

SITE NAME: RUSSELL GARDENS PH 4

BUILDER: GREENPARK HOMES

TYPE: VALLEYCREEK 3A

GFA: 2596

DATE: Apr-21

LOM 90224

WINTER NATURAL AIR CHANGE RATE 0.338

HEAT LOSS AT °F. 71

CSA-F280-12

SUMMER NATURAL AIR CHANGE RATE 0.121

HEAT GAIN AT °F. 13

SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	BED-2	BED-3	BED-4	S-ENS	ENS-2
37	22	10	32	15	6	10	9	9	9
9	9	9	9	9	9	9	9	9	9
GRS.WALL AREA	LOSS	GAIN	333	198	90	288	135	54	90
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	19.8	16.0	0	0	15	297	240	0	0
EAST	19.8	41.6	0	0	0	0	0	7	138
SOUTH	19.8	24.9	0	0	0	0	0	0	0
WEST	19.8	41.6	35	712	1498	15	297	373	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	297	1231	223	174	721	131	81
NET EXPOSED BSMT WALL ABOVE GR.	3.3	0.6	0	0	0	0	0	0	336
EXPOSED CLG	1.2	0.6	376	448	221	121	144	71	0
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	122
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0	145
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			2391	1340	950	2939	1059	753	559
SUB TOTAL HT GAIN			1940	1049	445	1946	594	267	357
LEVEL FACTOR / MULTIPLIER	0.20	0.30	0.20	0.30	0.20	0.30	0.20	0.30	0.20
AIR CHANGE HEAT LOSS			710	398	282	873	314	224	196
AIR CHANGE HEAT GAIN			151	82	35	151	46	21	28
DUCT LOSS			0	0	123	381	0	98	0
DUCT GAIN			0	0	132	294	0	29	0
HEAT GAIN PEOPLE	240	2	480	0	1	240	1	240	0
HEAT GAIN APPLIANCES/LIGHTS			599	0	1	599	1	599	0
TOTAL HT LOSS BTU/H			3101	1738	1356	4193	1373	1075	855
TOTAL HT GAIN x 1.3 BTU/H			4120	1470	1885	4199	1923	412	500

ROOM USE	EXP. WALL	CLG. HT.	DIN	FAM	BR/KT	LAUN	FOY	WOD	BAS
29	34	36	49	44	172	19	9	9	9
10	10	10	19	9	9	9	9	9	9
GRS.WALL AREA	LOSS	GAIN	290	340	360	300	931	396	1164
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	19.8	16.0	0	0	0	0	0	0	0
EAST	19.8	41.6	0	0	0	0	0	0	0
SOUTH	19.8	24.9	27	534	672	0	0	0	0
WEST	19.8	41.6	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	263	1090	198	296	1227	222	259
NET EXPOSED BSMT 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	10	26	13	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			1624	2122	2519	1739	5554	1096	7552
SUB TOTAL HT GAIN			870	2063	2013	402	2931	692	481
LEVEL FACTOR / MULTIPLIER	0.30	0.33	0.30	0.33	0.30	0.33	0.30	0.33	0.50
AIR CHANGE HEAT LOSS			538	704	835	577	1841	7493	91
AIR CHANGE HEAT GAIN			68	160	157	31	228	0	0
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			599	599	599	599	599	599	599
TOTAL HT LOSS BTU/H			2163	2826	3354	2316	7395	1096	15044
TOTAL HT GAIN x 1.3 BTU/H			1997	3689	3599	1342	4105	900	744

TOTAL HEAT GAIN BTU/H: 31141

TONS: 2.60

LOSS DUE TO VENTILATION LOAD BTU/H: 1515

STRUCTURAL HEAT LOSS: 47885

TOTAL COMBINED HEAT LOSS BTU/H: 49401

SITE NAME: RUSSELL GARDENS PH 4

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LO# 90224

HEATING CFM 928
TOTAL HEAT LOSS 47,885
AIR FLOW RATE CFM 19.38
COOLING CFM 928
TOTAL HEAT GAIN 30,866
AIR FLOW RATE CFM 30.07

