

SITE NAME: RUSSEL GARDENS PHASE 3				LOT 14				DATE: Aug-20				WINTER NATURAL AIR CHANGE RATE 0.373				HEAT LOSS AT °F, 71				CSA-F280-12			
BUILDER: GREENPARK HOMES				TYPE: MOUNTAINASH 4				GFA: 3225				SUMMER NATURAL AIR CHANGE RATE 0.134				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	WIC					S-ENS							
FACTORS				34	26	44	14	30	13	6	10					6							
GRS.WALL AREA	LOSS	GAIN		9	9	9	9	9	9	9	9					9							
GLAZING				306	225	396	126	270	117	54	90					54							
NORTH	19.8	16.0	0	0	0	14	277	224	0	0	0	0	0	0	0	7	138	112					
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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
WEST	19.8	41.6	36	712	1496	23	455	956	0	0	0	0	0	0	0	0	0	0					
SKYL.T.	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	270	1119	283	188	779	141	324	1343	244	110	458	83	213	883	160	101	419	76	47	195	35
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	0	0	0	0	0
EXPOSED CLG	1.2	0.6	363	433	213	192	229	113	167	199	98	251	299	147	196	234	115	200	238	118	96	114	58
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS				0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS				2264		1740	3090	1235	2806	973	804					739							
SUB TOTAL HT GAIN					1912	1433	3380	515	2762	592	1041					263							
LEVEL FACTOR / MULTIPLIER	0.20	0.29		0.20	0.29	0.20	0.29	0.20	0.29	0.20	0.29					0.20	0.29						
AIR CHANGE HEAT LOSS				650		500	887	355	806	280	231					212							
AIR CHANGE HEAT GAIN					125	94	221	34	181	39	68					17							
DUCT LOSS				0	0	398	169	381	0	0	0					96							
DUCT GAIN				0	0	423	142	382	0	0	0					28							
HEAT GAIN PEOPLE	240		2	480	0	0	0	1	240	1	240					0							
HEAT GAIN APPLIANCES/LIGHTS				633	0	633	633	633	633	633	633					0							
TOTAL HT LOSS BTU/H				2914		2239	4375	1745	3973	1253	1635					1847							
TOTAL HT GAIN x 1.3 BTU/H				4086		1986	6054	2033	5456	1954	1442					401							

ROOM USE	EXP. WALL	CLG. HT.		FAM	L/D	K/B	L/H	LND	W/R	FOY					WOB	BAS
FACTORS				34	24	37	18	8	26	42					46	146
GRS.WALL AREA	LOSS	GAIN		11	11	11	11	9	12	11					9	9
GLAZING				374	284	407	198	72	312	462					414	876
NORTH	19.8	16.0	0	168	128	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	0	0	0	0
SOUTH	19.8	24.9	0	0	0	33	652	822	0	0	0	0	0	0	0	0
WEST	19.8	41.6	44	870	1928	0	0	0	73	1443	3033	0	0	0	0	0
SKYL.T.	34.6	101.5	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
NET EXPOSED WALL	4.1	0.8	322	1335	242	231	958	174	322	1335	242	186	771	140	65	269
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	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	120	143	71	0	0
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	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	0	0	0	0
BASEMENT/CRAWL HEAT LOSS				0	0	0	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	0	0	0
SUBTOTAL HT LOSS				2363		1610	3059	1008	551	1789					2781	
SUB TOTAL HT GAIN					2198	995	3326	439	294	411					3738	
LEVEL FACTOR / MULTIPLIER	0.30	0.50		0.30	0.50	0.30	0.50	0.30	0.50	0.30	0.50				0.50	1.25
AIR CHANGE HEAT LOSS				1182		906	1531	505	158	895					19518	
AIR CHANGE HEAT GAIN					144	65	217	29	19	27					294	
DUCT LOSS				0	0	0	0	0	0	0					0	
DUCT GAIN				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				633	633	633	633	633	633	633					0	
TOTAL HT LOSS BTU/H				3545		2416	4590	1613	709	2584					3643	
TOTAL HT GAIN x 1.3 BTU/H				3867		2201	5430	1430	1229	569					4880	

