

Garden 2 - Elev 1

SITE NAME: BARLASSINA										WOB										DATE: Aug-22										WINTER NATURAL AIR CHANGE RATE 0.352										HEAT LOSS ΔT °F. 72										CSA-F280-12																			
BUILDER: GREENPARK HOMES										TYPE: GARDEN 2										GFA: 2315										LO# 98639										SUMMER NATURAL AIR CHANGE RATE 0.096										HEAT GAIN ΔT °F. 9										SB-12 PACKAGE A1									
ROOM USE				MBR				ENS				WIC				BED-2				BED-3				MEDIA				BATH																																									
EXP. WALL				40				28				8				32				36				22				8																																									
CLG. HT.				9				9				9				9				9				9																																													
FACTORS																																																																					
GRS.WALL AREA		LOSS GAIN		360				252				72				288				324				198				72																																									
GLAZING				LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		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	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	36	730	1460	0	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	0	0	0	0	0	0	26	527	621	0	0	0	0	0	0	0	0																																			
WEST		20.3	40.5	24	487	973	14	284	568	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																																			
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	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	0	0	0	0																																			
NET EXPOSED WALL		4.3	0.5	336	1428	182	238	1012	129	72	306	39	258	1097	139	288	1224	156	172	731	93	72	306	39	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																			
EXPOSED CLG		1.2	0.5	373	456	197	171	209	90	104	127	55	232	284	122	189	231	100	264	323	139	104	127	55	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	15	39	17	15	39	17	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	247	600	76	0	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				0				0				0																																					
SLAB ON GRADE HEAT LOSS				0				0				0				0				0				0				0				0																																					
SUBTOTAL HT LOSS				2371				1505				433				2628				2225				1581				433																																									
SUB TOTAL HT GAIN				1351				786				94				1571				1732				853				94																																									
LEVEL FACTOR / MULTIPLIER		0.20		0.25		0.20		0.25		0.20		0.25		0.20		0.25		0.20		0.25		0.20		0.25		0.20		0.25		0.20		0.25																																					
AIR CHANGE HEAT LOSS				589				374				108				653				553				393				108																																									
AIR CHANGE HEAT GAIN				56				33				4				65				72				35				4																																									
DUCT LOSS				0				0				0				328				0				0				0																																									
DUCT GAIN				0				0				0				256				0				0				0																																									
HEAT GAIN PEOPLE		240		2		480		0		0		0		1		240		1		240		0		0		0		0		0		0		0																																			
HEAT GAIN APPLIANCES/LIGHTS						685		0		0		0				685				685				685				685				0		0																																			
TOTAL HT LOSS BTU/H				2960				1878				541				3609				2777				1974				541																																									
TOTAL HT GAIN x 1.3 BTU/H				3344				1065				127				3663				3548				2046				127																																									

ROOM USE							K/B/L/D				LAUN	W/R		FOY										WOB		BAS		
EXP. WALL							86				19	6		49										34		126		
CLG. HT.							10				11	10		11										8		8		
FACTORS																												
GRS.WALL AREA	LOSS	GAIN					860				209	60		539										272		630		
GLAZING							LOSS	GAIN		LOSS	GAIN	LOSS	GAIN	LOSS	GAIN									LOSS		LOSS		
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	
EAST	20.3	40.5					0	0	0	0	0	0	0	0	608	1216	0	0	0	0	0	0	0	0	0	0	0	
SOUTH	20.3	23.9					39	791	932	0	0	0	7	142	167	0	0	0	0	0	0	10	203	239	0	0	0	
WEST	20.3	40.5					64	1297	2595	0	0	0	0	0	0	0	0	0	0	0	64	1297	2595	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	
DOORS	19.1	2.4					0	0	0	21	401	51	0	0	0	18	344	44	0	0	0	21	401	51	0	0	0	
NET EXPOSED WALL	4.3	0.5					757	3218	409	188	799	102	53	225	29	491	2087	265	0	0	0	208	884	112	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	0	0	0	0	0	378	1296	165	0	
EXPOSED CLG	1.2	0.5					0	0	0	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	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	0	0	0	
BASEMENT/CRAWL HEAT LOSS							0				0			0			0									1928		
SLAB ON GRADE HEAT LOSS							0				0			0			0							375				
SUBTOTAL HT LOSS							5306				1200	367		3039										2556		3828		
SUB TOTAL HT GAIN					3936					153		196		1525								2707				455		
LEVEL FACTOR / MULTIPLIER			0.30		0.42					0.30	0.42		0.30		0.42		0.30		0.42						0.50		1.09	
AIR CHANGE HEAT LOSS							2229			504			154		1277										6941			
AIR CHANGE HEAT GAIN					163					6			8		63												131	
DUCT LOSS					0					0			0		0												0	
DUCT GAIN					0					0			0		0												0	
HEAT GAIN PEOPLE	240				0		0			0			0		0		0		0		0		0		0		0	
HEAT GAIN APPLIANCES/LIGHTS					685					685			0		0						0		0		685			
TOTAL HT LOSS BTU/H					7535					1705			521		4316								2556		10769			
TOTAL HT GAIN x 1.3 BTU/H					6219					1098			265		2065								3519		1652			

