

5 BEDROOM

SITE NAME: RUSSELL GARDENS PH 4

BUILDER: GREENPARK HOMES

OPT 5 BED

TYPE: MOUNTAINASH 5

GFA: 3298

DATE: Mar-21

LO# 90130

WINTER NATURAL AIR CHANGE RATE 0.336

SUMMER NATURAL AIR CHANGE RATE 0.121

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	BED-3	BED-4	BED-5	ENS-3	BED-2	WIC-4	ENS-2
			33	30	7	27	37	12	6	11	5	6
			9	9	9	9	9	9	9	9	9	9
GRS.WALL AREA	LOSS	GAIN	297	270	63	243	333	108	54	99	45	54
GLAZING	LOSS	GAIN										
NORTH	19.8	15.1	0	0	0	13	257	197	0	0	0	0
EAST	19.8	39.0	0	0	0	48	949	1873	0	0	0	0
SOUTH	19.8	23.5	0	0	0	0	0	0	16	316	376	0
WEST	19.8	39.0	32	633	1249	14	277	546	0	0	0	7
SKYL.T.	34.6	101.5	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
NET EXPOSED WALL	4.1	0.8	265	1099	199	249	1032	187	47	195	35	83
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.2	0.6	287	342	169	221	263	130	140	167	82	236
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	16	41	20	45
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	68	161	29	69
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			2073	1711	428	2854	2682	912	573	1086	470	419
SUB TOTAL HT GAIN			1616	969	130	2469	2787	551	209	464	419	242
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	541		447		112		745		159		123	
AIR CHANGE HEAT GAIN		128		77		10		195		17		33
DUCT LOSS		0		0		0		0		72		23
DUCT GAIN		0		0		0		0		137		129
HEAT GAIN PEOPLE	240	2	480	0	0	1	240	1	240	0	1	240
HEAT GAIN APPLIANCES/LIGHTS			548	0	0	0	548	0	0	548	0	0
TOTAL HT LOSS BTU/H			2614	2157	540	3958	3382	1160	795	1507	651	526
TOTAL HT GAIN x 1.3 BTU/H			3695	1360	162	4938	4936	1797	323	1843	647	340

ROOM USE	EXP. WALL	CLG. HT.	FAM	L/D	K/B	L/H	LND	W/R	FOY	MUD	WOD	BAS
			36	30	37	19	12	18	18	30	46	180
			10	10	10	10	9	10	10	11	8	8
GRS.WALL AREA	LOSS	GAIN	360	300	370	190	108	180	180	330	368	1105
GLAZING	LOSS	GAIN										
NORTH	19.8	15.1	0	0	0	0	0	0	0	0	0	0
EAST	19.8	39.0	0	0	0	0	0	0	0	0	0	0
SOUTH	19.8	23.5	0	0	0	13	257	305	7	138	164	0
WEST	19.8	39.0	40	791	1561	0	0	0	0	0	0	0
SKYL.T.	34.6	101.5	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
NET EXPOSED WALL	4.1	0.8	320	1327	241	260	1078	195	310	1285	233	177
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	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
NO ATTIC EXPOSED CLG	2.6	1.3	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
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			2117	1869	2471	991	772	1090	1612	1477	0	7427
SUB TOTAL HT GAIN			1801	1138	2574	438	346	977	505	349	628	474
LEVEL FACTOR / MULTIPLIER	0.30	0.47	0.30	0.47	0.30	0.47	0.20	0.26	0.30	0.47	0.30	0.47
AIR CHANGE HEAT LOSS	997		880		1163		466		201		513	
AIR CHANGE HEAT GAIN		143		90		204		36		27		78
DUCT LOSS		0		0		0		0		0		0
DUCT GAIN		0		0		0		0		0		0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS			548	548	548	548	548	548	0	0	0	0
TOTAL HT LOSS BTU/H			3114	2748	3634	1457	973	1603	2371	2173	1120	16549
TOTAL HT GAIN x 1.3 BTU/H			3241	2306	4325	1328	1198	1371	709	489	817	1443

