

HOT2000

Natural Resources CANADA
Version 11.10



File: #11 Poplar Point - Square Structures - Proposed.h2k
House

Weather Library: C:\HOT2000 v11.10b20288\Dat\Wth2020.dir
Weather Data for: RED DEER REGIONAL, ALBERTA

Builder Code: #11 Poplar Point - Square
Struct

Data Entry by: Chelsah Thomas
Date of entry: 2021-04-26

Company: Sol Invictus Energy
Services

Client name: , Square Structures
Street address: Box 8986
City: Sylvan Lake
Postal code:

Region: ALBERTA
Telephone:

Mailing address: Box 8986
City: Sylvan Lake
Postal Code:

Region: ALBERTA

GENERAL HOUSE CHARACTERISTICS

House type: Single Detached
Number of storeys: One storey
Plan shape:
Front orientation: Northeast
Year House Built: 2021

Wall colour: Default **Absorptivity:** 0.40
Roof colour: Default **Absorptivity:** 0.40

Soil Condition: Normal conductivity (dry
sand, loam, clay)

Water Table Level: Normal (7-10m/23-33ft)

**House Thermal Mass
Level:** (A) Light, wood frame

Effective mass fraction 1.000

Occupants : 2 Adults for 50.0% of the time

1 Children for 50.0% of the time
0 Infants for 0.0% of the time

**Sensible Internal Heat
Gain From Occupants:** 2.00 kWh/day

HOUSE TEMPERATURES

Heating Temperatures

Main Floor	Daytime Setpoint:	21.0 °C
	Nighttime Setpoint:	18.0 °C
Basement	Nighttime Setback	8.0 Hours
	Duration:	
	24 Hour Average:	20.0 °C
	Setpoint:	19.0 °C
	TEMP. Rise from 20.0 °C:	5.5 °C

Cooling Temperature: Main Floor : 25.00 °C

Indoor design temperatures for equipment sizing

Heating:	22.0 °C
Cooling:	24.0 °C

WINDOW CHARACTERISTICS

Label	Location	#	Overhang Width (m)	Header Height (m)	Tilt deg	Curtain Factor	Shutter (RSI)
Southeast							
D2 Lite 1	D2 - Master	1	5.49	0.61	90.0	1.00	0.00
D2 Lite 2	D2 - Master	1	5.49	0.00	90.0	1.00	0.00
W1 - Study	Main floor - Brick	1	6.10	0.00	90.0	1.00	0.00
W10 - Master 3	Main floor - Stucco EIFS	1	5.49	0.61	90.0	1.00	0.00
W12 - Dining D	Main floor - Stucco EIFS	1	0.00	0.00	90.0	1.00	0.00
W13 - Kitchen D	Main floor - Stucco EIFS	1	0.00	0.00	90.0	1.00	0.00
W17/18 - Bed 2/Bed 1	Main floor - Metal	2	0.00	0.00	90.0	1.00	0.00
Northeast							
D1 Lite	D1	1	4.57	0.00	90.0	1.00	0.00
D1 Lites	D1	1	4.57	0.61	90.0	1.00	0.00
W2 - Study	Main floor - Brick	1	0.00	0.00	90.0	1.00	0.00
W3 - Dining	Main floor - Stucco EIFS	1	0.00	0.00	90.0	1.00	0.00
W4 - Living	Main floor	1	0.00	0.00	90.0	1.00	0.00

W5 - Ensuite	- Stucco EIFS Main floor	1	1.22	0.00	90.0	1.00	0.00
Northwest							
W14 - BBQ	- Stucco EIFS Main floor	1	6.71	0.00	90.0	1.00	0.00
W15 - Bed 2	- Metal Main floor	1	0.00	0.00	90.0	1.00	0.00
W20 - Mudroom	- Stucco EIFS Main floor	1	0.00	0.00	90.0	1.00	0.00
W6 - Dressing	- Metal Main floor	1	0.00	0.00	90.0	1.00	0.00
W7/8 - Master	- Metal Main floor	2	0.00	0.00	90.0	1.00	0.00
Southwest							
D3 Lite	D3	1	1.52	0.61	90.0	1.00	0.00
D3 Lites	D3	1	1.52	0.00	90.0	1.00	0.00
W11 - Living	- Stucco EIFS Main floor	1	5.49	0.00	90.0	1.00	0.00
W15 - Bed 2 2	- Metal Main floor	1	0.00	0.00	90.0	1.00	0.00
W9 - Master 2	- Metal Main floor	1	0.00	0.00	90.0	1.00	0.00