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

#GOODMAN
GMCC960603BNA
FAN SPEED 60

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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	10	8	4
R/A	0	0	5	1	1

plenum 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 @ .5" 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	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	1.55	1.74	1.36	2.10	1.37	0.54	0.54	2.10	1.55	0.85	2.16	1.41	1.68	1.68	1.41	2.32	3.70	3.70	4.04	4.04	4.04	4.04
CFM PER RUN HEAT	30	34	26	41	27	10	10	41	30	17	42	27	33	33	27	45	72	72	78	78	78	78
RM GAIN MBH	2.06	1.47	1.89	2.10	1.92	0.21	0.21	2.10	2.06	0.50	2.00	1.83	1.80	1.80	1.83	1.34	2.05	2.05	0.41	0.41	0.41	0.41
CFM PER RUN COOLING	62	44	57	63	58	6	6	63	62	15	60	55	54	54	55	40	62	62	12	12	12	12
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	5	6	4	4	5	5	4	6	5	5	5	5	4	5	5	5	5	5	5
HEATING VELOCITY (ft/min)	220	250	133	301	138	115	115	301	220	195	214	198	242	242	198	516	529	529	573	573	573	573
COOLING VELOCITY (ft/min)	455	323	291	463	296	69	69	463	455	172	306	404	396	396	404	459	455	455	88	88	88	88
OUTLET GRILL SIZE	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	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
1	MBR	1.55	30	2.06	62	0.17	32	120	152	0.11	5	220	455	3X10	A
2	ENS	1.74	34	1.47	44	0.17	42	190	232	0.07	5	250	323	3X10	B
4	BED-2	1.36	26	1.89	57	0.17	42	170	212	0.08	6	133	291	4X10	D
5	BED-3	2.10	41	2.10	63	0.17	40	170	210	0.08	5	301	463	3X10	C
6	BED-4	1.37	27	1.92	58	0.17	44	160	204	0.08	6	138	296	4X10	C
7	S-ENS	0.54	10	0.21	6	0.17	37	140	177	0.1	4	115	69	3X10	D
8	S-ENS	0.54	10	0.21	6	0.17	31	140	171	0.1	4	115	69	3X10	D
9	BED-3	2.10	41	2.10	63	0.17	45	120	165	0.1	5	301	463	3X10	D
10	MBR	1.55	30	2.06	62	0.17	38	140	178	0.09	5	220	455	3X10	A
11	ENS-2	0.85	17	0.50	15	0.17	32	170	202	0.1	6	195	172	3X10	B
12	DIN	2.16	42	2.00	60	0.17	19	160	179	0.1	6	214	306	4X10	D
13	FAM	1.41	27	1.80	55	0.17	30	140	170	0.1	5	198	404	3X10	A
14	BF/KT	1.68	33	1.80	54	0.17	21	150	171	0.1	5	242	396	3X10	B
15	BF/KT	1.68	33	1.80	54	0.17	24	130	154	0.11	5	242	396	3X10	A
16	FAM	1.41	27	1.83	55	0.17	26	120	146	0.12	5	198	404	3X10	A
17	LAUN	2.32	45	1.34	40	0.17	10	150	160	0.11	4	516	459	3X10	D
19	FOY	3.70	72	2.05	62	0.17	43	180	223	0.08	5	529	455	3X10	C
20	FOY	3.70	72	2.05	62	0.17	36	100	136	0.13	5	529	455	3X10	C
21	BAS	4.04	78	0.41	12	0.17	24	90	114	0.15	5	573	88	3X10	B
22	BAS	4.04	78	0.41	12	0.17	25	100	125	0.14	5	573	88	3X10	B
23	BAS	4.04	78	0.41	12	0.17	22	140	162	0.11	5	573	88	3X10	C
24	BAS	4.04	78	0.41	12	0.17	37	120	157	0.11	5	573	88	3X10	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	147	0.10	6.5	8	X	8	331	TRUNK G	0	0.00	0	0	X	8	0	TRUNK O	0	0.05	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	TRUNK P	0	0.05	0	0	X	8	0		
TRUNK C	368	0.08	9.6	10	X	8	662	TRUNK I	0	0.00	0	0	X	8	0	TRUNK Q	0	0.05	0	0	X	8	0		
TRUNK D	542	0.08	11.1	14	X	8	697	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										

