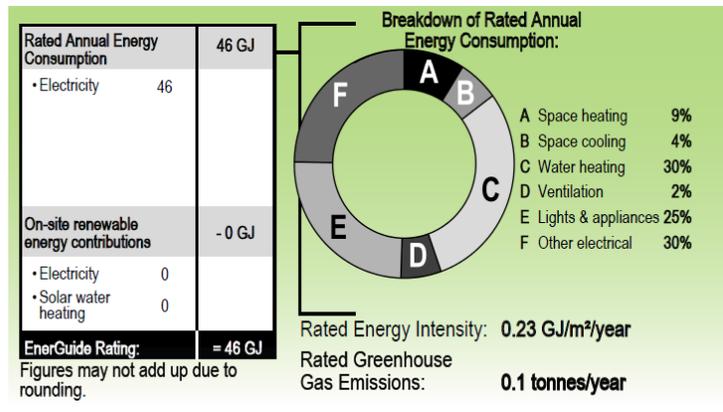
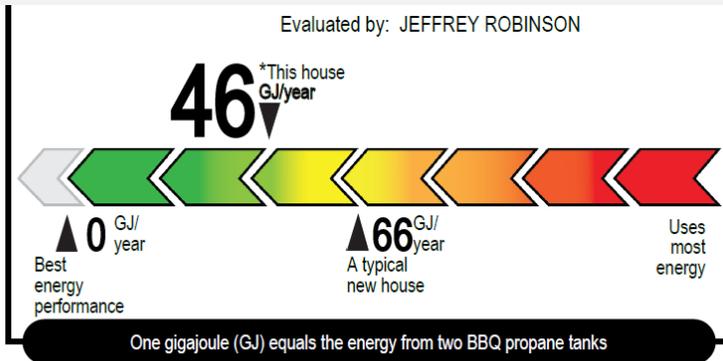


Building Type:	Single Detached
If Other, Please Specify:	
Number of Dwelling Units:	1
Climate Zone:	4 - Less than 3000
Heating Degree Days:	2,858
Floor Area of Conditioned Space (m ²):	205.00

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-24 batt, 1/2" OSB, Hardi, 1/2" gyp	Effective R _{SI} 3.3
Roof / Ceilings	2 by 4 Truss @ 24" o/c, R-60 blown in fiberglass	Effective R _{SI} 8.7
Foundation Walls, Headers, & Slabs	8" concrete wall (4 ft) with R 23.59 Rigid (ICF) Slab Is: <input checked="" type="checkbox"/> Below OR <input type="checkbox"/> Above Frost Line <input type="checkbox"/> Heated OR <input checked="" type="checkbox"/> Unheated	Effective R _{SI} 4.2
Floors Over Unheated Spaces	2 by 10" @ 16" o/c w R 28 batt	Effective 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	ACH 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 COMPLIANCE