Label	Type	#	Window Width (m)	Window Height (m)	Total Area (m²)	Window RSI	SHGC	ER*
Southeast								
D2 Lite 1	1.21 UV .34 SHGC- Trip/2Coats	1	0.81	2.54	2.06	0.798	0.3328	30.0
D2 Lite 2	1.21 UV .34 SHGC- Trip/2Coats	1	0.28	2.54	0.71	0.526	0.2118	5.4
W1 - Study	1.07 UV . SHGC .34 - trp	1	1.00	1.78	1.78	0.925	0.3381	33.8
W10 - Master 3	.96 UV .34 SHGC trip	1	0.70	2.69	1.88	1.003	0.3298	35.3
W12 - Dining D	1.29 UV .31 SHGC -	1	3.78	2.74	10.37	0.988	0.3340	36.8

W13 - Kitchen D	trip-2c 1.29 UV .31 SHGC - trip-2c	1	3.78	2.74	10.37	0.988	0.3340	36.8
W17/18 - Bed 2/Bed 1	.96 UV .34 SHGC trip	2	1.22	1.78	4.34	1.055	0.3436	38.2
Northeast								
D1 Lite	.83 UV .34 SHGC trip	1	0.81	2.54	2.06	1.200	0.3357	39.4
D1 Lites	.83 UV .34 SHGC trip	1	0.96	2.69	2.59	1.207	0.3424	40.2
W2 - Study	1.07 UV . SHGC .34 - trp	1	2.13	1.78	3.78	1.011	0.3540	37.8
W3 - Dining	.96 UV .34 SHGC trip	1	0.76	2.69	2.05	1.016	0.3337	35.9
W4 - Living	.96 UV .34 SHGC trip	1	1.22	2.69	3.28	1.076	0.3496	38.7
W5 - Ensuite	.96 UV .34 SHGC trip	1	4.60	2.69	12.38	1.159	0.3690	42.1
Northwest								
W14 - BBQ	.96 UV .34 SHGC trip	1	1.14	0.57	0.65	0.934	0.3053	28.6
W15 - Bed 2	.96 UV .34 SHGC trip	1	0.63	2.69	1.71	0.987	0.3252	34.5
W20 - Mudroom	.96 UV .34 SHGC trip	1	1.39	2.69	3.74	1.089	0.3528	39.3
W6 - Dressing	.96 UV .34 SHGC trip	1	0.30	2.69	0.82	0.832	0.2701	24.8
W7/8 - Master	.96 UV .34 SHGC trip	2	0.61	2.69	3.28	0.980	0.3231	35.2

Southwest

D3 Lite	.83 UV .34 SHGC trip	1	0.81	2.54	2.06	1.200	0.3357	39.4
D3 Lites	.83 UV .34 SHGC trip	1	1.19	2.69	3.21	1.214	0.3490	41.0
W11 - Living	.96 UV .34 SHGC trip	1	1.22	2.69	3.28	1.076	0.3496	38.7
W15 - Bed 2 2	.96 UV .34 SHGC trip	1	0.97	2.69	2.60	1.049	0.3426	37.5
W9 - Master 2	.96 UV .34 SHGC trip	1	1.22	2.69	3.28	1.076	0.3496	38.7

*ER Window Energy Rating (ER 2009) estimated for actual dimensions, and Air tightness type: CSA - A1;
Leakage rate = 1.86 L/s.m²

Above grade fraction of wall area occupied by windows: 26.6 %

WINDOW CODE SCHEDULE

Name	Internal Code	Description (Glazings, Coatings, Fill, Spacer, Type, Frame)
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* Window Standard Energy Rating (ER 2009) estimated for assumed dimensions, and Air tightness type: CSA - A1; Leakage rate = 1.86 L/s.m²

***** TYPE 2 USER DEFINED WINDOW CODES *****

Code Label	Description	Glazing Type	Fill Gas	Thermal Resistance	SHGC	Window Style	Low -E Coating	Frame Height
1.21 UV .34 SHGC_Trip/2Coats		TG with 2 coatings	Argon	1.2100 W/m2-C	0.3400	Picture	Soft Coat	65.00
1.21 UV .34 SHGC_Trip/2Coats		TG with 2 coatings	Argon	1.2100 W/m2-C	0.3400	Picture	Soft Coat	65.00
1.07 UV . SHGC .34 _ trp		TG with 2 coatings	Argon	1.0700 W/m2-C	0.3400	Picture	Soft Coat	40.89
.96 UV .34 SHGC trip		TG with 2 coatings	Argon	0.9600 W/m2-C	0.3400	Picture	Soft Coat	42.93
1.29 UV .31 SHGC_ trip_2c		TG with 2 coatings	Argon	1.2900 W/m2-C	0.3100	Picture	Soft Coat	41.00
1.29 UV .31 SHGC_ trip_2c		TG with 2 coatings	Argon	1.2900 W/m2-C	0.3100	Picture	Soft Coat	41.00
.96 UV .34 SHGC trip		TG with 2 coatings	Argon	0.9600 W/m2-C	0.3400	Picture	Soft Coat	42.93
.83 UV .34 SHGC trip		TG with 2 coatings	Argon	0.8300 W/m2-C	0.3400	Picture	Soft Coat	42.93
.83 UV .34 SHGC trip		TG with 2 coatings	Argon	0.8300 W/m2-C	0.3400	Picture	Soft Coat	42.93
1.07 UV . SHGC .34 _ trp		TG with 2 coatings	Argon	1.0700 W/m2-C	0.3400	Picture	Soft Coat	40.89
.96 UV .34 SHGC trip		TG with 2 coatings	Argon	0.9600 W/m2-C	0.3400	Picture	Soft Coat	42.93
.96 UV .34 SHGC trip		TG with 2 coatings	Argon	0.9600 W/m2-C	0.3400	Picture	Soft Coat	42.93
.96 UV .34		TG with 2 coatings	Argon	0.9600 W/m2-C	0.3400	Picture	Soft Coat	42.93

