

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 3 - 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 3			GFA: 2415			LO# 98641			SUMMER NATURAL AIR CHANGE RATE 0.096			HEAT GAIN ΔT °F. 9		
ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	WIC-3	BED-2	BED-3	MEDIA	BATH	WIC							
			33	27	6	34	32	17	12	8							
			9	9	9	9	9	9	9	9							
FACTORS																	
GRS.WALL AREA	LOSS	GAIN	297	243	54	306	288	153	108	72							
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN							
NORTH	20.3	15.0	0	0	0	0	0	0	0	0							
EAST	20.3	40.5	0	0	0	0	0	0	0	0							
SOUTH	20.3	23.9	0	0	0	0	0	0	0	0							
WEST	20.3	40.5	20	405	811	14	284	568	0	0							
SKYLT.	35.5	99.8	0	0	0	0	0	0	0	0							
DOORS	19.1	2.4	0	0	0	0	0	0	0	0							
NET EXPOSED WALL	4.3	0.5	277	1178	150	229	974	124	54	230	29	273	1161	147	258	1097	139
NET EXPOSED BSMT WALL ABOVE GR	3.4	0.4	0	0	0	0	0	0	0	0							
EXPOSED CLG	1.2	0.5	272	333	143	162	198	85	37	45	19	193	236	102	185	226	97
NO ATTIC EXPOSED CLG	2.6	1.1	0	0	0	0	0	0	0	0							
EXPOSED FLOOR	2.4	0.3	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			1916		1455	365	2105	2554	1025	786							
SUB TOTAL HT GAIN				1104	777	60	1604	1544	223	430							
LEVEL FACTOR / MULTIPLIER	0.20	0.26				0.20	0.26		0.20	0.26					0.20	0.26	
AIR CHANGE HEAT LOSS			498		378	95	547	664	267	204					120		
AIR CHANGE HEAT GAIN				56	40	3	82	79	11	22					5		
DUCT LOSS			0		0	46	0	322	129	0					0		
DUCT GAIN			0		0	6	0	231	68	0					0		
HEAT GAIN PEOPLE	240		2	480	0	0	1	240	1	240					0		
HEAT GAIN APPLIANCES/LIGHTS				445	0	0		445		445						445	
TOTAL HT LOSS BTU/H			2414		1834	505	2652	3539	1421	991					583		
TOTAL HT GAIN x 1.3 BTU/H				2710	1061	90	3082	3300	971	587					724		

ROOM USE			LIV/DIN		K/F/B		LAUN			W/R		FOY		MUD						WOB		BAS	
EXP. WALL			32		77		6			6		33		22						34		128	
CLG. HT.			10		10		9			10		11		11						8		8	
FACTORS																							
GRS.WALL AREA	LOSS	GAIN	320		770		54			60		363		242				272		640			
GLAZING			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	
EAST	20.3	40.5	0	0	0	0	0	0	0	0	20	405	811	0	0	0		0	0	0	0	0	
SOUTH	20.3	23.9	28	568	669	28	568	669	7	142	167	7	142	167	0	0	0		0	0	10	203	239
WEST	20.3	40.5	0	0	0	26	527	1054	0	0	0	0	0	0	0	0	0		44	892	1784	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
DOORS	19.1	2.4	0	0	0	55	1051	134	0	0	0	0	0	0	28	535	68		21	401	51		
NET EXPOSED WALL	4.3	0.5	292	1241	158	661	2810	357	47	200	25	53	225	29	315	1339	170		221	940	119		
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	0	0	0	0	0	0	48	59	25	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		0	0							
SLAB ON GRADE HEAT LOSS						0	0		0			0	0		0	0							
SUBTOTAL HT LOSS			1809		4955		400			367		2279		1341				375		1935			
SUB TOTAL HT GAIN					827			2214			218		196		1049		170		2533		3855		
LEVEL FACTOR / MULTIPLIER	0.30	0.40				0.30	0.40		0.20	0.26		0.30	0.40		0.30	0.40			1945		457		
AIR CHANGE HEAT LOSS			726		1990		104			147		915		538						7196			
AIR CHANGE HEAT GAIN				42			113			11		10		53		9					122		
DUCT LOSS			0		0		0			0		0		0						0			
DUCT GAIN			0		0		0			0		0		0						0			
HEAT GAIN PEOPLE	240		0		0		0			0		0		0				0		0			
HEAT GAIN APPLIANCES/LIGHTS			445		445		445			0		0		445				0		445			
TOTAL HT LOSS BTU/H			2535		6945		505			515		3195		1879				2533		11051			
TOTAL HT GAIN x 1.3 BTU/H			1708		3603		876			268		1433		811				2528		1332			

