

SITE NAME: RUSSEL GARDENS PHASE 3

LOT 99

DATE: Aug-28

WINTER NATURAL AIR CHANGE RATE 0.343

HEAT LOSS AT °F. 71

CSA-F280-12

BUILDER: GREENPARK HOMES

TYPE: MOUNTAINASH 4

GFA: 3180

LO# 87256

SUMMER NATURAL AIR CHANGE RATE 0.123

HEAT GAIN AT °F. 13

SB-12 PACKAGE A1

ROOM USE			MBR		ENS		FLEX		BED-2		BED-3		BED-4		ENS-3		3-ENS		
EXP. WALL			40		28		44		14		30		13		8		6		
CLG. HT.			9		9		9		9		9		9		9		9		
GRS.WALL AREA	FACTORS		360		252		396		126		270		117		54		54		
GLAZING	LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		
NORTH	19.8 15.1	0 0 0	14 277 212	0 0 0	0 0 0	0 0 0	16 316 242	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	7 138 106		
EAST	19.8 39.0	0 0 0	0 0 0	0 0 0	0 0 0	72 1423 2809	0 0 0	57 1127 2224	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0		
SOUTH	19.8 23.5	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	16 316 376	7 138 164	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0		
WEST	19.8 39.0	32 633 1249	14 277 646	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0		
SKYL.T.	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	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	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	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	328 1360 247	224 929 188	324 1343 244	110 456 83	213 883 160	101 419 76	47 195 35									47 195 35		
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									0 0 0		
EXPOSED CLG	1.2 0.8	384 468 226	192 229 113	189 225 111	251 299 147	196 234 116	200 236 118	96 114 56									114 136 67		
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									114 270 49		
BASEMENT/CRAWL HEAT LOSS		0	0	0	0	0	0	0									0		
SLAB ON GRADE HEAT LOSS		0	0	0	0	0	0	0									0		
SUBTOTAL HT LOSS		2450		1711		3116		1235		2806		973		448			739		
SUB TOTAL HT GAIN			1721		1040		3210		502		2617		569		256		257		
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			0.20 0.27		
AIR CHANGE HEAT LOSS		681		465		828		328		745		259		119			196		
AIR CHANGE HEAT GAIN			138		84		258		40		211		46		21		21		
DUCT LOSS		0		0		394		156		355		0		0			94		
DUCT GAIN		0		0		400		131		360		0		0			28		
HEAT GAIN PEOPLE	240	2	480	0	0	0	1	240	1	240	1	240	0	0	0	0	0		
HEAT GAIN APPLIANCES/LIGHTS			530	0	0	0	530		530		530		530		530		0		
TOTAL HT LOSS BTU/H		3101		2165		4338		1719		3907		1232		567			1029		
TOTAL HT GAIN x 1.3 BTU/H		3730		1460		5718		1877		5145		1800		380			398		

ROOM USE			FAM		L/D		K/B		L/H		LND		W/R		FOY		WOD		BAS	
EXP. WALL			34		24		37		18		8		26		42		46		176	
CLG. HT.			11		11		11		11		9		12		11		9		9	
GRS.WALL AREA	FACTORS		360		254		392		191		72		302		445		396		1254	
GLAZING	LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN	
NORTH	19.8	15.1	8	158	121	0	0	0	0	0	0	0	0	7	138	106	0	0	0	5
EAST	19.8	39.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	99
SOUTH	19.8	23.5	0	0	0	33	652	775	0	12	237	282	7	138	164	0	0	0	7	138
WEST	19.8	39.0	40	791	1561	0	0	0	60	1185	2341	0	0	0	0	0	0	0	10	198
SKYL.T.	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	0	12	281	51	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	312	1295	235	221	918	166	320	1327	241	179	741	134	65	269	49	275	1138	206
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
EXPOSED CLG	1.2	0.6	0	0	0	0	0	0	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
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																				
SLAB ON GRADE HEAT LOSS																				
SUBTOTAL HT LOSS				2244			1670			2795			978			551			1745	
SUB TOTAL HT GAIN					1917			941			2633			416		284			397	
LEVEL FACTOR / MULTIPLIER	0.30	0.46				0.30	0.46		0.30	0.46		0.30	0.46		0.20	0.27	0.30	0.46		
AIR CHANGE HEAT LOSS				1041			729			1297			454			146		810		
AIR CHANGE HEAT GAIN					164		76			212			33			23		32		
DUCT LOSS				0			0			0			0			0		57		
DUCT GAIN				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	0
HEAT GAIN APPLIANCES/LIGHTS					530		530			530			530			530		0		530
TOTAL HT LOSS BTU/H				3285			2298			4092			1493			697		923		16265
TOTAL HT GAIN x 1.3 BTU/H				3381			2011			4387			1273			1087		217		1857