CITY OF HAMILTON
Building Division

20-199355

STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE

THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH

THE CITY OF HAMILTON BUILDING CODE AND ALL OTHER APPLICABLE LAWS

The drawings and/or specifications have been reviewed by

JAN 15 2021

FOR THE BUILDING OFFICIAL

DATE

TOTAL HEAT GAIN BTU/H: 46966 TONS: 3.91 LOSS DUE TO VENTILATION LOAD BTU/H: 1515 STRUCTURAL HEAT LOSS: 67627 TOTAL COMBINED HEAT LOSS BTU/H: 59142

SITE NAME: RUSSEL GARDENS PHASE 3
BUILDER: GREENPARK HOMES

LOT 14
TYPE: MOUNTAINASH 4

DATE: Aug-20

GFA: 3225 LO# 87361

HEATING CFM 1504 COOLING CFM 1504
TOTAL HEAT LOSS 57,627 TOTAL HEAT GAIN 46,591
AIR FLOW RATE CFM 26.1 AIR FLOW RATE CFM 32.28

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

#*GOODMAN
GMEC960804CNA 80
FAN SPEED LOW 868
MEDIUM 978
MEDIUM HIGH 1112
HIGH 1615

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

DESIGN CFM = 1504
CFM @ .6" E.S.P.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	14	8	5
R/A	0	0	5	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	MBR	ENS	FLEX	BED-2	BED-3	BED-4	ENS-3	FLEX	BED-3	MBR	S-ENS	FAM	L/D	K/B	K/B	L/H	LND	W/R	FOY	WIC	BAS	BAS	BAS	BAS
RM LOSS MBH	1.46	2.24	2.19	1.75	1.99	1.25	0.58	2.19	1.99	1.46	0.52	1.77	2.42	2.30	2.30	1.51	0.71	2.68	4.17	1.03	3.77	3.77	3.77	3.77
CFM PER RUN HEAT	38	58	57	46	52	33	15	57	52	38	14	46	63	60	60	39	19	70	109	27	98	98	98	98
RM GAIN MBH	2.05	1.99	3.03	2.03	2.73	1.95	0.37	3.03	2.73	2.05	0.20	1.93	2.20	2.71	2.71	1.43	1.23	0.57	1.01	1.44	1.41	1.41	1.41	1.41
CFM PER RUN COOLING	66	64	98	86	88	63	12	98	88	66	6	62	71	88	88	46	40	18	33	47	48	46	46	46
ADJUSTED PRESSURE	0.17	0.17	0.16	0.17	0.16	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.15	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	32	63	51	56	61	46	49	58	49	38	46	26	25	38	44	40	23	47	48	52	54	29	24	41
EQUIVALENT LENGTH	130	150	160	140	100	210	200	130	190	100	130	120	140	120	120	140	160	140	110	130	120	110	130	130
TOTAL EFFECTIVE LENGTH	162	213	211	196	161	256	249	188	239	138	176	146	165	158	164	180	183	187	158	182	174	139	154	171
ADJUSTED PRESSURE	0.11	0.08	0.08	0.09	0.1	0.07	0.07	0.09	0.07	0.12	0.1	0.12	0.1	0.1	0.1	0.1	0.09	0.09	0.1	0.09	0.12	0.11	0.09	0.09
ROUND DUCT SIZE	5	5	6	5	6	5	4	6	6	5	4	5	5	6	6	4	4	5	6	5	6	6	6	6
HEATING VELOCITY (ft/min)	279	426	291	338	265	242	172	291	265	279	161	338	463	306	306	447	218	514	556	198	500	500	500	500
COOLING VELOCITY (ft/min)	485	470	500	485	449	463	138	500	449	485	69	455	521	449	449	528	459	132	168	345	235	235	235	235
OUTLET GRILL SIZE	3X10	3X10	4X10	3X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	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	26	27
ROOM NAME	S-ENS	BAS	FAM
RM LOSS MBH	0.52	3.77	1.77
CFM PER RUN HEAT	14	98	46
RM GAIN MBH	0.20	1.41	1.93
CFM PER RUN COOLING	6	46	62
ADJUSTED PRESSURE	0.17	0.16	0.17
ACTUAL DUCT LGH	46	27	27
EQUIVALENT LENGTH	140	110	120
TOTAL EFFECTIVE LENGTH	186	137	147
ADJUSTED PRESSURE	0.09	0.12	0.12
ROUND DUCT SIZE	4	6	5
HEATING VELOCITY (ft/min)	161	500	338
COOLING VELOCITY (ft/min)	69	235	455
OUTLET GRILL SIZE	3X10	4X10	3X10
TRUNK	E	C	C

