

NOT THE GRANTING OF A PERMIT NOR REVIEWING OF SPECS
& DRAWINGS NOR INSPECTIONS MADE DURING INSTALLATION
BY THE OFFICIAL HAVING JURISDICTION SHALL RELIEVE THE
OWNER FROM REQUIREMENTS OF THE ONTARIO BUILDING
CODE AND ANY OTHER REFERENCED REQUIREMENTS.

Garden 1 - Elevation 1

SITE NAME: BARLASSINA				OPT 4 BED				DATE: Jan-23				WINTER NATURAL AIR CHANGE RATE 0.352				HEAT LOSS ΔT °F. 72				CSA-F280-12			
BUILDER: GREENPARK HOMES				TYPE: GARDEN 1 - WOB				GFA: 2197				SUMMER NATURAL AIR CHANGE RATE 0.096				HEAT GAIN ΔT °F. 9				SB-12 PACKAGE A1			
ROOM USE	EXP. WALL	CLG. HT.		MBR	ENS			BED-2	BED-3	BED-4	BATH												
				38	21			29	38	18	9												
				9	9			9	9	9													
FACTORS																							
GRS.WALL AREA	LOSS	GAIN		342	189			261	342	162	81												
GLAZING				LOSS	GAIN			LOSS	GAIN	LOSS	GAIN												
NORTH	20.3	15.0		0	0	0		0	0	0	0												
EAST	20.3	40.5		0	0	0		44	892	1784	56												
SOUTH	20.3	23.9		0	0	0		0	0	0	20												
WEST	20.3	40.5		20	405	811		0	0	0	0												
SKYLT.	35.5	99.8		0	0	0		0	0	0	0												
DOORS	19.1	2.4		0	0	0		0	0	0	0												
NET EXPOSED WALL	4.3	0.5		322	1369	174		217	923	117	81												
NET EXPOSED BSMT WALL ABOVE GR	3.4	0.4		0	0	0		0	0	0	0												
EXPOSED CLG	1.2	0.5		309	378	163		194	237	102	126												
NO ATTIC EXPOSED CLG	2.6	1.1		0	0	0		0	0	0	0												
EXPOSED FLOOR	2.4	0.3		0	0	0		194	471	60	17												
BASEMENT/CRAWL HEAT LOSS				0				0			0												
SLAB ON GRADE HEAT LOSS				0				0			0												
SUBTOTAL HT LOSS				2152		1203		2523		2664	1248												
SUB TOTAL HT GAIN					1148		737		2063		2560												
LEVEL FACTOR / MULTIPLIER	0.20	0.25			0.20	0.25		0.20	0.25		0.20	0.25											
AIR CHANGE HEAT LOSS				547		306		641		677	317												
AIR CHANGE HEAT GAIN					46		29		82		102												
DUCT LOSS				0		0		316		0													
DUCT GAIN					0		0		297		0												
HEAT GAIN PEOPLE	240			2	480	0	0	1	240	1	240	0											
HEAT GAIN APPLIANCES/LIGHTS					580	0	0		580		580												
TOTAL HT LOSS BTU/H				2699		1508		3481		3342	1565												
TOTAL HT GAIN x 1.3 BTU/H					2929		997		4241		4526												

