

SITE NAME: RUSSEL GARDENS PHASE 3				OPT 5 BED				DATE: May-20				WINTER NATURAL AIR CHANGE RATE 0.338				HEAT LOSS AT °F. 71		CSA-F280-12					
BUILDER: GREENPARK HOMES				TYPE: MOUNTAINASH 2				GFA: 2648				LO# 85964				SUMMER NATURAL AIR CHANGE RATE 0.121				HEAT GAIN AT °F. 13		SB-12 PACKAGE A1	
ROOM USE		MBR		ENS		BED-2		BED-3		BED-4		ENS-2		BED-5		ENS-3							
EXP. WALL		40		23		13		17		28		16		10		21							
CLG. HT.		9		9		9		9		9		9		9		9							
FACTORS																							
GRS.WALL AREA		LOSS GAIN		360		207		117		163		252		144		90		189					
GLAZING		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	7	138	112	16	316	266	0	0	0	0	0	0	0				
EAST		19.8	41.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
SOUTH		19.8	24.9	11	217	274	0	0	0	0	0	0	12	237	499	0	0	0	0				
WEST		19.8	41.6	32	633	1330	14	277	582	0	0	0	0	0	0	18	316	398	0				
SKYLT.		34.6	101.5	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				
NET EXPOSED WALL		4.1	0.8	317	1314	238	188	771	140	101	419	76	111	460	83	192	796	144	132				
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				
EXPOSED CLG		1.2	0.6	503	600	296	132	157	78	220	262	129	194	231	114	107	128	63	100				
NO ATTIC EXPOSED CLG		2.6	1.3	0	0	0	0	0	0	0	0	0	20	51	25	45	115	57	100				
EXPOSED FLOOR		2.4	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	140				
BASEMENT/CRAWL HEAT LOSS				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	167				
SLAB ON GRADE HEAT LOSS				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	82				
SUBTOTAL HT LOSS				2764		1344				997		1573			2668		904		140				
SUB TOTAL HT GAIN					2137		911		461		1968		2530		657		536		1168				
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	0.26				
AIR CHANGE HEAT LOSS				705		343			254		401		681		231		202		367				
AIR CHANGE HEAT GAIN					161		84		33		139		179		46		38		82				
DUCT LOSS				0		0			0		0		335		0		0		161				
DUCT GAIN				0		0		0	0		0		348		0		0		125				
HEAT GAIN PEOPLE		240		2		480	0	0	1		240	1	240	1	240	0	1	240	0				
HEAT GAIN APPLIANCES/LIGHTS						526		0			526		526		0		526		0				
TOTAL HT LOSS BTU/H				3469		1685			1262		1974		3683		1134		992		1988				
TOTAL HT GAIN x 1.3 BTU/H					4283		1268		1638		3735		4970		914		1743		1788				

ROOM USE	EXP. WALL	CLG. HT.	LV/DIN	K/B	FAM	LND	FOY	WOD	BAS
			40	36	46	27	26	46	172
			10	10	10	11	10	8	8
FACTORS									
GRS.WALL AREA	LOSS	GAIN	400	360	450	297	260	368	998
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	19.8	16.0	0	0	0	0	0	0	0
EAST	19.8	41.6	14	277	582	0	0	0	0
SOUTH	19.8	24.9	34	672	847	0	0	0	0
WEST	19.8	41.6	0	0	0	0	0	0	0
SKYLT.	34.6	101.5	0	0	0	0	0	0	0
DOORS	23.5	4.3	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	352	1459	265	290	1202	216	410
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0
EXPOSED CLG	1.2	0.6	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0
SUBTOTAL HT LOSS			2408		2586		2490		1742
SUB TOTAL HT GAIN				1693		3127		1970	
LEVEL FACTOR / MULTIPLIER			0.30	0.43	0.30	0.43	0.30	0.43	0.30
AIR CHANGE HEAT LOSS			1033		1110		1069		748
AIR CHANGE HEAT GAIN				119		221		139	
DUCT LOSS			0		0		0		0
DUCT GAIN			0		0		0		0
HEAT GAIN PEOPLE	240		0		0		0		0
HEAT GAIN APPLIANCES/LIGHTS					526		526		526
TOTAL HT LOSS BTU/H			3442		3696		3559		2490
TOTAL HT GAIN x 1.3 BTU/H			3040		6036		3426		1262

