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 | LOT 216-1/LOT 217-5 | DATE: Dec-17 | WINTER NATURAL AIR CHANGE RATE 0.321 | HEAT LOSS ΔT °F. 71 | CSA-F280-12

BUILDER: GREENPARK HOMES | TYPE: HIGHGROVE 12 | GFA: 2309 | LO# 77147 | SUMMER NATURAL AIR CHANGE RATE 0.111 | HEAT GAIN ΔT °F. 13 | SB-12 PACKAGE A1

ROOM USE			MBR			ENS				BED-2			BED-3			BED-4			BATH			ENS-2								
EXP. WALL			31			24				10			31			16			10			0								
CLG. HT.			9			9				9			10			10			9			9								
	FACTORS																													
GRS.WALL AREA	LOSS	GAIN	279			216				90			295			152			90			0								
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		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
EAST	19.8	41.6	0	0	0	0	0	0		24	474	997	40	791	1662	0	0	0	0	0	0	0	0	0						
SOUTH	19.8	24.9	24	474	598	0	0	0		0	0	0	21	415	523	18	356	448	7	138	174	0	0	0						
WEST	19.8	41.6	24	474	997	19	376	789		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	231	958	174	197	817	148		66	274	50	234	968	176	134	556	101	83	344	62	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	0	0	0	0	0	0						
EXPOSED CLG	1.2	0.6	240	286	141	117	139	69		165	197	97	158	188	93	222	265	130	130	155	76	100	119	59						
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0		0	0	0	24	61	30	18	46	23	0	0	0	0	0	0						
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0		135	320	58	0	0	0	0	0	0	0	0	0	54	128	23						
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				2193			1332				1265			2423			1222			637			247						
SUB TOTAL HT GAIN					1909			1006				1202			2484			702			313			82						
LEVEL FACTOR / MULTIPLIER			0.20	0.27		0.20	0.27			0.20	0.27		0.20	0.27		0.20	0.27		0.20	0.27		0.20	0.27						
AIR CHANGE HEAT LOSS				590			359				341			653			329			172			67						
AIR CHANGE HEAT GAIN					149			79				94			194			55			24			6						
DUCT LOSS				0			0				161			0			0			0			31						
DUCT GAIN					0			0				201			0			0			0			9						
HEAT GAIN PEOPLE	240		2		480	0		0		1		240	1		240	1		240	0		0	0		0						
HEAT GAIN APPLIANCES/LIGHTS					475			0				475			475			475			0			0						
TOTAL HT LOSS BTU/H				2783			1690				1766			3076			1551			809			345						
TOTAL HT GAIN x 1.3 BTU/H					3918			1410				2875			4410			1913			439			126						

ROOM USE			OFF			DIN			KIT/FM				LAUN			W/R			FOY						WOD			BAS		
EXP. WALL			37			29			57				0			6			16						25			143		
CLG. HT.			10			10			10				9			10			10						9			9		
	FACTORS																													
GRS.WALL AREA	LOSS	GAIN	370			290			570				0			60			160						225			1008		
GLAZING				LOSS	GAIN		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	0	0	0		0	0	0	0	0	0	0	0	0				0	0	0	8	158	128
EAST	19.8	41.6	37	731	1537	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0				0	0	0	0	0	0
SOUTH	19.8	24.9	25	494	622	37	731	921	30	593	747		0	0	0	0	0	0	0	0	0				0	0	0	0	0	0
WEST	19.8	41.6	0	0	0	0	0	0	69	1364	2867		0	0	0	0	0	0	0	0	0				6	119	249	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	0	0	0
DOORS	23.5	4.3	0	0	0	20	469	85	0	0	0		0	0	0	0	0	0	47	1102	200				0	0	0	20	469	85
NET EXPOSED WALL	4.1	0.8	308	1277	231	233	966	175	471	1953	354		0	0	0	60	249	45	113	468	85				0	0	0	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	0	0	0				144	481	87	279	933	169
EXPOSED CLG	1.2	0.6	0	0	0	0	0	0	0	0	0		99	118	58	0	0	0	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				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				0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS				0			0			0				0			0			0								4594		
SLAB ON GRADE HEAT LOSS				0			0			0				0			0			0					0					
SUBTOTAL HT LOSS				2502			2166			3910				118			249			1571					600			6154		
SUB TOTAL HT GAIN					2391			1181			3968				58			45			285						337			382	
LEVEL FACTOR / MULTIPLIER			0.30	0.37		0.30	0.37		0.30	0.37			0.20	0.27		0.30	0.37		0.30	0.37								0.50	0.94	
AIR CHANGE HEAT LOSS				917			794			1433				32			91			576								6353		
AIR CHANGE HEAT GAIN					187			92			310				5			4			22									56	
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	0		0	0		0				0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS					475			475			475				475			0			0						0			475
TOTAL HT LOSS BTU/H				3420			2961			5343				150			340			2147					600			12507		
TOTAL HT GAIN x 1.3 BTU/H					3969			2273			6179				699			63			399						438			1187

