

SITE NAME: RUSSELL GARDENS PH 4

BUILDER: GREENPARK HOMES

TYPE: VALLEYCREEK 12A

GFA: 2733

DATE: Apr-21

LO# 90139

WINTER NATURAL AIR CHANGE RATE 0.338

SUMMER NATURAL AIR CHANGE RATE 0.121

HEAT LOSS AT °F. 71

HEAT GAIN AT °F. 13

CSA-F280-12

SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-2	WIC-3	ENS-3
GRS.WALL AREA	LOSS	GAIN	279	288	54	99	262	270	63	54	54
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	19.8	19.8	0	0	0	0	0	0	0	0	0
EAST	19.8	41.5	0	0	0	0	0	0	0	0	0
SOUTH	19.8	24.9	0	0	0	0	0	0	0	0	0
WEST	19.8	41.5	44	670	1828	13	267	540	0	0	0
SKYL.T.	34.6	101.5	0	0	0	0	0	0	0	0	0
DOORS	23.5	4.3	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	235	974	177	242	1003	182	54	224	41
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.2	0.6	255	304	160	226	289	133	108	129	63
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			2148		2182	353	1106	2381	2492	533	623
SUB TOTAL HT GAIN			2165		1677	104	614	1891	2530	362	627
LEVEL FACTOR / MULTIPLIER	0.20	0.23		0.20	0.23		0.20	0.23		0.20	0.23
AIR CHANGE HEAT LOSS			502		510	82	258	555	682	125	146
AIR CHANGE HEAT GAIN			121		95	6	29	107	143	20	35
DUCT LOSS			0		0	0	136	294	0	0	77
DUCT GAIN			0		0	0	143	289	0	0	65
HEAT GAIN PEOPLE	240		2	480	0	0	1	240	1	240	0
HEAT GAIN APPLIANCES/LIGHTS				652	0	0		652	0		0
TOTAL HT LOSS BTU/H			2680		2892	435	1800	3231	3074	658	845
TOTAL HT GAIN x 1.3 BTU/H			4430		2302	143	2051	4131	4634	498	947

ROOM USE	EXP. WALL	CLG. HT.	DIN	K/B/F	LH	LND	WR	FOY	WOD	BA8
GRS.WALL AREA	LOSS	GAIN	150	750	390	63	253	180	378	1134
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN
NORTH	19.8	19.8	0	0	0	0	0	0	0	0
EAST	19.8	41.5	0	0	0	0	0	0	0	0
SOUTH	19.8	24.9	42	830	1046	40	791	996	42	830
WEST	19.8	41.5	0	0	0	0	0	0	0	0
SKYL.T.	34.6	101.5	0	0	0	0	0	0	0	0
DOORS	23.5	4.3	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	105	448	81	609	2625	458	306	1289
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0	0
EXPOSED CLG	1.2	0.6	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.4	0.4	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			1278		6336	2929	736	1644	1610	548
SUB TOTAL HT GAIN			1127		5368	3021	676	367	548	851
LEVEL FACTOR / MULTIPLIER	0.30	0.37		0.30	0.37		0.30	0.37		0.30
AIR CHANGE HEAT LOSS			469		1857	1074	172	558	590	7760
AIR CHANGE HEAT GAIN			64		302	170	38	21	31	87
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				652	0	0		652	0	0
TOTAL HT LOSS BTU/H			1747		7295	4003	908	2111	2200	851
TOTAL HT GAIN x 1.3 BTU/H			2395		8203	4986	1776	504	782	2086

TOTAL HEAT GAIN BTU/H:

41386

TONS: 3.45

LOSS DUE TO VENTILATION LOAD BTU/H: 1515

STRUCTURAL HEAT LOSS: 60718

TOTAL COMBINED HEAT LOSS BTU/H: 52233

Michael O'Rourke

SITE NAME: RUSSELL GARDENS PH 4
BUILDER: GREENPARK HOMES

TYPE: VALLEYCREEK 12A

DATE: Apr-21

GFA: 2733 LO# 90139

HEATING CFM	1504	COOLING CFM	1504
TOTAL HEAT LOSS	50,718	TOTAL HEAT GAIN	41,111
AIR FLOW RATE CFM	29.65	AIR FLOW RATE CFM	36.58