TOTAL HEAT GAIN BTU/H:

36542

TONS: 3.05

LOSS DUE TO VENTILATION LOAD BTU/H: 1819

STRUCTURAL HEAT LOSS: 48762

TOTAL COMBINED HEAT LOSS BTU/H: 60580

SITE NAME: RUSSEL GARDENS PHASE 3
BUILDER: GREENPARK HOMES

OPT 5 BED
TYPE: MOUNTAINASH 2

DATE: May-20

GFA: 2848 LO# 85964

HEATING CFM 1131 COOLING CFM 1131
TOTAL HEAT LOSS 48,762 TOTAL HEAT GAIN 36,212
AIR FLOW RATE CFM 23.19 AIR FLOW RATE CFM 31.23

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
MEDIUM 928
MEDIUM HIGH 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	12	6	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	14	15	16	17	19	21	22	23	24
ROOM NAME	MBR	ENS	BED-3	BED-2	BED-3	BED-4	BED-5	ENS-2	ENS-3	MBR	ENS-3	LV/DIN	K/B	K/B	FAM	LND	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH	1.73	1.69	0.99	1.25	0.99	1.84	0.99	1.13	0.99	1.73	0.99	3.44	1.85	1.85	3.56	2.49	2.72	4.17	4.17	4.17	4.17
CFM PER RUN HEAT	40	39	23	29	23	43	23	26	23	40	23	80	43	43	83	58	63	97	97	97	97
RM GAIN MBH	2.14	1.27	1.87	1.64	1.87	2.48	1.74	0.91	0.89	2.14	0.89	3.04	2.52	2.52	3.43	1.26	0.80	0.58	0.58	0.58	0.58
CFM PER RUN COOLING	67	40	58	51	58	78	54	29	28	67	28	95	79	79	107	39	25	18	18	18	18
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.15	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	31	55	55	44	48	64	49	60	48	43	60	40	28	38	17	40	43	30	10	34	47
EQUIVALENT LENGTH	150	130	130	130	120	170	130	180	170	200	160	140	140	110	110	90	100	130	80	130	110
TOTAL EFFECTIVE LENGTH	181	185	185	174	168	234	179	240	218	243	220	180	168	148	127	130	143	160	90	164	157
ADJUSTED PRESSURE	0.1	0.09	0.09	0.1	0.1	0.07	0.1	0.07	0.08	0.07	0.08	0.09	0.1	0.12	0.12	0.13	0.12	0.1	0.18	0.1	0.1
ROUND DUCT SIZE	6	4	5	6	5	8	6	4	4	5	4	6	5	5	6	5	5	6	6	6	6
HEATING VELOCITY (ft/min)	204	447	169	148	169	219	117	298	264	294	264	408	316	316	423	426	463	495	495	495	495
COOLING VELOCITY (ft/min)	342	459	426	260	426	398	275	333	321	492	321	484	580	580	546	286	184	92	92	92	92
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	4X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	D	C	B	C	B	A	B	A	B	C	B	A	C	C	D	C	A	C	D	B	A

RUN #	25
ROOM NAME	BED-4
RM LOSS MBH	1.84
CFM PER RUN HEAT	43
RM GAIN MBH	2.48
CFM PER RUN COOLING	78
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH	52
EQUIVALENT LENGTH	180
TOTAL EFFECTIVE LENGTH	232
ADJUSTED PRESSURE	0.07
ROUND DUCT SIZE	6
HEATING VELOCITY (ft/min)	219
COOLING VELOCITY (ft/min)	398
OUTLET GRILL SIZE	4X10
TRUNK	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	352	0.07	9.8	12	X	8	528	TRUNK G	0	0.00	0	0	X	8	0	TRUNK O	0	0.05	0	0	X	8	0
TRUNK B	564	0.07	11.7	16	X	8	635	TRUNK H	0	0.00	0	0	X	8	0	TRUNK P	0	0.05	0	0	X	8	0
TRUNK C	349	0.07	9.8	12	X	8	524	TRUNK I	0	0.00	0	0	X	8	0	TRUNK Q	0	0.05	0	0	X	8	0
TRUNK D	1133	0.07	15.2	26	X	8	784	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								