TOTAL HEAT GAIN BTU/H:

28896

TONS: 2.41

LOSS DUE TO VENTILATION LOAD BTU/H: 1243

STRUCTURAL HEAT LOSS: 41684

TOTAL COMBINED HEAT LOSS BTU/H: 42927

SITE NAME: BARLASSINA
BUILDER: GREENPARK HOMES

WOB
TYPE: GARDEN 2

DATE: Aug-22

GFA: 2315 LO# 98639

HEATING CFM 928 COOLING CFM 928
TOTAL HEAT LOSS 41,684 TOTAL HEAT GAIN 28,738
AIR FLOW RATE CFM 22.26 AIR FLOW RATE CFM 32.29

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

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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	10	6	4
R/A	0	0	4	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

FAN SPEED
LOW
MEDLOW
MEDIUM 928
MEDIUM HIGH 1017
HIGH 1131

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

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	3	4	5	6	7	8	9	10	14	15	16	17	18	19	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	MEDIA	BATH	BED-2	BED-3	MBR	K/B/L/D	K/B/L/D	K/B/L/D	LAUN	W/R	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.48	1.88	0.54	1.80	1.39	1.97	0.54	1.80	1.39	1.48	2.51	2.51	2.51	1.70	0.52	4.32	3.33	3.33	3.33	3.33
CFM PER RUN HEAT	33	42	12	40	31	44	12	40	31	33	56	56	56	38	12	96	74	74	74	74
RM GAIN MBH.	1.67	1.06	0.13	1.83	1.77	2.05	0.13	1.83	1.77	1.67	2.07	2.07	2.07	1.10	0.27	2.07	1.29	1.29	1.29	1.29
CFM PER RUN COOLING	54	34	4	59	57	66	4	59	57	54	67	67	67	35	9	67	42	42	42	42
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	0.17	0.16	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	50	33	25	67	57	34	14	69	65	44	42	35	23	9	39	40	31	19	28	35
EQUIVALENT LENGTH	140	160	100	170	130	120	130	160	140	160	100	140	120	120	130	90	150	160	80	130
TOTAL EFFECTIVE LENGTH	190	193	125	237	187	154	144	229	205	204	142	175	143	129	169	130	181	179	108	165
ADJUSTED PRESSURE	0.09	0.09	0.14	0.07	0.09	0.11	0.12	0.08	0.08	0.08	0.12	0.1	0.12	0.13	0.1	0.12	0.1	0.1	0.16	0.1
ROUND DUCT SIZE	5	4	4	5	5	5	4	5	5	5	5	5	5	4	4	6	5	5	5	5
HEATING VELOCITY (ft/min)	242	482	138	294	228	323	138	294	228	242	411	411	411	436	138	489	543	543	543	543
COOLING VELOCITY (ft/min)	396	390	46	433	419	485	46	433	419	396	492	492	492	402	103	342	308	308	308	308
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10
TRUNK	B	C		A	A	B		A	A	C	B	B	B	C	A	A	A	A	C	B

