

HOT2000

Natural Resources CANADA
Version 11.11



File: [REDACTED]
General mode

Weather Library: C:\HOT2000 v11.11b21119\Dat\Wth2020.dir
Weather Data for: WINNIPEG INTL, MANITOBA

Builder Code:

Data Entry by: Sean Scammell
Date of entry: 2025-02-12

Company: Sun Certified Builders
Coop

Client name: ,
Street address: [REDACTED]
City: WINNIPEG INTL **Region:** MANITOBA
Postal code: [REDACTED] **Telephone:**

Mailing address: [REDACTED]
City: WINNIPEG INTL **Region:** MANITOBA
Postal Code: [REDACTED]

GENERAL HOUSE CHARACTERISTICS

House type: Single Detached
Number of storeys: One and a half
Plan shape:
Front orientation: South
Year House Built: 1947

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
	Nighttime Setback Duration:	8.0 Hours
	24 Hour Average:	20.0 °C
Basement	Setpoint:	19.0 °C
	TEMP. Rise from 20.0 °C:	5.5 °C
Basement is- Heated:Yes Cooled: No		Separate T/S: No
Fraction of internal gains released in basement :		0.150
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)
South							
South0001	South Wall	1	0.41	1.42	90.0	1.00	0.00
South0002	South Wall	1	0.41	0.20	90.0	1.00	0.00
West0001	2nd Story Gable Walls	1	0.00	0.00	90.0	1.00	0.00
East							
East0001	East Wall	1	0.41	1.42	90.0	1.00	0.00
East0002	2nd Story Gable Walls	1	0.41	0.20	90.0	1.00	0.00
East0003	Foundation - 1	1	0.41	3.87	90.0	1.00	0.00
North							
North0001	North Wall	1	0.41	1.42	90.0	1.00	0.00
North0002	North Wall	1	0.41	1.42	90.0	1.00	0.00
North0003	North Wall	1	0.41	0.20	90.0	1.00	0.00
North0004	2nd Story Gable Walls	1	0.41	0.20	90.0	1.00	0.00

North0005	Foundation - 1	1	0.41	3.87	90.0	1.00	0.00
North0006	Foundation - 1	1	0.41	3.87	90.0	1.00	0.00
West							
West0002	Foundation - 1	1	0.41	3.87	90.0	1.00	0.00

Label	Type	#	Window Width (m)	Window Height (m)	Total Area (m²)	Window RSI	SHGC	ER*
South								
South0001	200014	1	1.37	1.52	2.09	0.343	0.6252	10.4
South0002	200014	1	2.44	1.52	3.72	0.345	0.6548	13.4
West0001	200014	1	1.12	1.27	1.42	0.340	0.5981	7.6
East								
East0001	200014	1	0.94	1.14	1.07	0.339	0.5751	5.1
East0002	200014	1	0.91	1.02	0.93	0.338	0.5630	3.7
East0003	200014	1	0.61	0.30	0.19	0.325	0.3345	- 27.7
North								
North0001	200014	1	1.42	1.52	2.17	0.343	0.6276	10.7
North0002	200014	1	0.66	0.91	0.60	0.335	0.5171	-1.7
North0003	200014	1	0.71	1.27	0.90	0.337	0.5516	2.7
North0004	200014	1	0.76	1.37	1.05	0.338	0.5649	4.3
North0005	200014	1	0.61	0.30	0.19	0.325	0.3345	- 27.7
North0006	200014	1	0.61	0.30	0.19	0.325	0.3345	- 27.7
West								
West0002	200014	1	0.61	0.30	0.19	0.325	0.3345	- 27.7

*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: 8.8 %

WINDOW CODE SCHEDULE

Name	Internal Code	Description (Glazings, Coatings, Fill, Spacer, Type, Frame)
200014	200014	Double/double with 1 coat, Clear, 13 mm Air, Metal, Hinged, Vinyl, ER* = 2.0, Eff. RSI= 0.34

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

BUILDING PARAMETER DETAILS

CEILING COMPONENTS

	Construction Type	Code Type	Roof Slope	Heel Ht. (m)	Section Area (m ²)	R. Value (RSI)
Cathedral	Cathedral	2201109000	3.000/12	0.00	20.81	1.51
Gable Attic	Attic/gable	2201K09000	3.996/12	0.10	50.26	1.83