SHGC trip .96 UV .34 SHGC trip .96 UV .34 SHGC trip .96 UV .34 SHGC trip .96 UV .34 SHGC trip .96 UV .34 SHGC trip .83 UV .34 SHGC trip .83 UV .34 SHGC trip .96 UV .34 SHGC trip .96 UV .34 SHGC trip .96 UV .34 SHGC trip	TG with 2 Argon coatings	0.9600 0.3400 W/m2-C	Picture	Soft Coat	42.93
	TG with 2 Argon coatings	0.9600 0.3400 W/m2-C	Picture	Soft Coat	42.93
	TG with 2 Argon coatings	0.9600 0.3400 W/m2-C	Picture	Soft Coat	42.93
	TG with 2 Argon coatings	0.9600 0.3400 W/m2-C	Picture	Soft Coat	42.93
	TG with 2 Argon coatings	0.9600 0.3400 W/m2-C	Picture	Soft Coat	42.93
	TG with 2 Argon coatings	0.8300 0.3400 W/m2-C	Picture	Soft Coat	42.93
	TG with 2 Argon coatings	0.8300 0.3400 W/m2-C	Picture	Soft Coat	42.93
	TG with 2 Argon coatings	0.9600 0.3400 W/m2-C	Picture	Soft Coat	42.93
	TG with 2 Argon coatings	0.9600 0.3400 W/m2-C	Picture	Soft Coat	42.93
	TG with 2 Argon coatings	0.9600 0.3400 W/m2-C	Picture	Soft Coat	42.93

BUILDING PARAMETER DETAILS

CEILING COMPONENTS

	Construction Type	Code Type	Roof Slope	Heel Ht. (m)	Section R. Area (m ²)	R. Value (RSI)
Ceiling01	Flat	2x4/24"OC/6"ccSPF/2"Rig	0.000/12	5.94	256.81	5.60

MAIN WALL COMPONENTS

Label	Lintel Type	Fac. Dir	Number of Corn.	Number of Inter.	Height (m)	Perim. (m)	Area (m ²)	R. Value (RSI)
Main floor - Adj Type: 2x6/R20B/16"OC/Garage	100	N/A	2	1	2.77	7.01	19.42	2.65
Main floor - Brick Type: 2x6/R20B/16"OC/Zip/Brick	100	N/A	2	1	2.77	6.98	19.34	3.52
Main floor - Metal Type: 2x6/R20B/16"OC/Zip/Met	100	N/A	13	1	2.77	52.85	146.43	4.04
Main floor - Stucco EIFS Type: 2x6/R20B/16"OC/2" EIFS	100	N/A	8	6	2.77	44.78	124.05	3.26

WALL CODE SCHEDULE

Name	Internal Code	Description (Structure, typ/size, Spacing, Insull, 2, Int., Sheathing, Exterior, Studs)
2x6/R20B/16"OC/Garage	1211301B01	Wood frame, 38x140 mm (2x6 in), 400 mm (16 in), RSI 3.52 @ 152 mm (R 20 @ 6.0") batt, None, 12 mm (0.5 in) gypsum board, Gypsum sheathing 12.7 mm (1/2 in), None, 3 studs

DOORS

Label	Type	Height (m)	Width (m)	Gross Area (m ²)	R. Value (RSI)
D1 Loc: Main floor - Stucco EIFS	User specified	2.69	2.26	6.09	1.20
D2 - Master Loc: Main floor - Stucco EIFS	User specified	2.69	1.52	4.10	0.83
D3 Loc: Main floor - Stucco EIFS	User specified	2.69	2.44	6.57	0.94
D4 Loc: Main floor - Adj	User specified	2.13	0.86	1.84	0.94

USER-DEFINED STRUCTURE CODES SCHEDULE

Name	Description
112x6/R20B/16"OC/Zip/Brick	
112x6/R20B/16"OC/Zip/Met	
112x6/R20B/16"OC/2" EIFS	
212x4/24"OC/6"ccSPF/2"Rig	

