HVAC DESIGNS LTD.

375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

SITE NAME: RUSSEL GARDENS PHASE 3 | LOT 308 | DATE: Dec-20 | WINTER NATURAL AIR CHANGE RATE 0.319 | HEAT LOSS ΔT °F. 71 | CSA-F280-12
BUILDER: GREENPARK HOMES | TYPE: VALLEYCREEK 3 | GFA: 2653 | LO# 88603 | SUMMER NATURAL AIR CHANGE RATE 0.114 | HEAT GAIN ΔT °F. 13 | SB-12 PACKAGE A1

ROOM USE			MBR			ENS				BED-2			BED-3			BED-4			S-ENS				ENS-2				
EXP. WALL			37			22				10			32			15			6				10				
CLG. HT.			9			9				9			9			9			9				9				
	FACTORS																										
GRS.WALL AREA	LOSS	GAIN	333			198				90			288			135			54				90				
GLAZING				LOSS	GAIN		LOSS	GAIN			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN			LOSS	GAIN			
NORTH	19.8	16.0	0	0	0	0	0	0		15	297	240	0	0	0	0	0	0	7	138	112		0	0	0		
EAST	19.8	41.6	0	0	0	0	0	0		0	0	0	44	870	1828	0	0	0	0	0	0		0	0	0		
SOUTH	19.8	24.9	0	0	0	9	178	224		0	0	0	0	0	0	15	297	373	0	0	0		9	178	224		
WEST	19.8	41.6	34	672	1413	15	297	623		0	0	0	0	0	0	0	0	0	0	0	0		0	0	0		
SKYLT.	34.6	101.5	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0		0	0	0		
DOORS	23.5	4.3	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0		0	0	0		
NET EXPOSED WALL	4.1	0.8	299	1240	225	174	721	131		75	311	56	244	1012	183	120	497	90	47	195	35		81	336	61		
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0		0	0	0		
EXPOSED CLG	1.2	0.6	346	412	203	121	144	71		239	286	140	253	314	155	229	273	135	118	141	69		122	145	72		
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0		0	0	0		
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0		27	64	12	228	540	98	0	0	0	118	280	51		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				2324			1340				956			2735			1067			753				659			
SUB TOTAL HT GAIN					1841			1049				448			2264			598			267				357		
LEVEL FACTOR / MULTIPLIER			0.20	0.31		0.20	0.31			0.20	0.31		0.20	0.31		0.20	0.31		0.20	0.31			0.20	0.31			
AIR CHANGE HEAT LOSS				728			420				299			856			334			236				206			
AIR CHANGE HEAT GAIN					149			85				36			183			48			22				29		
DUCT LOSS				0			0				126			359			0			99				0			
DUCT GAIN					0			0				128			325			0			29				0		
HEAT GAIN PEOPLE	240		2		480	0		0		1		240	1		240	1		240	0		0		0		0		
HEAT GAIN APPLIANCES/LIGHTS					561			0				561			561			561			0				0		
TOTAL HT LOSS BTU/H				3052			1760				1381			3951			1401			1088				866			
TOTAL HT GAIN x 1.3 BTU/H					3939			1474				1837			4644			1881			413				501		

