

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 4

GFA: 3190

LO# 85968

SUMMER NATURAL AIR CHANGE RATE 0.121

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-3	BED-5	S-ENS
			43	22	44	13	12	11	10	11	21
			9	9	9	9	9	9	9	9	9
GRS.WALL AREA	LOSS	GAIN	387	198	396	117	108	99	90	99	189
GLAZING	LOSS	GAIN									
NORTH	19.8	15.1	0	0	0	0	0	0	0	0	0
EAST	19.8	39.0	0	0	0	0	0	0	0	0	0
SOUTH	19.8	23.5	0	0	0	0	0	0	0	0	0
WEST	19.8	39.0	32	633	1249	14	277	546	0	0	0
SKYL.T.	34.6	101.6	0	0	0	0	0	0	0	0	0
DOORS	23.6	4.3	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	355	1472	267	177	734	133	324	1343	244
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	186	120	143	71	189	225	111
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	30	77	38
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0	20	47	9
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	3116	1208	1711	852	661	784
SUB TOTAL HT GAIN			1701		914	3210	501	1584	497	315	454
LEVEL FACTOR / MULTIPLIER	0.20	0.26		0.20	0.26	0.20	0.26	0.20	0.26	0.20	0.26
AIR CHANGE HEAT LOSS	641			334	806	312	442	220	171	203	373
AIR CHANGE HEAT GAIN		134		72	254	40	125	39	25	36	88
DUCT LOSS		0		0	392	162	216	0	0	0	181
DUCT GAIN		0		0	395	127	243	0	0	0	120
HEAT GAIN PEOPLE	240		2	480	0	0	1	240	1	240	0
HEAT GAIN APPLIANCES/LIGHTS		486		0	486	486	486	486	0	1	240
TOTAL HT LOSS BTU/H			3122		1626	4313	1673	2369	832	987	1996
TOTAL HT GAIN x 1.3 BTU/H			3642		1282	5648	1810	3481	442	1580	1709

ROOM USE	EXP. WALL	CLG. HT.	FAM	L/D	K/B	L/H	LND	W/R	FOY	WOD	BAS
			34	24	37	18	0	26	42	46	176
			10	10	10	10	9	11	10	8	8
GRS.WALL AREA	LOSS	GAIN	340	240	370	180	0	286	420	368	1018
GLAZING	LOSS	GAIN									
NORTH	19.8	15.1	8	158	121	0	0	0	0	0	0
EAST	19.8	39.0	0	0	0	0	0	0	0	0	0
SOUTH	19.8	23.5	0	0	0	0	0	0	0	0	0
WEST	19.8	39.0	40	791	1561	0	0	0	0	0	0
SKYL.T.	34.6	101.6	0	0	0	0	0	0	0	0	0
DOORS	23.6	4.3	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	292	1211	219	207	858	166	298	1235	224
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			2169		1510	2703	934	87	1681	2607	686
SUB TOTAL HT GAIN			1901		930	2816	408	43	386	686	781
LEVEL FACTOR / MULTIPLIER	0.30	0.46		0.30	0.46	0.30	0.46	0.20	0.26	0.30	0.46
AIR CHANGE HEAT LOSS	985			689	1232	426	22	767	1189	54	8811
AIR CHANGE HEAT GAIN		150		74	207	32	3	30	54	111	111
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		0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS		486		486	486	486	486	486	0	0	0
TOTAL HT LOSS BTU/H			3144		2199	3935	1369	110	2448	3798	486
TOTAL HT GAIN x 1.3 BTU/H			3289		1936	4301	1204	691	541	961	1791

TOTAL HEAT GAIN BTU/H:

37092

TONS: 3.09

LOSS DUE TO VENTILATION LOAD BTU/H: 1819

STRUCTURAL HEAT LOSS: 52814

TOTAL COMBINED HEAT LOSS BTU/H: 54533

Michael O'Rourke

SITE NAME: RUSSEL GARDENS PHASE 3
BUILDER: GREENPARK HOMES

OPT 5 BED
TYPE: MOUNTAINASH 4

DATE: May-20

GFA: 3190 LO# 85968

HEATING CFM 1131 COOLING CFM 1131
TOTAL HEAT LOSS 52,814 TOTAL HEAT GAIN 36,762
AIR FLOW RATE CFM 21.41 AIR FLOW RATE CFM 30.77

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

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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	14	7	4
R/A	0	0	6	2	1

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

FAN SPEED LOW
MEDLOW 928
MEDIUM 1017
HIGH 1131

DESIGN CFM = 1131
CFM @ .5" E.S.P.

