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 — WOB — DATE: Jul-17 — WINTER NATURAL AIR CHANGE RATE 0.453 — HEAT LOSS ΔT °F. 71 — CSA-F280-12
BUILDER: GREENPARK HOMES — TYPE: HIGHGROVE 4 — GFA: 2010 — LO# 75026 — SUMMER NATURAL AIR CHANGE RATE 0.151 — HEAT GAIN ΔT °F. 14 — SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC			BED-2			BED-3				BATH								
EXP. WALL			16			9			0			10			31				0								
CLG. HT.			9			9			9			9			10				9								
	FACTORS																										
GRS.WALL AREA	LOSS	GAIN	144			81			0			90			295				0								
GLAZING				LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN			LOSS	GAIN						
NORTH	19.8	15.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0						
EAST	19.8	39.8	30	593	1195	13	257	518	0	0	0	0	0	0	0	0	0		0	0	0						
SOUTH	19.8	24.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0						
WEST	19.8	39.8	0	0	0	0	0	0	0	0	0	26	514	1036	42	830	1673		0	0	0						
SKYLT.	34.6	102.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0						
DOORS	23.5	4.8	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	114	473	96	68	282	57	0	0	0	64	265	54	253	1047	214		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						
EXPOSED CLG	1.2	0.6	320	381	197	99	118	61	84	100	52	150	179	92	176	210	108		168	200	103						
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0	0	0	0	0	0	16	41	21		0	0	0						
EXPOSED FLOOR	2.4	0.5	0	0	0	65	154	31	35	83	17	150	355	72	20	47	10		0	0	0						
BASEMENT/CRAWL HEAT LOSS				0			0			0			0			0				0							
SLAB ON GRADE HEAT LOSS				0			0			0			0			0				0							
SUBTOTAL HT LOSS				1447			811			183			1313			2175				200							
SUB TOTAL HT GAIN					1488			668			69			1254			2025				103						
LEVEL FACTOR / MULTIPLIER			0.20	0.48		0.20	0.48		0.20	0.48		0.20	0.48		0.20	0.48			0.20	0.48							
AIR CHANGE HEAT LOSS				700			392			89			635			1052				97							
AIR CHANGE HEAT GAIN					193			87			9			163			263				13						
DUCT LOSS				0			120			27			195			323				0							
DUCT GAIN					0			75			8			224			311				0						
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240		0		0						
HEAT GAIN APPLIANCES/LIGHTS					582			0			0			582			582				0						
TOTAL HT LOSS BTU/H				2147			1324			299			2144			3550				297							
TOTAL HT GAIN x 1.3 BTU/H					3567			1078			111			3203			4448				152						

ROOM USE				LV/DN			KT/FM				LAUN				FOY			MUD					WOB			BAS		
EXP. WALL				27			46				0				14			12					26			37		
CLG. HT.				10			10				9				11			12					9			9		
	FACTORS																											
GRS.WALL AREA	LOSS	GAIN		270			460				0				154			144					221			204		
GLAZING				LOSS	GAIN		LOSS	GAIN			LOSS	GAIN			LOSS	GAIN		LOSS	GAIN				LOSS	GAIN		LOSS	GAIN	
NORTH	19.8	15.7		0	0	0	0	0	0		0	0	0		0	0	0	0	0	0			43	850	676	0	0	0
EAST	19.8	39.8		0	0	0	80	1581	3186		0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
SOUTH	19.8	24.1		0	0	0	0	0	0		0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
WEST	19.8	39.8		30	593	1195	0	0	0		0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
SKYLT.	34.6	102.3		0	0	0	0	0	0		0	0	0		0	0	0	0	0	0			0	0	0	0	0	0
DOORS	23.5	4.8		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		240	995	203	380	1575	321		0	0	0		35	821	167	20	469	96			0	0	0	20	469	96
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.7		0	0	0	0	0	0		0	0	0		119	493	101	124	514	105			178	738	151	0	0	0
EXPOSED CLG	1.2	0.6		0	0	0	0	0	0		84	100	52		0	0	0	0	0	0			0	0	0	111	371	76
NO ATTIC EXPOSED CLG	2.6	1.3		0	0	0	65	166	86		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		35	83	17		0	0	0	0	0	0			0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS					0			0				0				0			0								669	
SLAB ON GRADE HEAT LOSS					0			0				0				0			0					293				
SUBTOTAL HT LOSS					1588			3323				183				1314			983					1881			1509	
SUB TOTAL HT GAIN						1398			3593				69				268			201					826			171
LEVEL FACTOR / MULTIPLIER				0.30	0.64		0.30	0.64			0.20	0.48			0.30	0.64		0.30	0.64							0.50	2.25	
AIR CHANGE HEAT LOSS					1009			2112				89				835			625								7635	
AIR CHANGE HEAT GAIN						181			466				9				35			26								129
DUCT LOSS					0			0				27				0			0								0	
DUCT GAIN						0			0				66				0			0								0
HEAT GAIN PEOPLE	240			0		0	0		0		0		0		0		0	0		0			0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS						582			582				582				0			0					0			0
TOTAL HT LOSS BTU/H					2597			5434				299				2150			1608					2174			9144	
TOTAL HT GAIN x 1.3 BTU/H						2810			6035				944				394			295					1074			391

