

SITE NAME: RUSSEL GARDENS PHASE 3
BUILDER: GREENPARK HOMES

LOT 155
TYPE: MOUNTAINASH 3

GFA: 3043

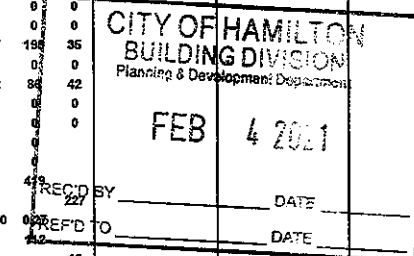
DATE: Sep-20
LO# 87665

WINTER NATURAL AIR CHANGE RATE 0.343
SUMMER NATURAL AIR CHANGE RATE 0.123

HEAT LOSS AT °F. 71
HEAT GAIN AT °F. 13

CSA-F280-12
SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	WIC-3	BED-3	BED-4	BED-5	ENS-1	BED-2	S-ENS
			42	11	7	27	32	18	16	25	5
			9	9	9	9	9	9	9	9	9
FACTORS	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
GRS.WALL AREA	378		99		63		243		162		54
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	19.8	13.9	0	0	0	0	0	0	7	138	97
EAST	19.8	35.2	0	0	0	18	356	634	44	870	1550
SOUTH	19.8	21.3	0	0	0	16	316	342	0	0	0
WEST	19.8	35.2	32	633	1127	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	346	1434	260	83	344	62	45	187	34
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	512	610	301	132	167	78	46	55	27
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	25	54	31
EXPOSED FLOOR	2.4	0.4	0	0	0	42	100	18	252	597	108
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			2677		818		697		2522		1246
SUB TOTAL HT GAIN				1688		481		713		1973	
LEVEL FACTOR / MULTIPLIER	0.20	0.27			0.20	0.27			0.20	0.27	
AIR CHANGE HEAT LOSS			715		218		186		701		674
AIR CHANGE HEAT GAIN				135		39		57		158	
DUCT LOSS			0		0		88		333		320
DUCT GAIN			0		0		77		288		316
HEAT GAIN PEOPLE	240		2		480		0		0		240
HEAT GAIN APPLIANCES/LIGHTS					514		0		0		514
TOTAL HT LOSS BTU/H			3392		1036		971		3660		3515
TOTAL HT GAIN x 1.3 BTU/H				3663		676		1101		4125	



ROOM USE	EXP. WALL	CLG. HT.	L/D	FM	K/B	L/H	LND	W/R	FOY	WOD	BAS
			30	33	35	27	31	7	18	46	178
			11	11	11	12	11	11	11	8	8
FACTORS	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
GRS.WALL AREA	318		350		371		313		74		1160
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	19.8	13.9	0	0	0	0	0	0	0	0	0
EAST	19.8	35.2	0	0	0	0	40	791	1409	0	0
SOUTH	19.8	21.3	36	712	768	0	8	158	111	0	0
WEST	19.8	35.2	0	0	0	8	158	171	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	12	281	51	0	0	0
NET EXPOSED WALL	4.1	0.8	282	1169	212	317	1313	238	270	1119	203
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			1881		1966		3160		1923		1873
SUB TOTAL HT GAIN				980		1401		3278		1614	
LEVEL FACTOR / MULTIPLIER	0.30	0.39			0.30	0.39			0.30	0.39	
AIR CHANGE HEAT LOSS			733		767		1232		759		731
AIR CHANGE HEAT GAIN				79		112		263		129	
DUCT LOSS			0		0		0		0		34
DUCT GAIN			0		0		0		0		27
HEAT GAIN PEOPLE	240		0		0		0		0		0
HEAT GAIN APPLIANCES/LIGHTS					514		514		514		514
TOTAL HT LOSS BTU/H			2614		2732		4392		2673		2604
TOTAL HT GAIN x 1.3 BTU/H				2045		2635		5271		2935	

TOTAL HEAT GAIN BTU/H:

36425

TONS: 3.04

LOSS DUE TO VENTILATION LOAD BTU/H: 1819

STRUCTURAL HEAT LOSS: 53374

TOTAL COMBINED HEAT LOSS BTU/H: 55193

Michael O'Rourke

SITE NAME: RUSSEL GARDENS PHASE 3
BUILDER: GREENPARK HOMESLOT 165
TYPE: MOUNTAINASH 3

DATE: Sep-20

GFA: 3049 LO# 87655

HEATING CFM 1131 COOLING CFM 1131
TOTAL HEAT LOSS 53,374 TOTAL HEAT GAIN 36,095
AIR FLOW RATE CFM 21.19 AIR FLOW RATE CFM 31.33furnace 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
MEDIUM 928
MEDIUM HIGH 1017
HIGH 1131AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,600DESIGN CFM = 1131
CFM @ .6" E.S.P.

TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	8	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	BED-2	ENS	WIC-3	BED-3	BED-4	BED-5	ENS-1	BED-3	BED-4	MBR	S-ENS	L/D	FM	K/B	K/B	L/H	LND	W/R	FOY	MBR	BAS	BAS	BAS	BAS
RM LOSS MBH	1.73	1.04	0.97	1.83	1.76	1.58	1.27	1.83	1.76	1.70	0.53	2.61	2.73	2.20	2.20	2.67	2.60	1.65	2.30	1.70	4.18	4.18	4.18	4.18
CFM PER RUN HEAT	37	22	21	39	37	33	27	39	37	36	11	55	58	47	47	57	55	35	49	36	89	89	89	89
RM GAIN MBH	2.12	0.68	1.10	2.06	2.26	1.84	0.44	2.06	2.26	1.83	0.32	2.05	2.64	2.64	2.64	2.94	1.26	0.48	0.69	1.83	0.50	0.50	0.50	0.50
CFM PER RUN COOLING	66	21	35	65	71	58	14	65	71	57	10	64	83	83	83	92	40	15	22	57	16	16	16	16
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	57	19	43	51	48	32	61	56	47	46	30	17	47	23	33	37	47	16	35	22	44	19	4	22
EQUIVALENT LENGTH	140	150	110	120	150	180	130	130	160	160	190	120	120	140	100	150	110	150	100	140	140	110	130	130
TOTAL EFFECTIVE LENGTH	197	169	153	171	198	212	191	186	207	206	220	137	167	163	133	187	157	166	135	162	184	129	134	152
ADJUSTED PRESSURE	0.09	0.1	0.11	0.1	0.09	0.08	0.09	0.09	0.08	0.08	0.08	0.13	0.1	0.1	0.12	0.09	0.11	0.1	0.13	0.11	0.09	0.13	0.12	0.11
ROUND DUCT SIZE	5	4	4	5	5	5	4	5	5	5	4	5	6	6	6	6	5	4	4	5	6	6	6	6
HEATING VELOCITY (ft/min)	272	252	241	286	272	242	310	286	272	264	126	404	296	240	240	291	404	402	562	264	454	454	454	454
COOLING VELOCITY (ft/min)	485	241	402	477	521	426	161	477	521	419	115	470	423	423	423	469	294	172	252	419	82	82	82	82
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	A	B	D	D	C	B	A	D	C	A	C	D	A	B	B	C	A	C	C	B	A	B	D	C