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	TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	201	0.08	7.7	10	X	8	TRUNK G	0	0.00	0	0	TRUNK O	0	0.05	0	0	8	TRUNK X	1144	0.05	16.6	32	8
TRUNK B	218	0.09	7.7	10	X	8	TRUNK H	0	0.00	0	0	TRUNK P	0	0.05	0	0	8	TRUNK Y	595	0.05	13	20	8
TRUNK C	802	0.08	12.9	20	X	8	TRUNK I	0	0.00	0	0	TRUNK Q	0	0.05	0	0	8	TRUNK Z	0	0.05	0	0	8
TRUNK D	460	0.07	10.8	14	X	8	TRUNK J	0	0.00	0	0	TRUNK R	0	0.05	0	0	8	DROP	1504	0.05	18.4	24	14
TRUNK E	701	0.07	12.7	18	X	8	TRUNK K	0	0.00	0	0	TRUNK S	0	0.05	0	0	8						
TRUNK F	0	0.00	0	0	X	8	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						
												TRUNK X	1144	0.05	16.6	32	8						
												TRUNK Y	595	0.05	13	20	8						
												TRUNK Z	0	0.05	0	0	8						

RETURN AIR #	1	2	3	4	5	6	7																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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TYPE: MOUNTAINASH 4
SITE NAME: RUSSEL GARDENS PHASE 3

LO # 87361
LOT 14

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	3 @ 10.6 cfm	31.8 cfm
Kitchen & Bathrooms	5 @ 10.6 cfm	53 cfm
Other Rooms	8 @ 10.6 cfm	84.8 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	79.5	cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.6.
Total Ventilation Capacity	212	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	132.5	cfm

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

PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
79.5 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
S-ENS	FV-05-11VK1	50	☒	0.3
W/R	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	☒ 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 #	001820
Date:	August-20

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

LO#: 87361

Model: MOUNTAINASH 4

Builder: GREENPARK HOMES

Date: 28/08/2020

Volume Calculation
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
8smt	1416	9	12744
First	1416	11	15576
Second	1809	9	16281
Thrd	0	9	0
Fourth	0	9	0
Total:			44,601.0 ft³
Total:			1263.0 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.373
SUMMER NATURAL AIR CHANGE RATE	0.134

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

$$HL_{alrb} = LR_{alrh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$$

$$0.373 \times 350.82 \times 39^\circ\text{C} \times 1.2 = 6165 \text{ W}$$

$$= 21036 \text{ Btu/h}$$

6.2.6 Sensible Gain due to Air Leakage

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

$$0.134 \times 350.82 \times 7^\circ\text{C} \times 1.2 = 400 \text{ W}$$

$$= 1364 \text{ Btu/h}$$

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

$$80 \text{ CFM} \times 71^\circ\text{F} \times 1.08 \times 0.25 = 1515 \text{ Btu/h}$$