Proposed House Rated Energy Consumption (GJ/year):	19	Reference House Rated Energy Target (GJ/year):	40
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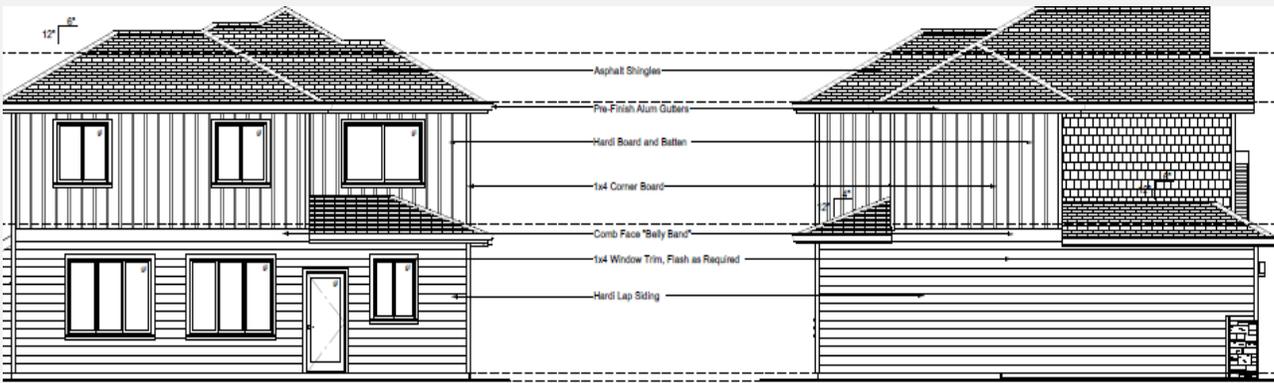
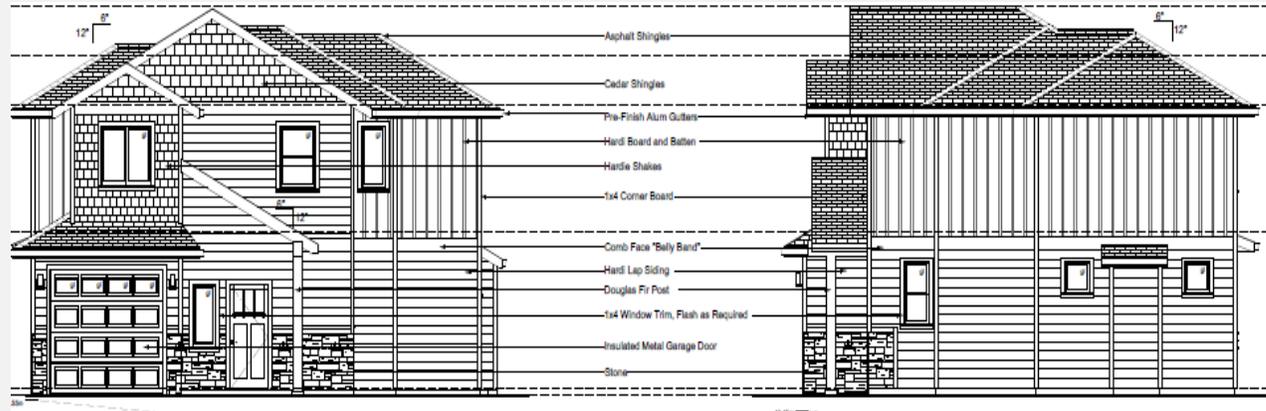
Proposed House Metrics	Unit	Required	Proposed Calculations	
			Proposed House	Proposed House
Step Code Level	Step 1, 2, 3, 4 or 5	5		Pass or Fail
Mechanical Energy Use Intensity (MEUI) - R requires HOT2000 Design Cooling Load (Watts) to be entered	kWh/(m ² -year)	33 (max)	26	Pass
ERS Rating % Lower Than EnerGuide Reference House, where applicable	%	n/a (min)		
Thermal Energy Demand Intensity (TEDI)	kWh/(m ² -year)	15 (max)	19	
Adjusted TEDI	kWh/(m ² -year)	19 (max)	19	Pass
Building Envelope % Better	%	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 Detached
If Other, Please Specify:	
Number of Dwelling Units:	1
Climate Zone:	4 - Less than 3000
Heating Degree Days:	2,858
Floor Area of Conditioned Space (m ²):	205.00

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-24 batt, 1/2" OSB, Hardi, 1/2" gyp	Effective R _{SI} 3.3
Roof / Ceilings	2 by 4 Truss @ 24" o/c, R-60 blown in fiberglass	Effective R _{SI} 8.7
Foundation Walls, Headers, & Slabs	8" concrete wall (4 ft) with R 23.59 Rigid (ICF) Slab Is: <input checked="" type="checkbox"/> Below OR <input type="checkbox"/> Above Frost Line <input type="checkbox"/> Heated OR <input checked="" type="checkbox"/> Unheated	Effective R _{SI} 4.2
Floors Over Unheated Spaces	2 by 10" @ 16" o/c w R 28 batt	Effective R _{SI} 4.9
Fenestration & Doors	Triple glaze, vinyl frame, low e , argon gas, FDWR: 10.3 %	U _{SI} SHGC UV<1.2
Air Barrier System & Location	Interior poly air barrier approach	ACH 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