RUN #	ROOM NAME	RM LOSS MBH	CFM PER RUN HEAT	RM GAIN MBH	CFM PER RUN COOLING	ADJUSTED PRESSURE	ACTUAL DUCT LGH.	EQUIVALENT LENGTH	TOTAL EFFECTIVE LENGTH	ADJUSTED PRESSURE	ROUND DUCT SIZE	HEATING VELOCITY (ft/min)	COOLING VELOCITY (ft/min)	OUTLET GRILL SIZE	TRUNK
1	BED-2	1.73	37	2.12	66	0.17	57	140	197	0.09	5	272	485	3X10	A
2	ENS	1.04	22	0.68	21	0.17	19	150	169	0.1	4	252	241	3X10	B
3	WIC-3	0.97	21	1.10	35	0.17	43	110	153	0.11	4	241	402	3X10	D
4	BED-3	1.83	39	2.06	65	0.17	51	120	171	0.1	5	286	477	3X10	D
5	BED-4	1.76	37	2.26	71	0.17	48	150	198	0.09	5	272	521	3X10	C
6	BED-5	1.58	33	1.84	58	0.17	32	180	212	0.08	5	242	426	3X10	B
7	ENS-1	1.27	27	0.44	14	0.17	61	130	191	0.09	4	310	161	3X10	A
8	BED-3	1.83	39	2.06	65	0.17	56	130	186	0.09	5	286	477	3X10	D
9	BED-4	1.76	37	2.26	71	0.17	47	160	207	0.08	5	272	521	3X10	C
10	MBR	1.70	36	1.83	57	0.17	46	160	206	0.08	5	264	419	3X10	A
11	S-ENS	0.53	11	0.32	10	0.17	30	190	220	0.08	4	126	115	3X10	C
12	L/D	2.61	55	2.05	64	0.17	17	120	137	0.13	5	404	470	4X10	D
13	FM	2.73	58	2.64	83	0.16	47	120	167	0.1	6	296	423	4X10	A
14	K/B	2.20	47	2.64	83	0.16	23	140	183	0.1	6	240	423	4X10	B
15	K/B	2.20	47	2.64	83	0.16	33	100	133	0.12	6	240	423	4X10	B
16	L/H	2.67	57	2.94	92	0.16	37	150	187	0.09	6	291	469	4X10	C
17	LND	2.60	55	1.26	40	0.17	47	110	157	0.11	5	404	294	3X10	A
18	W/R	1.65	35	0.48	15	0.17	16	150	166	0.1	4	402	172	3X10	C
19	FOY	2.30	49	0.69	22	0.17	35	100	135	0.13	4	562	252	3X10	C
20	MBR	1.70	36	1.83	57	0.17	44	140	162	0.11	5	264	419	3X10	B
21	BAS	4.18	89	0.50	16	0.16	44	110	184	0.09	6	454	82	4X10	A
22	BAS	4.18	89	0.50	16	0.16	19	130	129	0.13	6	454	82	4X10	B
23	BAS	4.18	89	0.50	16	0.16	4	130	134	0.12	6	454	82	4X10	D
24	BAS	4.18	89	0.50	16	0.16	22	130	152	0.11	6	454	82	4X10	C

SUPPLY AIR TRUNK SIZE	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	RETURN AIR TRUNK SIZE	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	302	0.08	9	10	544	TRUNK G	0	0.00	0	0	TRUNK O	0	0.05	0	0	8
TRUNK B	576	0.08	11.4	16	648	TRUNK H	0	0.00	0	0	TRUNK P	0	0.05	0	0	8
TRUNK C	315	0.08	9.1	10	567	TRUNK I	0	0.00	0	0	TRUNK Q	0	0.05	0	0	8
TRUNK D	558	0.08	11.3	14	717	TRUNK J	0	0.00	0	0	TRUNK R	0	0.05	0	0	8
TRUNK E	0	0.00	0	0	0	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
											TRUNK U	0	0.05	0	0	8
											TRUNK V	0	0.05	0	0	8
											TRUNK W	0	0.05	0	0	8
RETURN AIR #	1	2	3	4	5	6	7	8	0	0	TRUNK X	846	0.05	14.8	26	8
AIR VOLUME	75	130	70	70	380	75	100	0	0	0	TRUNK Y	585	0.05	12.9	20	8
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	TRUNK Z	205	0.05	8.7	10	8
ACTUAL DUCT LGH.	56	58	52	56	51	31	33	60	1	1	DROP	1131	0.05	16.5	24	10
EQUIVALENT LENGTH	215	235	195	165	255	195	220	240	0	0						
TOTAL EFFECTIVE LH	271	293	247	221	306	226	253	300	1	1						
ADJUSTED PRESSURE	0.05	0.05	0.06	0.07	0.05	0.07	0.06	0.05	14.80	14.80						
ROUND DUCT SIZE	6	7.3	5.6	5.4	5.8	10.1	5.7	6.7	0	0						
INLET GRILL SIZE	8	8	8	8	8	8	8	8	0	0						
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X						
INLET GRILL SIZE	14	14	14	14	14	30	14	14	0	0						

TYPE: MOUNTAINASH 3
 SITE NAME: RUSSEL GARDENS PHASE 3

 LO # 87855
 LOT 155

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	7 @ 10.6 cfm	74.2 cfm
Table 9.32.3.A.	TOTAL	212.0 cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED		9.32.3.4.(1)
1 Bedroom	31.8	cfm
2 Bedroom	47.7	cfm
3 Bedroom	63.6	cfm
4 Bedroom	79.5	cfm
5 Bedroom	95.4	cfm
TOTAL	95.4	cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.6.
Total Ventilation Capacity	212	cfm
Less Principal Ventil. Capacity	95.4	cfm
Required Supplemental Capacity	116.6	cfm