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

#GOODMAN
GMEC980804CNA 80
FAN SPEED LOW 868
MEDLOW 978
MEDIUM 1112
MEDIUM HIGH 1504
HIGH 1615

AFUE = 96 %
INPUT (BTU/H) = 80,000
OUTPUT (BTU/H) = 76,800
DESIGN CFM = 1504
CFM @ .5" E.S.P.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	14	8	5
R/A	0	0	5	2	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	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-2	WIC-3	BED-3	MBR	ENS-3	BED-4	DIN	K/B/F	K/B/F	L/H	LND	W/R	FOY	K/B/F	BAS	BAS	BAS	BAS
RM LOSS MBH	1.32	2.69	0.44	1.50	1.62	1.54	0.66	0.85	1.62	1.32	0.50	1.54	1.75	2.43	2.43	2.00	0.91	2.11	2.20	2.43	3.28	3.28	3.28	3.28
CFM PER RUN HEAT	39	80	13	44	48	46	20	25	48	39	15	46	52	72	72	59	27	63	65	72	97	97	97	97
RM GAIN MBH	2.22	2.30	0.14	2.05	2.07	2.32	0.50	0.95	2.07	2.22	0.20	2.32	2.39	2.73	2.73	2.50	1.78	0.50	0.75	2.73	0.59	0.59	0.59	0.59
CFM PER RUN COOLING	81	84	5	75	76	85	18	35	76	81	7	85	88	100	100	91	65	18	28	100	22	22	22	22
ADJUSTED PRESSURE	0.16	0.16	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.17	0.16	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	44	41	18	44	52	53	40	48	56	31	41	51	26	21	23	48	32	23	37	37	21	29	7	21
EQUIVALENT LENGTH	130	140	100	210	160	230	191	210	180	130	170	200	110	110	110	140	130	150	190	100	110	130	100	120
TOTAL EFFECTIVE LENGTH	174	181	118	254	212	283	231	258	216	161	211	251	136	131	133	188	162	173	227	137	131	159	107	141
ADJUSTED PRESSURE	0.09	0.09	0.15	0.07	0.08	0.06	0.07	0.07	0.08	0.1	0.08	0.06	0.12	0.12	0.12	0.09	0.11	0.1	0.08	0.12	0.12	0.1	0.15	0.11
ROUND DUCT SIZE	6	6	4	6	6	6	4	4	6	6	4	6	6	6	6	6	5	5	5	6	6	6	6	6
HEATING VELOCITY (f/min)	199	408	149	224	245	235	229	287	245	199	172	235	285	367	367	301	198	463	477	367	495	495	495	495
COOLING VELOCITY (f/min)	413	428	57	382	388	433	207	402	388	413	80	433	449	510	510	464	477	132	208	510	112	112	112	112
OUTLET GRILL SIZE	4X10	4X10	3X10	4X10	4X10	4X10	3X10	3X10	4X10	4X10	3X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10
TRUNK	F	E	F	B	B	A	B	A	B	E	B	A	C	D	D	A	C	C	A	E	D	E	F	C

RUN #	25	26	27
ROOM NAME	ENS-3	L/H	BAS
RM LOSS MBH	0.50	2.00	3.28
CFM PER RUN HEAT	15	59	97
RM GAIN MBH	0.20	2.50	0.59
CFM PER RUN COOLING	7	91	22
ADJUSTED PRESSURE	0.17	0.16	0.16
ACTUAL DUCT LGH.	47	43	40
EQUIVALENT LENGTH	180	170	130
TOTAL EFFECTIVE LENGTH	227	213	170
ADJUSTED PRESSURE	0.08	0.08	0.1
ROUND DUCT SIZE	4	6	6
HEATING VELOCITY (f/min)	172	301	495
COOLING VELOCITY (f/min)	80	464	112
OUTLET GRILL SIZE	3X10	4X10	4X10
TRUNK	B	A	A

