

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 3

SITE NAME: BARLASSINA				OPT 4 BED				DATE: Jan-23				WINTER NATURAL AIR CHANGE RATE 0.335				HEAT LOSS ΔT °F. 72				CSA-F280-12											
BUILDER: GREENPARK HOMES				TYPE: GARDEN 1				GFA: 2197				LO# 99991				SUMMER NATURAL AIR CHANGE RATE 0.091				HEAT GAIN ΔT °F. 9				SB-12 PACKAGE A1							
ROOM USE				MBR				ENS				BED-2				BED-3				BED-4				BATH							
EXP. WALL				38				21				27				38				18				9							
CLG. HT.				9				9				9				9				9				9							
FACTORS																															
GRS.WALL AREA		LOSS GAIN		342				189				243				342				162				81							
GLAZING				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN							
NORTH		20.3	15.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
EAST		20.3	40.5	0	0	0	0	0	0	0	0	44	892	1784	56	1135	2270	0	0	0	0	0	0	0	0	0	0	0	0	0	
SOUTH		20.3	23.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	405	478	0	0	0	0	0	0	0	0	0	0	
WEST		20.3	40.5	20	405	811	14	284	568	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SKYLT.		35.5	99.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
DOORS		19.1	2.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NET EXPOSED WALL		4.3	0.5	322	1369	174	175	744	95	199	846	108	286	1216	155	142	604	77	81	344	44										
NET EXPOSED BSMT WALL ABOVE GR		3.4	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0										
EXPOSED CLG		1.2	0.5	309	378	163	143	175	75	194	237	102	209	256	110	195	238	103	126	154	66										
NO ATTIC EXPOSED CLG		2.6	1.1	0	0	0	0	0	0	0	0	0	22	58	25	0	0	0	0	0	0										
EXPOSED FLOOR		2.4	0.3	0	0	0	0	0	0	204	496	63	0	0	0	0	0	0	17	41	5										
BASEMENT/CRAWL HEAT LOSS				0				0				0				0				0				0							
SLAB ON GRADE HEAT LOSS				0				0				0				0				0				0							
SUBTOTAL HT LOSS				2152				1203				2471				2664				1248				540							
SUB TOTAL HT GAIN						1148				737				2057				2560				657				115					
LEVEL FACTOR / MULTIPLIER		0.20	0.24			0.20	0.24			0.20	0.24			0.20	0.24			0.20	0.24			0.20	0.24								
AIR CHANGE HEAT LOSS				522				292				599				646				303				131							
AIR CHANGE HEAT GAIN				51				33				92				115				29				5							
DUCT LOSS				0				0				307				0				0				67							
DUCT GAIN				0				0				326				0				0				12							
HEAT GAIN PEOPLE		240		2		480	0		0	1		240	1		240	1		240	0		0			0							
HEAT GAIN APPLIANCES/LIGHTS				867				0				867				867				867				0							
TOTAL HT LOSS BTU/H				2674				1494				3377				3310				1550				738							
TOTAL HT GAIN x 1.3 BTU/H				3311				1002				4657				4917				2332				172							