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

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

TEMPERATURE RISE 47 °F

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-3	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	1.56	2.16	1.67	1.18	1.07	0.83	2.16	1.18	1.56	1.00	3.14	2.20	1.97	1.97	1.36	0.99	2.45	3.80	0.11	4.46	4.46	4.46	4.46
CFM PER RUN HEAT	35	33	46	36	25	23	18	46	25	33	21	67	47	42	42	29	21	52	81	2	95	95	95	95
RM GAIN MBH	1.28	1.82	2.82	1.81	1.74	1.63	0.44	2.82	1.74	1.82	0.85	3.30	1.94	2.15	2.15	1.20	1.58	0.54	0.96	0.69	0.65	0.65	0.65	0.65
CFM PER RUN COOLING	39	56	87	56	54	50	14	87	54	56	26	101	60	66	66	37	49	17	30	21	20	20	20	20
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	34	20	24	41	41
EQUIVALENT LENGTH	130	150	160	140	100	210	200	130	190	100	130	130	140	120	140	160	130	110	160	120	100	130	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	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	0.09	0.1	0.11	0.1	0.1	0.1	0.09	0.1	0.1	0.08	0.11	0.14	0.11	0.09
ROUND DUCT SIZE	4	5	6	5	6	5	4	6	5	5	4	6	5	5	5	4	5	5	5	4	6	6	6	6
HEATING VELOCITY (f/min)	402	242	235	264	127	169	207	235	184	242	241	342	345	308	308	333	154	382	595	23	484	484	484	484
COOLING VELOCITY (f/min)	447	411	444	411	275	367	161	444	396	411	298	515	441	485	485	424	360	125	220	241	102	102	102	102
OUTLET GRILL SIZE	3X10	3X10	4X10	3X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	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	1.00
CFM PER RUN HEAT	21
RM GAIN MBH	0.85
CFM PER RUN COOLING	26
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 (f/min)	241
COOLING VELOCITY (f/min)	298
OUTLET GRILL SIZE	3X10
TRUNK	E

SUPPLY AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (f/min)
TRUNK A	123	0.08	6.4	8	277
TRUNK B	179	0.10	7	8	403
TRUNK C	553	0.08	11.2	14	711
TRUNK D	363	0.07	9.9	12	545
TRUNK E	572	0.07	11.8	16	644
TRUNK F	0	0.00	0	0	0

RETURN AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (f/min)
TRUNK G	0	0.00	0	0	0
TRUNK H	0	0.00	0	0	0
TRUNK I	0	0.00	0	0	0
TRUNK J	0	0.00	0	0	0
TRUNK K	0	0.00	0	0	0
TRUNK L	0	0.00	0	0	0

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
AIR VOLUME	85	95	95	85	75	280	155	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	51	42	57	53	63	26	26	48	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	205	165	155	205	210	185	190	155	0	0	0	0	0	0	0	0	0	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	1	1	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	14.80	14.80	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	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	0	0	0
INLET GRILL SIZE	14	14	14	14	14	30	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: MOUNTAINASH 4
SITE NAME: RUSSEL GARDENS PHASE 3

LO # 85968
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	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	95.4	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: VANEE 65H	Location: BSMT
95.4 cfm	3.0 sones ☒ HVI Approved

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

SUPPLEMENTAL FANS		PANASONIC	
Location	Model	cfm	HVI
ENS	FV-05-11VK1	50	☒
ENS-3	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 @ 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

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.8 OF THE BUILDING CODE.
INDIVIDUAL BCIN: 19659 *Michael O'Rourke* MICHAEL O'ROURKE

