

SITE NAME: RUSSELL GARDENS PH3
 BUILDER: GREENPARK HOMES

TYPE: VALLEY CREEK 3

GFA: 2668

 DATE: Mar-21
 LOF: 90135

 WINTER NATURAL AIR CHANGE RATE 0.338
 SUMMER NATURAL AIR CHANGE RATE 0.121

 HEAT LOSS AT OF: 71
 HEAT GAIN AT OF: 13

 CSA-F280-12
 SB-12/PACKAGE A1

ROOM/USE	EXP. WALL	CLG. INT.	MBR	ENS	BED-2	BED-3	BED-4	S-ENS	ENS-2
GRS. WALL AREA	37	9	333	198	90	288	135	54	90
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	19.8	15.4	0	0	15	297	232	0	0
EAST	19.8	39.9	0	0	0	0	0	0	0
SOUTH	19.8	24.0	0	0	0	0	0	0	0
WEST	19.8	39.9	34	672	0	0	0	0	0
SKYLT.	34.6	101.5	0	0	0	0	0	0	0
DOORS	23.5	4.3	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	299	1240	75	311	56	234	970
NET EXPOSED BMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0
EXPOSED CLG	1.2	0.6	346	412	204	243	120	228	272
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0
EXPOSED FLOOR	2.4	0.4	0	0	27	64	12	228	540
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			2324		915		2850		1024
SUBTOTAL HT GAIN				1785	419		2564		563
LEVEL FACTOR MULTIPLIER	0.20	0.31		0.20	0.31		0.20	0.31	0.20
AIR CHANGE HEAT LOSS			727		286		892		320
AIR CHANGE HEAT GAIN				144		34		207	
DUCT LOSS			0		120		374		0
DUCT GAIN			0		0		0		99
HEAT GAIN/PEOPLE	240		2	480	1	240	1	240	0
HEAT GAIN/APPLIANCES/LIGHTS				548		548		548	0
TOTAL HT LOSS BTU/H			3051		1321		4115		1344
TOTAL HT GAIN BTU/H			3845		1775		5089		1816

ROOM/USE	EXP. WALL	CLG. INT.	DIN	FAM	BF/KT	LAUN	FOY	WOD	BAS
GRS. WALL AREA	29	10	290	340	360	250	931	396	1184
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	19.8	15.4	0	0	0	0	0	0	0
EAST	19.8	39.9	0	0	0	0	0	0	0
SOUTH	19.8	24.0	26	514	624	0	0	0	0
WEST	19.8	39.9	0	0	0	0	0	0	0
SKYLT.	34.6	101.5	0	0	0	0	0	0	0
DOORS	23.5	4.3	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	264	1094	198	296	1227	222	300
NET EXPOSED BMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0
EXPOSED CLG	1.2	0.6	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0
EXPOSED FLOOR	2.4	0.4	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			1608		2097		2485		1632
SUBTOTAL HT GAIN				822	1979		2086		361
LEVEL FACTOR MULTIPLIER	0.30	0.35		0.30	0.35		0.30	0.35	0.30
AIR CHANGE HEAT LOSS			559		729		864		533
AIR CHANGE HEAT GAIN				66	160		168		29
DUCT LOSS			0		0		0		0
DUCT GAIN			0		0		0		0
HEAT GAIN/PEOPLE	240		0	0	0	0	0	0	0
HEAT GAIN/APPLIANCES/LIGHTS				548	648		548		548
TOTAL HT LOSS BTU/H			2168		2826		3349		2065
TOTAL HT GAIN BTU/H			1867		3493		3643		1219

REC BY _____ DATE _____
 REF TO _____ DATE _____
 CITY OF HAMILTON
 BUILDING DIVISION
 Planning & Development Department
 AUG 25 2021

TOTAL HEAT GAIN BTU/H:

31116

TONS: 2.59

LOSS DUE TO VENTILATION LOAD BTU/H: 1515

STRUCTURAL HEAT LOSS: 47839

TOTAL COMBINED HEAT LOSS BTU/H: 49355

Michael Rourke

SITE NAME: RUSSELL GARDENS PH 4
 BUILDER: GREENPARK HOMES

TYPE: VALLEYCREEK 3

DATE: Mar-21

GFA: 2668 LO# 90135

 HEATING CFM 928 COOLING CFM 928
 TOTAL HEAT LOSS 47,839 TOTAL HEAT GAIN 30,841
 AIR FLOW RATE CFM 19.4 AIR FLOW RATE CFM 30.09

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

 plenum pressure s/a 0.18 r/a pressure 0.17
 max s/a dif press. loss 0.01 r/a grille press. loss 0.02
 min adjusted pressure s/a 0.17 adjusted pressure r/a 0.15

 #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 @ .8" E.S.P.