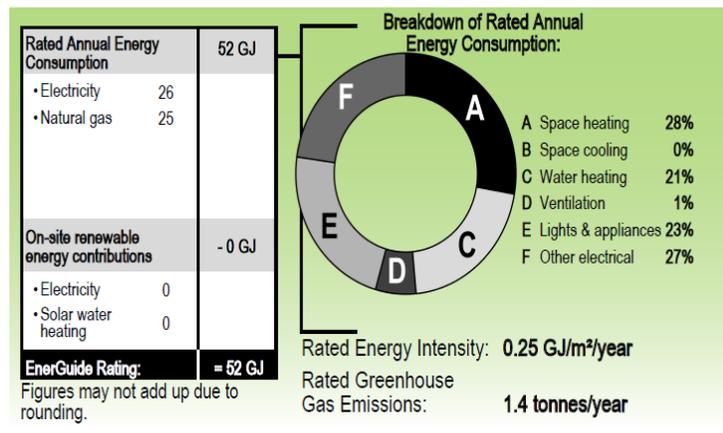
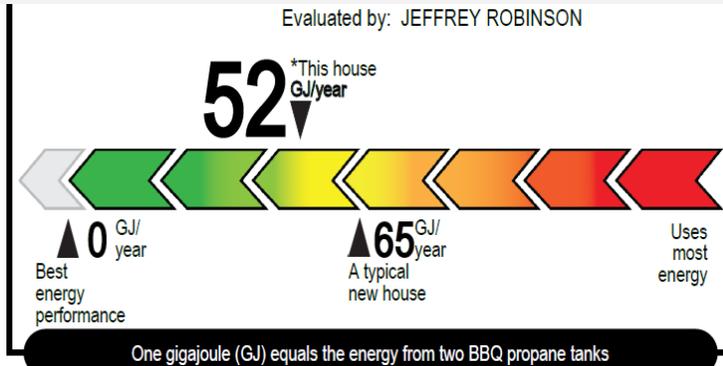
CASE 1: STEP 5 NATURAL GAS HOME

D: 9.36.6. ENERGY STEP CODE COMPLIANCE

Proposed House Rated Energy Consumption (GJ/year): 24

Reference House Rated Energy Target (GJ/year): 39

Proposed House Metrics	Unit	Required	Proposed Calculations	
			Proposed House	Proposed House
Step Code Level	Step 1, 2, 3, 4 or 5	5		Pass or Fail
Mechanical Energy Use Intensity (MEUI) - R requires HDT2000 Design Cooling Load (Watts) to be entered	kWh/(m ² -year)	33 (max)	33	Pass
ERS Rating % Lower Than EnerGuide Reference House, where applicable	%	n/a (min)		
Thermal Energy Demand Intensity (TEDI)	kWh/(m ² -year)	15 (max)	19	Pass
Adjusted TEDI	kWh/(m ² -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 m ³	1.3
Total	54		1.4

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

6

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



FRONT PERSPECTIVE
NOT TO SCALE



FRONT PERSPECTIVE 2
NOT TO SCALE



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

B: BUILDING CHARACTERISTICS SUMMARY (see BCBC Clause 2.2.8.3.(2)(b) of Division C)		Eff R _{S1} , U _{S1r} , SHGC, etc
Details (Assembly / System Type / Fuel Type / Etc.)		
Exterior Walls & Floor Headers	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	Effective R _{S1} 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	Effective R _{S1} 6.9
Foundation Walls, Headers, & Slabs	8" CONCRETE, 2 X 4" @ 16" O.C., R 14 BATT INS. 1/2" DRYWALL, SLAB ON GRADE Slab Is: <input checked="" type="checkbox"/> Below OR <input checked="" type="checkbox"/> Above Frost Line <input type="checkbox"/> Heated OR <input checked="" type="checkbox"/> Unheated	Effective R _{S1} 2.9
Floors Over Unheated Spaces	FINISH FLOORING, 3/4" PLY SUBFLOOR, CWJ 11 7/8" @ 16" O.C., R 28 BATT INS, METAL SOFFIT	Effective R _{S1} 5.44
Fenestration & Doors	WINDOWS - DOUBLE GLAZED, ARGON FILL, LOW E COATING. DOORS - FIREGLASS W POLYSTYRENE CORE FDWR: 23.3 %	U _{S1} UV<1.3 SHGC SHGC>0.28
Air Barrier System & Location	INTERNAL 6MIL POLY BARRIER	ACH 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



