

SITE NAME: RUSSEL GARDENS PH 4

BUILDER: GREENPARK HOMES

TYPE: SPRINGFIELD 2

GFA: 3550

DATE: Apr-21

LOF 90158

WINTER NATURAL AIR CHANGE RATE 0.335

HEAT LOSS AT °F. 71

CSA-F280-12

SUMMER NATURAL AIR CHANGE RATE 0.121

HEAT GAIN AT °F. 13

SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-2	HALL	FX/B-5	ENS-3	F-WIC	
				34	29	7	26	40	12	12	8	16	6	15	
				9	9	9	9	9	9	9	9	9	9	11	
GRS.WALL AREA	LOSS	GAIN		306	261	63	225	360	108	108	72	144	54	168	
GLAZING	LOSS	GAIN													
NORTH	19.8	16.0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST	19.8	41.6	0	0	0	0	0	0	0	0	16	316	258	0	0
SOUTH	19.8	24.9	0	0	0	0	27	534	1122	48	949	1994	0	28	554
WEST	19.8	41.6	37	731	1537	23	465	966	0	0	0	0	7	138	174
SKYLT.	34.6	101.5	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
NET EXPOSED WALL	4.1	0.8	269	1115	202	236	967	179	63	264	47	198	821	149	312
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.2	0.6	280	334	168	190	227	112	83	99	49	204	243	120	175
NO ATTIC EXPOSED CLG	2.6	1.3	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
BASEMENT/CRAWL HEAT LOSS															
SLAB ON GRADE HEAT LOSS															
SUBTOTAL HT LOSS				2190		1688		360		2081		2617		927	
SUB TOTAL HT GAIN					1904	1246	86		1478		2414		580		959
LEVEL FACTOR / MULTIPLIER	0.20	0.29			0.20	0.29	0.20	0.29	0.20	0.29	0.20	0.29	0.20	0.29	0.20
AIR CHANGE HEAT LOSS				641		490		106		612		769		272	
AIR CHANGE HEAT GAIN					163		107		3		127		207		60
DUCT LOSS				0		0		0		289		0		124	
DUCT GAIN				0		0		0		250		0		0	
HEAT GAIN PEOPLE	240		2	480		0		0		1		240		1	
HEAT GAIN APPLIANCES/LIGHTS				654		0		0		654		0		0	
TOTAL HT LOSS BTU/H				2821		2158		466		2982		3385		1199	
TOTAL HT GAIN x 1.3 BTU/H				4182		1759		136		3574		4569		1982	

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	FAM	LVDN	KT/BF	LH/G	LND	WVR	FOY	MUD	WOD	BAS
				16	43	41	23	9	6	19	28	49	192
				10	10	10	10	9	10	11	11	9	9
GRS.WALL AREA	LOSS	GAIN		160	430	410	230	81	60	209	308	441	1289
GLAZING	LOSS	GAIN											
NORTH	19.8	16.0	0	0	0	0	0	0	0	0	0	0	0
EAST	19.8	41.6	0	0	0	0	0	0	0	0	0	0	0
SOUTH	19.8	24.9	0	0	0	36	712	896	8	158	199	0	0
WEST	19.8	41.6	40	791	1682	0	0	0	40	791	1682	28	554
SKYLT.	34.6	101.5	0	0	0	0	0	0	0	0	0	0	0
DOORS	23.5	4.3	0	0	0	10	235	43	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	120	497	90	394	1633	298	352	1469	265	292	837
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.2	0.6	0	0	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.6	1.3	10	26	13	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
BASEMENT/CRAWL HEAT LOSS													
SLAB ON GRADE HEAT LOSS													
SUBTOTAL HT LOSS				1314		2345		2643		1391		649	
SUB TOTAL HT GAIN					1788	1193	2168	1315	330	214		358	
LEVEL FACTOR / MULTIPLIER	0.30	0.48			0.30	0.48	0.30	0.48	0.20	0.29	0.30	0.48	0.20
AIR CHANGE HEAT LOSS				636		1135		1279		673		191	
AIR CHANGE HEAT GAIN					151		102		186		113		28
DUCT LOSS				0		0		0		28		0	
DUCT GAIN				0		0		0		0		0	
HEAT GAIN PEOPLE	240		0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				654		654		654		654		654	
TOTAL HT LOSS BTU/H				1950		3480		3922		2054		840	
TOTAL HT GAIN x 1.3 BTU/H				3342		2534		3911		3019		1317	