ROOM USE	EXP. WALL	CLG. HT.		K/B/LD				LAUN	W/R	FOY													
				77				22	6	52													
				10				11	10	10													
FACTORS																							
GRS.WALL AREA	LOSS	GAIN		770				242	60	520													
GLAZING				LOSS	GAIN			LOSS	GAIN	LOSS	GAIN												
NORTH	20.3	15.0		0	0	0		0	0	0	0												
EAST	20.3	40.5		0	0	0		0	0	0	30												
SOUTH	20.3	23.9		22	446	526		0	0	0	8												
WEST	20.3	40.5		81	1642	3284		0	0	0	0												
SKYLT.	35.5	99.8		0	0	0		0	0	0	0												
DOORS	19.1	2.4		0	0	0		21	401	51	18												
NET EXPOSED WALL	4.3	0.5		667	2836	360		221	940	119	472												
NET EXPOSED BSMT WALL ABOVE GR	3.4	0.4		0	0	0		0	0	0	0												
EXPOSED CLG	1.2	0.5		0	0	0		0	0	0	0												
NO ATTIC EXPOSED CLG	2.6	1.1		0	0	0		0	0	0	0												
EXPOSED FLOOR	2.4	0.3		0	0	0		0	0	0	0												
BASEMENT/CRAWL HEAT LOSS				0				0			0												
SLAB ON GRADE HEAT LOSS				0				0			0												
SUBTOTAL HT LOSS				4924				1341		383	2959												
SUB TOTAL HT GAIN					4170				170		219												
LEVEL FACTOR / MULTIPLIER	0.30	0.41						0.30	0.41		0.30	0.41											
AIR CHANGE HEAT LOSS				2019				550		157	1213												
AIR CHANGE HEAT GAIN					166				7		9												
DUCT LOSS				0				0		0													
DUCT GAIN					0				0		0												
HEAT GAIN PEOPLE	240			0	0			0	0	0	0												
HEAT GAIN APPLIANCES/LIGHTS					580				580		0												
TOTAL HT LOSS BTU/H				6943				1890		540	4172												
TOTAL HT GAIN x 1.3 BTU/H					6391				984		296												

TOTAL HEAT GAIN BTU/H:

29588

TONS: 2.47

LOSS DUE TO VENTILATION LOAD BTU/H: 1554

STRUCTURAL HEAT LOSS: 39645

TOTAL COMBINED HEAT LOSS BTU/H: 41199



SITE NAME: BARLASSINA
BUILDER: GREENPARK HOMES

OPT 4 BED
TYPE: GARDEN 1 - WOB

DATE: Jan-23

GFA: 2197 LO# 99992

HEATING CFM 928 COOLING CFM 928
TOTAL HEAT LOSS 39,645 TOTAL HEAT GAIN 29,391
AIR FLOW RATE CFM 23.41 AIR FLOW RATE CFM 31.57

furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure
for s/a & r/a 0.35

#GOODMAN
GMEC960603BNA 60
FAN SPEED LOW
MEDLOW
MEDIUM 928
MEDIUM HIGH 1017
HIGH 1131

AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,600

DESIGN CFM = 928
CFM @ .6" E.S.P.

TEMPERATURE RISE 57 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	9	6	4
R/A	0	0	5	1	1

All S/A diffusers 4"x10" unless noted otherwise on layout.

All S/A runs 5"Ø unless noted otherwise on layout.

RUN #	1	2	4	5	6	7	8	9	10	14	15	16	17	18	19	21	22	23	24
ROOM NAME	MBR	ENS	BED-2	BED-3	BED-4	BATH	BED-2	BED-3	MBR	K/B/LD	K/B/LD	K/B/LD	LAUN	W/R	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.35	1.51	1.74	1.67	1.56	0.74	1.74	1.67	1.35	2.31	2.31	2.31	1.89	0.54	4.17	3.19	3.19	3.19	3.19
CFM PER RUN HEAT	32	35	41	39	37	17	41	39	32	54	54	54	44	13	98	75	75	75	75
RM GAIN MBH.	1.46	1.00	2.12	2.26	1.95	0.17	2.12	2.26	1.46	2.13	2.13	2.13	0.98	0.30	2.05	1.21	1.21	1.21	1.21
CFM PER RUN COOLING	46	31	67	71	62	5	67	71	46	67	67	67	31	9	65	38	38	38	38
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	35	49	52	61	37	34	67	64	39	20	33	19	22	40	41	21	35	17	36
EQUIVALENT LENGTH	150	170	150	170	160	150	170	190	120	170	130	110	130	160	110	150	140	150	170
TOTAL EFFECTIVE LENGTH	185	219	202	231	197	184	237	254	159	190	163	129	152	200	151	171	175	167	206
ADJUSTED PRESSURE	0.09	0.08	0.09	0.07	0.09	0.09	0.07	0.07	0.11	0.09	0.11	0.13	0.11	0.09	0.11	0.1	0.1	0.1	0.08
ROUND DUCT SIZE	4	4	6	6	6	4	6	6	4	5	5	5	4	4	6	6	6	6	6
HEATING VELOCITY (ft/min)	367	402	209	199	189	195	209	199	367	396	396	396	505	149	500	382	382	382	382
COOLING VELOCITY (ft/min)	528	356	342	362	316	57	342	362	528	492	492	492	356	103	331	194	194	194	194
OUTLET GRILL SIZE	3X10	3X10	4X10	4X10	4X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10
TRUNK	C	C	A	A	B	B	A	A	C	C	C	C	B	A	A	C	C	C	A