FRONT PERSPECTIVE
NOT TO SCALE



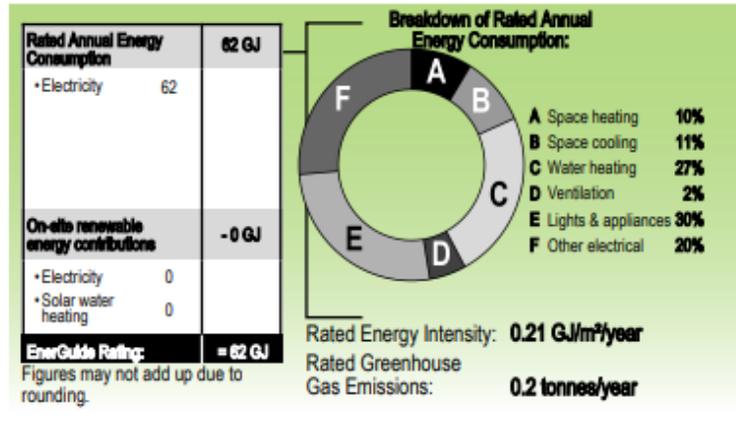
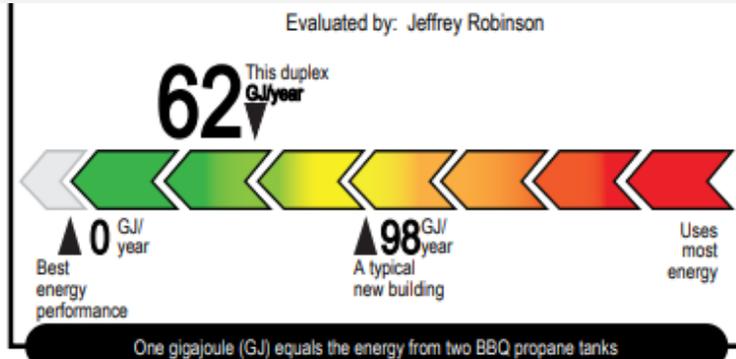
FRONT PERSPECTIVE 2
NOT TO SCALE



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

B: BUILDING CHARACTERISTICS SUMMARY (see BCBC Clause 2.2.8.3.(2)(b) of Division C)		Eff R _{SI} , U _{SI} , SHGC, etc	
Details (Assembly / System Type / Fuel Type / Etc.)			
Exterior Walls & Floor Headers	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	Effective R _{SI}	3.3
Roof / Ceilings	2 X 4" ATTIC TRUSS @ 24" O.C., R60 ALL CEILINGS 1/2" DRYWALL	Effective R _{SI}	9.1
Foundation Walls, Headers, & Slabs	8" CONCRETE, R23.59 (ICF), 1/2" DRYWALL, SLAB ON GRADE	Effective R _{SI}	4.2
	Slab Is: <input checked="" type="checkbox"/> Below OR <input checked="" type="checkbox"/> Above Frost Line <input type="checkbox"/> Heated OR <input checked="" type="checkbox"/> Unheated		
Floors Over Unheated Spaces	FINISH FLOORING, 3/4" PLY SUBFLOOR, CWJ 11 7/8" @ 16" O.C., R 28 BATT INS, METAL SOFFIT	Effective R _{SI}	5.44
Fenestration & Doors	WINDOWS - DOUBLE GLAZED, ARGON FILL, LOW E COATING. DOORS - FIREGLASS W POLYSTYRENE CORE FDWR: 23.3 %	U _{SI} SHGC	UV<1.3 SHGC>0.28
Air Barrier System & Location	INTERNAL 6MIL POLY BARRIER	ACH	1.5
Space Conditioning (Heating & Cooling)	ELECTRIC AIR SOURCE HEAT PUMP, BASEBOARDS FOR SUITE	%, HSPF, or SEER	8.5 HSPF
Service Water Heating	ELECTRIC TANK	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 ELECTRIC PRIMARY



