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
BUILDER: GREENPARK HOMES
TYPE: HIGHGROVE 2
GFA: 1793
DATE: Jul-17
LO# 75021
WINTER NATURAL AIR CHANGE RATE 0.409
SUMMER NATURAL AIR CHANGE RATE 0.166
HEAT LOSS ΔT °F. 71
HEAT GAIN ΔT °F. 16
CSA-F280-12
SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC			BED-2			BED-3				BATH								
EXP. WALL			16			9			0			11			16				0								
CLG. HT.			9			9			9			9			10				9								
	FACTORS																										
GRS.WALL AREA	LOSS	GAIN	144			81			0			99			152				0								
GLAZING			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						
EAST	19.8	42.4	0	0	0	0	0	0	0	0	0	30	593	1272	45	890	1908		0	0	0						
SOUTH	19.8	25.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0						
WEST	19.8	42.4	28	554	1187	14	277	593	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	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0						
NET EXPOSED WALL	4.1	0.9	116	481	108	67	278	62	0	0	0	69	286	64	107	444	99		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	204	90	107	57	81	97	52	143	170	91	118	141	75		70	83	45						
NO ATTIC EXPOSED CLG	2.6	1.4	0	0	0	0	0	0	0	0	0	0	0	0	22	58	30		0	0	0						
EXPOSED FLOOR	2.4	0.5	0	0	0	36	85	19	28	66	15	143	339	76	0	0	0		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				1416			747			163			1388			1530				83							
SUB TOTAL HT GAIN					1499			732			67			1503			2112				45						
LEVEL FACTOR / MULTIPLIER			0.20	0.45		0.20	0.45		0.20	0.45		0.20	0.45		0.20	0.45			0.20	0.45							
AIR CHANGE HEAT LOSS				638			337			73			626			690				38							
AIR CHANGE HEAT GAIN					206			101			9			207			290				6						
DUCT LOSS				0			108			24			201			0				0							
DUCT GAIN					0			83			8			237			0				0						
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240		0		0						
HEAT GAIN APPLIANCES/LIGHTS					419			0			0			419			419				0						
TOTAL HT LOSS BTU/H				2054			1192			260			2216			2220				121							
TOTAL HT GAIN x 1.3 BTU/H					3385			1191			108			3387			3980				66						

ROOM USE				LV/DN			KIT/FM				LAUN				FOY			MUD					WOD			BAS		
EXP. WALL				26			58				0				12			10					20			102		
CLG. HT.				10			10				9				11			11					9			9		
	FACTORS																											
GRS.WALL AREA	LOSS	GAIN		260			580				0				132			110					180			732		
GLAZING				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
EAST	19.8	42.4		29	573	1229	0	0	0		0	0	0		5	99	212	0	0	0			0	0	0	0	0	0
SOUTH	19.8	25.7		0	0	0	0	0	0		0	0	0		0	0	0	0	0	0			0	0	0	4	79	103
WEST	19.8	42.4		0	0	0	59	1166	2501		0	0	0		0	0	0	0	0	0			0	0	0	4	79	170
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
DOORS	23.5	5.2		0	0	0	20	469	105		0	0	0		20	469	105	20	469	105			20	469	105	20	469	105
NET EXPOSED WALL	4.1	0.9		231	958	214	501	2077	465		0	0	0		107	444	99	90	373	83			0	0	0	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			100	334	75	186	622	139
EXPOSED CLG	1.2	0.6		0	0	0	0	0	0		126	150	80		0	0	0	0	0	0			0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.6	1.4		0	0	0	192	490	262		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		70	166	37		0	0	0	0	0	0			0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS					0			0				0				0			0								3159	
SLAB ON GRADE HEAT LOSS					0			0				0				0			0					0				
SUBTOTAL HT LOSS					1531			4203				316				1012			842					803			4408	
SUB TOTAL HT GAIN						1444			3333				118				415			188					180			517
LEVEL FACTOR / MULTIPLIER				0.30	0.60		0.30	0.60			0.20	0.45			0.30	0.60		0.30	0.60							0.60	1.22	
AIR CHANGE HEAT LOSS					770			2114				142				509			424								6360	
AIR CHANGE HEAT GAIN						198			458				16				57			26								96
DUCT LOSS					0			0				46				0			0								0	
DUCT GAIN						0			0				55				0			0								0
HEAT GAIN PEOPLE	240			0		0	1		240		0		0		0		0	0		0			0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS						419			419				419				0			419					0			419
TOTAL HT LOSS BTU/H					2301			6316				504				1520			1266					803			10768	
TOTAL HT GAIN x 1.3 BTU/H						2680			5766				791				615			824					234			1341