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	

SUPPLY AIR TRUNK SIZE											RETURN AIR TRUNK SIZE										
		TRUNK	STATIC	ROUND	RECT				VELOCITY			TRUNK	STATIC	ROUND	RECT				VELOCITY		
		CFM	PRESS.	DUCT	DUCT				(ft/min)			CFM	PRESS.	DUCT	DUCT				(ft/min)		
TRUNK A	398	0.07	10.3	12	x	8		597	TRUNK G	0	0.00	0	0		x	8		0			
TRUNK B	319	0.09	8.9	10	x	8		574	TRUNK H	0	0.00	0	0	x	8		0				
TRUNK C	904	0.07	14	22	x	8		740	TRUNK I	0	0.00	0	0	x	8		0				
TRUNK D	0	0.00	0	0	x	8		0	TRUNK J	0	0.00	0	0	x	8		0				
TRUNK E	0	0.00	0	0	x	8		0	TRUNK K	0	0.00	0	0	x	8		0				
TRUNK F	0	0.00	0	0	x	8		0	TRUNK L	0	0.00	0	0	x	8		0				

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
AIR VOLUME	130	115	85	130	330	0	0	0	0	0	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	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	57	66	68	55	17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	200	215	175	195	185	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	257	281	243	250	202	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.06	0.05	0.06	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	14.80	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	7	7	6	7	9.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	X	X	X	X	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: GARDEN 2
SITE NAME: BARLASSINA

LO # 98639
WOB

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>2</u> @ 10.6 cfm <u>21.2</u> cfm	
Kitchen & Bathrooms	<u>4</u> @ 10.6 cfm <u>42.4</u> cfm	
Other Rooms	<u>5</u> @ 10.6 cfm <u>53.0</u> cfm	
Table 9.32.3.A.	TOTAL <u>159.0</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	63.6 cfm	

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>159</u> cfm	
Less Principal Ventil. Capacity	<u>63.6</u> cfm	
Required Supplemental Capacity	<u>95.4</u> cfm	

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE V150H	Location: BSMT
<u>63.6</u> cfm	☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	ΔT °F	FACTOR	% LOSS	
63.6 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:	August-22

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 98639	Model: GARDEN 2	Builder: GREENPARK HOMES	Date: 8/24/2022																																																									
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>1064</td> <td>8</td> <td>8512</td> </tr> <tr> <td>First</td> <td>1064</td> <td>10</td> <td>10640</td> </tr> <tr> <td>Second</td> <td>1251</td> <td>9</td> <td>11259</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>30,411.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>861.1 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1064	8	8512	First	1064	10	10640	Second	1251	9	11259	Third	0	9	0	Fourth	0	9	0	Total:			30,411.0 ft³	Total:			861.1 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%;">0.352</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	1064	8	8512																																																									
First	1064	10	10640																																																									
Second	1251	9	11259																																																									
Third	0	9	0																																																									
Fourth	0	9	0																																																									
Total:			30,411.0 ft³																																																									
Total:			861.1 m³																																																									
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																																																								
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 239.21 x 40 °C x 1.2 = 4069 W = 13882 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.096 x 239.21 x 5 °C x 1.2 = 141 W = 482 Btu/h																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																									
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 64 CFM x 72 °F x 1.08 x 0.25 = 1243 Btu/h			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 64 CFM x 9 °F x 1.08 x 0.25 = 158 Btu/h																																																									
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairve Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{clevel})</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HL_{clevel})</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">13,882</td> <td>6,384</td> <td>1.087</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>9,913</td> <td>0.420</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>11,176</td> <td>0.248</td> </tr> <tr> <td>4</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> </tbody> </table>					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	13,882	6,384	1.087	2	0.3	9,913	0.420	3	0.2	11,176	0.248	4	0	0	0.000	5	0	0	0.000																														
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*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 2	WOB	BUILDER: GREENPARK HOMES
SFQT: 2315	LO# 98639	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):	30411.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.42	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	5.0 ft
LENGTH: 56.0 ft	WIDTH: 24.0 ft	EXPOSED PERIMETER:	126.0 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	-

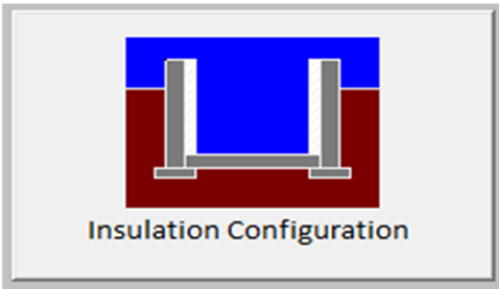
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

