

ROOM USE	FAM		LV/DN		KT/BF		L/H/G		LND		G-E/PD		FOY		MUD		WUB		BAS	
EXP. WALL CLG. HT.	39	10	35	10	42	19	25	11	0	9	6	10	18	11	27	11	17	173	9	
FACTORS	LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN	
GRS.WALL AREA	390		350		420		275		0		60		198		297		153		1038	
GLAZING	LOSS	GAIN	LOSS	GAIN	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	8	168	128		5	98
EAST	19.8	41.6	0	0	0	0	0	0	56	1107	2327	0	0	7	138	291	0	0	0	0
SOUTH	19.8	24.9	0	0	36	712	896	0	0	0	0	0	0	0	0	0	0	0	10	198
WEST	19.8	41.6	40	791	1662	0	0	0	55	1087	2285	0	0	0	0	0	0	0	0	249
SKYLT.	34.6	101.5	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	10	235	43	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	350	1451	263	314	1302	236	355	1472	267	219	908	165	0	53	220	40	20	469
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0	0	0	0	0	0	40	938	120	0	20	469
EXPOSED CLG	1.2	0.6	0	0	0	0	0	0	0	0	0	0	0	0	151	626	112	269	1115	202
NO ATTIC EXPOSED CLG	2.6	1.3	10	26	13	0	0	0	0	0	0	0	0	0	0	0	0	0	519	1735
EXPOSED FLOOR	2.4	0.4	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	0	0	0	0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			2267		2013		2793		2015		124		358		703		134		8245	
SUB TOTAL HT GAIN				1938		1132		2695		2492		61		214		509		185		728
LEVEL FACTOR / MULTIPLIER	0.30	0.45			0.30	0.45			0.30	0.45			0.30	0.45	0.30	0.45			0.50	1.04
AIR CHANGE HEAT LOSS			1027			912		1266		913		32		162		449				9734
AIR CHANGE HEAT GAIN				153		89		204		196		6		17		33				72
DUCT LOSS			0		0		0		0		0		0		0		0		0	
DUCT GAIN			0		0		0		0		0		0		0		0		0	
HEAT GAIN PEOPLE	240		0		0		0		1		240		0		0		0		0	
HEAT GAIN APPLIANCES/LIGHTS				566		566		566		566		566		566		566		566		566
TOTAL HT LOSS BTU/H			3294		2928		4059		2928		166		820		2474		1165		17979	
TOTAL HT GAIN x 1.3 BTU/H			3454		2324		4375		4543		822		300		1542		241		1777	

TOTAL COMBINED HEAT LOSS BTU/H: 59758

SITE NAME: RUSSEL GARDENS PH 4
BUILDER: GREENPARK HOMES

OPT 5 BED - WUB
TYPE: SPRINGFIELD 3

DATE: Apr-21

GFA: 3744 LO# 90163

HEATING CFM 1504 COOLING CFM 1504
TOTAL HEAT LOSS 57,245 TOTAL HEAT GAIN 42,293
AIR FLOW RATE CFM 26.27 AIR FLOW RATE CFM 35.56

#GOODMAN
GMEC960804CNA 80
FAN SPEED
LOW 868
MEDLOW 978
MEDIUM 1112
MEDIUM HIGH 1504
HIGH 1615
AFUE = 96 %
INPUT (BTU/H) = 80,000
OUTPUT (BTU/H) = 76,800
DESIGN CFM = 1504
CFM @ .5" E.S.P.
TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	16	10	5
R/A	0	0	6	3	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	ENS	WIC-2	BED-3	BED-4	ENS-3	BED-2	BED-5	MBR	ENS-4	FAM	LV/DN	KT/BF	KT/BF	L/H/G	LND	G-E/PD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.60	1.18	1.18	0.87	1.20	1.93	0.21	1.77	2.68	1.60	0.60	1.65	2.93	2.03	2.03	1.46	0.16	0.52	2.47	2.53	3.83	3.83	3.83	3.83
CFM PER RUN HEAT	42	31	31	23	32	51	6	47	70	42	16	43	77	53	53	38	4	14	65	67	101	101	101	101
RM GAIN MBH	1.96	1.12	1.12	0.73	1.86	2.10	0.07	2.39	2.45	1.96	0.39	1.73	2.32	2.19	2.19	2.27	0.82	0.30	1.54	0.58	0.40	0.40	0.40	0.40
CFM PER RUN COOLING	70	40	40	26	66	75	2	85	87	70	14	61	83	78	78	81	29	11	55	21	14	14	14	14
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.16	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	64	29	32	63	49	26	38	57	52	48	31	40	11	35	28	36	11	26	43	42	28	18	16	16
EQUIVALENT LENGTH	150	140	170	170	150	150	170	140	190	160	140	160	90	100	120	130	150	100	140	130	150	110	130	100
TOTAL EFFECTIVE LENGTH	214	169	202	233	199	176	208	197	242	208	171	200	101	135	148	166	161	126	183	172	192	138	148	116
ADJUSTED PRESSURE	0.08	0.1	0.09	0.07	0.09	0.1	0.08	0.08	0.07	0.08	0.1	0.09	0.16	0.13	0.12	0.1	0.11	0.14	0.09	0.1	0.08	0.12	0.11	0.14
ROUND DUCT SIZE	6	4	4	4	6	6	4	6	6	6	4	5	6	6	6	5	4	4	5	5	6	6	6	6
HEATING VELOCITY (f/min)	214	356	356	264	163	260	69	240	357	214	184	316	393	270	270	279	46	161	477	492	515	515	515	515
COOLING VELOCITY (f/min)	357	459	459	298	337	382	23	433	444	357	161	448	423	398	398	595	333	126	404	154	71	71	71	71
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	4X10	4X10	3X10	4X10	4X10	4X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	A	B	E	D	C	E	D	D	D	A	D	A	E	B	B	C	B	D	C	A	A	B	B	E