6.2.7 Sensible heat Gain due to Ventilation

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

$$80 \text{ CFM} \times 13^\circ\text{F} \times 1.08 \times 0.25 = 275 \text{ Btu/h}$$

5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)

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

Level	Level Factor (LF)	HLairv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HLlevel)	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.5	21,036	8,317	1.265
2	0.3		12,611	0.500
3	0.2		14,649	0.287
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 4	LOT 14	BUILDER: GREENPARK HOMES
SFQT: 3225	LO# 87361	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):	44601.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
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: 60.0 ft	WIDTH: 36.0 ft	EXPOSED PERIMETER:	146.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	46.0 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	-

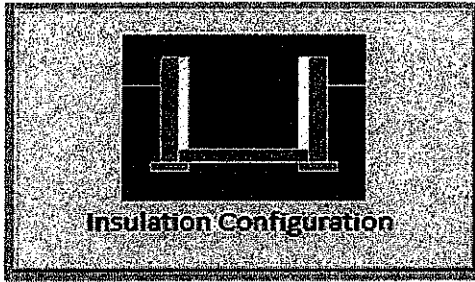
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

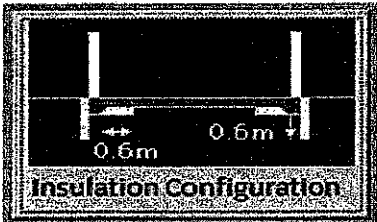
Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	
Floor Width (m):	11.0	
Exposed Perimeter (m):	44.5	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.55	
Window Area (m ²):	1.1	
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):		734

TYPE: MOUNTAINASH 4
LO# 87361

LOT 14

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):	1.5	
Width (m):	11.0	
Exposed Perimeter (m):	14.0	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):	180	

TYPE: MOUNTAINASH 4
LO# 87361

LOT 14

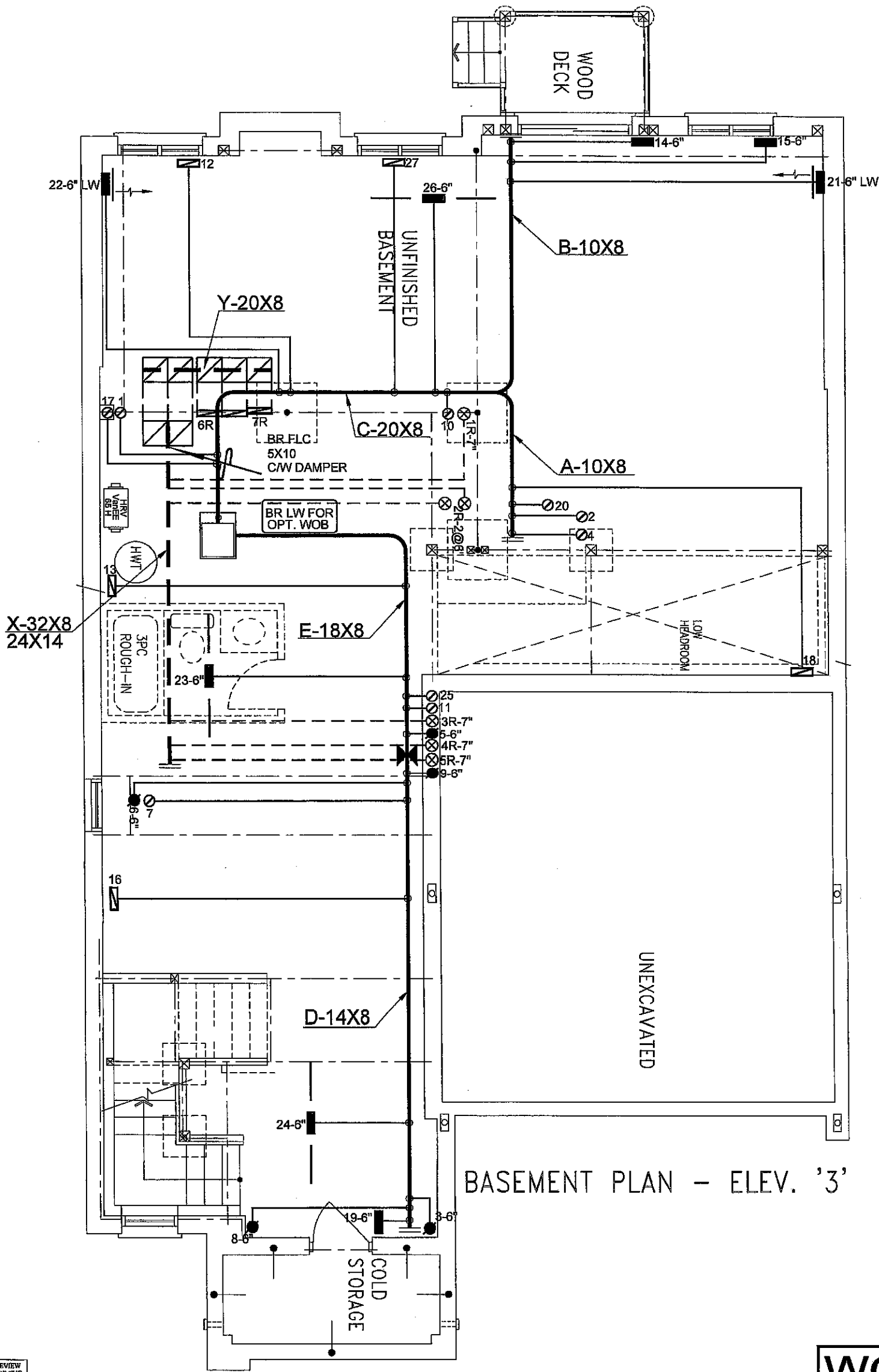
Air Infiltration Residential Load Calculator