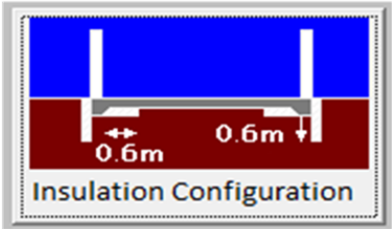
Weather Station Description		
Province:	Ontario	
Region:	Cambridge	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	7.3	
Exposed Perimeter (m):	38.4	
Wall Height (m):	2.4	
Depth Below Grade (m):	1.24	
Window Area (m ²):	0.9	
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):		565

TYPE: GARDEN 2
LO# 98639

WOB

Residential Slab on Grade 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		
Length (m):	1.5	
Width (m):	7.3	
Exposed Perimeter (m):	10.4	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		110

TYPE: GARDEN 2
LO# 98639

WOB

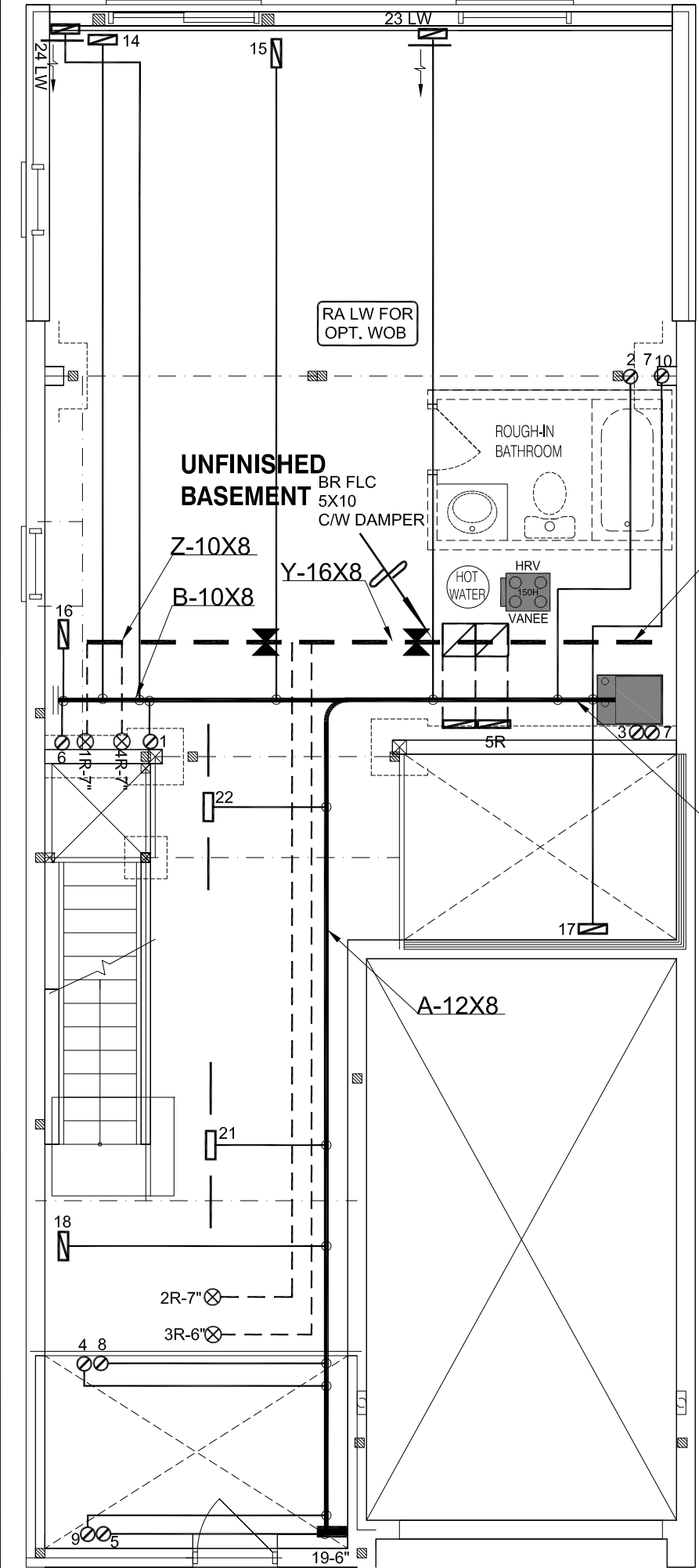
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