FOUNDATIONS

Foundation Name: Foundation - 1
Foundation Type: Slab-on-grade
Data Type: Library
Thermal break R-value: 1.29 RSI
Skirt R-value: 1.28 RSI

Non-Rectangular Floor**Shape****Floor Perimeter:** 76.26 m**Floor Area:** 175.89 m²

Added to Slab Type: 50 mm (2 in) EPS I
R-value : 1.28 RSI

Exposed areas for: Foundation - 1
Exposed Perimeter: 70.56 m

Configuration: SCB_33

- concrete or soil (for crawl space) floor
- bottom of slab fully insulated except under footing/foundation wall (ie. insulation starts 0.25 m (10 in) from edge)
- thermal break around edge of slab
- vertical skirt extends from bottom of slab
- first storey is non-brick veneer or bricks thermally broken from concrete floor

Foundation Name: Foundation - 2
Foundation Type: Slab-on-grade
Data Type: Library
Thermal break R-value: 1.29 RSI
Skirt R-value: 1.28 RSI

Non-Rectangular Floor**Shape****Floor Perimeter:** 45.23 m**Floor Area:** 78.60 m²

Added to Slab Type: 50 mm (2 in) EPS I
R-value : 1.28 RSI

Exposed areas for: Foundation - 2
Exposed Perimeter: 39.51 m

Configuration: SCB_33

- concrete or soil (for crawl space) floor
- bottom of slab fully insulated except under footing/foundation wall (ie. insulation starts 0.25 m (10 in) from edge)
- thermal break around edge of slab
- vertical skirt extends from bottom of slab
- first storey is non-brick veneer or bricks thermally broken from concrete floor

FOUNDATION CODE SCHEDULE

Lintel Code Schedule

Name	Code	Description (Type, Material, Insulation)
100	100	Double, Wood, None

ROOF CAVITY INPUTS

Sloped Roof		Total Area:	0.00 m ²
Sheathing Material	Plywood/Part. bd 12.7 mm (1/2 in)		0.11 RSI
Exterior Material:	Asphalt shingles		0.08 RSI
Total Cavity Volume:	0.0 m ³	Ventilation Rate:	0.50 ACH/hr

BUILDING ASSEMBLY DETAILS

Label	Construction Code	Nominal (RSI)	System (RSI)	Effective (RSI)
CEILING COMPONENTS				
Ceiling01	2x4/24"OC/6"ccSPF/2"Rig	6.89	5.60	5.60
MAIN WALL COMPONENTS				
Main floor - Adj	2x6/R20B/16"OC/Garage	3.24	2.69	2.65
Main floor - Brick	2x6/R20B/16"OC/Zip/Brick	4.40	3.63	3.52
Main floor - Metal	2x6/R20B/16"OC/Zip/Met	4.40	4.07	4.04
Main floor - Stucco EIFS	2x6/R20B/16"OC/2" EIFS	4.54	3.42	3.26

BUILDING PARAMETERS SUMMARY
ZONE 1 : Above Grade

Component	Area m ² Gross	Area m ² Net	Effective (RSI)	Heat Loss MJ	% Annual Heat Loss
Ceiling	256.81	256.81	5.60	21139.34	12.29
Main Walls	309.25	221.05	3.63	30928.90	17.98
Doors	18.60	5.89	0.96	3329.27	1.94
Southeast Windows	31.51	31.51	0.96	17823.76	10.36
Northeast Windows	26.14	26.14	1.12	12672.40	7.37
Northwest Windows	10.21	10.21	1.00	5537.53	3.22
Southwest Windows	14.44	14.44	1.12	7026.65	4.09
Slab on Grade	254.49	254.49	1.29	60409.50	35.12
ZONE 1 Totals:				158867.34	92.37

Air Leakage and Mechanical Ventilation

House Volume	Air Change	Heat Loss MJ	% Annual Heat Loss
716.67 m ³	0.085 ACH	13123.224	7.63

AIR LEAKAGE AND MECHANICAL VENTILATION

Building Envelope Surface Area: 820.55 m²

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

Equivalent Leakage Area @ 10 Pa 669.00 cm²
=

Terrain Description			Height (m)
@ Weather Station :	Open flat terrain, grass	Anemometer:	10.0
@ Building site :	Suburban, forest	Height of the highest ceiling:	2.8

Local Shielding:

Walls: Heavy

Flue : Light

Leakage Fractions-

Ceiling: 0.300

Walls: 0.500

Floors: 0.200

Normalized Leakage Area @ 10 Pa: 0.8153 cm²/m²

Estimated Airflow to cause a 5 Pa Pressure Difference: 107 L/s

Estimated Airflow to cause a 10 Pa Pressure Difference: 167 L/s

Estimated Airflow to cause a 10 Pa Pressure Difference: 167 L/s

Estimated Airflow to cause a 10 Pa Pressure Difference: 167 L/s

F326 VENTILATION REQUIREMENTS

Kitchen, Living Room, Dining Room	3 rooms @ 5.0 L/s: 15.0 L/s
Utility Room	1 rooms @ 5.0 L/s: 5.0 L/s
Bedroom	1 rooms @ 10.0 L/s: 10.0 L/s
Bedroom	2 rooms @ 5.0 L/s: 10.0 L/s
Bathroom	2 rooms @ 5.0 L/s: 10.0 L/s
Other	2 rooms @ 5.0 L/s: 10.0 L/s
Basement Rooms	0.0 L/s

CENTRAL VENTILATION SYSTEM

System Type: HRV

Manufacturer:

Model Number:

Fan and Preheater Power at 0.0 °C: 60 Watts

Fan and Preheater Power at -25.0 °C: 74 Watts

Preheater Capacity: 0 Watts

Sensible Heat Recovery Efficiency at 0.0 °C 70%

Sensible Heat Recovery Efficiency at -25.0 °C 65%

Total Heat Recovery Efficiency in Cooling Mode 25%

Low Temperature Ventilation Reduction: 0%

Low Temperature Ventilation Reduction: 0 L/s (0.0%)
Airflow Adjustment

NO Vented combustion appliance specified

Ventilation Supply Duct

Location:	Main floor	Type:	Flexible
Length:	1.5 m	Diameter:	152.4 mm
Insulation:	0.7 RSI	Sealing Characteristics:	Sealed

Ventilation Exhaust Duct

Location:	Main floor	Type:	Flexible
Length:	1.5 m	Diameter:	152.4 mm
Insulation:	0.7 RSI	Sealing Characteristics:	Sealed

SECONDARY FANS & OTHER EXHAUST APPLIANCES

	Control	Supply (L/s)	Exhaust (L/s)
Other Fans	Continuous	0.00	0.00
Dryer	Continuous	-	1.49

Dryer is vented outdoors

Rated Fan Power 0.00 Watts

NEW ERS VENTILATION DATA

Whole House Systems

Air Distribution/circulation type: Forced air heating ductwork

Air Distribution/circulation fan power: 100.00 Watts
Operation schedule: 480.00 min/day

System # 1 Type: HRV
Manufacturer:
Model:
Airflow Supply Rate: Exhaust: 27.99 L/s **Fan Power:** 59.73 Watts
 27.99 L/s

Supplementary Systems

System # 1 Type: Dryer
Manufacturer:
Model:
Airflow Supply Rate: 0.00 Exhaust: 38.00 L/s **Fan Power:** 0.00 Watts
 L/s
Operation schedule: 56.53 min/day

AIR LEAKAGE AND MECHANICAL VENTILATION SUMMARY

F326 Required continuous ventilation: 60.000 L/s (0.30 ACH)
Central Ventilation Supply Rate (): 27.986 L/s (0.14 ACH)
Other Continuous Supply Flow Rates: 0.000 L/s (0.00 ACH)
Other Continuous Exhaust Flow Rates: 0.000 L/s (0.00 ACH)
Total house ventilation is Balanced
Gross Air Leakage and Mechanical Ventilation Energy Load: 14025.798 MJ
Seasonal Heat Recovery Ventilator Efficiency: 68.398 %
Estimated Ventilation Electrical Load: Heating Hours: 594.170 MJ
Estimated Ventilation Electrical Load: Non-Heating Hours: 42.738 MJ
Net Air Leakage and Mechanical Ventilation Load: 13420.307 MJ

SPACE HEATING SYSTEM

PRIMARY Heating Fuel: Natural Gas
Equipment: Induced draft fan furnace/boiler
Manufacturer: Wizard SPH man
Model:
Calculated* Output Capacity: 12.50 kW
 * Design Heat loss X 1.10 + 0.5 kW

AFUE: 96.00
Steady State Efficiency: 98.04
Fan Mode: Auto
ECM Motor: No
Low Speed Fan Power: 0 watts
High Speed Fan Power: 242 watts

Radiant / Hydronic Heating

Location	Effective Temp. (Deg °C)	% of Total Area
Slab-on-grade	33.00	100.00

AIR CONDITIONING SYSTEM

System Type:	Central split system		
Manufacturer:			
Model:			
Capacity:	10669 Watts		
SEER	14.00	Rated COP	3.038
Sensible Heat Ratio:	0.76		
Indoor Fan Flow Rate:	719.92 L/s	Fan Power (watts)	557.94
Ventilator Flow Rate:	0.00 L/s	Crankcase Heater Power (watts):	60.00
Fraction of windows Openable:	0.000	ECM Motor:	No
Cooling system capacity sizing factor:	1.000		
Economizer control:	N/A	Indoor Fan Operation:	Auto