SUPPLY AIR TRUNK SIZE

TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (f/min)	TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (f/min)
TRUNK A	397	0.06	10.7	14	8	TRUNK G	0	0.00	0	0	0
TRUNK B	587	0.08	12.3	20	8	TRUNK H	0	0.00	0	0	0
TRUNK C	828	0.08	14	24	8	TRUNK I	0	0.00	0	0	0
TRUNK D	241	0.12	7.4	8	8	TRUNK J	0	0.00	0	0	0
TRUNK E	288	0.09	8.5	8	8	TRUNK K	0	0.00	0	0	0
TRUNK F	678	0.09	11.8	16	8	TRUNK L	0	0.00	0	0	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	165	155	115	135	410	155	130	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
ACTUAL DUCT LGH.	50	37	62	61	32	45	37	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	185	195	255	235	160	220	205	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	235	232	317	298	192	265	242	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.06	0.06	0.05	0.05	0.08	0.06	0.06	0.06	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	7.5	7	7.5	10	7.5	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	14	14	14	14	30	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: VALLEYCREEK 12A
 SITE NAME: RUSSELL GARDENS PH 4

LO # 90139

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	2 @ 21.2 cfm	42.4 cfm
Other Bedrooms	3 @ 10.6 cfm	31.8 cfm
Kitchen & Bathrooms	5 @ 10.6 cfm	53 cfm
Other Rooms	6 @ 10.6 cfm	63.6 cfm
Table 9.32.3.A.	TOTAL	190.8 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	190.8	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	111.3	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model:	VANEE V150H		
Location:	BSMT		
79.5 cfm	3.0 sones		
☒ HVI Approved			
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
79.5 CFM	X 71 F	X 1.08	X 0.25

SUPPLEMENTAL FANS		PANASONIC		
Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	50	☒	0.3
ENS-2	FV-05-11VK1	50	☒	0.3
ENS-3	FV-05-11VK1	50	☒	0.3
WR	FV-05-11VK1	50	☒	0.3

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

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

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

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

DESIGNER CERTIFICATION	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
Name:	HVAC Designs Ltd.
Signature:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	April-21

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																														
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																														
LO#: 90139		Model: VALLEYCREEK 12A		Builder: GREENPARK HOMES																																																										
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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>1177</td><td>9</td><td>10593</td></tr> <tr><td>First</td><td>1177</td><td>10</td><td>11770</td></tr> <tr><td>Second</td><td>1556</td><td>9</td><td>14004</td></tr> <tr><td>Thirld</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>36,367.0 ft³</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>1029.8 m³</td></tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1177	9	10593	First	1177	10	11770	Second	1556	9	14004	Thirld	0	9	0	Fourth	0	9	0	Total:			36,367.0 ft³	Total:			1029.8 m³	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td colspan="2">WINTER NATURAL AIR CHANGE RATE</td> <td>0.338</td> </tr> <tr> <td colspan="2">SUMMER NATURAL AIR CHANGE RATE</td> <td>0.121</td> </tr> </table> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="5">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>-17</td> <td>39</td> <td>71</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>31</td> <td>7</td> <td>13</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE		0.338	SUMMER NATURAL AIR CHANGE RATE		0.121	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-17	39	71	Summer DTDc	24	31	7	13
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5.2.3.1 Heat Loss due to Air Leakage $HL_{atrb} = LR_{atrh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.338 x 286.06 x 39 °C x 1.2 = 4549 W = 15520 Btu/h			6.2.6 Sensible Gain due to Air Leakage $HG_{satb} = LR_{atrc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.121 x 286.06 x 7 °C x 1.2 = 295 W = 1008 Btu/h																																																											
5.2.3.2 Heat Loss due to Mechanical Ventilation $HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 71 °F x 1.08 x 0.25 = 1515 Btu/h			6.2.7 Sensible heat Gain due to Ventilation $HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 13 °F x 1.08 x 0.25 = 275 Btu/h																																																											
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																														
$HL_{airr} = Level\ Factor \times HL_{atrbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$ <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_{level})</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;">15,520</td><td>8,617</td><td>0.901</td></tr> <tr><td>2</td><td>0.3</td><td>12,698</td><td>0.367</td></tr> <tr><td>3</td><td>0.2</td><td>13,286</td><td>0.234</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 _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)	1	0.5	15,520	8,617	0.901	2	0.3	12,698	0.367	3	0.2	13,286	0.234	4	0	0	0.000	5	0	0	0.000																																
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4	0		0	0.000																																																										
5	0		0	0.000																																																										

