

SITE NAME: RUSSEL GARDENS PHASE 3

LOT 236

Elev 1

DATE: Oct-20

WINTER NATURAL AIR CHANGE RATE 0.319

HEAT LOSS AT °F. 71

CSA-F280-12

BUILDER: GREENPARK HOMES

TYPE: MOUNTAINASH 12

GFA: 3116

LO# 87753

SUMMER NATURAL AIR CHANGE RATE 0.114

HEAT GAIN AT °F. 13

SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	MBR	ENS	WIC	BED-2	BED-3	BED-4	S-ENS	WIC-3	FLEX	ENS-3
EXP. WALL				42	25	8	10	26	29	5	5	16	5
CLG. HT.				9	9	9	9	9	9	9	9	9	9
GRS.WALL AREA				378	225	72	98	234	261	54	45	144	45
GLAZING				LOSS GAIN	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	0	0	0	0	7	138	112	0
EAST	19.8	41.6	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
WEST	19.8	41.6	42	830	1745	24	474	997	0	0	0	42	830
SKYL.T.	34.6	101.5	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
NET EXPOSED WALL	4.1	0.8	336	1393	253	174	721	131	72	298	54	72	298
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.2	0.6	348	416	204	150	179	88	105	125	62	210	250
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0	73	187	34	171	405
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				2638	1908	424	1092	2304	2040	729	507	1623	450
SUB TOTAL HT GAIN													
LEVEL FACTOR / MULTIPLIER	0.20	0.24		0.20	0.24		0.20	0.24		0.20	0.24		0.20
AIR CHANGE HEAT LOSS				645	467	104	267	563	499	178	124	397	110
AIR CHANGE HEAT GAIN					135	116	7	31	135	115	16	30	80
DUCT LOSS				0	0	0	136	287	0	91	63	0	0
DUCT GAIN				0	0	0	0	129	309	0	28	62	0
HEAT GAIN PEOPLE	240	2		480	0	0	0	240	1	240	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				519	0	0	0	519	0	0	0	0	0
TOTAL HT LOSS BTU/H				3283	2375	527	1495	3164	2539	997	694	2019	551
TOTAL HT GAIN x 1.3 BTU/H				4338	2605	160	1843	4420	3574	395	742	2475	438

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	FAM	DIN	K/D	L/H	LND	W/R	FOY				BAS
EXP. WALL				36	19	37	26	0	40	21				178
CLG. HT.				11	11	11	11	9	12	11				8
GRS.WALL AREA				336	209	407	286	0	480	231				890
GLAZING				LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN				LOSS GAIN
NORTH	19.8	16.0	0	0	0	0	0	0	7	138	112	0	0	0
EAST	19.8	41.6	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	19.8	24.9	32	633	797	58	1147	1444	0	0	0	0	0	0
WEST	19.8	41.6	23	554	1163	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
DOORS	23.5	4.3	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	336	1393	253	151	626	113	334	1385	251	234	970	176
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	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	0	0	0
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	24	61	30	73	87	43
EXPOSED FLOOR	2.4	0.4	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
SLAB ON GRADE HEAT LOSS				0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS				2579	1773	2828	2059	87	2485	1824				
SUB TOTAL HT GAIN														
LEVEL FACTOR / MULTIPLIER	0.30	0.37		0.30	0.37		0.30	0.37		0.30	0.37			
AIR CHANGE HEAT LOSS				964	662	1057	779	21	929	682				
AIR CHANGE HEAT GAIN					96	202	129	3	33	26				
DUCT LOSS				0	0	0	0	0	0	0				
DUCT GAIN				0	0	0	0	0	0	0				
HEAT GAIN PEOPLE	240	0		0	0	0	0	0	0	0				
HEAT GAIN APPLIANCES/LIGHTS				519	519	519	519	0	0	0				
TOTAL HT LOSS BTU/H				3543	2435	3984	2829	108	3414	2505				
TOTAL HT GAIN x 1.3 BTU/H				3728	2824	5207	3573	734	741	633				