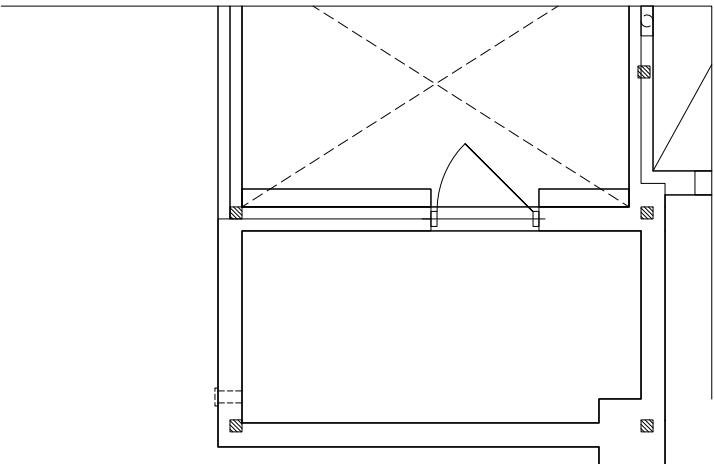
Weather Station Description				
Province:	Ontario			
Region:	Cambridge			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	8.23			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	861.1			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1147.9 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	30.0	30.0		
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 2
LO# 98639

