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 GARDEN | DATE: May-17 | WINTER NATURAL AIR CHANGE RATE 0.319 | HEAT LOSS ΔT °F. 71 | CSA-F280-12
BUILDER: GREENPARK HOMES | TYPE: FLEMING 1 | GFA: 2546 | LO# 74146 | SUMMER NATURAL AIR CHANGE RATE 0.124 | HEAT GAIN ΔT °F. 16 | SB-12 PACKAGE A1

ROOM USE			MBR			ENS				BED-2			BED-3			BED-4			BATH				SIT			ENS-2				
EXP. WALL			34			26				30			10			10			8				43			11				
CLG. HT.			9			9				9			9			9			9				9			9				
	FACTORS																													
GRS.WALL AREA	LOSS	GAIN	306			234				270			90			90			72				387			99				
GLAZING			LOSS	GAIN		LOSS	GAIN			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN			LOSS	GAIN		LOSS	GAIN			
NORTH	19.8	16.8	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	8	158	135		
EAST	19.8	42.4	0	0	0	0	0	0		33	652	1399	0	0	0	0	0	0	0	0	0		49	969	2077	0	0	0		
SOUTH	19.8	25.7	0	0	0	9	178	232		0	0	0	15	297	386	15	297	386	7	138	180		0	0	0	0	0	0		
WEST	19.8	42.4	30	593	1272	15	297	636		0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0		
SKYLT.	34.6	103.0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0		
DOORS	23.5	5.2	0	0	0	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	0.9	276	1144	256	210	871	195		237	983	220	75	311	70	75	311	70	66	269	60		338	1401	314	91	377	84		
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.7	0	0	0	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	285	340	182	160	191	102		196	232	124	170	203	109	160	191	102	136	162	87		246	293	157	143	170	91		
NO ATTIC EXPOSED CLG	2.6	1.4	0	0	0	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	0.5	0	0	0	0	0	0		195	462	103	60	142	32	0	0	0	0	0	0		42	100	22	46	109	24		
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				2077			1536				2329			952			798			570				2763			815			
SUB TOTAL HT GAIN					1710			1164				1847			596			558			327				2570			335		
LEVEL FACTOR / MULTIPLIER			0.20	0.24		0.20	0.24			0.20	0.24		0.20	0.24		0.20	0.24		0.20	0.24			0.20	0.24		0.20	0.24			
AIR CHANGE HEAT LOSS				495			366				555			227			190			136				658			194			
AIR CHANGE HEAT GAIN					185			125				199			64			60			35				277			36		
DUCT LOSS				0			0				288			118			0			0				342			101			
DUCT GAIN					0			0				295			157			0			0				351			37		
HEAT GAIN PEOPLE	240		2		480	0		0		1		240	1		240	1		240	0		0		0		0	0		0		
HEAT GAIN APPLIANCES/LIGHTS					667			0				667			667			667			0				667			0		
TOTAL HT LOSS BTU/H				2572			1902				3172			1297			988			706				3763			1110			
TOTAL HT GAIN x 1.3 BTU/H					3954			1677				4223			2241			1982			471				5026			530		