TOTAL HEAT GAIN BTU/H: 40744

TONS: 3.40

LOSS DUE TO VENTILATION LOAD BTU/H: 1515

STRUCTURAL HEAT LOSS: 53382

TOTAL COMBINED HEAT LOSS BTU/H: 54897

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: 19669

MICHAEL O'ROURKE

SITE NAME: RUSSEL GARDENS PHASE 3
BUILDER: GREENPARK HOMES

LOT 236
TYPE: MOUNTAINASH 12

DATE: Oct-20

GFA: 3116 LO# 87758

HEATING CFM 1504 COOLING CFM 1504
TOTAL HEAT LOSS 53,382 TOTAL HEAT GAIN 40,469
AIR FLOW RATE CFM 28.17 AIR FLOW RATE CFM 37.16

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

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

#*GOODMAN
GMEC960804CNA 80
FAN SPEED
LOW 868
MEDLOW 978
MEDIUM 1112
MEDIUM HIGH 1504
HIGH 1615

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

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

TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	15	9	5
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	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	WIC-3	FLEX	MBR	ENS-3	FAM	DIN	K/D	K/D	L/H	LND	W/R	FOY	L/H	BAS	BAS	BAS	BAS
RM LOSS MBH	1.84	2.38	0.53	1.49	1.58	1.27	0.50	0.69	2.02	1.64	0.56	1.77	2.43	1.94	1.94	1.41	3.41	2.51	1.41	3.40	3.40	3.40	3.40	3.40
CFM PER RUN HEAT	46	67	15	42	44	36	14	20	57	46	16	50	69	55	55	40	3	96	71	40	96	96	96	96
RM GAIN MBH	2.17	2.61	0.16	1.84	2.21	1.79	0.20	0.74	2.47	2.17	0.50	1.86	2.82	2.60	2.60	1.79	0.73	0.74	0.63	1.79	0.40	0.40	0.40	0.40
CFM PER RUN COOLING	81	97	6	68	82	66	7	28	92	81	19	69	105	97	97	66	27	28	24	66	15	15	15	15
ADJUSTED PRESSURE	0.16	0.16	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.16	0.17	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	37	41	31	31	54	57	46	48	41	28	57	32	30	23	16	49	19	19	42	35	20	24	31	35
EQUIVALENT LENGTH	170	120	190	190	140	180	170	130	150	120	210	140	130	120	110	130	110	160	180	130	150	150	150	180
TOTAL EFFECTIVE LENGTH	207	161	221	221	194	237	216	178	191	148	267	172	160	143	126	179	129	179	222	165	150	174	181	215
ADJUSTED PRESSURE	0.08	0.1	0.08	0.08	0.08	0.07	0.08	0.1	0.08	0.11	0.06	0.1	0.11	0.13	0.13	0.1	0.13	0.09	0.08	0.1	0.11	0.09	0.09	0.08
ROUND DUCT SIZE	6	6	4	5	6	6	4	4	6	5	4	5	6	6	6	5	4	6	5	5	6	6	6	6
HEATING VELOCITY (ft/min)	235	342	172	308	224	184	161	229	291	338	184	367	352	280	280	294	34	489	521	294	489	489	489	489
COOLING VELOCITY (ft/min)	413	495	69	499	418	337	80	321	469	595	218	507	535	495	495	485	310	143	176	485	76	76	76	76
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	D	C	C	B	B	A	B	B	C	D	A	C	C	D	D	A	E	B	A	A	D	C	C	A