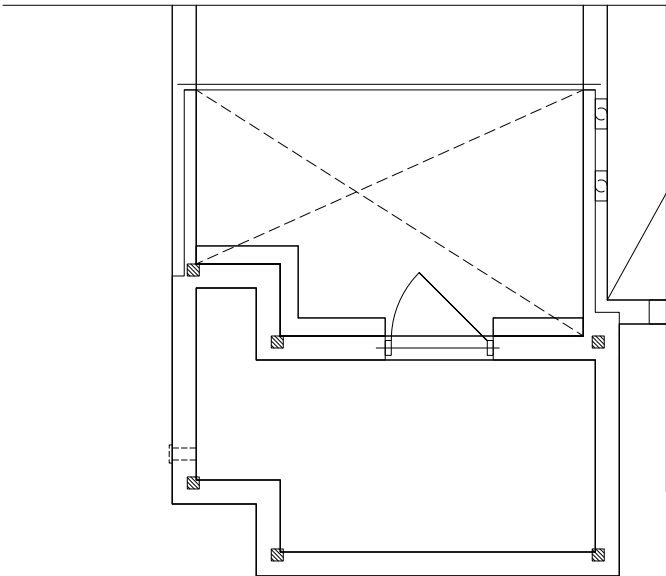
WOB



BASEMENT PLAN EL-1



BASEMENT PLAN EL-2



BASEMENT PLAN 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

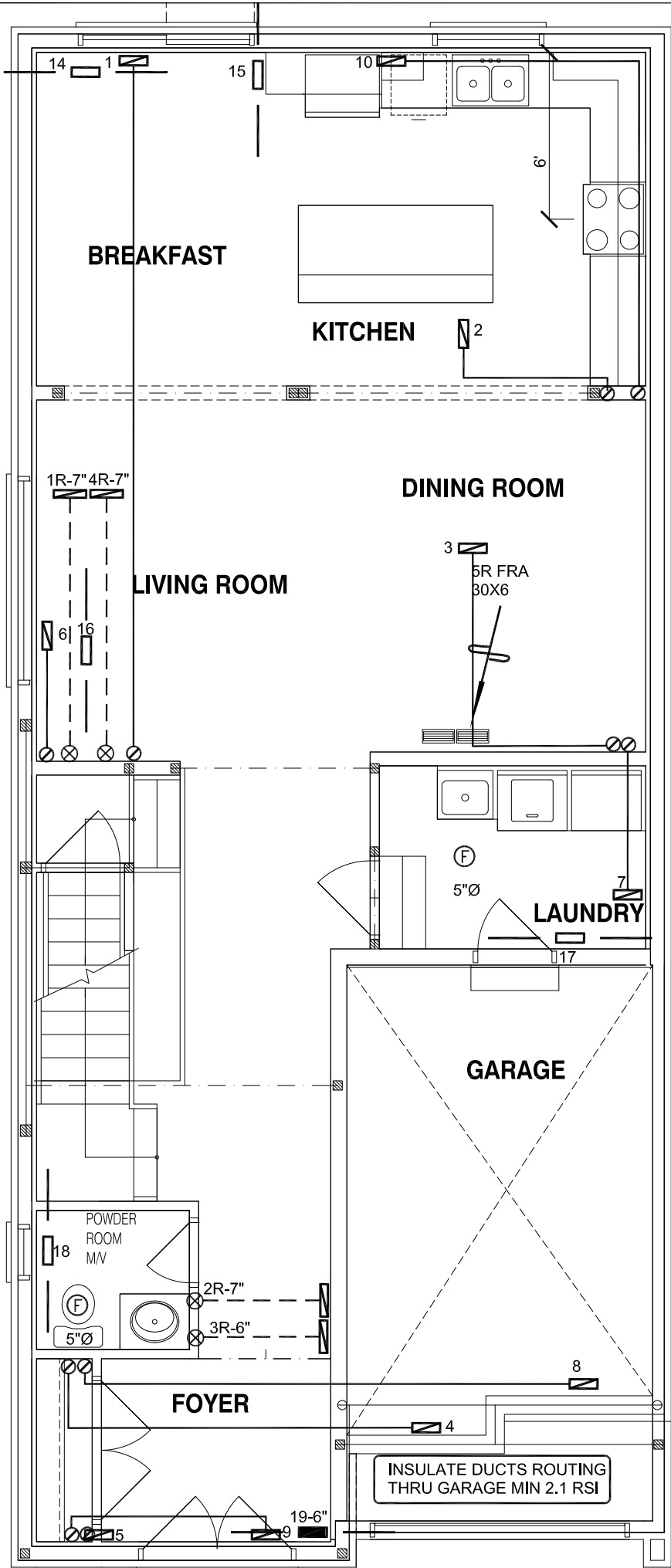
WOB

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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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	HEAT LOSS 42927 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			Sheet Title BASEMENT HEATING LAYOUT	
Project Name BARLASSINA CAMBRIDGE, ONTARIO Garden 2 - Elev 1 GARDEN 2 WOB 2315 sqft			MAKE GOODMAN	3RD FLOOR					
			MODEL GMEC960603BNA	2ND FLOOR	10	4	2		
			INPUT 60 MBTU/H	1ST FLOOR	6	1	3		
			OUTPUT 57.6 MBTU/H	BASEMENT	4	1	0	Date	AUG/2022
			COOLING 2.5 TONS	ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A				Scale	3/16" = 1'-0"
			FAN SPEED 928 cfm @ 0.6" w.c.					BCIN# 19669	
									LO#
		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.							



FIRST FLOOR PLAN EL-1

FIRST FLOOR PLAN EL-3

FIRST FLOOR PLAN EL-2

PARTIAL FIRST LAYOUT
FOR DECK CONDITION EL-1 (EL-2,EL-3 SIMIALR)

I MICHAEL O'ROURKE HAVE REVIEW
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