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

PRINCIPAL EXHAUST HEAT LOSS CALCULATION	
CFM	ΔT °F
95.4 CFM	71 F
X	X
FACTOR	% LOSS
1.08	0.25

SUPPLEMENTAL FANS		PANASONIC
Location	Model	cfm
ENS	FV-05-11VK1	50
ENS-1	FV-05-11VK1	50
S-ENS	FV-05-11VK1	50
W/R	FV-05-11VK1	50

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 #	001620
Date:	September-20

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																			
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																			
LO#: 87655		Model: MOUNTAINASH 3		Builder: GREENPARK HOMES			Date: 23/09/2020																																																												
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>1378</td> <td>8</td> <td>11024</td> </tr> <tr> <td>First</td> <td>1378</td> <td>11</td> <td>14606.8</td> </tr> <tr> <td>Second</td> <td>1698</td> <td>9</td> <td>15282</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"></td> <td>Total:</td> <td>40,912.8 ft³</td> </tr> <tr> <td colspan="2"></td> <td>Total:</td> <td>1158.5 m³</td> </tr> </tbody> </table>					Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1378	8	11024	First	1378	11	14606.8	Second	1698	9	15282	Third	0	9	0	Fourth	0	9	0			Total:	40,912.8 ft³			Total:	1158.5 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">WINTER NATURAL AIR CHANGE RATE</td> <td>0.343</td> </tr> <tr> <td colspan="2">SUMMER NATURAL AIR CHANGE RATE</td> <td>0.123</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTDh</td> <td>22</td> <td>-17</td> <td>39</td> <td>71</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>31</td> <td>7</td> <td>13</td> </tr> </table>					WINTER NATURAL AIR CHANGE RATE		0.343	SUMMER NATURAL AIR CHANGE RATE		0.123	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-17	39	71	Summer DTDc	24	31	7	13
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5.2.3.1 Heat Loss due to Air Leakage $HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.343 x 321.81 x 39 °C x 1.2 = 5200 W = 17743 Btu/h					6.2.6 Sensible Gain due to Air Leakage $HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ 0.123 x 321.81 x 7 °C x 1.2 = 338 W = 1152 Btu/h																																																														
5.2.3.2 Heat Loss due to Mechanical Ventilation $HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 95 CFM x 71 °F x 1.08 x 0.25 = 1819 Btu/h					6.2.7 Sensible heat Gain due to Ventilation $HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 95 CFM x 13 °F x 1.08 x 0.25 = 330 Btu/h																																																														
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																																			
$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agcleve} + HL_{bgcleve})\}$																																																																			
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*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0																																																																			

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: MOUNTAINASH 3	LOT 155	BUILDER: GREENPARK HOMES
SFQT: 3049	LO# 87655	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):	40912.8	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: 53.0 ft	WIDTH: 36.0 ft	EXPOSED PERIMETER:	178.0 ft

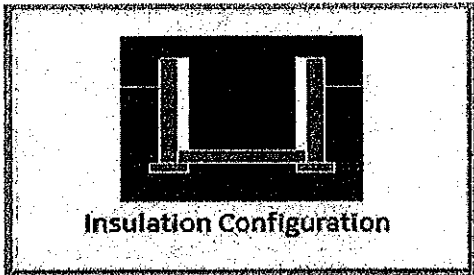
2012 OBC - COMPLIANCE PACKAGE		Compliance Package A1	
Component		Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.65
Exposed Floor Minimum RSI (R)-Value		31	29.80
Walls Above Grade Minimum RSI (R)-Value		22	17.03
Basement 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):	16.2	 Insulation Configuration
Floor Width (m):	11.0	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.4	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.6	
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):		1544