RUN #	25	26	27	28	29
ROOM NAME	BAS	BED-3	BED-4	S-ENS	FAM
RM LOSS MBH	3.40	1.58	1.27	0.50	1.77
CFM PER RUN HEAT	96	44	36	14	50
RM GAIN MBH	0.40	2.21	1.79	0.20	1.86
CFM PER RUN COOLING	15	82	66	7	69
ADJUSTED PRESSURE	0.16	0.16	0.17	0.17	0.17
ACTUAL DUCT LGH	45	49	55	46	29
EQUIVALENT LENGTH	120	170	200	110	150
TOTAL EFFECTIVE LENGTH	165	219	255	156	179
ADJUSTED PRESSURE	0.1	0.07	0.07	0.11	0.1
ROUND DUCT SIZE	6	6	6	4	5
HEATING VELOCITY (ft/min)	489	224	184	161	367
COOLING VELOCITY (ft/min)	76	418	337	80	507
OUTLET GRILL SIZE	4X10	4X10	4X10	3X10	3X10
TRUNK	A	B	A	B	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			VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)		
TRUNK A	431	0.06	11	14	x	8	554		TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0	
TRUNK B	705	0.06	13.2	20	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	500	0.08	10.8	14	x	8	643		TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0	
TRUNK D	298	0.08	8.9	12	x	8	447		TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.05	0	0	x	8	0	
TRUNK E	801	0.08	12.9	20	x	8	721		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	TRUNK T	0	0.05	0	0	x	8	0	
																	TRUNK U	0	0.05	0	0	x	8	0	
																	TRUNK V	0	0.05	0	0	x	8	0	
																	TRUNK W	0	0.05	0	0	x	8	0	
																	TRUNK X	1504	0.05	18.4	32	x	10	677	
																	TRUNK Y	935	0.05	15.4	28	x	8	601	
																	TRUNK Z	590	0.05	12.9	20	x	8	531	
																	DROP	1504	0.05	18.4	24	x	14	645	

RETURN AIR #	1	2	3	4	5	6	7	8								BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	95	260	85	75	75	85	155	435	0	0	0	0	0	0	0	239
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	
ACTUAL DUCT LGH.	34	49	56	57	63	64	33	31	1	1	1	1	1	1	1	15
EQUIVALENT LENGTH	155	225	175	220	215	195	200	195	0	0	0	0	0	0	0	160
TOTAL EFFECTIVE LH	189	274	231	277	278	259	233	226	1	1	1	1	1	1	1	175
ADJUSTED PRESSURE	0.08	0.05	0.06	0.05	0.05	0.06	0.06	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.08
ROUND DUCT SIZE	5.8	9.5	6	6	6	6	7.5	10.6	0	0	0	0	0	0	0	8.2
INLET GRILL SIZE	8	X	8	8	8	8	8	8	0	0	0	0	0	0	0	8
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	30	14	14	14	14	14	30	0	0	0	0	0	0	0	24

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	95	260	85	75	75	85	155	435	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	34	49	56	57	63	64	33	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	155	225	175	220	215	195	200	195	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	189	274	231	277	278	259	233	226	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.08	0.05	0.06	0.05	0.05	0.06	0.06	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	5.8	9.5	6	6	6	6	7.5	10.6	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	30	14	14	14	14	14	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: MOUNTAINASH 12
SITE NAME: RUSSEL GARDENS PHASE 3

LO # 87758
LOT 236

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	6	@ 10.6 cfm	63.6	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	79.5	cfm

SUPPLEMENTAL VENTILATION CAPACITY 9.32.3.5.

Total Ventilation Capacity	190.8	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	111.3	cfm

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

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM	ΔT °F	FACTOR	% LOSS
79.5 CFM	71 F	1.08	0.25

SUPPLEMENTAL FANS PANASONIC

Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	50	✓	0.3
S-ENS	FV-05-11VK1	50	✓	0.3
ENS-3	FV-05-11VK1	50	✓	0.3
W/R	FV-05-11VK1	50	✓	0.3

HEAT RECOVERY VENTILATOR 9.32.3.11.
Model: VANE 65H
165 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: *Michael O'Rourke*
HRAI #: 001820
Date: October-20

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
INDIVIDUAL BCIN: 19689 *Michael O'Rourke* MICHAEL O'ROURKE

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

LO#: 87758

Model: MOUNTAINASH 12

Builder: GREENPARK HOMES

Date: 05/10/2020

Volume Calculation
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1381	8	11048
First	1381	11	15191
Second	1735	9	15615
Third	0	9	0
Fourth	0	9	0
Total:			41,854.0 ft³
Total:			1185.2 m³

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 x 329.21 x 39 °C x 1.2 = 4946 W

= 16876 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 x 329.21 x 7 °C x 1.2 = 321 W

= 1096 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

80 CFM x 71 °F x 1.08 x 0.25 = 1515 Btu/h

6.2.7 Sensible heat Gain due to Ventilation

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

80 CFM x 13 °F x 1.08 x 0.25 = 275 Btu/h

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

$$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$$

Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HL _{clevel})
1	0.5	16,876	8,581	0.983
2	0.3		13,548	0.374
3	0.2		13,801	0.245
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 HLairv = 0

