

SITE NAME: RUSSEL GARDENS PHASE 3

LOT 339

DATE: Dec-20

WINTER NATURAL AIR CHANGE RATE 0.319

HEAT LOSS AT °F. 71

CSA-F280-12

BUILDER: GREENPARK HOMES

TYPE: MOUNTAINASH 4

GFA: 3185

LO# 88613

SUMMER NATURAL AIR CHANGE RATE 0.114

HEAT GAIN AT °F. 13

SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	FLEX	BED-2	BED-3	BED-4	ENS-2	BED-5	S-ENS
			43	22	44	13	12	11	10	11	21
			9	9	9	9	9	9	9	9	9
FACTORS											
GRS.WALL AREA	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	19.8	15.8	0	0	0	0	0	0	0	0	0
EAST	19.8	40.9	0	0	0	0	0	0	0	0	0
SOUTH	19.8	24.5	0	0	0	0	0	0	0	0	0
WEST	19.8	40.9	32	633	1309	14	277	573	7	138	172
SKYLT.	34.6	101.5	0	0	0	0	0	0	0	0	0
DOORS	23.5	4.3	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	355	1472	267	177	734	133	333	1380	250
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.2	0.6	316	377	185	120	143	71	189	225	111
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			2481		1292	2375	1208	1667	852	661	784
SUB TOTAL HT GAIN				1762	943	2386	511	2050	322	468	669
LEVEL FACTOR / MULTIPLIER	0.20	0.26	0.20	0.26	0.20	0.26	0.20	0.26	0.20	0.26	0.20
AIR CHANGE HEAT LOSS			655		341	786	319	493	175	207	331
AIR CHANGE HEAT GAIN				141	76	238	41	164	26	37	53
DUCT LOSS			0	0	0	376	153	236	0	0	159
DUCT GAIN			0	0	0	371	128	294	0	0	72
HEAT GAIN PEOPLE	240	2	480	0	0	0	1	240	1	240	0
HEAT GAIN APPLIANCES/LIGHTS			486	0	0	486	486	486	0	0	486
TOTAL HT LOSS BTU/H			3136		1633	4137	1680	2596	836	991	1744
TOTAL HT GAIN x 1.3 BTU/H				3729	1331	5305	1826	4263	452	1600	1034

ROOM USE	EXP. WALL	CLG. HT.	FAM	L/D	K/E	L/H	LND	W/R	FOY	WUB	BAS
			34	24	37	18	0	26	42	28	148
			11	11	11	11	9	12	11	9	9
FACTORS											
GRS.WALL AREA	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	19.8	15.8	8	158	125	0	0	0	0	0	0
EAST	19.8	40.9	0	0	0	0	0	0	0	0	0
SOUTH	19.8	24.5	0	0	0	0	0	0	0	0	0
WEST	19.8	40.9	40	791	1637	0	0	0	0	0	0
SKYLT.	34.6	101.5	0	0	0	0	0	0	0	0	0
DOORS	23.5	4.3	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	326	1351	245	231	958	174	335	1389	252
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.2	0.6	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
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			2300		1610	2858	1008	87	1789	2804	508
SUB TOTAL HT GAIN				2008	984	2758	434	43	410	508	965
LEVEL FACTOR / MULTIPLIER	0.30	0.43	0.30	0.43	0.30	0.43	0.20	0.26	0.30	0.43	0.50
AIR CHANGE HEAT LOSS			992		694	1232	435	23	772	1209	890
AIR CHANGE HEAT GAIN				160	79	220	35	3	33	41	98
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	2	480	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS			486	0	0	486	486	486	0	0	486
TOTAL HT LOSS BTU/H			3292		2304	4088	1443	110	2561	4013	1688
TOTAL HT GAIN x 1.3 BTU/H				3450	2012	4503	1241	692	575	714	2013

TOTAL HEAT GAIN BTU/H:

36993

TONS: 3.08

LOSS DUE TO VENTILATION LOAD BTU/H: 1819

STRUCTURAL HEAT LOSS: 53420

TOTAL COMBINED HEAT LOSS BTU/H: 55238

SITE NAME: RUSSEL GARDENS PHASE 3
 BUILDER: GREENPARK HOMES

 LOT 339
 TYPE: MOUNTAINASH 4

DATE: Dec-20

GFA: 3185 LO# 88613

 HEATING CFM 1131 COOLING CFM 1131
 TOTAL HEAT LOSS 53,420 TOTAL HEAT GAIN 36,664
 AIR FLOW RATE CFM 21.17 AIR FLOW RATE CFM 30.85

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

 #GOODMAN
 GMEC960603BNA 60
 FAN SPEED LOW
 MEDLOW 928
 MEDIUM 1017
 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	14	7	4
R/A	0	0	6	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	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	ENS	MBR	FLEX	BED-2	BED-3	BED-4	ENS-2	FLEX	BED-3	MBR	S-ENS	FAM	L/D	K/B	K/B	L/H	BED-5	W/R	FOY	LND	BAS	BAS	BAS	BAS
RM LOSS MBH	1.63	1.57	2.07	1.68	1.30	1.08	0.84	2.07	1.30	1.57	0.87	3.29	2.30	2.04	2.04	1.44	0.99	2.56	4.01	0.11	4.44	4.44	4.44	4.44
CFM PER RUN HEAT	35	33	44	36	27	23	18	44	27	33	18	70	49	43	43	31	21	54	85	2	94	94	94	94
RM GAIN MBH	1.33	1.86	2.65	1.83	2.10	1.65	0.45	2.65	2.10	1.86	0.52	3.45	2.01	2.25	2.25	1.24	1.60	0.58	0.71	0.69	0.59	0.59	0.59	0.59
CFM PER RUN COOLING	41	58	82	56	65	51	14	82	65	58	16	106	62	69	69	38	49	18	22	21	18	18	18	18
ADJUSTED PRESSURE	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	27	67	51	56	61	46	49	58	49	40	56	26	25	38	44	40	23	47	48	48	34	29	24	41
EQUIVALENT LENGTH	130	150	160	140	100	210	200	130	190	100	130	130	140	120	120	140	160	130	110	160	120	100	130	130
TOTAL EFFECTIVE LENGTH	157	217	211	196	161	256	249	188	239	140	186	156	165	158	164	180	183	177	158	208	154	129	154	171
ADJUSTED PRESSURE	0.11	0.08	0.08	0.09	0.11	0.07	0.07	0.09	0.07	0.12	0.09	0.1	0.1	0.11	0.1	0.1	0.09	0.1	0.08	0.11	0.13	0.11	0.11	0.09
ROUND DUCT SIZE	4	5	6	6	5	5	4	6	5	5	4	6	6	5	5	4	6	5	6	4	6	6	6	6
HEATING VELOCITY (ft/min)	402	242	224	184	198	169	207	224	198	242	207	357	250	316	316	356	107	396	433	23	479	479	479	479
COOLING VELOCITY (ft/min)	470	426	418	286	477	374	161	418	477	426	184	540	316	507	507	436	250	132	112	241	92	92	92	92
OUTLET GRILL SIZE	3X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	3X10	4X10	3X10	4X10	4X10	4X10	4X10
TRUNK	C	A	D	A	E	D	D	D	D	C	E	C	E	B	B	D	C	A	D	A	B	C	E	D

RUN #	25
ROOM NAME	S-ENS
RM LOSS MBH	0.87
CFM PER RUN HEAT	18
RM GAIN MBH	0.52
CFM PER RUN COOLING	16
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH	51
EQUIVALENT LENGTH	140
TOTAL EFFECTIVE LENGTH	191
ADJUSTED PRESSURE	0.09
ROUND DUCT SIZE	4
HEATING VELOCITY (ft/min)	207
COOLING VELOCITY (ft/min)	184
OUTLET GRILL SIZE	3X10
TRUNK	E