CEILING CODE SCHEDULE

Name	Internal Code	Description (Structure, typ/size, Spacing, Insull, 2, Int., Sheathing, Exterior, Studs)
2201109000	2201109000	Wood frame, 38x89 mm (2x4 in), 400 mm (16 in), RSI 1.41 @ 64 mm (R 8 @ 2.5") batt, None, Lath & plaster, N/A, N/A, N/A
2201K09000	2201K09000	Wood frame, 38x89 mm (2x4 in), 400 mm (16 in), RSI 1.76 @ 89 mm (R 10 @ 3.5") batt, None, Lath & plaster, N/A, N/A, N/A

MAIN WALL COMPONENTS

Label	Lintel Type	Fac. Dir	Number of Corn.	Number of Inter.	Height (m)	Perim. (m)	Area (m ²)	R. Value (RSI)
2nd Story Gable Walls Type: 1201109760	100	N/A	4	4	1.83	12.19	22.30	1.69
East Wall Type: 1201109760	100	East	1	1	2.46	7.62	18.74	1.79
KneeWall04 Type: 1201109000	100	N/A	2	0	2.00	19.00	37.99	> 1.84
North Wall Type: 1201009760	100	N/A	4	4	2.45	9.75	23.90	0.70
South Wall Type: 1201009760	N/A	South	1	1	2.46	9.75	23.99	0.67
West Wall Type: 1201109760	100	West	1	1	2.46	7.62	18.74	1.83

> Indicates that the component is adjacent to an enclosed unconditioned space.

WALL CODE SCHEDULE

Name	Internal Code	Description (Structure, typ/size, Spacing, Insull, 2, Int., Sheathing, Exterior, Studs)
1201109760	1201109760	Wood frame, 38x89 mm (2x4 in), 400 mm (16 in), RSI 1.41 @ 64 mm (R 8 @ 2.5") batt, None, Lath & plaster, Plywood/Particle board 18.5 mm (3/4 in), Stucco, 2 studs
1201109000	1201109000	Wood frame, 38x89 mm (2x4 in), 400 mm (16 in), RSI 1.41 @ 64 mm (R 8 @ 2.5") batt, None, Lath & plaster, None, None, 2 studs

1201009760 1201009760 Wood frame, 38x89 mm (2x4 in), 400 mm (16 in), None, None, Lath & plaster, Plywood/Particle board 18.5 mm (3/4 in), Stucco, 2 studs

DOORS

Label	Type	Height (m)	Width (m)	Gross Area (m²)	R. Value (RSI)
Door-01 Loc: North Wall	Wood hollow core	2.04	0.91	1.87	0.37
Door-02 Loc: South Wall	Wood hollow core	2.04	0.86	1.76	0.37

FOUNDATIONS

Foundation Name: Foundation - 1
Foundation Type: Basement
Data Type: Library

Volume: 146.1 m³
Opening to Main Floor: 1.56 m²

Total Wall Height: 2.28 m
Depth Below Grade: 1.62 m

Rectangular
Floor Length: 9.14 m
Floor Width: 7.01 m

Interior wall type: 110101
Exterior wall type: User specified
Number of corners : 4
Lintel type: Bsmnt Lintel
Added to slab type : N/A
Floors Above 4231000660
Found.:

R-value: 1.22 RSI
R-Value: 0.00 RSI

R-Value: 0.00 RSI
R-Value: 0.71 RSI

Exposed areas for: Foundation - 1
Exposed Perimeter: 32.31 m

Configuration: BCIN_1
 - concrete walls and floor
 - interior surface of wall insulated over full-height
 - any first storey construction type

FOUNDATION CODE SCHEDULE**Interior Wall**

Name	Code	Description (Fram., Spac., Studs, Ins/fram., Xtra ins, Int)
110101	110101	38x64 mm (2x3 in) wood, 400 mm (16 in), 2 studs, RSI 1.41 @ 64 mm (R 8 @ 2.5") batt, None, 12 mm (0.5 in) gypsum board

Floors Above Foundation

Name	Internal Code	Description (Structure, typ/size, Spacing, Insul1, 2, Int., Sheathing, Exterior, Drop Framing)
4231000660	4231000660	Wood frame, 38x235 mm (2x10 in), 400 mm (16 in), None, None, None, Plywood/Particle board 15.5 mm (5/8 in), Wood, No