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: MOUNTAINASH 12 LOT 236 BUILDER: GREENPARK HOMES
SFQT: 3116 LO# 87758 SITE: RUSSEL GARDENS PHASE 3

3 Frontier

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:	SOUTH	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 (ft ³):	41854.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	5.0 ft
LENGTH: 52.0 ft	WIDTH: 37.0 ft	EXPOSED PERIMETER:	178.0 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	-

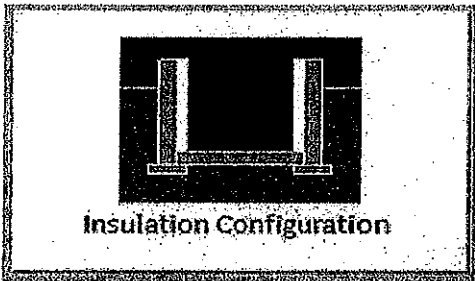
INDIVIDUAL BCIN: 19669

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):	15.8	 Insulation Configuration
Floor Width (m):	11.3	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.4	
Depth Below Grade (m):	1.52	
Window Area (m ²):	1.9	
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):		1738

TYPE: MOUNTAINASH 12
LO# 87758

LOT 236

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):	1185.2		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1579.9 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):	0.319		
Cooling Air Leakage Rate (ACH/H):	0.114		