TOTAL HEAT GAIN BTU/H: 25241 TONS: 2.10 LOSS DUE TO VENTILATION LOAD BTU/H: 1243 STRUCTURAL HEAT LOSS: 43097 TOTAL COMBINED HEAT LOSS BTU/H: 44340

SITE NAME: BARLASSINA
BUILDER: GREENPARK HOMES

WOB
TYPE: GARDEN 3

DATE: Aug-22

GFA: 2415 LO# 98641

HEATING CFM 928 COOLING CFM 928
TOTAL HEAT LOSS 43,097 TOTAL HEAT GAIN 25,083
AIR FLOW RATE CFM 21.53 AIR FLOW RATE CFM 37

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	13	7	4
R/A	0	0	4	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	3	4	5	6	7	8	9	10	11	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC-3	BED-2	BED-3	MEDIA	BATH	BED-2	BED-3	MBR	BATH	LIV/DIN	K/F/B	K/F/B	K/F/B	LAUN	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.21	1.83	0.51	1.33	1.77	1.42	0.50	1.33	1.77	1.21	0.50	2.54	2.32	2.32	2.32	0.50	0.51	3.19	1.88	3.40	3.40	3.40	3.40
CFM PER RUN HEAT	26	39	11	29	38	31	11	29	38	26	11	55	50	50	50	11	11	69	40	73	73	73	73
RM GAIN MBH.	1.36	1.06	0.09	1.54	1.65	0.97	0.29	1.54	1.65	1.36	0.29	1.71	1.20	1.20	1.20	0.88	0.27	1.43	0.81	0.96	0.96	0.96	0.96
CFM PER RUN COOLING	50	39	3	57	61	36	11	57	61	50	11	63	44	44	44	32	10	53	30	36	36	36	36
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	0.17
ACTUAL DUCT LGH.	54	30	77	63	70	27	35	70	77	41	63	29	38	27	31	57	48	63	51	40	28	33	47
EQUIVALENT LENGTH	140	210	120	150	160	200	200	140	170	200	170	150	120	170	110	180	160	130	140	110	130	130	170
TOTAL EFFECTIVE LENGTH	194	240	197	213	230	227	235	210	247	241	233	179	158	197	141	237	208	193	191	150	158	163	217
ADJUSTED PRESSURE	0.09	0.07	0.09	0.08	0.07	0.08	0.07	0.08	0.07	0.07	0.07	0.1	0.11	0.09	0.12	0.07	0.08	0.09	0.09	0.11	0.11	0.11	0.08
ROUND DUCT SIZE	5	5	4	5	5	4	4	5	5	5	4	5	4	5	5	5	4	5	4	5	5	5	5
HEATING VELOCITY (ft/min)	191	286	126	213	279	356	126	213	279	191	126	404	574	367	367	81	126	507	459	536	536	536	536
COOLING VELOCITY (ft/min)	367	286	34	419	448	413	126	419	448	367	126	463	505	323	323	235	115	389	344	264	264	264	264
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	C	D	B	A	A	D	B	A	A	D	B	B	C	D	C	B	A	A	B	C	D	B	A