CITY OF HAMILTON
Building Division
20-199023
Permit No
THESE 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
FOR CHIEF BUILDING OFFICIAL
JAN 11 2021
DATE

TOTAL HEAT GAIN BTU/H: 35530 TONS: 3.04 LOSS DUE TO VENTILATION LOAD BTU/H: 1516 STRUCTURAL HEAT LOSS: 53669 TOTAL COMBINED HEAT LOSS BTU/H: 55085

Michael O'Rourke

SITE NAME: RUSSEL GARDENS PHASE 3
BUILDER: GREENPARK HOMES

LOT 99
TYPE: MOUNTAINASH 4

DATE: Aug-20

GFA: 3190 LO# 87256

HEATING CFM 1131 COOLING CFM 1131
TOTAL HEAT LOSS 53,569 TOTAL HEAT GAIN 36,256
AIR FLOW RATE CFM 21.11 AIR FLOW RATE CFM 31.2

#GOODMAN
GMEC960603BNA 60
FAN SPEED LOW

AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,600

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	13	7	4
R/A	0	0	5	2	1

All S/A diffusers 4"x10" unless noted otherwise on layout.

All S/A runs 5"Ø unless noted otherwise on layout.

plenum pressure s/a 0.18 r/a pressure 0.17
max s/a diff press. loss 0.02 r/a grille press. Loss 0.02
min adjusted pressure s/a 0.16 adjusted pressure r/a 0.15

MEDIUM HIGH 1017
HIGH 1131

DESIGN CFM = 1131
CFM @ .6" E.S.P.

TEMPERATURE RISE 47 °F

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24
ROOM NAME	MBR	ENS	FLEX	BED-2	BED-3	BED-4	ENS-3	FLEX	BED-3	MBR	S-ENS	FAM	L/D	K/B	K/B	L/H	LND	W/R	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH	1.55	2.17	2.17	1.72	1.95	1.23	0.57	2.17	1.95	1.55	0.51	3.29	2.30	2.05	2.05	1.43	0.70	2.56	3.97	4.29	4.29	4.29	4.29
CFM PER RUN HEAT	33	46	46	36	41	26	12	46	41	33	11	69	49	43	43	30	15	54	84	91	91	91	91
RM GAIN MBH	1.86	1.46	2.86	1.88	2.57	1.80	0.36	2.86	2.57	1.86	0.20	3.38	2.01	2.19	2.19	1.27	1.09	0.56	0.99	0.52	0.52	0.52	0.52
CFM PER RUN COOLING	58	46	89	59	80	56	11	89	80	58	6	105	63	68	68	40	34	17	31	16	16	16	16
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	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	32	63	51	55	61	46	49	58	49	38	46	26	25	38	44	40	23	47	48	34	20	24	41
EQUIVALENT LENGTH	130	150	160	140	100	210	200	130	190	100	130	130	140	120	120	140	160	130	110	120	100	130	130
TOTAL EFFECTIVE LENGTH	162	213	211	196	161	256	249	188	239	138	176	156	165	158	164	180	183	177	158	154	120	154	171
ADJUSTED PRESSURE	0.11	0.08	0.08	0.09	0.11	0.07	0.07	0.09	0.07	0.12	0.1	0.1	0.1	0.11	0.1	0.1	0.09	0.1	0.1	0.11	0.14	0.11	0.09
ROUND DUCT SIZE	5	5	6	5	6	6	4	6	6	5	4	6	5	5	5	4	4	5	6	6	6	6	6
HEATING VELOCITY (ft/min)	242	338	235	264	209	133	138	235	209	242	126	352	360	316	316	344	172	396	428	464	464	464	464
COOLING VELOCITY (ft/min)	426	338	454	433	408	286	126	454	408	426	69	535	463	499	499	459	390	125	158	82	82	82	82
OUTLET GRILL SIZE	3X10	3X10	4X10	3X10	4X10	4X10	3X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10
TRUNK	C	A	D	A	E	D	D	D	D	C	E	C	E	B	B	D	C	A	D	B	C	E	D