TYPE: MOUNTAINASH 12
LO# 87758

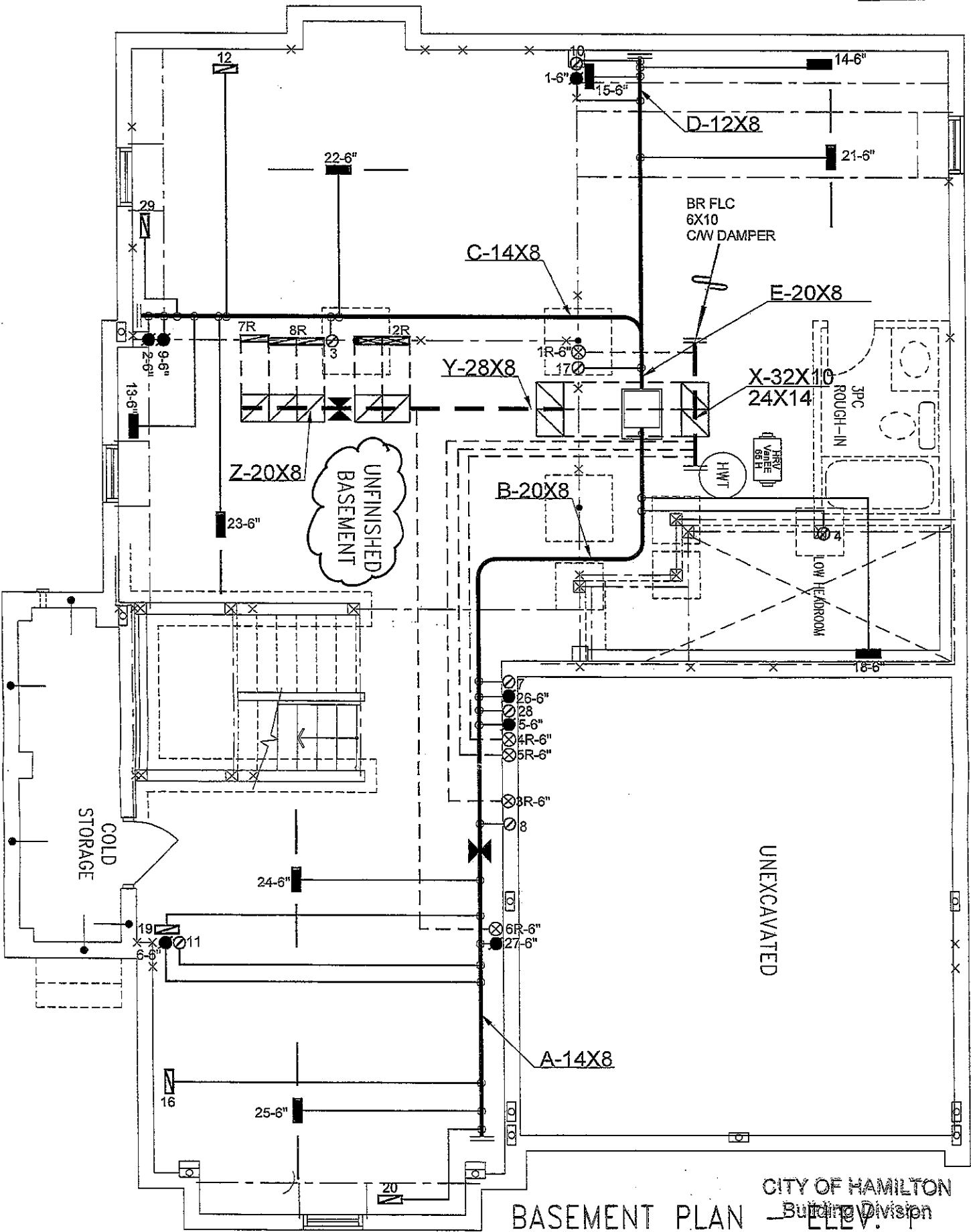
LOT 236

SINGLE FAMILY
DWELLING ONLY

CITY OF HAMILTON
BUILDING DIVISION
Planning & Development Department

FEB 04 2021

REC BY _____ DATE _____
REF'D TO _____ DATE _____



CITY OF HAMILTON
Building Division
BASEMENT PLAN - ELEV. 1

Permit No. 21-106033

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 25 2021
FOR CHIEF BUILDING OFFICIAL DATE

LOT 236
CSA-F280-12
PACKAGE A1

I MICHAEL O'DONNELL HAVE REVIEWED
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C.3.2.5 OF THE
BUILDING CODE.
[Signature]
Michael O'Donnell, BCIN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND						REVISIONS	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	No.	Date
[Symbol]	SUPPLY AIR GRILLE	[Symbol]	6" SUPPLY AIR BOOT ABOVE	[Symbol]	14"x8" RETURN AIR GRILLE	3.	
[Symbol]	SUPPLY AIR GRILLE 6" BOOT	[Symbol]	SUPPLY AIR STACK FROM 2nd FLOOR	[Symbol]	30"x8" RETURN AIR GRILLE	2.	
[Symbol]	SUPPLY AIR BOOT ABOVE	[Symbol]	6" SUPPLY AIR STACK 2nd FLOOR	[Symbol]	FRA- FLOOR RETURN AIR GRILLE	1.	
				[Symbol]	REDUCER	No.	Description

