

SITE NAME: RUSSEL GARDENS PHASE 3

LOT 175

DATE: Dec-20

WINTER NATURAL AIR CHANGE RATE 0.319

HEAT LOSS AT °F. 71

CSA-F280-12

BUILDER: GREENPARK HOMES

TYPE: MOUNTAINASH 6

GFA: 3370

LO# 88536

SUMMER NATURAL AIR CHANGE RATE 0.114

HEAT GAIN AT °F. 13

SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	WIC	BED-2	BED-3	BED-4	S-ENS	BED-5	WIC-3	ENS-3		
			33	29	8	34	33	26	9	11	8	6		
			9	9	9	9	9	9	9	9	9	9		
GRS.WALL AREA	LOSS	GAIN	297	261	72	306	297	234	0	99	72	54		
GLAZING	LOSS	GAIN												
NORTH	19.8	16.0	0	0	0	0	0	0	0	0	0	0		
EAST	19.8	41.6	0	0	0	0	0	0	0	0	0	0		
SOUTH	19.8	24.9	0	0	7	138	174	0	0	0	0	0		
WEST	19.8	41.6	32	633	1330	14	277	582	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	265	1099	199	240	995	180	72	298	54	261		
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	285	340	167	204	243	120	130	155	75	272		
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			2071		1653		453		3046		2929			
SUB TOTAL HT GAIN				1696		1056		131		2349		3252		
LEVEL FACTOR / MULTIPLIER	0.20	0.26			0.20	0.26		0.20	0.26		0.20	0.26		
AIR CHANGE HEAT LOSS			532		424		116		782		752			
AIR CHANGE HEAT GAIN				130		81		10		179		249		
DUCT LOSS			0		0		0		383		368			
DUCT GAIN			0		0		0		343		441			
HEAT GAIN PEOPLE	240	2	480	0	0	0	0	1	240	1	240	1	240	
HEAT GAIN APPLIANCES/LIGHTS			661	0	0	0	0	0	661	0	661	0	661	
TOTAL HT LOSS BTU/H			2603		2078		570		4211		4049		1705	
TOTAL HT GAIN x 1.3 BTU/H			3857		1473		183		4904		6309		1938	

ROOM USE	EXP. WALL	CLG. HT.	L/D	FAM	K/B	L/H	LND	FOY	ENT					
			50	35	44	10	7	26	24					
			11	11	11	11	9	11	12					
GRS.WALL AREA	LOSS	GAIN	550	385	484	110	63	308	228					
GLAZING	LOSS	GAIN												
NORTH	19.8	16.0	0	0	0	0	0	0	0					
EAST	19.8	41.6	0	0	0	0	0	0	0					
SOUTH	19.8	24.9	36	712	896	0	0	0	0					
WEST	19.8	41.6	0	0	0	46	909	1911	33					
SKYL.T.	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	514	2131	386	339	1405	255	407					
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	10	26	13	29					
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			2242		2340		3357		737					
SUB TOTAL HT GAIN				1283		2179		2325		357		228		
LEVEL FACTOR / MULTIPLIER	0.30	0.42			0.30	0.42		0.30	0.42		0.20	0.26		
AIR CHANGE HEAT LOSS			1190		980		1405		309		134			
AIR CHANGE HEAT GAIN				98		166		178		27		17		
DUCT LOSS			0		0		0		0		0			
DUCT GAIN			0		0		0		0		0			
HEAT GAIN PEOPLE	240	2	0	0	0	0	0	0	0		0			
HEAT GAIN APPLIANCES/LIGHTS			661	0	661	0	661	0	661		661	0		
TOTAL HT LOSS BTU/H			4032		3320		4763		1046		654			
TOTAL HT GAIN x 1.3 BTU/H			2655		3903		4113		1359		1179			

TOTAL HEAT GAIN BTU/H:

41238

TONS: 3.44

LOSS DUE TO VENTILATION LOAD BTU/H: 1819

STRUCTURAL HEAT LOSS: 57135

TOTAL COMBINED HEAT LOSS BTU/H: 58954

Michael O'Rourke

SITE NAME: RUSSEL GARDENS PHASE 3
BUILDER: GREENPARK HOMES

LOT 175
TYPE: MOUNTAINASH 6

DATE: Dec-20

GFA: 3370 LO# 88536

HEATING CFM 1504
TOTAL HEAT LOSS 57,135
AIR FLOW RATE CFM 25.32

COOLING CFM 1504
TOTAL HEAT GAIN 40,908
AIR FLOW RATE CFM 36.77

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

plenium 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

#GOODMAN 80
GMEC960804CNA
FAN SPEED
LOW 868
MEDLOW 978
MEDIUM 1112
MEDIUM HIGH 1504
HIGH 1616

AFUE = 96 %
INPUT (BTU/H) = 80,000
OUTPUT (BTU/H) = 76,800

DESIGN CFM = 1504
CFM @ 5" E.S.P.

TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	17	10	5
R/A	0	0	6	3	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	MBR	ENS	WIC	BED-2	BED-3	BED-4	S-ENS	BED-5	WIC-3	MBR	ENS-3	L/D	FAM	K/B	K/B	L/H	LND	FOY	FOY	ENT	BAS	BAS	BAS	BAS
RM LOSS MBH	1.30	1.04	0.57	2.11	1.35	1.70	0.30	1.04	1.23	1.30	0.57	2.02	1.66	2.38	2.38	1.05	0.65	1.85	1.85	2.24	3.74	3.74	3.74	3.74
CFM PER RUN HEAT	34	27	15	55	36	45	8	28	32	34	15	53	44	63	63	28	17	49	49	59	98	98	98	98
RM GAIN MBH	1.93	0.74	0.18	2.45	2.10	1.94	0.10	1.82	1.69	1.93	0.38	1.33	1.95	2.06	2.06	1.36	1.18	1.04	1.04	0.40	0.49	0.49	0.49	0.49
CFM PER RUN COOLING	71	27	7	90	77	71	4	67	62	71	14	49	72	76	76	50	43	38	38	15	18	18	18	18
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	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.	36	48	22	65	67	49	44	34	56	26	45	35	26	31	24	19	49	53	46	23	37	22	33	33
EQUIVALENT LENGTH	100	170	160	150	200	190	170	150	160	170	180	120	110	140	130	100	180	140	130	120	140	120	120	130
TOTAL EFFECTIVE LENGTH	136	218	182	215	267	239	214	184	216	196	225	155	136	171	154	119	229	193	176	143	177	142	153	213
ADJUSTED PRESSURE	0.13	0.08	0.09	0.08	0.06	0.07	0.08	0.09	0.08	0.09	0.08	0.11	0.13	0.1	0.11	0.14	0.08	0.09	0.1	0.12	0.09	0.11	0.11	0.08
ROUND DUCT SIZE	5	4	4	6	6	6	4	6	5	5	4	5	5	5	5	5	5	5	4	5	6	6	6	6
HEATING VELOCITY (ft/min)	250	310	172	280	184	229	92	143	235	250	172	389	323	463	463	206	125	360	562	433	500	500	500	500
COOLING VELOCITY (ft/min)	521	310	80	459	393	362	46	342	455	521	161	360	529	558	558	367	316	279	436	110	92	92	92	92
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	4X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	F	C	F	C	A	C	B	C	B	F	C	B	F	D	D	F	C	A	A	F	F	D	C	A