D: 9.36.6. ENERGY STEP CODE COMPLIANCE

Proposed House Rated Energy Consumption (GJ/year): 31 House Rated Energy Target (GJ/year): 69

Proposed House Metrics	Unit	Required	Proposed	
			House	House
Step Code Level	Step 1, 2, 3, 4 or 5	4		Pass or
Mechanical Energy Use Intensity (MEUI) - R requires HOT 2000 Design Cooling Load (Watts) to be entered	kWh/(m ² ·year)	45 (max)	30	Pass
ERS Rating % Lower Than EnergyGuide Reference House, where applicable	%	40 (min)	54.8	Pass
Thermal Energy Demand Intensity (TEDI)	kWh/(m ² ·year)	20 (max)	22	Pass
Adjusted TEDI	kWh/(m ² ·year)	27 (max)	22.000000	Pass
Building Envelope % Better	%	20 (min)	47	Pass
Airtightness in Air Changes per Hour at 50 Pa differential	ACH@ 50 Pa	1.5 (max)	1.50	Pass
Step Code Requirements Met:			Yes	

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))

0

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 Detached w/Secondary Suite
If Other, Please Specify:	
Number of Dwelling Units:	2
Climate Zone:	4 - Less than 3000
Heating Degree Days:	2,858
Floor Area of Conditioned Space (m ²):	291.88



FRONT PERSPECTIVE
NOT TO SCALE



FRONT PERSPECTIVE 2
NOT TO SCALE



B: BUILDING CHARACTERISTICS SUMMARY (see BCBC Clause 2.2.8.3.(2)(b) of Division C)		Eff R _{SI} , U _{SI} , SHGC, etc
Details (Assembly / System Type / Fuel Type / Etc.)		
Exterior Walls & Floor Headers	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	Effective R _{SI} 3.3
Roof / Ceilings	2 X 4" ATTIC TRUSS @ 24" O.C., R 60 ALL CEILINGS, 1/2" DRYWALL	Effective R _{SI} 9.1
Foundation Walls, Headers, & Slabs	8" CONCRETE, R 23.59 (ICF) 1/2" DRYWALL, SLAB ON GRADE Slab Is: <input checked="" type="checkbox"/> Below OR <input checked="" type="checkbox"/> Above Frost Line <input type="checkbox"/> Heated OR <input checked="" type="checkbox"/> Unheated	Effective R _{SI} 4.2
Floors Over Unheated Spaces	FINISH FLOORING, 3/4" PLY SUBFLOOR, CWJ 11 7/8" @ 16" O.C., R 28 BATT INS, METAL SOFFIT	Effective R _{SI} 5.44
Fenestration & Doors	WINDOWS - DOUBLE GLAZED, ARGON FILL, LOW E COATING. DOORS - FIREGLASS W POLYSTYRENE CORE FDWR: 23.3 %	U _{SI} UV<1.3 SHGC SHGC>0.28
Air Barrier System & Location	INTERNAL 6MIL POLY BARRIER	ACH 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