RUN #	1	2	4	5	6	7	8	9	10	14	15	16	17	18	19	21	22	23	24
ROOM NAME	MBR	ENS	BED-2	BED-3	BED-4	BATH	BED-2	BED-3	MBR	K/B/LD	K/B/LD	K/B/LD	LAUN	W/R	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.35	1.51	1.74	1.67	1.56	0.74	1.74	1.67	1.35	2.31	2.31	2.31	1.89	0.54	4.17	3.19	3.19	3.19	3.19
CFM PER RUN HEAT	32	35	41	39	37	17	41	39	32	54	54	54	44	13	98	75	75	75	75
RM GAIN MBH.	1.46	1.00	2.12	2.26	1.95	0.17	2.12	2.26	1.46	2.13	2.13	2.13	0.98	0.30	2.05	1.21	1.21	1.21	1.21
CFM PER RUN COOLING	46	31	67	71	62	5	67	71	46	67	67	67	31	9	65	38	38	38	38
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	35	49	52	61	37	34	67	64	39	20	33	19	22	40	41	21	35	17	36
EQUIVALENT LENGTH	150	170	150	170	160	150	170	190	120	170	130	110	130	160	110	150	140	150	170
TOTAL EFFECTIVE LENGTH	185	219	202	231	197	184	237	254	159	190	163	129	152	200	151	171	175	167	206
ADJUSTED PRESSURE	0.09	0.08	0.09	0.07	0.09	0.09	0.07	0.07	0.11	0.09	0.11	0.13	0.11	0.09	0.11	0.1	0.1	0.1	0.08
ROUND DUCT SIZE	4	4	6	6	6	4	6	6	4	5	5	5	4	4	6	6	6	6	6
HEATING VELOCITY (ft/min)	367	402	209	199	189	195	209	199	367	396	396	396	505	149	500	382	382	382	382
COOLING VELOCITY (ft/min)	528	356	342	362	316	57	342	362	528	492	492	492	356	103	331	194	194	194	194
OUTLET GRILL SIZE	3X10	3X10	4X10	4X10	4X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10
TRUNK	C	C	A	A	B	B	A	A	C	C	C	C	B	A	A	C	C	C	A

SUPPLY AIR TRUNK SIZE	TRUNK	STATIC	ROUND	RECT	VELOCITY	TRUNK	STATIC	ROUND	RECT	VELOCITY	RETURN AIR TRUNK SIZE	TRUNK	STATIC	ROUND	RECT	VELOCITY
	CFM	PRESS.	DUCT	DUCT	(ft/min)	CFM	PRESS.	DUCT	DUCT	(ft/min)		CFM	PRESS.	DUCT	DUCT	(ft/min)
TRUNK A	346	0.07	9.7	12	x 8	519	0	0.00	0	0	x 8	0	0.05	0	0	x 8
TRUNK B	444	0.07	10.7	16	x 8	500	0	0.00	0	0	x 8	0	0.05	0	0	x 8
TRUNK C	486	0.08	10.7	14	x 8	625	0	0.00	0	0	x 8	0	0.05	0	0	x 8
TRUNK D	930	0.07	14.1	24	x 8	698	0	0.00	0	0	x 8	0	0.05	0	0	x 8
TRUNK E	0	0.00	0	0	x 8	0	0	0.00	0	0	x 8	0	0.05	0	0	x 8
TRUNK F	0	0.00	0	0	x 8	0	0	0.00	0	0	x 8	0	0.05	0	0	x 8