TOTAL HEAT GAIN BTU/H: 30780 | TONS: 2.56 | LOSS DUE TO VENTILATION LOAD BTU/H: 2650 | STRUCTURAL HEAT LOSS: 39487 | TOTAL COMBINED HEAT LOSS BTU/H: 42137

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

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SITE NAME: RUSSEL GARDENS — LOT 216-1/LOT 217-5
BUILDER: GREENPARK HOMES — TYPE: HIGHGROVE 12 — DATE: Dec-17 — GFA: 2309 — LO# 77147

HEATING CFM 1131 | COOLING CFM 1131
TOTAL HEAT LOSS 39,487 | TOTAL HEAT GAIN 30,299
AIR FLOW RATE CFM 28.64 | AIR FLOW RATE CFM 37.33

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 | r/a pressure 0.17
max s/a dif press. loss 0.03 | r/a grille press. Loss 0.02
min adjusted pressure s/a 0.15 | adjusted pressure r/a 0.15

#GOODMAN
GMEC960603BNA **60**
FAN SPEED
LOW
MEDLOW
MEDIUM
MEDIUM HIGH
HIGH 1131

AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = **57,600**
DESIGN CFM = **1131**
CFM @ .6 " E.S.P.
TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	10	8	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	10	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	BED-3	BED-2	BED-3	BED-4	BATH	ENS-2	MBR	OFF	DIN	KIT/FM	KIT/FM	KIT/FM	LAUN	W/R	FOY	OFF	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.39	1.69	1.54	1.77	1.54	1.55	0.81	0.35	1.39	1.71	2.96	1.78	1.78	1.78	0.15	0.34	2.15	1.71	3.28	3.28	3.28	3.28
CFM PER RUN HEAT	40	48	44	51	44	44	23	10	40	49	85	51	51	51	4	10	61	49	94	94	94	94
RM GAIN MBH.	1.96	1.41	2.21	2.88	2.21	1.91	0.44	0.13	1.96	1.98	2.27	2.06	2.06	2.06	0.70	0.06	0.40	1.98	0.41	0.41	0.41	0.41
CFM PER RUN COOLING	73	53	82	107	82	71	16	5	73	74	85	77	77	77	26	2	15	74	15	15	15	15
ADJUSTED PRESSURE	0.17	0.17	0.16	0.15	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	38	47	48	43	40	27	30	28	43	23	4	14	31	40	29	20	7	31	33	14	12	19
EQUIVALENT LENGTH	130	150	160	150	130	150	130	130	160	120	130	80	110	130	160	80	140	110	130	90	110	130
TOTAL EFFECTIVE LENGTH	168	197	208	193	170	177	160	158	203	143	134	94	141	170	189	100	147	141	163	104	122	149
ADJUSTED PRESSURE	0.1	0.09	0.08	0.08	0.1	0.1	0.11	0.11	0.08	0.12	0.12	0.18	0.12	0.1	0.09	0.17	0.12	0.12	0.1	0.16	0.13	0.11
ROUND DUCT SIZE	5	5	5	**6**	5	5	4	4	5	5	5	5	5	5	4	4	4	5	5	5	5	5
HEATING VELOCITY (ft/min)	294	352	323	260	323	323	264	115	294	360	624	374	374	374	46	115	700	360	690	690	690	690
COOLING VELOCITY (ft/min)	536	389	602	546	602	521	184	57	536	543	624	565	565	565	298	23	172	543	110	110	110	110
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	C	D	A	B	A	D	B	B	C	A	D	D	C	C	D	B	B	A	C	D	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	280	0.08	8.7	10	x	8	504	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	529	0.08	11	14	x	8	680	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	276	0.08	8.7	10	x	8	497	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	602	0.08	11.6	16	x	8	677	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	1131	0.06	15.8	30	x	8	679
TRUNK Y	490	0.06	11.5	16	x	8	551
TRUNK Z	0	0.06	0	0	x	8	0
DROP	1131	0.06	15.8	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	95	155	355	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.	47	45	44	46	28	14	1	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	140	175	215	145	220	135	0	0	0	0	0	0	0	0	0	135
TOTAL EFFECTIVE LH	187	220	259	191	248	149	1	1	1	1	1	1	1	1	1	149
ADJUSTED PRESSURE	0.08	0.07	0.06	0.08	0.06	0.10	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.10
ROUND DUCT SIZE	6.3	6.6	6.8	5.8	7.5	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	14	30	0	0	0	0	0	0	0	0	0	14