RUN #	25
ROOM NAME	S-ENS
RM LOSS MBH	0.51
CFM PER RUN HEAT	11
RM GAIN MBH	0.20
CFM PER RUN COOLING	6
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH	46
EQUIVALENT LENGTH	140
TOTAL EFFECTIVE LENGTH	186
ADJUSTED PRESSURE	0.09
ROUND DUCT SIZE	4
HEATING VELOCITY (ft/min)	126
COOLING VELOCITY (ft/min)	69
OUTLET GRILL SIZE	3X10
TRUNK	E

SUPPLY AIR TRUNK SIZE	TRUNK	STATIC	ROUND	RECT	VELOCITY	TRUNK	STATIC	ROUND	RECT	VELOCITY	RETURN AIR TRUNK SIZE	TRUNK	STATIC	ROUND	RECT	VELOCITY
	CFM	PRESS.	DUCT	DUCT	(ft/min)	CFM	PRESS.	DUCT	DUCT	(ft/min)		CFM	PRESS.	DUCT	DUCT	(ft/min)
TRUNK A	136	0.08	6.6	8	306	TRUNK G	0	0.00	0	0	TRUNK O	0	0.05	0	0	8
TRUNK B	177	0.10	6.9	8	398	TRUNK H	0	0.00	0	0	TRUNK P	0	0.05	0	0	8
TRUNK C	554	0.08	11.2	14	712	TRUNK I	0	0.00	0	0	TRUNK Q	0	0.05	0	0	8
TRUNK D	376	0.07	10.1	12	564	TRUNK J	0	0.00	0	0	TRUNK R	0	0.05	0	0	8
TRUNK E	579	0.07	11.8	16	651	TRUNK K	0	0.00	0	0	TRUNK S	0	0.05	0	0	8
TRUNK F	0	0.00	0	0	0	TRUNK L	0	0.00	0	0	TRUNK T	0	0.05	0	0	8

RETURN AIR #	1	2	3	4	5	6	7																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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TYPE: MOUNTAINASH 4
SITE NAME: RUSSEL GARDENS PHASE 3

LO # 87265
LOT 89

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 8 Design	

TOTAL VENTILATION CAPACITY	9.32.3.3(1)
Basement + Master Bedroom	2 @ 21.2 cfm <u>42.4</u> cfm
Other Bedrooms	3 @ 10.6 cfm <u>31.8</u> cfm
Kitchen & Bathrooms	5 @ 10.6 cfm <u>53</u> cfm
Other Rooms	8 @ 10.6 cfm <u>84.8</u> cfm
Table 9.32.3.A.	TOTAL <u>212.0</u> 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	212 cfm
Less Principal Ventil. Capacity	79.5 cfm
Required Supplemental Capacity	132.5 cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 65H	Location: BSMT
79.5 cfm	3.0 sones
☒ HVI Approved	

PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
79.5 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-3	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: VANEE 65H	
155 cfm high	64 cfm low
75 % 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:	August-20

