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 | DATE: Jul-17 | WINTER NATURAL AIR CHANGE RATE 0.409 | HEAT LOSS ΔT °F. 71 | CSA-F280-12
BUILDER: GREENPARK HOMES | TYPE: HIGHGROVE 7E | GFA: 2484 | LO# 75031 | SUMMER NATURAL AIR CHANGE RATE 0.146 | HEAT GAIN ΔT °F. 14 | SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BED-4			BATH			WIC-3				ENS-2				
EXP. WALL			18			17			28			11			28			15			6			10				0				
CLG. HT.			9			9			9			9			9			9			9			9				9				
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN	162			153			252			99			252			135			54			90				0				
GLAZING			LOSS		GAIN	LOSS		GAIN	LOSS		GAIN	LOSS		GAIN	LOSS		GAIN	LOSS		GAIN	LOSS		GAIN	LOSS		GAIN		LOSS		GAIN		
NORTH	19.8	16.3	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	0	0		
EAST	19.8	41.8	0	0	0	0	0	0	0	0	0	25	494	1046	35	692	1464	0	0	0	0	0	0	0	0	0		0	0	0		
SOUTH	19.8	25.2	0	0	0	0	0	0	21	415	529	0	0	0	0	0	0	17	336	428	7	138	176	0	0	0		0	0	0		
WEST	19.8	41.8	35	692	1464	17	336	711	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0		
SKYLT.	34.6	102.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0		
DOORS	23.5	4.6	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	0	0		
NET EXPOSED WALL	4.1	0.8	127	526	103	136	564	110	231	958	187	74	307	60	217	900	176	118	489	96	47	195	38	90	373	73		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	0	0	0	0	0	0	0	0	0		0	0	0		
EXPOSED CLG	1.2	0.6	256	305	155	120	143	73	96	114	58	132	157	80	155	185	94	228	272	138	96	114	58	36	43	22		108	129	65		
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0	0	0	0	0	0	27	69	35	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	132	313	61	0	0	0	0	0	0	0	0	0	0	0	0		108	256	50		
BASEMENT/CRAWL HEAT LOSS			0			0			0			0			0			0			0			0				0				
SLAB ON GRADE HEAT LOSS			0			0			0			0			0			0			0			0				0				
SUBTOTAL HT LOSS			1524			1043			1487			1271			1845			1097			448			416				385				
SUB TOTAL HT GAIN					1722			894			774			1247			1769			661			272			95			115		
LEVEL FACTOR / MULTIPLIER			0.20	0.36		0.20	0.36		0.20	0.36		0.20	0.36		0.20	0.36		0.20	0.36		0.20	0.36		0.20	0.36			0.20	0.36			
AIR CHANGE HEAT LOSS			553			379			540			462			670			398			163			151				140				
AIR CHANGE HEAT GAIN					195			101			88			141			200			75			31			11			13		
DUCT LOSS			0			0			0			173			0			0			0			0				52				
DUCT GAIN					0			0			0			229			0			0			0			0			13		
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0	0		0		0		0		
HEAT GAIN APPLIANCES/LIGHTS					658			0			0			658			658			658			0			0			0		
TOTAL HT LOSS BTU/H			2077			1422			2027			1906			2515			1495			610			567				577				
TOTAL HT GAIN x 1.3 BTU/H					3971			1294			1120			3268			3727			2124			394			137			184		

