

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 4 - Elevation 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 4			GFA: 2615			LO# 98643			SUMMER NATURAL AIR CHANGE RATE 0.096			HEAT GAIN ΔT °F. 9		
ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-3			BATH					
			33	23	8	30	34	18	10			16					
			9	9	9	9	9	9	9			9					
FACTORS																	
GRS.WALL AREA	LOSS	GAIN	297	207	72	270	306	162	90			144					
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	20.3	15.0	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	0	0	0
SOUTH	20.3	23.9	0	0	0	9	182	215	0	0	0	24	487	573	15	304	358
WEST	20.3	40.5	20	405	811	9	182	365	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
DOORS	19.1	2.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.3	0.5	277	1178	150	189	803	102	72	306	39	243	1033	131	264	1122	143
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
EXPOSED CLG	1.2	0.5	260	318	137	142	174	75	104	127	55	228	279	120	267	326	141
NO ATTIC EXPOSED CLG	2.6	1.1	0	0	0	0	0	0	0	0	0	14	37	16	18	47	20
EXPOSED FLOOR	2.4	0.3	0	0	0	0	0	0	0	0	0	242	588	75	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			1901		1342	433	2484	2347	1356	715		907					
SUB TOTAL HT GAIN				1098	757	94	1437	2006	770	438			169				
LEVEL FACTOR / MULTIPLIER	0.20	0.27				0.20	0.27		0.20	0.27		0.20	0.27				
AIR CHANGE HEAT LOSS			517		365	118	676	639	369	194		247					
AIR CHANGE HEAT GAIN				48	33	4	63	88	34	19		7					
DUCT LOSS			0		0	0	316	0	0	0		115					
DUCT GAIN			0		0	0	234	0	0	0		18					
HEAT GAIN PEOPLE	240		2	480	0	0	1	240	1	240	0	0			0	0	0
HEAT GAIN APPLIANCES/LIGHTS				604	0	0	604	604	604	604	0	0			0	0	0
TOTAL HT LOSS BTU/H			2418		1707	551	3476	2986	1725	909		1270					
TOTAL HT GAIN x 1.3 BTU/H			2899		1027	127	3352	3820	2142	595		252					

ROOM USE			LIV/D			K/B/F/D			LAUN			W/R			FOY									WOB			BAS		
EXP. WALL			38			90			20			13			19									34			140		
CLG. HT.			10			10			11			10			11									8			8		
FACTORS																													
GRS.WALL AREA	LOSS	GAIN																											
GLAZING			380			900			220			130			209									272			700		
			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
EAST	20.3	40.5	0	0	0	0	0	0	0	0	0	9	182	365	30	608	1216	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	20.3	23.9	28	568	669	14	284	334	0	0	0	0	0	0	0	0	0	0	0	0	0	10	203	239	0	0	0	10	203
WEST	20.3	40.5	0	0	0	81	1642	3284	0	0	0	0	0	0	0	0	0	0	0	0	0	64	1297	2595	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	21	401	51	0	0	0	18	344	44	0	0	0	0	0	0	0	21	401	51	0	0
NET EXPOSED WALL	4.3	0.5	352	1496	190	805	3422	435	199	846	108	121	514	65	161	684	87	208	884	112	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	420	1440	183	0	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	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	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	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0			0			0			0			0														
SLAB ON GRADE HEAT LOSS			0			0			0			0			0														
SUBTOTAL HT LOSS			2064			5348			1247			697			1636			375							1970				
SUB TOTAL HT GAIN				859			4053			158		430				1347		2556							4014				
LEVEL FACTOR / MULTIPLIER	0.30	0.43				0.30	0.43		0.30	0.43		0.30	0.43		0.30	0.43		2707						0.50	1.19				
AIR CHANGE HEAT LOSS			880			2281			532			297			698										7814				
AIR CHANGE HEAT GAIN				38			179			7		19				59										140			
DUCT LOSS			0			0			0			0			0										0				
DUCT GAIN				0			0			0		0				0									0				
HEAT GAIN PEOPLE	240		0		0	0		0	0		0	0	0	0	0		0	0						0	0		0		
HEAT GAIN APPLIANCES/LIGHTS				604			604			604			604			0								0		604			
TOTAL HT LOSS BTU/H			2944			7629			1779			994			2334			2556							11828				
TOTAL HT GAIN x 1.3 BTU/H				1951			6287			1000		584			1828			3519							1582				