TOTAL HEAT GAIN BTU/H: 24982 TONS: 2.08 LOSS DUE TO VENTILATION LOAD BTU/H: 2650 STRUCTURAL HEAT LOSS: 31541 TOTAL COMBINED HEAT LOSS BTU/H: 34191

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
BUILDER: GREENPARK HOMES

TYPE: HIGHGROVE 2 DATE: Jul-17 GFA: 1793 LO# 75021

HEATING CFM	890	COOLING CFM	890	furnace pressure	0.6		
TOTAL HEAT LOSS	31,541	TOTAL HEAT GAIN	24,389	furnace filter	0.05		
AIR FLOW RATE CFM	28.22	AIR FLOW RATE CFM	36.49	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
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	11	12	13	14	17	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-2	BATH	BED-3	MBR	KIT/FM	KIT/FM	LV/DN	KIT/FM	LAUN	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.03	1.19	0.26	1.11	1.11	1.11	0.12	1.11	1.03	2.11	2.11	2.30	2.11	0.50	1.52	1.27	2.89	2.89	2.89	2.89
CFM PER RUN HEAT	29	34	7	31	31	31	3	31	29	59	59	65	59	14	43	36	82	82	82	82
RM GAIN MBH.	1.69	1.19	0.11	1.69	1.99	1.69	0.07	1.99	1.69	1.93	1.93	2.68	1.93	0.79	0.62	0.82	0.39	0.39	0.39	0.39
CFM PER RUN COOLING	62	43	4	62	73	62	2	73	62	70	70	98	70	29	22	30	14	14	14	14
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	32	26	22	42	50	46	36	47	25	27	20	41	22	28	32	18	18	12	29	16
EQUIVALENT LENGTH	110	210	180	160	180	170	160	170	220	100	90	160	100	120	100	160	90	150	120	120
TOTAL EFFECTIVE LENGTH	142	236	202	202	230	216	196	217	245	127	110	201	122	148	132	178	108	162	149	136
ADJUSTED PRESSURE	0.12	0.07	0.09	0.09	0.07	0.08	0.09	0.08	0.07	0.14	0.16	0.08	0.14	0.12	0.13	0.1	0.15	0.1	0.11	0.12
ROUND DUCT SIZE	4	4	4	5	5	5	4	5	5	5	5	6	5	4	4	4	5	5	5	5
HEATING VELOCITY (ft/min)	333	390	80	228	228	228	34	228	213	433	433	331	433	161	493	413	602	602	602	602
COOLING VELOCITY (ft/min)	711	493	46	455	536	455	23	536	455	514	514	500	514	333	252	344	103	103	103	103
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	A	C	C	C	B	C	C	B	C	A	D	B	A	C	B	C	D	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	229	0.12	7.3	6	x	8	687	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	252	0.07	8.7	10	x	8	454	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	519	0.07	11.3	14	x	8	667	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	889	0.07	13.9	22	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	890	0.05	15.1	26	x	8	616
TRUNK Y	375	0.05	10.9	14	x	8	482
TRUNK Z	0	0.05	0	0	x	8	0
DROP	890	0.05	15.1	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	175	130	115	200	120	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.	49	50	56	28	43	1	1	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	150	175	215	145	225	0	0	0	0	0	0	0	0	0	0	135
TOTAL EFFECTIVE LH	199	225	271	173	268	1	1	1	1	1	1	1	1	1	1	149
ADJUSTED PRESSURE	0.07	0.07	0.05	0.09	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.10
ROUND DUCT SIZE	7.5	6.8	7	7.5	6.8	0	0	0	0	0	0	0	0	0	0	6.5
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	14	14	0	0	0	0	0	0	0	0	0	0	14

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INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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TYPE: HIGHGROVE 2 LO # 75021
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	2	@ 10.6 cfm	21.2	cfm
Kitchen & Bathrooms	4	@ 10.6 cfm	42.4	cfm
Other Rooms	5	@ 10.6 cfm	53.0	cfm
Table 9.32.3.A.		TOTAL	159.0	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	159	cfm
Less Principal Ventil. Capacity	139	cfm
Required Supplemental Capacity	20.0	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 2 **BUILDER:** GREENPARK HOMES
SFQT: 1793 **LO#** 75021 **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)	72