Air Conditioner is integrated with the Heating System

DOMESTIC WATER HEATING SYSTEM

PRIMARY Water Heating	Natural gas		
Fuel:			
Water Heating Equipment:	Direct vent (sealed)		
Energy Factor:	0.670		
Manufacturer:	Wizard DHW man		
Model:	Wizard DHW mod		
Tank Capacity:	189.3 Litres	Tank Blanket Insulation:	0.0 RSI
Tank Location:	Main floor		
Pilot Energy :	0.0 MJ/day	Flue Diameter:	0.0 mm

ANNUAL DOMESTIC WATER HEATING SUMMARY

Daily Hot Water Consumption:	192.5 Litres
Hot Water Temperature:	55.0 °C
Estimated Domestic Water Heating Load:	14536 MJ

Primary Domestic Water Heating Energy Consumption:	21784 MJ
Primary System Seasonal Efficiency:	66.7%

ANNUAL SPACE HEATING SUMMARY

Gross Space Heat Loss:	171991 MJ
Gross Space Heating Load:	171991 MJ
Usable Internal Gains:	29322 MJ
Usable Internal Gains Fraction:	17.0 %
Usable Solar Gains:	46829 MJ
Usable Solar Gains Fraction:	27.2 %
Auxiliary Energy Required:	95840 MJ
Space Heating System Load:	95839 MJ
Furnace/Boiler Seasonal efficiency:	98.1 %
Furnace/Boiler Annual Energy Consumption:	95884 MJ

DESIGN SPACE HEATING AND COOLING LOADS

Design Heat Loss* at -28.9 °C (15.64	11209 Watts
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Watts / m3):

Design Cooling Load* for July at (27.8 ° C): 8681 Watts

* Please refer to notes at the end of this report.

ANNUAL SPACE COOLING SUMMARY

Design Sensible Heat Ratio: 0.769
Estimated Annual Space Cooling Energy: 1157.36 kWh
Seasonal COP (January to December): 1.467

BASE LOADS SUMMARY

	kwh/day	Annual kWh
Interior Lighting	2.60	949.00
Appliances	6.30	2299.40
Other	9.70	3540.50
Exterior Use	0.90	328.50
HVAC Fans		
HRV/Exhaust	0.48	176.92
Space Heating	1.39	506.60
Space Cooling	0.32	116.34
Total Average Electrical Load	21.69	7917.26

FAN OPERATION SUMMARY (kWh)

Hours	HRV/Exhaust Fans	Space Heating	Space Cooling
Heating	165.0	506.6	0.0
Neither	0.0	0.0	0.0
Cooling	11.9	0.0	116.3
Total	176.9	506.6	

ENERGY CONSUMPTION SUMMARY REPORT

Estimated Annual Space Heating Energy Consumption	= 97708.08 MJ	= 27141.13 kWh
Ventilator Electrical Consumption: Heating Hours	= 594.17 MJ	= 165.05 kWh
Estimated Annual DHW Heating Energy Consumption	= 21784.04 MJ	= 6051.12 kWh
ESTIMATED ANNUAL SPACE + DHW ENERGY CONSUMPTION	= 120086.30 MJ	= 33357.30 kWh
Estimated Greenhouse Gas Emissions	13.309 tonnes/year	

ESTIMATED ANNUAL FUEL CONSUMPTION SUMMARY

Fuel	Space Heating	Space Cooling	DHW Heating	Baseloads	Ventilation	Total
Natural Gas (m3)	2573.5	0.0	584.7	0.0	0.0	3158.1
Electricity (kWh)	506.6	1157.4	0.0	7117.4	176.9	8958.3

ESTIMATED ANNUAL FUEL CONSUMPTION COSTS

Fuel Costs Library = Embedded

RATE	Electricity (Ottawa97)	Natural Gas (Ottawa08)	Oil (Ottawa08)	Propane (Ottawa08)	Wood (Sth Ont)	Total
\$	837.97	1820.96	0.00	0.00	0.00	2658.93

Fuel Costs Library Listing

Filename = Embedded

Record # 1	Fuel: Electricity
Rate ID = Ottawa97	Hydro Rate Block
Rate Block	Dollars
	Per kWhr
	kWhr
	Charge (\$)
Minimum	0.0
1	250.0
2	99999.0
	0.0999
	0.0702
Record # 2	Fuel: Natural Gas

Rate ID = Ottawa08		Gas Rate Block	
Rate Block		Dollars	Charge
	m3	Per m3	(\$)
Minimum	0.0		14.000
1	30.0	0.5338	
2	85.0	0.5277	
3	170.0	0.5229	
4	99999.0	0.5194	