TEMPERATURE RISE 57 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	10	8	4
R/A	0	0	3	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	4	5	6	7	8	9	10	11	12	13	14	15	16	17	19	20	21	22	23	24
ROOM NAME	MBR	ENS	BED-2	BED-3	BED-4	S-ENS	S-ENS	BED-3	MBR	ENS-2	DIN	FAM	BF/KT	BF/KT	FAM	LAUN	FOY	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH	1.53	1.76	1.32	2.06	1.34	0.54	0.54	2.06	1.53	0.87	2.17	1.41	1.67	1.67	1.41	2.06	3.77	3.77	4.09	4.09	4.09	4.09
CFM PER RUN HEAT	30	34	26	40	26	11	11	40	30	17	42	27	32	32	27	40	73	73	79	79	79	79
RM GAIN MBH	1.92	1.43	1.78	2.54	1.82	0.20	0.20	2.54	1.92	0.49	1.87	1.75	1.82	1.82	1.75	1.22	1.75	1.75	0.57	0.57	0.57	0.57
CFM PER RUN COOLING	58	43	53	77	55	6	6	77	58	15	56	53	55	55	53	37	53	53	17	17	17	17
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH	32	42	42	40	44	37	31	45	38	32	19	30	21	24	26	10	43	36	24	25	22	37
EQUIVALENT LENGTH	120	190	170	170	160	140	140	120	140	170	160	140	150	130	120	150	180	100	90	100	140	120
TOTAL EFFECTIVE LENGTH	152	232	212	210	204	177	171	165	178	202	179	170	171	154	146	160	223	136	114	125	162	157
ADJUSTED PRESSURE	0.11	0.07	0.08	0.08	0.08	0.1	0.1	0.1	0.1	0.09	0.1	0.1	0.1	0.11	0.12	0.11	0.08	0.13	0.15	0.14	0.11	0.11
ROUND DUCT SIZE	5	5	6	6	6	4	4	6	5	4	5	5	5	5	5	4	5	5	5	5	5	5
HEATING VELOCITY (ft/min)	220	250	133	204	133	126	126	204	220	195	308	198	235	235	198	459	536	536	580	580	580	580
COOLING VELOCITY (ft/min)	426	316	270	393	280	69	69	393	426	172	411	389	404	404	389	424	389	389	125	125	125	125
OUTLET GRILL SIZE	3X10	3X10	4X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	A	B	D	C	C	D	D	D	A	B	D	A	B	A	A	D	C	C	B	B	C	C

 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

 CITY OF HAMILTON
 BUILDING DIVISION
 Planning & Development Department

AUG 25 2021

REC BY

DATE

REF'D TO

DATE

SUPPLY AIR TRUNK SIZE

DATE										DATE										DATE									
VELOCITY (ft/min)										VELOCITY (ft/min)										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 CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)										
TRUNK A	146	0.10	6.4	8	x	8	329	TRUNK G	0	0.00	0	0	x	8	0	0.00	0	0	x	8	0	0.00	0	0	x	8	0		
TRUNK B	387	0.07	10.2	12	x	8	581	TRUNK H	0	0.00	0	0	x	8	0	0.00	0	0	x	8	0	0.00	0	0	x	8	0		
TRUNK C	370	0.08	9.7	12	x	8	555	TRUNK I	0	0.00	0	0	0	x	8	0	0.00	0	0	x	8	0	0.00	0	0	x	8	0	
TRUNK D	540	0.08	11.1	16	x	8	608	TRUNK J	0	0.00	0	0	0	x	8	0	0.00	0	0	x	8	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	0	x	8	0	0.00	0	0	x	8	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	0	x	8	0	0.00	0	0	x	8	0	0.00	0	0	x	8	0	