ROOM USE			LV/DN				KT/FM				LAUN			WR			FOY				BAS		
EXP. WALL			34				66				17			6			46				166		
CLG. HT.			11				11				13			11			11				9		
	FACTORS																						
GRS.WALL AREA	LOSS	GAIN	374				726				221			66			506				996		
GLAZING			LOSS	GAIN			LOSS	GAIN			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN			LOSS	GAIN	
NORTH	19.8	16.8	0	0	0		0	0	0		9	178	151	0	0	0	0	0	0		15	297	252
EAST	19.8	42.4	0	0	0		0	0	0		0	0	0	0	0	0	18	356	753		0	0	0
SOUTH	19.8	25.7	38	751	978		9	178	232		0	0	0	0	0	0	0	0	0		0	0	0
WEST	19.8	42.4	0	0	0		72	1423	3052		0	0	0	0	0	0	0	0	0		0	0	0
SKYLT.	34.6	103.0	0	0	0		0	0	0		0	0	0	0	0	0	0	0	0		0	0	0
DOORS	23.5	5.2	0	0	0		10	235	52		20	469	105	0	0	0	20	469	105		20	469	105
NET EXPOSED WALL	4.1	0.9	336	1393	312		636	2632	589		192	796	178	66	274	61	488	1940	434		0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.7	0	0	0		0	0	0		0	0	0	0	0	0	0	0	0		498	1665	373
EXPOSED CLG	1.2	0.6	0	0	0		0	0	0		0	0	0	0	0	0	0	0	0		0	0	0
NO ATTIC EXPOSED CLG	2.6	1.4	0	0	0		0	0	0		0	0	0	0	0	0	0	0	0		0	0	0
EXPOSED FLOOR	2.4	0.5	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				5437	
SLAB ON GRADE HEAT LOSS				0				0				0			0			0					
SUBTOTAL HT LOSS				2144				4468				1443			274			2765				7867	
SUB TOTAL HT GAIN					1290				3926				434			61			1302				730
LEVEL FACTOR / MULTIPLIER			0.30	0.38			0.30	0.38			0.30	0.38		0.30	0.38		0.30	0.38			0.50	0.90	
AIR CHANGE HEAT LOSS				817				1704				550			104			1054				7049	
AIR CHANGE HEAT GAIN					139				424				47			7			141				79
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					667				667				667			0			0				667
TOTAL HT LOSS BTU/H				2962				6172				1993			378			3819				14916	
TOTAL HT GAIN x 1.3 BTU/H					2725				6521				1493			88			1876				1918

TOTAL HEAT GAIN BTU/H: 35318 TONS: 2.94 LOSS DUE TO VENTILATION LOAD BTU/H: 2650 STRUCTURAL HEAT LOSS: 45749 TOTAL COMBINED HEAT LOSS BTU/H: 48399

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

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SITE NAME: RUSSEL GARDEN
BUILDER: GREENPARK HOMES

TYPE: FLEMING 1 DATE: May-17 GFA: 2546 LO# 74146

HEATING CFM	1131	COOLING CFM	1131	furnace pressure	0.6			#AMANA	AFUE = 96 %
TOTAL HEAT LOSS	45,749	TOTAL HEAT GAIN	34,725	furnace filter	0.05			AMEC960603BNA 60	INPUT (BTU/H) = 60,000
AIR FLOW RATE CFM	24.72	AIR FLOW RATE CFM	32.57	a/c coil pressure	0.2			FAN SPEED	OUTPUT (BTU/H) = 57,600
				available pressure for s/a & r/a	0.35			LOW	
								MEDLOW	DESIGN CFM = 1131
				plenum pressure s/a	0.18	r/a pressure	0.17	MEDIUM	CFM @ .6" E.S.P.
				max s/a dif press. loss	0.02	r/a grille press. Loss	0.02	MEDIUM HIGH	
				min adjusted pressure s/a	0.16	adjusted pressure r/a	0.15	HIGH 1131	TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	11	7	4
R/A	0	0	4	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	14	15	16	17	18	19	21	22	23	24
ROOM NAME	MBR	ENS	SIT	BED-2	BED-3	BED-4	BATH	BED-2	SIT	MBR	ENS-2	LV/DN	KT/FM	KT/FM	KT/FM	LAUN	W/R	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.29	1.90	1.88	1.59	1.30	0.99	0.71	1.59	1.88	1.29	1.11	2.96	2.06	2.06	2.06	1.99	0.38	3.82	3.73	3.73	3.73	3.73
CFM PER RUN HEAT	32	47	47	39	32	24	17	39	47	32	27	73	51	51	51	49	9	94	92	92	92	92
RM GAIN MBH.	1.98	1.68	2.51	2.11	2.24	1.98	0.47	2.11	2.51	1.98	0.53	2.72	2.17	2.17	2.17	1.49	0.09	1.88	0.48	0.48	0.48	0.48
CFM PER RUN COOLING	64	55	82	69	73	65	15	69	82	64	17	89	71	71	71	49	3	61	16	16	16	16
ADJUSTED PRESSURE	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	35	45	39	42	47	37	38	48	52	43	47	28	29	24	31	22	20	45	28	21	14	35
EQUIVALENT LENGTH	180	120	150	160	160	110	150	120	130	190	130	120	120	120	90	120	130	110	100	90	120	110
TOTAL EFFECTIVE LENGTH	215	165	189	202	207	147	188	168	182	233	177	148	149	144	121	142	150	155	128	111	134	145
ADJUSTED PRESSURE	0.08	0.1	0.09	0.09	0.08	0.12	0.09	0.1	0.09	0.07	0.1	0.11	0.12	0.12	0.14	0.12	0.11	0.1	0.13	0.15	0.12	0.11
ROUND DUCT SIZE	5	4	5	5	5	5	4	5	5	5	4	5	5	5	5	4	4	5	5	5	5	5
HEATING VELOCITY (ft/min)	235	539	345	286	235	176	195	286	345	235	310	536	374	374	374	562	103	690	675	675	675	675
COOLING VELOCITY (ft/min)	470	631	602	507	536	477	172	507	602	470	195	653	521	521	521	562	34	448	117	117	117	117
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	A	A	D	D	A	A	A	E	D	A	E	D	A	B	B	B	E	D	A	B	E	D