Record # 3

Fuel: Oil

Rate ID = Ottawa08		Oil Rate Block	
Rate Block		Dollars	Charge
	Litre	Per Litre	(\$)
Minimum	0.0		0.000
1	99999.0	1.1750	

Record # 4

Fuel: Propane

Rate ID = Ottawa08		Propane Rate Block	
Rate Block		Dollars	Charge
	Litre	Per Litre	(\$)
Minimum	0.0		0.000
1	99999.0	0.7200	

Record # 5

Fuel: Wood

Rate ID = Sth Ont		Cord Rate	
Rate Block		Dollars	Charge
	Cord	Per Cord	(\$)
Minimum	0.0		0.000
1	99999.0	210.0000	

MONTHLY ENERGY PROFILE

Month	Energy Load (MJ)	Internal Gains (MJ)	Solar Gains (MJ)	Aux. Energy (MJ)	HRV Eff. %
Jan	23910.0	2466.0	3654.8	17789.2	67.5
Feb	20831.7	2223.7	4394.6	14213.4	67.8
Mar	19714.0	2466.0	5697.2	11550.8	68.2
Apr	14006.2	2396.9	4830.7	6778.6	68.7
May	10167.2	2490.5	4441.6	3235.2	68.8
Jun	7204.6	2423.2	3465.3	1316.1	68.9
Jul	5488.8	2510.1	2563.1	415.5	69.0
Aug	6173.3	2515.6	2984.3	673.5	68.9
Sep	8855.6	2434.3	3841.4	2579.9	68.8
Oct	13703.3	2507.0	3923.1	7273.2	68.7
Nov	18571.5	2411.7	3707.2	12452.6	68.3
Dec	23364.3	2477.1	3325.7	17561.6	67.6
Ann	171990.5	29322.1	46828.9	95839.5	68.4

FOUNDATION ENERGY PROFILE

Month	Heat Loss (MJ)				
	Crawl Space	Slab	Basement	Walkout	Total
Jan	0.0	6159.5	0.0	0.0	6159.5
Feb	0.0	5654.0	0.0	0.0	5654.0
Mar	0.0	6099.2	0.0	0.0	6099.2
Apr	0.0	5568.8	0.0	0.0	5568.8
May	0.0	5082.0	0.0	0.0	5082.0
Jun	0.0	4336.1	0.0	0.0	4336.1
Jul	0.0	3817.0	0.0	0.0	3817.0
Aug	0.0	3719.4	0.0	0.0	3719.4
Sep	0.0	4004.0	0.0	0.0	4004.0
Oct	0.0	4905.0	0.0	0.0	4905.0
Nov	0.0	5201.9	0.0	0.0	5201.9
Dec	0.0	5862.8	0.0	0.0	5862.8
Ann	0.0	60409.5	0.0	0.0	60409.5

FOUNDATION TEMPERATURES & VENTILATION PROFILE

Month	Temperature (Deg °C)			Air Change Rate		Heat Loss (MJ)
	Crawl Space	Basement	Walkout	Natural	Total	

Jan	0.0	0.0	0.0	0.098	0.121	2418.3
Feb	0.0	0.0	0.0	0.095	0.118	2006.1
Mar	0.0	0.0	0.0	0.082	0.105	1675.4
Apr	0.0	0.0	0.0	0.062	0.085	870.9
May	0.0	0.0	0.0	0.045	0.068	455.7
Jun	0.0	0.0	0.0	0.032	0.055	210.2
Jul	0.0	0.0	0.0	0.023	0.046	107.4
Aug	0.0	0.0	0.0	0.026	0.049	166.2
Sep	0.0	0.0	0.0	0.041	0.064	397.9
Oct	0.0	0.0	0.0	0.060	0.083	868.0
Nov	0.0	0.0	0.0	0.082	0.105	1601.3
Dec	0.0	0.0	0.0	0.097	0.120	2345.7
Ann	0.0	0.0	0.0	0.062	0.085	13123.2

SPACE HEATING SYSTEM PERFORMANCE

Month	Space Heating Load (MJ)	Boiler Input (MJ)	Pilot Light (MJ)	Indoor Fans (MJ)	Heat Pump Input (MJ)	Total Input (MJ)	System Cop
Jan	17789.2	17794.1	0.0	338.5	0.0	18132.5	0.981
Feb	14213.4	14221.2	0.0	270.5	0.0	14491.7	0.981
Mar	11550.8	11557.1	0.0	219.8	0.0	11777.0	0.981
Apr	6778.6	6782.3	0.0	129.0	0.0	6911.3	0.981
May	3235.2	3236.9	0.0	61.6	0.0	3298.5	0.981
Jun	1316.1	1316.8	0.0	25.0	0.0	1341.8	0.981
Jul	415.5	415.8	0.0	7.9	0.0	423.7	0.981
Aug	673.5	673.8	0.0	12.8	0.0	686.7	0.981
Sep	2579.9	2581.3	0.0	49.1	0.0	2630.4	0.981
Oct	7273.2	7277.2	0.0	138.4	0.0	7415.6	0.981
Nov	12452.6	12459.4	0.0	237.0	0.0	12696.4	0.981
Dec	17561.6	17568.4	0.0	334.2	0.0	17902.6	0.981
Ann	95839.5	95884.3	0.0	1823.8	0.0	97708.1	0.981