TOTAL HEAT GAIN BTU/H: 37527

TONS: 3.13

LOSS DUE TO VENTILATION LOAD BTU/H: 1819

STRUCTURAL HEAT LOSS: 53026

TOTAL COMBINED HEAT LOSS BTU/H: 54845

Michael O'Rourke

SITE NAME: RUSSELL GARDENS PH 4
BUILDER: GREENPARK HOMES

OPT 5 BED
TYPE: MOUNTAINASH 5

DATE: Mar-21

GFA: 3298 LO# 90130

HEATING CFM 1131
TOTAL HEAT LOSS 53,026
AIR FLOW RATE CFM 21.33
COOLING CFM 1131
TOTAL HEAT GAIN 37,197
AIR FLOW RATE CFM 30.41

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

#GOODMAN
GMCC960603BNA
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	14	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.

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

MEDLOW 928
MEDIUM 1017
MEDIUM HIGH 1131

DESIGN CFM = 1131
CFM @ .5" 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	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-3	BED-4	BED-5	ENS-3	BED-2	WIC-4	MBR	ENS-2	FAM	L/D	K/B	K/B	L/H	LND	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.31	2.16	0.54	1.98	1.69	1.15	0.79	1.51	0.65	1.31	0.53	3.11	2.75	1.82	1.82	1.46	0.97	1.60	2.37	2.17	4.42	4.42	4.42	4.42
CFM PER RUN HEAT	28	46	12	42	36	25	17	32	14	28	11	66	59	39	39	31	21	34	51	46	94	94	94	94
RM GAIN MBH	1.80	1.36	0.18	2.47	2.47	1.80	0.32	1.84	0.65	1.80	0.34	3.24	2.30	2.16	2.16	1.33	1.20	1.37	0.71	0.49	0.57	0.57	0.57	0.57
CFM PER RUN COOLING	55	41	6	75	75	55	10	56	20	55	10	99	70	68	66	40	36	42	22	15	17	17	17	17
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	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	37	54	39	59	56	34	34	51	45	39	39	22	10	40	31	27	20	33	41	44	38	19	5	31
EQUIVALENT LENGTH	190	130	150	130	170	200	220	160	110	130	150	140	130	150	160	140	180	110	90	140	140	120	140	130
TOTAL EFFECTIVE LENGTH	227	184	189	189	226	234	254	211	155	169	189	162	140	190	181	167	200	143	131	184	178	139	145	161
ADJUSTED PRESSURE	0.08	0.09	0.09	0.09	0.08	0.07	0.07	0.08	0.11	0.1	0.09	0.1	0.12	0.09	0.09	0.1	0.09	0.12	0.13	0.09	0.09	0.12	0.11	0.1
ROUND DUCT SIZE	5	5	4	6	5	4	5	5	4	5	4	6	5	5	5	4	4	4	4	6	6	6	6	6
HEATING VELOCITY (ft/min)	206	338	138	214	184	184	195	235	161	206	126	337	433	286	286	358	241	390	585	528	479	479	479	479
COOLING VELOCITY (ft/min)	404	301	69	382	382	404	115	411	229	404	115	505	514	485	485	459	413	482	252	172	87	87	87	87
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	B	A	B	D	C	C	C	A	D	B	D	B	D	A	A	C	B	C	C	A	A	B	D	C

RUN #	25	26
ROOM NAME	BED-3	BED-4
RM LOSS MBH	1.98	1.69
CFM PER RUN HEAT	42	36
RM GAIN MBH	2.47	2.47
CFM PER RUN COOLING	75	75
ADJUSTED PRESSURE	0.17	0.17
ACTUAL DUCT LGH	52	48
EQUIVALENT LENGTH	120	170
TOTAL EFFECTIVE LENGTH	172	218
ADJUSTED PRESSURE	0.1	0.08
ROUND DUCT SIZE	6	6
HEATING VELOCITY (ft/min)	214	184
COOLING VELOCITY (ft/min)	382	382
OUTLET GRILL SIZE	4X10	4X10
TRUNK	D	C