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	327	0.07	9.5	10	x	8	589	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	243	0.12	7.5	6	x	8	729	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	570	0.07	11.7	16	x	8	641	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	392	0.09	9.6	10	x	8	706	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	559	0.09	10.9	14	x	8	719	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	0.05	0	0	x	8	0
TRUNK P	0	0.05	0	0	x	8	0
TRUNK Q	0	0.05	0	0	x	8	0
TRUNK R	0	0.05	0	0	x	8	0
TRUNK S	0	0.05	0	0	x	8	0
TRUNK T	0	0.05	0	0	x	8	0
TRUNK U	0	0.05	0	0	x	8	0
TRUNK V	0	0.05	0	0	x	8	0
TRUNK W	0	0.05	0	0	x	8	0
TRUNK X	1131	0.05	16.5	32	x	8	636
TRUNK Y	600	0.05	13	20	x	8	540
TRUNK Z	0	0.05	0	0	x	8	0
DROP	1131	0.05	16.5	24	x	10	679

RETURN AIR #	1	2	3	4	5	6										BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	120	120	85	120	360	160	0	0	0	0	0	0	0	0	0	166
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.	50	46	46	49	24	23	1	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	185	225	185	190	230	150	0	0	0	0	0	0	0	0	0	135
TOTAL EFFECTIVE LH	235	271	231	239	254	173	1	1	1	1	1	1	1	1	1	149
ADJUSTED PRESSURE	0.06	0.05	0.06	0.06	0.06	0.09	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.10
ROUND DUCT SIZE	6.8	7.1	6	6.8	10.3	6.9	0	0	0	0	0	0	0	0	0	6.8
INLET GRILL SIZE	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	8
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	30	14	0	0	0	0	0	0	0	0	0	14

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[signature] INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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TYPE: FLEMING 1 LO # 74146
SITE NAME: RUSSEL GARDEN

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
More than 5 - Part 6	TOTAL	79.5	cfm

SUPPLEMENTAL VENTILATION CAPACITY 9.32.3.5.

Total Ventilation Capacity	190.8	cfm
Less Principal Ventil. Capacity	139	cfm
Required Supplemental Capacity	51.8	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE 60H-V+ Location: BSMT

139.0 cfm 3.0 sones [✓] HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM		ΔT °F		FACTOR		% LOSS
139.0 CFM	X	71 F	X	1.08	X	0.25

SUPPLEMENTAL FANS NUTONE

Location	Model	cfm	HVI	Sones
ENS	QTXEN050C	50	✓	0.3
BATH	QTXEN050C	50	✓	0.3
ENS-2	QTXEN050C	50	✓	0.3
W/R	QTXEN050C	50	✓	0.3

HEAT RECOVERY VENTILATOR 9.32.3.11.