D: 9.36.6. ENERGY STEP CODE COMPLIANCE

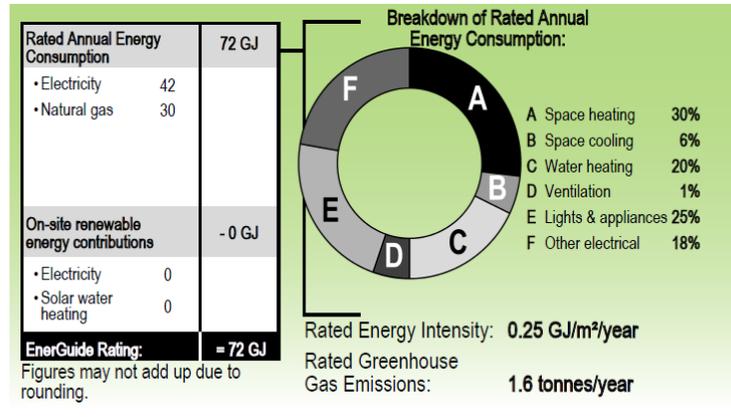
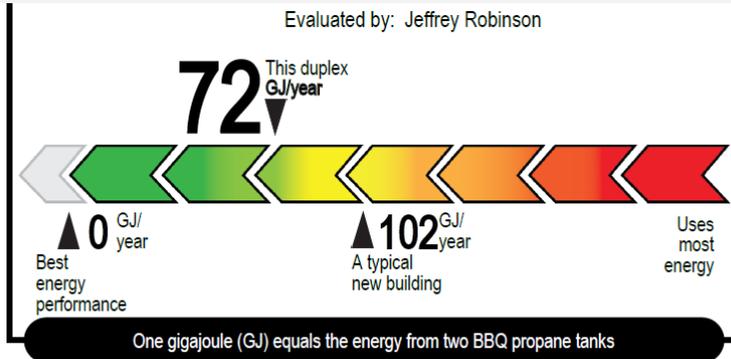
Proposed House Rated Energy Consumption (GJ/year): **41** House Rated Energy Target (GJ/year): **71**

Proposed House Metrics	Unit	Required	Proposed	
			Proposed House	Proposed House
Step Code Level	Step 1, 2, 3, 4 or 5	4		Pass or
Mechanical Energy Use Intensity (MEUI) - Requires HGT2000 Design Cooling Load (Watts) to be entered	kWh/(m ² .year)	45 (max)	39	Pass
ERS Rating % Lower Than EnerGuide Reference House, where applicable	%	40 (min)	42.1	Pass
Thermal Energy Demand Intensity (TEDI)	kWh/(m ² .year)	20 (max)	30	Pass
Adjusted TEDI	kWh/(m ² .year)	27 (max)	30.000000	Pass
Building Envelope % Better	%	20 (min)	26	Pass
Airtightness in Air Changes per Hour at 50 Pa differential	ACH@ 50 Pa	1.5 (max)	1.50	Pass
Step Code Requirements Met:			Yes	

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 m ³	1.5
Total	72		1.6

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

5



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 w/Secondary Suite

If Other, Please Specify:

Number of Dwelling Units: 2

Climate Zone: 4 - Less than 3000

Heating Degree Days: 2,858

Floor Area of Conditioned Space (m²): 291.88



FRONT PERSPECTIVE
NOT TO SCALE

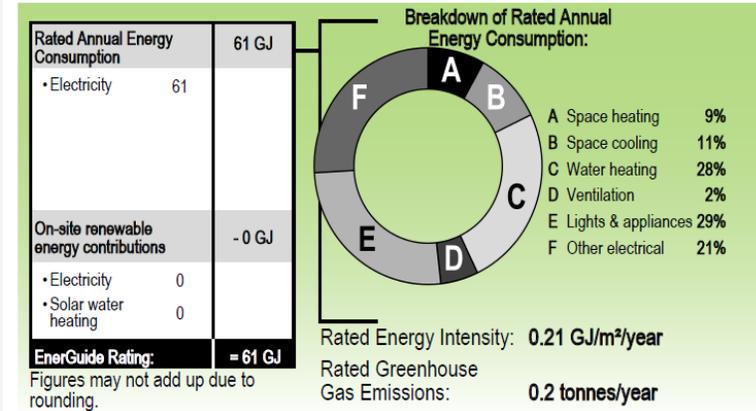
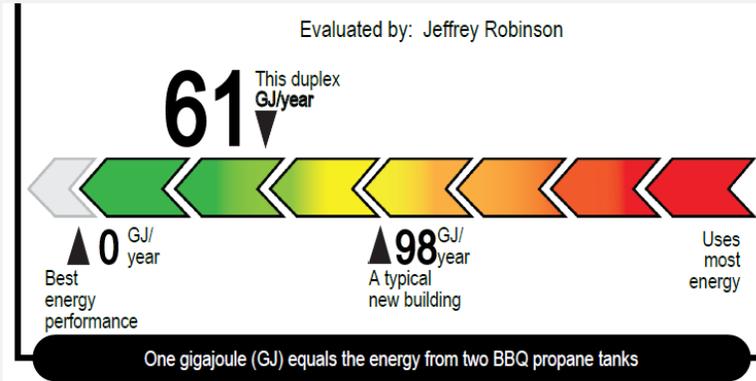