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):	8.84			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1263.0			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1683.6 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	37.5	37.5		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.373			
Cooling Air Leakage Rate (ACH/H):	0.134			

TYPE: MOUNTAINASH 4
LO# 87361

LOT 14



BASEMENT PLAN – ELEV. '3'

WOB CSA-F280-12
LOT 14 PACKAGE A1

I MICHAEL O'DRISCOLL HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.32.3 OF THE BUILDING CODE.
Michael O'Driscoll
Michael O'Driscoll, 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	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
Project Name
**RUSSEL GARDENS PHASE 3
HAMILTON, ONTARIO**

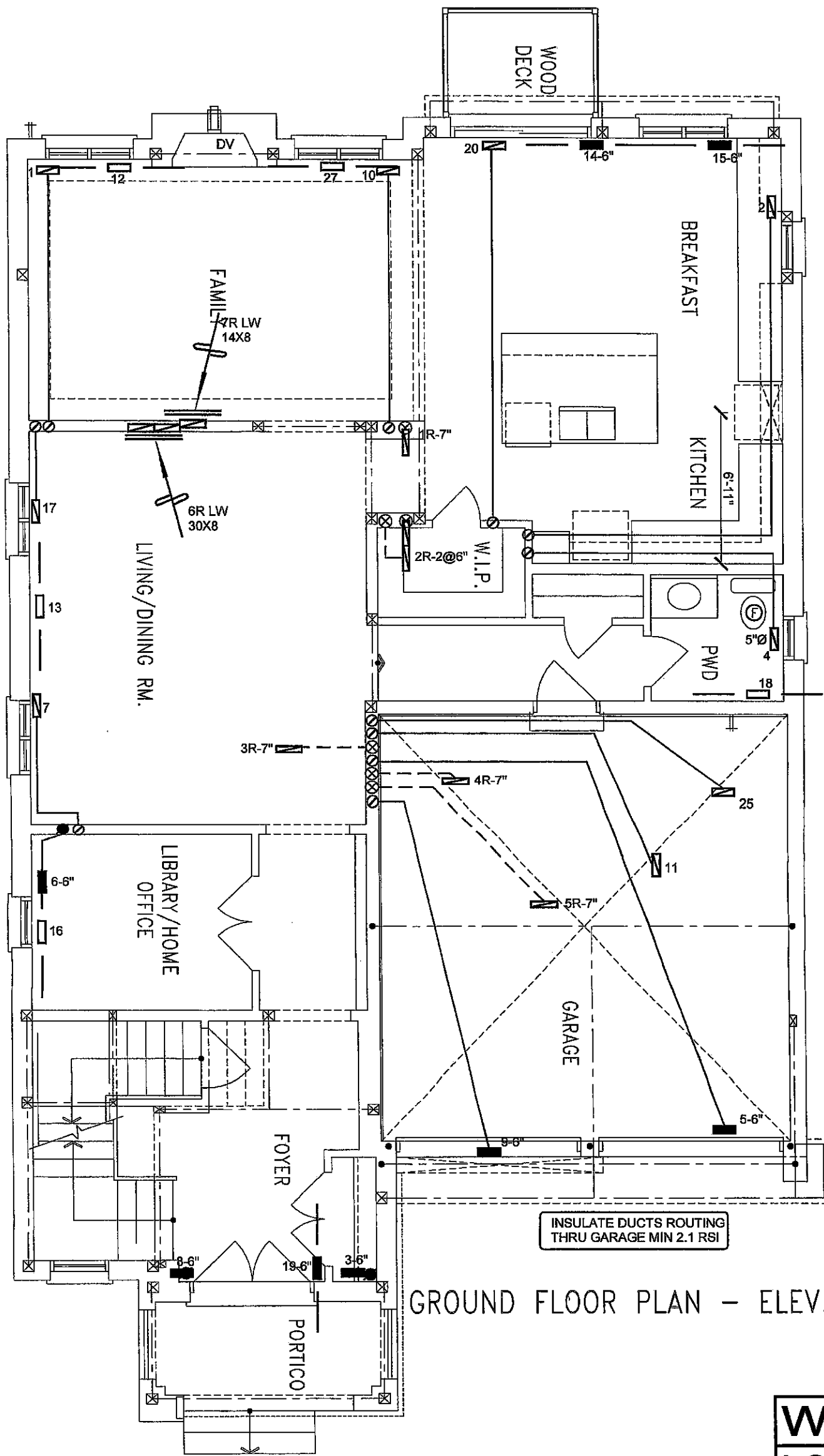
**LOT 14
MOUNTAINASH 4 3225 sqft**

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.

HEAT LOSS 59142 BTU/H UNIT DATA		# OF RUNS	S/A	R/A	FANS	Sheet Title BASEMENT HEATING LAYOUT			
MAKE	GOODMAN	3RD FLOOR							
MODEL		2ND FLOOR	14	5	3				
GMEC960804CNA		1ST FLOOR	8	2	2				
INPUT	80	MBTU/H	BASEMENT	5	1	0	Date	AUG/2020	
OUTPUT	76.8	MBTU/H	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					Scale	3/16" = 1'-0"
COOLING	4.0	TONS						BCIN# 19669	
FAN SPEED	1504	cfm @ 0.6" w.c.						LO# 87361	



GROUND FLOOR PLAN - ELEV. '3'