TOTAL HEAT GAIN BTU/H:

31163

TONS: 2.60

LOSS DUE TO VENTILATION LOAD BTU/H: 1554

STRUCTURAL HEAT LOSS: 45107

TOTAL COMBINED HEAT LOSS BTU/H: 46662



SITE NAME: BARLASSINA
BUILDER: GREENPARK HOMES

WOB
TYPE: GARDEN 4

DATE: Aug-22

GFA: 2615 LO# 98643

HEATING CFM 928 COOLING CFM 928
TOTAL HEAT LOSS 45,107 TOTAL HEAT GAIN 30,966
AIR FLOW RATE CFM 20.57 AIR FLOW RATE CFM 29.97

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	11	7	4
R/A	0	0	5	1	1

plenium pressure s/a 0.18
max s/a dif press. loss 0.01
min adjusted pressure s/a 0.17
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	3	4	5	6	7	8	9	10	11	13	14	15	16	17	18	19	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-3	BED-2	BED-3	MBR	BATH	LIV/D	K/B/F/D	K/B/F/D	K/B/F/D	LAUN	W/R	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.21	1.71	0.55	1.74	1.49	1.72	0.91	1.74	1.49	1.21	1.27	2.94	2.54	2.54	2.54	1.78	0.99	2.33	3.60	3.60	3.60	3.60
CFM PER RUN HEAT	25	35	11	36	31	35	19	36	31	25	26	61	52	52	52	37	20	48	74	74	74	74
RM GAIN MBH.	1.45	1.03	0.13	1.68	1.91	2.14	0.60	1.68	1.91	1.45	0.25	1.95	2.10	2.10	2.10	1.00	0.58	1.83	1.28	1.28	1.28	1.28
CFM PER RUN COOLING	43	31	4	50	57	64	18	50	57	43	8	58	63	63	63	30	18	55	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	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	61	43	21	62	65	33	71	67	70	44	37	41	37	36	20	29	57	48	34	39	17	40
EQUIVALENT LENGTH	160	200	120	180	150	200	210	180	140	160	180	110	130	120	170	140	140	120	140	130	130	100
TOTAL EFFECTIVE LENGTH	221	243	141	242	215	233	281	247	210	204	217	151	167	156	190	169	197	168	174	169	147	140
ADJUSTED PRESSURE	0.08	0.07	0.12	0.07	0.08	0.07	0.06	0.07	0.08	0.08	0.08	0.11	0.1	0.11	0.09	0.1	0.09	0.1	0.1	0.1	0.12	0.12
ROUND DUCT SIZE	5	4	4	5	5	6	4	5	5	5	4	5	5	5	5	4	4	5	5	5	5	5
HEATING VELOCITY (ft/min)	184	402	126	264	228	178	218	264	228	184	298	448	382	382	382	424	229	352	543	543	543	543
COOLING VELOCITY (ft/min)	316	356	46	367	419	326	207	367	419	316	92	426	463	463	463	344	207	404	279	279	279	279
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	C	C	D	A	A	C	A	A	A	C	B	B	C	C	C	B	A	A	C	C	B	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 CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)													
TRUNK A	221	0.06	8.6	10	x	8	398	TRUNK G	0	0.00	0	0	x	8	0		TRUNK O	0	0.05	0	0	x	8	0							
TRUNK B	493	0.06	11.6	16	x	8	555	TRUNK H	0	0.00	0	0	x	8	0		TRUNK P	0	0.05	0	0	x	8	0							
TRUNK C	424	0.07	10.5	14	x	8	545	TRUNK I	0	0.00	0	0	x	8	0		TRUNK Q	0	0.05	0	0	x	8	0							
TRUNK D	928	0.06	14.7	26	x	8	642	TRUNK J	0	0.00	0	0	x	8	0		TRUNK R	0	0.05	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 S	0	0.05	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		TRUNK T	0	0.05	0	0	x	8	0							
															TRUNK U	0	0.05	0	0	x	8	0		TRUNK V	0	0.05	0	0	x	8	0
															TRUNK W	0	0.05	0	0	x	8	0		TRUNK X	928	0.05	15.3	28	x	8	597
															TRUNK Y	515	0.05	12.3	18	x	8	515		TRUNK Z	0	0.05	0	0	x	8	0
															DROP	928	0.05	15.3	24	x	10	557									