ROOM USE			K/B/LD			LAUN			W/R			FOY									LOD			BAS		
EXP. WALL			82			22			6			47									34			152		
CLG. HT.			10			11			10			11									8			8		
FACTORS																										
GRS.WALL AREA	LOSS	GAIN	820			242			60			517						272			862					
GLAZING			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN					
NORTH	20.3	15.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
EAST	20.3	40.5	0	0	0	0	0	0	0	0	0	0	0	0	30	608	1216	0	0	0	0	0	0	0	0	
SOUTH	20.3	23.9	22	446	526	0	0	0	8	162	191	0	0	0	0	0	0	0	0	0	5	101	119	0	0	
WEST	20.3	40.5	81	1642	3284	0	0	0	0	0	0	0	0	0	0	0	0	7	142	284	0	0	0	0	0	
SKYLT.	35.5	99.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
DOORS	19.1	2.4	0	0	0	21	401	51	0	0	0	18	344	44				0	0	0	21	401	51			
NET EXPOSED WALL	4.3	0.5	717	3048	387	221	940	119	52	221	28	469	1994	253				0	0	0	0	0	0			
NET EXPOSED BSMT WALL ABOVE GR	3.4	0.4	0	0	0	0	0	0	0	0	0	0	0	0				197	675	86	354	1214	154			
EXPOSED CLG	1.2	0.5	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0	0	0			
NO ATTIC EXPOSED CLG	2.6	1.1	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0	0	0			
EXPOSED FLOOR	2.4	0.3	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0	0	0			
BASEMENT/CRAWL HEAT LOSS			0			0			0			0						0			4837					
SLAB ON GRADE HEAT LOSS			0			0			0			0						0								
SUBTOTAL HT LOSS			5136			1341			383			2946						817			6553					
SUB TOTAL HT GAIN			4197			170			219			1513						370			325					
LEVEL FACTOR / MULTIPLIER	0.30	0.38				0.30			0.38			0.30			0.38						0.50			0.85		
AIR CHANGE HEAT LOSS			1959			511			146			1123									6232					
AIR CHANGE HEAT GAIN			188			8			10			68									31					
DUCT LOSS			0			0			0			0									0					
DUCT GAIN			0			0			0			0									0					
HEAT GAIN PEOPLE	240		0			0			0			0						0			0					
HEAT GAIN APPLIANCES/LIGHTS			867			867			0			0						0			867					
TOTAL HT LOSS BTU/H			7095			1852			529			4069						817			12785					
TOTAL HT GAIN x 1.3 BTU/H			6828			1359			298			2056						481			1590					

SITE NAME: BARLASSINA
BUILDER: GREENPARK HOMES

OPT 4 BED
TYPE: GARDEN 1

DATE: Jan-23

GFA: 2197

LO# 99991

HEATING CFM 928 COOLING CFM 928
TOTAL HEAT LOSS 40,291 TOTAL HEAT GAIN 29,002
AIR FLOW RATE CFM 23.03 AIR FLOW RATE CFM 32

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

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

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

plenium pressure s/a 0.18
max s/a dif press. loss 0.02
min adjusted pressure s/a 0.16