SUPPLY AIR TRUNK SIZE														RETURN AIR TRUNK SIZE											
TRUNK	STATIC	ROUND	RECT	VELOCITY				TRUNK	STATIC	ROUND	RECT	VELOCITY				TRUNK	STATIC	ROUND	RECT	VELOCITY				TRUNK	STATIC
CFM	PRESS.	DUCT	DUCT	CFM	PRESS.	DUCT	DUCT	CFM	PRESS.	DUCT	DUCT	CFM	PRESS.	DUCT	DUCT	CFM	PRESS.	DUCT	DUCT	CFM	PRESS.	DUCT	DUCT	CFM	PRESS.
TRUNK A	125	0.08	6.4	8	X	8	281	TRUNK G	0	0.00	0	0	X	8	0	TRUNK O	0	0.05	0	0	X	8	0	TRUNK O	0
TRUNK B	180	0.10	7	8	X	8	405	TRUNK H	0	0.00	0	0	X	8	0	TRUNK P	0	0.05	0	0	X	8	0	TRUNK P	0
TRUNK C	558	0.08	11.3	16	X	8	628	TRUNK I	0	0.00	0	0	X	8	0	TRUNK Q	0	0.05	0	0	X	8	0	TRUNK Q	0
TRUNK D	366	0.07	10	12	X	8	549	TRUNK J	0	0.00	0	0	X	8	0	TRUNK R	0	0.05	0	0	X	8	0	TRUNK R	0
TRUNK E	572	0.07	11.8	16	X	8	644	TRUNK K	0	0.00	0	0	X	8	0	TRUNK S	0	0.05	0	0	X	8	0	TRUNK S	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	TRUNK T	0
																TRUNK U	0	0.05	0	0	X	8	0	TRUNK U	0
																TRUNK V	0	0.05	0	0	X	8	0	TRUNK V	0
																TRUNK W	0	0.05	0	0	X	8	0	TRUNK W	0
RETURN AIR #	1	2	3	4	5	6	7	8	0	0	0	0	0	0	0	TRUNK X	876	0.05	15	26	X	8	606	TRUNK X	876
AIR VOLUME	85	95	95	85	75	280	155	85	0	0	0	0	0	0	0	TRUNK Y	435	0.05	11.6	16	X	8	489	TRUNK Y	435
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	TRUNK Z	255	0.05	9.5	10	X	8	459	TRUNK Z	255
ACTUAL DUCT LGH	51	42	57	53	63	26	26	48	1	1	1	1	1	1	1	DROP	1131	0.05	16.5	24	X	10	679	DROP	1131
EQUIVALENT LENGTH	205	165	155	205	210	185	190	155	0	0	0	0	0	0	0										
TOTAL EFFECTIVE LH	256	207	212	258	273	211	216	203	1	1	1	1	1	1	1										
ADJUSTED PRESSURE	0.06	0.07	0.07	0.06	0.05	0.07	0.07	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80										
ROUND DUCT SIZE	6	6	6	6	6	9	7.2	5.8	0	0	0	0	0	0	0										
INLET GRILL SIZE	8	8	8	8	8	8	8	8	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										
INLET GRILL SIZE	14	14	14	14	14	30	14	14	0	0	0	0	0	0	0										

TYPE: MOUNTAINASH 4
 SITE NAME: RUSSEL GARDENS PHASE 3

 LO # 88613
 LOT 339

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	4 @ 10.6 cfm	42.4 cfm
Kitchen & Bathrooms	5 @ 10.6 cfm	53 cfm
Other Rooms	8 @ 10.6 cfm	84.8 cfm
Table 9.32.3.A. TOTAL		222.6 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		96.4 cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	222.6	cfm
Less Principal Ventil. Capacity	95.4	cfm
Required Supplemental Capacity	127.2	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model: VANE 65H	Location: BSMT		
95.4 cfm	3.0 sones ☒ HVI Approved		
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	AT °F	FACTOR	% LOSS
95.4 CFM	X 71 F	X 1.08	X 0.25

SUPPLEMENTAL FANS		PANASONIC		
Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	50	☒	0.3
ENS-2	FV-05-11VK1	50	☒	0.3
S-ENS	FV-05-11VK1	50	☒	0.3
W/R	FV-05-11VK1	50	☒	0.3

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANE 65H		
155 cfm high	64 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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	December-20

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

LO#: 88613

Model: MOUNTAINASH 4

Builder: GREENPARK HOMES

Date: 14/12/2020

Volume Calculation
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1398	9	12582
First	1398	11	15378
Second	1793	9	16137
Third	0	9	0
Fourth	0	9	0
Total:			44,097.0 ft³
Total:			1248.7 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.319
SUMMER NATURAL AIR CHANGE RATE	0.114