RUN #	25
ROOM NAME	WIC
RM LOSS MBH.	0.58
CFM PER RUN HEAT	13
RM GAIN MBH.	0.72
CFM PER RUN COOLING	27
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH.	11
EQUIVALENT LENGTH	135
TOTAL EFFECTIVE LENGTH	146
ADJUSTED PRESSURE	0.12
ROUND DUCT SIZE	4
HEATING VELOCITY (ft/min)	149
COOLING VELOCITY (ft/min)	310
OUTLET GRILL SIZE	3X10
TRUNK	C

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	287	0.07	9.1	10	x	8	517	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0
TRUNK B	499	0.07	11.2	14	x	8	642	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0
TRUNK C	212	0.09	7.6	8	x	8	477	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0
TRUNK D	431	0.07	10.6	14	x	8	554	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	565	0.05	12.7	18	x	8	565
																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											BR
AIR VOLUME	145	115	115	115	335	0	0	0	0	0	0	0	0	0	0	103
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.	39	73	74	59	49	1	1	1	1	1	1	1	1	1	1	16
EQUIVALENT LENGTH	175	245	250	215	205	0	0	0	0	0	0	0	0	0	0	175
TOTAL EFFECTIVE LH	214	318	324	274	254	1	1	1	1	1	1	1	1	1	1	191
ADJUSTED PRESSURE	0.07	0.05	0.05	0.05	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.08
ROUND DUCT SIZE	7	7	7	7	10	0	0	0	0	0	0	0	0	0	0	6
INLET GRILL SIZE	8	8	8	8	8	0	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	0	0	0	0	0	0	0	0	0	0	14

TYPE: GARDEN 3
SITE NAME: BARLASSINA

LO # 98641
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>7</u> @ 10.6 cfm	<u>74.2</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	63.6	cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>180.2</u>	cfm
Less Principal Ventil. Capacity	<u>63.6</u>	cfm
Required Supplemental Capacity	<u>116.6</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#: 98641	Model: GARDEN 3	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>1088</td> <td>8</td> <td>8704</td> </tr> <tr> <td>First</td> <td>1088</td> <td>10</td> <td>10880</td> </tr> <tr> <td>Second</td> <td>1327</td> <td>9</td> <td>11943</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>31,527.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>892.7 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1088	8	8704	First	1088	10	10880	Second	1327	9	11943	Third	0	9	0	Fourth	0	9	0	Total:			31,527.0 ft³	Total:			892.7 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	1088	8	8704																																																									
First	1088	10	10880																																																									
Second	1327	9	11943																																																									
Third	0	9	0																																																									
Fourth	0	9	0																																																									
Total:			31,527.0 ft³																																																									
Total:			892.7 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 247.98 x 40 °C x 1.2 = 4218 W = 14392 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.096 x 247.98 x 5 °C x 1.2 = 147 W = 500 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)																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
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	14,392	6,388	1.126																																																								
2	0.3		10,752	0.402																																																								
3	0.2		11,068	0.260																																																								
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 3	WOB	BUILDER: GREENPARK HOMES
SFQT: 2415	LO# 98641	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):	31527.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
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: 57.0 ft	WIDTH: 24.0 ft	EXPOSED PERIMETER:	128.0 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	-

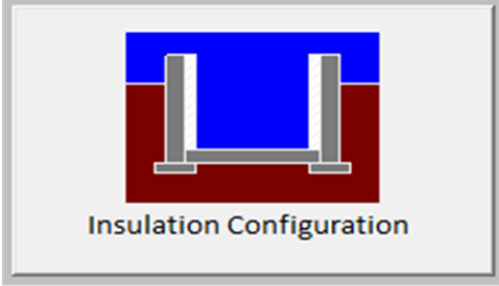
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

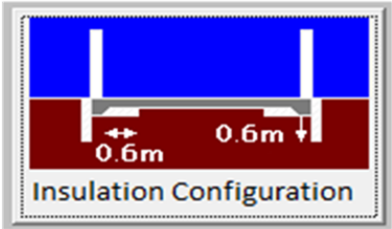
Weather Station Description		
Province:	Ontario	
Region:	Cambridge	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	
Floor Width (m):	7.3	
Exposed Perimeter (m):	39.0	
Wall Height (m):	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):		567