TOTAL HEAT GAIN BTU/H: 25040 — TONS: 2.09 — LOSS DUE TO VENTILATION LOAD BTU/H: 2650 — STRUCTURAL HEAT LOSS: 33166 — TOTAL COMBINED HEAT LOSS BTU/H: 35816

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 GARDENS
BUILDER: GREENPARK HOMES

WOB
TYPE: HIGHGROVE 4

DATE: Jul-17

GFA: 2010 LO# 75026

HEATING CFM	890	COOLING CFM	890
TOTAL HEAT LOSS	33,166	TOTAL HEAT GAIN	24,500
AIR FLOW RATE CFM	26.83	AIR FLOW RATE CFM	36.33

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
max s/a dif press. loss	0.02
min adjusted pressure s/a	0.16
r/a pressure	0.17
r/a grille press. Loss	0.02
adjusted pressure r/a	0.15

#GOODMAN
GMEC960402BNA 40
FAN SPEED
LOW
MEDLOW
MEDIUM
MEDIUM HIGH
HIGH 890

AFUE = 96 %
INPUT (BTU/H) = 40,000
OUTPUT (BTU/H) = **38,400**
DESIGN CFM = **890**
CFM @ .6 " E.S.P.
TEMPERATURE RISE 40 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	10	6	4
R/A	0	0	3	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	10	13	14	15	16	17	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-2	BATH	BED-3	MBR	LV/DN	KT/FM	KT/FM	KT/FM	LAUN	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.07	1.32	0.30	1.07	1.78	1.07	0.30	1.78	1.07	2.60	1.81	1.81	1.81	0.30	2.15	1.61	2.83	2.83	2.83	2.83
CFM PER RUN HEAT	29	36	8	29	48	29	8	48	29	70	49	49	49	8	58	43	76	76	76	76
RM GAIN MBH.	1.78	1.08	0.11	1.60	2.22	1.60	0.15	2.22	1.78	2.81	2.01	2.01	2.01	0.94	0.39	0.29	0.37	0.37	0.37	0.37
CFM PER RUN COOLING	65	39	4	58	81	58	6	81	65	102	73	73	73	34	14	11	13	13	13	13
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.16	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	43	48	36	50	56	56	51	64	34	39	37	26	20	40	31	14	42	29	11	30
EQUIVALENT LENGTH	150	140	190	130	180	140	130	190	120	150	170	150	110	160	130	130	180	190	140	140
TOTAL EFFECTIVE LENGTH	193	188	226	180	236	196	181	254	154	189	207	176	130	200	161	144	222	219	151	170
ADJUSTED PRESSURE	0.09	0.09	0.08	0.1	0.07	0.09	0.1	0.06	0.11	0.09	0.08	0.1	0.13	0.09	0.11	0.12	0.08	0.08	0.11	0.1
ROUND DUCT SIZE	5	4	4	5	6	5	4	6	5	6	5	5	5	4	4	4	5	5	5	5
HEATING VELOCITY (ft/min)	213	413	92	213	245	213	92	245	213	357	360	360	360	92	665	493	558	558	558	558
COOLING VELOCITY (ft/min)	477	447	46	426	413	426	69	413	477	520	536	536	536	390	161	126	95	95	95	95
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	C	C	B	B	A	B	B	A	C	A	C	C	C	B	A	B	C	C	B	A