TOTAL HEAT GAIN BTU/H:

40761

TONS: 3.40

LOSS DUE TO VENTILATION LOAD BTU/H: 2425

STRUCTURAL HEAT LOSS: 57433

TOTAL COMBINED HEAT LOSS BTU/H: 59658

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

SITE NAME: RUSSEL GARDENS PH 4
BUILDER: GREENPARK HOMES

TYPE: SPRINGFIELD 2

DATE: Apr-21

GFA: 3550 LO# 90158

HEATING CFM 1504 COOLING CFM 1504
TOTAL HEAT LOSS 57,433 TOTAL HEAT GAIN 40,312
AIR FLOW RATE CFM 26.19 AIR FLOW RATE CFM 37.31

furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure for s/a & r/a 0.35

#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	11	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	WIC	BED-2	BED-3	BED-4	ENS-2	HALL	FX/B-5	MBR	ENS-3	FAM	LV/DN	KT/BF	KT/BF	LH/G	LND	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.41	1.08	0.47	1.48	1.69	1.20	0.68	1.29	1.47	1.41	0.58	0.97	3.48	1.96	1.96	1.03	0.84	0.53	2.57	2.65	4.01	4.01	4.01	4.01
CFM PER RUN HEAT	37	28	12	39	44	31	18	34	38	37	15	26	91	51	51	27	22	14	67	69	105	105	105	105
RM GAIN MBH	2.08	0.88	0.14	1.79	2.28	1.98	0.51	0.66	2.06	2.08	0.38	1.87	2.53	1.96	1.96	1.51	1.32	0.30	1.09	0.70	0.40	0.40	0.40	0.40
CFM PER RUN COOLING	78	33	5	67	85	74	19	24	77	78	14	62	95	73	73	56	49	11	41	26	15	15	15	15
ADJUSTED PRESSURE	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	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	67	46	33	58	40	26	35	63	24	56	23	50	10	38	34	54	63	47	35	50	49	40	27	15
EQUIVALENT LENGTH	160	180	200	150	140	200	170	180	200	180	170	110	130	180	160	160	170	130	100	150	170	120	100	100
TOTAL EFFECTIVE LENGTH	227	226	233	208	180	226	205	223	224	236	193	160	140	218	194	214	233	177	135	200	219	160	127	115
ADJUSTED PRESSURE	0.08	0.08	0.07	0.08	0.09	0.08	0.08	0.08	0.08	0.07	0.09	0.11	0.12	0.08	0.09	0.08	0.07	0.1	0.13	0.09	0.07	0.1	0.13	0.14
ROUND DUCT SIZE	6	4	4	5	6	6	4	4	6	6	4	5	6	5	5	5	5	4	5	5	6	6	8	6
HEATING VELOCITY (ft/min)	189	321	138	286	224	158	207	390	194	189	172	191	464	374	374	198	162	161	492	507	535	535	535	535
COOLING VELOCITY (ft/min)	398	379	57	492	433	377	218	275	393	398	161	455	484	536	536	411	360	126	301	191	76	76	76	76
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	A	B	C	C	D	C	D	A	C	B	C	B	D	B	B	A	A	A	D	A	A	B	C	C

RUN #	25	26	27	28	29	30	31	32
ROOM NAME	BAS	BED-2	BED-3	ENS	ENS-2	FAM	F-WIC	LH/G
RM LOSS MBH	4.01	1.48	1.69	1.08	0.68	0.97	1.66	1.03
CFM PER RUN HEAT	105	39	44	28	18	26	44	27
RM GAIN MBH	0.40	1.79	2.28	0.88	0.51	1.67	1.79	1.51
CFM PER RUN COOLING	15	67	85	33	19	62	67	56
ADJUSTED PRESSURE	0.16	0.17	0.16	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH	24	42	26	40	43	40	24	60
EQUIVALENT LENGTH	120	190	160	190	180	130	100	60
TOTAL EFFECTIVE LENGTH	144	232	186	230	223	170	124	120
ADJUSTED PRESSURE	0.11	0.07	0.09	0.07	0.08	0.1	0.14	0.14
ROUND DUCT SIZE	6	5	6	4	4	5	5	5
HEATING VELOCITY (ft/min)	535	286	224	321	207	191	323	198
COOLING VELOCITY (ft/min)	76	492	433	379	218	455	492	411
OUTLET GRILL SIZE	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10
TRUNK	D	D	D	C	D	B	D	A