RETURN AIR #	1	2	3	4	5	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR VOLUME	85	105	75	375	75	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	138	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
ACTUAL DUCT LGH.	37	31	58	25	41	37	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16	0
EQUIVALENT LENGTH	230	185	215	185	245	250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	220	0
TOTAL EFFECTIVE LENGTH	267	196	271	210	286	287	1	1	1	1	1	1	1	1	1	1	1	1	1	1	236	0
ADJUSTED PRESSURE	0.06	0.08	0.05	0.07	0.05	0.05	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	0.06	0
ROUND DUCT SIZE	6	6	6	10	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.2	0
INLET GRILL SIZE	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	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	0
INLET GRILL SIZE	14	14	14	30	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0

TYPE: VALLEYCREEK 3A
 SITE NAME: RUSSELL GARDENS PH 4

LO # 90224

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	X 71 F	X 1.08	X 0.25

SUPPLEMENTAL FANS		PANASONIC	
Location	Model	cfm	HVI
ENS	FV-05-11VK1	50	☒
S-ENS	FV-05-11VK1	50	☒
ENS-2	FV-05-11VK1	50	☒
PWD	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 #	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#: 90224

Model: VALLEYCREEK 3A

Builder: GREENPARK HOMES

Date: 08/04/2021

Volume Calculation
Air Change & Delta T Data
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1175	9	10575
First	1175	10	11750
Second	1421	9	12789
Third	0	9	0
Fourth	0	9	0
Total:			35,114.0 ft³
Total:			994.3 m³

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

Design Temperature Difference

	T _{in} °C	T _{out} °C	ΔT °C	ΔT °F
Winter DTD _h	22	-17	39	71
Summer DTD _c	24	31	7	13

5.2.3.1 Heat Loss due to Air Leakage

$$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$$

$$0.338 \times 276.20 \times 39^\circ\text{C} \times 1.2 = 4392 \text{ W}$$

$$= 14985 \text{ Btu/h}$$

6.2.6 Sensible Gain due to Air Leakage

$$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$

$$0.121 \times 276.20 \times 7^\circ\text{C} \times 1.2 = 285 \text{ W}$$

$$= 973 \text{ Btu/h}$$

5.2.3.2 Heat Loss due to Mechanical Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

$$80 \text{ CFM} \times 71^\circ\text{F} \times 1.08 \times 0.25 = 1515 \text{ Btu/h}$$

6.2.7 Sensible heat Gain due to Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

$$80 \text{ CFM} \times 13^\circ\text{F} \times 1.08 \times 0.25 = 275 \text{ Btu/h}$$

5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)

$$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$$

Level	Level Factor (LF)	HL _{airbv} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{clevel})
1	0.5	14,985	8,648	0.866
2	0.3		13,559	0.332
3	0.2		10,092	0.297
4	0		0	0.000
5	0		0	0.000

*HL_{airbv} = Air leakage heat loss + ventilation heat loss

*For a balanced or supply only ventilation system HL_{airv} = 0

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** VALLEYCREEK 3A**BUILDER:** GREENPARK HOMES**SFQT:** 2596**LO#** 90224**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:	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):	35114.0	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 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	-

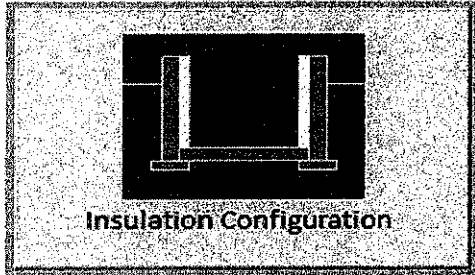
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



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	 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):	2.0	
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):	1653	