Lintel Code Schedule

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

ROOF CAVITY INPUTS

Gable Ends		Total Area:	5.58 m ²
Sheathing Material	Plywood/Part. bd 9.5 mm (3/8 in)		0.08 RSI
Exterior Material:	Hollow metal/vinyl cladding		0.11 RSI
Sloped Roof		Total Area:	52.97 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:	24.2 m ³	Ventilation Rate:	0.50 ACH/hr

BUILDING ASSEMBLY DETAILS

Label	Construction Code	Nominal (RSI)	System (RSI)	Effective (RSI)
CEILING COMPONENTS				
Cathedral	2201109000	1.43	1.51	1.51
Gable Attic	2201K09000	1.70	1.83	1.83
MAIN WALL COMPONENTS				
2nd Story Gable Walls	1201109760	1.43	1.70	1.69
East Wall	1201109760	1.43	1.80	1.79
KneeWall04	1201109000	1.43	1.68	1.68
North Wall	1201009760	0.00	0.69	0.70
South Wall	1201009760	0.00	0.67	0.67
West Wall	1201109760	1.43	1.83	1.83
FLOORS ABOVE BASEMENTS				
Foundation - 1	4231000660	0.00	0.71	0.71

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	71.07	71.07	1.72	17124.23	10.83
Main Walls	145.66	128.09	1.25	51104.79	32.33
Doors	3.63	3.63	0.37	5234.63	3.31
South Windows	7.23	7.23	0.34	11233.77	7.11
East Windows	2.00	2.00	0.34	3163.17	2.00
North Windows	4.72	4.72	0.34	7426.39	4.70
ZONE 1 Totals:				95286.98	60.28

INTER-ZONE Heat Transfer : Floors Above Basement

Area m ² Gross	Area m ² Net	Effective (RSI)	Heat Loss MJ
64.10	64.10	0.706	7991.54

ZONE 2 : Basement

Component	Area m ² Gross	Area m ² Net	Effective (RSI)	Heat Loss MJ	% Annual Heat Loss
Walls above grade	21.37	20.63	-	9032.55	5.71
East windows	0.19	0.19	0.33	280.59	0.18

North windows	0.37	0.37	0.33	561.17	0.35
West windows	0.19	0.19	0.33	280.59	0.18
Below grade foundation	116.39	116.39	-	20055.19	12.69
ZONE 2 Totals:				30210.08	19.11

Air Leakage and Mechanical Ventilation

House Volume	Air Change	Heat Loss MJ	% Annual Heat Loss
445.05 m ³	0.318 ACH	32589.963	20.62

AIR LEAKAGE AND MECHANICAL VENTILATION

Building Envelope Surface Area: 354.50 m²

Air Leakage Test Results at 50 Pa. 5.45 ACH
(0.2 in H₂O) =

Equivalent Leakage Area @ 10 Pa 1007.08 cm²
=

Terrain Description			Height (m)
@ Weather Station :	Open flat terrain, grass	Anemometer:	10.0
@ Building site :	Suburban, forest	Height of the highest ceiling:	4.8

Local Shielding:

Walls:	Heavy
Flue :	Light

Leakage Fractions-

Ceiling:	0.200
Walls:	0.600
Floors:	0.200

Normalized Leakage Area @ 10 Pa: 2.8408 cm²/m²

Estimated Airflow to cause a 5 Pa Pressure Difference: 160 L/s

Estimated Airflow to cause a 10 Pa Pressure Difference: 251 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

SECONDARY FANS & OTHER EXHAUST APPLIANCES

Control	Supply (L/s)	Exhaust (L/s)
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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

Supplementary Systems

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

AIR LEAKAGE AND MECHANICAL VENTILATION SUMMARY

F326 Required continous ventilation: 60.000 L/s (0.49 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: 30161.850 MJ
Seasonal Heat Recovery Ventilator Efficiency: 0.000 %
Estimated Ventilation Electrical Load: Heating Hours: 0.000 MJ
Estimated Ventilation Electrical Load: Non-Heating Hours: 0.000 MJ
Net Air Leakage and Mechanical Ventilation Load: 32589.963 MJ