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** VALLEYCREEK 12A**BUILDER:** GREENPARK HOMES**SFQT:** 2733**LO#** 90139**SITE:** RUSSELL GARDENS PH 4**DESIGN ASSUMPTIONS**

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	1	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	SOUTH	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):	36367.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 52.0 ft	WIDTH: 32.0 ft	EXPOSED PERIMETER:	168.0 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	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

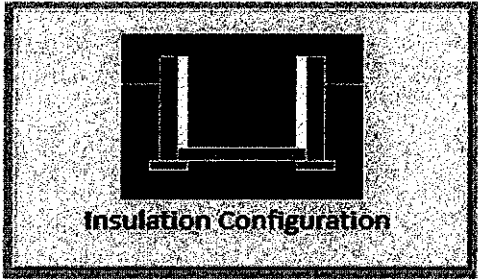
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

Michael O'Rourke

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
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	
Floor Width (m):	9.8	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	3.1	
Door Area (m ²):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1592

TYPE: VALLEYCREEK 12A
LO# 90139

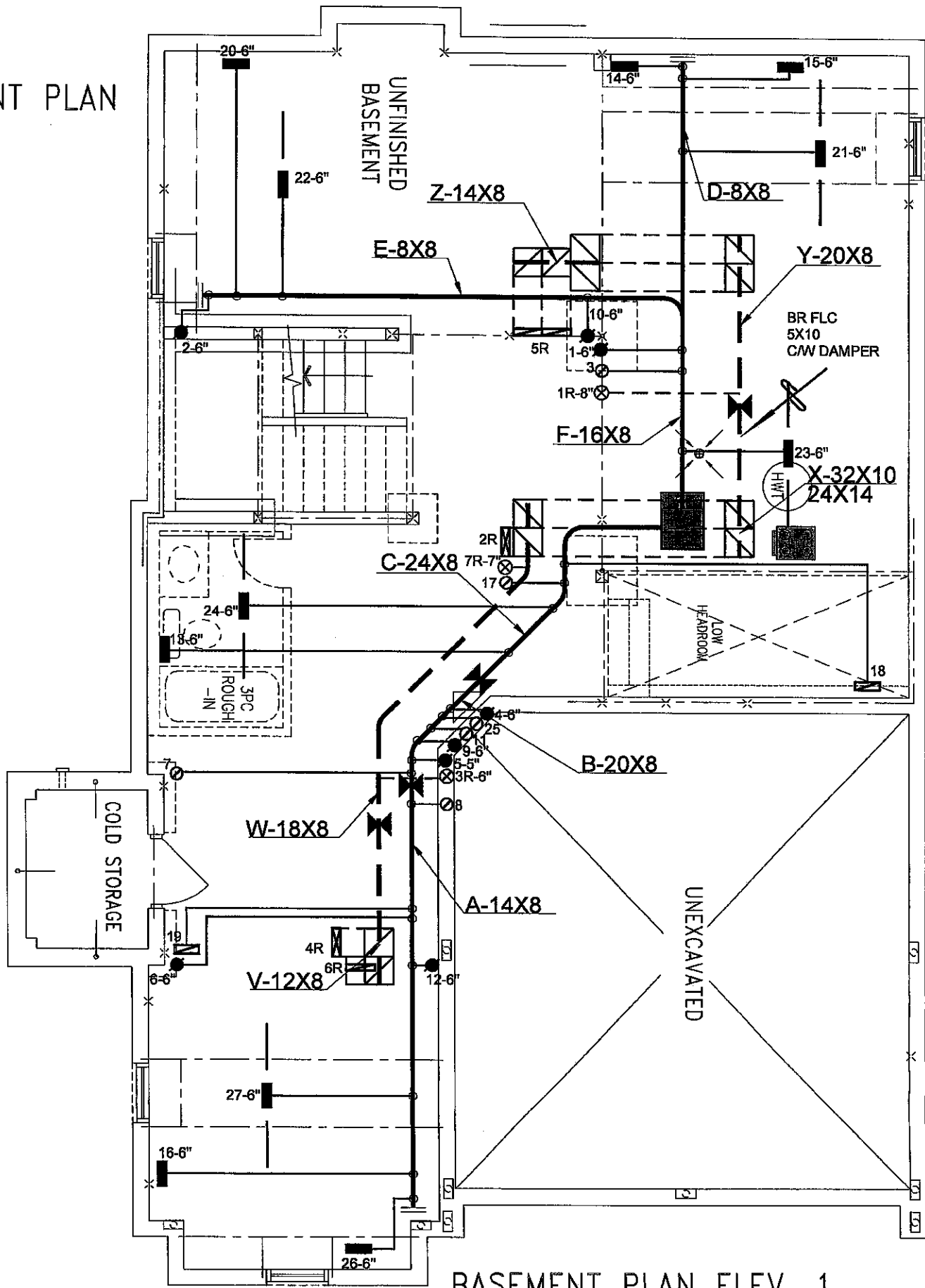
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Hamilton			
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):	1029.8			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.		1372.8 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):	0.338			
Cooling Air Leakage Rate (ACH/H):	0.121			

TYPE: VALLEYCREEK 12A
LO# 90139

PARTIAL BASEMENT PLAN
DECK CONDITION



BASEMENT PLAN ELEV. 1

BASEMENT PLAN ELEV. 2

BASEMENT PLAN ELEV. 3

I MICHAEL O'Rourke HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.32.5 OF THE BUILDING CODE.