RUN #	25	26	27	28	29	30	31
ROOM NAME	BAS	BED-2	BED-3	FAM	L/H/G	ENS-3	BED-3
RM LOSS MBH	3.83	1.77	1.20	1.65	1.46	0.21	1.20
CFM PER RUN HEAT	101	47	32	43	38	6	32
RM GAIN MBH	0.40	2.39	1.86	1.73	2.27	0.07	1.86
CFM PER RUN COOLING	14	85	66	61	81	2	66
ADJUSTED PRESSURE	0.16	0.16	0.17	0.17	0.16	0.17	0.17
ACTUAL DUCT LGH	34	64	51	47	37	41	55
EQUIVALENT LENGTH	150	150	180	140	120	130	200
TOTAL EFFECTIVE LENGTH	184	214	231	187	157	171	255
ADJUSTED PRESSURE	0.09	0.08	0.07	0.09	0.1	0.1	0.07
ROUND DUCT SIZE	6	6	6	5	5	4	6
HEATING VELOCITY (f/min)	515	240	163	316	279	69	163
COOLING VELOCITY (f/min)	71	433	337	448	595	23	337
OUTLET GRILL SIZE	4X10	4X10	4X10	3X10	3X10	3X10	4X10
TRUNK	C	D	C	A	C	D	C

SUPPLY AIR TRUNK SIZE

TRUNK	STATIC	ROUND	RECT	VELOCITY	TRUNK	STATIC	ROUND	RECT	VELOCITY
CFM	PRESS.	DUCT	DUCT	(f/min)	CFM	PRESS.	DUCT	DUCT	(f/min)
TRUNK A 338	0.08	9.3	10	x 8 608	TRUNK G 0	0.00	0	0	x 8 0
TRUNK B 681	0.08	12.1	18	x 8 881	TRUNK H 0	0.00	0	0	x 8 0
TRUNK C 338	0.07	9.7	14	x 8 435	TRUNK I 0	0.00	0	0	x 8 0
TRUNK D 567	0.07	11.7	18	x 8 567	TRUNK J 0	0.00	0	0	x 8 0
TRUNK E 827	0.07	13.5	22	x 8 677	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	STATIC	ROUND	RECT	VELOCITY
CFM	PRESS.	DUCT	DUCT	(f/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 909	0.05	15.2	26	x 8 629
TRUNK Y 375	0.05	10.9	14	x 8 482
TRUNK Z 595	0.05	13	20	x 8 536
DROP 1504	0.05	18.4	24	x 14 645

RETURN AIR #	1	2	3	4	5	6	7	8	9											BR			
AIR VOLUME	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLENUM PRESSURE	115	100	95	115	130	115	115	365	130	0	0	0	0	0	0	0	0	0	0	0	0	0	224
ACTUAL DUCT LGH.	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	0.15	0.15	0.15	0.15	0.15	0.15	0.15
EQUIVALENT LENGTH	57	56	54	51	62	55	46	26	44	1	1	1	1	1	1	1	1	1	1	1	1	1	20
TOTAL EFFECTIVE LH	245	155	195	235	195	245	240	220	0	0	0	0	0	0	0	0	0	0	0	0	0	0	265
ADJUSTED PRESSURE	302	211	249	286	257	300	291	266	264	1	1	1	1	1	1	1	1	1	1	1	1	1	285
ROUND DUCT SIZE	0.05	0.07	0.06	0.05	0.06	0.05	0.05	0.06	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.05	0.05	0.05	0.05	0.05	0.05
INLET GRILL SIZE	7	6.1	6.2	7	7	7	7	10.3	7	0	0	0	0	0	0	0	0	0	0	0	0	0	9
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	14	14	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	30

TRUNK V	0	0.05	0	0	x	8	0
TRUNK W	0	0.05	0	0	x	8	0
TRUNK X	909	0.05	15.2	26	x	8	629
TRUNK Y	375	0.05	10.9	14	x	8	482
TRUNK Z	595	0.05	13	20	x	8	536
DROP	1504	0.05	18.4	24	x	14	645