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 85968	Model: MOUNTAINASH 4	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>1398</td><td>8</td><td>11184</td></tr> <tr><td>First</td><td>1398</td><td>10</td><td>13980</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="3" style="text-align: right;">Total:</td><td>41,292.0 ft³</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>1169.3 m³</td></tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1398	8	11184	First	1398	10	13980	Second	1792	9	16128	Third	0	9	0	Fourth	0	9	0	Total:			41,292.0 ft³	Total:			1169.3 m³	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:70%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width:30%;">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="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>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
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																									
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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 324.79 x 39 °C x 1.2 = 5165 W = 17622 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 324.79 x 7 °C x 1.2 = 335 W = 1144 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)																																																												
$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) + (HL_{agcleve} + HL_{bgcleve})\}$																																																												
Level	Level Factor (LF)	HL _{airve} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HL _{airb} / HL _{level})																																																								
1	0.5	17,622	9,022	0.977																																																								
2	0.3		11,595	0.456																																																								
3	0.2		13,634	0.258																																																								
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 4	OPT 5 BED	BUILDER: GREENPARK HOMES
SFQT: 3190	LO# 85968	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):	41292.0	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: 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	-

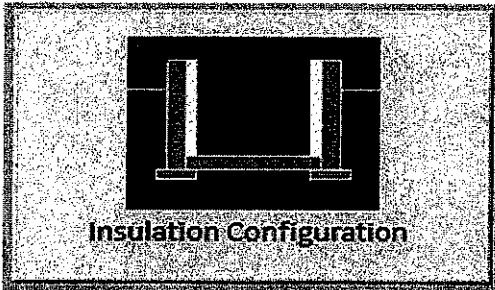
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

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):	2.4	
Depth Below Grade (m):	1.52	
Window Area (m ²):	2.6	
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):		1703