RUN #	25	26	27	28	29	30	31	32
ROOM NAME	BED-2	BED-3	ENS	S-ENS	FAM	L/D	BAS	BED-3
RM LOSS MBH	2.11	1.35	1.04	0.30	1.66	2.02	3.74	1.35
CFM PER RUN HEAT	55	36	27	8	44	53	98	36
RM GAIN MBH	2.45	2.10	0.74	0.10	1.95	1.33	0.49	2.10
CFM PER RUN COOLING	90	77	27	4	72	49	18	77
ADJUSTED PRESSURE	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.17
ACTUAL DUCT LGH.	60	74	44	40	14	49	46	70
EQUIVALENT LENGTH	180	200	180	180	150	170	160	200
TOTAL EFFECTIVE LENGTH	240	274	224	220	164	219	206	270
ADJUSTED PRESSURE	0.07	0.06	0.08	0.08	0.1	0.08	0.08	0.06
ROUND DUCT SIZE	6	6	4	4	5	5	6	6
HEATING VELOCITY (ft/min)	280	184	310	92	323	389	500	184
COOLING VELOCITY (ft/min)	459	393	310	46	529	360	92	393
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10
TRUNK	B	A	C	B	F	A	A	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 A	455	0.06	11.2	14	X	8	585	TRUNK G	0	0.00	0	0	X	8	0
TRUNK B	611	0.06	12.5	18	X	8	611	TRUNK H	0	0.00	0	0	X	8	0
TRUNK C	923	0.06	14.6	24	X	8	692	TRUNK I	0	0.00	0	0	X	8	0
TRUNK D	224	0.10	7.6	10	X	8	403	TRUNK J	0	0.00	0	0	X	8	0
TRUNK E	1147	0.06	15.9	30	X	8	688	TRUNK K	0	0.00	0	0	X	8	0
TRUNK F	356	0.09	9.2	10	X	8	641	TRUNK L	0	0.00	0	0	X	8	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	75	75	135	115	75	75	185	400	135	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.	71	68	57	74	67	69	21	23	38	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	245	235	215	235	220	215	155	160	285	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LENGTH	316	303	272	309	287	284	176	183	323	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.05	0.05	0.05	0.05	0.05	0.05	0.08	0.08	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	14.80	14.80
ROUND DUCT SIZE	6	6	7.5	7	6	6	7.5	9.9	7.5	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	8	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	14	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: MOUNTAINASH 8
 SITE NAME: RUSSEL GARDENS PHASE 3

 LO # 88536
 LOT 175

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	6 @ 10.6 cfm	63 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		9.32.3.5.
Total Ventilation Capacity	212	cfm
Less Principal Ventil. Capacity	95.4	cfm
Required Supplemental Capacity	116.6	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 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	1.08	X	0.25

SUPPLEMENTAL FANS		PANASONIC		
Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	60	✓	0.3
S-ENS	FV-05-11VK1	60	✓	0.3
ENS-3	FV-05-11VK1	60	✓	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:	December-20

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

LO#: 88536

Model: MOUNTAINASH 6

Builder: GREENPARK HOMES

Date: 07/12/2020

Volume Calculation
House Volume

Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)
Bsmt	1480	9	13320
First	1480	11	16280
Second	1890	9	17010
Third	0	9	0
Fourth	0	9	0
Total:			46,610.0 ft ³
Total:			1319.8 m ³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.319
SUMMER NATURAL AIR CHANGE RATE	0.114

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

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

$$0.319 \times 366.62 \times 39^\circ\text{C} \times 1.2 = 5508 \text{ W}$$

$$= 18794 \text{ Btu/h}$$

6.2.6 Sensible Gain due to Air Leakage

$$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$

$$0.114 \times 366.62 \times 7^\circ\text{C} \times 1.2 = 358 \text{ W}$$

$$= 1220 \text{ Btu/h}$$

5.2.3.2 Heat Loss due to Mechanical Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

$$95 \text{ CFM} \times 71^\circ\text{F} \times 1.08 \times 0.25 = 1819 \text{ Btu/h}$$

6.2.7 Sensible heat Gain due to Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

$$95 \text{ CFM} \times 13^\circ\text{F} \times 1.08 \times 0.25 = 330 \text{ Btu/h}$$