TYPE: SPRINGFIELD 3
SITE NAME: RUSSEL GARDENS PH 4

LO # 90163
OPT 6 BED - WUB

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	5 @ 10.6 cfm	53 cfm
Kitchen & Bathrooms	5 @ 10.6 cfm	53 cfm
Other Rooms	7 @ 10.6 cfm	74.2 cfm
Table 9.32.3.A.	TOTAL	222.6 cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED		9.32.3.4(1)
6 Bedrooms		
As Per Ashrea 62.2 Dwelling- Unit Ventilation		
4.1.1 Total Ventilation Rate		
$Q_{tot} = 0.03A_{floor} + 7.5(N_{br} + 1)$		
TOTAL		164.8 cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	222.6	cfm
Less Principal Ventil. Capacity	164.8	cfm
Required Supplemental Capacity	57.8	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model:	VANEE G2400H ECM
Location:	BSMT
164.8 cfm	☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION					
CFM	AT °F	FACTOR	% LOSS		
164.8 CFM	X	71 F	X	1.08	X
					0.20

SUPPLEMENTAL FANS		BY INSTALLING CONTRACTOR		
Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-3	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-4	BY INSTALLING CONTRACTOR	50	☒	3.5
G-E/PPD	BY INSTALLING CONTRACTOR	50	☒	3.5

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model:	VANEE G2400H ECM	
210	cfm high	50 cfm low
80	% Sensible Efficiency	☒ HVI Approved
@ 32 deg F (0 deg C)		

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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	April-21

CSA F280-12 Residential Heat Loss and Heat Gain Calculations
Formula Sheet (For Air Leakage / Ventilation Calculation)

LO#: 90163

Model: SPRINGFIELD 3

Builder: GREENPARK HOMES

Date: 06/04/2021

Volume Calculation

House Volume			
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1608	9	14472
First	1608	10	16080
Second	2136	9	19224
Third	0	9	0
Fourth	0	9	0
Total:			49,776.0 ft³
Total:			1409.5 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.310
SUMMER NATURAL AIR CHANGE RATE	0.111

Design Temperature Difference				
	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-17	39	71
Summer DTDc	24	31	7	13

5.2.3.1 Heat Loss due to Air Leakage

$$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$$

$$0.310 \times 391.53 \times 39^\circ\text{C} \times 1.2 = 5706 \text{ W}$$

$$= 19469 \text{ Btu/h}$$

6.2.6 Sensible Gain due to Air Leakage

$$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$

$$0.111 \times 391.53 \times 7^\circ\text{C} \times 1.2 = 370 \text{ W}$$

$$= 1264 \text{ Btu/h}$$

5.2.3.2 Heat Loss due to Mechanical Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

$$165 \text{ CFM} \times 71^\circ\text{F} \times 1.08 \times 0.20 = 2513 \text{ Btu/h}$$

6.2.7 Sensible heat Gain due to Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

$$165 \text{ CFM} \times 13^\circ\text{F} \times 1.08 \times 0.20 = 456 \text{ Btu/h}$$

5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)

$$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agcleve} + HL_{bgcleve})\}$$

Level	Level Factor (LF)	HLairb Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HL _{level})
1	0.5	19,469	9,400	1.036
2	0.3		12,892	0.453
3	0.2		14,881	0.262
4	0		0	0.000
5	0		0	0.000

*HLairbv = Air leakage heat loss + ventilation heat loss

*For a balanced or supply only ventilation system HLairv = 0

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: SPRINGFIELD 3	OPT 5 BED - WUB	BUILDER: GREENPARK HOMES
SFQT: 3744	LO# 90163	SITE: RUSSEL GARDENS PH 4

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:	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 (ft³):	49776.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	7
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 55.0 ft	WIDTH: 40.0 ft	EXPOSED PERIMETER:	173.0 ft

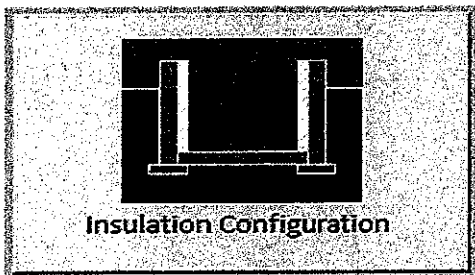
2012 OBC - COMPLIANCE PACKAGE		Compliance Package	
Component		A1	
		Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.65
Exposed Floor Minimum RSI (R)-Value		31	29.80
Walls Above Grade Minimum RSI (R)-Value		22	17.03
Basement 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		96%	-
HRV Minimum Efficiency		75%	-
Domestic Hot Water Heater Minimum EF		0.8	-