TYPE: MOUNTAINASH 4
LO# 85968

OPT 5 BED

Air Infiltration Residential Load Calculator

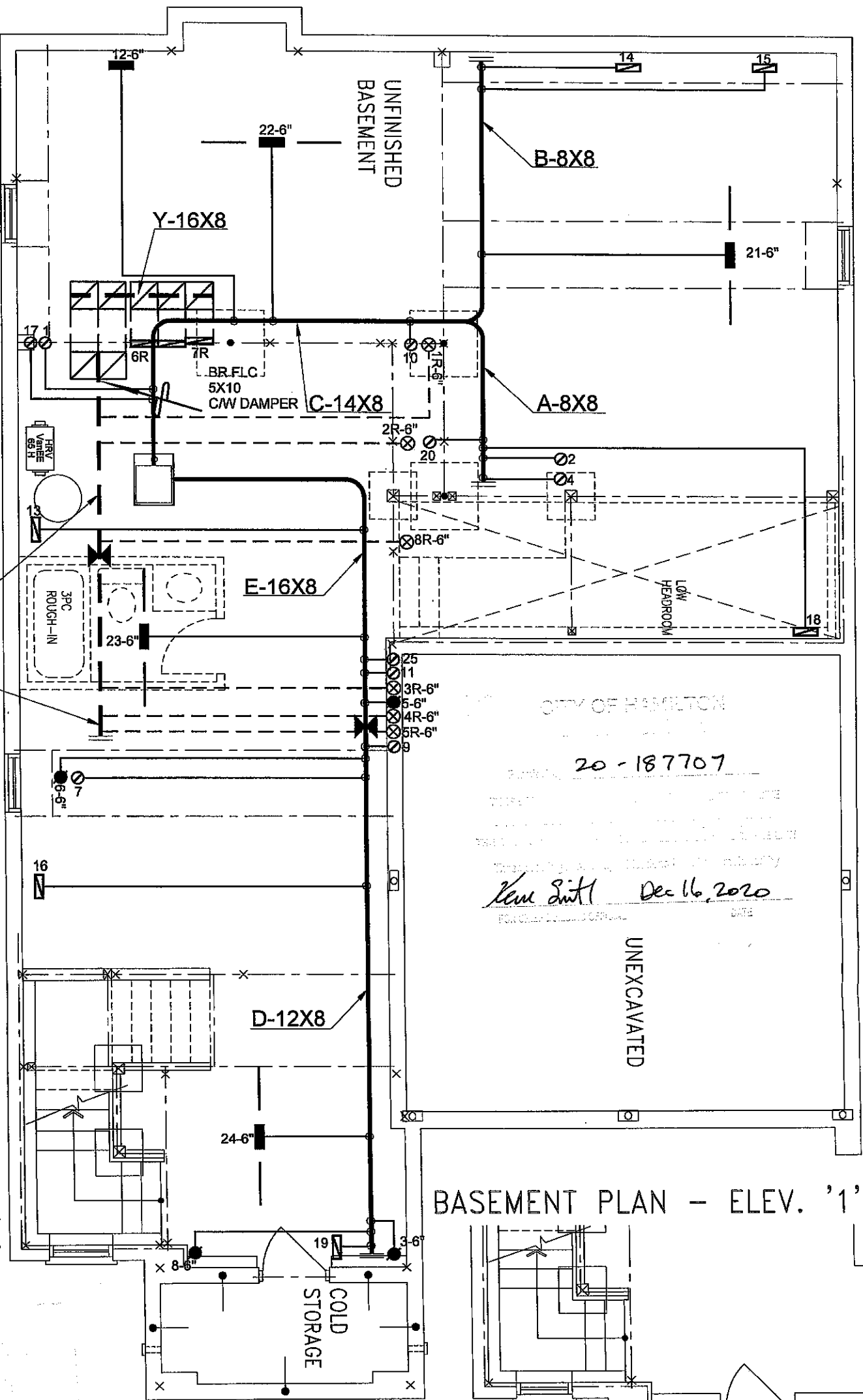
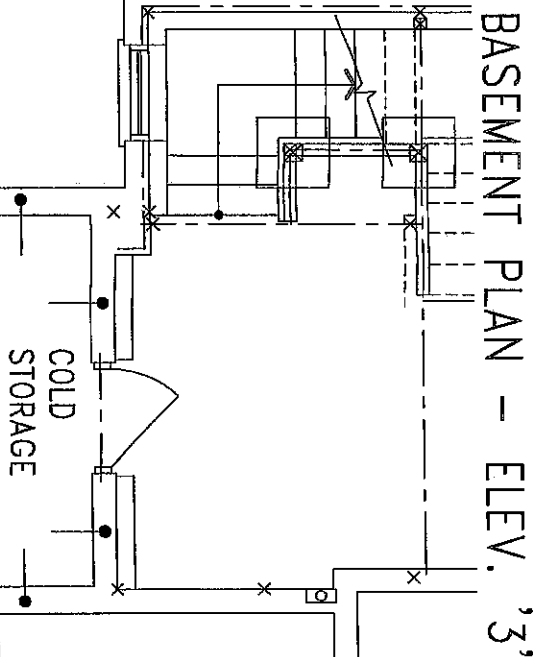
Supplemental tool for CAN/CSA-F280