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Michael O'Rourke

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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TYPE: HIGHGROVE 12 LO # 77147
SITE NAME: RUSSEL GARDENS LOT 216-1/LOT 217-5

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
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: December-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 12 LOT 216-1/LOT 217-5 **BUILDER:** GREENPARK HOMES
SFQT: 2309 **LO#** 77147 **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)	75

BUILDING DATA

ATTACHMENT:	ATTACHED	# 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):	31341.0	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: 53.0 ft	WIDTH: 25.0 ft	EXPOSED PERIMETER:	143.0 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

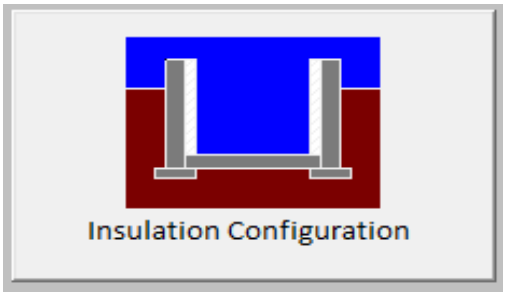
Michael O'Rourke

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):	**16.2**	 Insulation Configuration
Floor Width (m):	**7.6**	
Exposed Perimeter (m):	**43.6**	
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):	**1346**	

TYPE: HIGHGROVE 12 LOT 216-1/LOT 217-5
LO# 77147

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Ajax ON, L1S 2E2
905-619-2300