TYPE: GARDEN 3
LO# 98641

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 3
LO# 98641

WOB

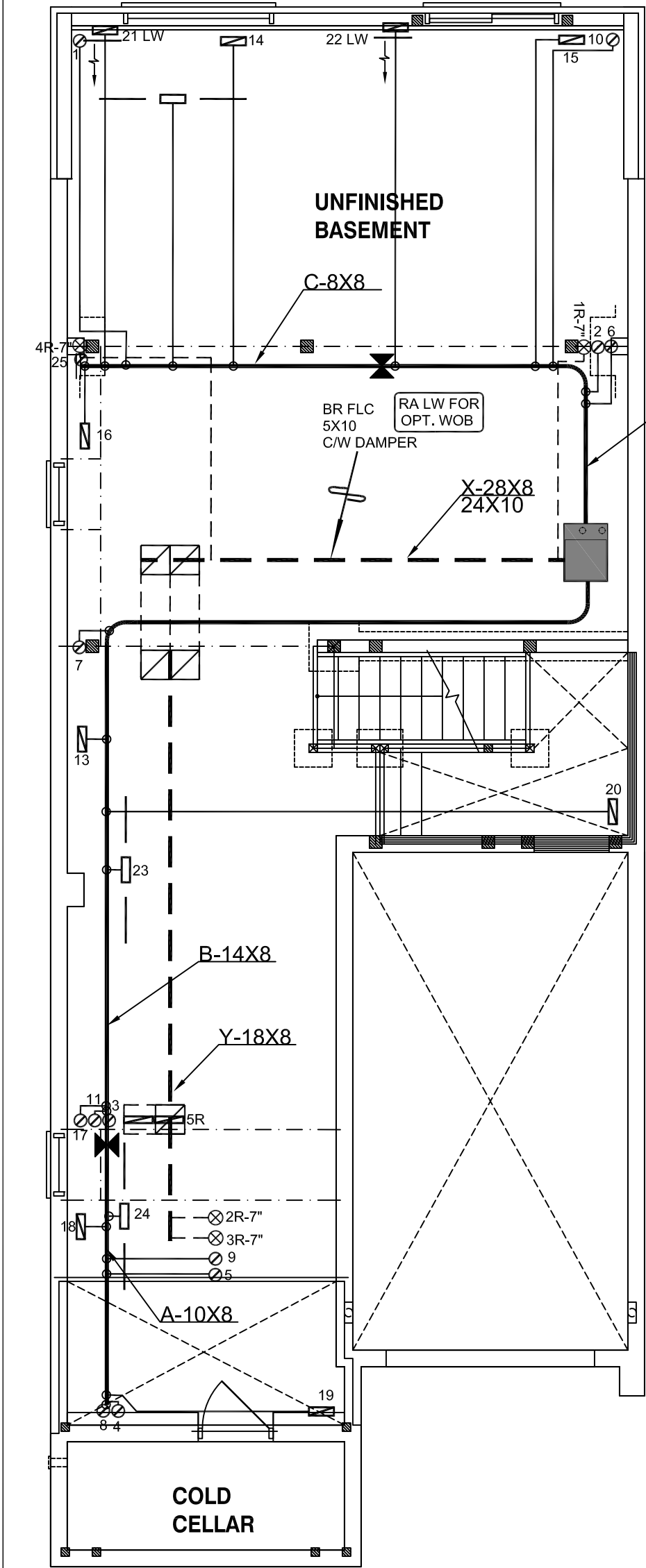
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