Model: VANEE 60H-V+

139 cfm high 50 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: May-17

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

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: FLEMING 1 **BUILDER:** GREENPARK HOMES
SFQT: 2546 **LO#** 74146 **SITE:** RUSSEL GARDEN

DESIGN ASSUMPTIONS

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

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):	34966.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	1.65	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 53.0 ft	WIDTH: 30.0 ft	EXPOSED PERIMETER:	166.0 ft

2012 OBC - COMPLIANCE PACKAGE	**Compliance Package A1**	
Component	**Nominal**	**Min. Eff.**
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.8
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

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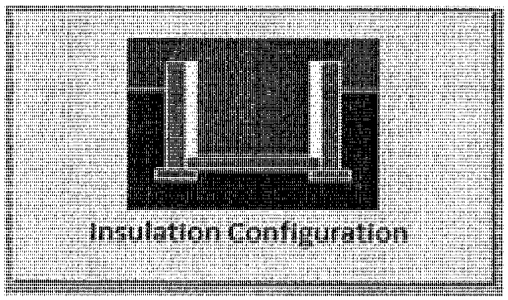
HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

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 dand, loam, clay
Water Table:	Normal (7-10 m, 23-33 ft)

Foundation Dimensions		
Floor Length (m):	**16.2**	 Insulation Configuration
Floor Width (m):	**9.1**	
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):		**1593**

TYPE: FLEMING 1
LO# 74146

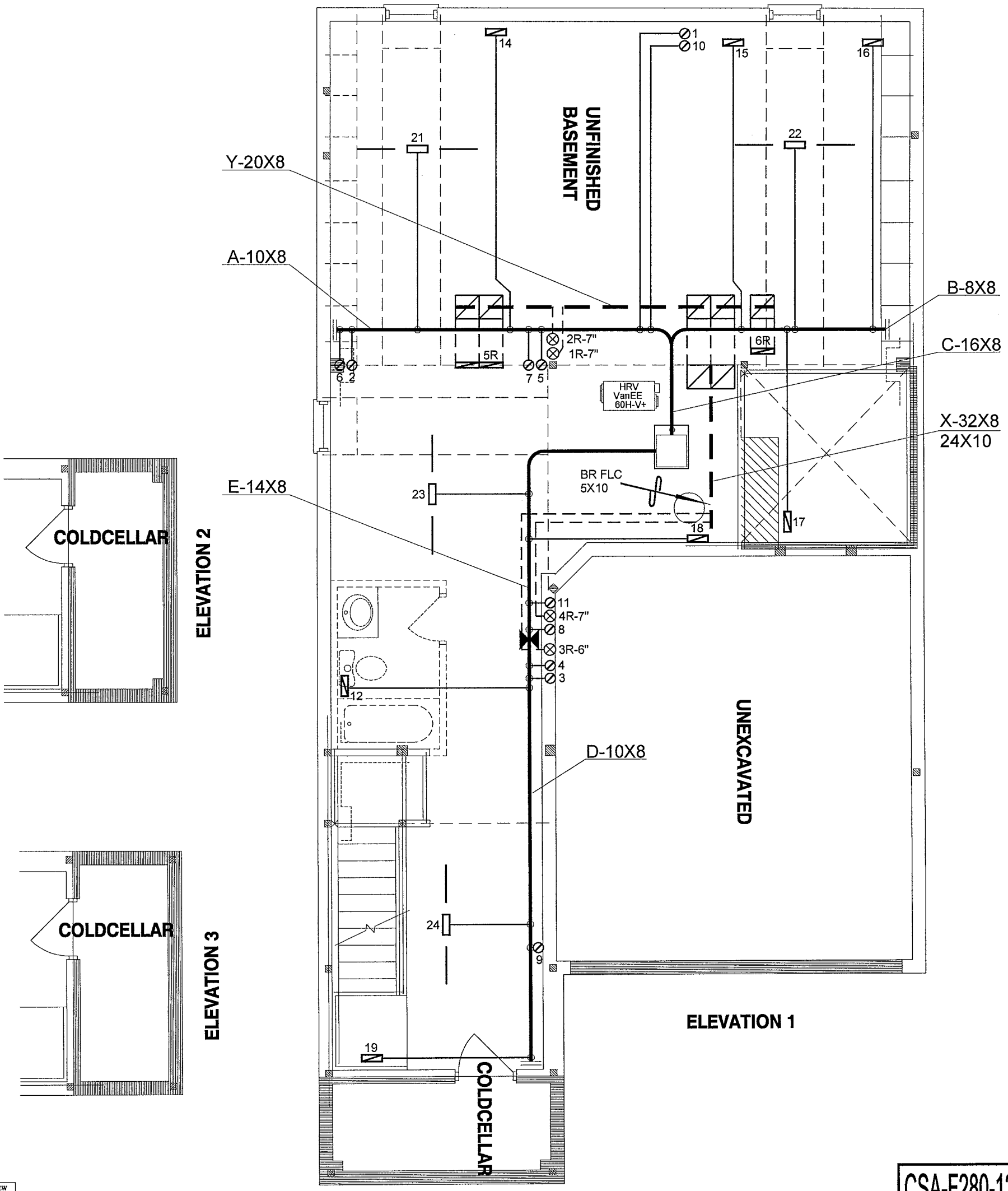
HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