r/a pressure 0.17
r/a grille press. Loss 0.02
adjusted pressure r/a 0.15

MEDLOW
MEDIUM 928
MEDIUM HIGH 1017
HIGH 1131

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

TEMPERATURE RISE 57 °F

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.	1.34	1.49	1.69	1.66	1.55	0.74	1.69	1.66	1.34	2.36	2.36	2.36	1.85	0.53	4.07	3.40	3.40	3.40	3.40
CFM PER RUN HEAT	31	34	39	38	36	17	39	38	31	54	54	54	43	12	94	78	78	78	78
RM GAIN MBH.	1.66	1.00	2.33	2.46	2.33	0.17	2.33	2.46	1.66	2.28	2.28	2.28	1.36	0.30	2.06	0.52	0.52	0.52	0.52
CFM PER RUN COOLING	53	32	75	79	75	6	75	79	53	73	73	73	43	10	66	17	17	17	17
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	23	27	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	173	167	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	5	4	6	6	6	4	6	6	5	5	5	5	4	4	6	6	6	6	6
HEATING VELOCITY (ft/min)	228	390	199	194	184	195	199	194	228	396	396	396	493	138	479	398	398	398	398
COOLING VELOCITY (ft/min)	389	367	382	403	382	69	382	403	389	536	536	536	493	115	337	87	87	87	87
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 #	ROOM NAME	RM LOSS MBH.	CFM PER RUN HEAT	RM GAIN MBH.	CFM PER RUN COOLING	ADJUSTED PRESSURE	ACTUAL DUCT LGH.	EQUIVALENT LENGTH	TOTAL EFFECTIVE LENGTH	ADJUSTED PRESSURE	ROUND DUCT SIZE	HEATING VELOCITY (ft/min)	COOLING VELOCITY (ft/min)	OUTLET GRILL SIZE	TRUNK
1	MBR	1.34	31	1.66	53	0.17	35	150	185	0.09	5	228	389	3X10	C
2	ENS	1.49	34	1.00	32	0.17	49	170	219	0.08	4	390	367	3X10	C
4	BED-2	1.69	39	2.33	75	0.17	52	150	202	0.09	6	199	382	4X10	A
5	BED-3	1.66	38	2.46	79	0.17	61	170	231	0.07	6	194	403	4X10	A
6	BED-4	1.55	36	2.33	75	0.17	37	160	197	0.09	6	184	382	4X10	B
7	BATH	0.74	17	0.17	6	0.17	34	150	184	0.09	4	195	69	3X10	B
8	BED-2	1.69	39	2.33	75	0.17	67	170	237	0.07	6	199	382	4X10	A
9	BED-3	1.66	38	2.46	79	0.17	64	190	254	0.07	6	194	403	4X10	A
10	MBR	1.34	31	1.66	53	0.17	39	120	159	0.11	5	228	389	3X10	C
14	K/B/LD	2.36	54	2.28	73	0.17	20	170	190	0.09	5	396	536	3X10	C
15	K/B/LD	2.36	54	2.28	73	0.17	33	130	163	0.11	5	396	536	3X10	C
16	K/B/LD	2.36	54	2.28	73	0.17	19	110	129	0.13	5	396	536	3X10	C
17	LAUN	1.85	43	1.36	43	0.17	22	130	152	0.11	4	493	493	3X10	B
18	W/R	0.53	12	0.30	10	0.17	40	160	200	0.09	4	138	115	3X10	A
19	FOY	4.07	94	2.06	66	0.16	41	110	151	0.11	6	479	337	4X10	A
21	BAS	3.40	78	0.52	17	0.17	23	150	173	0.1	6	398	87	4X10	C
22	BAS	3.40	78	0.52	17	0.17	27	140	167	0.1	6	398	87	4X10	C
23	BAS	3.40	78	0.52	17	0.17	17	150	167	0.1	6	398	87	4X10	C
24	BAS	3.40	78	0.52	17	0.17	36	170	206	0.08	6	398	87	4X10	A

SUPPLY AIR TRUNK SIZE										RETURN AIR TRUNK SIZE															
	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)			TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)			TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK A	338	0.07	9.7	12	x	8	507	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0		0
TRUNK B	434	0.07	10.6	14	x	8	558	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0		0
TRUNK C	492	0.08	10.8	14	x	8	633	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0		0
TRUNK D	926	0.07	14.1	24	x	8	695	TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.05	0	0	x	8	0		0
TRUNK E	0	0.00	0	0	x	8	0	TRUNK K	0	0.00	0	0	x	8	0	TRUNK S	0	0.05	0	0	x	8	0		0
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0	TRUNK T	0	0.05	0	0	x	8	0		0

RETURN AIR #	1	2	3	4	5	6	0	0	0	0	0	0	0	0	0	BR
AIR VOLUME	85	85	85	85	322	110	0	0	0	0	0	0	0	0	0	156
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
ACTUAL DUCT LGH.	68	55	61	61	35	40	1	1	1	1	1	1	1	1	1	15
EQUIVALENT LENGTH	255	240	235	215	275	160	0	0	0	0	0	0	0	0	0	185
TOTAL EFFECTIVE LH	323	295	296	276	310	200	1	1	1	1	1	1	1	1	1	200
ADJUSTED PRESSURE	0.05	0.05	0.05	0.05	0.05	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.07
ROUND DUCT SIZE	6.3	6.3	6.3	6.3	10.3	6.3	0	0	0	0	0	0	0	0	0	7.2
INLET GRILL SIZE	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	8
	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	14