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

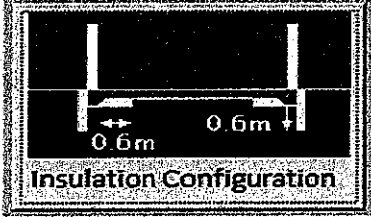
Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	16.8	 Insulation Configuration
Floor Width (m):	12.2	
Exposed Perimeter (m):	52.7	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.4	
Door Area (m ²):	3.7	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):	1683	

TYPE: SPRINGFIELD 3
LO# 90163

OPT 5 BED - WUB

Residential Slab on Grade Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Length (m):	0.6	
Width (m):	4.6	
Exposed Perimeter (m):	5.2	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		39

TYPE: SPRINGFIELD 3
LO# 90163

OPT 5 BED - WUB

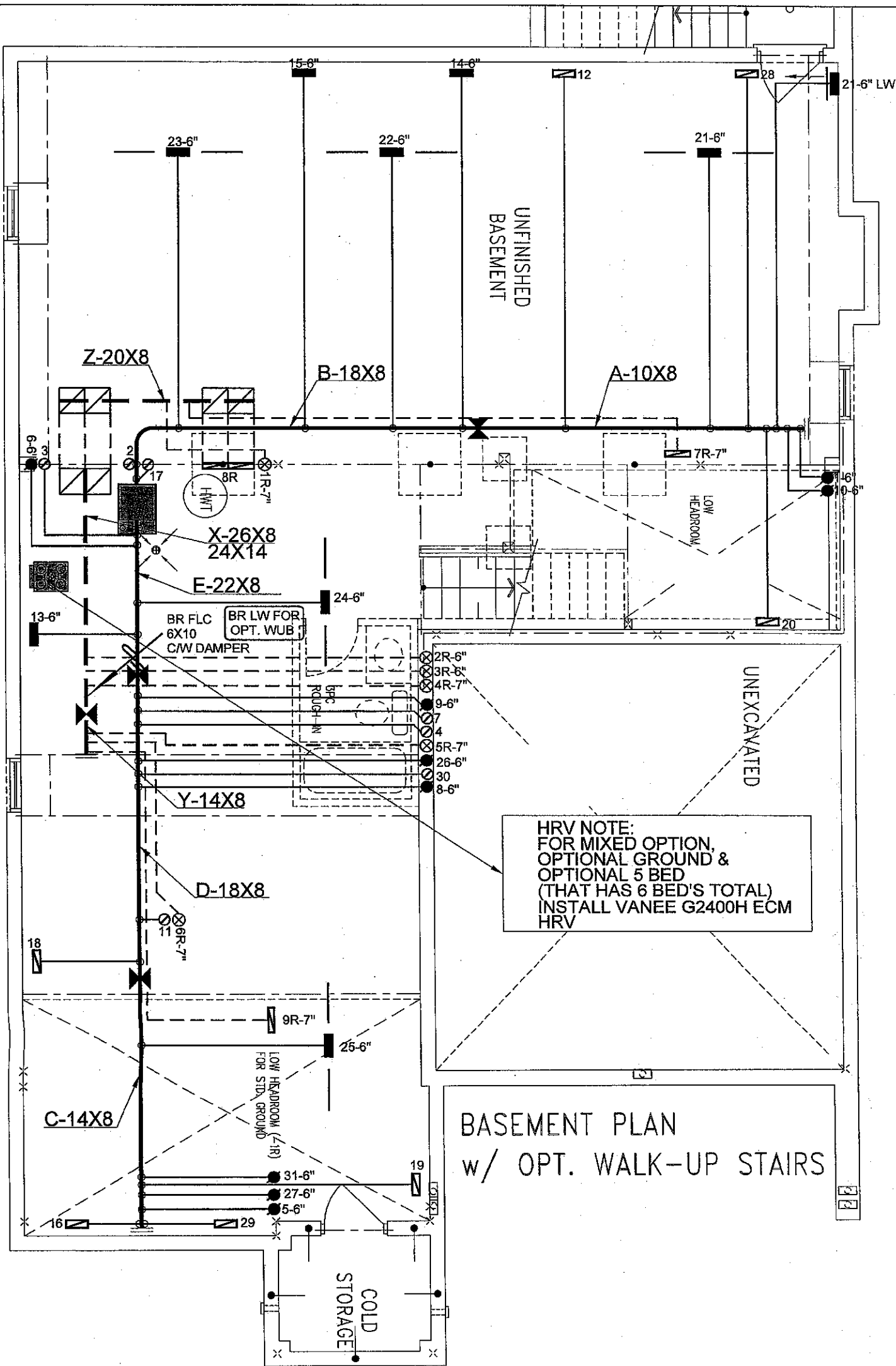
Air Infiltration Residential Load Calculator

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:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1409.5			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1878.9 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	77.8	77.8		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.310			
Cooling Air Leakage Rate (ACH/H):	0.111			

TYPE: SPRINGFIELD 3
LO# 90163

OPT 5 BED - WUB



BASEMENT PLAN
w/ OPT. WALK-UP STAIRS

HRV NOTE:
FOR MIXED OPTION,
OPTIONAL GROUND &
OPTIONAL 5 BED
(THAT HAS 6 BED'S TOTAL)
INSTALL VANEE G2400H ECM
HRV

I MICHAEL O'ROURKE HAVE REVIEWED 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.