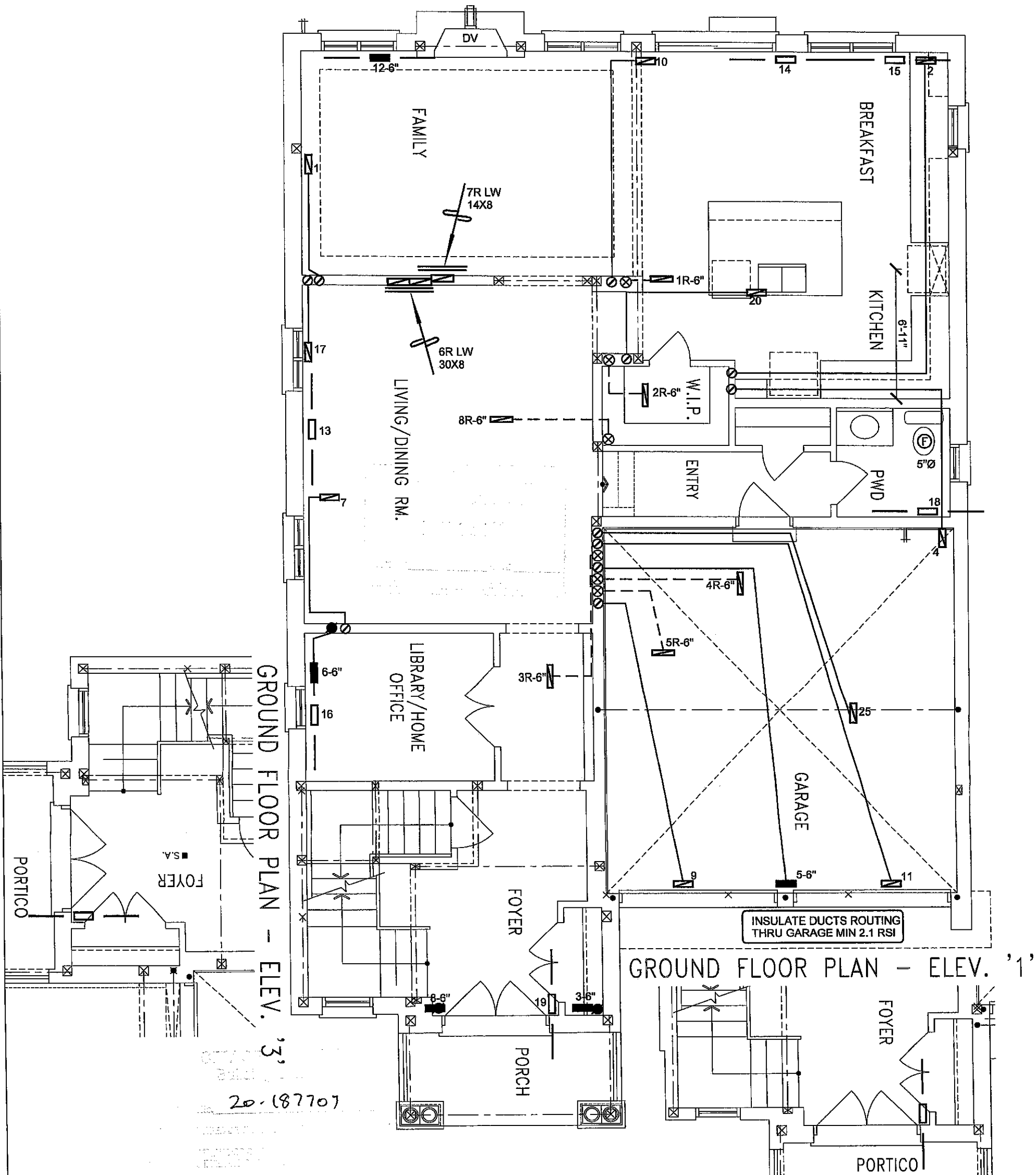
Weather Station Description				
Province:	Ontario			
Region:	Hamilton			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	7.62			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1169.3			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1558.7 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 4
LO# 85968

OPT 5 BED

PARTIAL BASEMENT PLAN
DECK CONDITION





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.

See Site Dec 16, 2020

GROUND FLOOR PLAN - ELEV. '2'