TYPE: GARDEN 1
SITE NAME: BARLASSINA

LO # 99991
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	79.5 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 @ 32 deg F (0 deg C)	☒ HVI Approved	

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#: 99991	Model: GARDEN 1	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: 70%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 30%;">0.335</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.091</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	0.335	SUMMER NATURAL AIR CHANGE RATE	0.091	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-18	40	72	Summer DTDc	24	29	5	9
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.335 x 226.25 x 40 °C x 1.2 = 3653 W = 12464 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.091 x 226.25 x 5 °C x 1.2 = 127 W = 433 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	12,464	7,370	0.846																																																								
2	0.3		9,806	0.381																																																								
3	0.2		10,277	0.243																																																								
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	OPT 4 BED	BUILDER: GREENPARK HOMES
SFQT: 2197	LO# 99991	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):	1.90	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:	152.0 ft

2012 OBC - COMPLIANCE PACKAGE

Component	Compliance Package A1	
	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	-

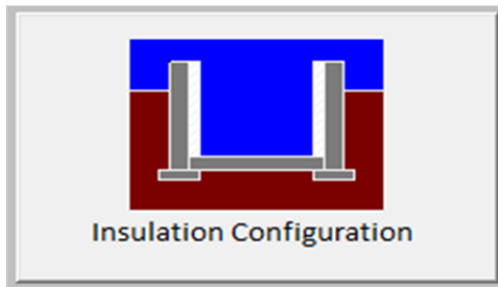
INDIVIDUAL BCIN: 19669

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):	15.8	 Insulation Configuration
Floor Width (m):	7.3	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.4	
Depth Below Grade (m):	1.52	
Window Area (m ²):	1.1	
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):		1417

TYPE: GARDEN 1
LO# 99991

OPT 4 BED

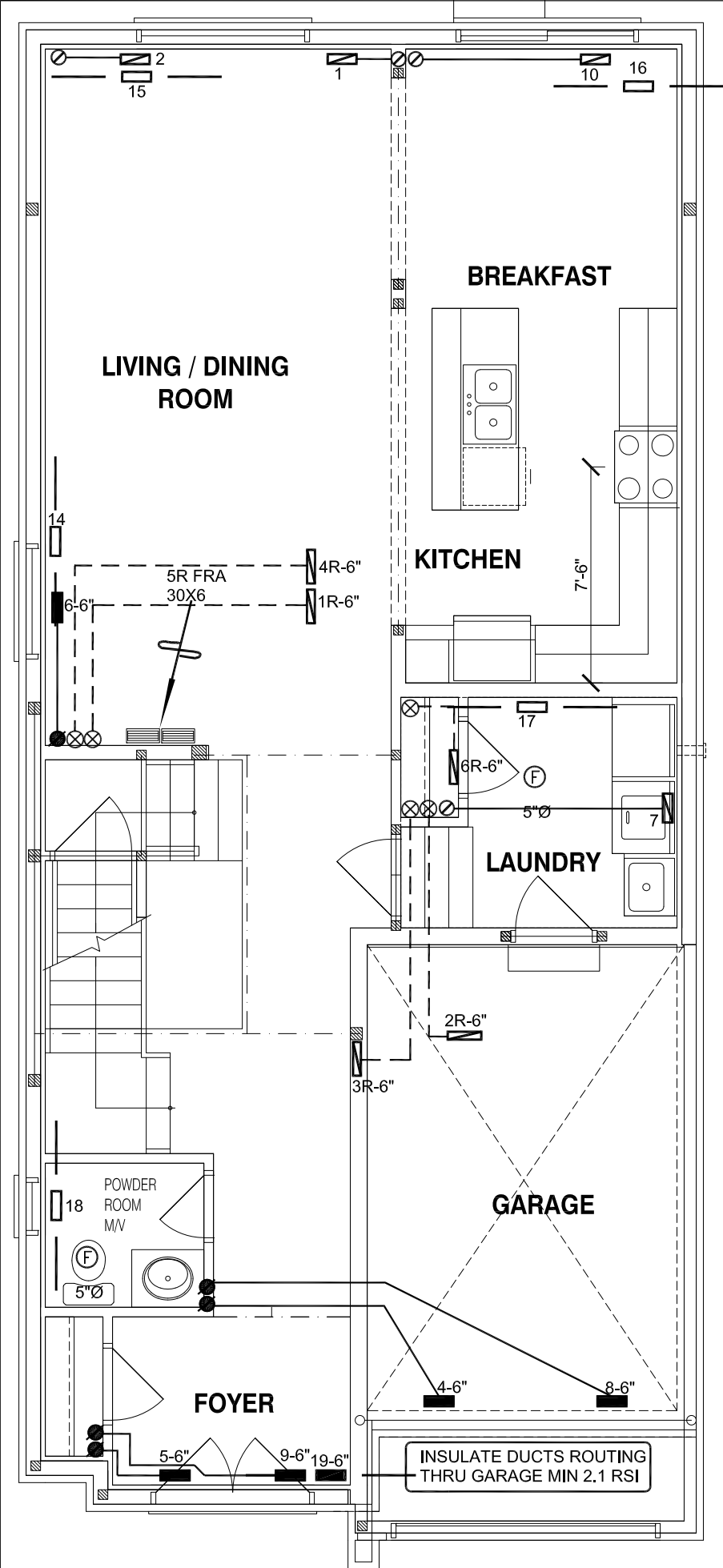
Air Infiltration Residential Load Calculator