RETURN AIR #	1	2	3	4	5	6											BR
AIR VOLUME	115	115	75	85	95	325	0	0	0	0	0	0	0	0	118		
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		
ACTUAL DUCT LGH.	40	73	72	43	38	36	1	1	1	1	1	1	1	1	17		
EQUIVALENT LENGTH	245	225	255	215	185	250	0	0	0	0	0	0	0	0	215		
TOTAL EFFECTIVE LH	285	298	327	258	223	286	1	1	1	1	1	1	1	1	232		
ADJUSTED PRESSURE	0.05	0.05	0.05	0.06	0.07	0.05	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.06		
ROUND DUCT SIZE	7	7	6	6	6	10.4	0	0	0	0	0	0	0	0	6.8		
INLET GRILL SIZE	8	8	8	8	8	8	0	0	0	0	0	0	0	0	8		
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
INLET GRILL SIZE	14	14	14	14	14	30	0	0	0	0	0	0	0	0	14		

TYPE: GARDEN 4
SITE NAME: BARLASSINA

LO # 98643
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>3</u> @ 10.6 cfm	<u>31.8</u> cfm
Kitchen & Bathrooms	<u>5</u> @ 10.6 cfm	<u>53</u> cfm
Other Rooms	<u>5</u> @ 10.6 cfm	<u>53.0</u> cfm
Table 9.32.3.A.	TOTAL	<u>180.2</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>180.2</u>	cfm
Less Principal Ventil. Capacity	<u>79.5</u>	cfm
Required Supplemental Capacity	<u>100.7</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
ENS-3	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#: 98643	Model: GARDEN 4	Builder: GREENPARK HOMES	Date: 8/25/2022																																																									
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>1189</td> <td>8</td> <td>9512</td> </tr> <tr> <td>First</td> <td>1189</td> <td>10</td> <td>11890</td> </tr> <tr> <td>Second</td> <td>1426</td> <td>9</td> <td>12834</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>34,236.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>969.5 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1189	8	9512	First	1189	10	11890	Second	1426	9	12834	Third	0	9	0	Fourth	0	9	0	Total:			34,236.0 ft³	Total:			969.5 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%;">0.352</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	1189	8	9512																																																									
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Third	0	9	0																																																									
Fourth	0	9	0																																																									
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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 269.29 x 40 °C x 1.2 = 4580 W = 15628 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.096 x 269.29 x 5 °C x 1.2 = 159 W = 543 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)																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$ <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 / HLlevel)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">15,628</td> <td>6,570</td> <td>1.189</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>10,993</td> <td>0.427</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>11,485</td> <td>0.272</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> *HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0					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 / HLlevel)	1	0.5	15,628	6,570	1.189	2	0.3	10,993	0.427	3	0.2	11,485	0.272	4	0	0	0.000	5	0	0	0.000																														
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				Michael O'Rourke BCIN# 19669 																																																								

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: GARDEN 4	WOB	BUILDER: GREENPARK HOMES
SFQT: 2615	LO# 98643	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):	34236.0	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: 63.0 ft	WIDTH: 24.0 ft	EXPOSED PERIMETER:	140.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	34.0 ft

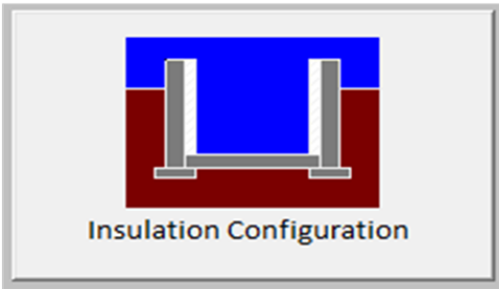
2012 OBC - COMPLIANCE PACKAGE		Compliance Package A1	
Component		Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.65
Exposed Floor Minimum RSI (R)-Value		31	29.80
Walls Above Grade Minimum RSI (R)-Value		22	17.03
Basement 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