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)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{cleve})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.5	18,794	9,314	1.009
2	0.3		13,469	0.419
3	0.2		14,641	0.257
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 6 ✓	LOT 175 ✓	BUILDER: GREENPARK HOMES
SFQT: 3370	LO# 88536	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):	46610.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 58.0 ft	WIDTH: 36.0 ft	EXPOSED PERIMETER:	164.0 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	-

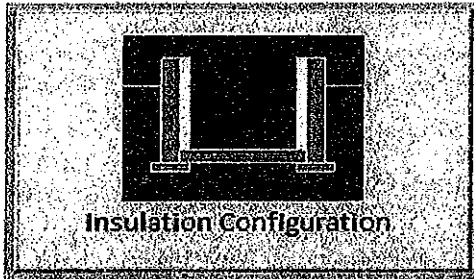
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

Michael O'Rourke

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280 ✓

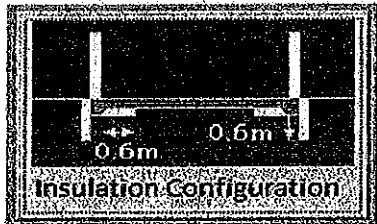
Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	17.7	 Insulation Configuration
Floor Width (m):	11.0	
Exposed Perimeter (m):	50.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.9	
Door Area (m ²):	3.7	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):	1583	

TYPE: MOUNTAINASH 6
LO# 88536

LOT 175

Residential Slab on Grade 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		
Length (m):	1.8	
Width (m):	3.7	
Exposed Perimeter (m):	7.3	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		57

TYPE: MOUNTAINASH 6
LO# 88536

LOT 175

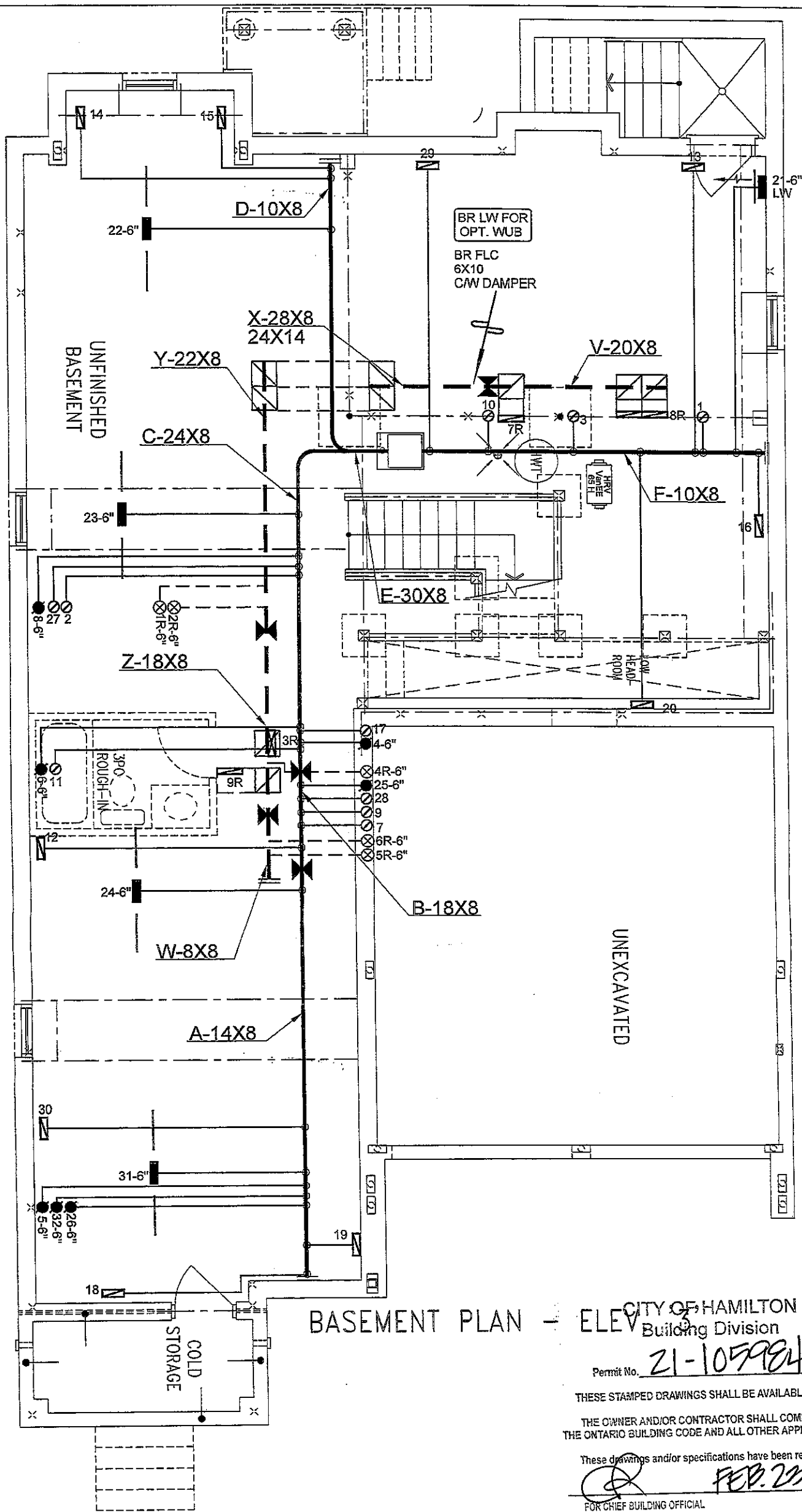
Air Infiltration Residential Load Calculator