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	14	15	16	17	19	21	22	23	24
AIR VOLUME	135	85	85	75	155	340	75	85	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
ACTUAL DUCT LGH	52	54	57	66	29	38	60	58	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	185	175	195	215	190	235	260	245	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LENGTH	237	229	252	281	219	273	320	303	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.06	0.06	0.06	0.06	0.07	0.05	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
ROUND DUCT SIZE	7.1	6	6	6	7.2	10.5	6	6.3	0	0	0	0	0	0	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	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
INLET GRILL SIZE	14	14	14	14	14	30	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: MOUNTAINASH 2
SITE NAME: RUSSEL GARDENS PHASE 3

LO # 85864
OPT 5 BED

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	5 @ 10.6 cfm	53.0 cfm
Table 9.32.3.A.	TOTAL	190.8 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		9.32.3.5.
Total Ventilation Capacity	190.8	cfm
Less Principal Ventil. Capacity	95.4	cfm
Required Supplemental Capacity	95.4	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	FACTOR	% LOSS	
95.4 CFM	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
ENS-3	FV-05-11VK1	50	☒	0.3
PWD	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 @ 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:	May-20

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																											
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																											
LO#: 85964	Model: MOUNTAINASH 2	Builder: GREENPARK HOMES	Date: 07/05/2020																																																								
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>1297</td><td>8</td><td>10376</td></tr> <tr><td>First</td><td>1297</td><td>10</td><td>12970</td></tr> <tr><td>Second</td><td>1551</td><td>9</td><td>13959</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="3" style="text-align: right;">Total:</td><td>37,305.0 ft³</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>1056.4 m³</td></tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1297	8	10376	First	1297	10	12970	Second	1551	9	13959	Third	0	9	0	Fourth	0	9	0	Total:			37,305.0 ft³	Total:			1056.4 m³	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%;">0.338</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.121</td> </tr> </table> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="4" 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>22</td> <td>-17</td> <td>39</td> <td>71</td> </tr> <tr> <td>Summer DTD_c</td> <td>24</td> <td>31</td> <td>7</td> <td>13</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.338	SUMMER NATURAL AIR CHANGE RATE	0.121	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 $HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.338 x 293.43 x 39 °C x 1.2 = 4666 W = 15920 Btu/h			6.2.6 Sensible Gain due to Air Leakage $HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.121 x 293.43 x 7 °C x 1.2 = 303 W = 1034 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 CFM x 71 °F x 1.08 x 0.25 = 1819 Btu/h			6.2.7 Sensible heat Gain due to Ventilation $HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 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)																																																											
$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																											
Level	Level Factor (LF)	HL _{airve} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{clevel})																																																							
1	0.5	15,920	8,718	0.913																																																							
2	0.3		11,129	0.429																																																							
3	0.2		12,478	0.255																																																							
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_{airve} = 0																																																											

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: MOUNTAINASH 2	OPT 5 BED	BUILDER: GREENPARK HOMES
SFQT: 2848	LO# 85964	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):	37305.0	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:	5.0 ft
LENGTH: 50.0 ft	WIDTH: 36.0 ft	EXPOSED PERIMETER:	172.0 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	-

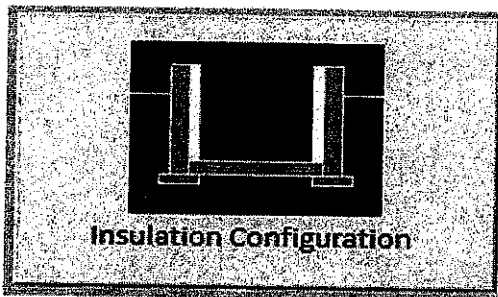
INDIVIDUAL BCIN: 19669

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):	15.2	 Insulation Configuration
Floor Width (m):	11.0	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.4	
Depth Below Grade (m):	1.52	
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):		1667