TYPE: MOUNTAINASH 3
LO# 87655

LOT 155

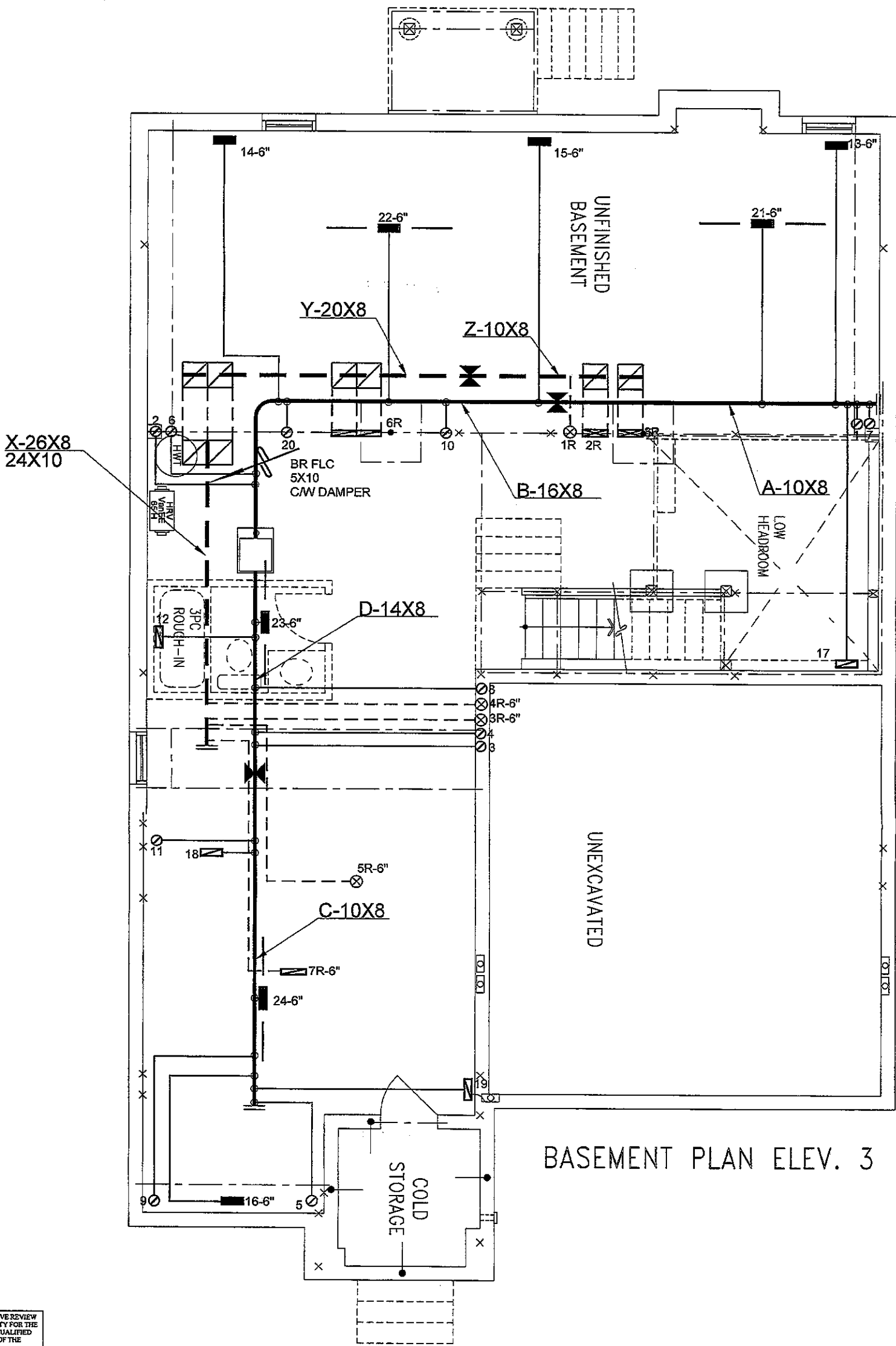
Air Infiltration Residential Load Calculator

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):	1158.5		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1544.3 cm ²	
	3.57	ACH @ 50 Pa	
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust	
	45.0	45.0	
Flue Size			
Flue #:	#1	#2	#3 #4
Diameter (mm):	0	0	0 0
Natural Infiltration Rates			
Heating Air Leakage Rate (ACH/H):	0.343		
Cooling Air Leakage Rate (ACH/H):	0.123		

TYPE: MOUNTAINASH 3
LO# 87655

LOT 155



I MICHAEL O'Rourke HAVE REVIEWED 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.