ROOM USE				LV/DN			KT/FM				LAUN			PWD			FOY							BAS		
EXP. WALL				55			58				0			13			21							144		
CLG. HT.				10			10				9			10			10							9		
	FACTORS																									
GRS.WALL AREA	LOSS	GAIN		550			580				0			130			210							864		
GLAZING				LOSS		GAIN	LOSS		GAIN		LOSS		GAIN	LOSS		GAIN	LOSS		GAIN					LOSS		GAIN
NORTH	19.8	16.3		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0					14	277	228
EAST	19.8	41.8		0	0	0	0	0	0		0	0	0	11	217	460	5	99	209					0	0	0
SOUTH	19.8	25.2		43	850	1083	0	0	0		0	0	0	0	0	0	0	0	0					0	0	0
WEST	19.8	41.8		0	0	0	98	1937	4100		0	0	0	0	0	0	0	0	0					0	0	0
SKYLT.	34.6	102.0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0					0	0	0
DOORS	23.5	4.6		20	469	92	0	0	0		0	0	0	0	0	0	40	938	183					20	469	92
NET EXPOSED WALL	4.1	0.8		487	2019	395	482	1998	391		0	0	0	119	493	96	165	684	134					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					432	1444	282
EXPOSED CLG	1.2	0.6		0	0	0	0	0	0		80	95	48	0	0	0	0	0	0					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	0.5		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							4738	
SLAB ON GRADE HEAT LOSS					0			0				0			0			0								
SUBTOTAL HT LOSS					3338			3935				95			711			1721							6928	
SUB TOTAL HT GAIN						1569			4490				48			557			526							602
LEVEL FACTOR / MULTIPLIER				0.30	0.54		0.30	0.54			0.20	0.36		0.30	0.54		0.30	0.54						0.50	1.26	
AIR CHANGE HEAT LOSS					1801			2123				35			383			928							8726	
AIR CHANGE HEAT GAIN						178			508				5			63			60							68
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						658			658				658			0			0							0
TOTAL HT LOSS BTU/H					5139			6058				130			1094			2650							15654	
TOTAL HT GAIN x 1.3 BTU/H						3126			7353				925			805			762							870

TOTAL HEAT GAIN BTU/H: 30578 TONS: 2.55 LOSS DUE TO VENTILATION LOAD BTU/H: 2650 STRUCTURAL HEAT LOSS: 43922 TOTAL COMBINED HEAT LOSS BTU/H: 46571

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: 19569 MICHAEL O'ROURKE

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SITE NAME: RUSSEL GARDENS
BUILDER: GREENPARK HOMES

TYPE: HIGHGROVE 7E DATE: Jul-17 GFA: 2484 LO# 75031

HEATING CFM	1131	COOLING CFM	1131	furnace pressure	0.6	
TOTAL HEAT LOSS	43,922	TOTAL HEAT GAIN	30,060	furnace filter	0.05	
AIR FLOW RATE CFM	25.75	AIR FLOW RATE CFM	37.62	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	0.02	r/a grille press. Loss 0.02
				min adjusted pressure s/a	0.16	adjusted pressure r/a 0.15

#GOODMAN AFUE = 96 %
GMEC960603BNA 60 INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,600

FAN SPEED
LOW
MEDLOW
MEDIUM
MEDIUM HIGH
HIGH 1131

DESIGN CFM = 1131
CFM @ .6 " E.S.P.

TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	13	7	5
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	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	WIC-3	BED-2	MBR	ENS-2	LV/DN	LV/DN	KT/FM	KT/FM	KT/FM	LAUN	PWD	FOY	BED-3	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.04	1.42	2.03	0.95	1.26	1.50	0.61	0.57	0.95	1.04	0.58	2.57	2.57	2.02	2.02	2.02	0.13	1.09	2.65	1.26	3.13	3.13	3.13	3.13
CFM PER RUN HEAT	27	37	52	25	32	39	16	15	25	27	15	66	66	52	52	52	3	28	68	32	81	81	81	81
RM GAIN MBH.	1.99	1.29	1.12	1.63	1.86	2.12	0.39	0.14	1.63	1.99	0.18	1.56	1.56	2.45	2.45	2.45	0.93	0.81	0.76	1.86	0.17	0.17	0.17	0.17
CFM PER RUN COOLING	75	49	42	61	70	80	15	5	61	75	7	59	59	92	92	92	35	30	29	70	7	7	7	7
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	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	51	33	54	61	61	46	55	56	66	41	64	37	41	34	22	16	39	49	47	66	36	23	15	28
EQUIVALENT LENGTH	180	160	160	180	150	140	150	220	190	160	200	110	90	120	80	100	170	130	100	180	90	150	90	120
TOTAL EFFECTIVE LENGTH	231	193	214	241	211	186	205	276	256	201	264	147	131	154	102	116	209	179	147	246	126	173	105	148
ADJUSTED PRESSURE	0.07	0.09	0.08	0.07	0.08	0.09	0.08	0.06	0.07	0.09	0.07	0.12	0.13	0.11	0.16	0.14	0.08	0.1	0.12	0.07	0.13	0.09	0.15	0.11
ROUND DUCT SIZE	5	4	5	5	5	5	4	4	5	5	4	5	5	5	5	5	4	4	5	5	5	5	5	5
HEATING VELOCITY (ft/min)	198	424	382	184	235	286	184	172	184	198	172	485	485	382	382	382	34	321	499	235	595	595	595	595
COOLING VELOCITY (ft/min)	551	562	308	448	514	587	172	57	448	551	80	433	433	675	675	675	402	344	213	514	51	51	51	51
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	3X10	3X10
TRUNK	C	D	C	A	A	C	B	A	A	C	A	B	B	C	D	D	D	A	A	A	C	C	D	B