SUPPLY AIR TRUNK SIZE								RETURN AIR TRUNK SIZE							
TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK	CFM	TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK	CFM
TRUNK A	296	0.08	8.9	10	x 8 533	TRUNK G	0	TRUNK H	0	0.00	0	0	x 8 0	TRUNK O	0
TRUNK B	545	0.08	11.2	14	x 8 701	TRUNK H	0	TRUNK I	0	0.00	0	0	x 8 0	TRUNK P	0
TRUNK C	324	0.07	9.5	10	x 8 583	TRUNK I	0	TRUNK J	0	0.00	0	0	x 8 0	TRUNK Q	0
TRUNK D	586	0.07	11.9	16	x 8 659	TRUNK J	0	TRUNK K	0	0.00	0	0	x 8 0	TRUNK R	0
TRUNK E	0	0.00	0	0	x 8 0	TRUNK K	0	TRUNK L	0	0.00	0	0	x 8 0	TRUNK S	0
TRUNK F	0	0.00	0	0	x 8 0	TRUNK L	0						x 8 0	TRUNK T	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	90	85	90	0	0	0	0	0	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	41	52	53	58	53	59	45	41	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	185	195	165	165	215	265	165	190	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	226	247	218	223	268	324	210	231	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.07	0.06	0.07	0.07	0.06	0.05	0.07	0.06	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	5.9	6	5.9	5.9	6	6	9.9	6	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	X	X	X	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	14	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: MOUNTAINASH 5
 SITE NAME: RUSSELL GARDENS PH 4

 LO # 90130
 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	<u>2</u> @ 21.2 cfm	42.4 cfm
Other Bedrooms	<u>4</u> @ 10.6 cfm	42.4 cfm
Kitchen & Bathrooms	<u>5</u> @ 10.6 cfm	53 cfm
Other Rooms	<u>7</u> @ 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		9.32.3.5.
Total Ventilation Capacity	212	cfm
Less Principal Ventil. Capacity	95.4	cfm
Required Supplemental Capacity	116.6	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model:	VANEE V150H
Location:	BSMT
95.4 cfm	3.0 sones
☒ HVI Approved	

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

SUPPLEMENTAL FANS		PANASONIC		
Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	50	☒	0.3
ENS-3	FV-05-11VK1	50	☒	0.3
ENS-2	FV-05-11VK1	50	☒	0.3
W/R	FV-05-11VK1	50	☒	0.3

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model:	VANEE V150H	
150 cfm high	35 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:	March-21

 I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
 INDIVIDUAL BCIN: 19869 *Michael O'Rourke* MICHAEL O'ROURKE

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

LO#: 90130

Model: MOUNTAINASH 5

Builder: GREENPARK HOMES

Date: 31/03/2021

Volume Calculation
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1452	8	11616
First	1452	10	14520
Second	1846	9	16614
Third	0	9	0
Fourth	0	9	0
Total:			42,750.0 ft³
Total:			1210.5 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.338
SUMMER NATURAL AIR CHANGE RATE	0.121

Design Temperature Difference				
	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-17	39	71
Summer DTDc	24	31	7	13

5.2.3.1 Heat Loss due to Air Leakage

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

0.338 x 336.26 x 39 °C x 1.2 = 5347 W

= 18244 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 336.26 x 7 °C x 1.2 = 347 W

= 1185 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)

$$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{ (HL_{agcr} + HL_{bgcr}) \div (HL_{agcleve} + HL_{bgcleve}) \}$$

Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{cleve})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HL _{cleve})
1	0.5	18,244	8,547	1.067
2	0.3		11,628	0.471
3	0.2		13,980	0.261
4	0		0	0.000
5	0		0	0.000

*HLairbv = Air leakage heat loss + ventilation heat loss

*For a balanced or supply only ventilation system HLairve = 0

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: MOUNTAINASH 5V **OPT 5 BED** **BUILDER:** GREENPARK HOMES
SFQT: 3298 **LO#** 90130 **SITE:** RUSSELL GARDENS PH 4