ROOM USE			DIN			FAM			BF/KT				LAUN				FOY				BAS		
EXP. WALL			29			34			36				25				49				172		
CLG. HT.			11			11			11				11				20				9		
	FACTORS																						
GRS.WALL AREA	LOSS	GAIN	319			374			396				275				980				1032		
GLAZING				LOSS	GAIN		LOSS	GAIN		LOSS	GAIN			LOSS	GAIN			LOSS	GAIN			LOSS	GAIN
NORTH	19.8	16.0	0	0	0	0	0	0	0	0	0		7	138	112		0	0	0		5	99	80
EAST	19.8	41.6	0	0	0	0	0	0	0	0	0		0	0	0		31	613	1288		0	0	0
SOUTH	19.8	24.9	26	514	647	0	0	0	0	0	0		0	0	0		19	376	473		10	198	249
WEST	19.8	41.6	0	0	0	44	870	1828	45	890	1870		0	0	0		0	0	0		0	0	0
SKYLT.	34.6	101.5	0	0	0	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0
DOORS	23.5	4.3	0	0	0	0	0	0	15	352	64		20	469	85		50	1173	213		20	469	85
NET EXPOSED WALL	4.1	0.8	293	1215	220	330	1368	248	336	1393	253		248	1028	186		889	3648	661		0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0	0	0		0	0	0		0	0	0		516	1725	313
EXPOSED CLG	1.2	0.6	0	0	0	0	0	0	0	0	0		0	0	0		105	125	62		0	0	0
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0
EXPOSED FLOOR	2.4	0.4	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				5656	
SLAB ON GRADE HEAT LOSS				0			0			0				0				0					
SUBTOTAL HT LOSS				1729			2238			2634				1636				5934				3157	
SUB TOTAL HT GAIN					868			2076			2186				383				2697				727
LEVEL FACTOR / MULTIPLIER			0.30	0.33		0.30	0.33		0.30	0.33			0.30	0.33			0.30	0.33			0.50	0.94	
AIR CHANGE HEAT LOSS				563			729			859				533				1934				7699	
AIR CHANGE HEAT GAIN					70			168			177				31				218				53
DUCT LOSS				0			0			0				0				0				0	
DUCT GAIN					0			0			0				0				0					0
HEAT GAIN PEOPLE	240		0		0	0		0	0		0		0		0		0		0		0		0
HEAT GAIN APPLIANCES/LIGHTS					561			561			561				561				0				561
TOTAL HT LOSS BTU/H				2292			2967			3493				2169				7869				15856	
TOTAL HT GAIN x 1.3 BTU/H					1948			3646			3801				1267				3798				1750

CITY OF HAMILTON
Building Division
21 107141
Permit No.
THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE
THESE STAMPED DRAWINGS SHALL COMPLY WITH THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW
These drawings and/or specifications have been reviewed by
FEB 23 2021
DATE
FOR CHIEF BUILDING OFFICIAL

TOTAL HEAT GAIN BTU/H: 31167 | TONS: 2.60 | LOSS DUE TO VENTILATION LOAD BTU/H: 1515 | STRUCTURAL HEAT LOSS: 46144 | TOTAL COMBINED HEAT LOSS BTU/H: 49659

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

Michael O'Rourke.

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

HVAC DESIGNS LTD.

375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

SITE NAME: RUSSEL GARDENS PHASE 3 — LOT 308
BUILDER: GREENPARK HOMES — TYPE: VALLEYCREEK 3 — DATE: Dec-20 — GFA: 2653 — LO# 88603

HEATING CFM	928	COOLING CFM	928	furnace pressure	0.6
TOTAL HEAT LOSS	48,144	TOTAL HEAT GAIN	30,893	furnace filter	0.05
AIR FLOW RATE CFM	19.28	AIR FLOW RATE CFM	30.04	a/c coil pressure	0.2
				available pressure for s/a & r/a	0.35
				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

#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 @ .5" 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	1.38	1.98	1.40	0.54	0.54	1.98	1.53	0.87	2.29	1.48	1.75	1.75	1.48	2.17	3.93	3.93	3.96	3.96	3.96	3.96
CFM PER RUN HEAT	29	34	27	38	27	10	10	38	29	17	44	29	34	34	29	42	76	76	76	76	76	76
RM GAIN MBH.	1.97	1.47	1.84	2.32	1.88	0.21	0.21	2.32	1.97	0.50	1.95	1.82	1.90	1.90	1.82	1.27	1.89	1.89	0.44	0.44	0.44	0.44
CFM PER RUN COOLING	59	44	55	70	57	6	6	70	59	15	59	55	57	57	55	38	57	57	13	13	13	13
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)	213	250	138	279	138	115	115	279	213	195	224	213	250	250	213	482	558	558	558	558	558	558
COOLING VELOCITY (ft/min)	433	323	280	514	291	69	69	514	433	172	301	404	419	419	404	436	419	419	95	95	95	95
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	

SUPPLY 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 A	150	0.10	6.5	8	x	8	338	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	387	0.07	10.2	14	x	8	498	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	369	0.08	9.7	12	x	8	554	TRUNK I	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	x	8	0
TRUNK E	0	0.00	0	0	x	8	0	TRUNK K	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	x	8	0

RETURN AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			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

RETURN AIR #	1	2	3	4												BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	130	175	105	380	0	0	0	0	0	0	0	0	0	0	0	138
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.	41	31	56	25	1	1	1	1	1	1	1	1	1	1	1	16
EQUIVALENT LENGTH	215	135	135	175	0	0	0	0	0	0	0	0	0	0	0	220
TOTAL EFFECTIVE LH	256	166	191	200	1	1	1	1	1	1	1	1	1	1	1	236
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	0.06
ROUND DUCT SIZE	7	7.1	6	10.1	0	0	0	0	0	0	0	0	0	0	0	7.2
INLET GRILL SIZE	8	8	8	8	0	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	30	0	0	0	0	0	0	0	0	0	0	0	14

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

HVAC DESIGNS LTD.