SUPPLY AIR TRUNK SIZE										RETURN 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	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK A	335	0.07	9.6	10	x	8	603	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0
TRUNK B	659	0.07	12.4	18	x	8	659	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0
TRUNK C	1032	0.07	14.7	26	x	8	714	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0
TRUNK D	470	0.07	10.9	14	x	8	604	TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.05	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 S	0	0.05	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	TRUNK T	0	0.05	0	0	x	8	0

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
AIR VOLUME	115	75	130	130	85	115	330	135	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH	66	44	49	49	55	51	18	51	57	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	215	245	205	175	175	225	185	235	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	281	289	254	224	230	276	203	286	297	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.05	0.05	0.06	0.07	0.06	0.05	0.07	0.05	0.05	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	7	6	7	6.8	6	7	9.6	7.5	7.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0
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	X
INLET GRILL SIZE	14	14	14	14	14	14	30	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: SPRINGFIELD 2
SITE NAME: RUSSEL GARDENS PH 4

LO # 90158

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	8 @ 10.6 cfm	84.8 cfm
Table 9.32.3.A.	TOTAL	233.2 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		
$Q_{tot} = 0.03A_{floor} \times 7.5(N_{br} + 1)$		
TOTAL		159 cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	233.2	cfm
Less Principal Ventil. Capacity	159	cfm
Required Supplemental Capacity	74.2	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model:	VANEE G2400H ECM		
Location:	BSMT		
159.0 cfm	☒ HVI Approved		
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
158.0 CFM	X 71 F	X 1.08	X 0.20

SUPPLEMENTAL FANS		BY INSTALLING CONTRACTOR	
Location	Model	cfm	HVI
ENS	BY INSTALLING CONTRACTOR	50	☒ 3.5
ENS-2	BY INSTALLING CONTRACTOR	50	☒ 3.5
ENS-3	BY INSTALLING CONTRACTOR	50	☒ 3.5
WR	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#: 90158

Model: SPRINGFIELD 2

Builder: GREENPARK HOMES

Date: 06/04/2021

Volume Calculation
Air Change & Delta T Data
House Volume

Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)
Bsmt	1603	9	14427
First	1603	10	16030
Second	1947	9	17523
Third	0	9	0
Fourth	0	9	0
Total:			47,980.0 ft ³
Total:			1358.6 m ³

WINTER NATURAL AIR CHANGE RATE	0.338
SUMMER NATURAL AIR CHANGE RATE	0.121

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
6.2.6 Sensible Gain due to Air Leakage

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

$$0.338 \times 377.40 \times 39^\circ\text{C} \times 1.2 = 6001 \text{ W}$$

$$= 20476 \text{ Btu/h}$$

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

$$0.121 \times 377.40 \times 7^\circ\text{C} \times 1.2 = 390 \text{ W}$$

$$= 1330 \text{ Btu/h}$$

5.2.3.2 Heat Loss due to Mechanical Ventilation
6.2.7 Sensible heat Gain due to Ventilation

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

$$159 \text{ CFM} \times 71^\circ\text{F} \times 1.08 \times 0.20 = 2425 \text{ Btu/h}$$

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

$$159 \text{ CFM} \times 13^\circ\text{F} \times 1.08 \times 0.20 = 440 \text{ Btu/h}$$

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

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

Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.5	20,476	9,825	1.042
2	0.3		12,690	0.484
3	0.2		13,932	0.294
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 2**BUILDER:** GREENPARK HOMES**SFQT:** 3550**LO#** 90158**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 (ft ³):	47980.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	7
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: 57.0 ft	WIDTH: 39.0 ft	EXPOSED PERIMETER:	192.0 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	96%	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

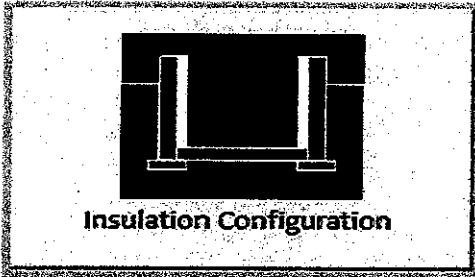
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