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

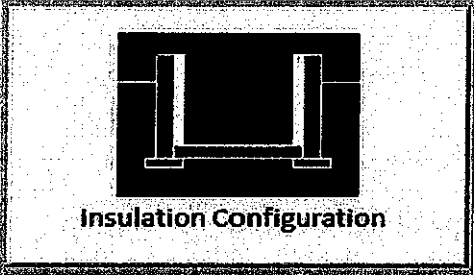
ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	42750.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	5.5 ft
LENGTH: 54.0 ft	WIDTH: 36.0 ft	EXPOSED PERIMETER:	180.0 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):	16.5	 Insulation Configuration
Floor Width (m):	11.0	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.4	
Depth Below Grade (m):	1.68	
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):	1658	

TYPE: MOUNTAINASH 5
LO# 90130

OPT 5 BED

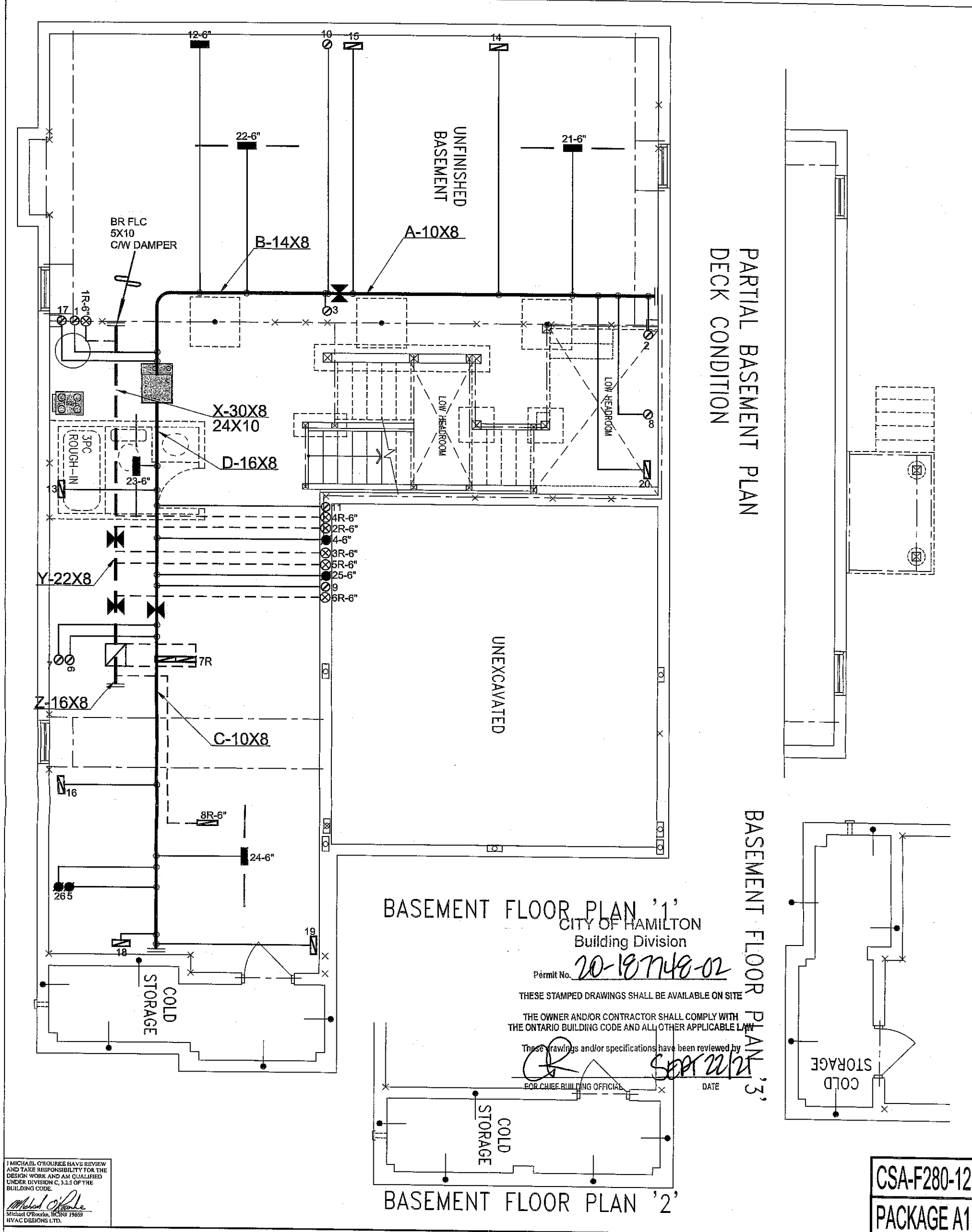
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