TYPE: MOUNTAINASH 2
LO# 85964

OPT 5 BED

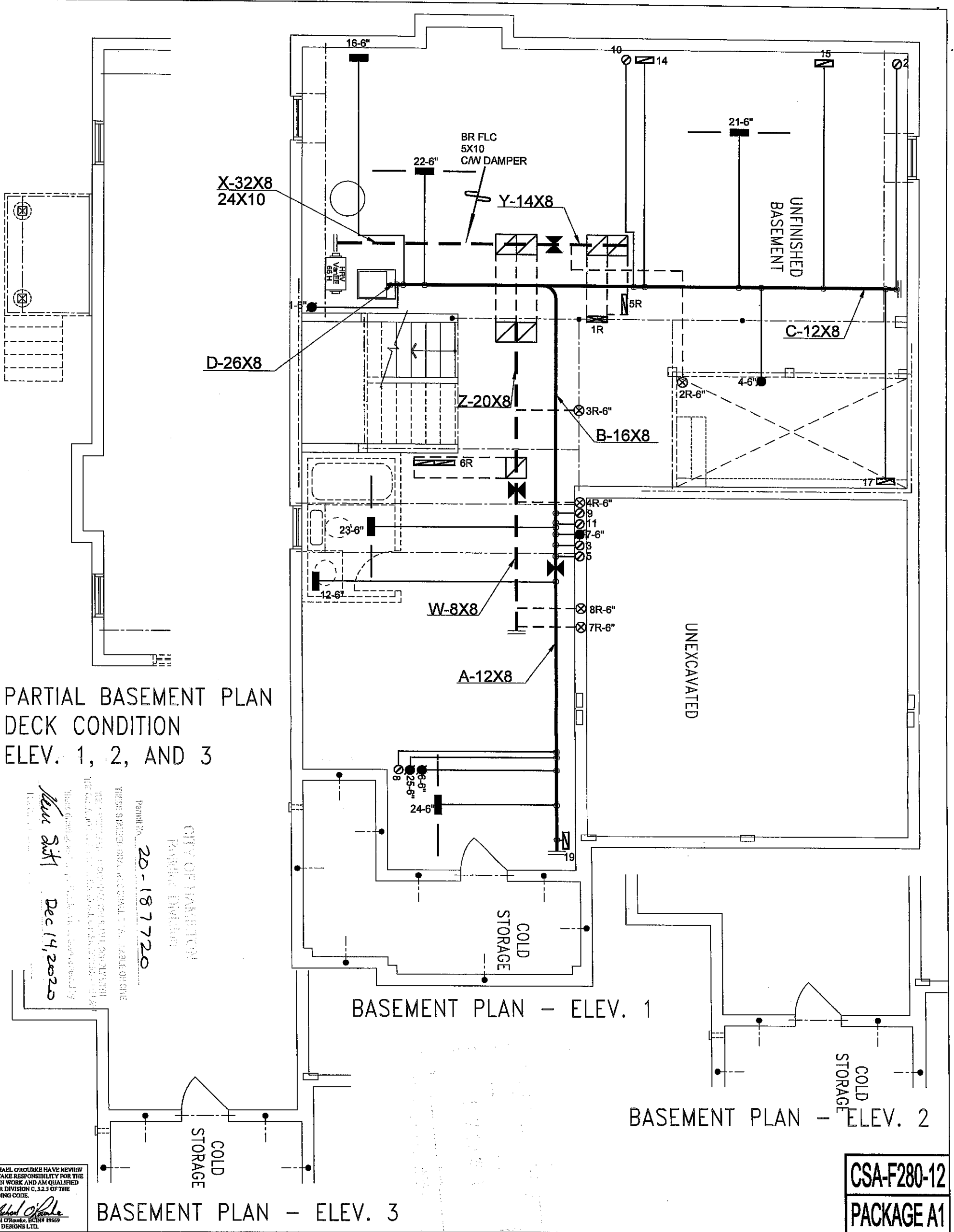
Air Infiltration Residential Load Calculator

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):	1056.4			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1408.2 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):	0.338			
Cooling Air Leakage Rate (ACH/H):	0.121			