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):	17.4	 Insulation Configuration
Floor Width (m):	11.9	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	2.7	
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):		1879

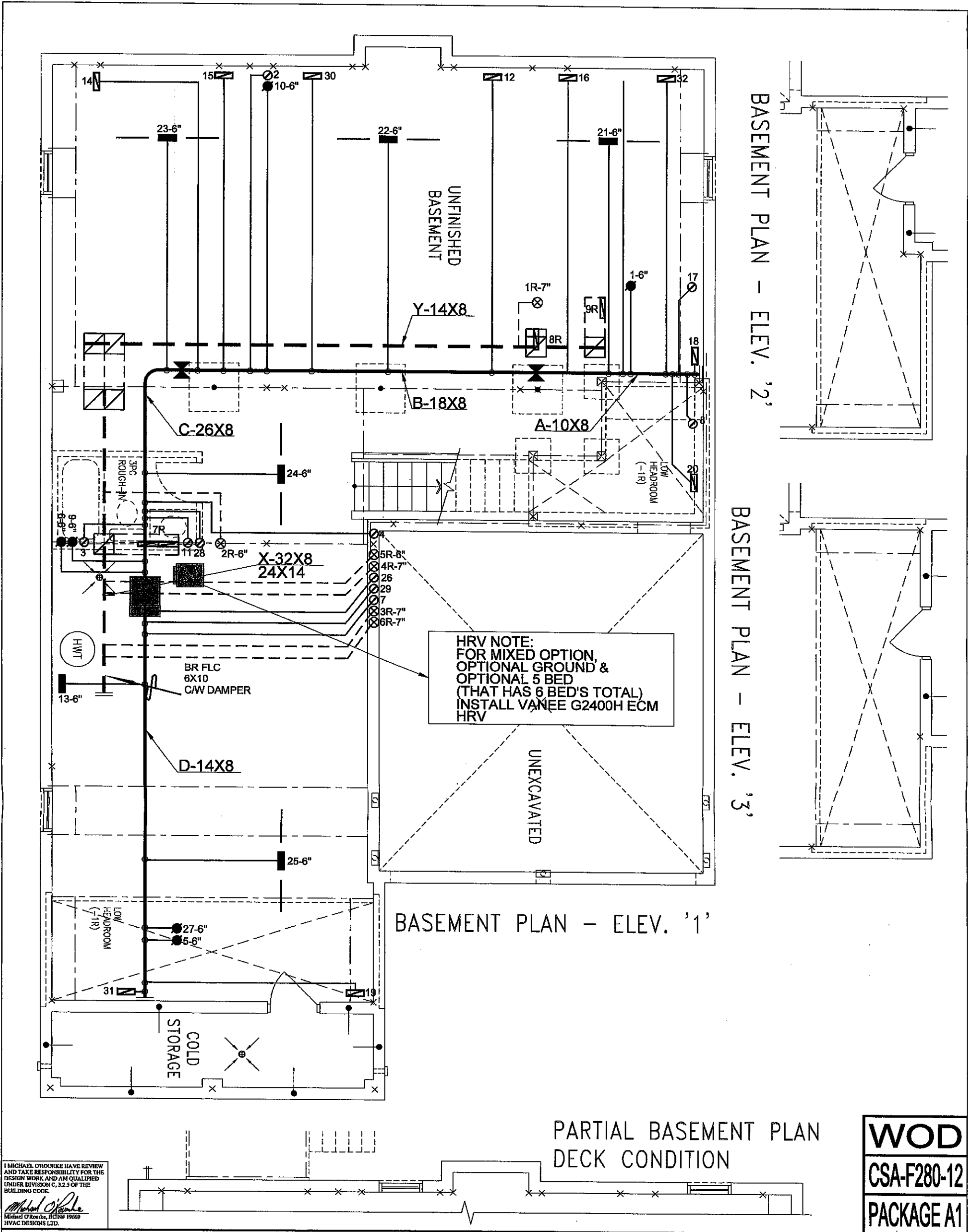
TYPE: SPRINGFIELD 2
LO# 90158

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):	7.62			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1358.6			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1811.1 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	75.0	75.0		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.338			
Cooling Air Leakage Rate (ACH/H):	0.121			