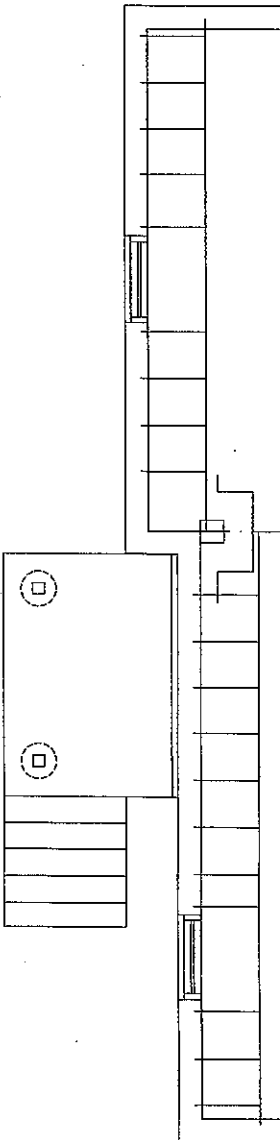
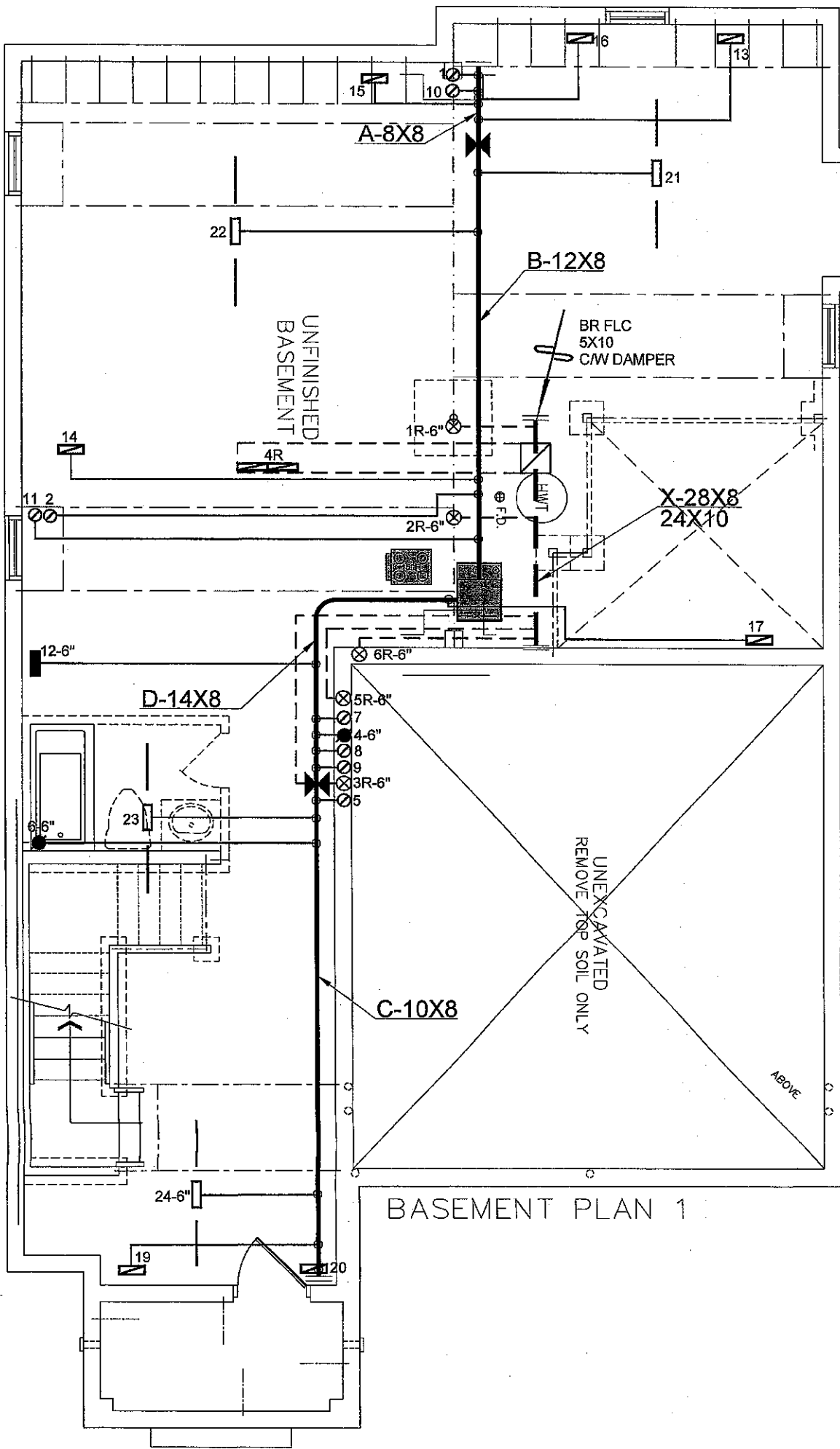
TYPE: VALLEYCREEK 3A
LO# 90224

Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

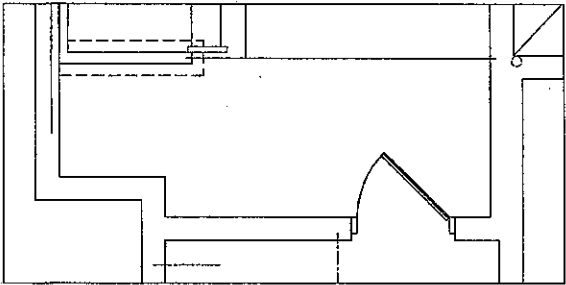
Weather Station Description			
Province:	Ontario		
Region:	Hamilton		
Weather Station Location:	Open flat terrain, grass		
Anemometer height (m):	10		
Local Shielding			
Building Site:	Suburban, forest		
Walls:	Heavy		
Flue:	Heavy		
Highest Ceiling Height (m):	7.62		
Building Configuration			
Type:	Detached		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m ³):	994.3		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1325.5 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
Diameter (mm):	0	0	0
Natural Infiltration Rates			
Heating Air Leakage Rate (ACH/H):	0.338		
Cooling Air Leakage Rate (ACH/H):	0.121		

TYPE: VALLEYCREEK 3A
LO# 90224

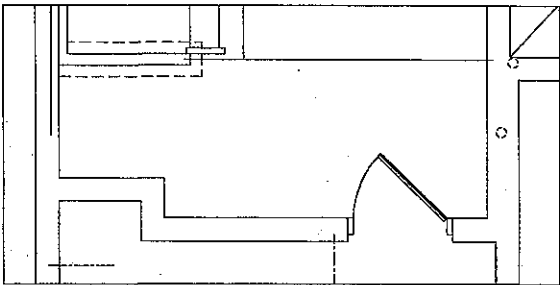


WOD CONDITION

BASEMENT PLAN 1



BASEMENT PLAN 2



BASEMENT PLAN 3

CSA-F280-12
PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	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

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Client
GREENPARK HOMES
Project Name
**RUSSELL GARDENS PH 4
HAMILTON, ONTARIO**