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):	7.01		
Building Configuration			
Type:	Detached		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m ³):	1319.8		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1759.4 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):	0.319		
Cooling Air Leakage Rate (ACH/H):	0.114		

TYPE: MOUNTAINASH 6
LO# 88536

LOT 175



BASEMENT PLAN - ELEV CITY OF HAMILTON Building Division

Permit No. 21-105984

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 FEB. 23/21

LOT 175
WUB
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
HVAC DESIGNS LTD.

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

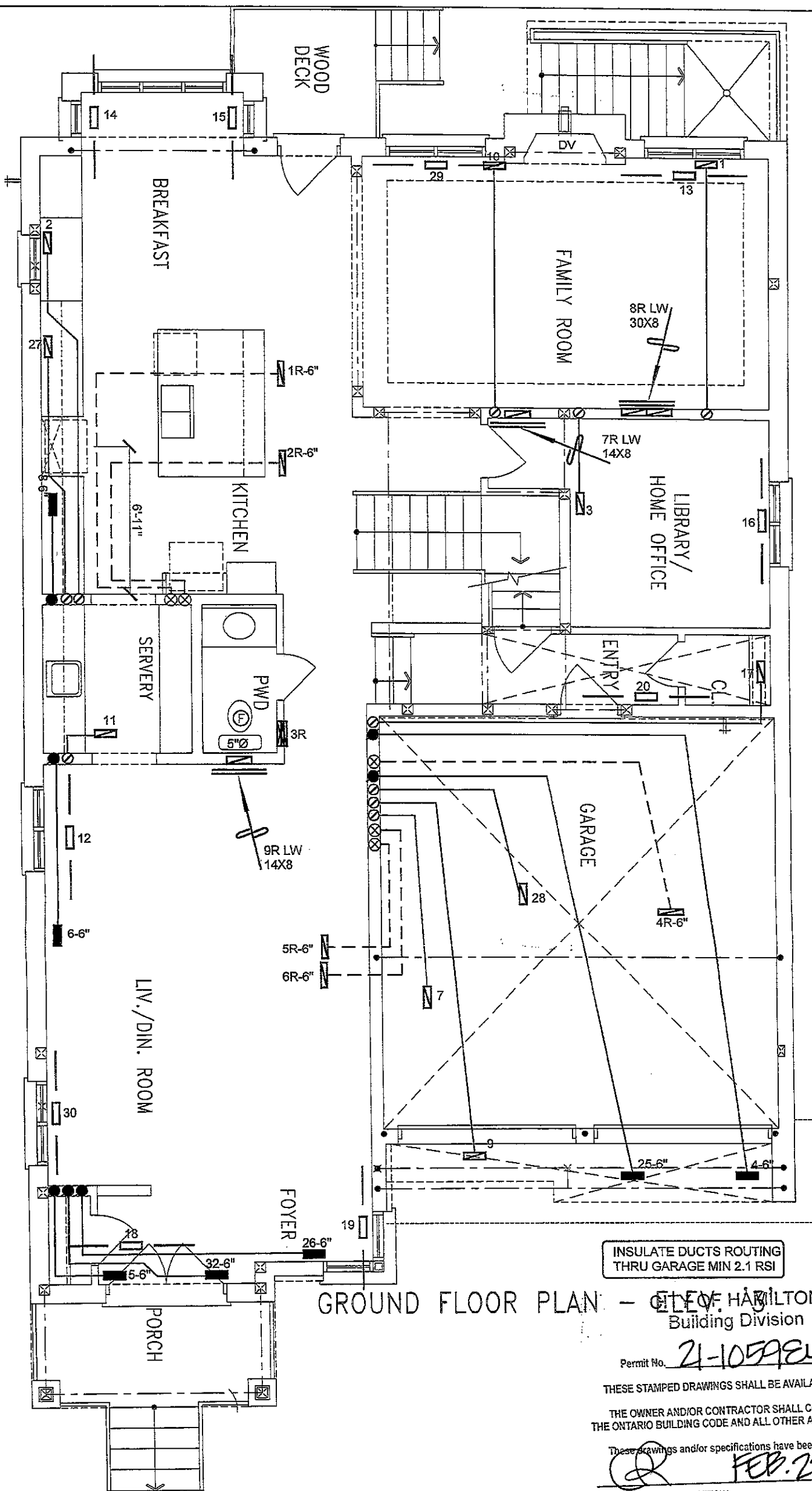
ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD. AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND
USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS 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 175
MOUNTAINASH 6 3370 sqft**

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@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 58954 BTU/H UNIT DATA		# OF RUNS	S/A	R/A	FANS
MAKE	GOODMAN	3RD FLOOR			
MODEL	GMEC960804CNA	2ND FLOOR	17	6	4
INPUT	80 MBTU/H	1ST FLOOR	10	3	2
OUTPUT	76.8 MBTU/H	BASEMENT	5	1	0
COOLING	3.5 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	1504 cfm @ 0.6" w.c.				

Sheet Title
**BASEMENT
HEATING
LAYOUT**
Date DEC/2020
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 88536



GROUND FLOOR PLAN - CITY OF HAMILTON Building Division

Permit No. 21-105984
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] FEB. 23/21
DATE