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	14	15	16	17	18	19	21	22	23	24
AIR VOLUME	85	85	85	85	335	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	68	55	61	61	35	40	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	255	240	235	215	225	160	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	323	295	296	276	260	200	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.05	0.05	0.05	0.05	0.06	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	6.3	6.3	6.3	6.3	10	6.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: GARDEN 1 - WOB
SITE NAME: BARLASSINA

LO # 99992
OPT 4 BED

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES		9.32.3.1(1)
a)	☒ Direct vent (sealed combustion) only	
b)	☐ Positive venting induced draft (except fireplaces)	
c)	☐ Natural draft, B-vent or induced draft gas fireplace	
d)	☐ Solid Fuel (including fireplaces)	
e)	☐ No Combustion Appliances	

HEATING SYSTEM	
☒ Forced Air	☐ Non Forced Air
☐ Electric Space Heat	

HOUSE TYPE		9.32.1(2)
☒ I	Type a) or b) appliance only, no solid fuel	
☐ II	Type I except with solid fuel (including fireplaces)	
☐ III	Any Type c) appliance	
☐ IV	Type I, or II with electric space heat	
☐	Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
☐ 1	Exhaust only/Forced Air System	
☐ 2	HRV with Ducting/Forced Air System	
☒ 3	HRV Simplified/connected to forced air system	
☐ 4	HRV with Ducting/non forced air system	
☐	Part 6 Design	

TOTAL VENTILATION CAPACITY		9.32.3.3(1)
Basement + Master Bedroom	<u>2</u> @ 21.2 cfm	<u>42.4</u> cfm
Other Bedrooms	<u>3</u> @ 10.6 cfm	<u>31.8</u> cfm
Kitchen & Bathrooms	<u>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Other Rooms	<u>3</u> @ 10.6 cfm	<u>31.8</u> cfm
Table 9.32.3.A.	TOTAL	<u>148.4</u> cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED		9.32.3.4.(1)
1 Bedroom	31.8	cfm
2 Bedroom	47.7	cfm
3 Bedroom	63.6	cfm
4 Bedroom	79.5	cfm
5 Bedroom	95.4	cfm
TOTAL		<u>79.5</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>148.4</u>	cfm
Less Principal Ventil. Capacity	<u>79.5</u>	cfm
Required Supplemental Capacity	<u>68.9</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE V150H	Location: BSMT
<u>79.5</u> cfm	☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	ΔT °F	FACTOR	% LOSS	
79.5 CFM	X 72 F	X 1.08	X	0.25

SUPPLEMENTAL FANS		BY INSTALLING CONTRACTOR		
Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	☒	3.5
BATH	BY INSTALLING CONTRACTOR	50	☒	3.5
W/R	BY INSTALLING CONTRACTOR	50	☒	3.5

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE V150H		
<u>150</u> cfm high	<u>35</u> cfm low	
<u>75</u> % Sensible Efficiency	☒ HVI Approved	
@ 32 deg F (0 deg C)		

LOCATION OF INSTALLATION	
Lot:	Concession
Township	Plan:
Address	
Roll #	Building Permit #

BUILDER: GREENPARK HOMES	
Name:	
Address:	
City:	
Telephone #:	Fax #:

INSTALLING CONTRACTOR	
Name:	
Address:	
City:	
Telephone #:	Fax #:

DESIGNER CERTIFICATION	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
Name:	HVAC Designs Ltd.
Signature:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	January-23