TYPE: MOUNTAINASH 2
LO# 85964

OPT 5 BED



PARTIAL BASEMENT PLAN
DECK CONDITION
ELEV. 1, 2, AND 3

BASEMENT PLAN - ELEV. 1

BASEMENT PLAN - ELEV. 2

BASEMENT PLAN - ELEV. 3

CSA-F280-12
PACKAGE A1

1. MICHAEL O'Rourke HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 32.3 OF THE BUILDING CODE.
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

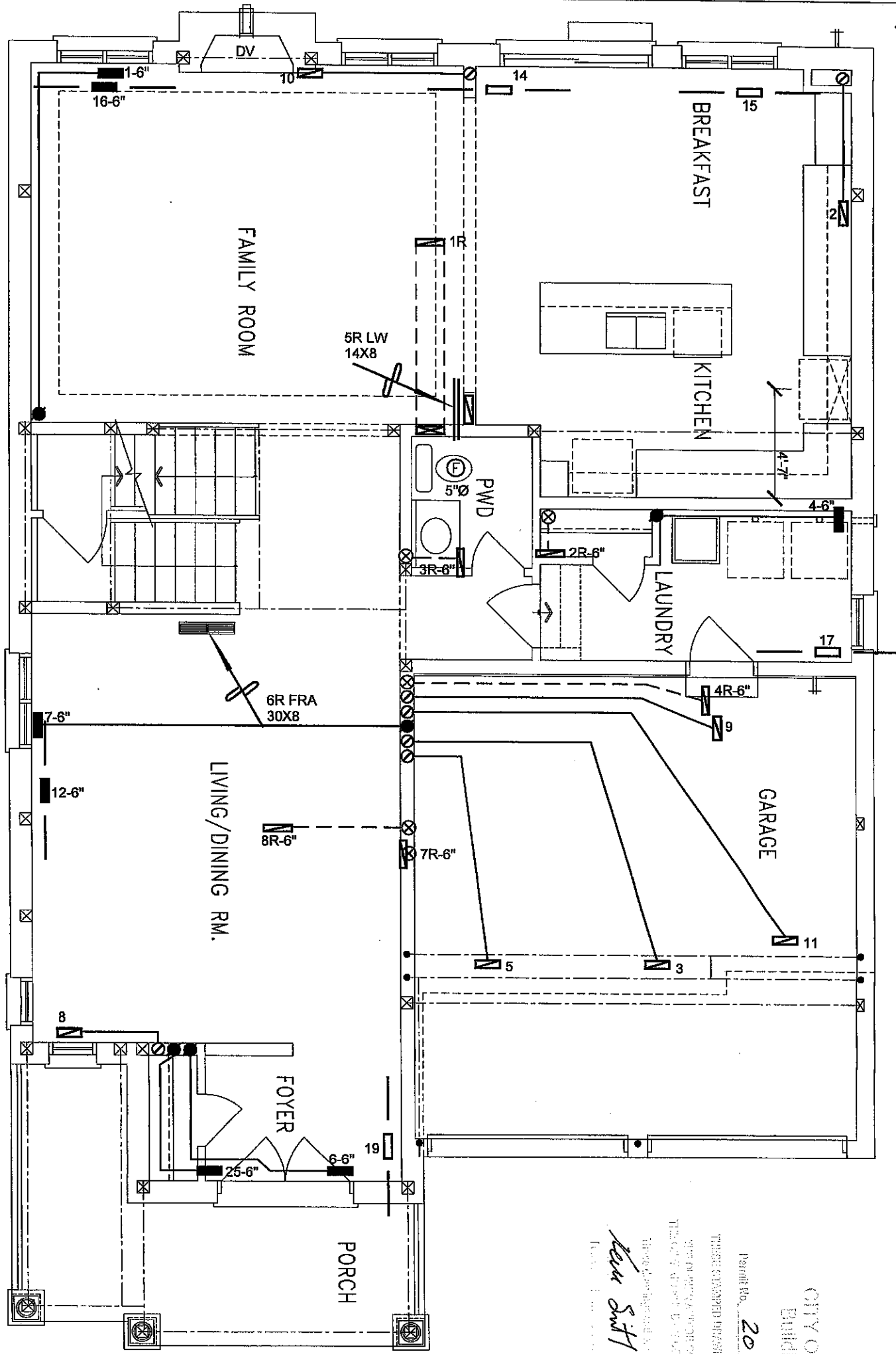
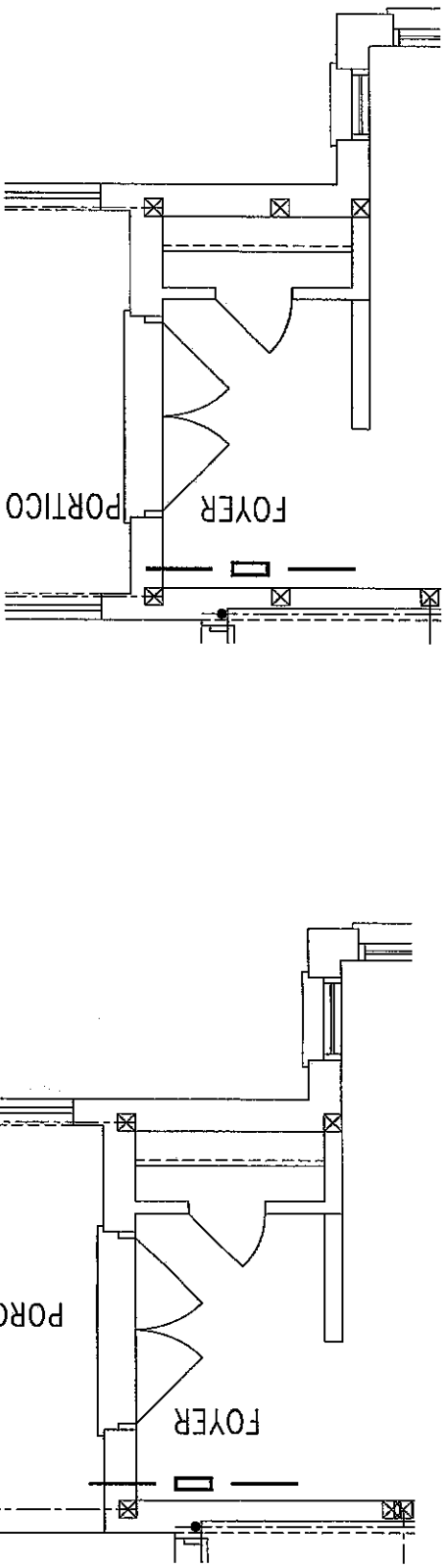
HVAC LEGEND						3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR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