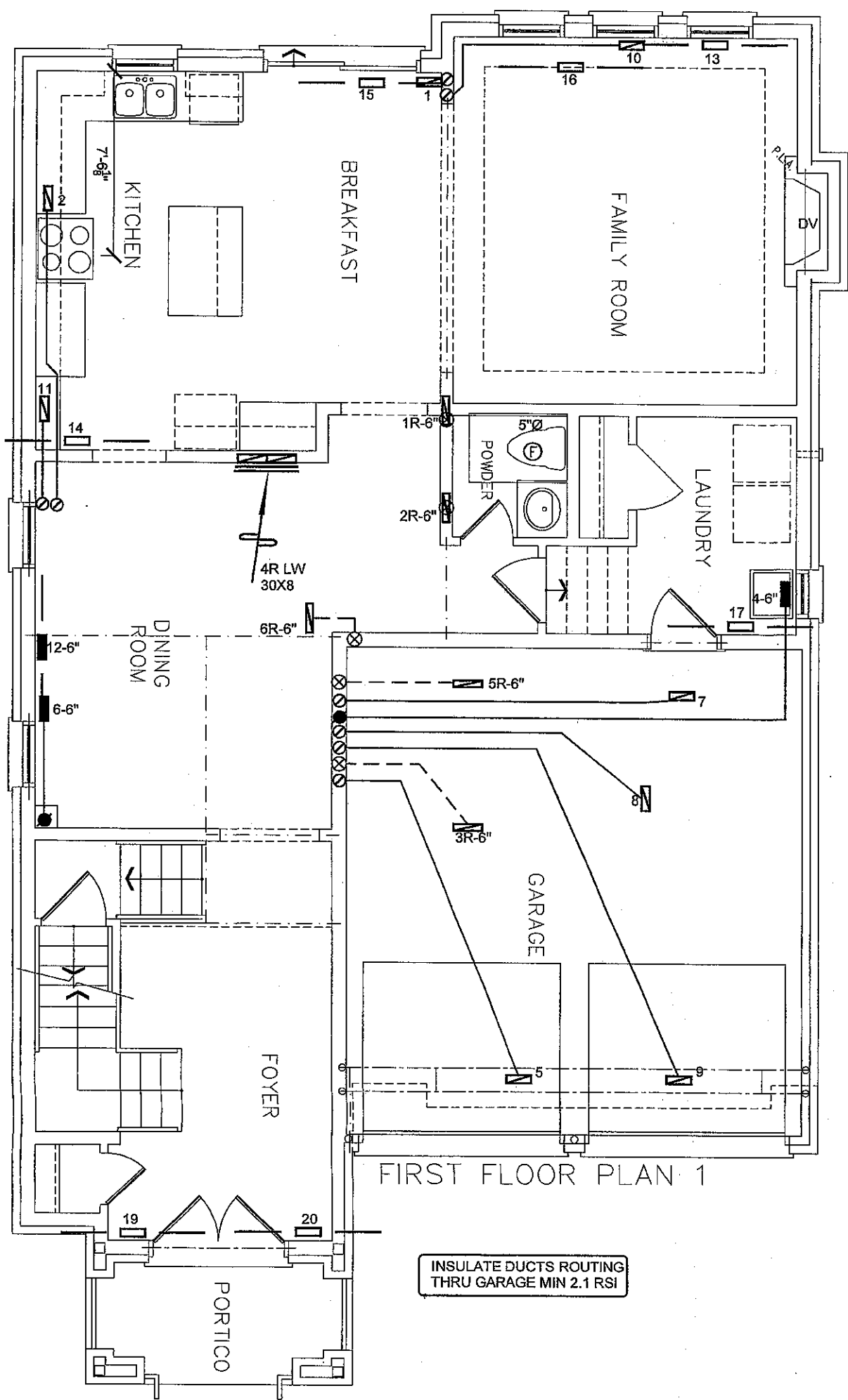
VALLEYCREEK 3A 2596sqft

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

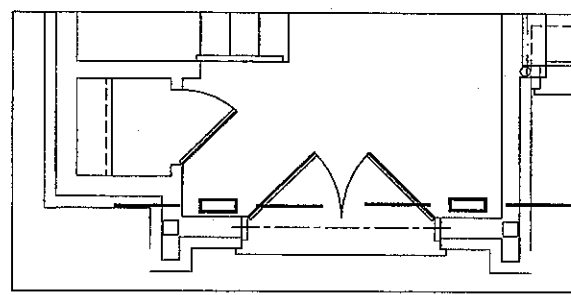
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

HEAT LOSS 49401 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS		
MAKE	GOODMAN	3RD FLOOR		
MODEL	GMEC960603BNA	2ND FLOOR	10	5 3
INPUT	60 MBTU/H	1ST FLOOR	8	1 2
OUTPUT	57.6 MBTU/H	BASEMENT	4	1 0
COOLING	2.5 TONS	ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 6" UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A		
FAN SPEED	928 cfm @ 0.6" w.c.			

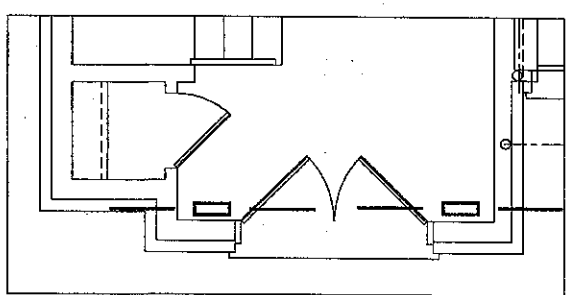
Sheet Title	
BASEMENT HEATING LAYOUT	
Date	APR/2021
Scale	3/16" = 1'-0"
BCIN# 19669	
LO#	90224