LOT 155
CSA-F280-12
PACKAGE A1

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

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

Client
GREENPARK HOMES

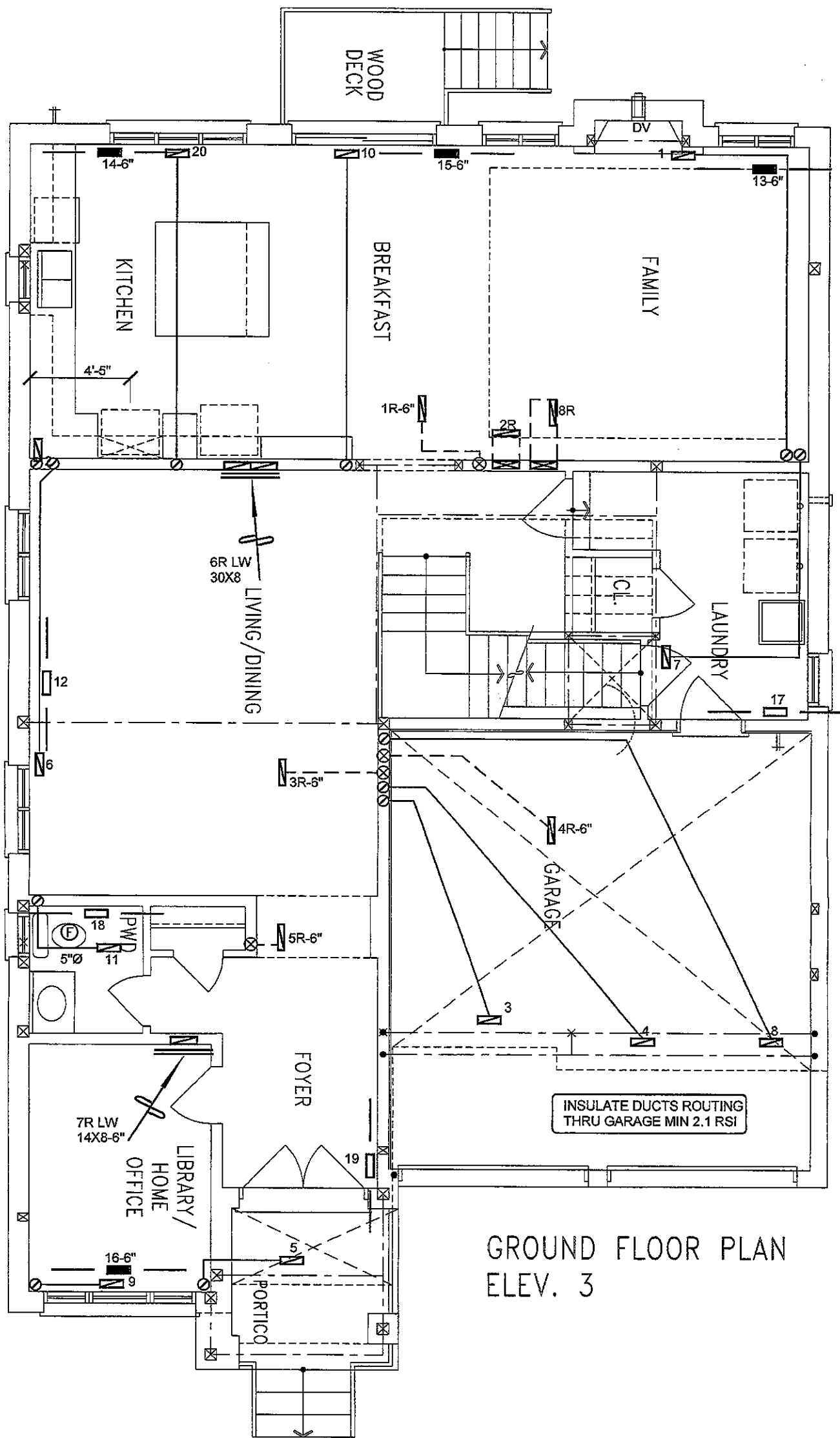
Project Name
**RUSSEL GARDENS PHASE 3
HAMILTON, ONTARIO**

**LOT 155
MOUNTAINASH 3 3049 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.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 55193 BTU/H UNIT DATA		# OF RUNS	S/A	R/A	FANS
MAKE	GOODMAN	3RD FLOOR			
MODEL	GMEC960603BNA	2ND FLOOR	12	6	3
INPUT	60 MBTU/H	1ST FLOOR	8	2	2
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			
FAN SPEED	1131 cfm @ 0.6" w.c.				