RUN #	25
ROOM NAME	BAS
RM LOSS MBH.	3.13
CFM PER RUN HEAT	81
RM GAIN MBH.	0.17
CFM PER RUN COOLING	7
ADJUSTED PRESSURE	0.16
ACTUAL DUCT LGH.	45
EQUIVALENT LENGTH	140
TOTAL EFFECTIVE LENGTH	185
ADJUSTED PRESSURE	0.09
ROUND DUCT SIZE	5
HEATING VELOCITY (ft/min)	595
COOLING VELOCITY (ft/min)	51
OUTLET GRILL SIZE	3X10
TRUNK	A

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	321	0.06	9.8	12	x	8	482	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	550	0.06	12	16	x	8	619	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	359	0.07	9.9	12	x	8	539	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	1131	0.06	15.8	28	x	8	727	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	0.05	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	0	0.05	0	0	x	8	0
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	120	115	155	300	0	0	0	0	0	0	0	0	0	201
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.	61	62	83	69	30	35	1	1	1	1	1	1	1	1	1	19
EQUIVALENT LENGTH	195	155	175	240	215	255	0	0	0	0	0	0	0	0	0	145
TOTAL EFFECTIVE LH	256	217	258	309	245	290	1	1	1	1	1	1	1	1	1	164
ADJUSTED PRESSURE	0.06	0.07	0.06	0.05	0.06	0.05	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.09
ROUND DUCT SIZE	6.8	6.6	6.8	7	7.5	10.1	0	0	0	0	0	0	0	0	0	7.5
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	14	30	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 CATEGDRY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

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

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TYPE: HIGHGROVE 7E LO # 75031
SITE NAME: RUSSEL GARDENS

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	139	cfm
Required Supplemental Capacity	30.6	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
PWD	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: July-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: HIGHGROVE 7E **BUILDER:** GREENPARK HOMES
SFQT: 2484 **LO#** 75031 **SITE:** RUSSEL GARDENS

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	1	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	74

BUILDING DATA

ATTACHMENT:	ATTACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	4.55	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft^3):	33776.0	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: 48.0 ft	WIDTH: 36.0 ft	EXPOSED PERIMETER:	144.0 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

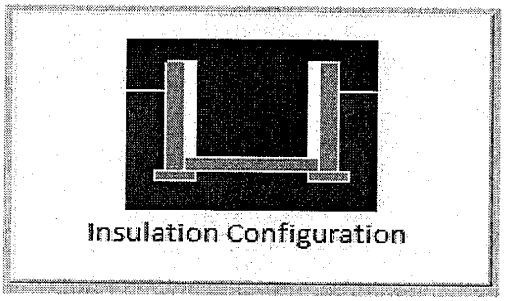
Michael O'Rourke

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

Foundation Dimensions		
Floor Length (m):	14.6	 Insulation Configuration
Floor Width (m):	11.0	
Exposed Perimeter (m):	43.9	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m^2):	1.3	
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):	**1388**	