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

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

$$0.319 \times 346.86 \times 39^\circ\text{C} \times 1.2 = 5211 \text{ W}$$

$$= 17780 \text{ Btu/h}$$

6.2.6 Sensible Gain due to Air Leakage

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

$$0.114 \times 346.86 \times 7^\circ\text{C} \times 1.2 = 338 \text{ W}$$

$$= 1154 \text{ Btu/h}$$

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

$$95 \text{ CFM} \times 71^\circ\text{F} \times 1.08 \times 0.25 = 1819 \text{ Btu/h}$$

6.2.7 Sensible heat Gain due to Ventilation

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

$$95 \text{ CFM} \times 13^\circ\text{F} \times 1.08 \times 0.25 = 330 \text{ Btu/h}$$

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)	HLairbv 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	17,780	8,886	1.000
2	0.3		12,367	0.431
3	0.2		13,463	0.264
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

CITY OF HAMILTON
Building Division

21-107110

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE

THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW

These drawings and/or specifications have been reviewed by

MAR 5 1 2021

FOR CHIEF BUILDING OFFICIAL

DATE

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: MOUNTAINASH 4	LOT 339	BUILDER: GREENPARK HOMES
SFQT: 3185	LO# 88613	SITE: RUSSEL GARDENS PHASE 3

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):	44097.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
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: 52.0 ft	WIDTH: 36.0 ft	EXPOSED PERIMETER:	148.0 ft

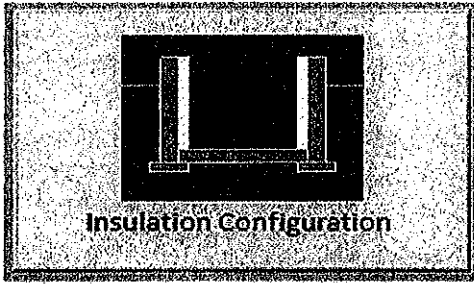
2012 OBC - COMPLIANCE PACKAGE		Compliance Package	
Component		A1	
		Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.65
Exposed Floor Minimum RSI (R)-Value		31	29.80
Walls Above Grade Minimum RSI (R)-Value		22	17.03
Basement 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		0.96	-
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

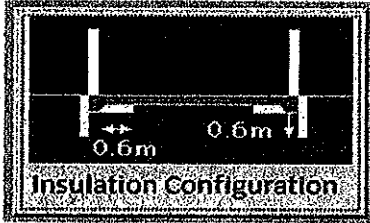
Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	15.8	 Insulation Configuration
Floor Width (m):	11.0	
Exposed Perimeter (m):	45.1	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	2.0	
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):		1409

TYPE: MOUNTAINASH 4
LO# 88613

LOT 339

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):	1.8	
Width (m):	4.9	
Exposed Perimeter (m):	8.5	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		75

TYPE: MOUNTAINASH 4
LO# 88613

LOT 339

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):	7.01			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1248.7			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa. 3.57	1664.5 cm ² ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply 45.0	Total Exhaust 45.0		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):		0.319		
Cooling Air Leakage Rate (ACH/H):		0.114		