Sheet Title
BASEMENT HEATING LAYOUT
Date
SEPT/2020
Scale
3/16" = 1'-0"
BCIN# 19669
LO# 87655



GROUND FLOOR PLAN
ELEV. 3

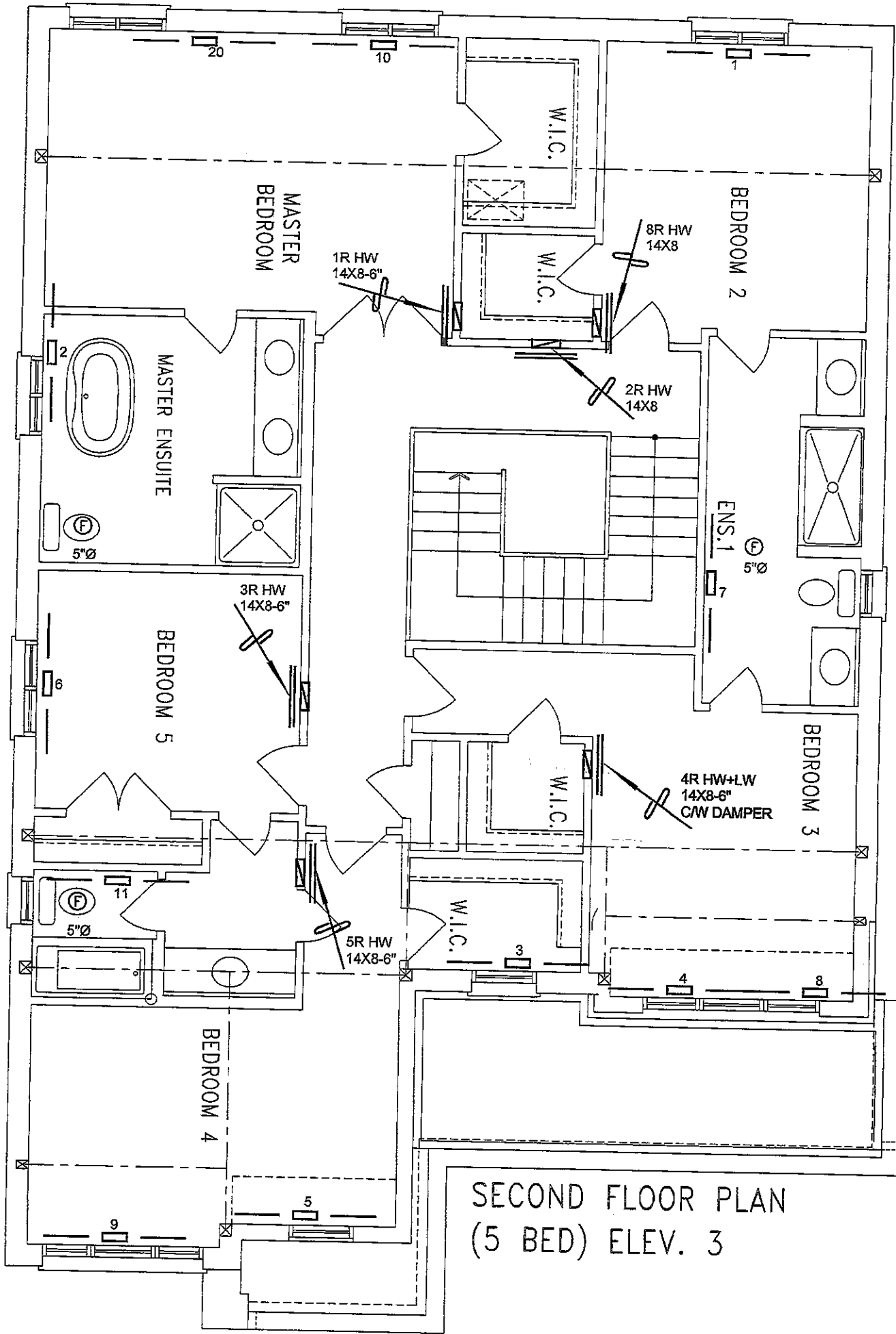
LOT 155
CSA-F280-12
PACKAGE A1

I MICHAEL O'ROURKE HAVE REVIEWED 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.

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
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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 SEPT/2020	
LOT 155 MOUNTAINASH 3 3049 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO#	87655



SECOND FLOOR PLAN
(5 BED) ELEV. 3

LOT 155
CSA-F280-12
PACKAGE A1

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Client
GREENPARK HOMES
Project Name
**RUSSEL GARDENS PHASE 3
HAMILTON, ONTARIO**
**LOT 155
MOUNTAINASH 3 3049 sqft**

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**SECOND FLOOR
HEATING
LAYOUT**
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