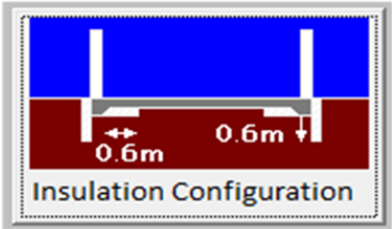
Weather Station Description		
Province:	Ontario	
Region:	Cambridge	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	7.3	
Exposed Perimeter (m):	42.7	
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):		577

TYPE: GARDEN 4
LO# 98643

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 4
LO# 98643

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):	969.5			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1292.3 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 4
LO# 98643

WOB

This technical drawing shows a cross-section of a door and window assembly. On the left, a window frame is depicted with diagonal lines indicating the glass panes. To the right of the window is a door frame containing a solid rectangular door. The door is shown in a closed position, with its edge meeting the frame. A small rectangular detail, possibly a lock or hinge component, is visible on the door's edge. The entire assembly is shown in a simplified, schematic style with black outlines on a white background.



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

WOB

PACKAGE A1

REVISIONS

ONTARIO BUILDING CODE.

HVAC DESIGNS LTD.

375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
Email: info@hvacdsgns.ca
Web: www.hvacdsgns.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.

HEAT LOSS 46662 BTU/H
UNIT DATA

MAKE GOODMAN

MODEL
GMEC960603BNA

INPUT 60

OUTPUT	57.6
--------	------

COOLING	2.5
---------	-----

# OF RUNS	S/A	R/A	FANS
-----------	-----	-----	------

3RD FLOOR

2ND FLOOR

1ST FLOOR

BASEMENT

ALL S/A DIFFU

UNLESS NOTED OTHERWISE
ON LAYOUT. ALL S/A RUNS 5"Ø
UNLESS NOTED OTHERWISE
ON LAYOUT. UNDERCUT
DOORS 1" min. FOR R/A

Sheet Title

BASEMENT HEATING LAYOUT

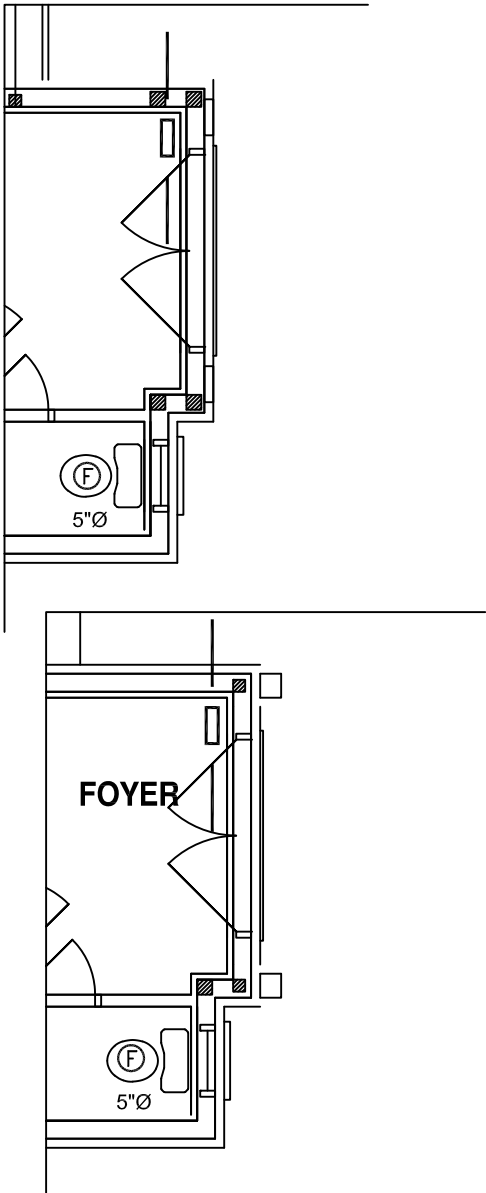
Date **AUG/2022**

Scale $3/16" = 1'-0"$

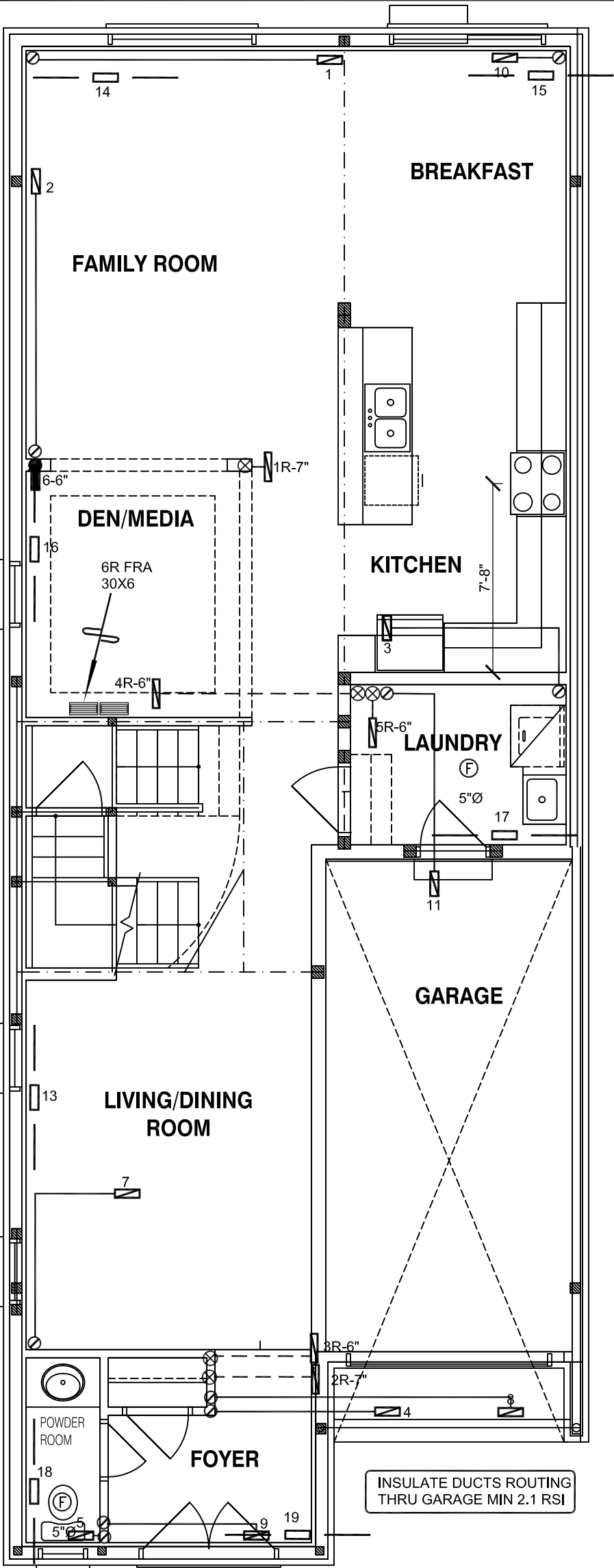
BCIN# 19669

LO#	98643
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FIRST FLOOR PLAN EL-2