375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

TYPE: VALLEYCREEK 3 LO # 88603
SITE NAME: RUSSEL GARDENS PHASE 3 LOT 308

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 9.32.3.6.

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 65H 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
S-ENS	FV-05-11VK1	50	✓	0.3
ENS-2	FV-05-11VK1	50	✓	0.3

HEAT RECOVERY VENTILATOR 9.32.3.11.

Model: VANEE 65H

155 cfm high 64 cfm low

75 % 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: Michael O'Rourke.

HRAI # 001820

Date: December-20

I REVIEW AND TAKE RESPONIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

INDIVIDUAL BCIN: 19669 Michael O'Rourke. MICHAEL O'ROURKE

HVAC DESIGNS LTD.

375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 88603 Model: VALLEYCREEK 3 Builder: GREENPARK HOMES Date: 14/12/2020

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1215	9	10935
First	1215	11	13365
Second	1543	9	13887
Third	0	9	0
Fourth	0	9	0
		Total:	38,187.0 ft³
		Total:	1081.3 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.319
SUMMER NATURAL AIR CHANGE RATE	0.114

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

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

0.319 x 300.37 x 39 °C x 1.2 = 4513 W

= 15397 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.114 x 300.37 x 7 °C x 1.2 = 293 W

= 1000 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 CFM x 71 °F x 1.08 x 0.25 = 1515 Btu/h

6.2.7 Sensible heat Gain due to Ventilation

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

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)

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

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	15,397	8,157	0.944
2	0.3		14,171	0.326
3	0.2		9,835	0.313
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

HVAC DESIGNS LTD.

375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL:	VALLEYCREEK 3		LOT 308	**BUILDER:**	GREENPARK HOMES
SFQT:	2653	**LO#**	88603	**SITE:**	RUSSEL GARDENS PHASE 3

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 (ft^3):	38187.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	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

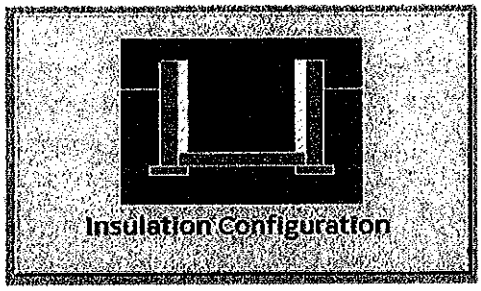
Michael O'Rourke.

HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

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):	1.4	
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):	**1660**	