WUB
CSA-F280-12
PACKAGE A1

HVAC LEGEND						3.	
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
							REVISIONS
No.	Description	Date					

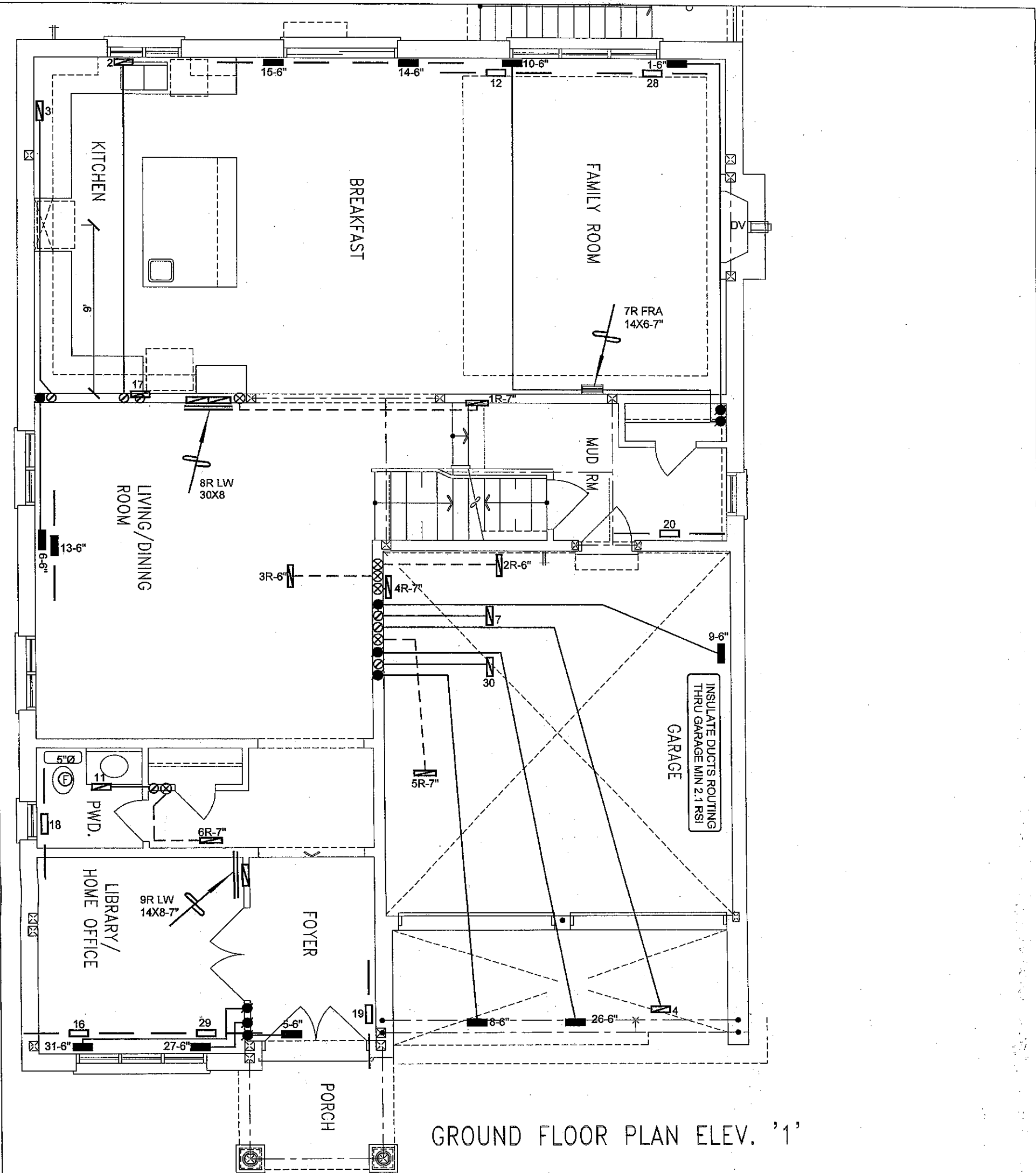
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Client
GREENPARK HOMES
Project Name
**RUSSELL GARDENS PH 4
HAMILTON, ONTARIO**
**OPT 5 BED - WUB
SPRINGFIELD 3 3744 sqft**

HVACDESIGNS LTD.
375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
Email: info@hvacdsgns.ca
Web: www.hvacdsgns.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 59758 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS		
MAKE	GOODMAN	3RD FLOOR		
MODEL	GMEC960804CNA	2ND FLOOR	16	6 5
INPUT	80 MBTU/H	1ST FLOOR	10	3 2
OUTPUT	76.8 MBTU/H	BASEMENT	5	1 0
COOLING	3.5 TONS	ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5" UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A		
FAN SPEED	1504 cfm @ 0.6" w.c.			