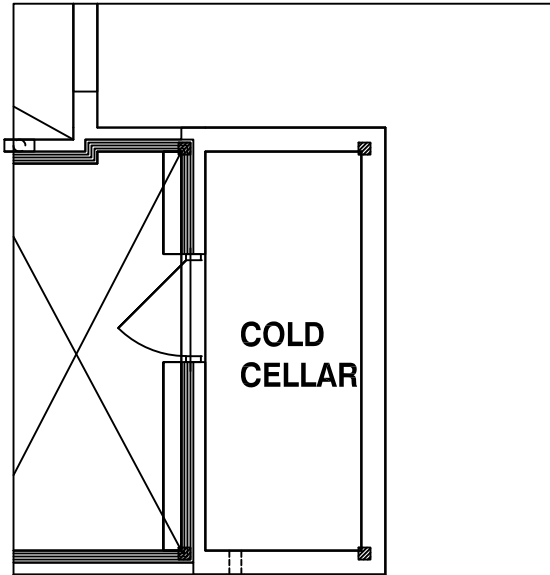
Weather Station Description				
Province:	Ontario			
Region:	Cambridge			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	8.23			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	892.7			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1190.1 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 3
LO# 98641

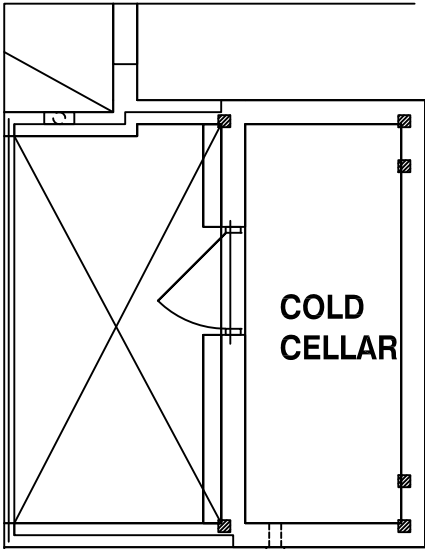
WOB



BASEMENT PLAN EL-1 WOB



BASEMENT PLAN EL-2



BASEMENT PLAN EL-3

CSA-F280-12

WOB

PACKAGE A1

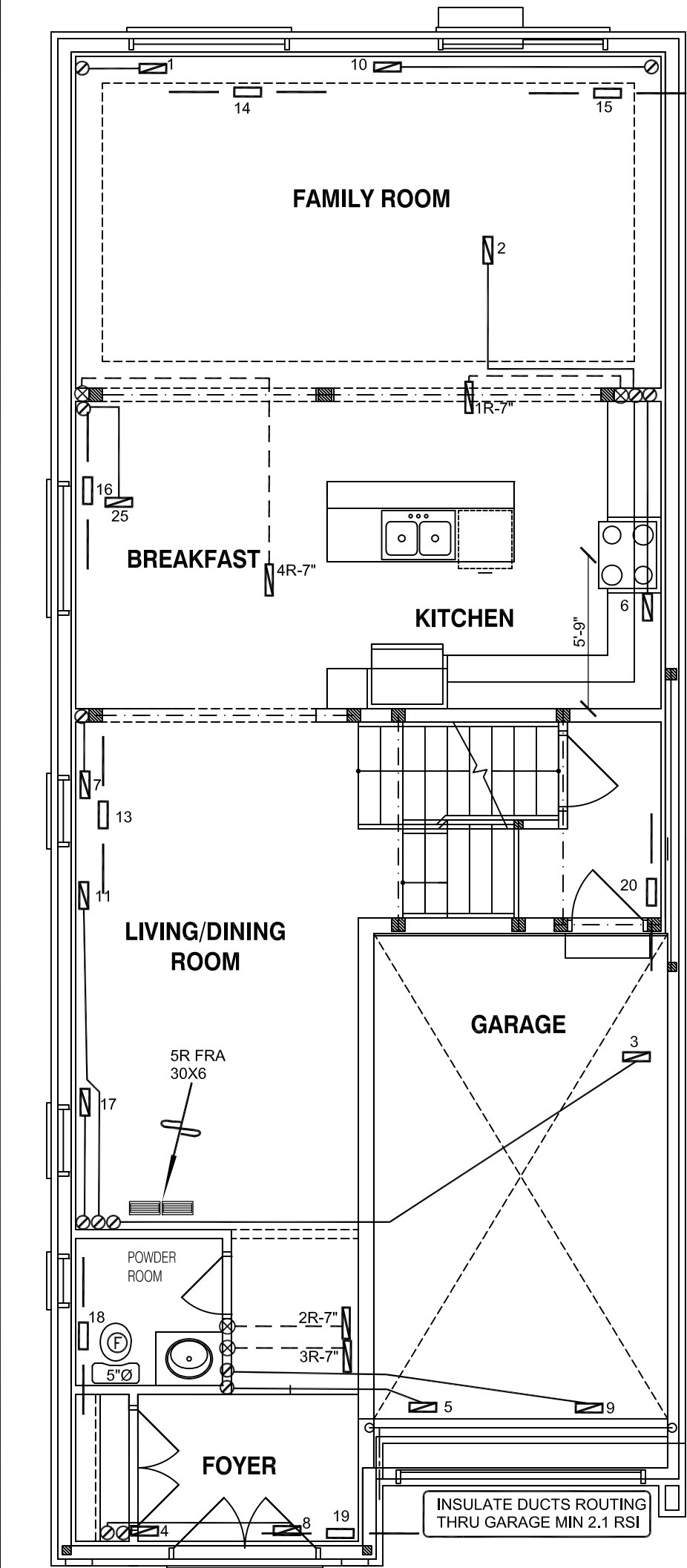
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