TYPE: VALLEYCREEK 3 LOT 308
LO# 88603

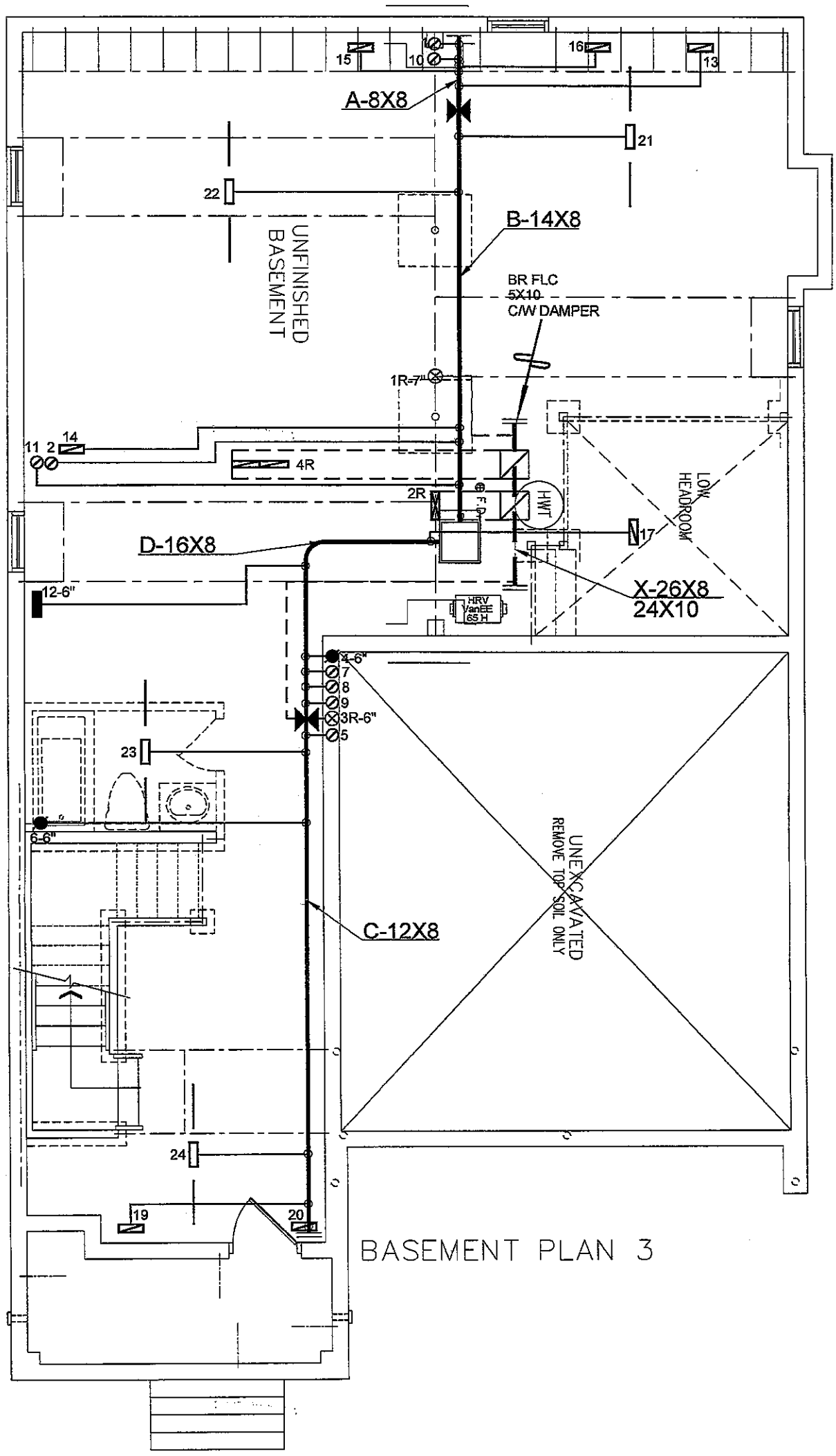
HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

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):	7.01	
Building Configuration		
Type:	Detached	
Number of Stories:	Two	
Foundation:	Full	
House Volume (m^3):	1081.3	
Air Leakage/Ventilation		
Air Tightness Type:	Present (1961-) (3.57 ACH)	
Custom BDT Data:	ELA @ 10 Pa.	1441.5 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 #4	
Diameter (mm):	0 0 0 0	
Natural Infiltration Rates		
Heating Air Leakage Rate (ACH/H):	**0.319**	
Cooling Air Leakage Rate (ACH/H):	**0.114**	

TYPE: VALLEYCREEK 3 LOT 308
LO# 88603



BASEMENT PLAN 3

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

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

LOT 308
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

No.	Description	Date
3.		
2.		
1.		

REVISIONS

Client
GREENPARK HOMES

Project Name
RUSSEL GARDENS PHASE 3
HAMILTON, ONTARIO

LOT 308
VALLEYCREEK 3 2653 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@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.