Sheet Title
**BASEMENT
HEATING
LAYOUT**
Date
APR/2021
Scale
3/16" = 1'-0"
BCIN# 19669
LO# 90163



GROUND FLOOR PLAN ELEV. '1'

I MICHAEL O'Rourke HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

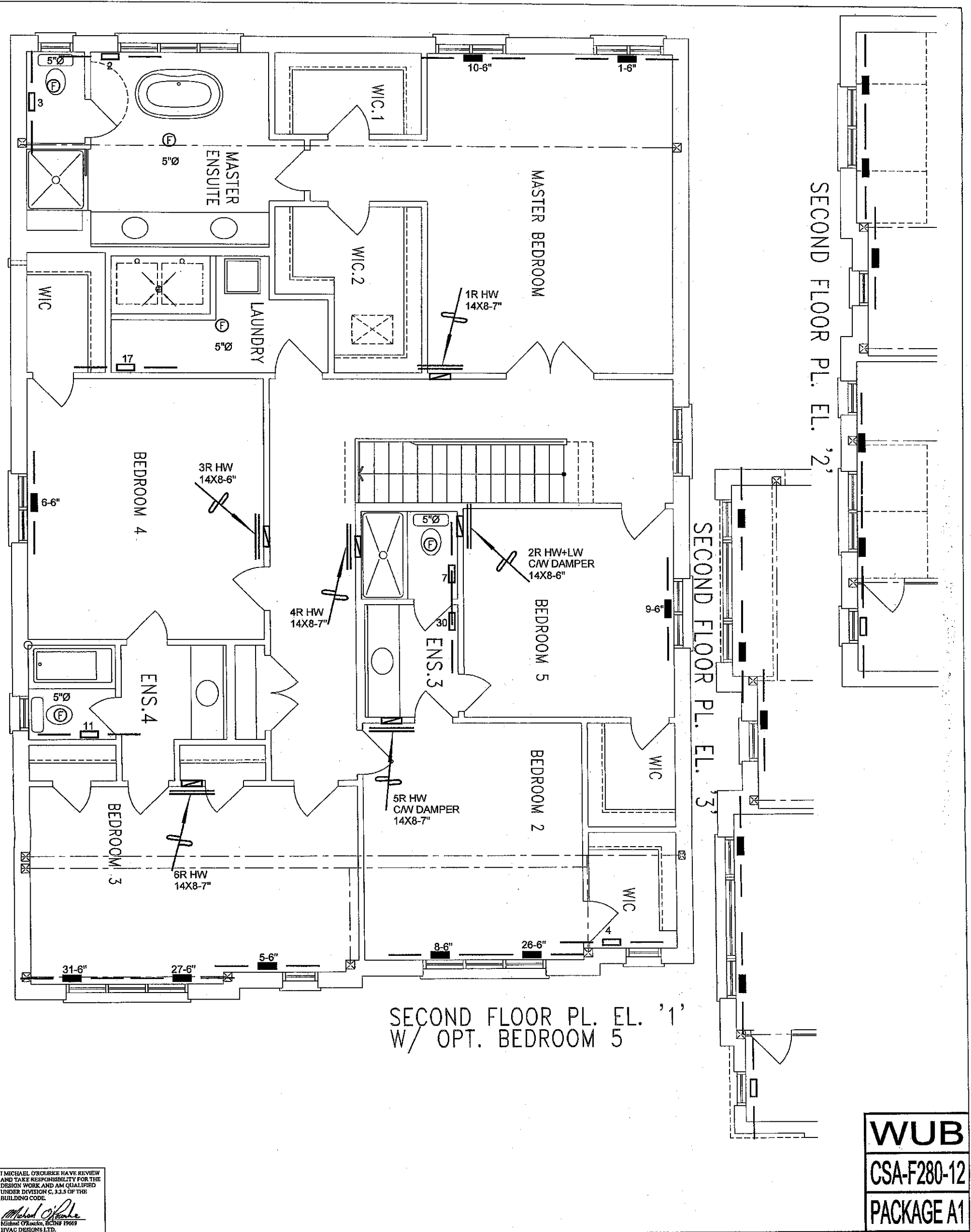
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WUB
CSA-F280-12
PACKAGE A1

HVAC LEGEND						3.	
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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
						No.	Description
						REVISIONS	
						Date	

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Client GREENPARK HOMES		 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.	Sheet Title FIRST FLOOR HEATING LAYOUT	
Project Name RUSSELL GARDENS PH 4 HAMILTON, ONTARIO			Date APR/2021	
OPT 5 BED - WUB SPRINGFIELD 3 3744 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO# 90163	