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

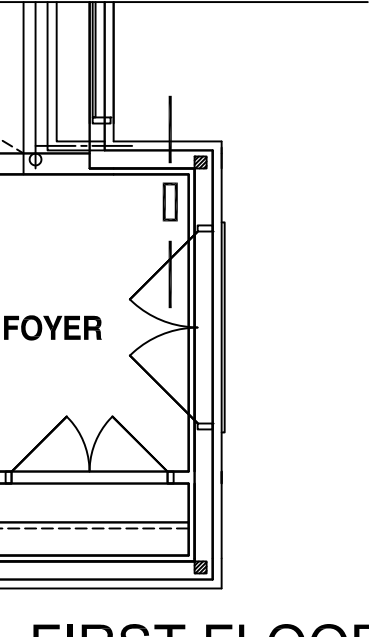
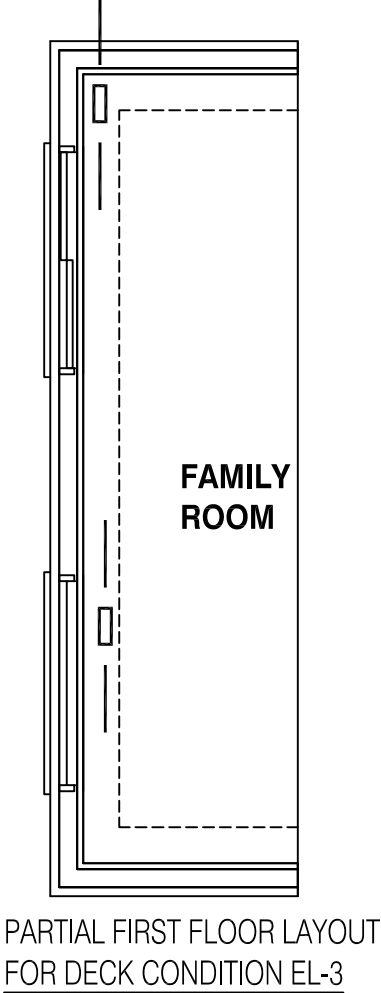
HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR 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.