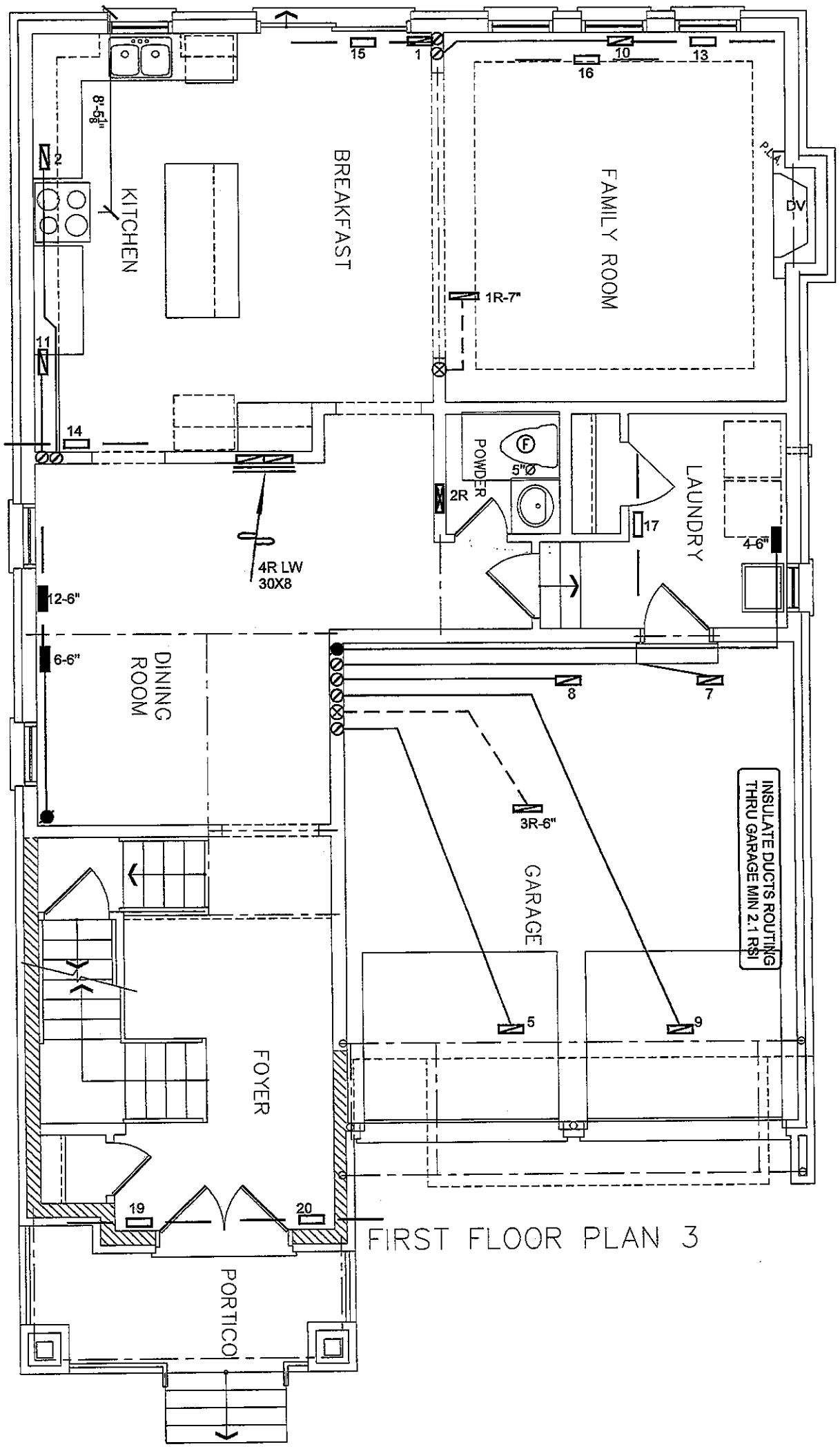
HEAT LOSS 49659 BTU/H	
UNIT DATA	
MAKE	GOODMAN
MODEL	GMEC960603BNA
INPUT	60 MBTU/H
OUTPUT	57.6 MBTU/H
COOLING	2.5 TONS
FAN SPEED	928 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	10	3	3
1ST FLOOR	8	1	2
BASEMENT	4	1	0

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

Sheet Title
BASEMENT HEATING LAYOUT

Date DEC/2020
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 88603



FIRST FLOOR PLAN 3

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

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

LOT 308
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

No.	Description	Date
3.		
2.		
1.		