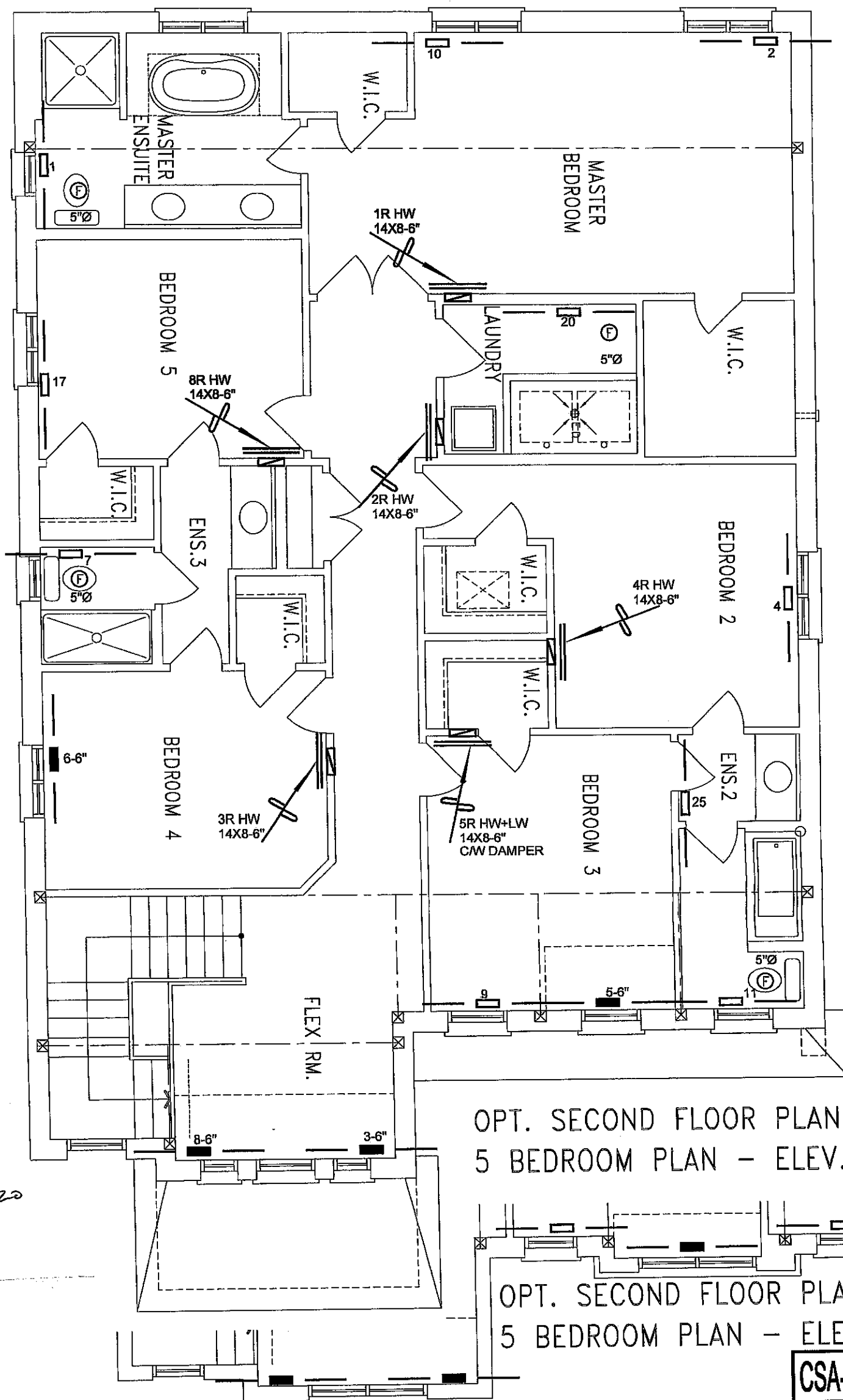
CSA-F280-12
PACKAGE A1

HVAC LEGEND							
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER

No.	Description	Date
3.		
2.		
1.		
No.		

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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 Date APRIL/2020 Scale 3/16" = 1'-0" BCIN# 19669 LO# 85968
Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO OPT 5 BED MOUNTAINASH 4 3190 sqft		



OPT. SECOND FLOOR PLAN
5 BEDROOM PLAN - ELEV. '3'

OPT. SECOND FLOOR PLAN
5 BEDROOM PLAN - ELEV. '1'

OPT. SECOND FLOOR PLAN
5 BEDROOM PLAN - ELEV. '2'

CSA-F280-12
PACKAGE A1

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Michael O'Rourke
BCIN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND							
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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GREENPARK HOMES		Date	APRIL/2020	
Project Name		Scale	3/16" = 1'-0"	
RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO		BCIN# 19669		
OPT 5 BED MOUNTAINASH 4 3190 sqft		LO#	85968	