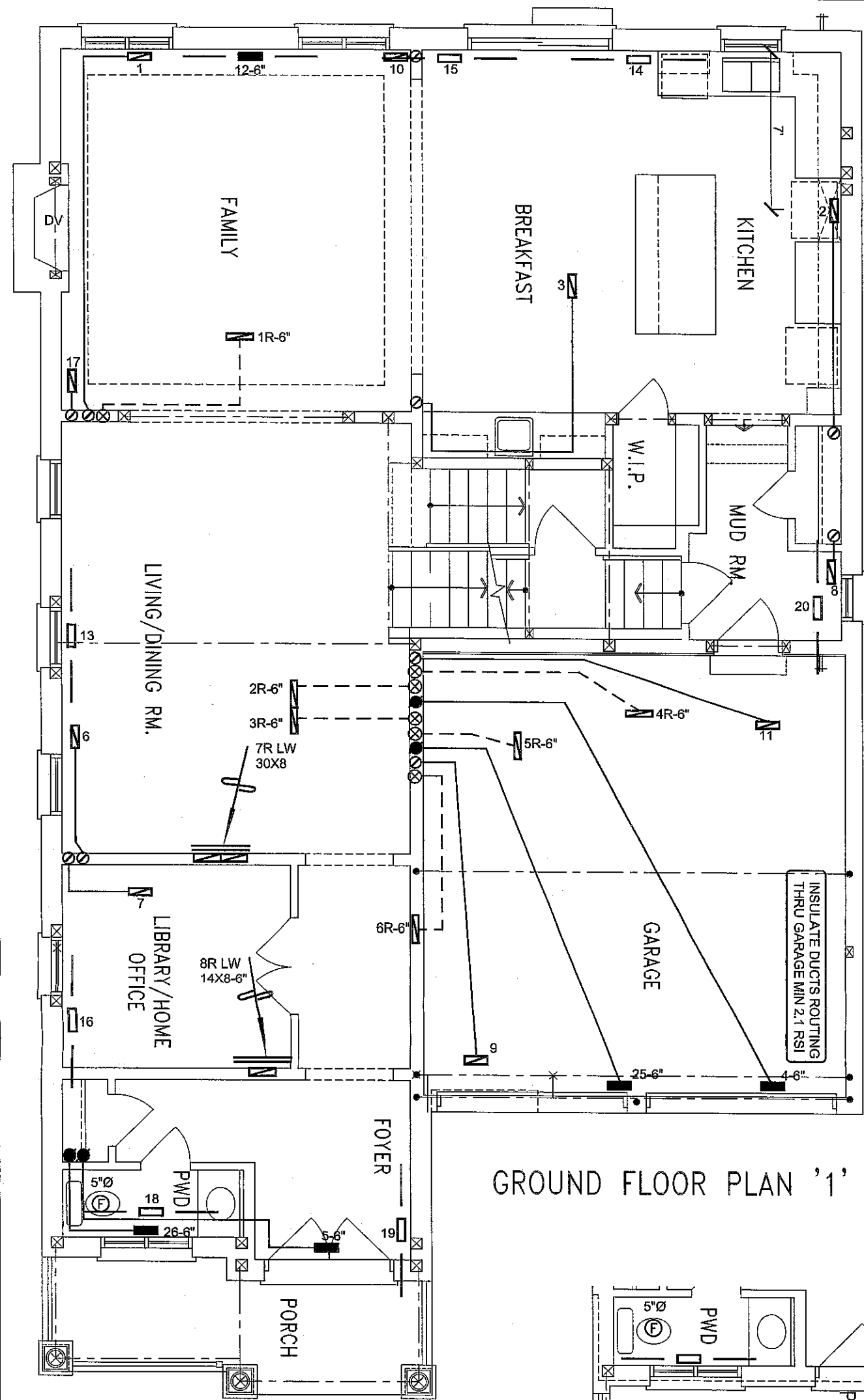
Weather Station Description			
Province:	Ontario		
Region:	Hamilton		
Weather Station Location:	Open flat terrain, grass		
Anemometer height (m):	10		
Local Shielding			
Building Site:	Suburban, forest		
Walls:	Heavy		
Flue:	Heavy		
Highest Ceiling Height (m):	7.62		
Building Configuration			
Type:	Detached		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m ³):	1210.5		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1613.7 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 5
LO# 90130