TYPE: SPRINGFIELD 2
LO# 90158



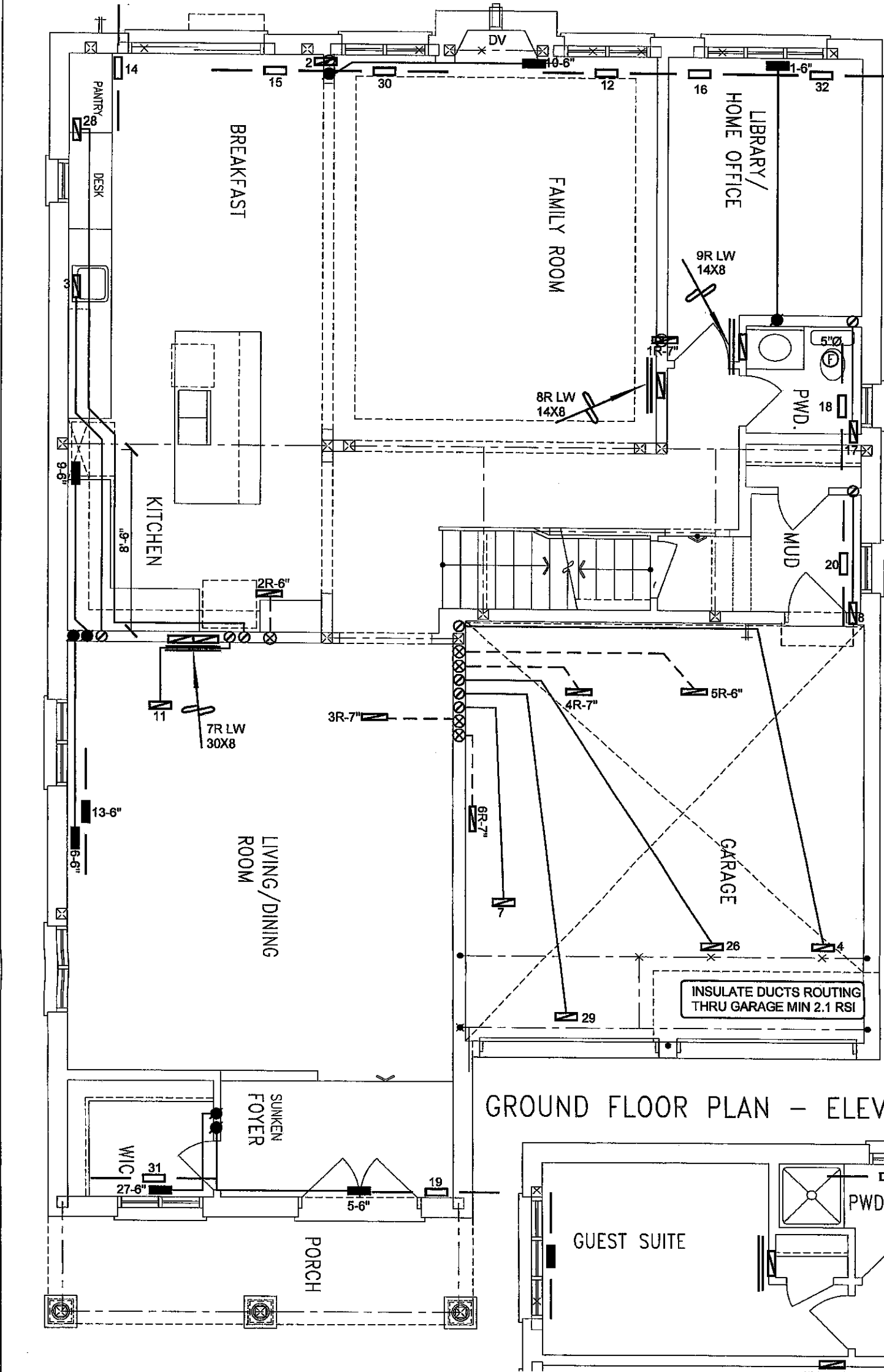
I MICHAEL O'DRISKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 32.3 OF THE BUILDING CODE.