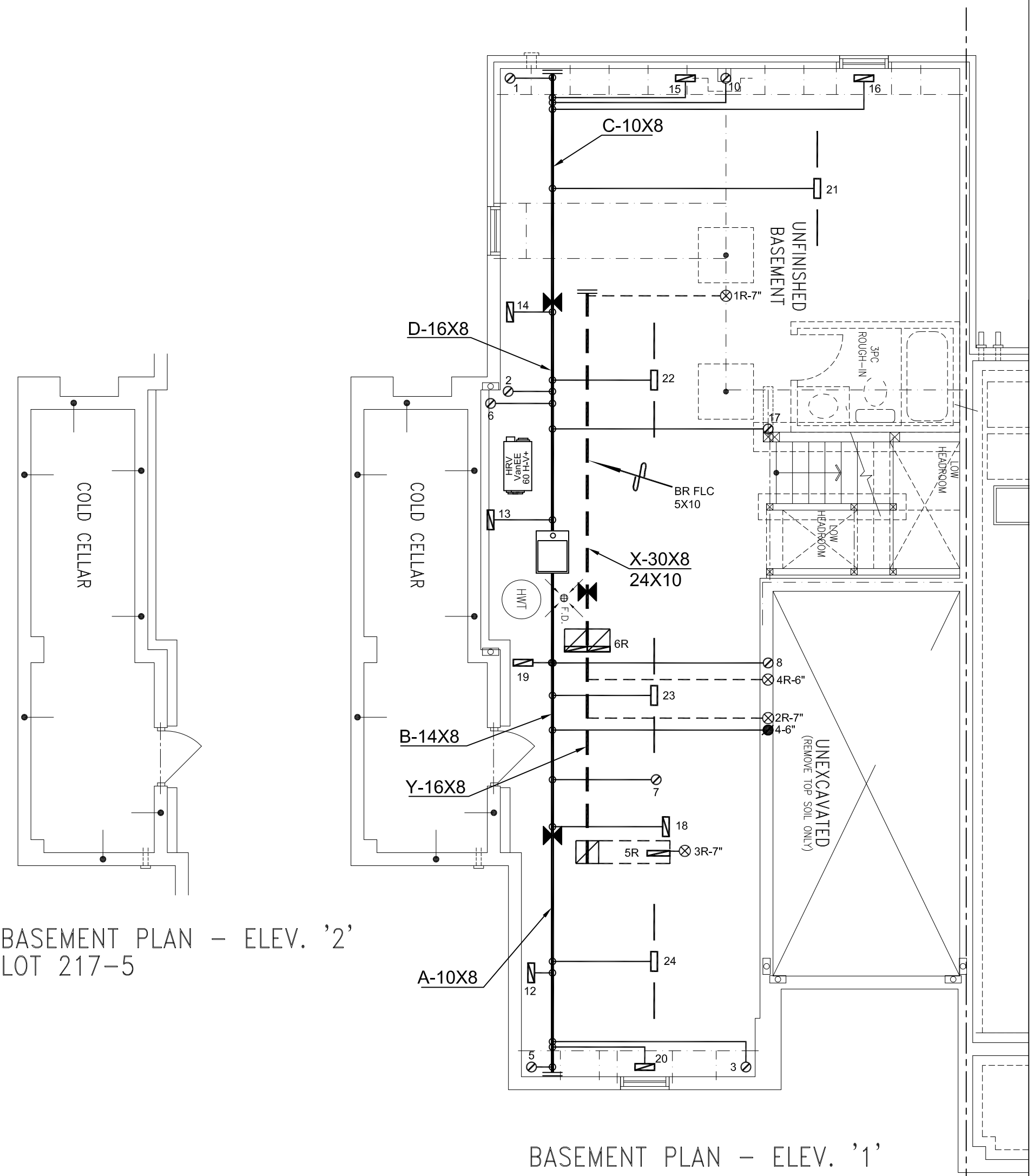
Air Infiltration Residential Load Calculator

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):	887.5
Air Leakage/Ventilation	
Air Tightness Type:	Present (1961-) (3.57 ACH)
Custom BDT Data:	ELA @ 10 Pa. 1183.0 cm^2
	3.57 ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply 65.6 / Total Exhaust 65.6
Flue Size	
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Natural Infiltration Rates	
Heating Air Leakage Rate (ACH/H):	**0.321**
Cooling Air Leakage Rate (ACH/H):	**0.111**

TYPE: HIGHGROVE 12 LOT 216-1/LOT 217-5

LO# 77147



BASEMENT PLAN – ELEV. '2'
LOT 217-5

BASEMENT PLAN – ELEV. '1'
LOT 216-1

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 GARDENS
WATERDOWN, ONTARIO

LOT 216-1/LOT 217-5
HIGHGROVE 12 2309 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.