FIRST FLOOR PLAN 1



FIRST FLOOR PLAN 2



FIRST FLOOR PLAN 3

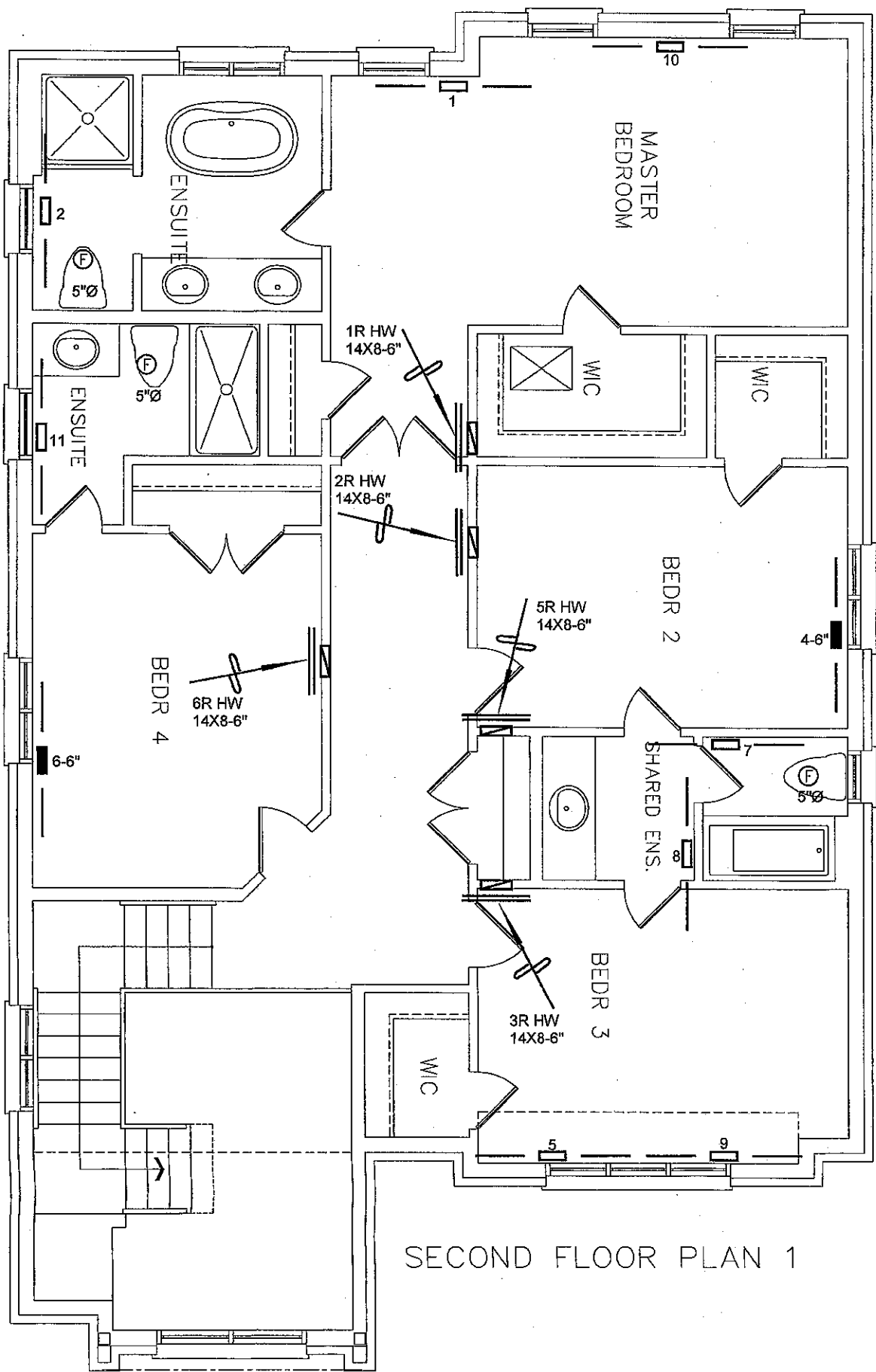
I MICHAEL OROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.3.2.5 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