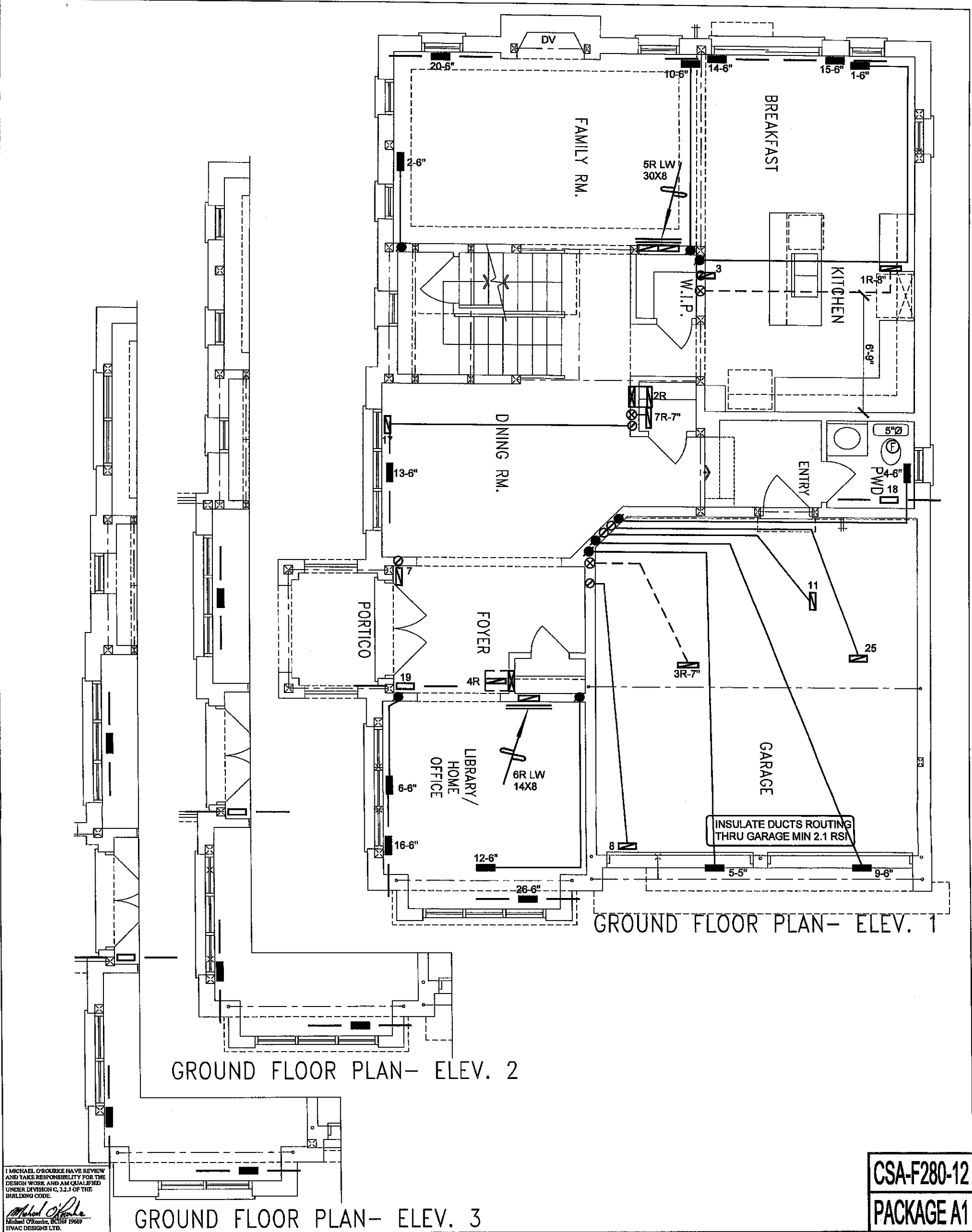
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

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		

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Client GREENPARK HOMES Project Name RUSSELL GARDENS PH 4 HAMILTON, ONTARIO VALLEYCREEK 12A 2733 sqft	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 52233 BTU/H UNIT DATA MAKE GOODMAN MODEL GMEC960804CNA INPUT 80 MBTU/H OUTPUT 76.8 MBTU/H COOLING 3.5 TONS FAN SPEED 1504 cfm @ 0.8" w.c.	# OF RUNS S/A R/A FANS 3RD FLOOR 2ND FLOOR 14 5 3 1ST FLOOR 8 2 2 BASEMENT 5 1 0	Sheet Title BASEMENT HEATING LAYOUT Date APRIL/2021 Scale 3/16" = 1'-0" BCIN# 19669 LO# 90139