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):	990.1				
Air Leakage/Ventilation					
Air Tightness Type:	Present (1961-) (3.57 ACH)				
Custom BDT Data:	ELA @ 10 Pa.				1319.9 cm^2
	3.57				ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply			Total Exhaust	
	65.6			65.6	
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):	**0.124**				

TYPE: FLEMING 1
LO# 74146



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.

CSA-F280-12

PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	FLOOR 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 GARDEN
HAMILTON, ONTARIO

FLEMING 1 2546 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.

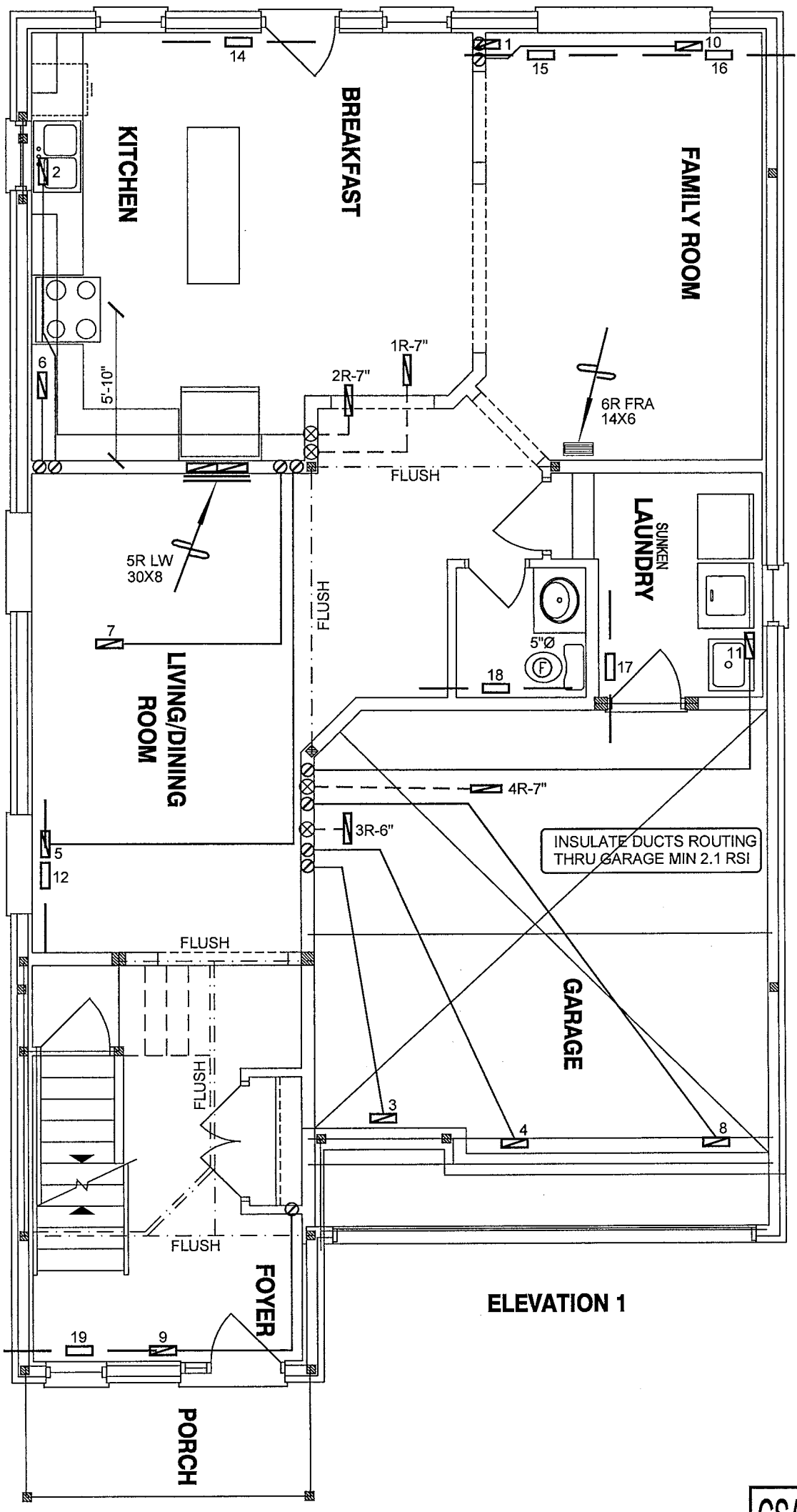
HEAT LOSS 48399 BTU/H	
UNIT DATA	
MAKE	AMANA
MODEL	AMEC960603BNA
INPUT	60 MBTU/H
OUTPUT	57.6 MBTU/H
COOLING	3.0 TONS
FAN SPEED	1131 cfm @ 0.5" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	11	4	3
1ST FLOOR	7	2	2
BASEMENT	4	1	0