TYPE: HIGHGROVE 7E
LO# 75031

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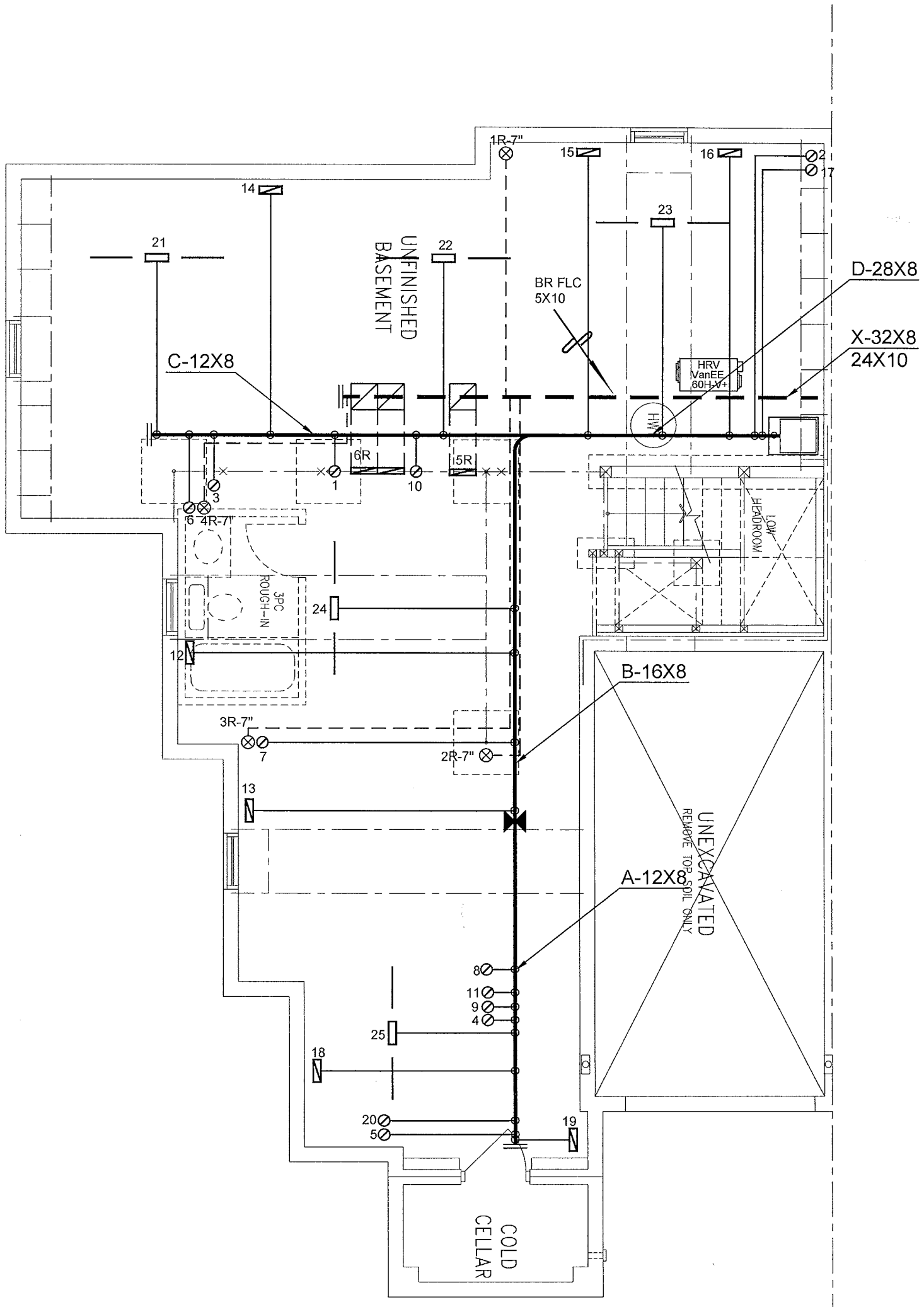
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

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):	6.71				
Building Configuration					
Type:	Semi				
Number of Stories:	Two				
Foundation:	Full				
House Volume (m^3):	956.4				
Air Leakage/Ventilation					
Air Tightness Type:	Average (1946-1960) (4.55 ACH)				
Custom BDT Data:	ELA @ 10 Pa.				1624.9 cm^2
	4.55				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):	**0.409**				
Cooling Air Leakage Rate (ACH/H):	**0.146**				

TYPE: HIGHGROVE 7E
LO# 75031



BASEMENT PLAN EL. 2

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
— ▭ —	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
HAMILTON, ONTARIO

HIGHGROVE 7E 2484 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 46571 BTU/H

UNIT DATA

MAKE	GOODMAN	
MODEL	GMEC960603BNA	
INPUT	60	MBTU/H
OUTPUT	57.6	MBTU/H
COOLING	2.5	TONS
FAN SPEED	1131	cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	13	4	4
1ST FLOOR	7	2	2
BASEMENT	5	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