FIRST FLOOR PLAN EL-3



FIRST FLOOR PLAN EL-1

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

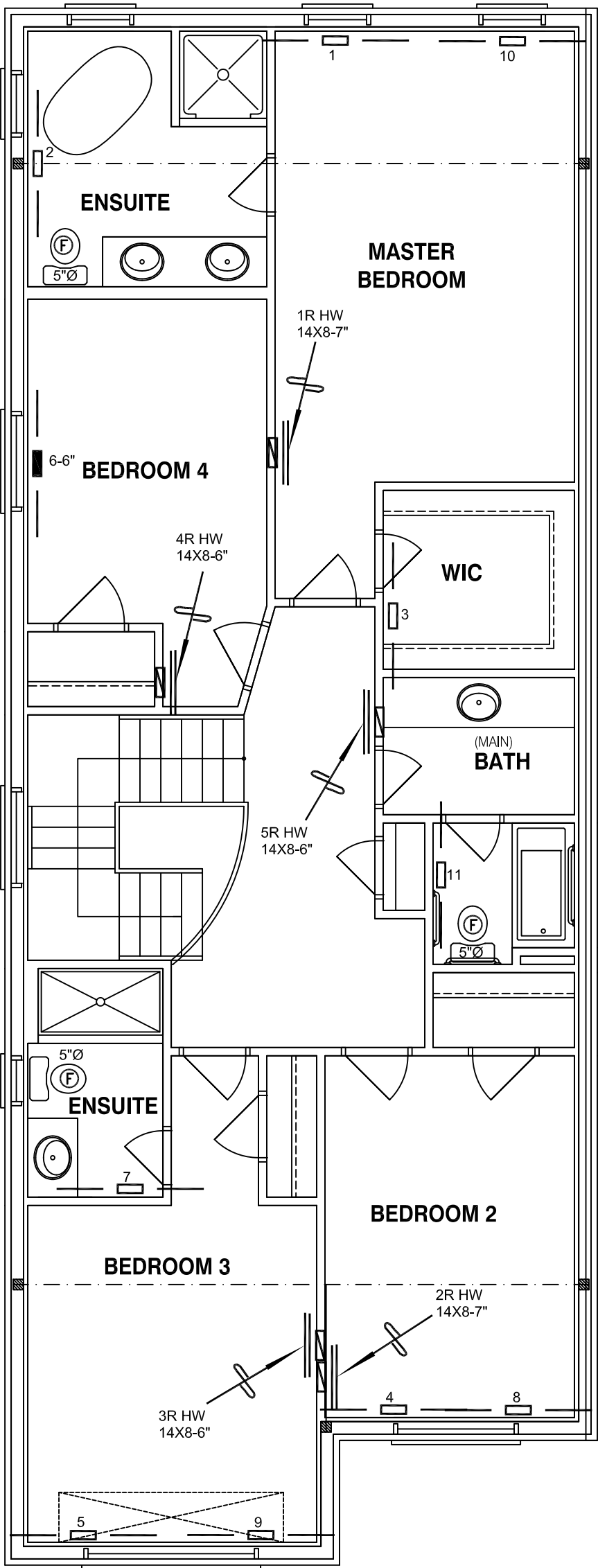
WOB

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		

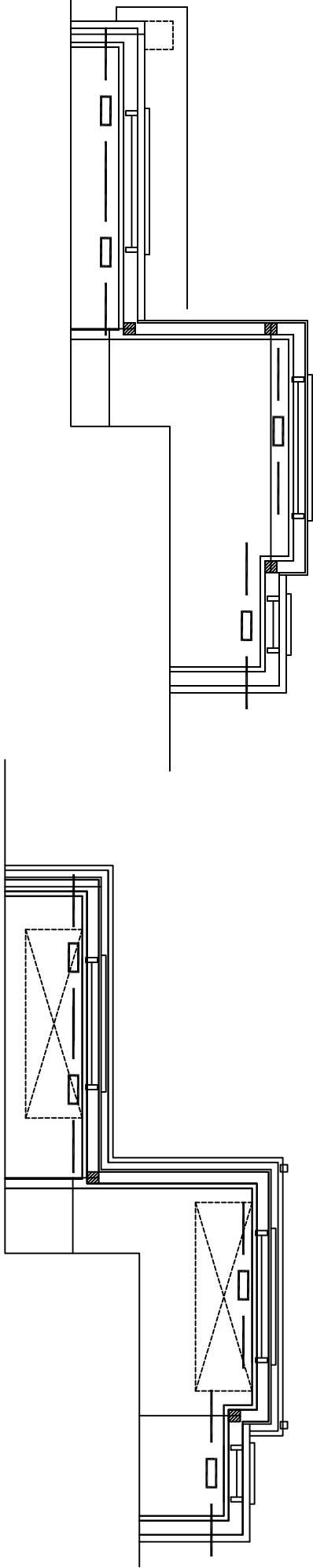
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Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest 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	AUG/2022
BARLASSINA CAMBRIDGE, ONTARIO			Scale	3/16" = 1'-0"
Garden 4 - Elevation 1			BCIN# 19669	
GARDEN 4 WOB 2615 sqft			LO#	98643



SECOND FLOOR PLAN EL-1

SECOND FLOOR PLAN EL-2



SECOND FLOOR PLAN EL-3

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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GARDEN 4 WOB 2615 sqft			LO#	98643