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):	24617.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
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: 50.0 ft	WIDTH: 20.0 ft	EXPOSED PERIMETER:	102.0 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	-

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MICHAEL O'ROURKE

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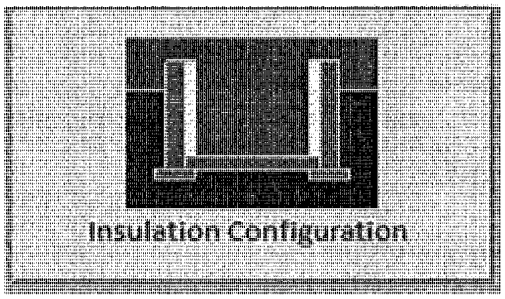
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

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):	**15.2**	 Insulation Configuration
Floor Width (m):	**6.1**	
Exposed Perimeter (m):	**31.1**	
Wall Height (m):	**2.7**	
Depth Below Grade (m):	**1.83**	
Window Area (m^2):	**0.7**	
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):	**925**	

TYPE: HIGHGROVE 2
LO# 75021

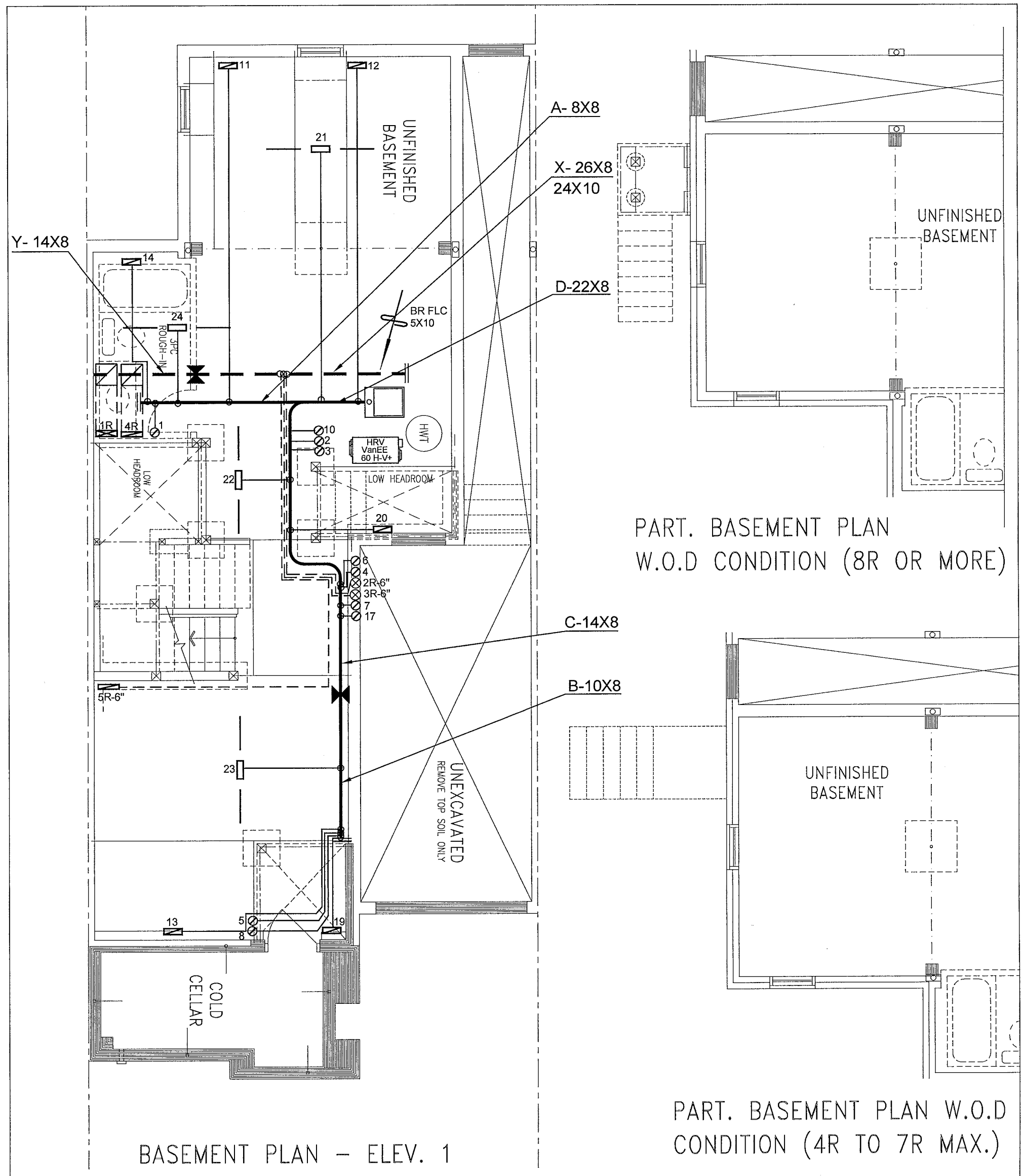
HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