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Client GREENPARK HOMES		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	HEAT LOSS 50580 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS				Sheet Title BASEMENT HEATING LAYOUT	
Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO			MAKE GOODMAN		3RD FLOOR				Date APRIL/2020	
OPT 5 BED MOUNTAINASH 2 2848 sqft		MODEL GMEC960603BNA		2ND FLOOR				12 6 3		Scale 3/16" = 1'-0"
		INPUT 60 MBTU/H		1ST FLOOR				6 2 2		
		OUTPUT 57.6 MBTU/H		BASEMENT				4 1 0		BCIN# 19669
		COOLING 3.0 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 1131 cfm @ 0.6" w.c.								LO# 85964

GROUND FLOOR PLAN - ELEV. 2

GROUND FLOOR PLAN - ELEV. 3



GROUND FLOOR PLAN - ELEV. 1

CITY OF HAMILTON
Building Division
Permit No. 20-187720
Dec 14, 2020

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, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

HVAC LEGEND						REVISIONS	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	No.	Date
	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		FRA- FLOOR RETURN AIR GRILLE	1.	
					REDUCER		

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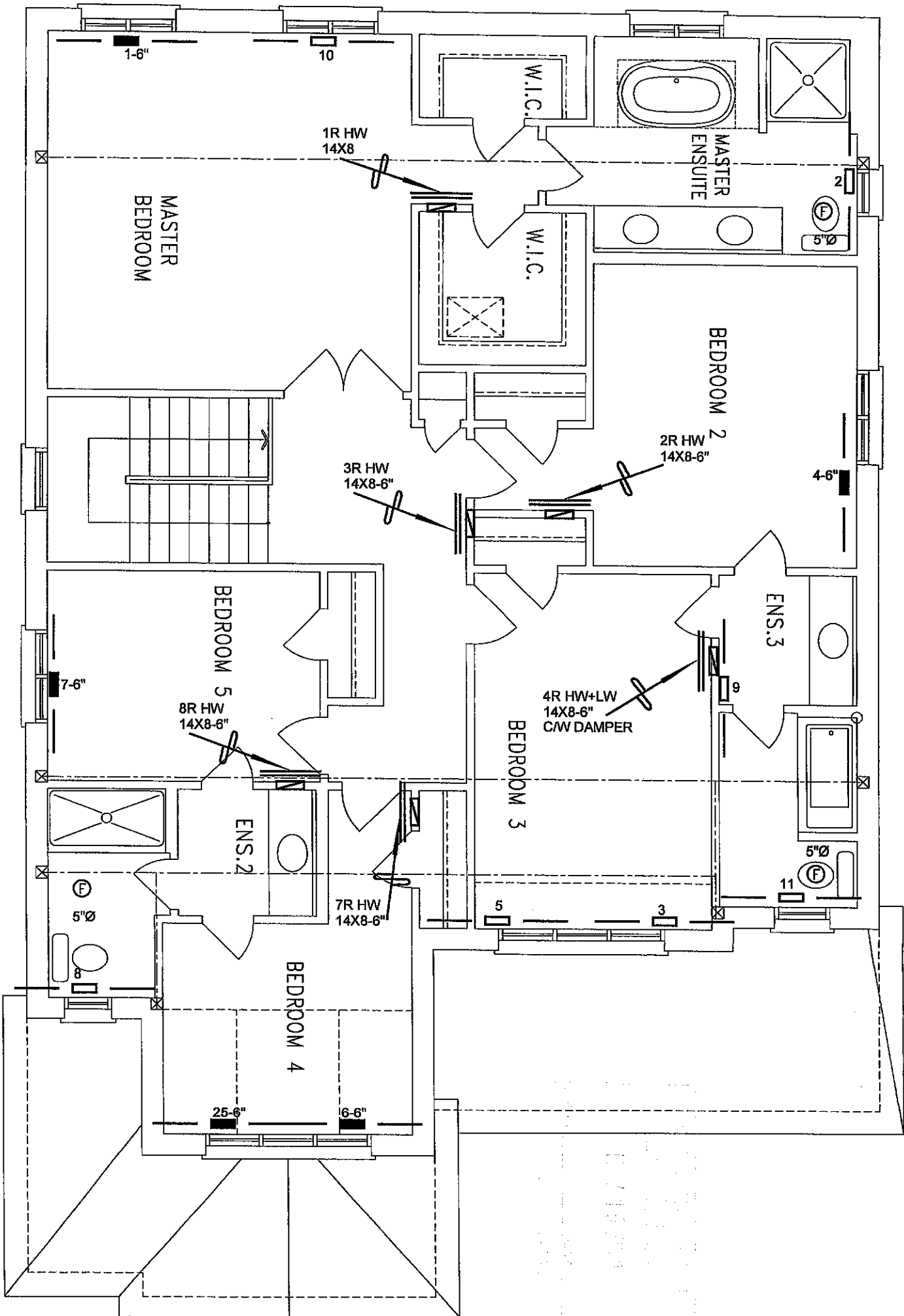
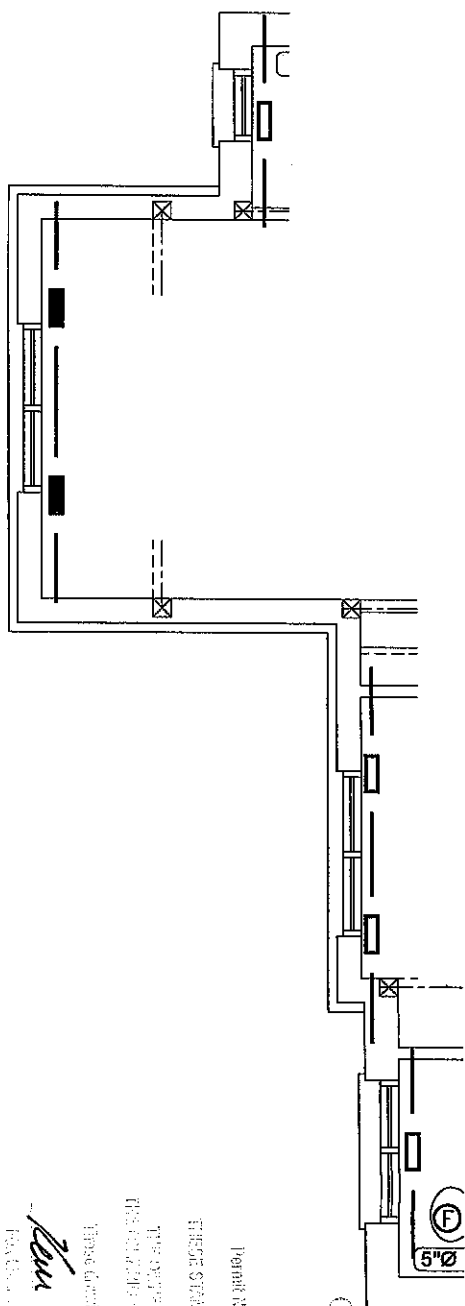
Client
GREENPARK HOMES
Project Name
**RUSSEL GARDENS PHASE 3
HAMILTON, ONTARIO**