SPACE HEATING SYSTEM

PRIMARY Heating Fuel: Natural Gas
Equipment: Condensing furnace/boiler
Manufacturer: Wizard SPH man
Model:
Calculated* Output Capacity: 21.00 kW
* Design Heat loss X 1.10 + 0.5 kW
Steady State Efficiency: 90.00 %
Fan Mode: Auto
ECM Motor: No
Low Speed Fan Power: 0 watts
High Speed Fan Power: 407 watts

DOMESTIC WATER HEATING SYSTEM

PRIMARY Water Heating Fuel: Natural gas
Water Heating Equipment: Conventional tank
Energy Factor: 0.554
Manufacturer: Wizard DHW man
Model: Wizard DHW mod

Tank Capacity: 151.4 Litres
Tank Location: Basement
Pilot Energy : 0.0 MJ/day
Tank Blanket Insulation: 0.0 RSI
Flue Diameter: 76.2 mm

ANNUAL DOMESTIC WATER HEATING SUMMARY

Daily Hot Water Consumption: 192.5 Litres
Hot Water Temperature: 55.0 °C
Estimated Domestic Water Heating Load: 14553 MJ

Primary Domestic Water Heating Energy Consumption: 26835 MJ
Primary System Seasonal Efficiency: 54.2%

ANNUAL SPACE HEATING SUMMARY

Gross Space Heat Loss:	158087 MJ
Gross Space Heating Load:	155320 MJ
Usable Internal Gains:	27539 MJ
Usable Internal Gains Fraction:	17.4 %
Usable Solar Gains:	17909 MJ
Usable Solar Gains Fraction:	11.3 %
Auxiliary Energy Required:	109872 MJ
Space Heating System Load:	109872 MJ
Furnace/Boiler Seasonal efficiency:	89.3 %
Furnace/Boiler Annual Energy Consumption:	119756 MJ

DESIGN SPACE HEATING AND COOLING LOADS

Design Heat Loss* at -31.3 °C (42.06 Watts / m3):	18721 Watts
Design Cooling Load* for July at (29.9 °C):	3868 Watts

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

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	0.00	0.00
Space Heating	1.59	580.82
Space Cooling	0.00	0.00
Total Average Electrical Load	21.09	7698.22

FAN OPERATION SUMMARY (kWh)

Hours	HRV/Exhaust Fans	Space Heating	Space Cooling
Heating	0.0	580.8	0.0
Neither	0.0	0.0	0.0
Cooling	0.0	0.0	0.0
Total	0.0	580.8	

ENERGY CONSUMPTION SUMMARY REPORT

Estimated Annual Space Heating Energy Consumption	= 121847.32 MJ	= 33846.48 kWh
Ventilator Electrical Consumption: Heating Hours	= 0.00 MJ	= 0.00 kWh
Estimated Annual DHW Heating Energy Consumption	= 26834.79 MJ	= 7454.11 kWh
ESTIMATED ANNUAL SPACE + DHW ENERGY CONSUMPTION	= 148682.11 MJ	= 41300.59 kWh
Estimated Greenhouse Gas Emissions	13.804 tonnes/year	

MONTHLY ENERGY PROFILE

Month	Energy Load (MJ)	Internal Gains (MJ)	Solar Gains (MJ)	Aux. Energy (MJ)	HRV Eff. %
Jan	28843.8	2696.3	1901.1	24246.4	0.0
Feb	24354.6	2436.2	2261.6	19656.8	0.0
Mar	20159.2	2706.1	2733.9	14719.2	0.0
Apr	11383.4	2629.6	2048.4	6705.3	0.0
May	7006.3	2723.4	1687.9	2595.0	0.0
Jun	2239.4	1605.9	633.4	0.0	0.0
Jul	862.3	827.9	34.4	0.0	0.0
Aug	1337.6	1192.0	145.5	0.0	0.0
Sep	4942.5	2648.3	1457.7	836.5	0.0
Oct	10871.3	2734.7	1708.5	6428.1	0.0
Nov	17398.0	2633.7	1697.2	13067.1	0.0
Dec	25921.6	2705.3	1599.1	21617.3	0.0
Ann	155319.8	27539.5	17908.6	109871.7	0.0