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 87256	Model: MOUNTAINASH 4	Builder: GREENPARK HOMES	Date: 27/08/2020																																																									
Volume Calculation			Air Change & Delta T Data																																																									
House Volume <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr> <td>Bsmt</td> <td>1398</td> <td>9</td> <td>12022.8</td> </tr> <tr> <td>First</td> <td>1398</td> <td>11</td> <td>14818.8</td> </tr> <tr> <td>Second</td> <td>1792</td> <td>9</td> <td>16128</td> </tr> <tr> <td>Third</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td>Fourth</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>42,969.6 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>1216.8 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)	Bsmt	1398	9	12022.8	First	1398	11	14818.8	Second	1792	9	16128	Third	0	9	0	Fourth	0	9	0	Total:			42,969.6 ft ³	Total:			1216.8 m ³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%; text-align: center;">0.343</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.123</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>T_{in} °C</th> <th>T_{out} °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTD_h</td> <td style="text-align: center;">22</td> <td style="text-align: center;">-17</td> <td style="text-align: center;">39</td> <td style="text-align: center;">71</td> </tr> <tr> <td>Summer DTD_c</td> <td style="text-align: center;">24</td> <td style="text-align: center;">31</td> <td style="text-align: center;">7</td> <td style="text-align: center;">13</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.343	SUMMER NATURAL AIR CHANGE RATE	0.123	Design Temperature Difference						T _{in} °C	T _{out} °C	ΔT °C	ΔT °F	Winter DTD _h	22	-17	39	71	Summer DTD _c	24	31	7	13
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.343 x 337.99 x 39 °C x 1.2 = 5462 W = 18635 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.123 x 337.99 x 7 °C x 1.2 = 355 W = 1210 Btu/h																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																									
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 71 °F x 1.08 x 0.25 = 1515 Btu/h			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 13 °F x 1.08 x 0.25 = 275 Btu/h																																																									
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																												
$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
Level	Level Factor (LF)	HL _{airbv} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{level})																																																								
1	0.5	18,635	7,860	1.185																																																								
2	0.3		12,045	0.464																																																								
3	0.2		14,029	0.266																																																								
4	0		0	0.000																																																								
5	0		0	0.000																																																								
*HL_{airbv} = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HL_{airr} = 0																																																												

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: MOUNTAINASH 4	LOT 99	BUILDER: GREENPARK HOMES
SFQT: 3190	LO# 87256	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):	42969.6	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.6 ft
LENGTH: 52.0 ft	WIDTH: 36.0 ft	EXPOSED PERIMETER:	176.0 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	-

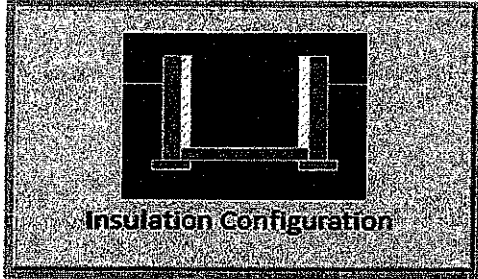
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



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):	0.0	
Wall Height (m):	2.6	
Depth Below Grade (m):	2.01	
Window Area (m ²):	2.0	
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):	1513	