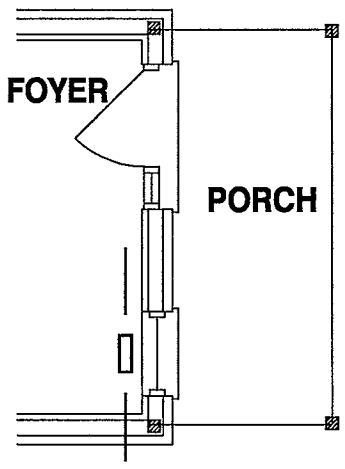
ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

Sheet Title
BASEMENT HEATING LAYOUT

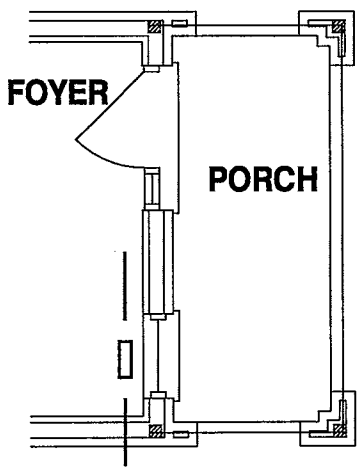
Date MAY/2017
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 74146



ELEVATION 1



ELEVATION 2



ELEVATION 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.

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HVAC DESIGNS LTD.

CSA-F280-12

PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
— ▭ —	FLOOR SUPPLY AIR GRILLE	▬	6" SUPPLY AIR BOOT ABOVE	▭	14"x8" RETURN AIR GRILLE	▭	RETURN AIR STACK ABOVE
— ▬ —	FLOOR 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
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REVISIONS