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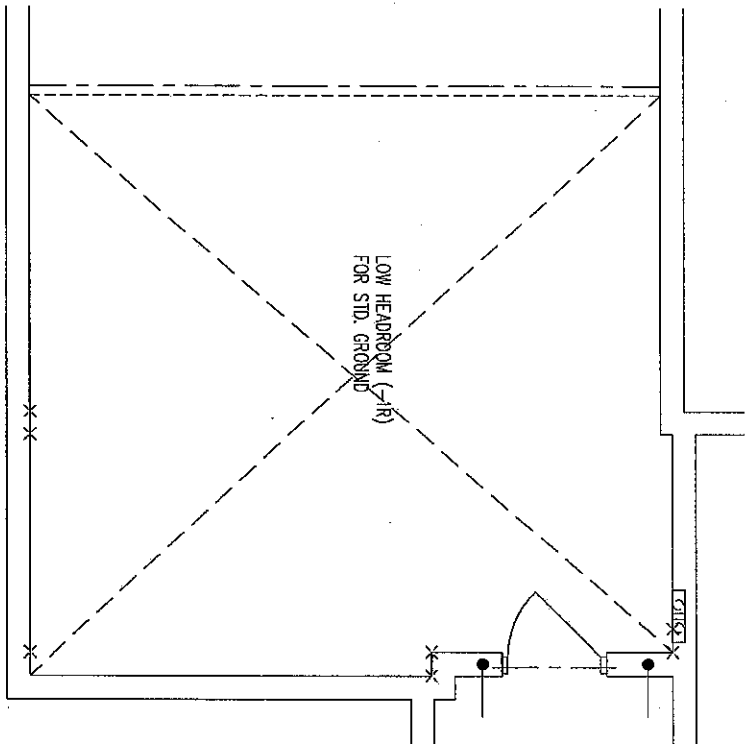
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

WUB
CSA-F280-12
PACKAGE A1

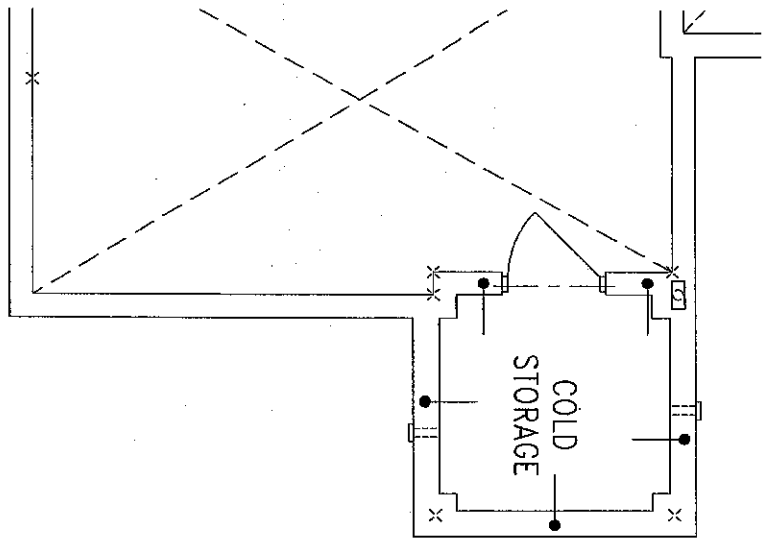
HVAC LEGEND							
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER
						REVISIONS	
						No.	Date

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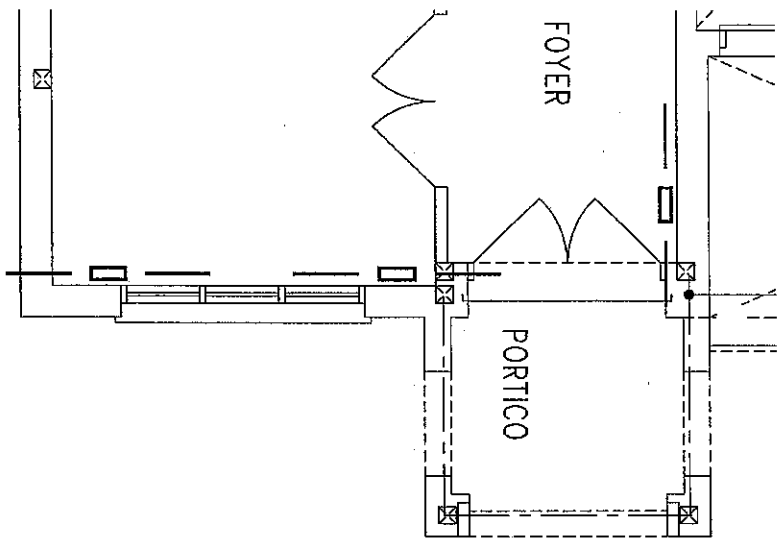
Client GREENPARK HOMES		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	Sheet Title SECOND FLOOR HEATING LAYOUT	
Project Name RUSSELL GARDENS PH 4 HAMILTON, ONTARIO			Date APR/2021	Scale 3/16" = 1'-0"
OPT 5 BED - WUB SPRINGFIELD 3 3744 sqft		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.	BCIN# 19669	
			LO#	90163