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):	6.71	
Building Configuration		
Type:	Semi	
Number of Stories:	Two	
Foundation:	Full	
House Volume (m^3):	697.1	
Air Leakage/Ventilation		
Air Tightness Type:	Average (1946-1960) (4.55 ACH)	
Custom BDT Data:	ELA @ 10 Pa.	1184.3 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):	**0.155**	

TYPE: HIGHGROVE 2
LO# 75021



BASEMENT PLAN – ELEV. 1

PART. BASEMENT PLAN W.O.D CONDITION (8R OR MORE)

PART. BASEMENT PLAN W.O.D CONDITION (4R TO 7R MAX.)

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 2 1793 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 34191 BTU/H	
UNIT DATA	
MAKE	GOODMAN
MODEL	GMEC960402BNA-40
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

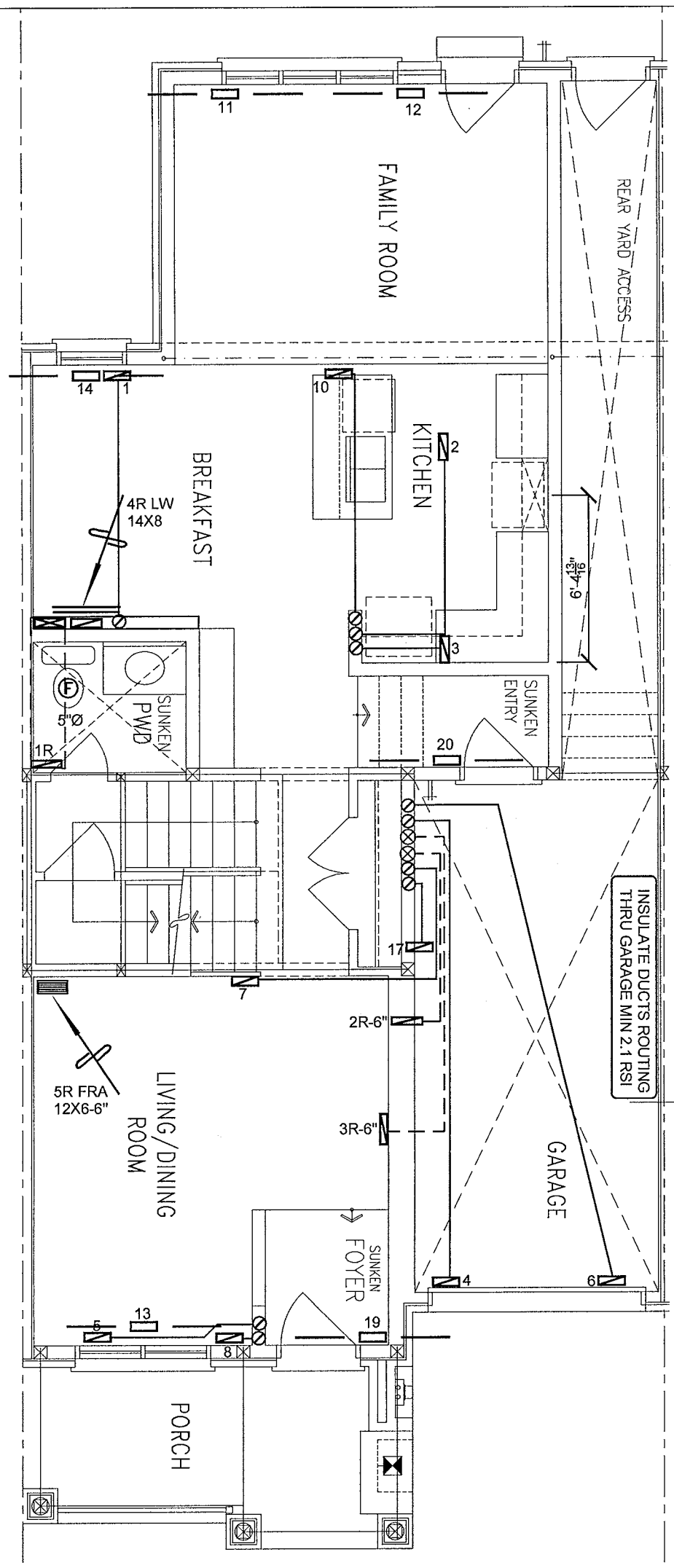
Sheet Title
BASEMENT HEATING LAYOUT

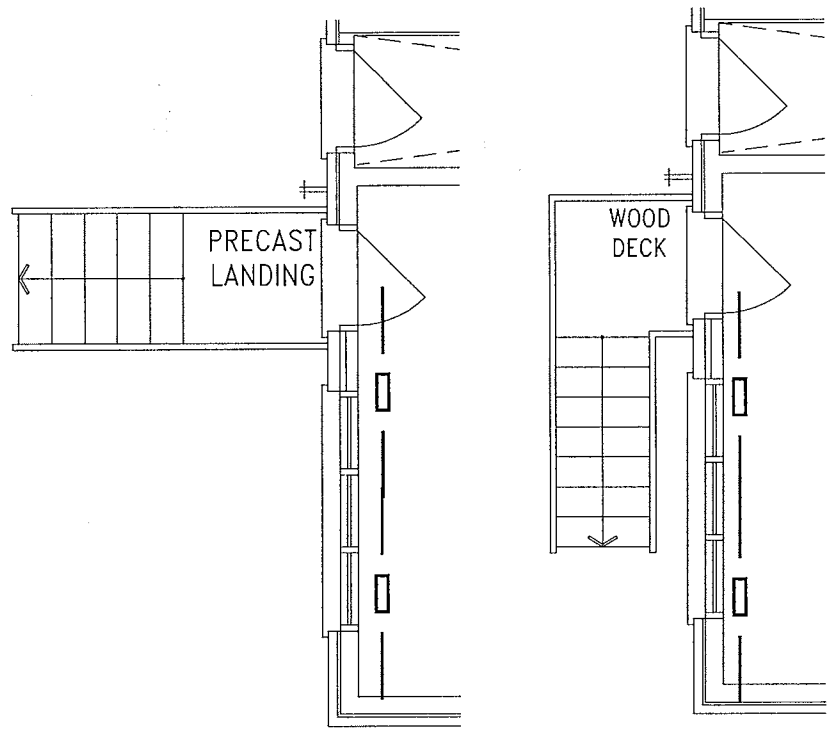
Date JULY/2017

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 75021





PART. GROUND FLOOR PLAN W.O.D
CONDITION (4R TO 8R OR MORE)

GROUND FLOOR PLAN – ELEV. 1

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HVAC DESIGNS LTD.

CSA-F280-12

PACKAGE A1

HVAC LEGEND

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— ▬ —	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