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

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
							No. Description Date
							REVISIONS

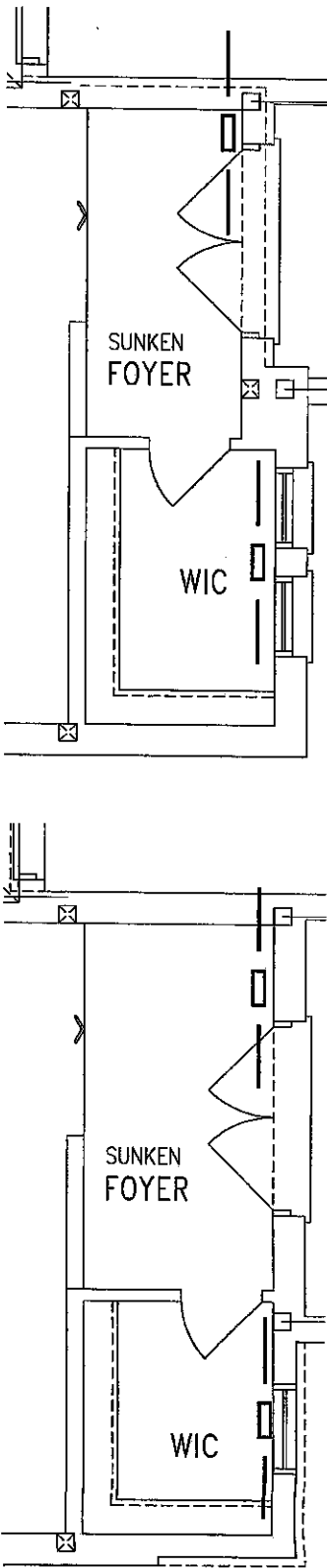
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Client	 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	HEAT LOSS 59858 BTU/H UNIT DATA	# OF RUNS	S/A	R/A	FANS	Sheet Title	
GREENPARK HOMES		MAKE GOODMAN	3RD FLOOR				BASEMENT HEATING LAYOUT	
Project Name	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.	MODEL GMEC960804CNA	2ND FLOOR	16	6	4	Date APR/2021	
RUSSELL GARDENS PH 4 HAMILTON, ONTARIO		INPUT 80 MBTU/H	1ST FLOOR	11	3	2	Scale 3/16" = 1'-0"	
SPRINGFIELD 2 3550 sqft.		OUTPUT 76.8 MBTU/H	BASEMENT	5	1	0	BCIN# 19669	
		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					LO#
		FAN SPEED 1504 cfm @ 0.8" w.c.						

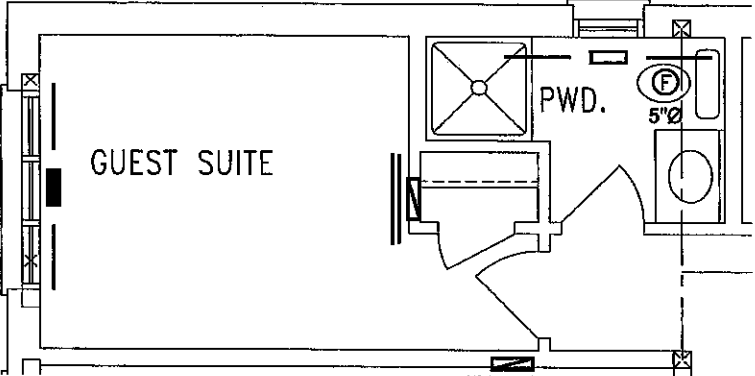


GROUND FLOOR PLAN - ELEV. '2'

GROUND FLOOR PLAN - ELEV. '3'



GROUND FLOOR PLAN - ELEV. '1'



PART. GROUND FLOOR PLAN
W/ OPT. GUEST SUITE

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.