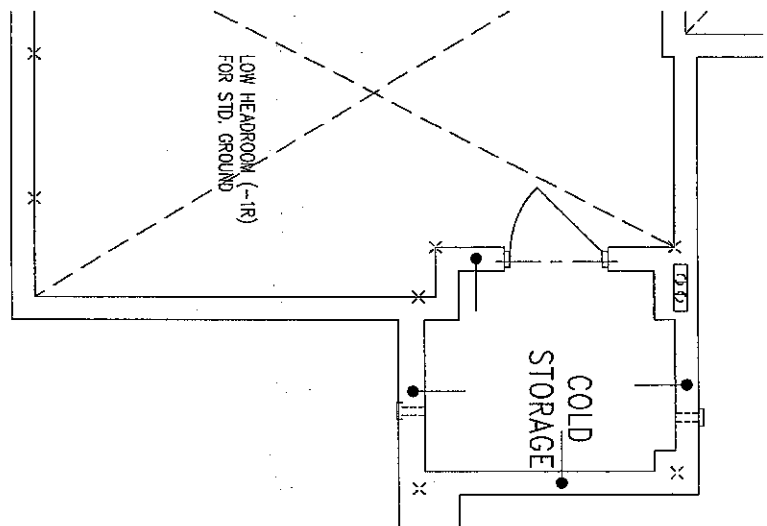
PART. BASEMENT PLAN ELEV. '1'
FOR OPT. GUEST SUITE COND.



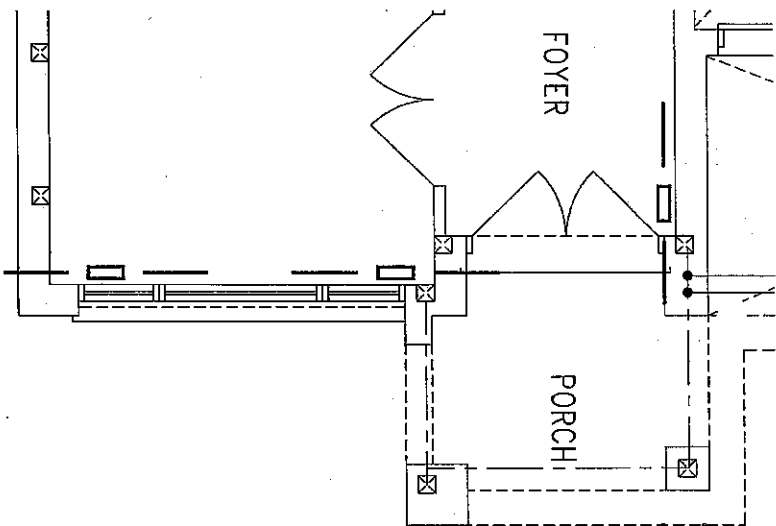
BASEMENT PLAN ELEV. '2'



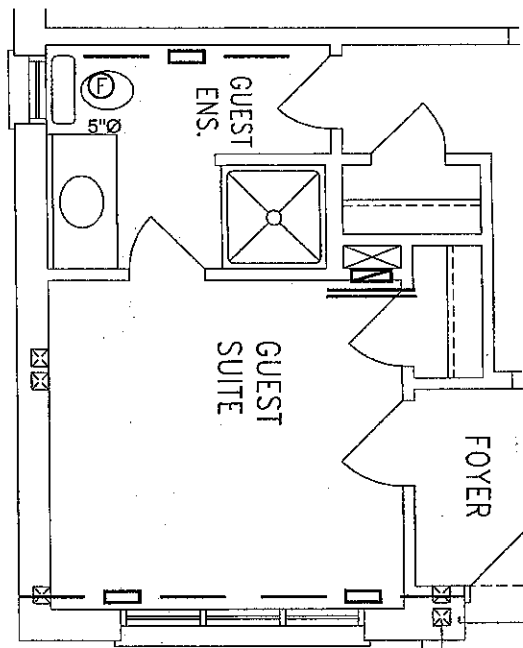
GROUND FLOOR PLAN ELEV. '2'



BASEMENT PLAN ELEV. '3'



GROUND FLOOR PLAN ELEV. '3'



PART. GROUND FLOOR PLAN -
W/ OPT. GUEST SUITE

WUB
CSA-F280-12
PACKAGE A1

I MICHAEL O'Rourke HAVE REVIEWED 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								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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Project Name RUSSELL GARDENS PH 4 HAMILTON, ONTARIO			Date APR/2021	Scale 3/16" = 1'-0"
OPT 5 BED - WUB SPRINGFIELD 3 3744 sqft		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.	BCIN# 19669	
			LO#	90163