LOT 175
WUB
CSA-F280-12
PACKAGE A1

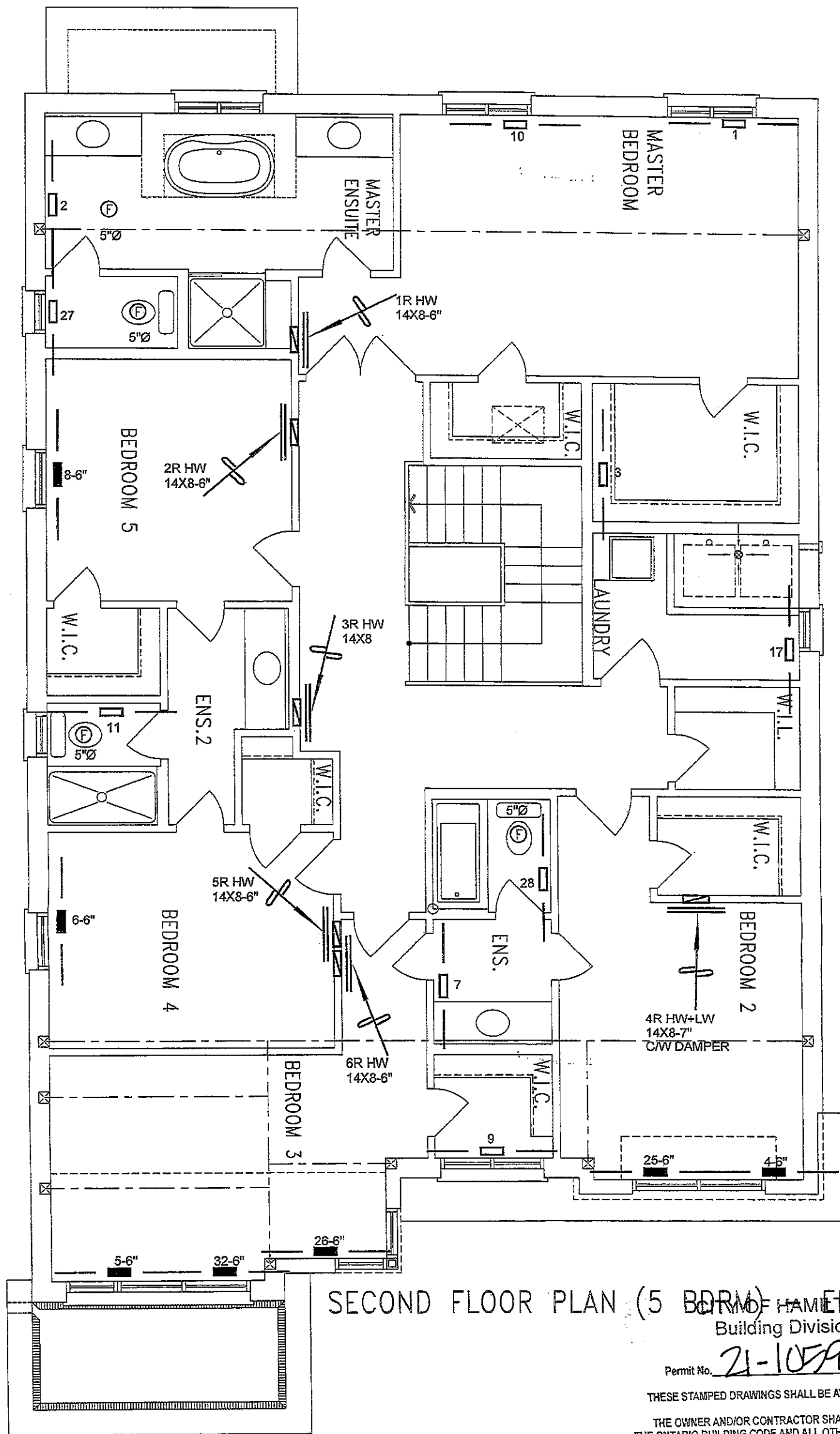
I, MICHAEL O'Rourke HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 32.5 OF THE BUILDING CODE.
[Signature]
Michael O'Rourke BCIN# 19669
HVAC DESIGNS LTD.

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

REVISIONS

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		 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.hvacdsgns.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			
LOT 175 MOUNTAINASH 6 3370 sqft			Date DEC/2020
			Scale 3/16" = 1'-0"
			BCIN# 19669
			LO# 88536



SECOND FLOOR PLAN (5 BDRM) - HAMILTON, ONT.

Building Division
Permit No. 21-105904
THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAWS
These drawings and/or specifications have been reviewed by
FEB. 23/21

LOT 175
WUB
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, BCIN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND						FOR CHIEF BUILDING OFFICIAL		DATE	
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	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

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		 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.hvacdsgns.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			Date DEC/2020		
LOT 175 MOUNTAINASH 6 3370 sqft			Scale 3/16" = 1'-0"		
			BCIN# 19669		
			LO# 88536		