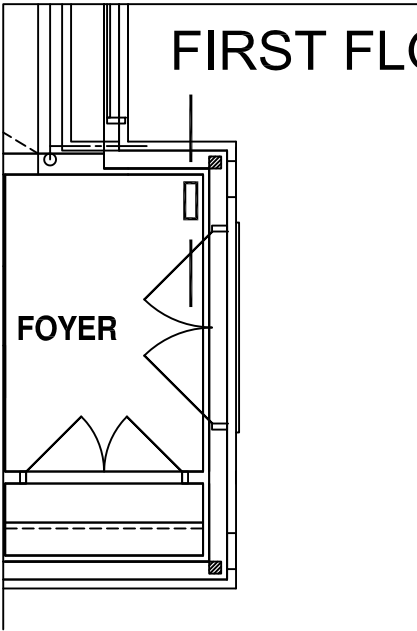
Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets 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.	HEAT LOSS 44340 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			Sheet Title	
GREENPARK HOMES			MAKE GOODMAN	3RD FLOOR			BASEMENT HEATING LAYOUT		
Project Name BARLASSINA CAMBRIDGE, ONTARIO			MODEL GMEC960603BNA	2ND FLOOR 13 4 3					
Garden 3 - Elevation 1			INPUT 60 MBTU/H	1ST FLOOR 7 1 2					
GARDEN 3 WOB 2415 sqft			OUTPUT 57.6 MBTU/H	BASEMENT 4 1 0			Date AUG/2022		
			COOLING 2.0 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# 98641			



FIRST FLOOR PLAN EL-1



FIRST FLOOR PLAN EL-2



FIRST FLOOR 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

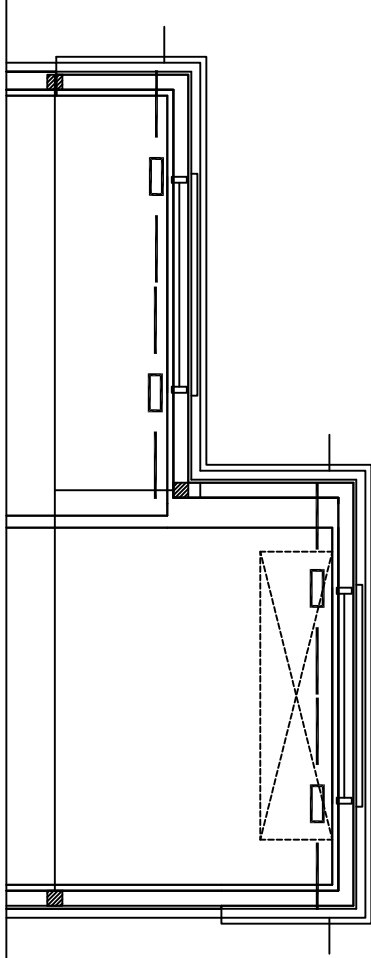
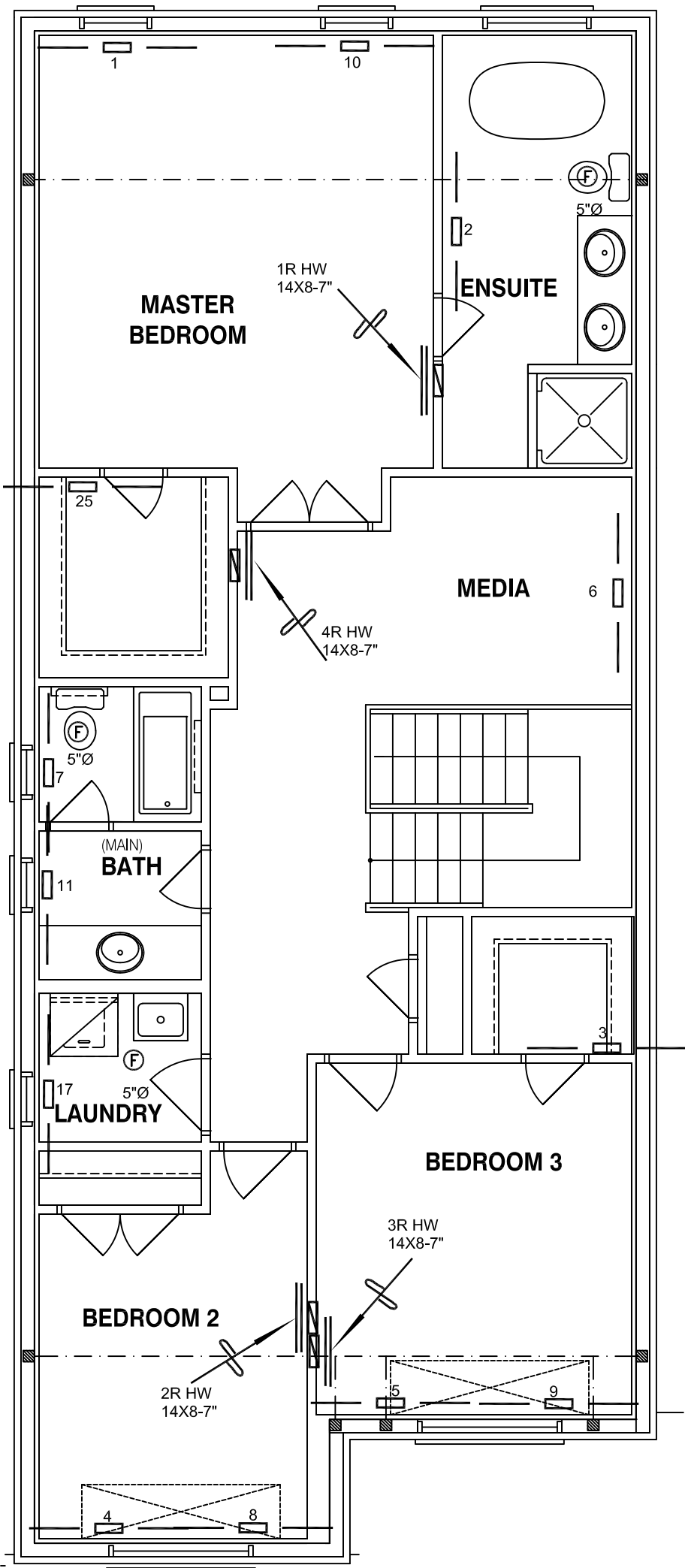
WOB