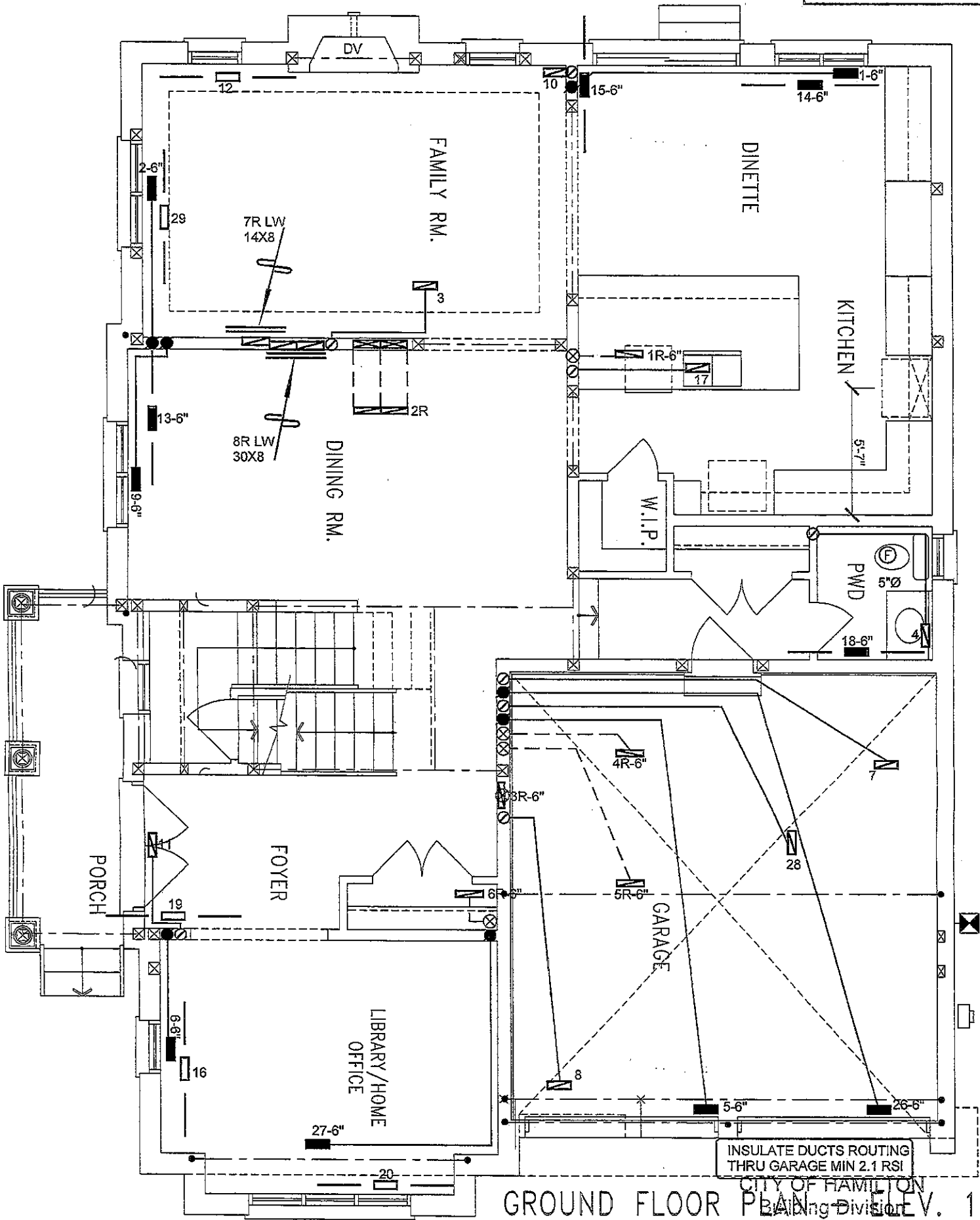
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Client GREENPARK HOMES		HVACDESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdsgns.ca Web: www.hvacdsgns.ca Specializing in Residential Mechanical Design Services	HEAT LOSS 54897 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 OCT/2020	
			MODEL GMEC960804CNA	2ND FLOOR	15	6	4		
			INPUT 80 MBTU/H	1ST FLOOR	9	2	2		
			OUTPUT 76.8 MBTU/H	BASEMENT	5	1	0	Scale 3/16" = 1'-0"	
LOT 236 MOUNTAINASH 12 3116 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.	COOLING 3.5 TONS	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			BCIN# 19669		
			FAN SPEED 1504 cfm @ 0.5" w.c.				LO# 87758		

CITY OF HAMILTON
BUILDING DIVISION
Planning & Development Department

FEB 04 2021

REC BY _____ DATE _____
REF'D TO _____ DATE _____



GROUND FLOOR PLAN ELEV. 1

Permit No. 21-106033

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

FEB 25 2021

LOT 236
CSA-F280-12
PACKAGE A1

I MICHAEL O'Rourke HAVE REVIEWED
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION 6, 12.5 OF THE
BUILDING CODE.

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

HVAC LEGEND								REVISIONS	
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	1.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER		