TYPE: MOUNTAINASH 4
LO# 87256

LOT 99

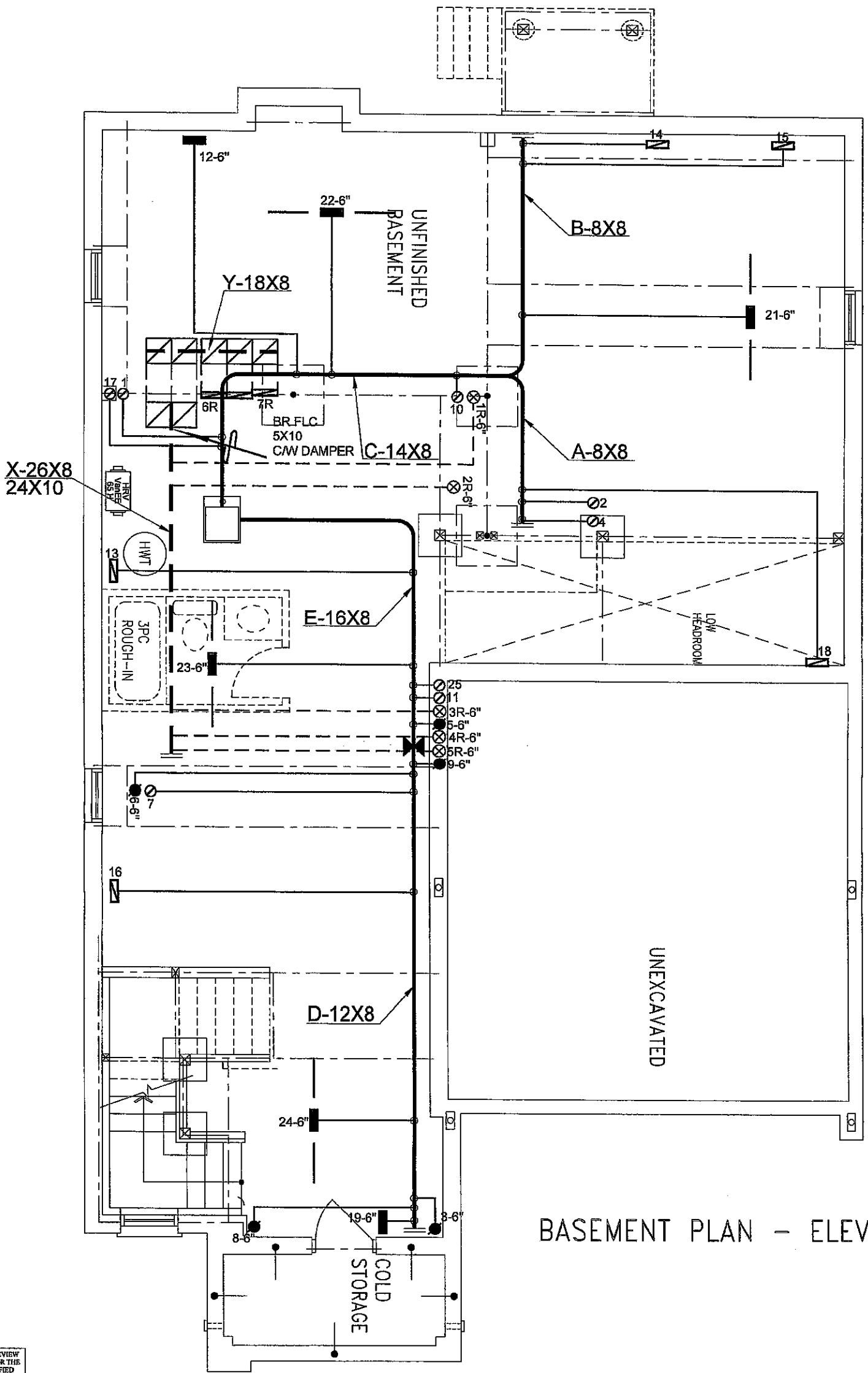
Air Infiltration Residential Load Calculator

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):	7.80			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1216.8			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1622.0 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (l/s):	Total Supply	Total Exhaust		
	37.5	37.5		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.343			
Cooling Air Leakage Rate (ACH/H):	0.123			

TYPE: MOUNTAINASH 4
LO# 87256

LOT 99



BASEMENT PLAN - ELEV. '3'