**OPT 5 BED
MOUNTAINASH 2 2848 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.

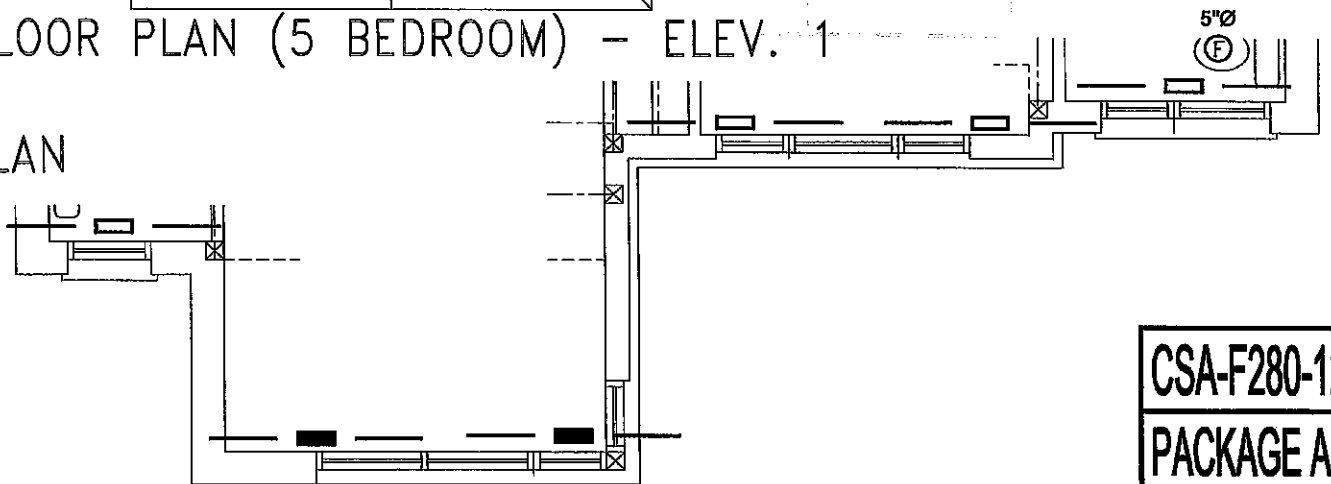
Sheet Title
**FIRST FLOOR
HEATING
LAYOUT**
Date **APRIL/2020**
Scale **3/16" = 1'-0"**
BCIN# 19669
LO# **85964**

OPTIONAL SECOND FLOOR PLAN (5 BEDROOM) – ELEV. 2



OPTIONAL SECOND FLOOR PLAN (5 BEDROOM) – ELEV. 1

OPTIONAL SECOND FLOOR PLAN (5 BEDROOM) – ELEV. 3



I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION 2, 3.2.5 OF THE BUILDING CODE.

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

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

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Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO			Date APRIL/2020	Scale 3/16" = 1'-0"
OPT 5 BED MOUNTAINASH 2 2848 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#	85964