Client
GREENPARK HOMES

Project Name
RUSSEL GARDEN
HAMILTON, ONTARIO

FLEMING 1 2546 sqft

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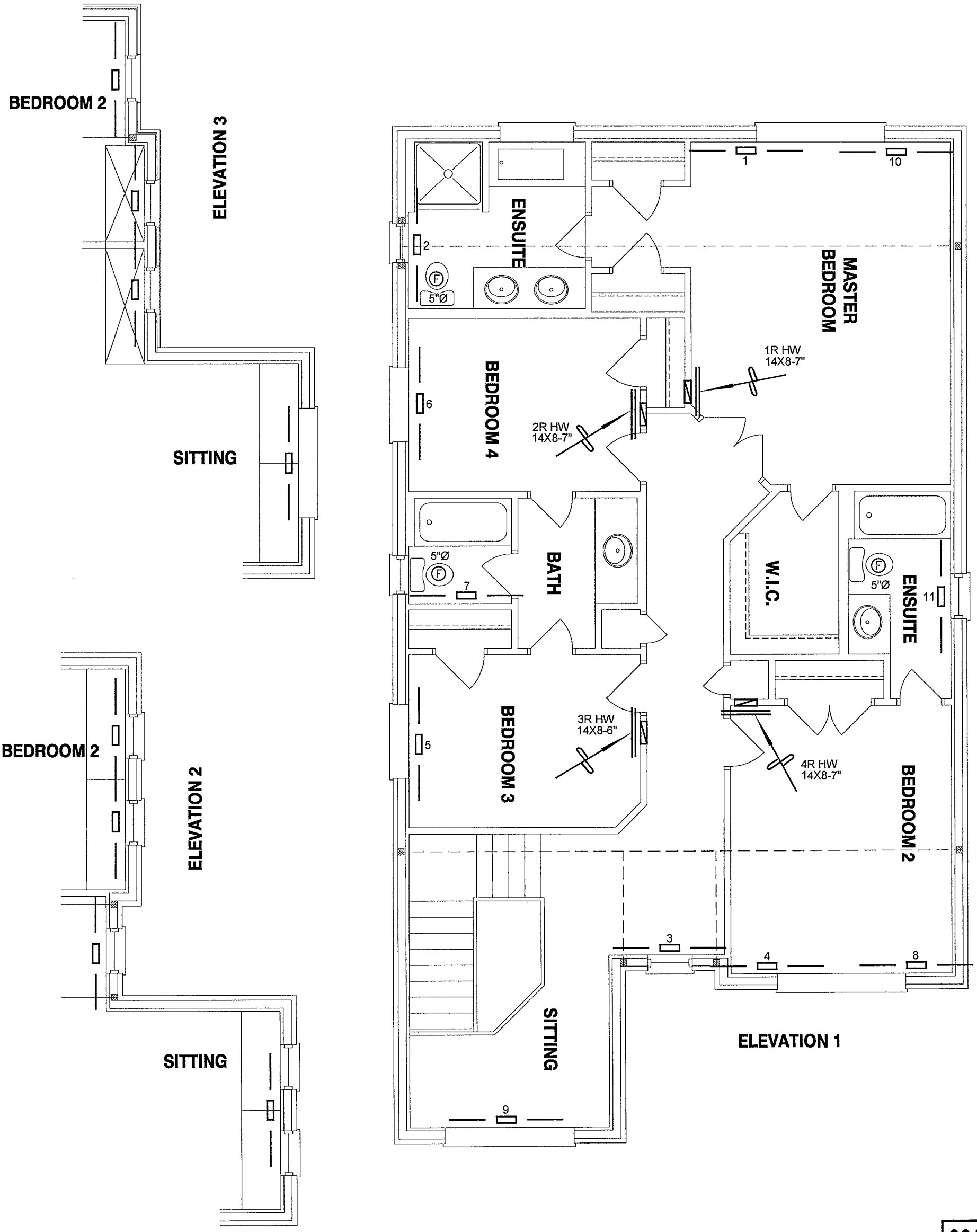
Sheet Title
FIRST FLOOR HEATING LAYOUT

Date MAY/2017
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 74146



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

CSA-F280-12

PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	FLOOR 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
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REVISIONS

Client
GREENPARK HOMES

Project Name
RUSSEL GARDEN
HAMILTON, ONTARIO

FLEMING 1 2546 sqft

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Sheet Title
SECOND FLOOR HEATING LAYOUT

Date MAY/2017
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 74146