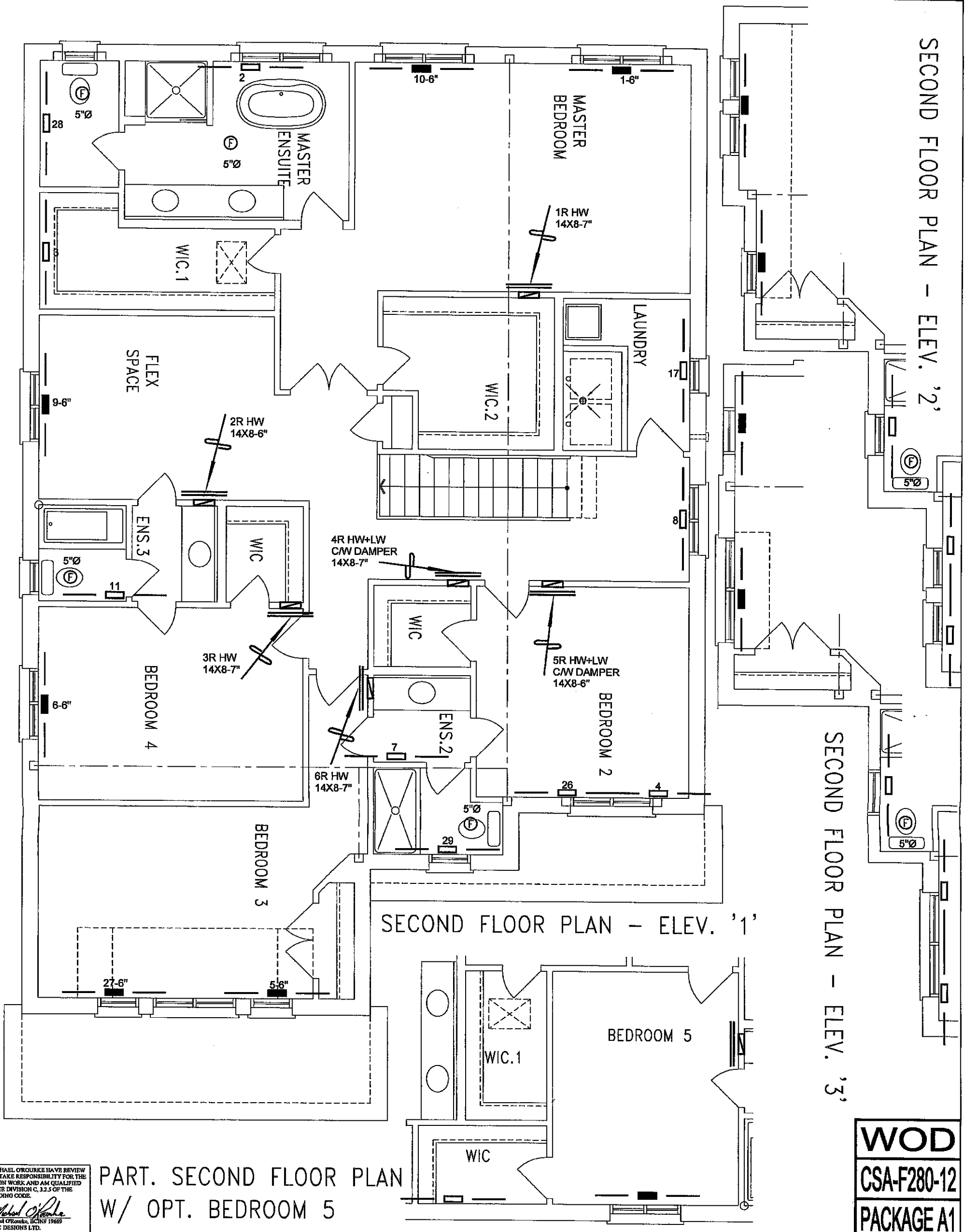
WOD
CSA-F280-12
PACKAGE A1

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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Client GREENPARK HOMES	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@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.	Sheet Title FIRST FLOOR HEATING LAYOUT Date APR/2021 Scale 3/16" = 1'-0" BCIN# 19669 LO# 90158
Project Name RUSSELL GARDENS PH 4 HAMILTON, ONTARIO		
SPRINGFIELD 2 3550 sqft		

SECOND FLOOR PLAN - ELEV. '2'



SECOND FLOOR PLAN - ELEV. '3'

I MICHAEL O'DONNELL HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
Michael O'Donnell
Michael O'Donnell, DCNS 19669
HVAC DESIGNS LTD.

PART. SECOND FLOOR PLAN
W/ OPT. BEDROOM 5

WOD
CSA-F280-12
PACKAGE A1

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
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	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@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.	Sheet Title SECOND FLOOR HEATING LAYOUT	
Project Name RUSSELL GARDENS PH 4 HAMILTON, ONTARIO			Date APR/2021	
SPRINGFIELD 2 3550 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO# 90158	