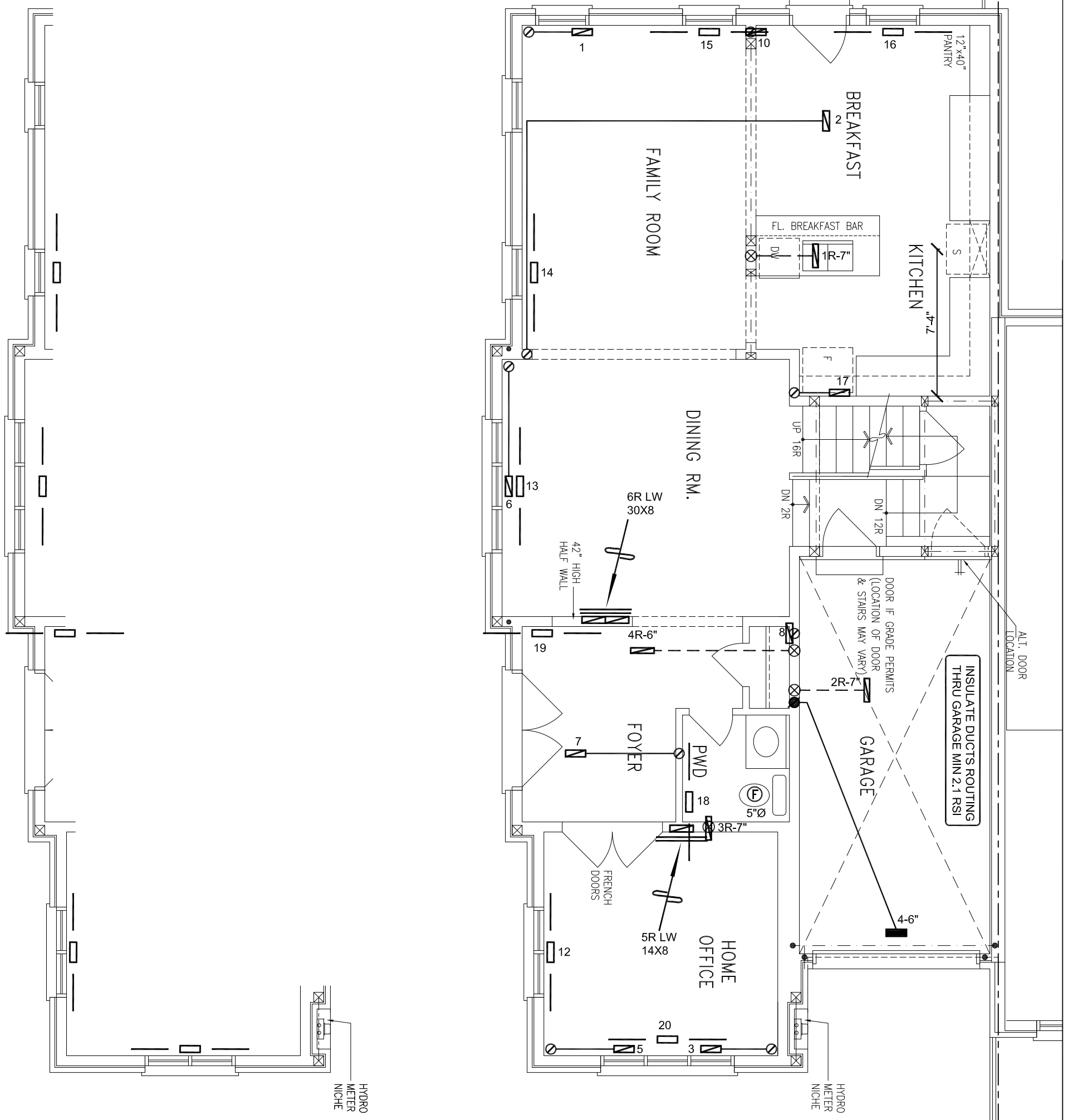
HEAT LOSS 42137 BTU/H	
UNIT DATA	
MAKE	GOODMAN
MODEL	GMEC960603BNA
INPUT	60 MBTU/H
OUTPUT	57.6 MBTU/H
COOLING	2.5 TONS
FAN SPEED	1131 cfm @ 0.5" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	10	4	4
1ST FLOOR	8	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 DEC/2017
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 77147



GROUND FLOOR PLAN – ELEV. '2'
LOT 217-5

GROUND FLOOR PLAN – ELEV. '1'
LOT 216-1

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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 GARDENS
WATERDOWN, ONTARIO