TYPE: MOUNTAINASH 4
LO# 88613

LOT 339

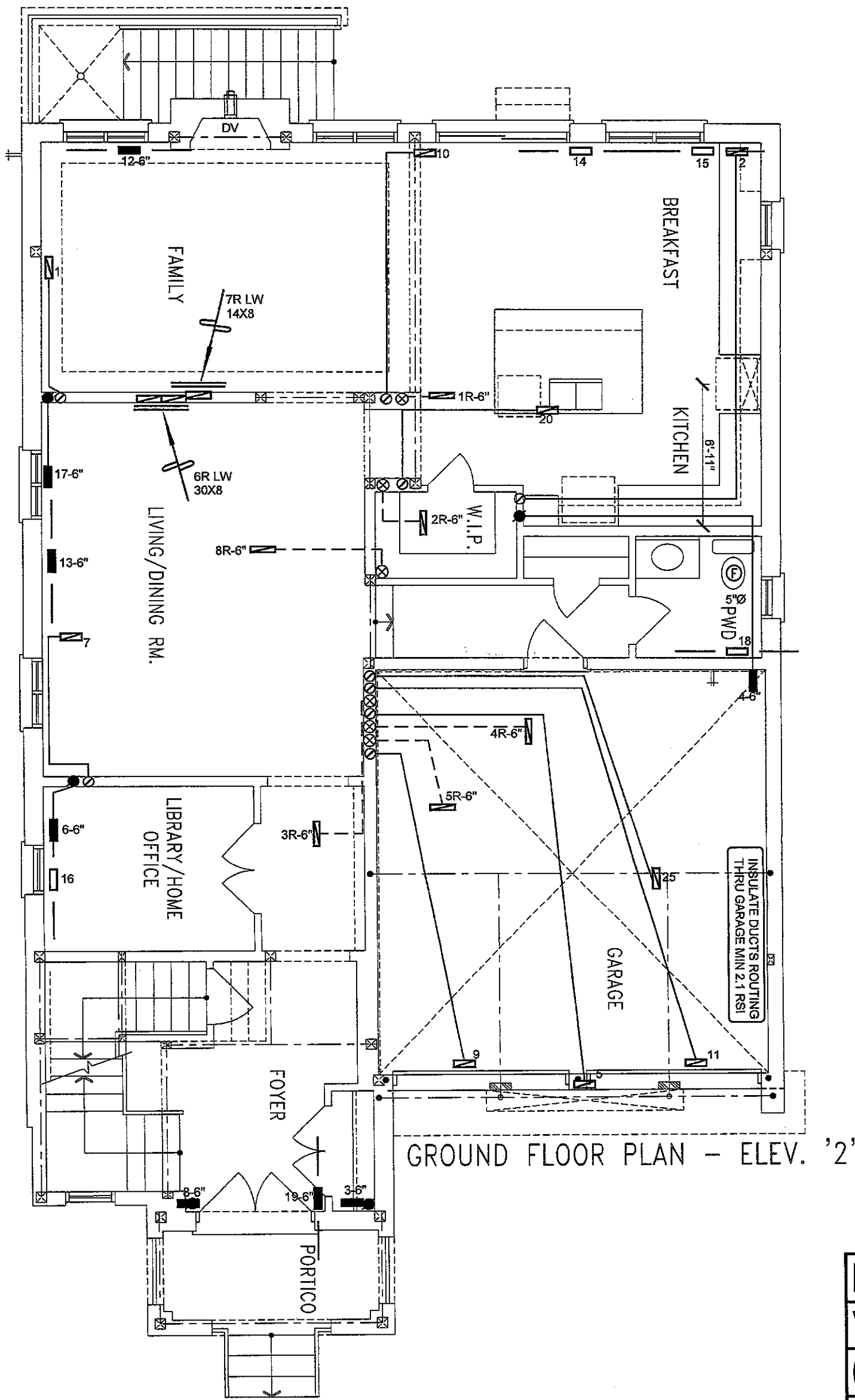


**I MICHAEL O'ROURKE HAVE REVIEW
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C, 32.5 OF THE
BUILDING CODE.**

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

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Client	HVACDESIGNSLTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacadesigns.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 55238 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			Sheet Title BASEMENT HEATING LAYOUT	
GREENPARK HOMES		MAKE GOODMAN		3RD FLOOR				
Project Name		MODEL GMEC960603BNA		2ND FLOOR	14	6	4	
RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO		INPUT 60 MBTU/H		1ST FLOOR	7	2	2	
LOT 339 MOUNTAINASH 4 3185 sqft		OUTPUT 57.6 MBTU/H		BASEMENT	4	1	0	
		COOLING 3.0 TONS	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				Date DEC/2020	
		FAN SPEED 1131 cfm @ 0.5" w.c.					Scale 3/16" = 1'-0"	
						BCIN# 19669		
						LO#	88613	