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	300	0.06	9.6	10	x	8	540	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	501	0.06	11.6	16	x	8	564	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	393	0.08	9.9	12	x	8	590	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	0	0.00	0	0	x	8	0	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	890	0.06	14.4	24	x	8	668
TRUNK Y	0	0.06	0	0	x	8	0
TRUNK Z	0	0.06	0	0	x	8	0
DROP	890	0.06	14.4	24	x	10	534

RETURN AIR #	1	2	3	4	5											BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	155	85	95	320	85	0	0	0	0	0	0	0	0	0	0	150
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.	45	54	60	29	32	1	1	1	1	1	1	1	1	1	1	22
EQUIVALENT LENGTH	195	175	155	235	135	0	0	0	0	0	0	0	0	0	0	240
TOTAL EFFECTIVE LH	240	229	215	264	167	1	1	1	1	1	1	1	1	1	1	262
ADJUSTED PRESSURE	0.06	0.06	0.07	0.06	0.09	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	7.5	6	6	9.8	5.4	0	0	0	0	0	0	0	0	0	0	7.4
INLET GRILL SIZE	8	8	8	8	8	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	14	0	0	0	0	0	0	0	0	0	0	14

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TYPE: HIGHGROVE 4 LO # 75026
SITE NAME: RUSSEL GARDENS WOB

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	2	@ 10.6 cfm	21.2	cfm
Kitchen & Bathrooms	4	@ 10.6 cfm	42.4	cfm
Other Rooms	4	@ 10.6 cfm	42.4	cfm
Table 9.32.3.A.		TOTAL	148.4	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	**63.6**	**cfm**

SUPPLEMENTAL VENTILATION CAPACITY 9.32.3.5.

Total Ventilation Capacity	148.4	cfm
Less Principal Ventil. Capacity	139	cfm
Required Supplemental Capacity	9.4	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

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

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

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL:	HIGHGROVE 4		WOB	**BUILDER:**	GREENPARK HOMES
SFQT:	2010	**LO#**	75026	**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)	73

BUILDING DATA

ATTACHMENT:	ATTACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	WEST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	4.55	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	UNSHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft^3):	26659.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	1.20	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	5.5 ft
LENGTH: 52.0 ft	WIDTH: 21.0 ft	EXPOSED PERIMETER:	37.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	26.0 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

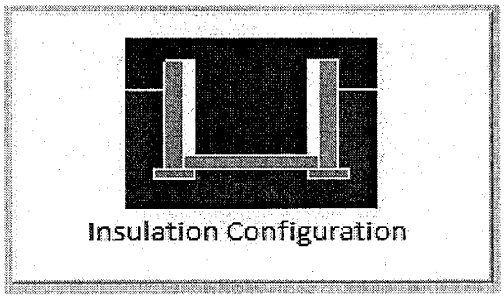
Michael O'Rourke

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):	**6.1**	 Insulation Configuration
Floor Width (m):	**6.4**	
Exposed Perimeter (m):	**11.3**	
Wall Height (m):	**2.6**	
Depth Below Grade (m):	**1.40**	
Window Area (m^2):	**0.0**	
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):		**196**