FRONT PERSPECTIVE 2
NOT TO SCALE



B: BUILDING CHARACTERISTICS SUMMARY (see BCBC Clause 2.2.8.3.(2)(b) of Division C)		Eff R _{SI} , U _{SI} , SHGC, etc	
Details (Assembly / System Type / Fuel Type / Etc.)			
Exterior Walls & Floor Headers	R 23.59 effective R (2 by 6 W R 20 batt, 2" rigid exterior insulation)	Effective R _{SI}	4.2
Roof / Ceilings	2 X 4" ATTIC TRUSS @ 24" O.C., R 60 ALL CEILINGS , 1/2" DRYWALL	Effective R _{SI}	9.1
Foundation Walls, Headers, & Slabs	8" CONCRETE, R 23.59 (ICF) 1/2" DRYWALL, SLAB ON GRADE R 20 under slabs Slab Is: <input checked="" type="checkbox"/> Below OR <input checked="" type="checkbox"/> Above Frost Line <input type="checkbox"/> Heated OR <input checked="" type="checkbox"/> Unheated	Effective R _{SI}	4.2
Floors Over Unheated Spaces	FINISH FLOORING, 3/4" PLY SUBFLOOR, CWJ 11 7/8" @ 16" O.C., R 28 BATT INS, METAL SOFFIT	Effective R _{SI}	5.44
Fenestration & Doors	WINDOWS - TRIPLE GLAZED, ARGON FILL, LOW E COATING. DOORS - FIREGLASS W POLYSTYRENE CORE FDWR: 23.3 %	U _{SI} SHGC	UV<0.9 SHGC>0.27
Air Barrier System & Location	INTERNAL 6MIL POLY BARRIER	ACH	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 Rated Energy Target (GJ/year): **67**

Proposed House Metrics	Unit	Required	Proposed	
			Proposed House	Proposed House
Step Code Level	Step 1, 2, 3, 4 or 5	5		Pass or
Mechanical Energy Use Intensity (MEUI) - Requires NOT 2000 Design Cooling Load (Watts) to be entered	kWh/(m ² ·year)	30 (max)	29	Pass
ERS Rating % Lower Than EnerGuide Reference House, where applicable	%	n/a (min)	55.0	
Thermal Energy Demand Intensity (TEDI)	kWh/(m ² ·year)	15 (max)	16	
Adjusted TEDI	kWh/(m ² ·year)	19 (max)	16.000000	Pass
Building Envelope % Better	%	50 (min)	57	
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	61	16961 kWh	0.2
Total	61		0.2