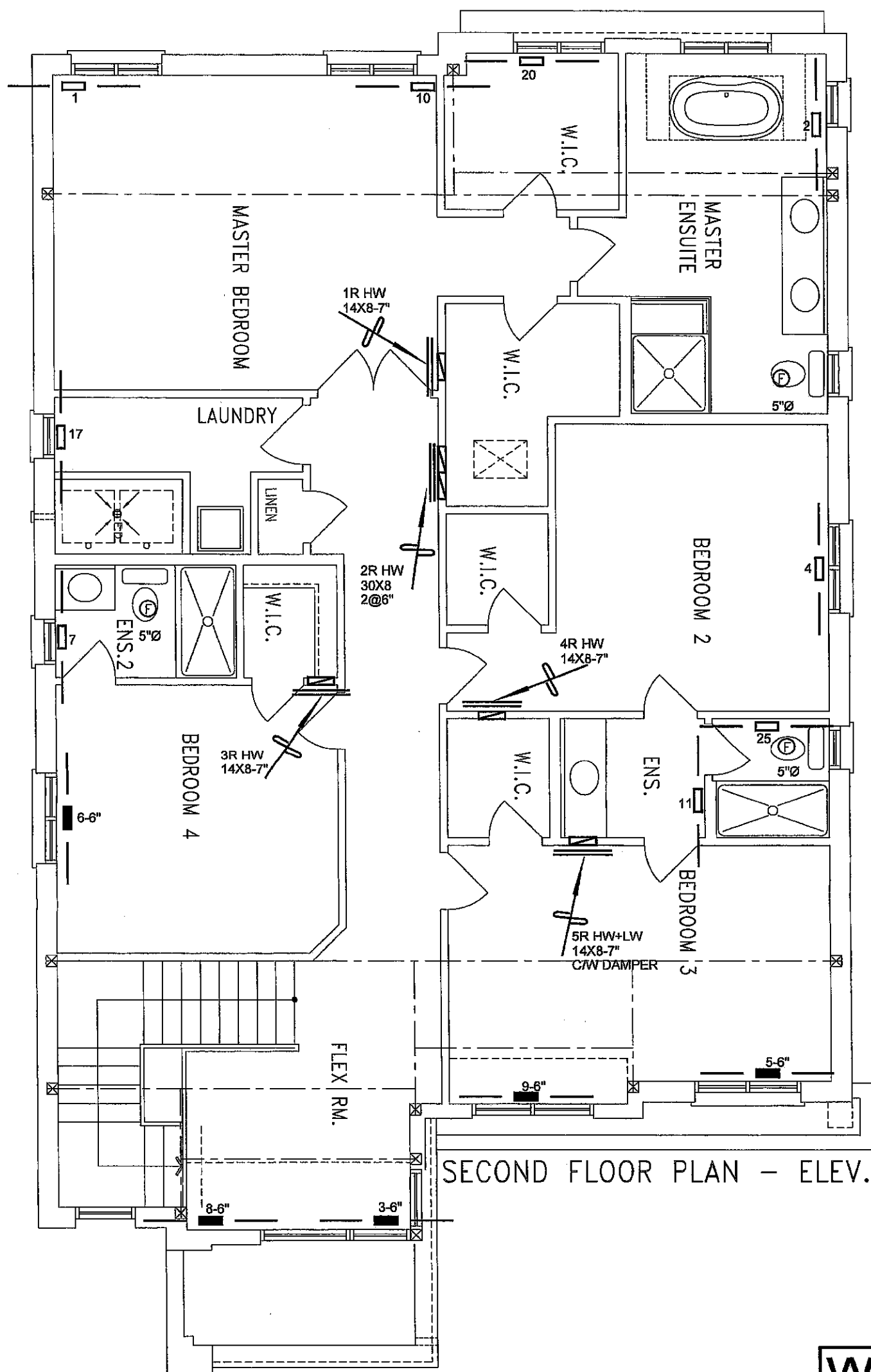
I MICHAEL O'Rourke HAVE REVIEW
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C, 3.2.3 OF THE
BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

WOB CSA-F280-12
LOT 14 PACKAGE A1

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	

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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	
Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO			Date AUG/2020	
LOT 14 MOUNTAINASH 4 3225 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
		LO#	87361	



SECOND FLOOR PLAN – ELEV. '3'

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

WOB CSA-F280-12
LOT 14 PACKAGE A1

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	

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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 SECOND FLOOR HEATING LAYOUT	
Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO			Date AUG/2020	
LOT 14 MOUNTAINASH 4 3225 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
		LO#	87361	