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 99992	Model: GARDEN 1 - WOB	Builder: GREENPARK HOMES	Date: 1/17/2023																																																									
Volume Calculation		Air Change & Delta T Data																																																										
House Volume <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr> <td>Bsmt</td> <td>999</td> <td>8</td> <td>7992</td> </tr> <tr> <td>First</td> <td>999</td> <td>10</td> <td>9990</td> </tr> <tr> <td>Second</td> <td>1198</td> <td>9</td> <td>10782</td> </tr> <tr> <td>Third</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td>Fourth</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>28,764.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>814.5 m³</td> </tr> </tbody> </table>		Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	999	8	7992	First	999	10	9990	Second	1198	9	10782	Third	0	9	0	Fourth	0	9	0	Total:			28,764.0 ft³	Total:			814.5 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%;">0.352</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.096</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTDh</td> <td>22</td> <td>-18</td> <td>40</td> <td>72</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>29</td> <td>5</td> <td>9</td> </tr> </table>			WINTER NATURAL AIR CHANGE RATE	0.352	SUMMER NATURAL AIR CHANGE RATE	0.096	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-18	40	72	Summer DTDc	24	29	5	9
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																									
Bsmt	999	8	7992																																																									
First	999	10	9990																																																									
Second	1198	9	10782																																																									
Third	0	9	0																																																									
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5.2.3.1 Heat Loss due to Air Leakage		6.2.6 Sensible Gain due to Air Leakage																																																										
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.352 x 226.25 x 40 °C x 1.2 = 3848 W = 13131 Btu/h		$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.096 x 226.25 x 5 °C x 1.2 = 134 W = 456 Btu/h																																																										
5.2.3.2 Heat Loss due to Mechanical Ventilation		6.2.7 Sensible heat Gain due to Ventilation																																																										
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 72 °F x 1.08 x 0.25 = 1554 Btu/h		$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 9 °F x 1.08 x 0.25 = 197 Btu/h																																																										
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HL _{clevel})																																																								
1	0.5	13,131	6,194	1.060																																																								
2	0.3		9,606	0.410																																																								
3	0.2		10,329	0.254																																																								
4	0		0	0.000																																																								
5	0		0	0.000																																																								
*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0																																																												
				Michael O'Rourke BCIN# 19669 																																																								

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL:	GARDEN 1 - WOB	OPT 4 BED	BUILDER:	GREENPARK HOMES
SFQT:	2197	LO#	99992	SITE: BARLASSINA

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	0	OUTDOOR DESIGN TEMP.	84
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75
		WINDOW SHGC	0.50

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	28764.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	5.0 ft
LENGTH: 52.0 ft	WIDTH: 24.0 ft	EXPOSED PERIMETER:	118.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	34.0 ft

2012 OBC - COMPLIANCE PACKAGE		Compliance Package A1	
Component		Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.65
Exposed Floor Minimum RSI (R)-Value		31	29.80
Walls Above Grade Minimum RSI (R)-Value		22	17.03
Basement Walls Minimum RSI (R)-Value		20 ci	21.12
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value		-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value		10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value		10	11.13
Windows and Sliding Glass Doors Maximum U-Value		0.28	-
Skylights Maximum U-Value		0.49	-
Space Heating Equipment Minimum AFUE		96%	-
HRV/ERV Minimum Efficiency		75%	-
Domestic Hot Water Heater Minimum EF		0.8	-

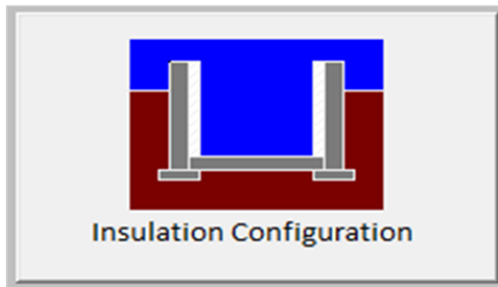
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Cambridge	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	7.3	
Exposed Perimeter (m):	36.0	
Wall Height (m):	2.4	
Depth Below Grade (m):	1.24	
Window Area (m ²):	0.5	
Door Area (m ²):	2.0	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		563