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

0

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



FRONT PERSPECTIVE
NOT TO SCALE



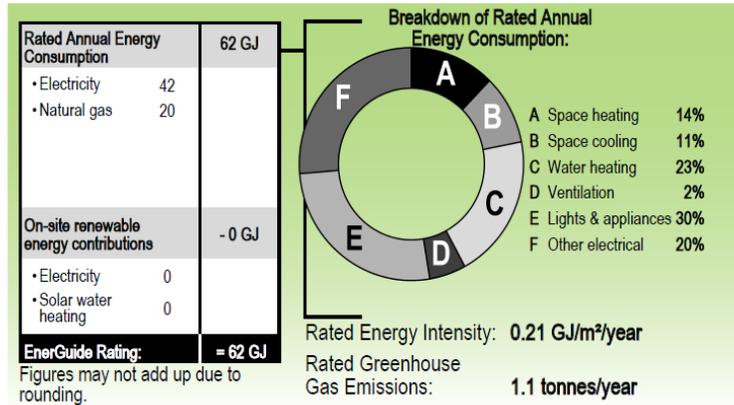
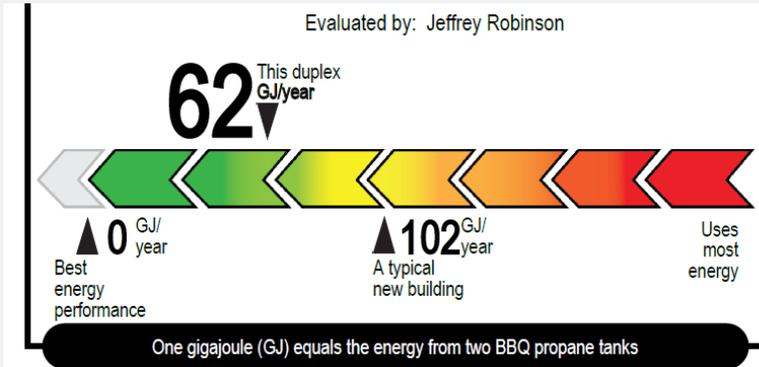
FRONT PERSPECTIVE 2
NOT TO SCALE



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

B: BUILDING CHARACTERISTICS SUMMARY (see BCBC Clause 2.2.8.3.(2)(b) of Division C)		Eff R _{SI} , U _{SI} , SHGC, etc	
Details (Assembly / System Type / Fuel Type / Etc.)			
Exterior Walls & Floor Headers	R 30 effective walls	Effective R _{SI}	5.3
Roof / Ceilings	R 60 in all ceilings	Effective R _{SI}	9.1
Foundation Walls, Headers, & Slabs	ICF R 23.59 Slab Is: <input checked="" type="checkbox"/> Below OR <input checked="" type="checkbox"/> Above Frost Line <input type="checkbox"/> Heated OR <input checked="" type="checkbox"/> Unheated	Effective R _{SI}	4.2
Floors Over Unheated Spaces	R 40 in all exposed floors	Effective R _{SI}	7.5
Fenestration & Doors	WINDOWS -TRIPLE GLAZED, ARGON FILL, LOW E COATING. DOORS - FIREGLASS 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	ACH	0.3
Space Conditioning (Heating & Cooling)	CONDENSING GAS FURNACE, WITH AIR SOURCE HEAT PUMP SUITE, GAS FIREPLACE	%, HSPF, or SEER	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

Proposed House Rated Energy Consumption (GJ/year): **31** House Rated Energy Target (GJ/year): **71**

Proposed House Metrics	Unit	Required	Proposed	
			House	House Pass or
Step Code Level	Step 1, 2, 3, 4 or 5	5		
Mechanical Energy Use Intensity (MEUI) - Requires HOT 2000 Design Cooling Load (Watts) to be entered	kWh/(m ² ·year)	30 (max)	30	Pass
ERS Rating % Lower Than EnerGuide Reference House, where applicable	%	n/a (min)	56.1	
Thermal Energy Demand Intensity (TEDI)	kWh/(m ² ·year)	15 (max)	17	
Adjusted TEDI	kWh/(m ² ·year)	19 (max)	17.000000	Pass
Building Envelope % Better	%	50 (min)	59	
Airtightness in Air Changes per Hour at 50 Pa differential	ACH@ 50 Pa	1 (max)	0.30	Pass
Step Code Requirements 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 m ³	1.0
Total	62		1.1

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

3

THANK YOU

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