PACKAGE A1

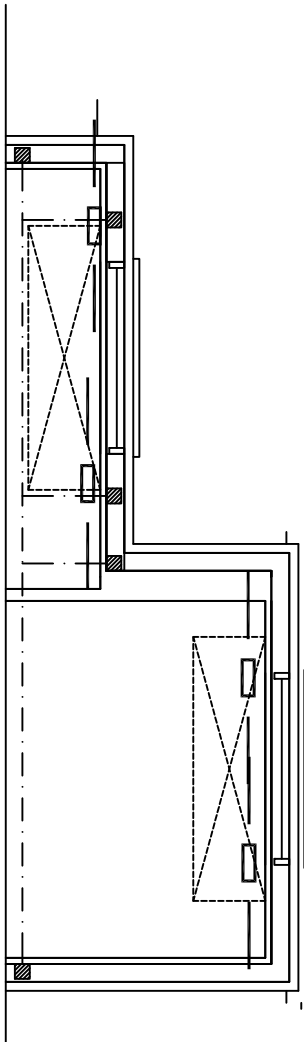
HVAC LEGEND							3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK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

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	AUG/2022
BARLASSINA CAMBRIDGE, ONTARIO			Scale	3/16" = 1'-0"
Garden 3 - Elevation 1			BCIN# 19669	
GARDEN 3 WOB 2415 sqft			LO#	98641



SECOND FLOOR PLAN EL-2



SECOND FLOOR 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		

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			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	AUG/2022
BARLASSINA CAMBRIDGE, ONTARIO			Scale	3/16" = 1'-0"
Garden 3 - Elevation 1			BCIN# 19669	
GARDEN 3 WOB 2415 sqft			LO#	98641