TYPE: HIGHGROVE 4 WOB
LO# 75026

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

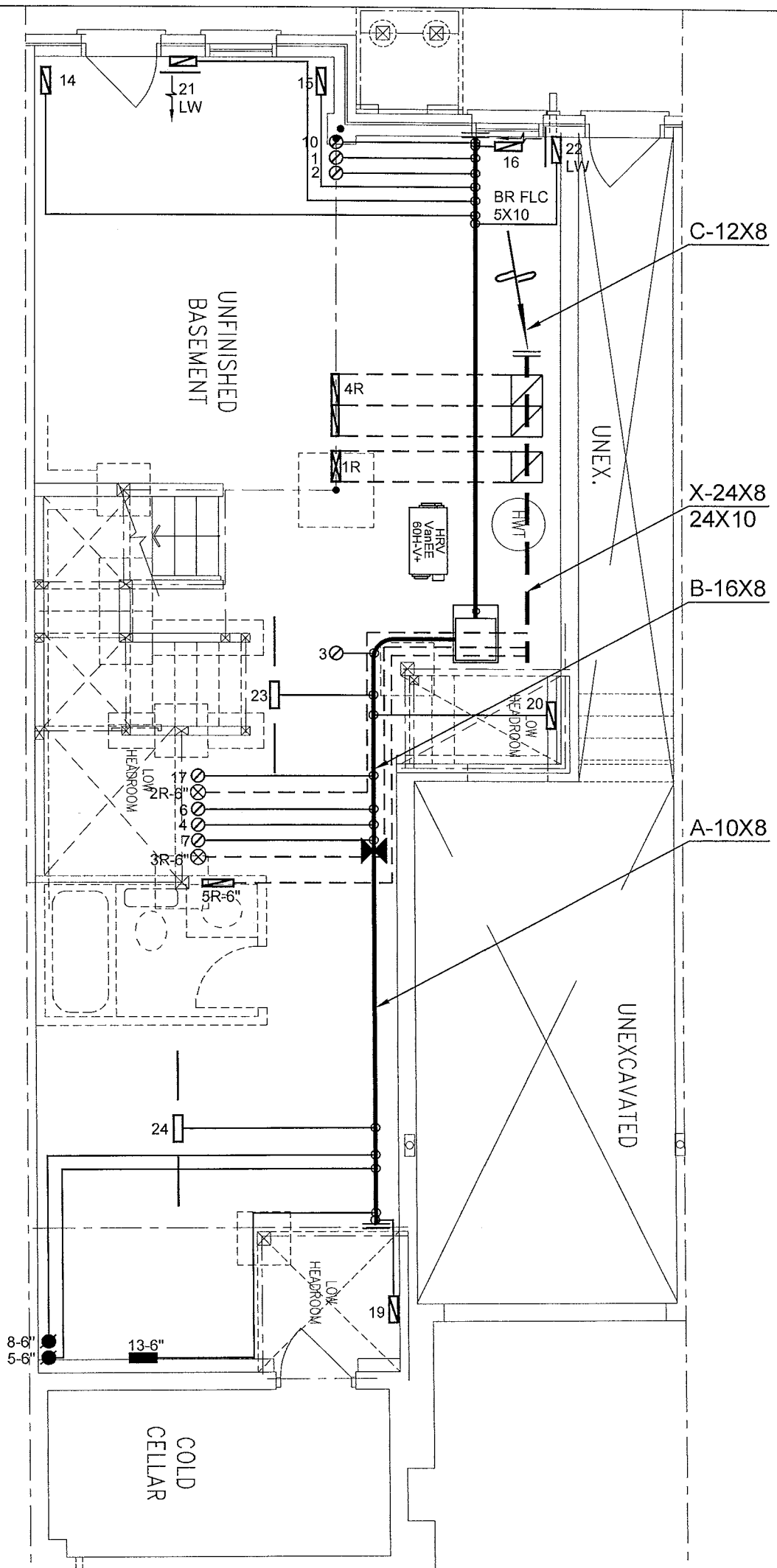
Air Infiltration Residential Load Calculator

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:	Very heavy				
Flue:	Heavy				
Highest Ceiling Height (m):	8.38				
Building Configuration					
Type:	Semi				
Number of Stories:	Two				
Foundation:	Full				
House Volume (m^3):	754.9				
Air Leakage/Ventilation					
Air Tightness Type:	Average (1946-1960) (4.55 ACH)				
Custom BDT Data:	ELA @ 10 Pa.				1282.5 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):	**0.453**				
Cooling Air Leakage Rate (ACH/H):	**0.151**				

TYPE: HIGHGROVE 4 WOB

LO# 75026



BASEMENT PLAN

WOB

CSA-F280-12

PACKAGE A1

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

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

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

WOB
HIGHGROVE 4 2010 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 35816 BTU/H	
UNIT DATA	
MAKE	GOODMAN
MODEL	GMEC9806402BNA
INPUT	40 MBTU/H
OUTPUT	38.4 MBTU/H
COOLING	2.0 TONS
FAN SPEED	890 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	10	3	3
1ST FLOOR	6	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