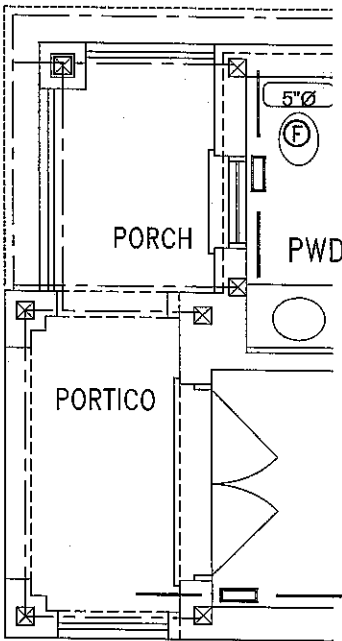
OPT 5 BED



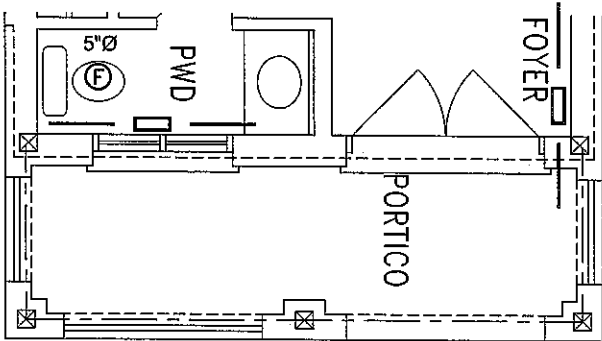
HVAC LEGEND							3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.
— □ —	SUPPLY AIR GRILLE	— ■ —	6" SUPPLY AIR BOOT ABOVE	— ▨ —	14"x8" RETURN AIR GRILLE	— ▩ —	RETURN AIR STACK ABOVE	1.
— ■ —	SUPPLY AIR GRILLE 6" BOOT	○	SUPPLY AIR STACK FROM 2nd FLOOR	— ▨ —	30"x8" RETURN AIR GRILLE	— ▩ —	RETURN AIR STACK 2nd FLOOR	No.
— ■ —	SUPPLY AIR BOOT ABOVE	●	6" SUPPLY AIR STACK 2nd FLOOR	— ▨ —	FRA- FLOOR RETURN AIR GRILLE	— ▩ —	REDUCER	Date
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.							REVISIONS	
Client							Sheet Title	
GREENPARK HOMES							BASEMENT HEATING LAYOUT	
Project Name							Date	
RUSSELL GARDENS PH 4							Scale	
HAMILTON, ONTARIO							BCIN# 19669	
OPT 5 BED							LO#	
MOUNTAINASH 5 3298 sqft							90130	
HVAC DESIGNS LTD.							HEAT LOSS 54845 BTU/H	
375 Finley Ave. Suite 202 - Ajax, Ontario							UNIT DATA	
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375							MAKE	
Email: info@hvacdsgns.ca							GOODMAN	
Web: www.hvacdsgns.ca							MODEL	
Specializing in Residential Mechanical Design Services							GMEC960603BNA	
Installation to comply with the latest Ontario Building Code. All supply							INPUT	
branch outlets shall be equipped with a manual balancing damper.							60 MBTU/H	
Ductwork which passes through the garage or unheated spaces shall be							OUTPUT	
adequately insulated and be gas-proofed.							57.6 MBTU/H	
							COOLING	
							3.0 TONS	
							FAN SPEED	
							1131 cfm @ 0.6" w.g.	
							# OF RUNS S/A R/A FANS	
							3RD FLOOR	
							2ND FLOOR	
							14 6 3	
							1ST FLOOR	
							8 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	