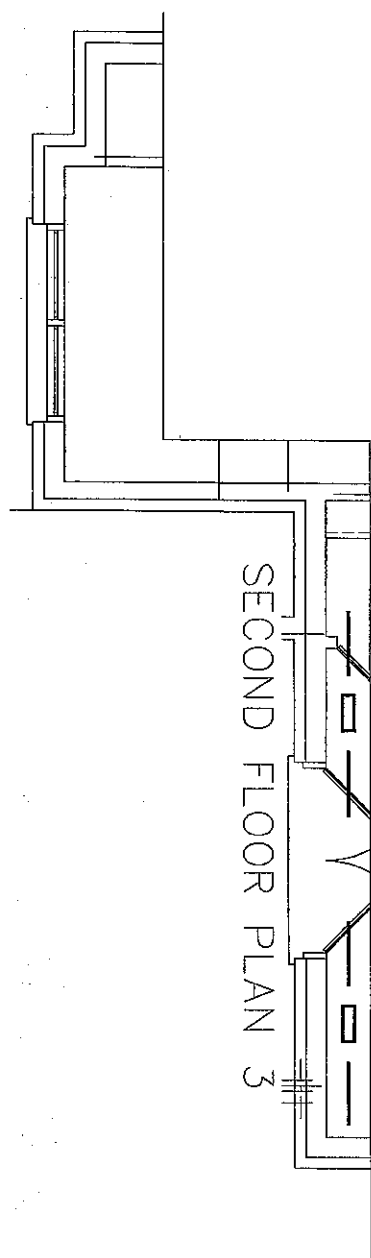
HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		8" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR 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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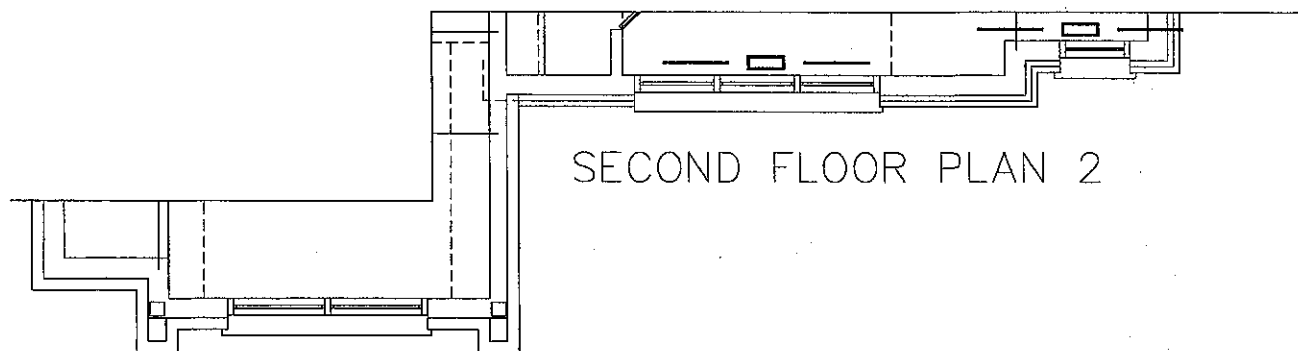
Client GREENPARK HOMES		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	Sheet Title FIRST FLOOR HEATING LAYOUT	
Project Name RUSSELL GARDENS PH 4 HAMILTON, ONTARIO			Date APR/2021	
VALLEYCREEK 3A 2596sqft		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.	Scale 3/16" = 1'-0"	
			BCIN# 19669	
		LO# 90224		



SECOND FLOOR PLAN 1



SECOND FLOOR PLAN 3



SECOND FLOOR PLAN 2

I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.2 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
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	Date	
								REVISIONS	

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Client GREENPARK HOMES		 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 SECOND FLOOR HEATING LAYOUT	
Project Name RUSSELL GARDENS PH 4 HAMILTON, ONTARIO			Date APR/2021	
VALLEYCREEK 3A 2596sqft		Scale 3/16" = 1'-0"		
		BCIN# 19669		
		LO#	90224	