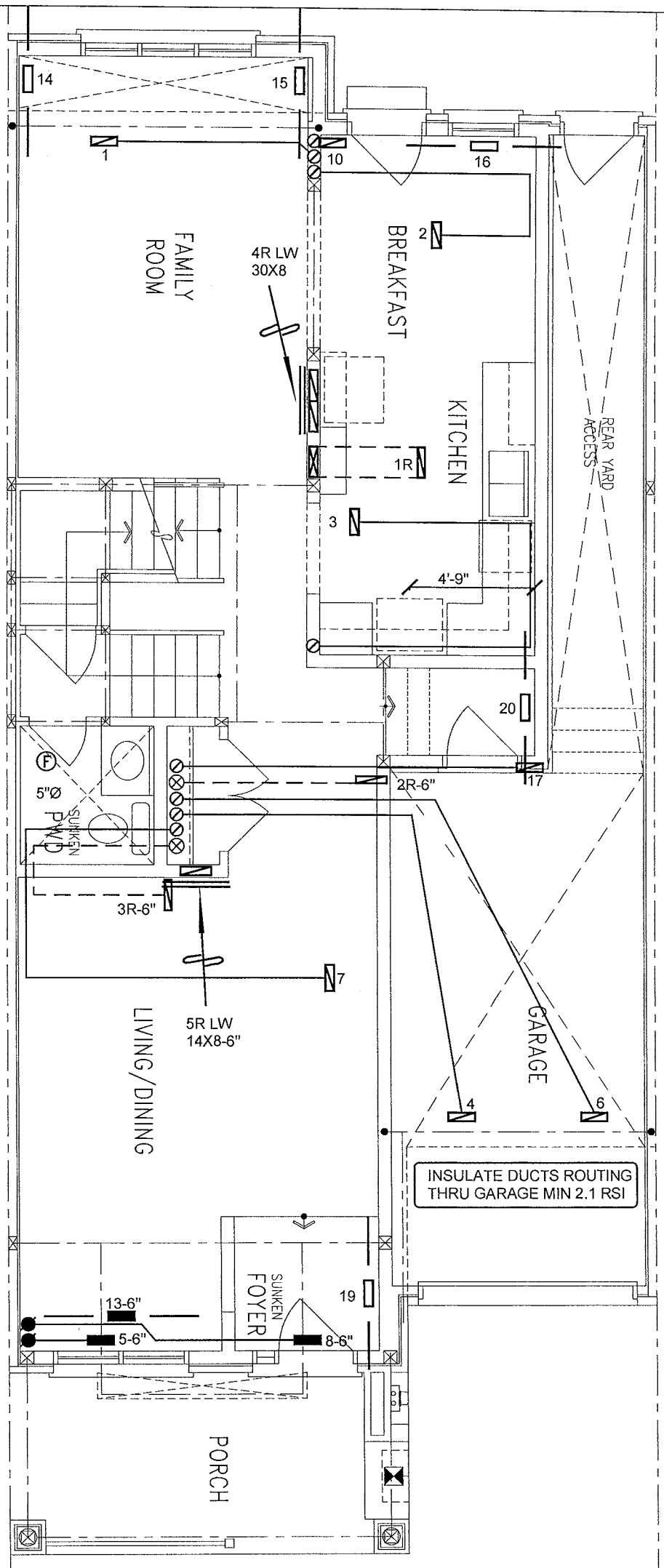
BASEMENT HEATING LAYOUT

Date JULY/2017

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 75026



GROUND FLOOR PLAN

WOB
CSA-F280-12
PACKAGE A1

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Michael O'Rourke BCIN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND