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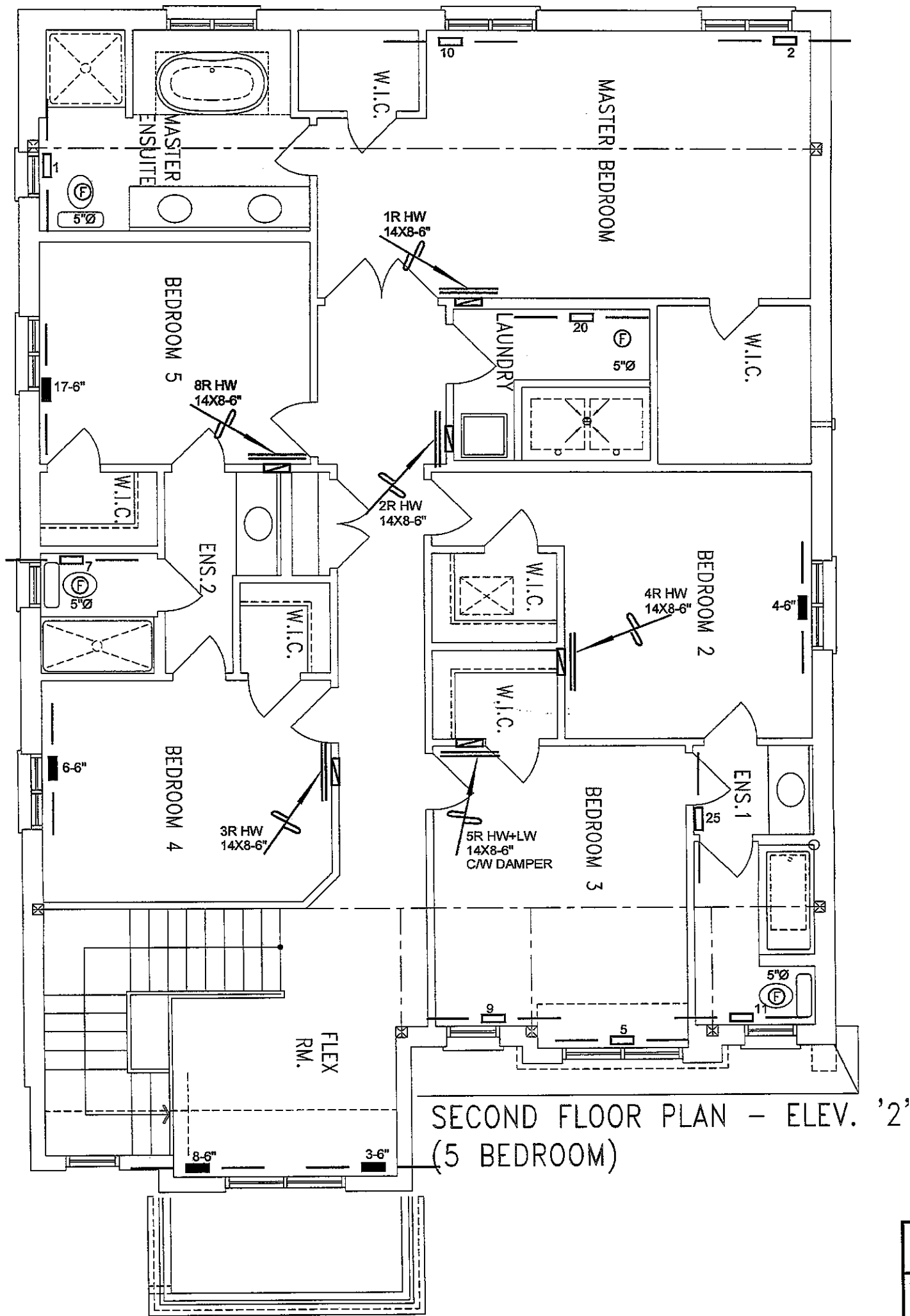
Michael O'Brourke
Michael O'Brourke, BCIN# 19669
HVAC DESIGNS LTD.

LOT 339
WUB
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		 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 RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO			Date DEC/2020	
LOT 339 MOUNTAINASH 4 3185 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO#	88613



LOT 339
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
	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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Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO			Date DEC/2020	
LOT 339 MOUNTAINASH 4 3185 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO#	88613