AIR CONDITIONING SYSTEM PERFORMANCE

Month	Sensible Load (MJ)	Latent Load (MJ)	AirCond Energy (kWh)	Fan Energy (kWh)	Ventilator Energy (kWh)	Crankcase Heater (kWh)	Total Energy (kWh)	COP	Av.RH %
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Jan	0.0	0.0	0.0	0.0	0.0	44.6	44.6	0.0	0.0
Feb	0.0	0.0	0.0	0.0	0.0	40.3	40.3	0.0	0.0
Mar	1.2	0.1	0.1	0.0	0.0	44.6	44.8	0.0	38.5
Apr	29.6	2.6	3.4	0.7	0.0	42.2	46.3	0.2	38.2
May	372.3	17.4	39.0	7.6	0.0	38.0	84.5	1.3	35.8
Jun	822.9	64.6	87.8	17.1	0.0	28.7	133.6	1.8	37.7
Jul	2433.3	185.3	254.1	49.3	0.0	12.3	315.6	2.3	38.1
Aug	1636.0	129.7	173.5	33.5	0.0	20.7	227.8	2.2	38.3
Sep	377.7	31.4	41.6	7.9	0.0	36.7	86.3	1.3	38.0
Oct	8.1	1.5	1.1	0.2	0.0	44.3	45.6	0.1	42.0
Nov	0.0	0.0	0.0	0.0	0.0	43.2	43.2	0.0	0.0
Dec	0.0	0.0	0.0	0.0	0.0	44.6	44.6	0.0	0.0
Ann	5681.1	432.7	600.6	116.3	0.0	440.4	1157.4	1.5	37.9

MONTHLY ESTIMATED ENERGY CONSUMPTION BY DEVICE (MJ)

Month	Space Heating		DHW Heating		Lights &	HRV &	Air
	Primary	Secondary	Primary	Secondary	Appliances	FANS	Conditioner
Jan	17794.1	0.0	1927.2	0.0	2176.2	394.7	160.7
Feb	14221.2	0.0	1751.1	0.0	1965.6	320.5	145.2
Mar	11557.1	0.0	1927.2	0.0	2176.2	274.3	161.1
Apr	6782.3	0.0	1834.3	0.0	2106.0	183.0	164.4
May	3236.9	0.0	1851.0	0.0	2176.2	142.3	277.0
Jun	1316.8	0.0	1748.0	0.0	2106.0	138.3	419.4
Jul	415.8	0.0	1769.6	0.0	2176.2	238.6	958.7
Aug	673.8	0.0	1759.6	0.0	2176.2	186.8	699.4
Sep	2581.3	0.0	1718.0	0.0	2106.0	129.2	282.1
Oct	7277.2	0.0	1809.5	0.0	2176.2	192.5	163.5
Nov	12459.4	0.0	1792.8	0.0	2106.0	289.4	155.5
Dec	17568.4	0.0	1895.7	0.0	2176.2	390.0	160.7
Ann	95884.3	0.0	21784.0	0.0	25622.6	2879.5	3747.7

ESTIMATED FUEL COSTS (Dollars)

Month	Electricity	Natural Gas	Oil	Propane	Wood	Total
Jan	70.69	290.11	0.00	0.00	0.00	360.80
Feb	64.83	237.84	0.00	0.00	0.00	302.68
Mar	68.35	203.16	0.00	0.00	0.00	271.51
Apr	65.27	135.30	0.00	0.00	0.00	200.57

May	68.04	86.00	0.00	0.00	0.00	154.03
Jun	69.37	57.59	0.00	0.00	0.00	126.96
Jul	83.21	45.13	0.00	0.00	0.00	128.34
Aug	77.14	48.65	0.00	0.00	0.00	125.79
Sep	66.51	74.93	0.00	0.00	0.00	141.44
Oct	66.80	141.86	0.00	0.00	0.00	208.66
Nov	67.17	213.87	0.00	0.00	0.00	281.03
Dec	70.60	286.52	0.00	0.00	0.00	357.12
Ann	837.97	1820.96	0.00	0.00	0.00	2658.93

The calculated heat losses and energy consumptions are only estimates, based upon the data entered and assumptions within the program. Actual energy consumption and heat losses will be influenced by construction practices, localized weather, equipment characteristics and the lifestyle of the occupants.