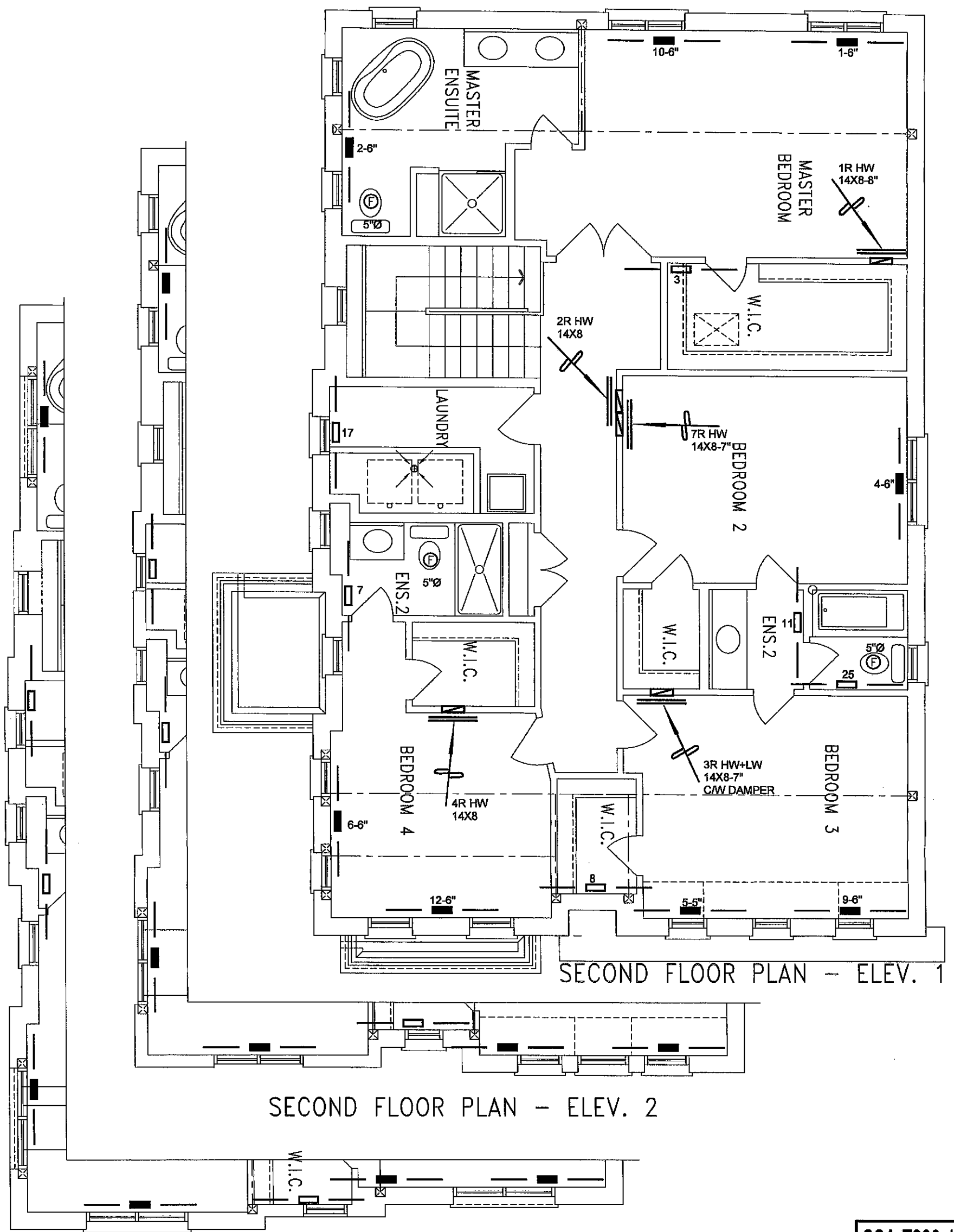
I MICHAEL O'BROUKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.3 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

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

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Client GREENPARK HOMES		HVACDESIGNS LTD. 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 FIRST FLOOR HEATING LAYOUT	
Project Name RUSSELL GARDENS PH 4 HAMILTON, ONTARIO			Date APRIL/2021	
VALLEYCREEK 12A 2733 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO# 90139	



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.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		8" 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		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@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	
RUSSELL GARDENS PH 4 HAMILTON, ONTARIO			APRIL/2021	
VALLEYCREEK 12A 2733 sqft			Scale	
		3/16" = 1'-0"		
		BCIN# 19669		
		LO#	90139	