LOT 216-1/LOT 217-5
HIGHGROVE 12 2309 sqft

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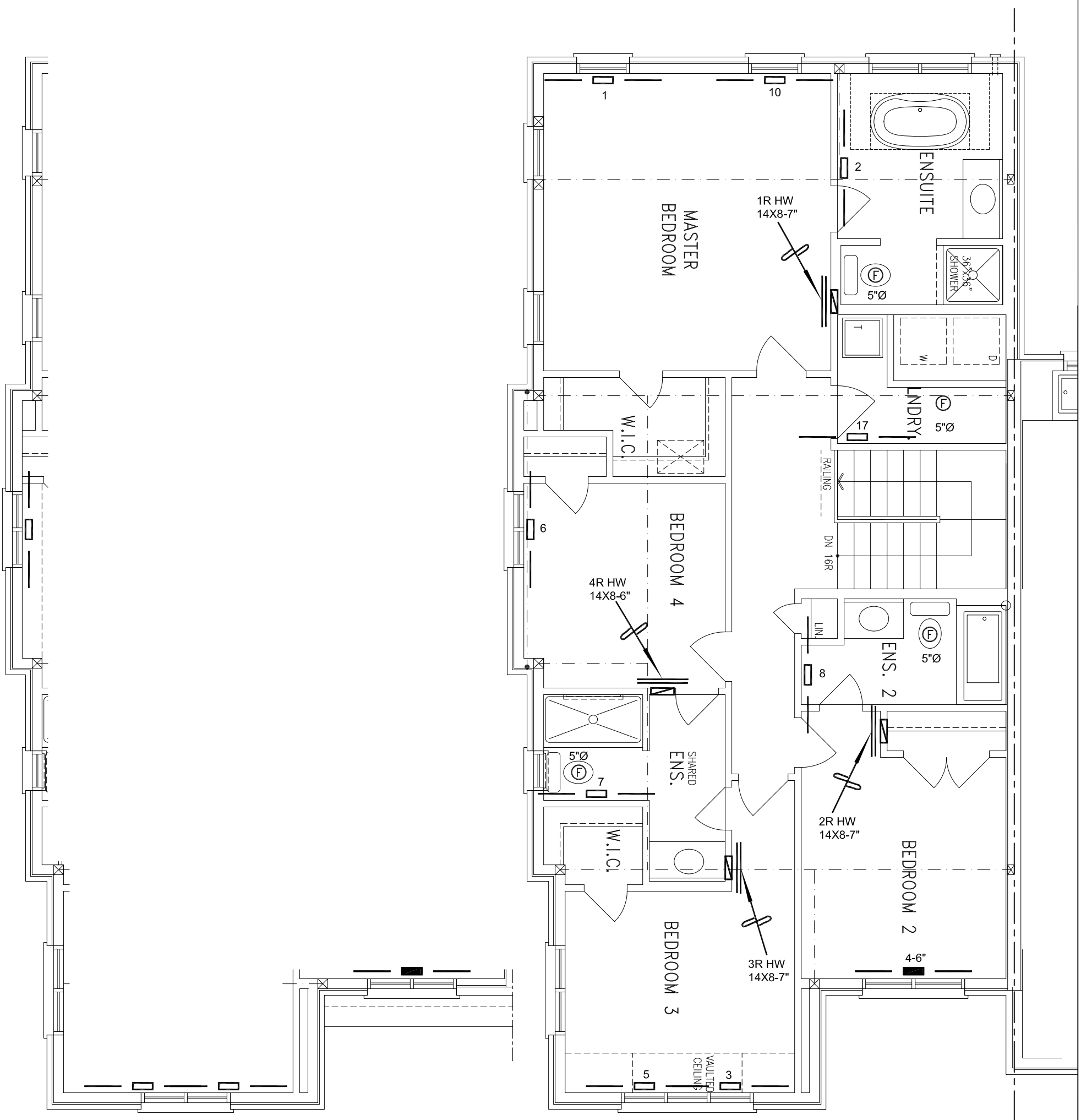
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

Sheet Title
FIRST FLOOR HEATING LAYOUT

Date DEC/2017
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 77147



SECOND FLOOR PLAN – ELEV. '2'
LOT 217-5

SECOND FLOOR PLAN – ELEV. '1'
LOT 216-1

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

CSA-F280-12
PACKAGE A1

HVAC LEGEND

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REVISIONS

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HIGHGROVE 12 2309 sqft

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Sheet Title
SECOND FLOOR HEATING LAYOUT

Date DEC/2017
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 77147