TYPE: GARDEN 1 - WOB
LO# 99992

OPT 4 BED

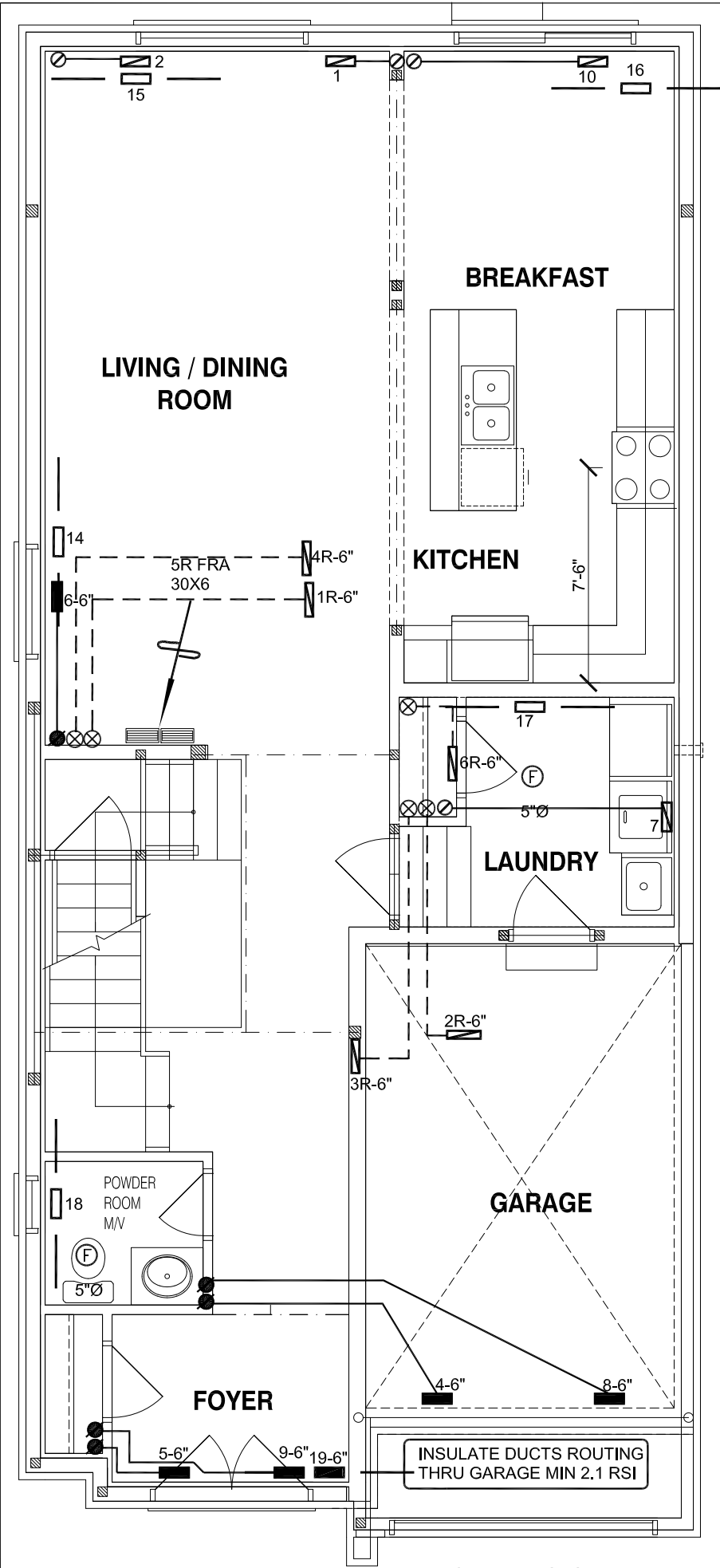
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Cambridge			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	8.23			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	814.5			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1085.8 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	37.5	37.5		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.352			
Cooling Air Leakage Rate (ACH/H):	0.096			