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Client
GREENPARK HOMES

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HAMILTON, ONTARIO

WOB
HIGHGROVE 4 2010 sqft

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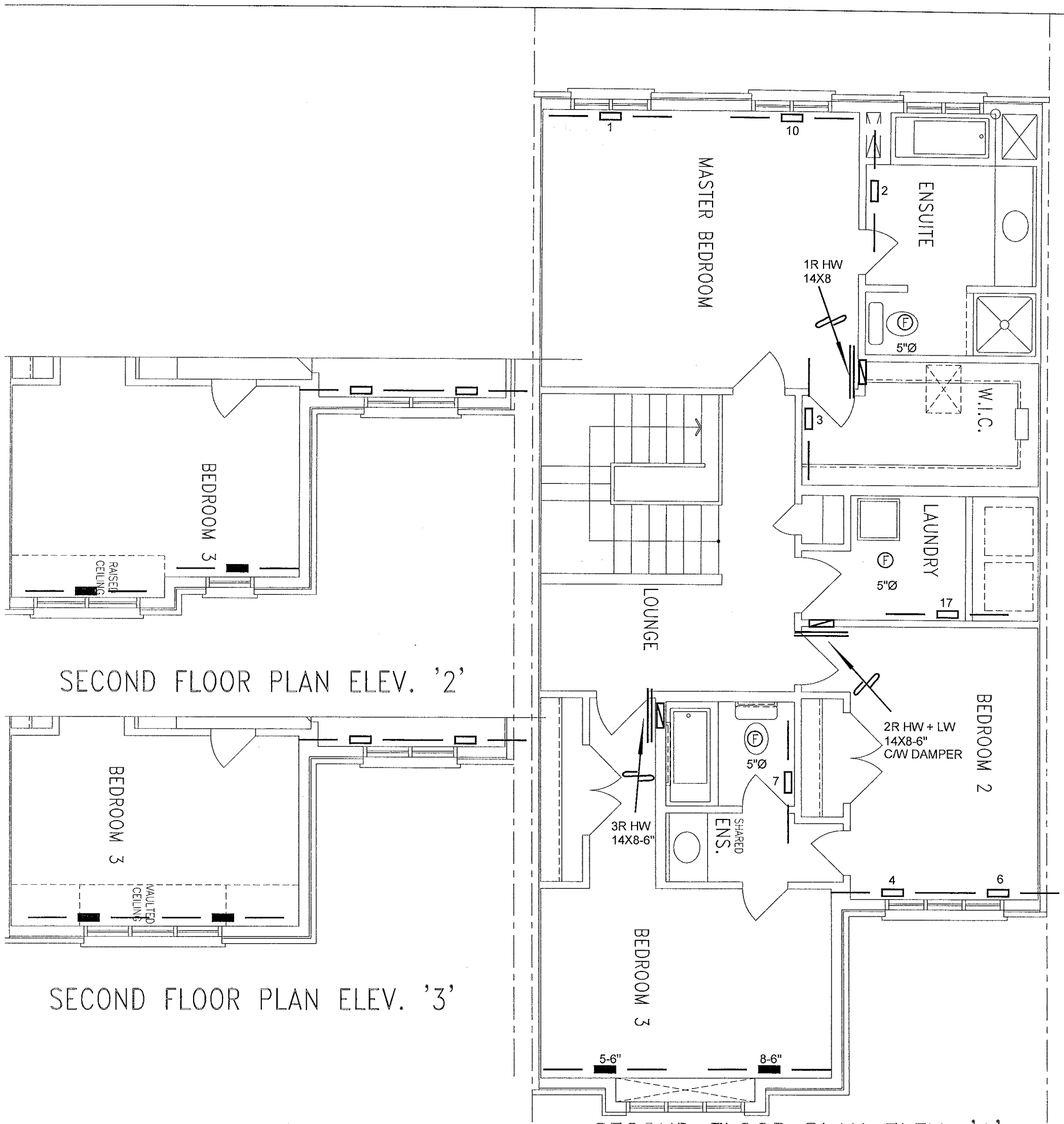
Sheet Title
FIRST FLOOR HEATING LAYOUT

Date JULY/2017
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 75026



SECOND FLOOR PLAN ELEV. '1'

SECOND FLOOR PLAN ELEV. '2'

SECOND FLOOR PLAN ELEV. '3'

WOB

CSA-F280-12

PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
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REVISIONS

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GREENPARK HOMES

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HAMILTON, ONTARIO

VOB
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Sheet Title

SECOND FLOOR HEATING LAYOUT

Date JULY/2017

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 75026