GROUND FLOOR PLAN '3'



GROUND FLOOR PLAN '1'



GROUND FLOOR PLAN '2'

CITY OF HAMILTON
Building Division

Permit No. 20-187748-02

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE

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

These drawings and/or specifications have been reviewed by

FOR CHIEF BUILDING OFFICIAL

DATE

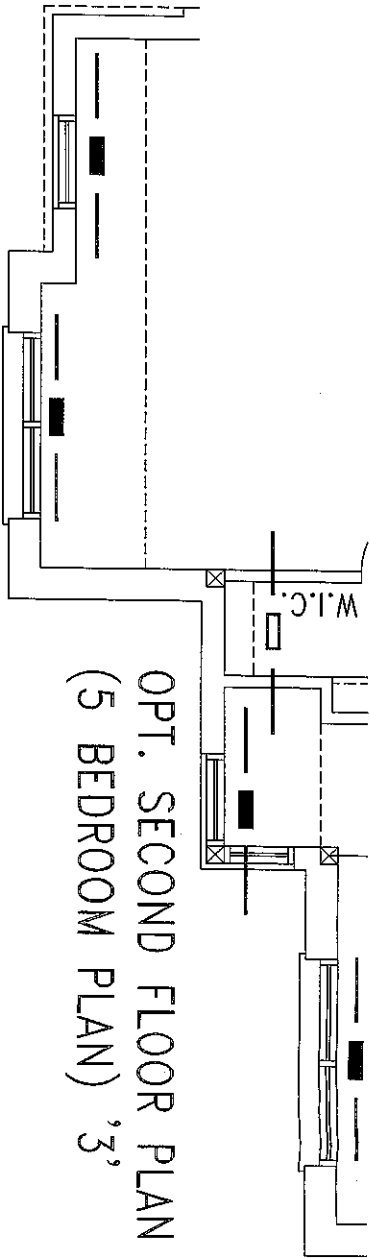
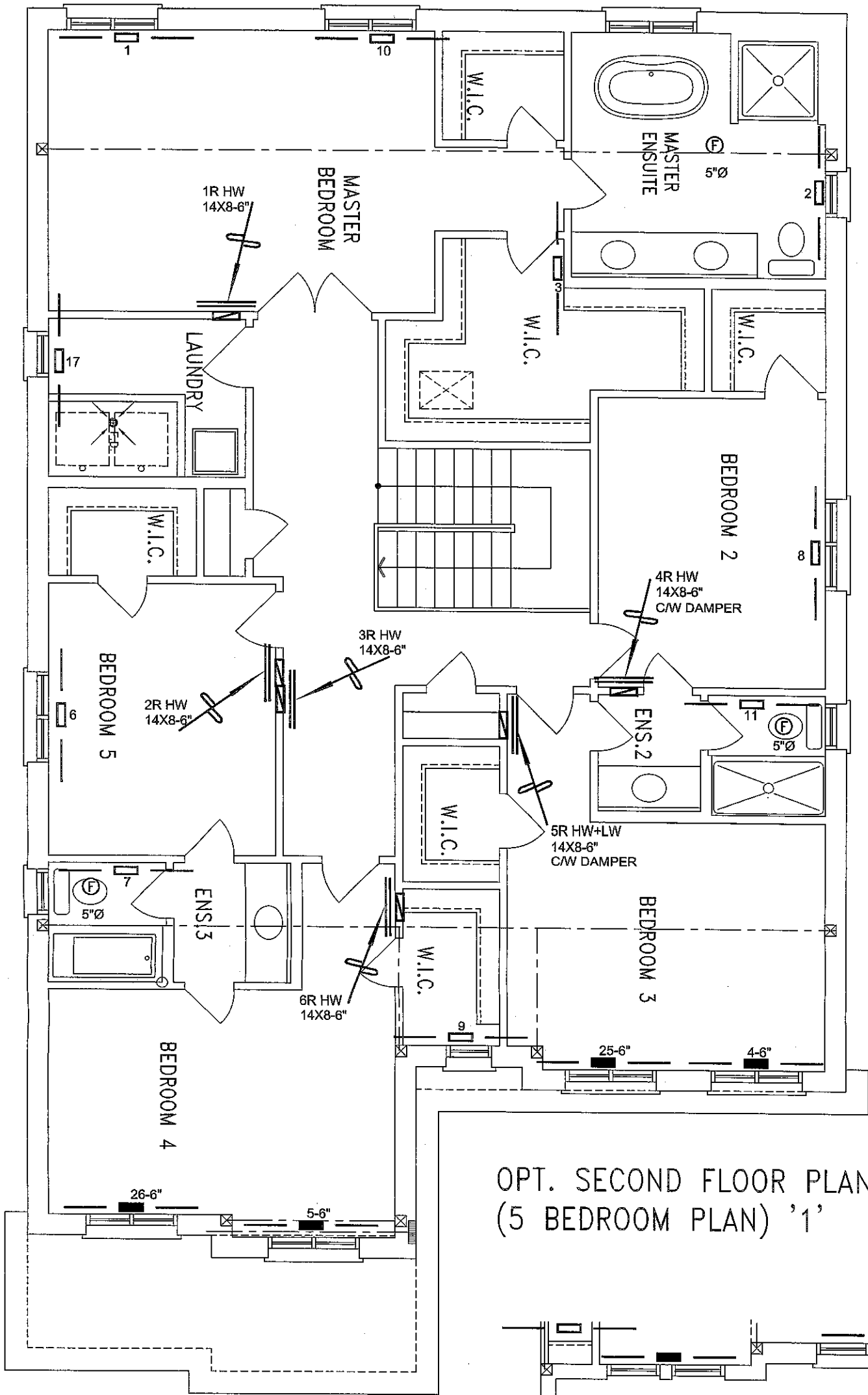
CSA-F280-12
PACKAGE A1

I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.3 OF THE BUILDING CODE.
Michael O'Rourke, BCTM# 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	2.
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	1.
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	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 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 MAR/2021 Scale 3/16" = 1'-0" BCIN# 19669 LO# 90130
Project Name RUSSELL GARDENS PH 4 HAMILTON, ONTARIO OPT 5 BED MOUNTAINASH 5 3298 sqft		



OPT. SECOND FLOOR PLAN
(5 BEDROOM PLAN) '1'

OPT. SECOND FLOOR PLAN
(5 BEDROOM PLAN) '2'

CITY OF HAMILTON
Building Division

Permit No. 20-187748-02

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW

These drawings and/or specifications have been reviewed by
[Signature] SEP. 22/21
FOR CHIEF BUILDING OFFICIAL DATE

I MICHAEL O'ROURKE HAVE REVIEWED
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C.3.2.3 OF THE
BUILDING CODE.
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

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

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Client

GREENPARK HOMES

Project Name

**RUSSELL GARDENS PH 4
HAMILTON, ONTARIO**

**OPT 5 BED
MOUNTAINASH 5 3298 sqft**

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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**

Date

MAR/2021

Scale

3/16" = 1'-0"

BCIN# 19669

LO# 90130