RETURN AIR

	1	2	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR VOLUME	125	195	105	380	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
ACTUAL DUCT LGH	41	31	56	25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	215	135	135	175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	256	166	191	200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.06	0.09	0.08	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
ROUND DUCT SIZE	6.9	7.4	6	10.1	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	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	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

 CITY OF HAMILTON
 Building Division

Permit No. 20-187710-01

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE

 THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
 THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW

These drawings and/or specifications have been reviewed by

JDL

Sept 28/21

RETURN AIR TRUNK SIZE

	CFM	PRESS.	DUCT	DUCT	SIZE	VELOCITY	
						(ft/min)	
TRUNK O	0	0.06	0	0	x	8	0
TRUNK P	0	0.06	0	0	x	8	0
TRUNK Q	0	0.06	0	0	x	8	0
TRUNK R	0	0.06	0	0	x	8	0
TRUNK S	0	0.06	0	0	x	8	0
TRUNK T	0	0.06	0	0	x	8	0
TRUNK U	0	0.06	0	0	x	8	0
TRUNK V	0	0.06	0	0	x	8	0
TRUNK W	0	0.06	0	0	x	8	0
TRUNK X	928	0.06	14.7	26	x	8	642
TRUNK Y	0	0.06	0	0	x	8	0
TRUNK Z	0	0.06	0	0	x	8	0
DROP	928	0.06	14.7	24	x	10	557

Michael Rourke

TYPE: VALLEYCREEK 3
SITE NAME: RUSSELL GARDENS PH 4

LO # 90135

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	4 @ 10.6 cfm	42.4 cfm
Table 9.32.3.A. TOTAL		169.6 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	169.6	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	90.1	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	71°F	1.08	0.25

SUPPLEMENTAL FANS		PANASONIC
Location	Model	cfm
ENS	FV-05-11VK1	50
S-ENS	FV-05-11VK1	50
ENS-2	FV-05-11VK1	50

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 #	

BUILDER:	
GREENPARK HOMES	Permit No. 20-187710-01
Name:	

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE	
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW	
Telephone #	

INSTALLING CONTRACTOR	
FOR CHIEF BUILDING OFFICIAL	
Name:	DATE
Address:	
City:	
Telephone #:	

DESIGNER CERTIFICATION	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
Name:	HVAC Designs Ltd.
Signature:	
HRAI #	001820
Date:	March-21

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																
Formula Sheet for Air Leakage (Ventilation) Calculation																																																																
LO#: 90135	Model: VALLEYCREEK	Builder: GREENPARK HOMES	Date: 31/03/2021																																																													
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>1215</td> <td>9</td> <td>10935</td> </tr> <tr> <td>First</td> <td>1215</td> <td>10</td> <td>12150</td> </tr> <tr> <td>Second</td> <td>1453</td> <td>9</td> <td>13077</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>36,162.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1024.0 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1215	9	10935	First	1215	10	12150	Second	1453	9	13077	Third	0	9	0	Fourth	0	9	0	Total:			36,162.0 ft³	Total:			1024.0 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">WINTER NATURAL AIR CHANGE RATE</th> </tr> </thead> <tbody> <tr> <td>0.338</td> <td></td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">SUMMER NATURAL AIR CHANGE RATE</th> </tr> </thead> <tbody> <tr> <td>0.121</td> <td></td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <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> </thead> <tbody> <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> </tbody> </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
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																													
Bsmt	1215	9	10935																																																													
First	1215	10	12150																																																													
Second	1453	9	13077																																																													
Third	0	9	0																																																													
Fourth	0	9	0																																																													
Total:			36,162.0 ft³																																																													
Total:			1024.0 m³																																																													
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																																																												
5.2.3.1 Heat Loss Due to Air Leakage			6.2.6 Sensible Gain Due to Air Leakage																																																													
$HL_{airb} = LRA_{irh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.338 x 284.44 x 39°C x 1.2 = 4523 W = 15432 Btu/h			$HG_{salb} = LRA_{irc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.121 x 284.44 x 7°C x 1.2 = 294 W = 1002 Btu/h																																																													
5.2.3.2 Heat Loss Due to Mechanical Ventilation			6.2.7 Sensible Heat Gain Due to Ventilation																																																													
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 800 CFM x 71°F x 1.08 x 0.25 = 1515 Btu/h			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 800 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)																																																																
$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HL Airbv Air Leakage & Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss (HL_{level})</th> <th>Air Leakage Heat Loss Multiplier (LF_{HL})</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5">15,432</td> <td>8,636</td> <td>0.894</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>13,313</td> <td>0.348</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>9,865</td> <td>0.313</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> *HL_{airbv} = Air Leakage Heat Loss & Ventilation Heat Loss *For balanced or supply only ventilation system HL_{airr} = 0					Level	Level Factor (LF)	HL Airbv Air Leakage & Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss (HL _{level})	Air Leakage Heat Loss Multiplier (LF _{HL})	1	0.5	15,432	8,636	0.894	2	0.3	13,313	0.348	3	0.2	9,865	0.313	4	0	0	0.000	5	0	0	0.000																																		
Level	Level Factor (LF)	HL Airbv Air Leakage & Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss (HL _{level})	Air Leakage Heat Loss Multiplier (LF _{HL})																																																												
1	0.5	15,432	8,636	0.894																																																												
2	0.3		13,313	0.348																																																												
3	0.2		9,865	0.313																																																												
4	0		0	0.000																																																												
5	0		0	0.000																																																												