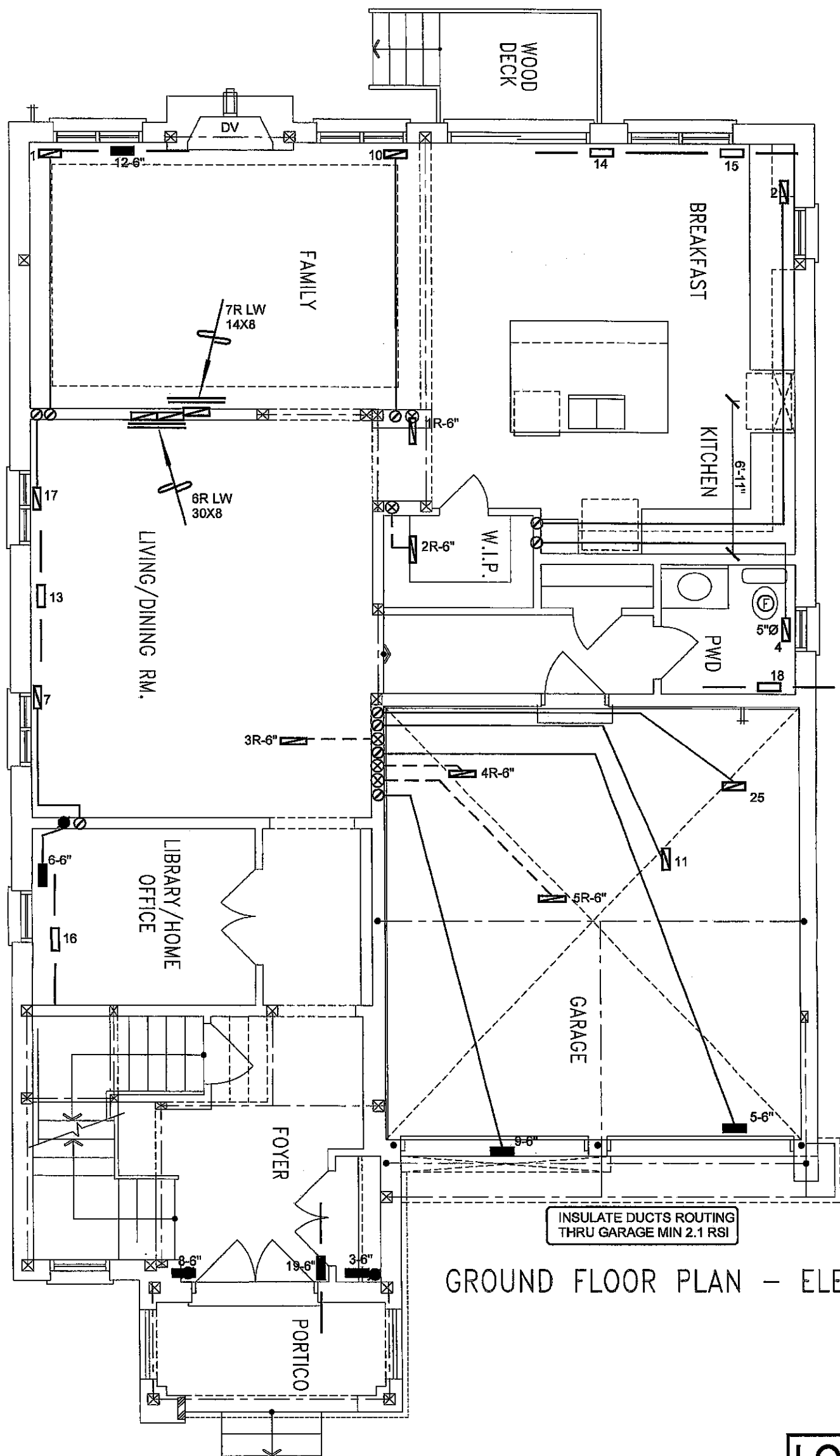
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.2 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
LOT 99 PACKAGE A1

HVAC LEGEND						REVISIONS	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	No.	Description
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE	3.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE	2.	
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		RETURN AIR STACK 2nd FLOOR	1.	
					FRA- FLOOR RETURN AIR GRILLE	No.	Date
					REDUCER		

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Client GREENPARK HOMES Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO LOT 99 MOUNTAINASH 4 3190 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@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 55085 BTU/H UNIT DATA MAKE GOODMAN MODEL GMCE960603BNA INPUT 60 MBTU/H OUTPUT 57.6 MBTU/H COOLING 3.0 TONS FAN SPEED 1131 cfm @ 0.5" w.g.	# OF RUNS S/A R/A FANS 3RD FLOOR 2ND FLOOR 13 5 3 1ST FLOOR 7 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 AUG/2020 Scale 3/16" = 1'-0" BCIN# 19669 LO# 87256



GROUND FLOOR PLAN - ELEV. '3'