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):	7.62			
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):	0.335			
Cooling Air Leakage Rate (ACH/H):	0.091			

TYPE: GARDEN 1
LO# 99991

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.

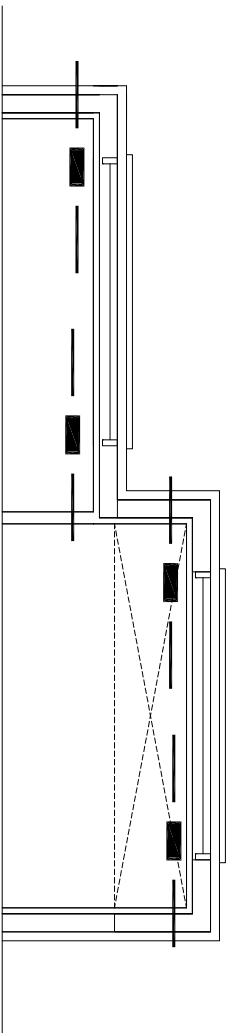
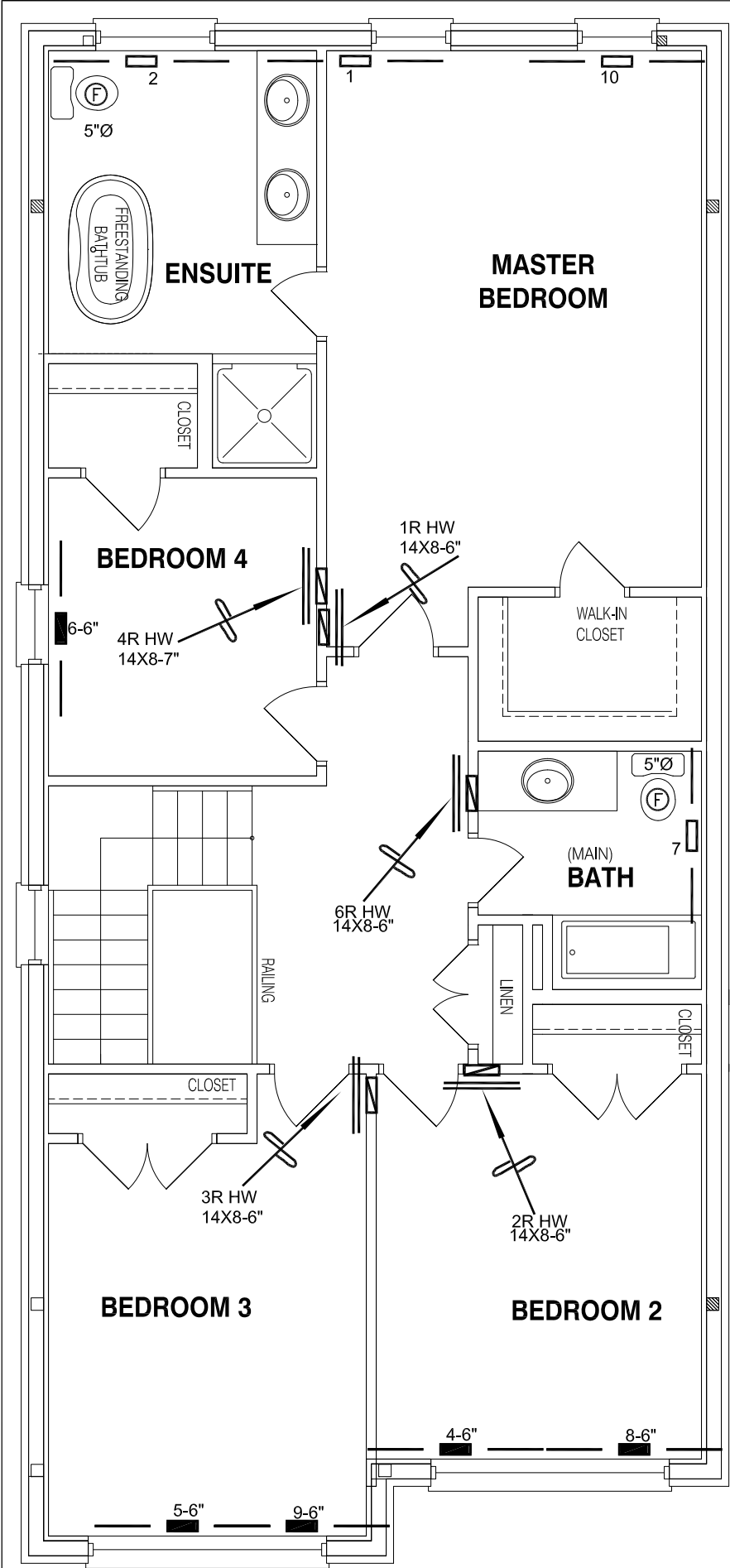
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

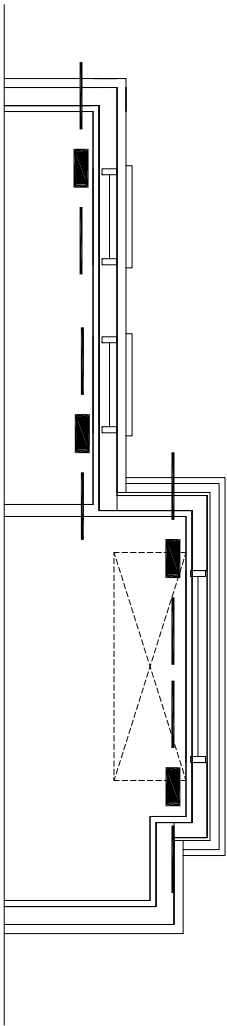
HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR 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 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.	Sheet Title	
GREENPARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	JAN/2023
BARLASSINA CAMBRIDGE, ONTARIO Garden 1 - Elevation 3			Scale	3/16" = 1'-0"
OPT 4 BED GARDEN 1			BCIN# 19669	
2197 sqft			LO#	99991



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

PACKAGE A1

HVAC LEGEND								3.		
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Garden 1 - Elevation 3			BCIN# 19669	
OPT 4 BED			LO#	99991
GARDEN 1				
2197 sqft				