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL:	VALLEYCREEK	BUILDER:	GREENPARK HOMES
SFQT:	2668	LO#	90135
		SITE:	RUSSELL GARDENS PH2

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:	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):	36162.0	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:	6.0 ft
LENGTH: 52.0 ft	WIDTH: 34.0 ft	EXPOSED PERIMETER:	172.0 ft

2012 BCB 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	21.12
Below Grade Slab Entire Surface 2500mm Below Grade Minimum RSI (R)-Value	-	-
Edge of Below Grade Slab 500mm Below Grade Minimum RSI (R)-Value	10	10
Heated Slab or Slab 500mm 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 EFF	0.8	-

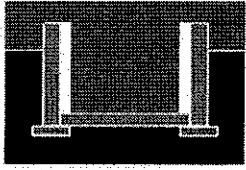
INDIVIDUAL BCIN: 9669

MICHAEL D'ROURKE

Michael D'Roourke

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 (7-10m, 23-33ft)	
Foundation Dimensions		
Floor Length (m):	15.8	 Insulation Configuration
Floor Width (m):	10.4	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.9	
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):	1654	

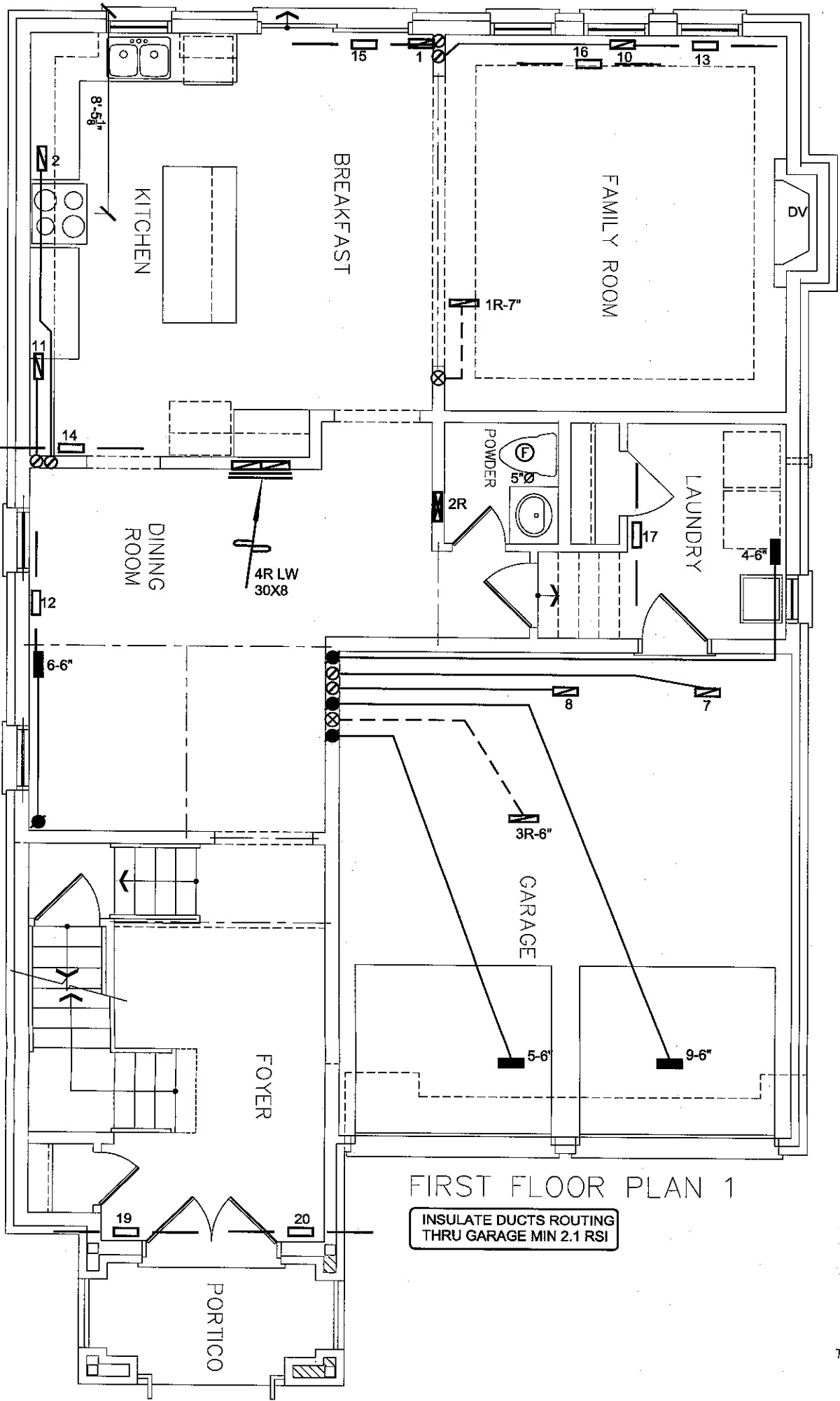
 TYPE: VALLEYCREEK
 LO# 90135

Air Infiltration Residential Load Calculator

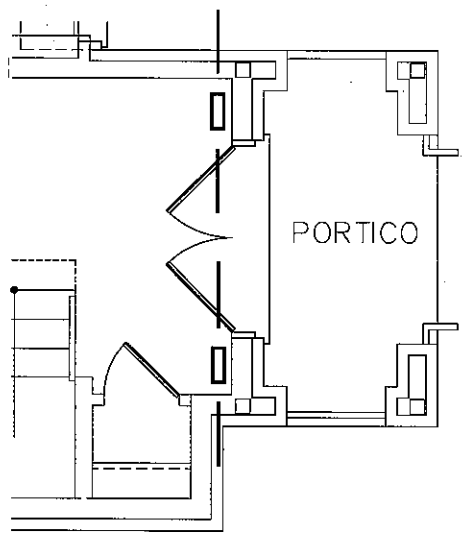
Supplemental Tool for CAN/CSA-F280

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):	1024.0			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 7.0 Pa. 3.57	1365.0 m ² ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply 37.5	Total Exhaust 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		

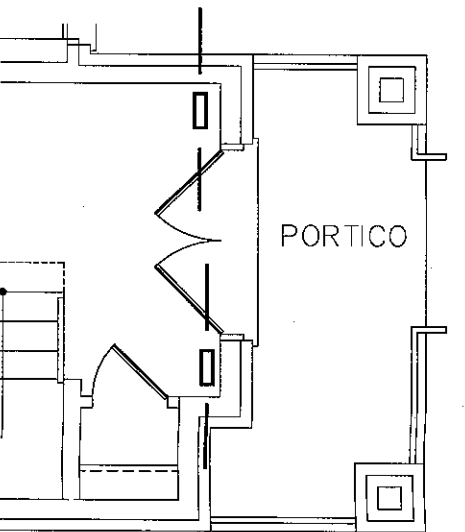
TYPE: VALLEYCREEK
LO# 90135



FIRST FLOOR PLAN 1



FIRST FLOOR PLAN 2



FIRST FLOOR PLAN 3

CITY OF HAMILTON
BUILDING DIVISION
Planning & Development Department
AUG 25 2021
REC BY _____ DATE _____
REF'D TO _____ DATE _____

CITY OF HAMILTON
Building Division
Permit No. 20-187710-01
THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW
These drawings and/or specifications have been reviewed by
DDC Sept 28/21
FOR CHIEF BUILDING OFFICIAL DATE