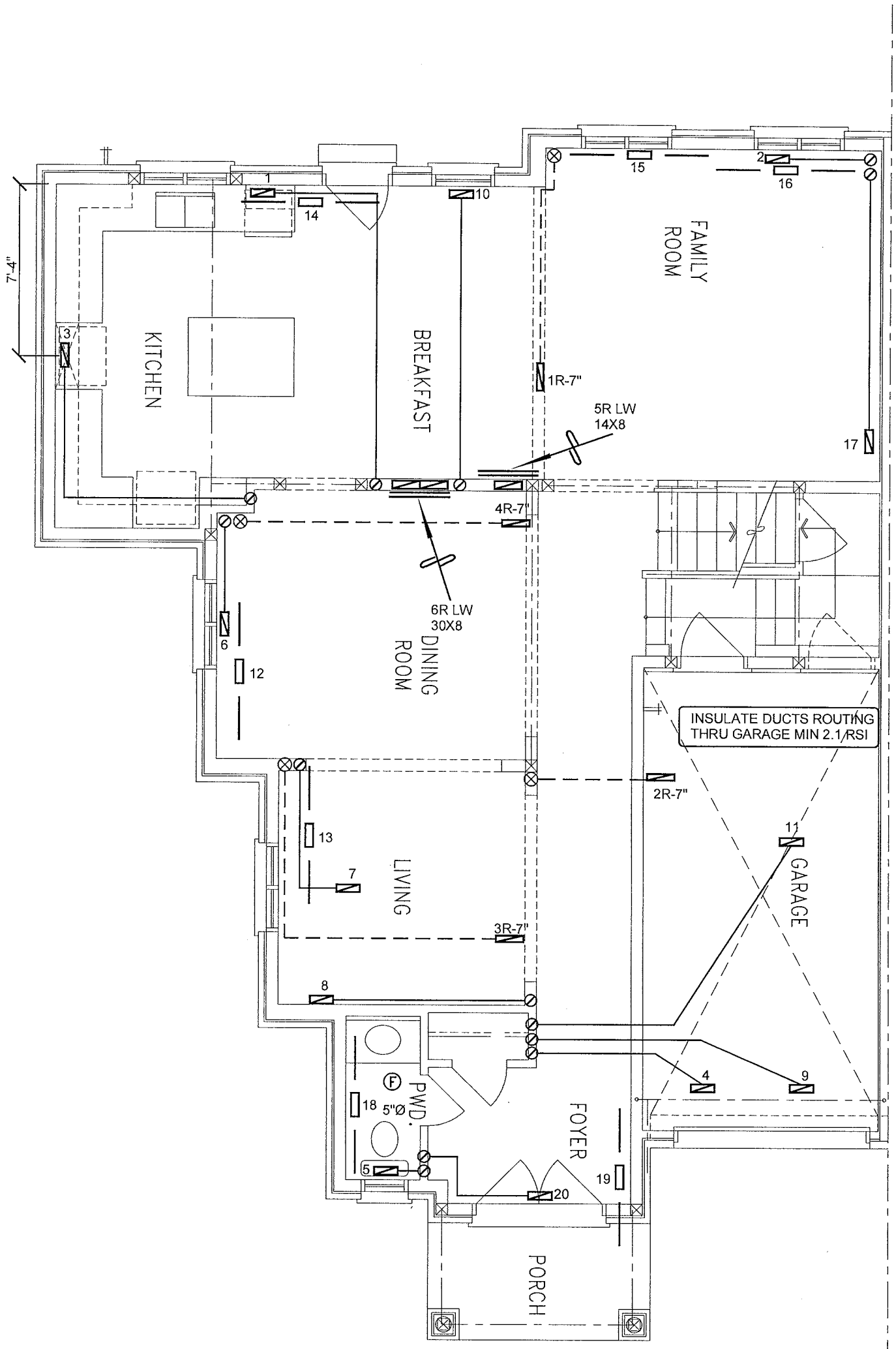
Sheet Title
BASEMENT HEATING LAYOUT

Date JULY/2017

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 75031



GROUND FLOOR PLAN EL. 2

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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
	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
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REVISIONS