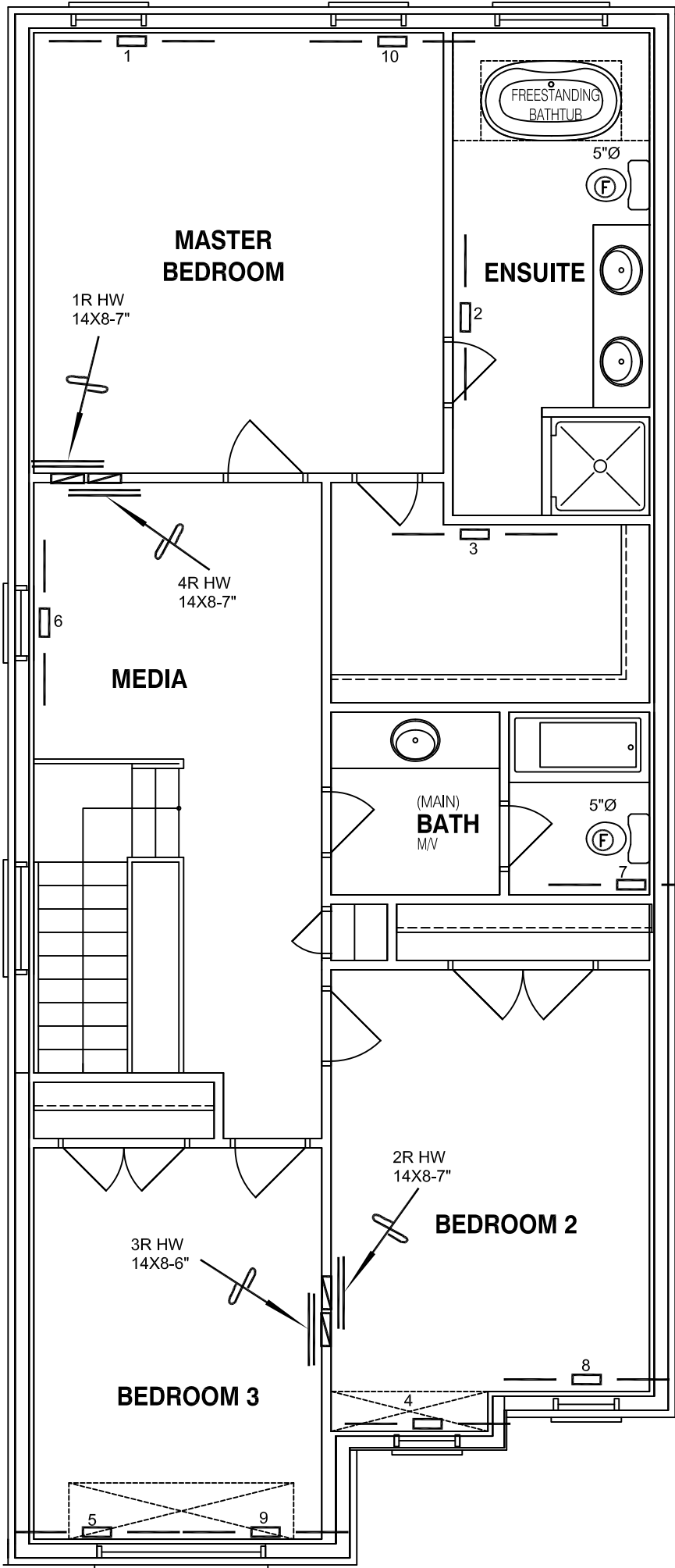
WOB

PACKAGE A1

HVAC LEGEND								3.		
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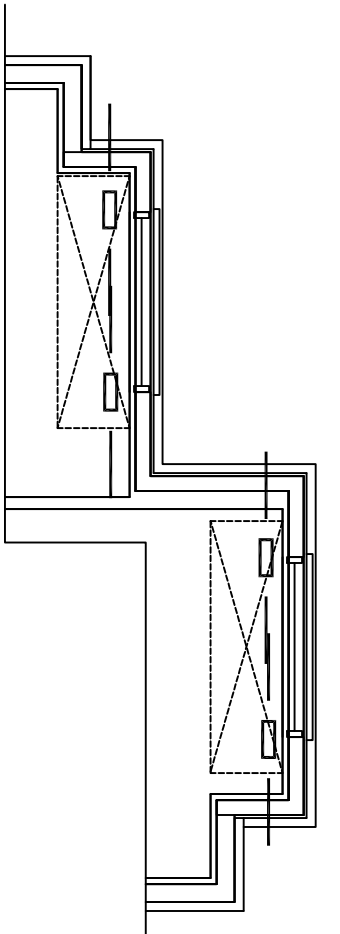
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GREENPARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	AUG/2022
BARLASSINA CAMBRIDGE, ONTARIO			Scale	3/16" = 1'-0"
Garden 2 - Elev 1			BCIN# 19669	
GARDEN 2 WOB 2315 sqft			LO#	98639



SECOND FLOOR PLAN EL-1

SECOND FLOOR PLAN EL-2



SECOND FLOOR PLAN EL-3

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

CSA-F280-12

WOB

PACKAGE A1

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Project Name			Date	AUG/2022
BARLASSINA CAMBRIDGE, ONTARIO			Scale	3/16" = 1'-0"
Garden 2 - Elev 1			BCIN# 19669	
GARDEN 2 WOB 2315 sqft			LO#	98639