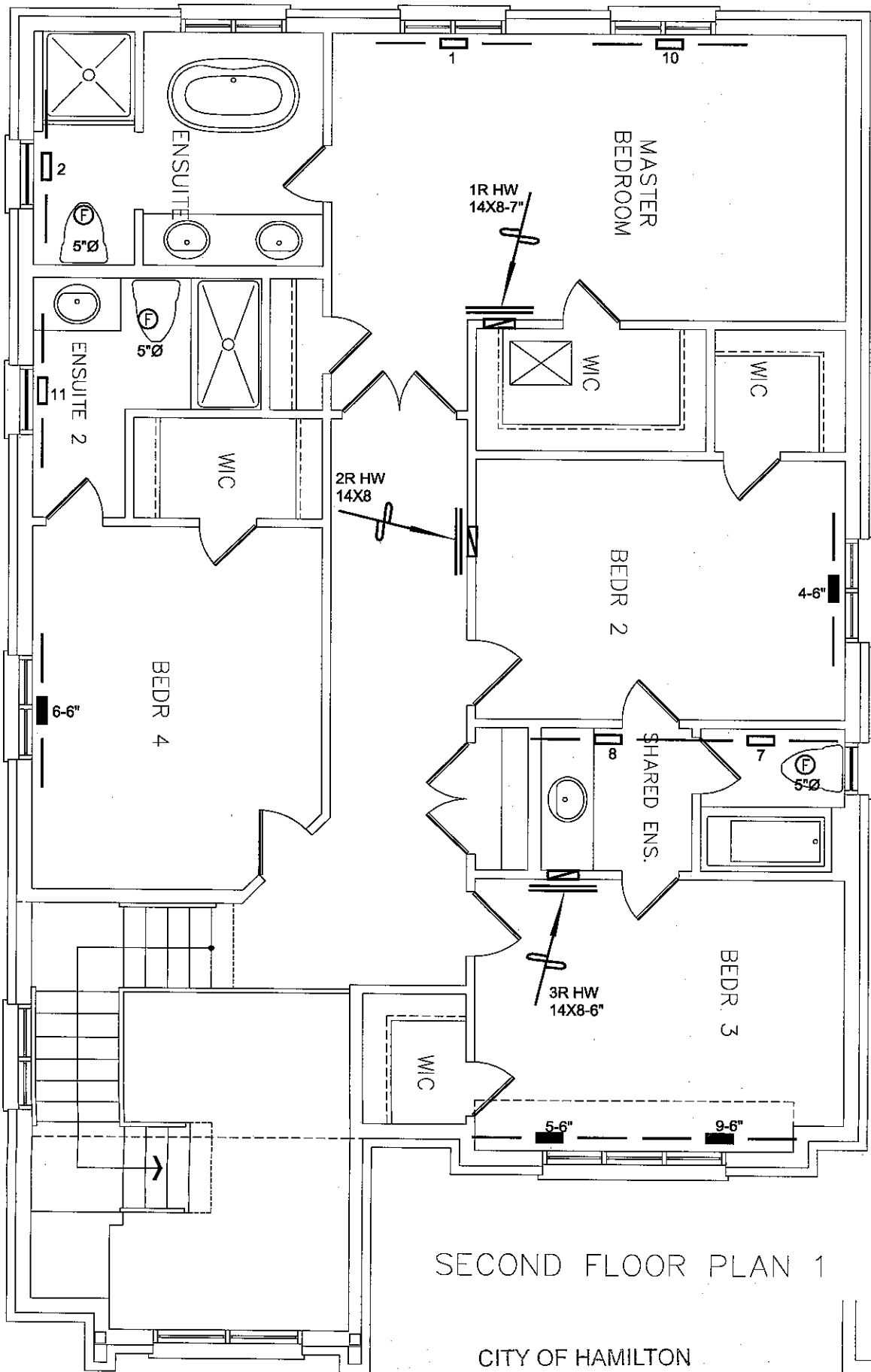
CSA-F280-12
PACKAGE A1

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

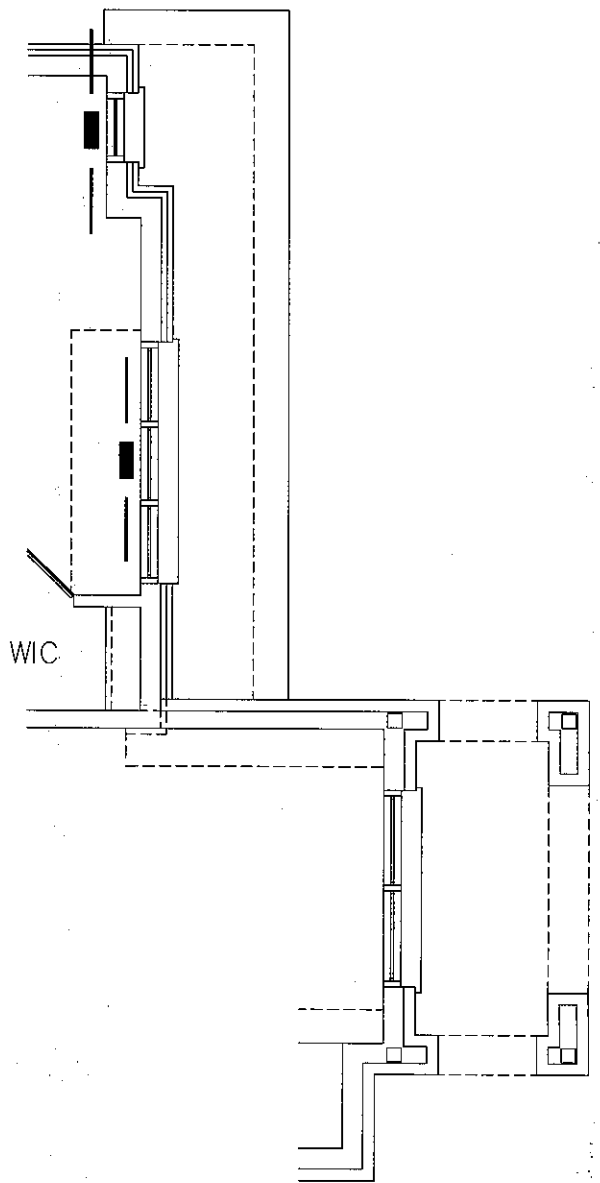
HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		8" 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.

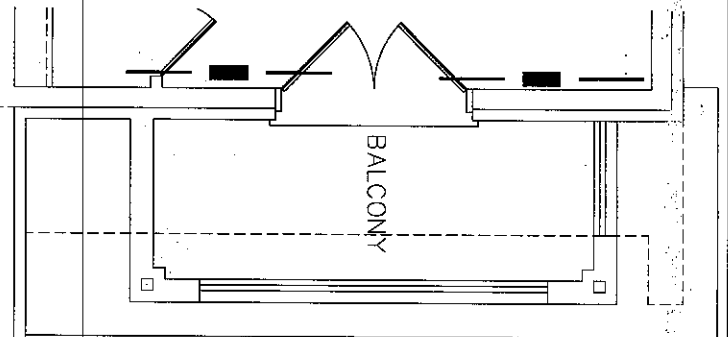
Client GREENPARK HOMES		HVACDESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	Sheet Title FIRST FLOOR HEATING LAYOUT
Project Name RUSSELL GARDENS PH 4 HAMILTON, ONTARIO			
VALLEYCREEK 3 2668 sqft		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.	Date MAR/2021
			Scale 3/16" = 1'-0"
			BCIN# 19669
			LO# 90135



SECOND FLOOR PLAN 1



SECOND FLOOR PLAN 2



SECOND FLOOR PLAN 3

CITY OF HAMILTON
BUILDING DIVISION
Planning & Development Department

AUG 25 2021

REC BY _____ DATE _____
REF'D TO _____ DATE _____

CITY OF HAMILTON
Building Division

Permit No. 20-187710-01

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE

THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW

These drawings and/or specifications have been reviewed by
20C Sept 28/21
FOR CHIEF BUILDING OFFICIAL DATE

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

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
GREENPARK HOMES

Project Name
**RUSSELL GARDENS PH 4
HAMILTON, ONTARIO**

VALLEYCREEK 3 2668 sqft

HVACDESIGNS 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.

Sheet Title
**SECOND FLOOR
HEATING
LAYOUT**

Date
MAR/2021

Scale
3/16" = 1'-0"

BCIN# 19669

LO# 90135