REVISIONS

Client
GREENPARK HOMES

Project Name
RUSSEL GARDENS PHASE 3
HAMILTON, ONTARIO

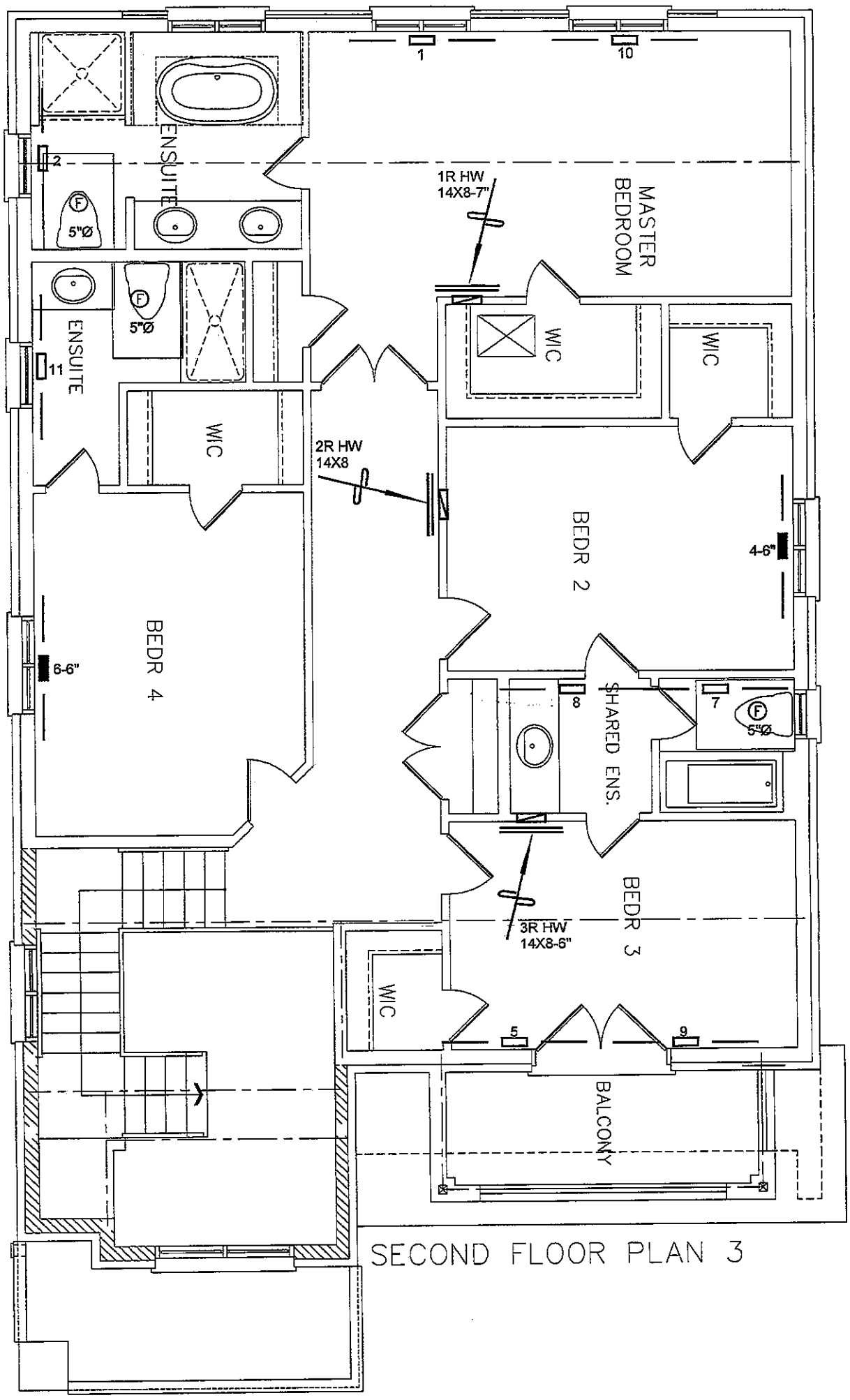
LOT 308
VALLEYCREEK 3 2653 sqft

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@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

Date DEC/2020
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 88603



SECOND FLOOR PLAN 3

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

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

LOT 308
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

No.	Description	Date
3.		
2.		
1.		

REVISIONS

Client
GREENPARK HOMES

Project Name
RUSSEL GARDENS PHASE 3
HAMILTON, ONTARIO

LOT 308
VALLEYCREEK 3 2653 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@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
SECOND FLOOR HEATING LAYOUT

Date DEC/2020
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 88603