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Client
GREENPARK HOMES

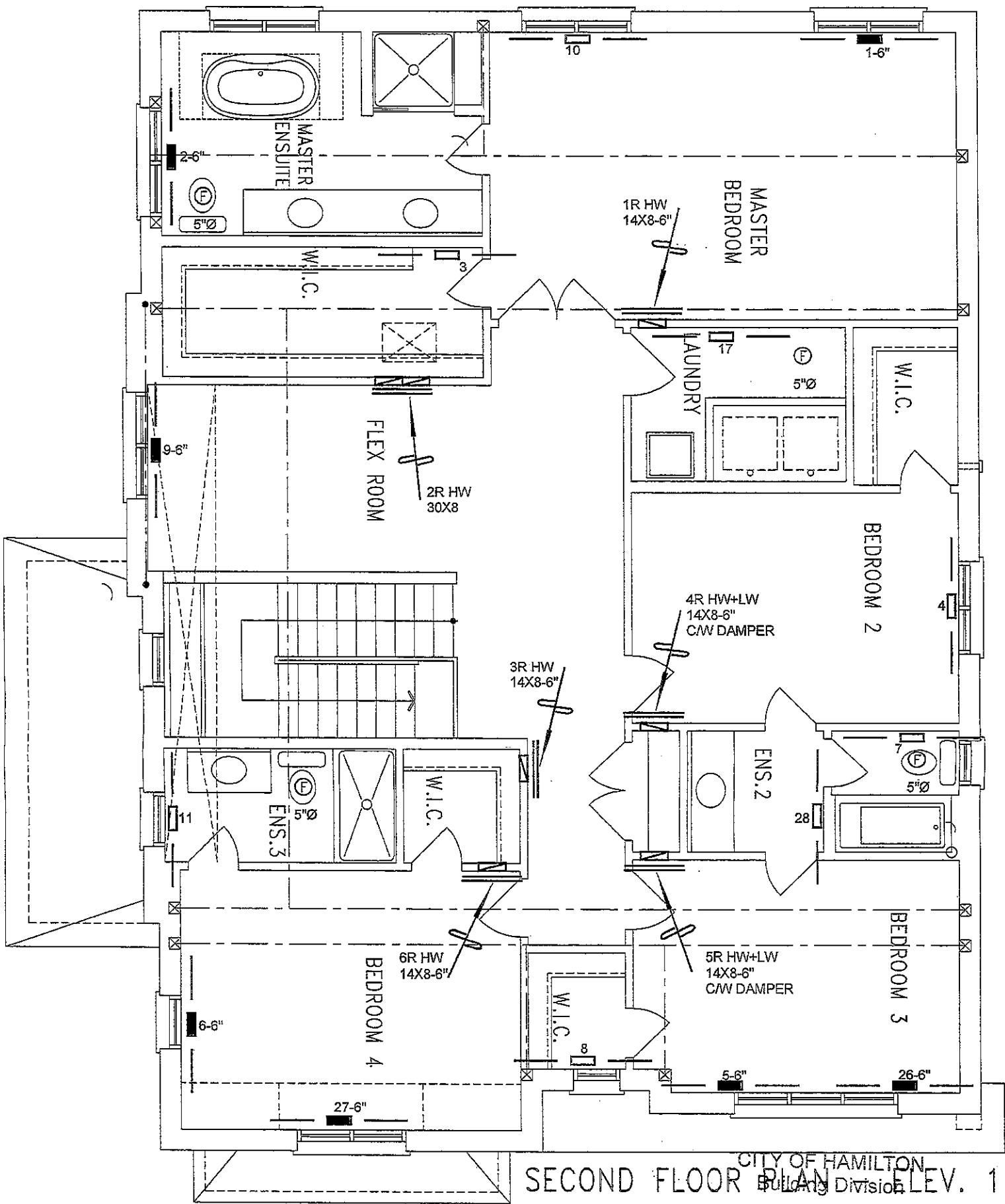
Project Name
**RUSSEL GARDENS PHASE 3
HAMILTON, ONTARIO**

**LOT 236
MOUNTAINASH 12 3116 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@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.

Sheet Title
**FIRST FLOOR
HEATING
LAYOUT**

Date **OCT/2020**
Scale **3/16" = 1'-0"**
BCIN# 19669
LO# 87758



CITY OF HAMILTON
Building Division
SECOND FLOOR PLAN ELEV. 1

Permit No. 21-106033

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

JDC Feb 2021

LOT 236
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.
Michael O'Rourke
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							
No.	Description	Date					
3.							
2.							
1.							

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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	Sheet Title SECOND FLOOR HEATING LAYOUT	
Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO			Date OCT/2020	
LOT 236 MOUNTAINASH 12 3116 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.	Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO# 87758	