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

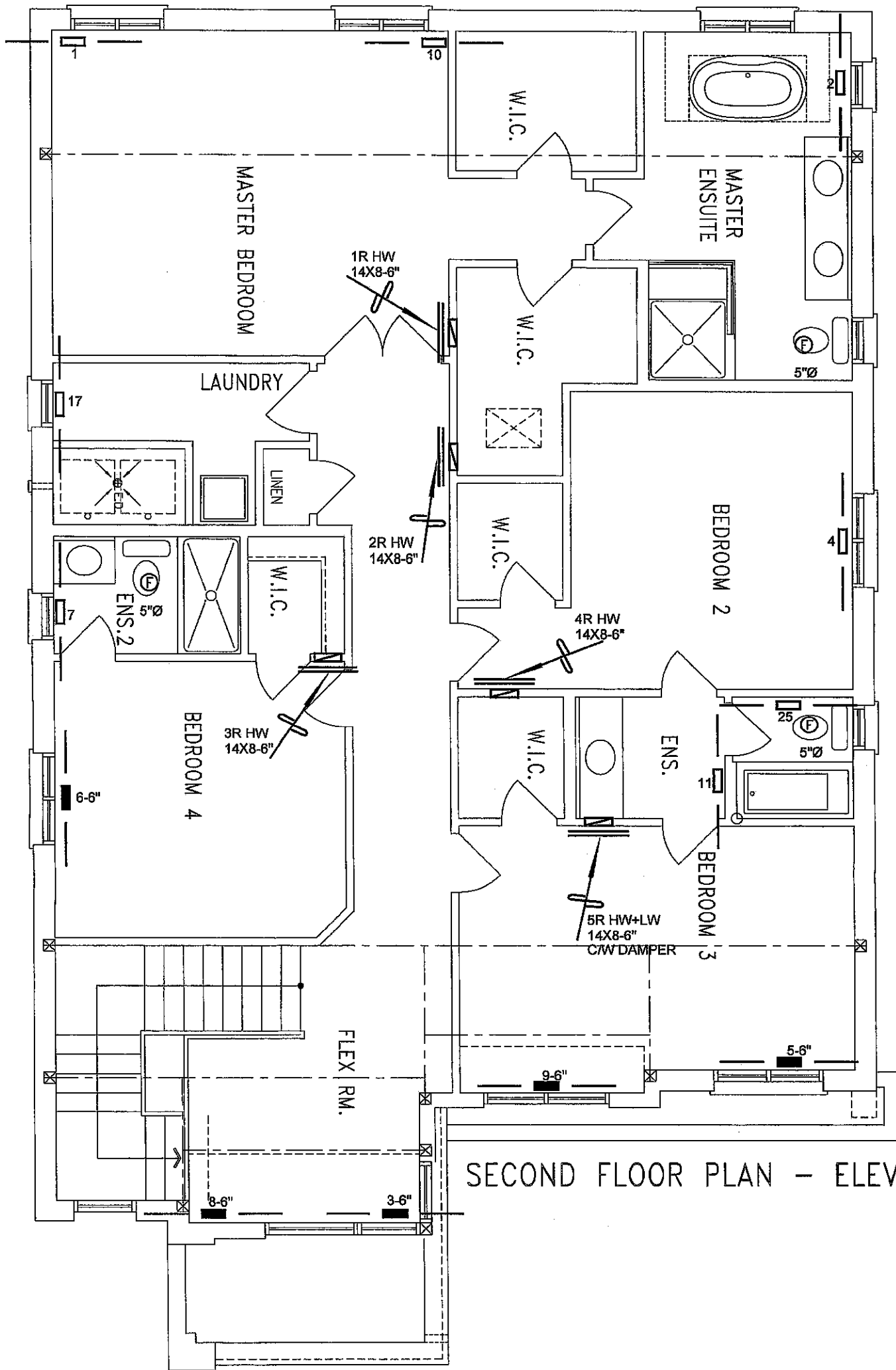
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CSA-F280-12
LOT 99 PACKAGE A1

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@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 AUG/2020	
LOT 99 MOUNTAINASH 4 3190 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO# 87256	



SECOND FLOOR PLAN – ELEV. '3'

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.

CSA-F280-12

LOT 99 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 SECOND FLOOR HEATING LAYOUT	
Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO	LOT 99 MOUNTAINASH 4 3190 sqft		Date AUG/2020	Scale 3/16" = 1'-0"
		BCIN# 19669		LO# 87256