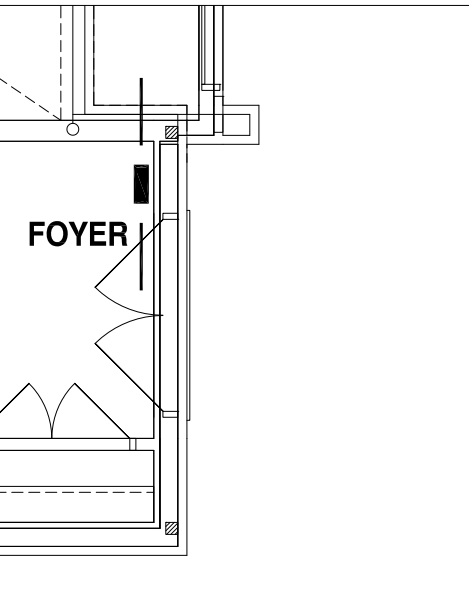
TYPE: GARDEN 1 - WOB
LO# 99992

OPT 4 BED

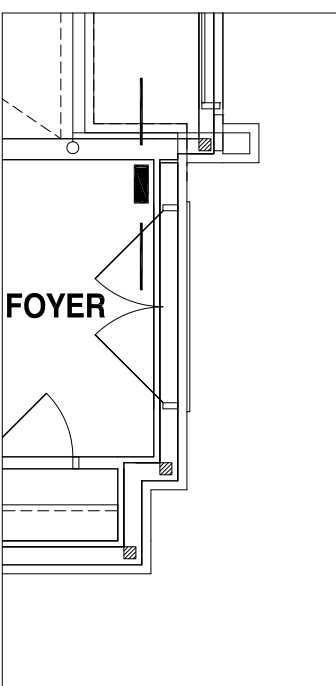


FIRST FLOOR EL-1

FIRST FLOOR EL-2



FIRST FLOOR EL-3



I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12

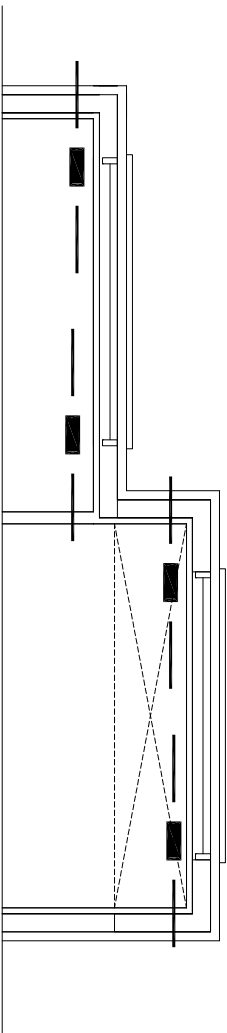
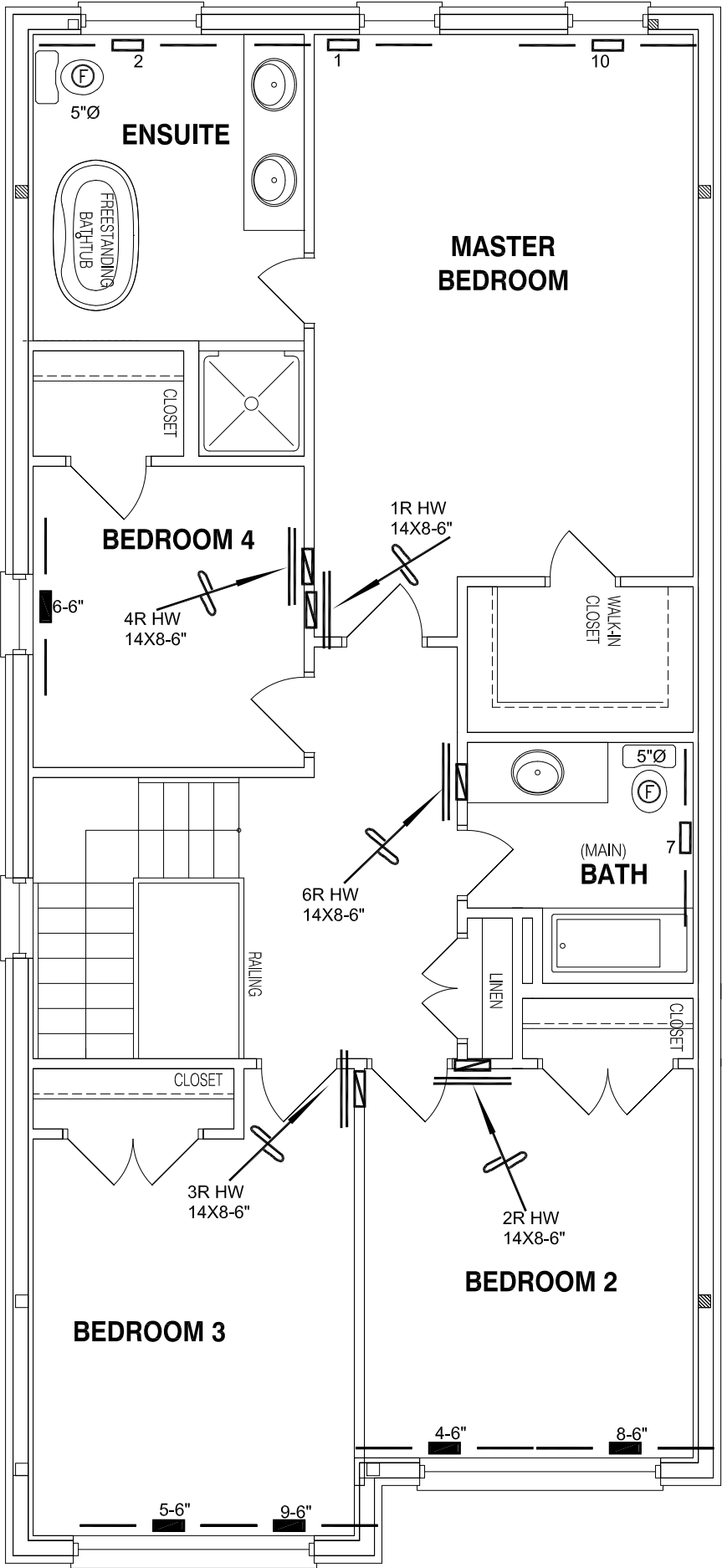
WOB

PACKAGE A1

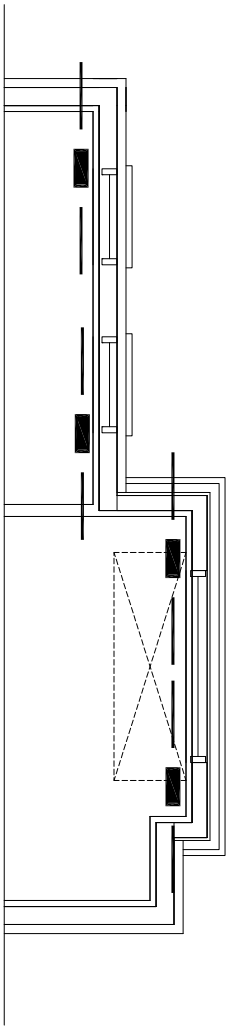
HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	Sheet Title	
GREENPARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name		Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.	Date	JAN/2023
BARLASSINA CAMBRIDGE, ONTARIO			Scale	3/16" = 1'-0"
Garden 1 - Elevation 1			BCIN# 19669	
OPT 4 BED			LO#	99992
GARDEN 1 WOB 2197 sqft				



SECOND FLOOR EL-2



SECOND FLOOR EL-3

I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12

WOB

PACKAGE A1

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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GREENPARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	JAN/2023
BARLASSINA CAMBRIDGE, ONTARIO Garden 1 - Elevation 1 OPT 4 BED GARDEN 1 WOB 2197 sqft			Scale	3/16" = 1'-0"
			BCIN# 19669	
			LO#	99992