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REVISIONS

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HIGHGROVE 2 1793 sqft

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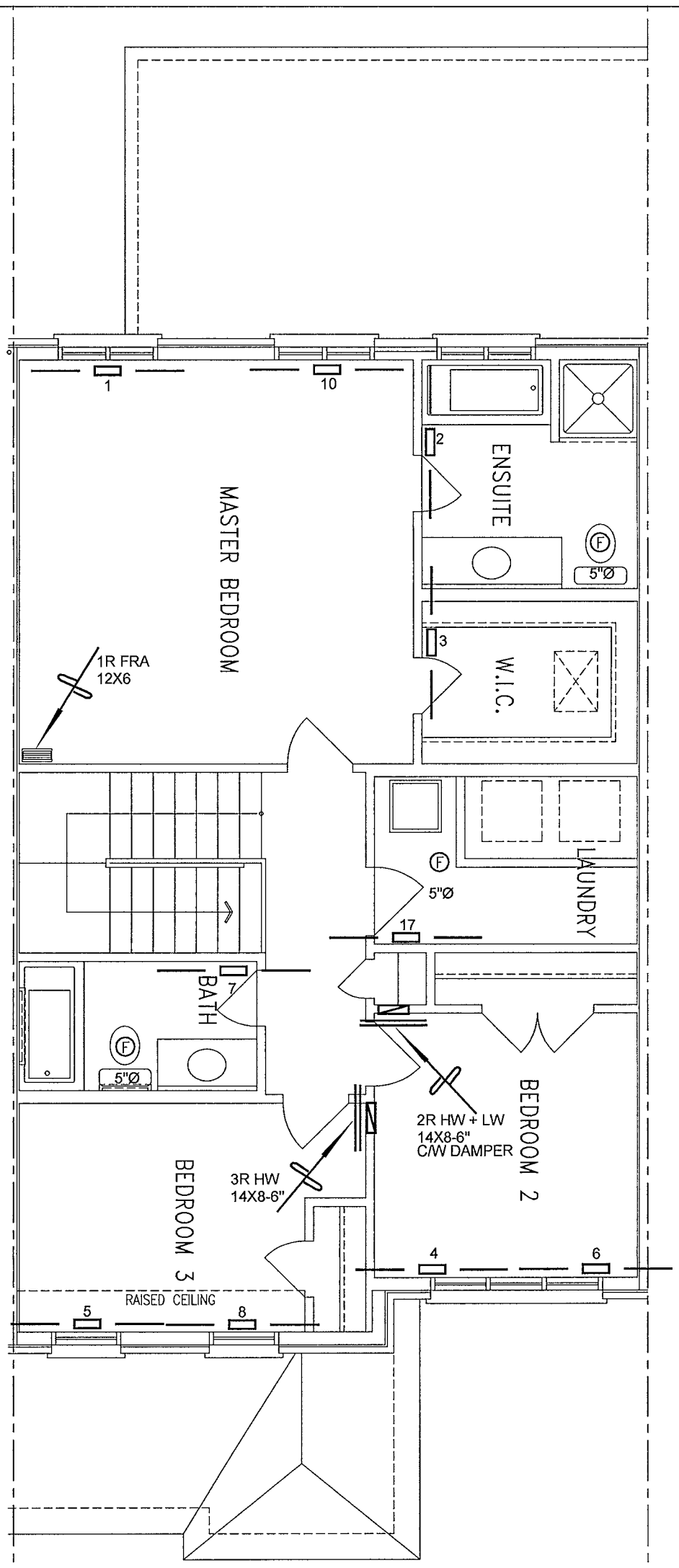
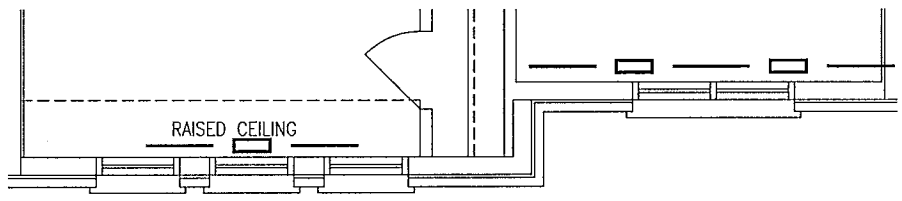
Sheet Title
FIRST FLOOR HEATING LAYOUT

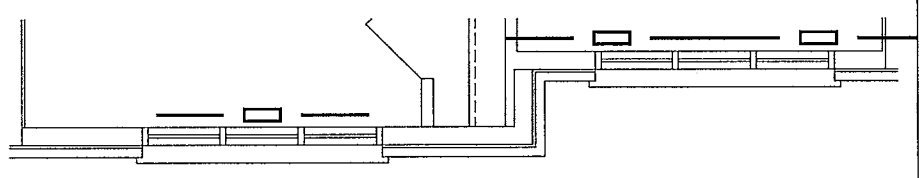
Date JULY/2017
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 75021



SECOND FLOOR PLAN – ELEV. 1



SECOND FLOOR PLAN – ELEV. 3



SECOND FLOOR PLAN – ELEV. 2

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HVAC DESIGNS LTD.

CSA-F280-12

PACKAGE A1

HVAC LEGEND

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Sheet Title
SECOND FLOOR HEATING LAYOUT

Date JULY/2017

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 75021