Client

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Project Name

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HAMILTON, ONTARIO

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Sheet Title

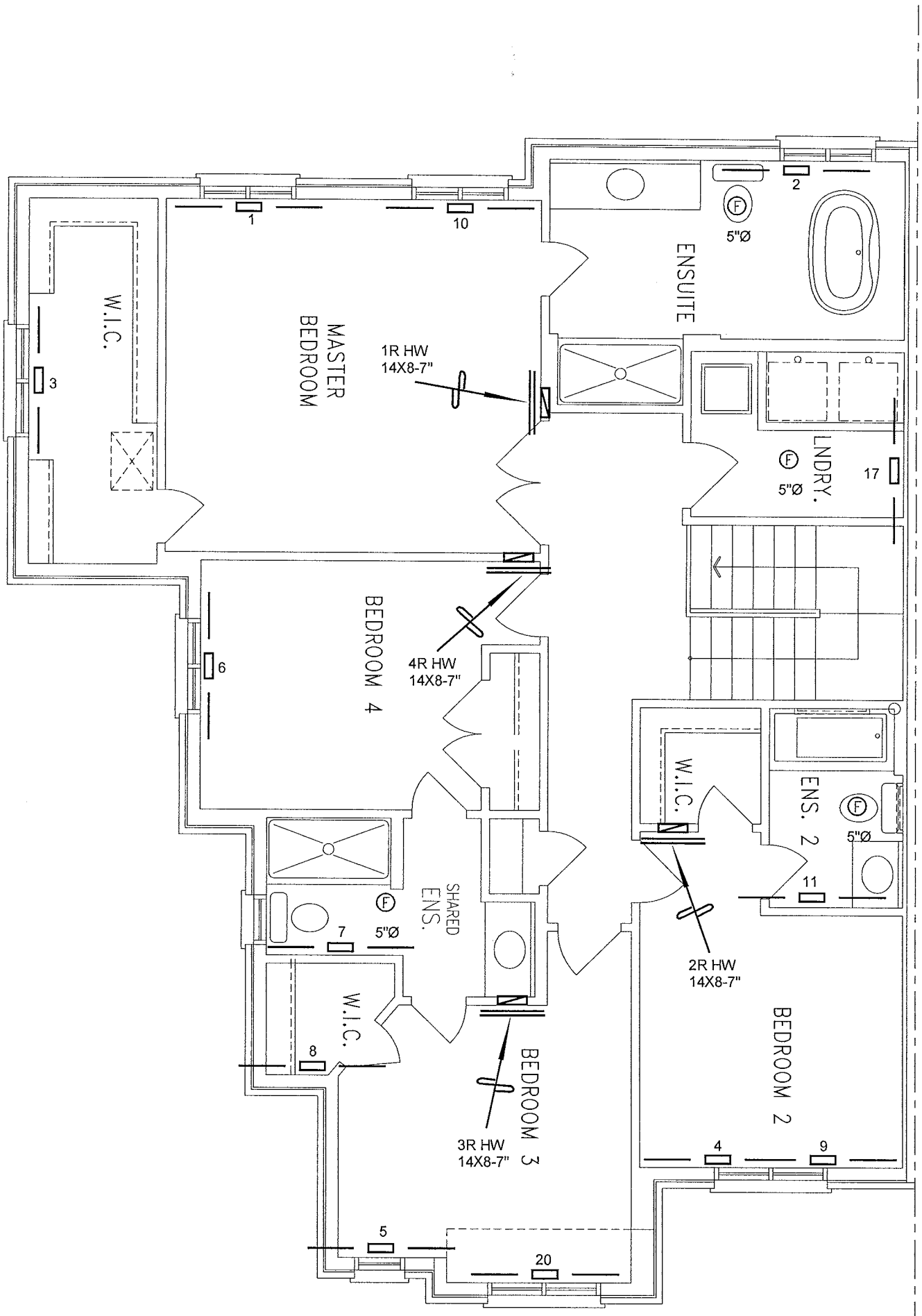
FIRST FLOOR HEATING LAYOUT

Date JULY/2017

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 75031



SECOND FLOOR PLAN EL. 2

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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
	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
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Sheet Title
SECOND FLOOR HEATING LAYOUT

Date JULY/2017

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 75031