FOUNDATION ENERGY PROFILE

Month	Heat Loss (MJ)				Total
	Crawl Space	Slab	Basement	Walkout	
Jan	0.0	0.0	3088.0	0.0	3088.0
Feb	0.0	0.0	2503.2	0.0	2503.2
Mar	0.0	0.0	1874.4	0.0	1874.4
Apr	0.0	0.0	853.9	0.0	853.9
May	0.0	0.0	330.4	0.0	330.4
Jun	0.0	0.0	0.0	0.0	0.0
Jul	0.0	0.0	0.0	0.0	0.0
Aug	0.0	0.0	0.0	0.0	0.0
Sep	0.0	0.0	106.5	0.0	106.5
Oct	0.0	0.0	818.5	0.0	818.5
Nov	0.0	0.0	1664.0	0.0	1664.0
Dec	0.0	0.0	2752.8	0.0	2752.8
Ann	0.0	0.0	13991.7	0.0	13991.7

FOUNDATION TEMPERATURES & VENTILATION PROFILE

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

Jan	0.0	18.5	0.0	0.470	0.482	6937.5
Feb	0.0	18.3	0.0	0.451	0.463	5695.1
Mar	0.0	18.0	0.0	0.390	0.402	4257.8
Apr	0.0	18.1	0.0	0.303	0.315	1973.5
May	0.0	18.7	0.0	0.253	0.265	1054.2
Jun	0.0	19.8	0.0	0.183	0.195	350.0
Jul	0.0	21.4	0.0	0.147	0.159	160.9
Aug	0.0	21.0	0.0	0.164	0.176	232.7
Sep	0.0	19.5	0.0	0.216	0.228	676.0
Oct	0.0	19.0	0.0	0.292	0.304	1819.0
Nov	0.0	18.8	0.0	0.368	0.380	3474.1
Dec	0.0	18.8	0.0	0.441	0.454	5959.2
Ann	0.0	19.2	0.0	0.306	0.318	32590.0

SPACE HEATING SYSTEM PERFORMANCE

Month	Space Heating Load (MJ)	Furnace Input (MJ)	Pilot Light (MJ)	Indoor Fans (MJ)	Heat Pump Input (MJ)	Total Input (MJ)	System Cop
Jan	24246.4	26427.7	0.0	461.4	0.0	26889.1	0.902
Feb	19656.8	21425.3	0.0	374.1	0.0	21799.3	0.902
Mar	14719.2	16043.4	0.0	280.1	0.0	16323.5	0.902
Apr	6705.3	7308.6	0.0	127.6	0.0	7436.2	0.902
May	2595.0	2828.4	0.0	49.4	0.0	2877.8	0.902
Jun	0.0	0.0	0.0	0.0	0.0	0.0	0.000
Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.000
Aug	0.0	0.0	0.0	0.0	0.0	0.0	0.000
Sep	836.5	911.8	0.0	15.9	0.0	927.7	0.902
Oct	6428.1	7006.5	0.0	122.3	0.0	7128.8	0.902
Nov	13067.1	14242.7	0.0	248.7	0.0	14491.3	0.902
Dec	21617.3	23562.1	0.0	411.4	0.0	23973.5	0.902
Ann	109871.7	119756.4	0.0	2090.9	0.0	121847.3	0.893

MONTHLY ESTIMATED ENERGY CONSUMPTION BY DEVICE (MJ)

Month	Space Heating		DHW Heating		Lights & Appliances	HRV & FANS	Air Conditioner
	Primary	Secondary	Primary	Secondary			
Jan	26427.7	0.0	2383.3	0.0	2176.2	461.4	0.0

Feb	21425.3	0.0	2172.3	0.0	1965.6	374.1	0.0
Mar	16043.4	0.0	2395.5	0.0	2176.2	280.1	0.0
Apr	7308.6	0.0	2275.7	0.0	2106.0	127.6	0.0
May	2828.4	0.0	2281.2	0.0	2176.2	49.4	0.0
Jun	0.0	0.0	2144.3	0.0	2106.0	0.0	0.0
Jul	0.0	0.0	2173.8	0.0	2176.2	0.0	0.0
Aug	0.0	0.0	2158.4	0.0	2176.2	0.0	0.0
Sep	911.8	0.0	2091.8	0.0	2106.0	15.9	0.0
Oct	7006.5	0.0	2216.7	0.0	2176.2	122.3	0.0
Nov	14242.7	0.0	2205.2	0.0	2106.0	248.7	0.0
Dec	23562.1	0.0	2336.6	0.0	2176.2	411.4	0.0
Ann	119756.4	0.0	26834.8	0.0	25622.6	2090.9	0.0

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.